

4 | 3 | 2 | 1

DRAWN BY T L GIBSON	REVISIONS					
	REV	ECN NO	DFTSMN	CHKD	APPD	DATE
CHECKED	A	3596	1.7	6/2		
APPROVED	RELEASED					
PROJ ENGR C.B CARLSON						

C-11896420  
A

# B5000 PROCESSOR

## FLOW CHART INDEX

INDEX NO.

- 1.00.0 : WORD MODE OPERATOR INDEX, C-11890696
- 1.00.1 : CHARACTER MODE OPERATOR INDEX, C-11834777
- 1.00.2 : CONTROL STATE AND MISCELLANEOUS OPERATORS INDEX, C-11890688
- 1.00.3 : GENERAL INFORMATION INDEX, C-11896438

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE PROCESSOR FLOW CHART INDEX	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11896420
			SYSTEM B5000	A REV

DRAWN BY P. TUNSTALL	REVISIONS			
CHECKED <i>C.B. Carlson 10-22-64</i>	REV. NO. B 6474	ECN NO. PRT	DATE 10-22-64	APPROVED <i>C.B. Carlson 10-22-64</i>
APPROVED <i>C.B. Carlson 10-22-64</i>	REDRAWN			
PROJ ENGR C. B. CARLSON				

C-11890696

WORD MODE OPERATOR INDEX

OPERATOR	LEVEL	OCTAL CODE	INDEX NUMBER
<b>ARITHMETIC OPERATORS</b>			
SINGLE LENGTH ADD	ADIL	0101	1,01.0
SINGLE LENGTH DIVIDE	DVIL	1001	1,05.0
SINGLE LENGTH MULTIPLY	MUIL	0401	1,03.0
SINGLE LENGTH SUBTRACT	SUIL	0301	1,01.0
INTEGER DIVIDE	DV3L	3001	1,07.0
REMAINDER DIVIDE	DV4L	7001	1,08.0
DOUBLE LENGTH ADD	AD2L	0105	1,02.0
DOUBLE LENGTH DIVIDE	DV2L	1005	1,06.0
DOUBLE LENGTH MULTIPLY	MU2L	0405	1,04.0
DOUBLE LENGTH SUBTRACT	SU2L	0305	1,02.0
<b>LOGICAL OPERATORS</b>			
LOGICAL "AND"	LOAL	0415	1,09.0
LOGICAL "OR"	LOOL	0215	1,09.0
LOGICAL "EQUIVALENCE"	LOEL	1015	1,11.0
LOGICAL "NEGATE"	LONL	0115	1,12.0
<b>RELATIONAL OPERATORS</b>			
B=A	BEQL	4425	1,13.0
B>A	BGEL	0125	1,13.0
B>A	BGAL	0225	1,13.0
B<A	BLEL	4125	1,13.0
B<A	BLAL	4225	1,13.0
B≠A	BNEL	0425	1,13.0
COMPARE FIELD EQUAL	CFEL	XX75	1,21.0
COMPARE FIELD LOW	CFLL	XX71	1,22.0

OPERATOR	LEVEL	OCTAL CODE	INDEX NUMBER
<b>BRANCH OPERATORS</b>			
SYLL. BRANCH FWD. COND.	BFCL	0231	1,14.0
SYLL. BRANCH BKWD. COND.	BBCL	0131	1,14.0
WORD BRANCH FWD. COND.	JFCL	2231	1,14.0
WORD BRANCH BKWD. COND.	JBCL	2131	1,14.0
SYLL. BRANCH FWD. UNCOND.	BFUL	4231	1,15.0
SYLL. BRANCH BKWD. UNCOND.	BBUL	4131	1,15.0
WORD BRANCH FWD. UNCOND.	JFUL	6231	1,15.0
WORD BRANCH BKWD. UNCOND.	JBUL	6131	1,15.0
BRANCH RETURN	RJPL	0135	1,16.0
<b>STORE OPERATORS</b>			
STORE DESTRUCTIVE	BSDL	0421	1,17.0
STORE NONDESTRUCTIVE	BSNL	1021	1,17.0
INTEGER STORE DEST	ISDL	4121	1,18.0
INTEGER STORE NONDEST.	ISNL	4221	1,18.0
COND. INT. STORE DEST.	CSDL	0121	1,18.0
COND. INT. STORE NONDEST.	CSNL	0221	1,18.0
<b>BIT OPERATORS</b>			
DIAL A	DIAL	XX55	1,19.0
DIAL B	DIBL	XX61	1,19.0
TRANSFER BITS	TRFL	XX65	1,20.0
RESET FLAG BIT	RFBL	2015	1,23.0
SET FLAG BIT	SFBL	4015	1,23.0
TEST FLAG BIT	TFBL	2031	1,24.0
RESET SIGN BIT	MSPL	4431	1,25.0
SET SIGN BIT	MSNL	0431	1,25.0
CHANGE SIGN BIT	CSSL	1031	1,25.0

OPERATOR	LEVEL	OCTAL CODE	INDEX NUMBER
<b>SUBROUTINE OPERATORS</b>			
MARK STACK	MSOL	0441	1,26.0
ENTER CHARACTER MODE	ECML	4441	1,26.0
RETURN NORMAL	RNML	0235	1,27.0
RETURN SPECIAL	RSPL	1235	1,27.0
<b>STACK OPERATORS</b>			
EXCHANGE	EXCL	1025	1,28.0
DUPLICATE	DUPL	2025	1,29.0
DELETE TOP OF STACK	DELL	0051	1,33.0
STACK SEARCH FOR FLAG	SSFL	7031	1,25.0
<b>MISCELLANEOUS OPERATORS</b>			
LOAD	LODL	2021	1,30.0
INDEX	INDL	0141	1,31.0
CONSTRUCT OPERAND CALL	MDAL	1241	1,32.0
CONSTRUCT DESCRIPTOR CALL	MDVL	0241	1,32.0
SET VARIANT	VARL	0061	1,19.0
NO OP	NOPL	0055	1,19.0
VARIABLE FIELD ISOLATE	VFIL	1545	1,34.0
F&S REG. SET/STORE	FXSL	2141	1,31.0
LIST LINK LOOKUP	LLLL	2541	1,31.0
<b>INTERROGATE OPERATORS</b>			
INTER. PERIPHERAL STATUS	IPSL	2431	1,24.0
INTER. I/O CHANNEL	TIOL	6431	1,24.0
<b>FIXED FIELD TRANSFERS</b>			
F FIELD TO CORE FIELD	FCXL	1425	1,28.0
F FIELD TO F FIELD	FFXL	3425	1,28.0
CORE FIELD TO C FIELD	CCXL	5425	1,28.0
CORE FIELD TO F FIELD	CFXL	7425	1,28.0
<b>BRANCH ON NONZERO FIELD</b>			
BR. FWD NONDEST.	ZFNL	Y051/X451	1,33.0
BR. BKWD. NONDEST.	ZBNL	X151/X551	1,33.0
BR FWD, DESTRUCTIVE	ZFDL	X251/X651	1,33.0
BR. BKWD DESTRUCTIVE	ZBDL	X351/X751	1,33.0

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ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE WORD MODE OPERATOR INDEX	PAGE
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	C-11890696
				B REV

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1

DRAWN BY <i>T.L. GIBSON</i>		REVISIONS			
CHECKED <i>[Signature]</i>	REV A	ECN NO 3596	DATE	CHKD	APPD
RELEASED					
APPROVED <i>[Signature]</i>	B	ECN 6474	PRT	CHKD	APPD
PROJ ENGR C. B. CARLSON					

C-11834777

CHARACTER MODE OPERATOR INDEX

OPERATOR	LEVEL	OCTAL CODE	DRAWING NUMBER	INDEX NUMBER
BEGIN LOOP	BELL	XX52	C-11834967	2.19.0
CALL REPEAT FIELD	CLRL	XX43	C-11837739	2.33.0
CHARACTER MODE NO. OP	NOCL	0040	C-11837754	2.35.0
COMPARE EQUAL	SEQL	XX60	C-11834835	2.06.0
COMPARE EQUAL OR LESS	SLEL	XX70	C-11834835	2.06.0
COMPARE GREATER	SGTL	XX63	C-11834835	2.06.0
COMPARE GREATER OR EQUAL	SGEL	XX62	C-11834835	2.06.0
COMPARE LESS	SLTL	XX71	C-11834835	2.06.0
FIELD ADD/SUBTRACT	FASL	XX73/XX72	C-11834835	2.06.0
COMPARE NOT EQUAL	SNEL	XX61	C-11834835	2.06.0
END LOOP	ENLL	XX51	C-11834975	2.20.0
EXIT CHARACTER MODE	RECL	XX00	C-11837218	2.39.0
IN LINE EXIT CHARACTER MODE	ILEL	0100	C-11837218	2.39.0
FIELD ADD (PAGE 1 OF 2)	FADL	XX73	C-11837689	2.28.0
FIELD ADD (PAGE 2 OF 2)	FADD	XX73	C-11837689	2.28.0
FIELD ADD (AUX) (PAGE 1 OF 2)	FAXL	XX33	C-11837689	2.28.0
FIELD ADD (AUX) (PAGE 2 OF 2)	FAXL	XX33	C-11837689	2.28.0
FIELD SUBTRACT (PAGE 1 OF 2)	FSUL	XX72	C-11837689	2.28.0
FIELD SUBTRACT (PAGE 2 OF 2)	FSUL	XX72	C-11837689	2.28.0
FIELD SUBTRACT (AUX) (PAGE 1 OF 2)	FSXL	XX32	C-11837689	2.28.0
FIELD SUBTRACT (AUX) (PAGE 2 OF 2)	FSXL	XX32	C-11837689	2.28.0
INCREASE TALLY	INTL	XX40	C-11837754	2.35.0
INPUT CONVERT	ICOL	XX67	C-11835931	2.37.0
JUMP FORWARD CONDITIONAL	CFJL	XX45	C-11834991	2.22.0
JUMP FORWARD UNCONDITIONAL	FWJL	XX47	C-11834991	2.22.0
JUMP OUT OF LOOP	JOLL	XX46	C-11834983	2.21.0
JUMP OUT OF LOOP CONDITIONAL	CJOL	XX44	C-11834983	2.21.0
JUMP REVERSE CONDITIONAL	CRJL	XX55	C-11835006	2.23.0
JUMP REVERSE UNCONDITIONAL	REJL	XX57	C-11835006	2.23.0
OUTPUT CONVERT	OCOL	XX66	C-11835956	2.38.0
RECALL CONTROL ADDRESS	RPAL	XX50	C-11834959	2.18.0
RECALL DESTINATION ADDRESS	RDAL	XX04	C-11834934	2.16.0
RECALL SOURCE ADDRESS	RSAL	XX53	C-11834892	2.12.0

OPERATOR	LEVEL	OCTAL CODE	DRAWING NUMBER	INDEX NUMBER
RESET BIT	REBL	XX65	C-11837697	2.29.0
SET BIT	SEBL	XX64	C-11837762	2.36.0
SET DESTINATION ADDRESS	SDPL	XX06	C-11834918	2.14.0
SET SOURCE ADDRESS	SSPL	XX22	C-11834876	2.10.0
SET TALLY	SETL	XX42	C-11837754	2.35.0
SKIP BIT DESTINATION	SBDL	XX02	C-11837721	2.32.0
SKIP BIT SOURCE	SBSL	XX03	C-11837713	2.31.0
SKIP FORWARD DESTINATION	FSDL	XX16	C-11835022	2.25.0
SKIP FORWARD SOURCE	FSSL	XX31	C-11835014	2.24.0
SKIP REVERSE DESTINATION	RSDL	XX17	C-11835030	2.26.0
SKIP REVERSE SOURCE	RSSL	XX30	C-11835014	2.24.0
STORE CONTROL ADDRESS	STPL	XX54	C-11834942	2.17.0
STORE DESTINATION ADDRESS	STDL	XX14	C-11834926	2.15.0
STORE SOURCE ADDRESS	STSL	XX15	C-11834884	2.11.0
STORE TALLY	STAL	XX41	C-11837747	2.34.0
TEST BIT	TEBL	XX37	C-11837705	2.30.0
TEST FOR ALPHANUMERIC	TANL	XX36	C-11834850	2.08.0
TEST FOR EQUAL	TEQL	XX24	C-11834843	2.07.0
TEST FOR EQUAL OR LESS	TLEL	XX34	C-11834843	2.07.0
TEST FOR GREATER	TGTL	XX27	C-11834843	2.07.0
TEST FOR GREATER OR EQUAL	TGEL	XX26	C-11834843	2.07.0
TEST FOR LESS	TLTL	XX35	C-11834843	2.07.0
TEST FOR NOT EQUAL	TNEL	XX25	C-11834843	2.07.0
TRANSFER DESTINATION ADDRESS	SDAL	XX07	C-11834900	2.13.0
TRANSFER NUMERICS	TNDL	XX75	C-11834819	2.04.0
TRANSFER BLKS FOR NON NUMERICS	TBZL	XX12	C-11834827	2.05.0
TRANSFER PROGRAM CHARACTERS	TPDL	XX74	C-11834827	2.05.0
TRANSFER SOURCE ADDRESS	SSAL	XX56	C-11834868	2.09.0
TRANSFER SOURCE CHARACTERS	TSDL	XX77	C-11834793	2.02.0
TRANSFER WORDS	TWDL	XX05	C-11836129	2.27.0
TRANSFER ZONES	TZDL	XX76	C-11834801	2.03.0

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE CHARACTER MODE OPERATOR INDEX	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834777
				B REV

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DRAWN BY <i>L. G. GAYNE</i> 1-20-62		REVISIONS			
CHECKED <i>[Signature]</i>	REV A	ECN NO 3096	DFT/APPD	CHKD	DATE
RELEASED					
APPROVED <i>[Signature]</i>	B	ECN 6474	PRT		
PROJ ENGR C. B. CARLSON					

C-11890688

### CONTROL STATE AND MISCELLANEOUS OPERATORS INDEX

OPERATOR	LEVEL	OCTAL CODE	DRAWING NUMBER	INDEX NUMBER
COMMUNICATE	COML	1011	C-11836541	3.01.0
CONDITIONAL HALT	CHPL	2411	C-11884053	3.09.0
DESCRIPTOR CALL SYLLABLE (PAGE 1 OF 4)	DCSL	XXX7 XXX3	C-11836194	3.10.0
DESCRIPTOR CALL SYLLABLE (PAGE 2 OF 4)	DCSL	XXX7 XXX3	C-11836194	3.10.1
DESCRIPTOR CALL SYLLABLE (PAGE 3 OF 4)	DCSL	XXX7 XXX3	C-11836194	3.10.2
DESCRIPTOR CALL SYLLABLE (PAGE 4 OF 4)	DCSL	XXX7 XXX3	C-11836194	3.10.3
EXIT	REWL	0435	C-11837200	3.11.0
SYLLABLE INTERFACE SECL & FETCH			C-11974441	3.13.0
HALT P2	HP2L	2211	C-11836517	3.05.0
INITIATE I/O	UCMIL	4411	C-11836566	3.08.0
INITIATE PI (SEE NOTE)	INIL	4111	C-11836574	3.07.0
INITIATE FOR TEST	IFTL	5111	C-11836574	3.07.0
INITIATE P2	PTOL	4211	C-11836566	3.08.0
INITIATE I/O OR P2	PIOL	4211/4411	C-11836566	3.08.0
INTERROGATE INTERRUPT	IINL	0211	C-11836533	3.03.0
I/O RELEASE	IORL	2111	C-11836525	3.04.0
LITERAL SYLLABLE	LTSL	XXX4 XXX0	C-11836145	3.12.0
OPERAND CALL SYLLABLE (PAGE 1 OF 4)	OCSL	XXX6 XXX2	C-11836194	3.10.0
OPERAND CALL SYLLABLE (PAGE 2 OF 4)	OCSL	XXX6 XXX2	C-11836194	3.10.1
OPERAND CALL SYLLABLE (PAGE 3 OF 4)	OCSL	XXX6 XXX2	C-11836194	3.10.2
OPERAND CALL SYLLABLE (PAGE 4 OF 4)	OCSL	XXX6 XXX2	C-11836194	3.10.3
PROGRAM RELEASE	PREL	0111	C-11836525	3.04.0
READ TIMER	RDTL	0411	C-11836558	3.02.0
STORE FOR INTERRUPT	SFIL	3011	C-11836491	3.06.0
STORE FOR TEST	SFTL	3411	C-11836491	3.06.0
I/O OR PROGRAM RELEASE	PIRL	2111/0111	C-11836525	3.04.0
NOTE:				
INITIAL LOAD			C-11836574	3.07.0
INITIATED P2			C-11836574	3.07.0

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1-00-2

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE CONTROL STATE AND MISCELLANEOUS OPERATORS INDEX	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	C-11890688
			SYSTEM 85000	8

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1

DRAWN BY C BEVINS 2-22-62

REVISIONS

CHECKED *[Signature]*  
APPROVED *D. T. Kelly* 12-11-62  
PROJ ENGR C B CARLSON

REV	RCM NO	DATE	CHKD	APPD	DATE
A	3576				

RELEASED

GENERAL INFORMATION INDEX

TITLE	DRAWING NUMBER	INDEX NUMBER
MEMORY ACCESS REGISTER	C-11890670	4.01.0
REGISTER USAGE TABLE	C-11891298	4.02.0
COLLATING SEQUENCE	C-11891215	4.03.0
FLOW CHART SYMBOLS	C-11894508	4.04.0
INPUT CONVERT B29T	C-11925351	4.05.0
OUTPUT CONVERT B30T	C-11925369	4.06.0
INTERRUPT ADDRESSES	C-11925344	4.07.0
CHAR MODE INFO. FLOW DIAGRAM	C-11834785	4.08.0

FOR EDUCATIONAL USE ONLY

1-00-3

ELECTRODATA  
M & E DIVISION

**Burroughs Corporation**

PASADENA  
CALIFORNIA

PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR  
MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT

TITLE  
GENERAL INFORMATION INDEX

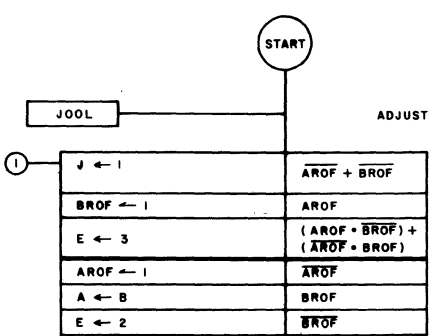
UNIT 78494  
SYSTEM B5000

C-11896438

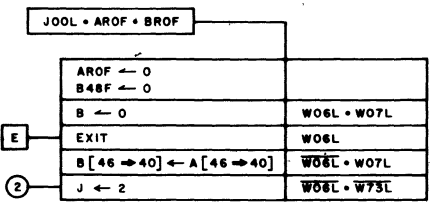
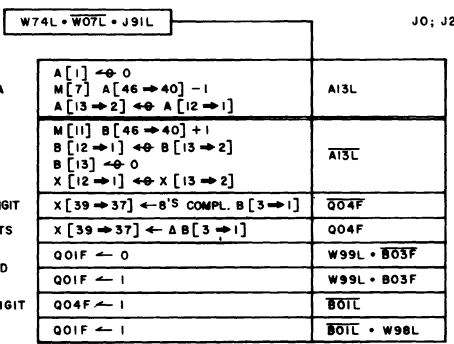
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REV

DRAWN BY C BEVINS 5-3-62	REVISIONS				ECN 6474	PRT
CHECKED	REV A	ECN NO 337C	OFF MAN	CHKD	APPD	DATE
APPROVED	RELEASED					
PROJ ENGR J DE BRULE	REV B	ECN NO 339C	T.Z.	EC	DATE	

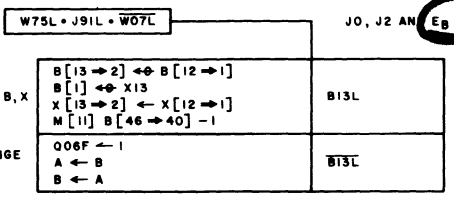
C-11844313



SHIFT B'S COMPL OF 1ST NON ZERO DIGIT  
7'S COMPL OF SUBSEQUENT DIGITS  
PREPARE FOR POSSIBLE ROUND  
INDICATE SCALING OF NON-ZERO DIGIT

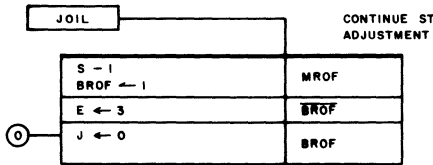


ANSWER = 0  
ANSWER IN B  
EXPONENT OF A TO B  
EXPONENTS NOT EQUAL



**GLOSSARY**

A13L = 13TH OCTAL DIGIT OF A = 0  
A13L = 13TH OCTAL DIGIT OF A ≠ 0  
B01L = 1ST OCTAL DIGIT OF B ≠ 0  
B13L = 13TH OCTAL DIGIT OF B = 0  
B13L = 13TH OCTAL DIGIT OF B ≠ 0  
J91L = JOOL + AROF + BROF + W06L + J02L  
W02L = A[39 → 37] < B[39 → 37]  
W02L = A[39 → 37] > B[39 → 37]  
W03L = A[39 → 37] = B[39 → 37]  
W03L = A[39 → 37] ≠ B[39 → 37]  
W06L = A[39 → 1] = 0  
W06L = A[39 → 1] ≠ 0  
W07L = B[39 → 1] = 0  
W07L = B[39 → 1] ≠ 0  
W13L = CARRY FROM 13TH OCTAL SUM DIGIT  
W13L = NO CARRY FROM 13TH OCTAL SUM DIGIT  
W36C = CARRY FROM 12TH OCTAL SUM DIGIT  
W36C = NO CARRY FROM 12TH OCTAL SUM DIGIT  
W73L = EXPONENT A = EXPONENT B  
W73L = EXPONENT A ≠ EXPONENT B  
W74L = EXPONENT A > EXPONENT B  
W75L = EXPONENT A < EXPONENT B  
W98L = INTERNAL SUBTRACT  
W99L = INTERNAL ADD  
I07L = 13TH OCTAL DIGIT OF B ≠ 1



EXIT TO SUBTRACT OPERATION

PLACE THE COMPLEMENT OF THE SMALLEST OPERAND IN A

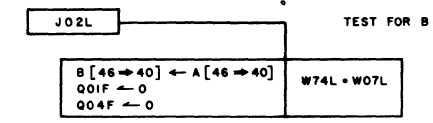
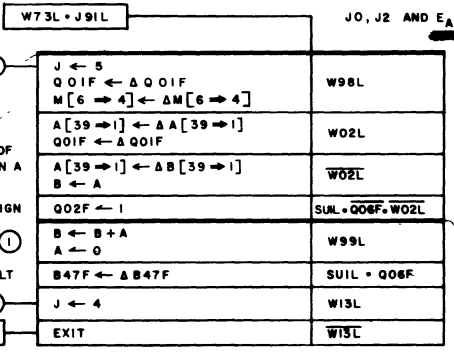
MEMORIZE CHANGE OF SIGN

SEE NOTE ①

SET SIGN OF RESULT

EXIT TO SCALE RESULT

NO OVERFLOW: OPERATION COMPLETE.



NOTE ①  $B ← B + A = M[10 → 8] B[39 → 1] ← M[10 → 8] B[39 → 1] + M[6 → 4] A[39 → 1] + Q01F$

LEVEL - ADIL - 0101  
SUIL - 0301

DRAWN BY C BEVINS	REVISIONS					
CHECKED <i>J.M. Smith</i>	REV C	ECN NO 6474	DFTSMAN PRT	CHKR	APPD	DATE
APPROVED <i>D. Kelly 12-11-64</i>	A.S. G.M.					
PROJ ENGR J DE BEULE						

C-11844313

**JO4L** SCALE FOR OVERFLOW

M[11] B[46 → 40] + 1	
J ← 15	
B[12 → 1] ← B[13 → 2]	
B[39 → 37] ← M[10 → 8]	
QOIF ← 1	B03F
QOIF ← 0	B02F + B01F + B03F

PREPARE FOR POSSIBLE ROUND

**JO8L** NORMALIZE RESULT

J ← 15	
X[13 → 2] ← X[12 → 1]	
M[11] B[46 → 40] - 1	
B1 ← X13	
B[13 → 2] ← B[12 → 1]	

**JO5L** SUBTRACT

SEE NOTE ①

B ← B + A	
QOIF ← 0	
A ← 0	
M[6 → 4] ← 0	
B47F ← Δ B47F	Q02F
J ← 7	W13L
	Q04F
J ← 8	W36C + B39F + B38F
J ← 15	W36C + B39F + B38F + X39F + I07L
EXIT	X39F + I07L
QOIF ← 1	W36C + B39F + B38F + X36F + X39F (W36C + B39F + B38F)
	Q04F
EXIT	W03L
J ← 15	W03L + W13L

- SET SIGN OF RESULT

EXIT TO DECOMPLEMENT ⑦

EXIT TO NORMALIZE ⑧

EXIT TO ROUND ⑮

PREPARE FOR ROUND

EXIT TO ROUND ⑮

**J15L** EXIT, ROUND

SEE NOTE ①

B ← B + A	
EXIT	
EXP OVERFLOW INT ← 1	M11F + NCSF
B ← 0	QOIF + W07L

SET B EXPONENT = 0

*FLAG SET*

**JO7L** DECOMPLEMENT

CLEAR B MANTISSA

7'S COMPLEMENT OF RESULT TO A

B[39 → 1] ← 0	
A[39 → 1] ← Δ B[39 → 1]	
J ← 15	
B47F ← Δ B47F	
QOIF ← 1	

CHANGE SIGN OF RESULT

PREPARE END AROUND CARRY

NOTE ①  $B ← B + A = M[10 → 8] B[39 → 1] ← M[10 → 8] B[39 → 1] + M[6 → 4] A[39 → 1] + QOIF$

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE SINGLE PRECISION ADD - SUBTRACT	PAGE 2 OF 2
PROPERTY OF BURROUGHS CORPORATION - NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	FORM NO EDD-1655 REV 5-61
			SYSTEM B5000	C-11844313

REDUCED SIZE<sup>1</sup> PRINT

DRAWN BY T. L. GIBSON	REVISIONS				C	ECN	LHCH	2-25	9-18	7/24/63
CHECKED J. de Beule	REV	ECN NO	DATE	APPD	DATE					
APPROVED P. T. Kelly 12-11-62	A	3596	1-1-62							
PROJ ENGR DE BEULE	B	3596	2-18-62							

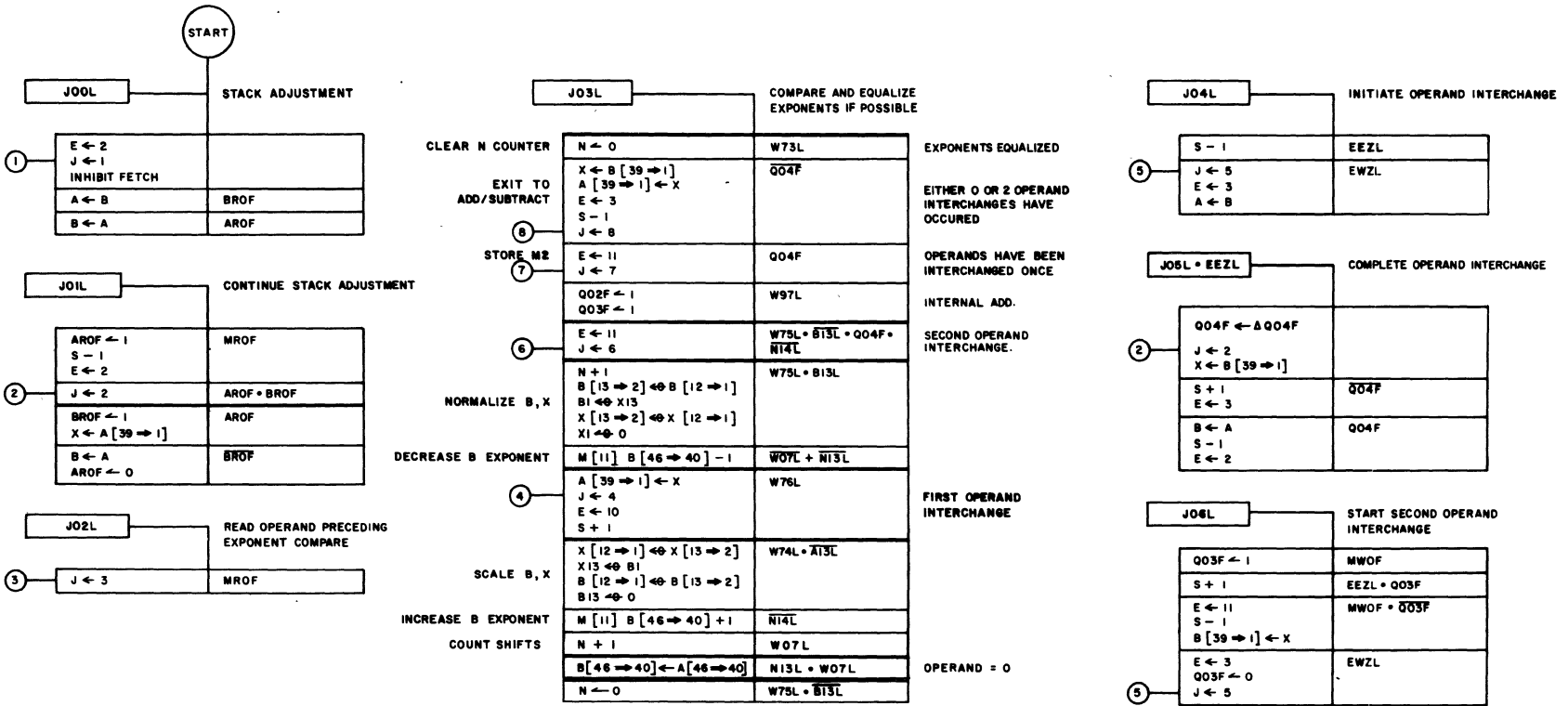
C-11844347

D

C

B

A



DOUBLE PRECISION OPERANDS

FORM. Sn en En Mn mn  
 n = BLANK = RESULT  
 n = 1 = OPERAND AT TOP OF STACK  
 n = 2 = OPERAND BENEATH FIRST OPERAND IN STACK  
 S = MANTISSA SIGN  
 e = EXPONENT SIGN  
 E = EXPONENT  
 M = MOST SIGNIFICANT HALF OF MANTISSA (STORED WITH EXPONENT)  
 m = LEAST SIGNIFICANT HALF OF MANTISSA (STORED IN SEPARATE CELL WITH SIGN AND EXPONENT CLEARED)

GLOSSARY

A13L = 13<sup>TH</sup> OCTAL DIGIT OF A = 0  
 A13L = 13<sup>TH</sup> OCTAL DIGIT OF A ≠ 0  
 B13L = 13<sup>TH</sup> OCTAL DIGIT OF B = 0  
 B13L = 13<sup>TH</sup> OCTAL DIGIT OF B ≠ 0  
 EEZL = E = 0  
 EWZL = EEZL • MWOF  
 N13L = N = 13  
 N14L = N = 14  
 N14L = N ≠ 14  
 W07L = B [39 ⇒ 1] = 0  
 W07L = B [39 ⇒ 1] ≠ 0  
 W13L = CARRY FROM 13<sup>TH</sup> OCTAL SUM DIGIT  
 W13L = NO CARRY FROM 13<sup>TH</sup> OCTAL SUM DIGIT  
 W73L = EXPONENT A = EXPONENT B  
 W74L = EXPONENT A > EXPONENT B  
 W75L = EXPONENT A < EXPONENT B  
 W76L = W75L • B13L • Q04F + W74L • A13L  
 W97L = AD2L • (B47F • A47F + B47F • A47F) + SU2L • (B47F • A47F + B47F • A47F)

LEVEL: AD2L - 0105  
 SU2L - 0305

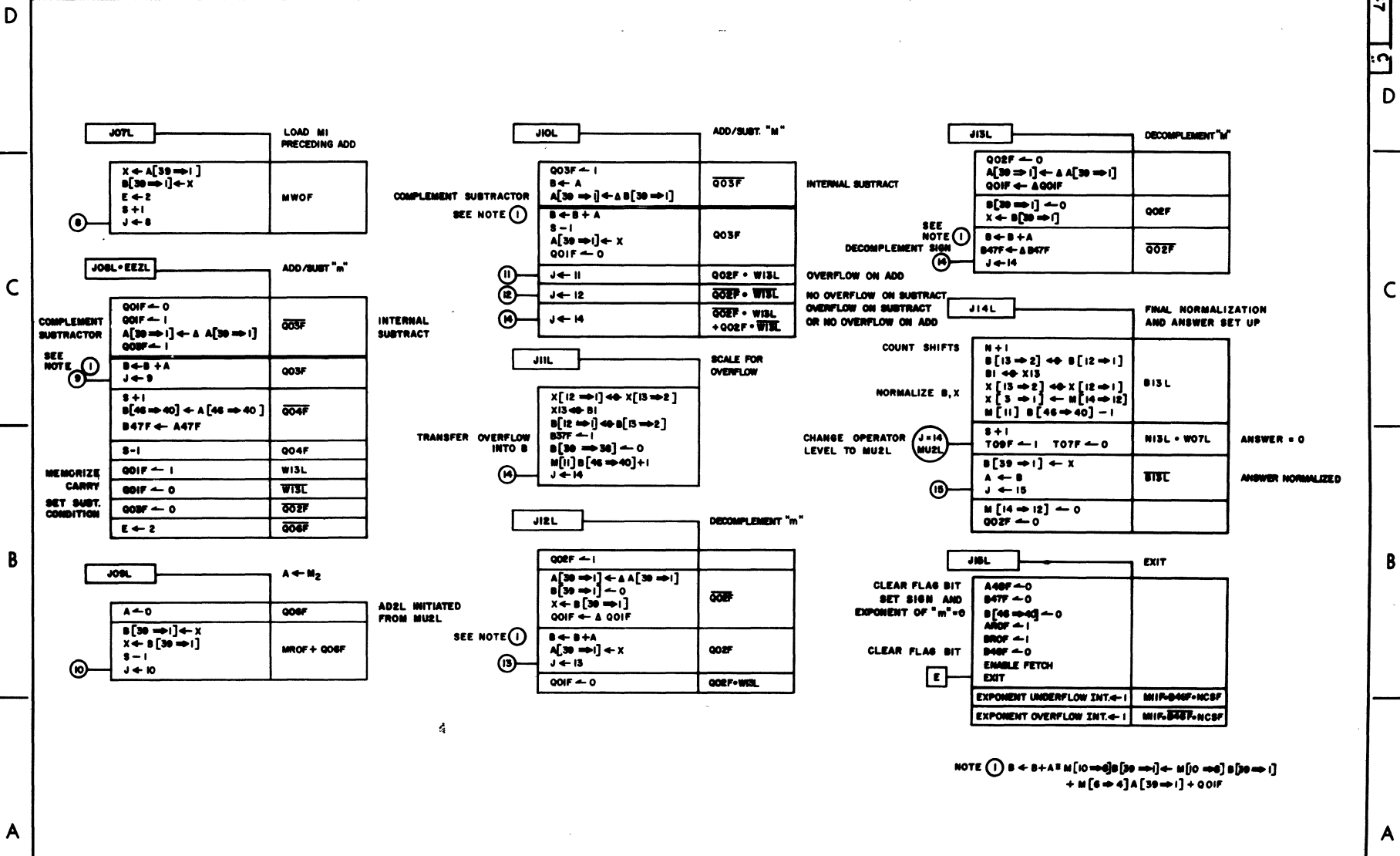
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ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE DOUBLE PRECISION ADD & SUBTRACT	PAGE 1 OF 2
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	C-11844347
		SYSTEM B5000	REV



DRAWN BY T.L. GIBSON	REVISIONS					
CHECKED <i>J. A. [unclear]</i>	REV	NO.	DESIGN	CHKD	APPD	DATE
APPROVED <i>D.T. Kelly 12-11-62</i>						
PROJ. ENGR. DE BEULE						

C-11844347



NOTE 1  $B \leftarrow B + A \cdot M[10 \rightarrow 4] B[30 \rightarrow 1] \leftarrow M[10 \rightarrow 4] B[30 \rightarrow 1] + M[8 \rightarrow 4] A[30 \rightarrow 1] + Q01F$

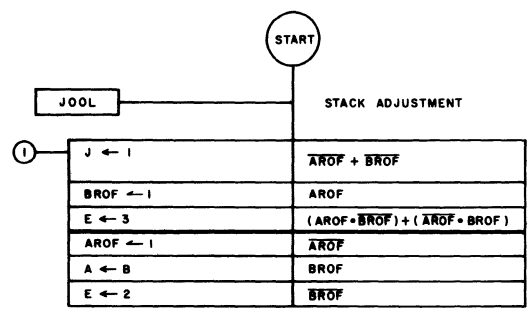
FOR EDUCATIONAL USE ONLY 1-02-1

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE DOUBLE PRECISION ADD & SUBTRACT	PAGE 2 OF 2
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78484	C-11844347
			SYSTEM 88000	REV. C

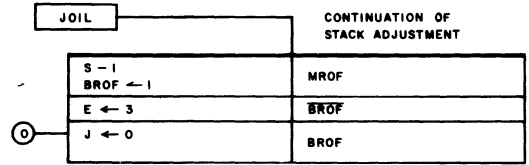
DRAWN BY C. BEVINS		REVISIONS				C	ECN	PRT
CHECKED	<i>J. De Beule</i>	REV	ECN NO	DFTSMN	CHKR	APPD	DATE	
APPROVED	<i>B. De Beule 12-11-62</i>	A	3576	L.T.				
PROJ ENGR	DE BEULE	B	3996	7LS	<i>B. De Beule</i>			

C-11844321

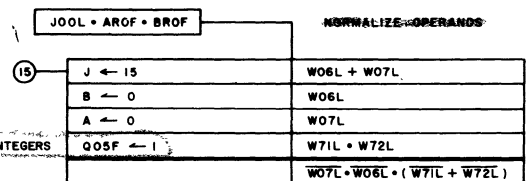
D



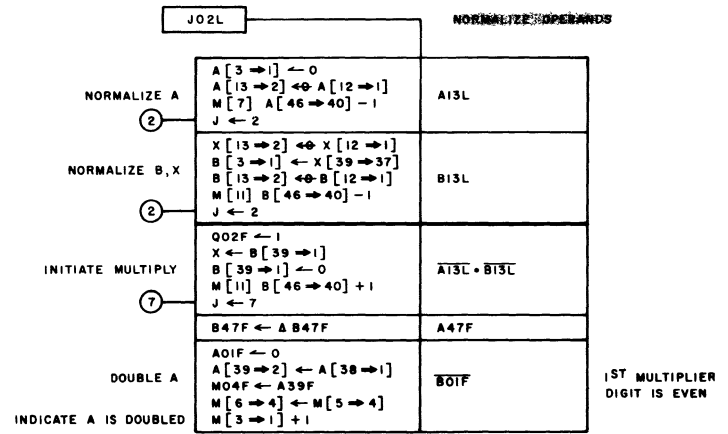
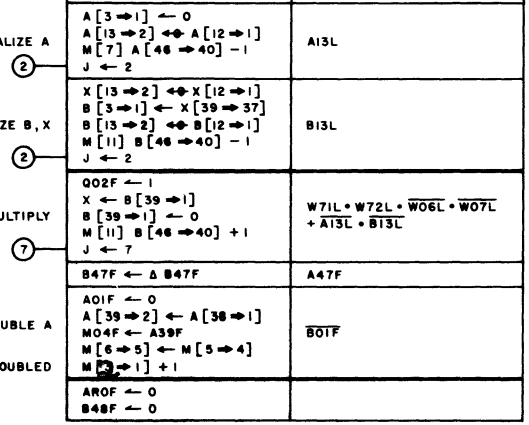
C



B



A



D

C

B

A

GLOSSARY

- ACSL = "A" COMPLEMENT SHIFT LEVEL
- ALSL = "A" LEFT SHIFT LEVEL
- ARSL = "A" RIGHT SHIFT LEVEL
- A13L = 13TH OCTAL DIGIT OF A = 0
- A13L = 13TH OCTAL DIGIT OF A ≠ 0
- B13L = 13TH OCTAL DIGIT OF B = 0
- B13L = 13TH OCTAL DIGIT OF B ≠ 0
- NEZL = N = 0
- NEZL = N ≠ 0
- N13L = N = 13
- N14L = N = 14
- N14L = N ≠ 14
- W06L = A [39 → 1] = 0
- W06L = A [39 → 1] ≠ 0
- W07L = B [39 → 1] = 0
- W07L = B [39 → 1] ≠ 0
- W14L = CARRY FROM 14TH OCTAL SUM DIGIT
- W14L = NO CARRY FROM 14TH OCTAL SUM DIGIT
- W15L = M [15 → 12] = 2 OR 4
- W16L = M [15 → 12] ≠ 2 OR 4 OR 9
- W71L = EXPONENT OF A = 0
- W71L = EXPONENT OF A ≠ 0
- W72L = EXPONENT OF B = 0
- W72L = EXPONENT OF B ≠ 0
- W86L = X\* = ± 0, ± 4
- W86L = X\* ≠ ± 0; ± 4
- W87L = X\* = ± 3
- W88L = X\* = ± 1, ± 2, ± 4
- W91L = Q03F + Q01F (X03F + X02F + X01F) + Q01F (X03F + X02F + X01F)
- W91L = Q03F (Q01F \* X03F \* X02F \* X01F + Q01F \* X03F \* X02F \* X01F)
- X\* = CURRENT MULTIPLIER DIGIT

1ST MULTIPLIER DIGIT IS EVEN

1 - 03 - 0

ELECTRODATA M&E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE SINGLE PRECISION MULTIPLY - MUIL	PAGE 1 OF 3
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	C-11844321
		SYSTEM B5000	C REV.

DRAWN BY C. BEVINS 12/8/61  
 CHECKED *J.R. [unclear]*  
 APPROVED *D.T. Kelly 12-11-61*  
 PROJ ENGR DE BEULE

REVISIONS					
REV	ECN-NO	DTSMAN	CHKR	APPD	DATE
C	6474	PRT			

REF. TO  
 FIRST ADD FOR MULTI.  
 DIGIT ± 3

J07L SCALE B, SCALE X

SEE NOTE ①

J05L		
B ← B + A		
J ← 6		
HALVE A		
A [38 → 1] ← A [39 → 2]		
A39F ← M04F		MOIF
M [5 → 4] ← M [6 → 5]		
M [3 → 1] - 1		
DOUBLE A		
A [39 → 2] ← A [38 → 1]		
M04F ← A39F		MOIF
M [6 → 5] ← M [5 → 4]		
M [3 → 1] + 1		
A0IF ← 1		Q0IF
A0IF ← 0		Q0IF
Q08F ← 1		Q0IF · W14L
Q08F ← 0		Q0IF · W14L

\* MULTIPLICAND = 2A OR 2A  
 \*\* MULTIPLICAND = A OR A

INDICATE  
 X\* ≠ ± 0 OR ± 4

COUNT MULTIPLY CYCLES

SHIFT PARTIAL  
 PRODUCT

COMPLEMENT A

INDICATE X\* ≠ ± 0 OR ± 4

INDICATE X\* ≠ ± 0 OR ± 4

DOUBLE A

HALVE A

Q03F ← 0	W91L
X [12 → 1] ↔ X [13 → 2]	W91L
N + 1	NEZL
X [39 → 37] ← 0	NEZL
X [12 → 1] ↔ X [13 → 2]	NEZL
X13 ↔ B1	
B [12 → 1] ↔ B [13 → 2]	
B [39 → 37] ← M [10 → 8]	
M [10 → 8] ← 7	Q08F
M [10 → 8] ← 0	Q08F
J ← 8	N13L · Q0IF
	W91L
A [39 → 1] ← A [39 → 1]	
M [6 → 4] ← A M [6 → 4]	ACSL
Q0IF ← A Q0IF	
Q03F ← 0	W88L
J ← 5	W87L
Q03F ← 1	W86L
J ← 6	W88L
A [39 → 2] ← A [38 → 1]	
M04F ← A39F	
M [6 → 8] ← M [5 → 4]	ALSL
M [3 → 1] + 1	
A0IF ← 1	Q0IF
A0IF ← 0	Q0IF
A [38 → 1] ← A [39 → 2]	
A39F ← M04F	
M [5 → 4] ← M [6 → 5]	ARSL + N13L
M [3 → 1] - 1	· Q0IF

SEE NOTE ②

J06L · Q02F NORMALIZE RESULT

NORMALIZE B, X

RESULT IS INTEGER

PREPARE FOR ROUND

X [13 → 2] ↔ X [12 → 1]	
B1 ↔ X13	
B [13 → 2] ↔ B [12 → 1]	B13L · Q05F
M [11] B [46 → 40] - 1	
B [39 → 1] ← X	
M [11] B [46 → 40] ← 0	Q05F · W07L
M [15 → 1] ← 0	
J ← 15	Q05F · W07L + B13L
Q0IF ← 1	B13L · X39F
Q05F ← 0	
A ← 0	

SEE NOTE ①

J06L		
B ← B + A		
J ← 8		N14L
HALVE A		
A [38 → 1] ← A [39 → 2]		
A39F ← M04F		ARSL · N14L
M [5 → 4] ← M [6 → 5]		
M [3 → 1] - 1		
DOUBLE A		
A [39 → 2] ← A [38 → 1]		
M04F ← A39F		ALSL · N14L
M [6 → 5] ← M [5 → 4]		
M [3 → 1] + 1		
A0IF ← 1		Q0IF
A0IF ← 0		Q0IF
J ← 7		N14L
Q08F ← 1		Q0IF · W14L
Q08F ← 0		Q0IF · W14L

TABLE 1

CURRENT MULTIPLIER DIGIT	NEXT MULTIPLIER DIGIT
+ 4	- 1 (7)
- 4 (3 + Q0IF)	+ 1 (0)
- 0 (7 + Q0IF)	+ 1 (0)
+ 0 (0 + Q0IF)	- 1 (7)

NOTE ① B ← B + A = M [10 → 8] B [39 → 1] ← M [10 → 8] B [39 → 1] + M [6 → 4] A [39 → 1] + Q0IF

NOTE ② W91L ALLOWS THE EXTRA SHIFT REQUIRED BY THE CONDITIONS SHOWN IN TABLE 1.

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE SINGLE PRECISION MULTIPLY - MUL	1 · 03 · 1
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	PAGE 2 OF 3
			SYSTEM B5000	C-11844321

REDUCED SIZE PRINT

C-11844321  
 D  
 C  
 B  
 A

4

3

2

1

DRAWN BY C BEVINS, 5-22-62		REVISIONS				
CHECKED <i>J.A. Beane</i>	REV. C	ECN. NO. 6474	DESIGN. PRT.	CHKD.	APPD.	DATE
APPROVED <i>A.T. Kelly 12-11-62</i>						
PROJ ENGR. J. DE BEULE						

C-11844321

D

C

B

A

J15L

ROUND, EXIT

EXIT	
B ← B + A	W15L
B ← 0	W07L
EXP. UNDERFLOW INT. ← 1	M11F • B46F • NCSF
EXP OVERFLOW INT. ← 1	M11F • B46F • NCSF

SEE NOTE ①

SET B EXPONENT = 0

EXPONENT ARITHMETIC

INCREMENT EXPONENT	M [11] B [45 → 40] + 1	B46F	EXPONENT B POSITIVE
DECREMENT EXPONENT	M [11] B [45 → 40] - 1	B46F	EXPONENT B NEGATIVE
	A40F ← 0	W16L	
DECREMENT EXPONENT	M [11] B [45 → 40] - 1	A40F • W16L • A46F • B46F + A40F • W16L • A46F • B46F	SIGNS OF EXPONENTS DIFFERENT
INCREMENT EXPONENT	M [11] B [45 → 40] + 1	A40F • W16L • A46F • B46F + A40F • W16L • A46F • B46F	SIGNS OF EXPONENTS EQUAL
	M [15 → 12] + 1	W15L + A40F • W16L	
SHIFT RIGHT A EXPONENT, B EXPONENT AND RESULT	B45F ← M11F B [44 → 40] ← B [45 → 41] M07F ← B40F A45F ← M07F A [44 → 40] ← A [45 → 41]	A40F • W16L	
INDICATE INTERMEDIATE RESULT GOES NEGATIVE	M11F ← 0	A40F • W16L • Q06F	
	Q06F ← 1	WBDL • W72L • M11F	
	Q06F ← 0	Q02F • M15F • M12F	
DECOMPLEMENT RESULT	B40F ← 0 M [7] A [45 → 40] - 1	Q06F • M11F	RESULT IN COMPLEMENTARY FORM
	M [7] ← Δ M [7] A [45 → 40] ← Δ A [45 → 40] B46F ← Δ B46F M11F ← 0	Q06F • M11F	
TRANSFER RESULT TO B, INDICATE OPERATION TERMINATED	B [45 → 40] ← A [45 → 40] Q02F ← 0 M12F ← 0	M11F	RESULT IN TRUE FORM
EXPONENT OVERFLOW OR UNDERFLOW	M11F ← 1	B40F + M07F	

NOTE ① B ← B + A = M [10 → 8] B [39 → 1] ← M [10 → 8] B [39 → 1] + M [6 → 4] A [39 → 1] + Q01F

1-03-2

ELECTRODATA M&E DIVISION	<b>Suproughs Corporation</b>	PASADENA CALIFORNIA	TITLE SINGLE PRECISION MULTIPLY - MNL	PAGE 3 OF 3
PROPERTY OF SUPROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON SUPROUGHS ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	C-11844321
			SYSTEM S8000	REV.

REDUCED SIZE PRINT

4

3

2

DRAWN BY T L GIBSON  
 CHECKED *J. De Beule*  
 APPROVED *J. De Beule*  
 PROJ ENGR J DE BEULE

REVISIONS					
REV	ECN NO	DFTSMN	CHKR	APPD	DATE
A	3796	1, T			
RELEASED					
B	3796	T, Z	E. J. B. / J. M. W.		

**J00L** START, OBTAIN M1 & m1 FROM STACK

INHIBIT FETCH	
AROF ← 1	AROF
E ← 2	BROF
A ← B	BROF
E ← 3	AROF · BROF + EEZL · AROF · BROF
BROF ← 1	EEZL · AROF
J ← 2	
X ← B [39 ⇒ 1]	BROF
B ← A	
M [6 ⇒ 4] ← 0	
A [39 ⇒ 1] ← 0	
S ← 1	MROF (AROF + BROF)

**J03L + MWOF** PLACE M4 IN STACK

J ← 4
E ← 10
S ← 1
X ← A [39 ⇒ 1]
A [39 ⇒ 1] ← X

**J04L + MWOF** PLACE m4 STACK

A [39 ⇒ 1] ← B [39 ⇒ 1]
A [48 ⇒ 47] ← B [48 ⇒ 47]
J ← 9

**J01L** OBTAIN M2 & m2

S ← 1	EEZL · AROF
J ← 2	MROF · BROF
AROF ← 0	
E ← 3	EWZL
S + 1	
X ← B [39 ⇒ 1]	AROF
BROF ← 0	

**J05L** 1ST ADD FOR MULT DIGIT ±3

SEE NOTE 1

B ← B + A		
J ← 6		
PARTIAL PRODUCT < 0	Q08F ← 1	Q0IF · W14L
PARTIAL PRODUCT ≥ 0	Q08F ← 0	Q0IF · W14L
HALVE A	A [38 ⇒ 1] ← A [39 ⇒ 2]	M0IF
	A 39F ← M04F	
	M [5 ⇒ 4] ← M [6 ⇒ 5]	
	M [3 ⇒ 1] - 1	
DOUBLE A	A [39 ⇒ 2] ← A [38 ⇒ 1]	M0IF
	M04F ← A 39F	
	M [6 ⇒ 5] ← M [5 ⇒ 4]	
	M [3 ⇒ 1] + 1	
	A0IF ← 1	Q0IF
	A0IF ← 0	Q0IF

\* MULTIPLICAND = 2A OR 2A  
 \*\* MULTIPLICAND = A OR A

**J02L** NORMALIZE OPERANDS SET RESULT SIGN, INITIATE EXPONENT ADD

COUNT OCTAL SHIFTS

N + 1		
B [13 ⇒ 2] ⊕ B [12 ⇒ 1]		B13L
B [3 ⇒ 1] ← X [39 ⇒ 37]		
X [13 ⇒ 2] ⊕ X [12 ⇒ 1]		
X [3 ⇒ 1] ← 0		
M [11] B [46 ⇒ 40] - 1		Q05F
J ← 14		N13L · W07L
S ← 1		
N ← 0		B13L
A [39 ⇒ 1] ← X		
A [46 ⇒ 40] ← B [46 ⇒ 40]		
E ← 11		AROF
S + 1		
J ← 1		
E ← 11		AROF
J ← 3		
Q02F ← 1		AROF · Q05F
M [11] B [46 ⇒ 40] + 1		
B47F ← A B47F		AROF · A47F

ANSWER IS ZERO

START EXPONENT ARITHMETIC

SET SIGN OF RESULT

ACSL = "A" COMPLEMENT SHIFT LEVEL  
 ALSL = "A" LEFT SHIFT LEVEL  
 ARSL = "A" RIGHT SHIFT LEVEL  
 B13L = 13TH OCTAL DIGIT OF B = 0  
 B13L = 13TH OCTAL DIGIT OF B ≠ 0  
 EEZL = E = 0  
 EWZL = EEZL + MWOF  
 NEZL = N = 0  
 NEZL = N ≠ 0  
 N13L = N = 13  
 N13L = N ≠ 13  
 N14L = N = 14  
 N14L = N ≠ 14  
 W07L = B [39 ⇒ 1] = 0  
 W14L = CARRY FROM 14TH OCTAL SUM DIGIT  
 W14L = NO CARRY FROM 14TH OCTAL SUM DIGIT  
 W15L = M [15 ⇒ 12] = 2 OR 4  
 W16L = M [15 ⇒ 12] ≠ 2 OR 4 OR 9  
 W66L = X\* = ± 0 OR ± 4  
 W66L = X\* ≠ ± 0 OR ± 4  
 W67L = X\* = ± 3  
 W68L = X\* = ± 1 OR ± 2 OR ± 4  
 W91L = Q03F + Q0IF ( X03F + X02F + X0IF )  
 + Q0IF ( X03F + X02F + X0IF )  
 W91L = Q03F ( Q0IF · X03F + X02F · X0IF )  
 + Q0IF · X03F + X02F · X0IF )  
 X\* = CURRENT MULTIPLIER DIGIT

DOUBLE PRECISION OPERANDS

FORM · Sn, en, En, Mn, mn  
 n BLANK = RESULT

FOR THE OTHER VALUES OF n, SEE DESCRIPTION OF OPERATORS.

S = MANTISSA SIGN  
 e = EXPONENT SIGN  
 E = EXPONENT  
 M = MOST SIGNIFICANT PART OF MANTISSA (STORED WITH EXPONENT AND SIGNS)  
 m = LEAST SIGNIFICANT HALF OF MANTISSA (STORED IN A SEPARATE CELL WITH SIGNS AND EXPONENT PORTION CLEARED)

TABLE 1

CURRENT MULTIPLIER DIGIT	NEXT MULTIPLIER DIGIT
+ 4	- 1 (7)
- 4 (3 + Q0IF)	+ 1 (0)
- 0 (7 + Q0IF)	+ 1 (0)
+ 0 (0 + Q0IF)	- 1 (7)

LEVEL - MU2L - 0405

NOTE 1 B ← B + A = M [10 ⇒ 8] B [39 ⇒ 1] ← M [10 ⇒ 8] B [39 ⇒ 1] + M [6 ⇒ 4] A [39 ⇒ 1] + Q0IF

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE	DOUBLE PRECISION MULTIPLY	PAGE	1 OF 3
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	SYSTEM B5000	C-11844354	

DRAWN BY T L GIBSON		REVISIONS					
CHECKED <i>J. H. Smith</i>	REV	NO	DFTSMN	CHKR	APPD	DATE	
APPROVED <i>J. De Beule</i>							
PROJ ENGR J DE BEULE							

C-11844354

SEE NOTE ①

JO6L	B ← B + A	
⑧	J ← 8	N14L
HALVE A	A [38 → 1] ← A [39 → 2] A39F ← M04F M [5 → 4] ← M [6 → 5] M [3 → 1] - 1	ARSL • N14L
DOUBLE A	A [39 → 2] ← A [38 → 1] M04F ← A39F M [6 → 5] ← M [5 → 4] M [3 → 1] + 1	ALSL • N14L
	A0IF ← 1	Q0IF
	A0IF ← 0	Q0IF
⑦	J ← 7	N14L
PARTIAL PRODUCT < 0	Q08F ← 1	Q0IF • W14L
PARTIAL PRODUCT ≥ 0	Q08F ← 0	Q0IF • W14L

ADD FOR X = ±1, ±2, ±4  
2ND ADD FOR X = ±3  
SHIFT A

GET OPERANDS FROM STACK, COUNT  
SUB-CYCLES EXIT TO AD2L

JO8L	N [4 → 1] ← 0	
	BROF ← 1	Q02F
	E ← 2	
⑪	J ← 11	BROF
	AROF ← 0	BROF
	S - 1	
	X ← B [39 → 1]	
	B [39 → 1] ← X	
	Q06F ← 1	
	Q02F ← 1	AROF
	Q03F ← 1	
	T07F ← 1	
	T09F ← 0	
	X ← A [39 → 1]	
	J ← 9	AROF
	M [14 → 12] ← X [39 → 37]	

INDICATE AD2L INITIATED FROM MU2L

CHANGE OPERATOR  
LEVEL TO AD2L

STORE MOST SIGNIFICANT  
OCTAL DIGIT OF m7

SCALE B, SCALE X

JO7L	Q03F ← 0	W91L
INDICATE X* ≠ ±0 OR ±4	X [12 → 1] ↔ X [13 → 2] N + 1	W91L
COUNT MULTIPLY CYCLES	X [39 → 37] ← 0	NEZL
SHIFT PARTIAL PRODUCT	X [12 → 1] ↔ X [13 → 2] X [39 → 37] ← B [3 → 1] B [12 → 1] ↔ B [13 → 2] B [39 → 37] ← M [10 → 8]	NEZL
	M [10 → 8] ← 7	Q08F
	M [10 → 8] ← 0	Q08F
⑧	J ← 8	N13L • Q0IF
		W91L
COMPLEMENT A	A [39 → 1] ← Δ A [39 → 1] M [6 → 4] ← Δ M [6 → 4] Q0IF ← Δ Q0IF	ACSL
INDICATE X* ≠ ±0 OR ±4	Q03F ← 0	W86L
⑤	J ← 5	W87L
INDICATE X* = ±0 OR ±4	Q03F ← 1	W86L
⑥	J ← 6	W88L
DOUBLE A	A [39 → 2] ← A [38 → 1] M04F ← A39F M [6 → 5] ← M [5 → 4] M [3 → 1] + 1	ALSL
	A0IF ← 1	Q0IF
	A0IF ← 0	Q0IF
HALVE A	A [38 → 1] ← A [39 → 2] A39F ← M04F M [5 → 4] ← M [6 → 5] M [3 → 1] - 1	ARSL + N13L • Q0IF

SEE NOTE ②

INITIATE MULTIPLY SUB-CYCLES  
INITIAL MULTIPLICAND ADJUST

JO9L • EEZL	J ← 7	
	A0IF ← 0	
	A [39 → 2] ← A [38 → 1]	
	M04F ← A39F	X0IF
	M [6 → 5] ← M [5 → 4] M [3 → 1] + 1	
	AROF ← 1	BROF
	B [39 → 1] ← 0	AROF

1ST MULTIPLIER DIGIT IS EVEN

STORE S • EM6, FETCH M3

JO10L	S + 1	EEZL
	E ← 2	
	B [39 → 1] ← X	EWZL
	X ← A [39 → 1]	
⑨	J ← 9	

INITIATE STORE OF S • EM6,  
GET M4

JO11L • MROF		
	E ← 11	
	J ← 10	

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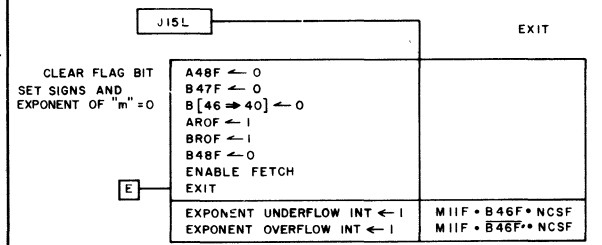
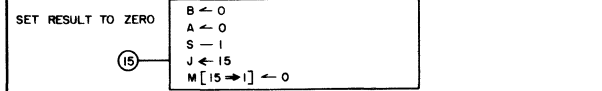
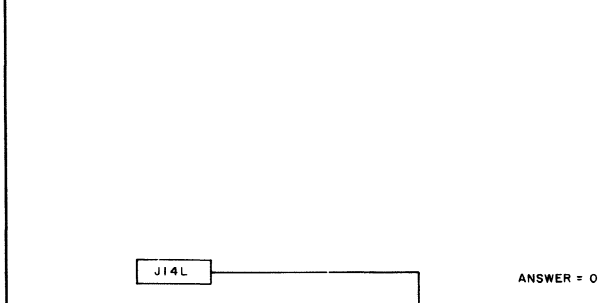
NOTE ② W91L ALLOWS THE EXTRA SHIFT REQUIRED BY THE CONDITIONS SHOWN IN TABLE I (PAGE 1 OF 3)  
NOTE ① B ← B + A ← M [10 → 8] B [39 → 1] ← M [10 → 8] B [39 → 1] + M [6 → 4] A [39 → 1] + Q0IF

I - 04 I

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE DOUBLE PRECISION MULTIPLY	PAGE 2 OF 3
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11844354
			SYSTEM B 5000	B REV

4	3	2	1
DRAWN BY T. L. GIBSON			
REVISIONS			
REV	NO	DFTSMN	CHKR
APPD	DATE		
CHECKED <i>J. DeBeule</i>			
APPROVED <i>J. DeBeule</i>			
PROJ ENGR J. DE BEULE			

C-11844354  
B  
D  
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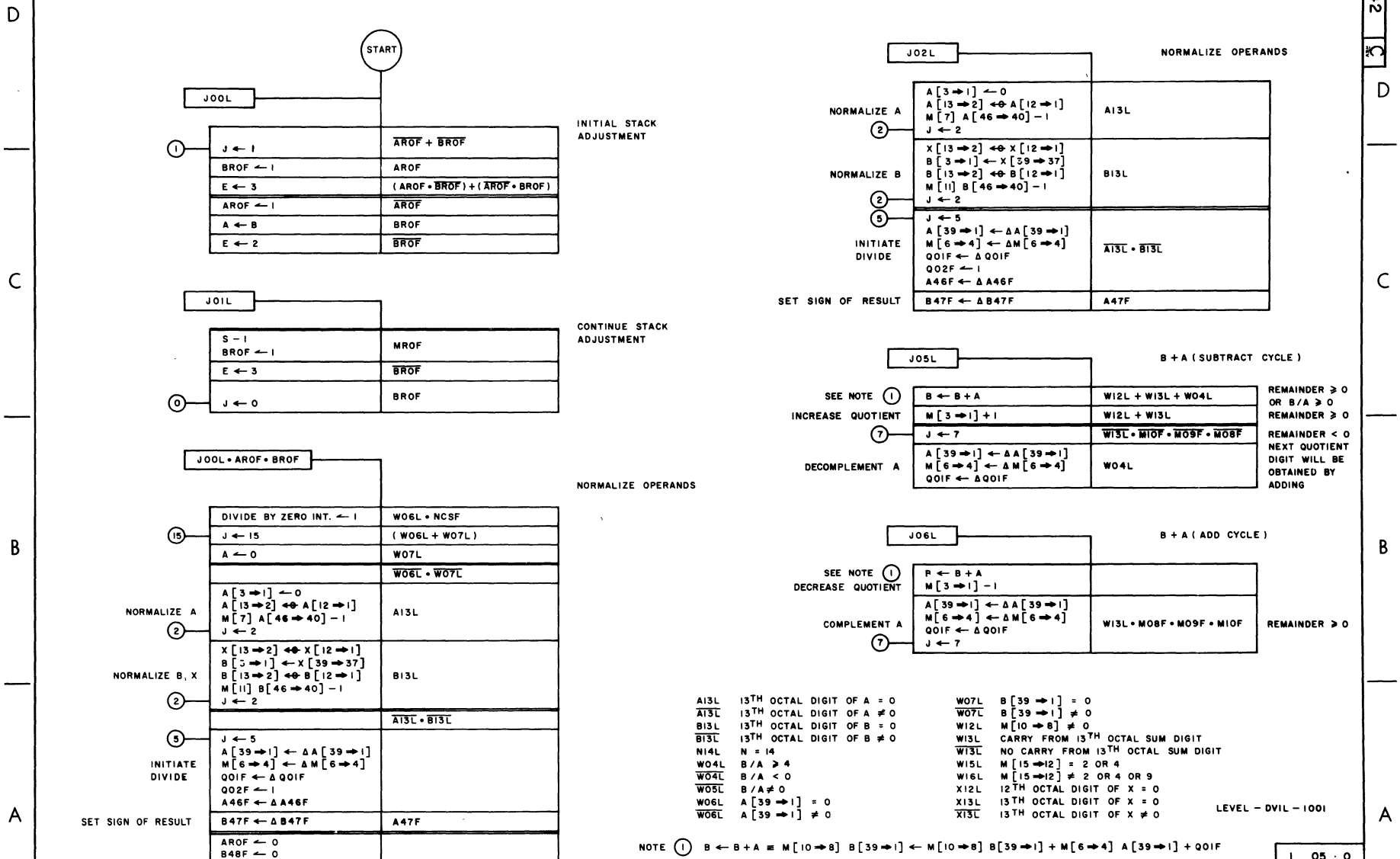
EXPONENT ARITHMETIC

INCREMENT EXPONENT	M [11] B [45 ⇒ 40] + 1	W15L B46F	EXPONENT B POSITIVE
DECREMENT EXPONENT	M [11] B [45 ⇒ 40] - 1	B46F	EXPONENT B NEGATIVE
		Q02F	
	A40F ← 0	W16L	
DECREMENT EXPONENT	M [11] B [45 ⇒ 40] - 1	A40F • W16L • A46F • B46F + A40F • W16L • A46F • B46F	SIGNS OF EXPONENTS DIFFERENT
INCREMENT EXPONENT	M [11] B [45 ⇒ 40] + 1	A40F • W16L • A46F • B46F + A40F • W16L • A46F • B46F	SIGNS OF EXPONENTS EQUAL
	M [15 ⇒ 12] + 1	W15L + A40F	
	B45F ← M11F B [44 ⇒ 40] ← B [45 ⇒ 41] M07F ← B40F A45F ← M07F A [44 ⇒ 40] ← A [45 ⇒ 41]	A40F • W16L	
SHIFT RIGHT A EXPONENT, B EXPONENT AND RESULT			
	M11F ← 0	A40F • W16L • Q06F	
INDICATE INTERMEDIATE RESULT GOES NEGATIVE	Q06F ← 1	WBDL • W72L • M11F	
	Q06F ← 0	Q02F • M15F • M12F	
	B40F ← 0 M [7] A [45 ⇒ 40] - 1	Q06F • M11F	RESULT OBTAINED IN COMPLEMENTARY FORM
DECOMPLEMENT RESULT	M [7] A [45 ⇒ 40] ← ΔM [7] A [45 ⇒ 40] B46F ← ΔB46F M11F ← 0	Q06F • M11F	
	B [45 ⇒ 40] ← A [45 ⇒ 40] Q02F ← 0 M12F ← 0	M11F	RESULT IN TRUE FORM
TRANSFER RESULT TO B INDICATE OPERATION TERMINATED			
EXPONENT UNDERFLOW OR OVERFLOW	M11F ← 1	B40F + M07F	

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE DOUBLE PRECISION MULTIPLY	PAGE 3 OF 3
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494 SYSTEM B5000	C-11844354 B REV

4	REVISIONS										3	2	1
DRAWN BY C BEVINS		REV A	ECN NO 3576	DFTSMN 1	CHKD 9/2/63	APPD	DATE	C	ECN 6474	PRT	60498 10-22-63		
CHECKED J A Beale		RELEASED											
APPROVED D P. Kelly 12-11-64		REV B	ECN NO 3996	DFTSMN 2	CHKD 8-16-63	APPD 8/14/63	DATE						
PROJ ENGR. DE BEULE													



A13L 13TH OCTAL DIGIT OF A = 0  
 A13L 13TH OCTAL DIGIT OF A ≠ 0  
 B13L 13TH OCTAL DIGIT OF B = 0  
 B13L 13TH OCTAL DIGIT OF B ≠ 0  
 N14L N = 14  
 WO4L B/A ≥ 4  
 WO4L B/A < 0  
 WO5L B/A ≠ 0  
 WO6L A [39 → 1] = 0  
 WO6L A [39 → 1] ≠ 0  
 WO7L B [39 → 1] = 0  
 WO7L B [39 → 1] ≠ 0  
 W12L M [10 → 8] ≠ 0  
 W13L CARRY FROM 13TH OCTAL SUM DIGIT  
 W13L NO CARRY FROM 13TH OCTAL SUM DIGIT  
 W15L M [15 → 12] = 2 OR 4  
 W16L M [15 → 12] ≠ 2 OR 4 OR 9  
 X12L 12TH OCTAL DIGIT OF X = 0  
 X13L 13TH OCTAL DIGIT OF X = 0  
 X13L 13TH OCTAL DIGIT OF X ≠ 0

LEVEL - DVIL - 1001

NOTE ① B ← B + A ≡ M [10 → 8] B [39 → 1] ← M [10 → 8] B [39 → 1] + M [6 → 4] A [39 → 1] + QO1F

ELECTRODATA M & E DIVISION	<b>Burrhoughs Corporation</b>	PASADENA CALIFORNIA	TITLE SINGLE PRECISION DIVIDE	PAGE 1 OF 2
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11888542
			SYSTEM B5000	



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CHECKED <i>[Signature]</i>	REV C	ECN NO 6474	DFTSMN	CHKR	APPD	DATE	
APPROVED <i>[Signature]</i> 12-11-62							
PROJ ENGR DE BEULE							

C-11888542

D

C

B

A

D

C

B

A

	J07L	
SHIFT B, X LEFT	M [10 ⇒ 8] ← B [39 ⇒ 37] B [13 ⇒ 2] ← B [12 ⇒ 1] B [3 ⇒ 1] ← X [39 ⇒ 37] X [13 ⇒ 2] ← X [12 ⇒ 1] X [3 ⇒ 1] ← M [3 ⇒ 1] N + 1 M [3 ⇒ 1] ← 0	X13L  Q01F + W04L  Q01F
SHIFT QUOTIENT DIGIT IN X COUNT DIVIDE CYCLES	J ← 6	Q01F
SEE NOTE ①	B ← B + A A [39 ⇒ 1] ← Δ A [39 ⇒ 1] M [6 ⇒ 4] ← Δ M [6 ⇒ 4] Q01F ← 0 Δ Q01F	Q01F + W04L
DECOMPLEMENT A	J ← 5	Q01F + W05L + W04L
TRANSFER QUOTIENT TO B EXIT FOR ROUND ②	A ← 0 M [6 ⇒ 4] ← 0 B [39 ⇒ 1] ← X J ← 15	Q02F + X13L
PREPARE FOR POSSIBLE ROUND	Q01F ← 1 Q01F ← 0	M03F M03F
DECREMENT B EXPONENT	M [11] B [46 ⇒ 40] - 1	N14L
	J15L	
SEE NOTE ①	EXIT B ← B + A B ← 0	W07L
SET B EXPONENT = 0	EXP UNDERFLOW INT ← 1 EXP OVERFLOW INT ← 1	M11F + B46F + NCSF M11F + B46F + NCSF

SHIFT; ADD IF B/A ≥ 4 AND A COMPLEMENTED

INCREMENT EXPONENT  
DECREMENT EXPONENT

DECREMENT EXPONENT  
INCREMENT EXPONENT

SHIFT RIGHT A EXPONENT, B EXPONENT AND RESULT

INDICATE INTERMEDIATE RESULT GOES NEGATIVE

DECOMPLEMENT RESULT

TRANSFER RESULT TO B INDICATE OPERATION TERMINATED  
EXPONENT UNDERFLOW OR OVERFLOW

NEXT QUOTIENT DIGIT OBTAINED BY ADDING

NEXT QUOTIENT DIGIT ≠ 0

QUOTIENT HAS BEEN OBTAINED

14 DIVIDE CYCLES

ROUND, EXIT

	W15L	
EXPONENT B NEGATIVE	B46F	
EXPONENT B POSITIVE	B46F	
	Q02F	
	W16L	
SIGNS OF EXPONENTS DIFFERENT	M [11] B [45 ⇒ 40] - 1 A40F + W16L + A46F + B46F + A40F + W16L + A46F + B46F	
SIGNS OF EXPONENTS EQUAL	M [11] B [45 ⇒ 1] + 1 A40F + W16L + A46F + B46F + A40F + W16L + A46F + B46F	
	W15L + A40F + W16L	
	A40F + W16L	
	A40F + W16L + Q06F	
	WBDL + W72L + M11F	
	Q02F + M15F + M12F	
RESULT OBTAINED IN COMPLEMENTARY FORM	Q06F + M11F M [7] A [45 ⇒ 40] - 1 B40F ← 0 M [7] A [45 ⇒ 40] ← Δ M [7] A [45 ⇒ 40] B46F ← Δ B46F M11F ← 0	Q06F + M11F
RESULT IN TRUE FORM	B [45 ⇒ 40] ← A [45 ⇒ 40] Q02F ← 0 M12F ← 0 M11F ← 1	M11F B40F + M07F

EXPONENT ARITHMETIC

SIGNS OF EXPONENTS DIFFERENT

SIGNS OF EXPONENTS EQUAL

RESULT OBTAINED IN COMPLEMENTARY FORM

RESULT IN TRUE FORM

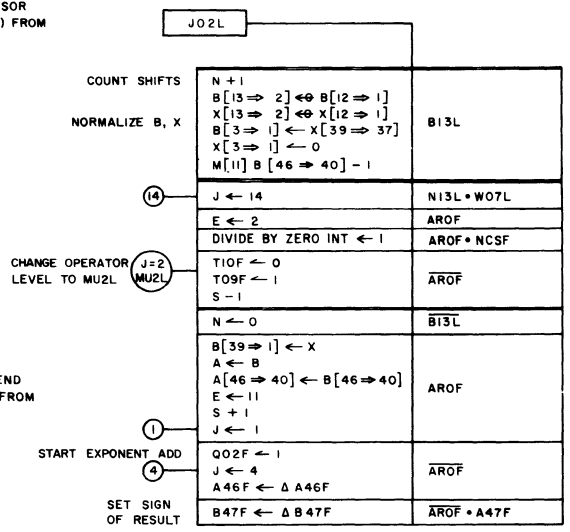
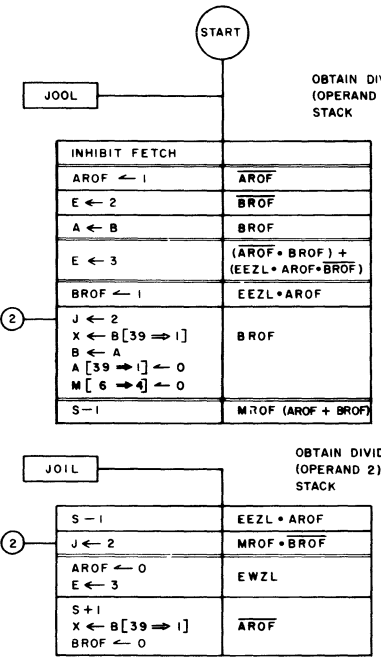
NOTE ① B ← B + A ≡ M [10 ⇒ 8] B [39 ⇒ 1] ← M [10 ⇒ 8] B [39 ⇒ 1] + M [6 ⇒ 4] A [39 ⇒ 1] + Q01F

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE SINGLE PRECISION DIVIDE	PAGE 2 OF 2
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11888542
			SYSTEM B5000	C REV

DRAWN BY R B HENNIG 1/8/62	REVISIONS			
CHECKED <i>[Signature]</i>	REV NO	DFTSMM	CHKR	APPD DATE
APPROVED <i>[Signature]</i> 12-11-62	A	3576		
PROJ ENGR DE BEULE	RELEASED			
	REV NO	T. Z	So	WNA/VD/S
	B	3776		

C-11844362



- GLOSSARY**
- B13L ≡ 13TH OCTAL DIGIT OF B = 0
  - B13L ≡ 13TH OCTAL DIGIT OF B ≠ 0
  - EEZL ≡ E = 0
  - EWZL ≡ EEZL • MW0F
  - N13L ≡ N = 13
  - N13L ≡ N ≠ 13
  - N14L ≡ N = 14
  - N14L ≡ N ≠ 14
  - W04L ≡ B/A > 4
  - W04L ≡ B/A < 4
  - W05L ≡ B/A ≠ 0
  - W06L ≡ A[39 ⇒ 1] = 0
  - W06L ≡ A[39 ⇒ 1] ≠ 0
  - W07L ≡ B[39 ⇒ 1] = 0
  - W12L ≡ M[10 ⇒ 8] ≠ 0
  - W13L ≡ CARRY FROM 13TH OCTAL SUM DIGIT
  - W13L ≡ NO CARRY FROM 13TH OCTAL SUM DIGIT
  - W15L ≡ M[15 ⇒ 12] = 2 OR 4
  - W16L ≡ M[15 ⇒ 12] = 2 OR 4 OR 9
  - X13L ≡ 13TH OCTAL DIGIT OF X = 0
  - X13L ≡ 13TH OCTAL DIGIT OF X ≠ 0

- DOUBLE PRECISION OPERANDS**
- FORM Sm, En, Mn, mn  
n BLANK = RESULT  
FOR THE OTHER VALUES OF n, SEE DESCRIPTION OF OPERATORS
- S = MANTISSA SIGN
  - e = EXPONENT SIGN
  - E = EXPONENT
  - M = MOST SIGNIFICANT HALF OF MANTISSA (STORED WITH EXPONENT AND SIGNS)
  - m = LEAST SIGNIFICANT HALF OF MANTISSA (STORED IN A SEPARATE CELL WITH SIGNS AND EXPONENT PORTION CLEARED)

LEVEL - DV2L - 1005

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NOTE ①  $B ← B + A ≡ M[10 ⇒ 8] B[39 ⇒ 1] ← M[10 ⇒ 8] B[39 ⇒ 1] + M[6 ⇒ 4] A[39 ⇒ 1] + Q01F$

ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE	DOUBLE PRECISION DIVIDE	PAGE	1 OF 4
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT	78494	C-11844362	B
			SYSTEM	B5000		

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C-11844362

J05L

B + A (SUBTRACT CYCLE)

SEE NOTE ①	$B \leftarrow B + A$	$W12L + W13L + W04L + AROF$	REMAINDER $\geq 0$ OR $B/A \geq 4$
INCREASE QUOT.	$M[3 \Rightarrow 1] + 1$	$W12L + W13L$	REMAINDER $\geq 0$
⑦	$J \leftarrow 7$	$W13L + M08F + M09F + M10F$	REMAINDER $< 0$
DECOMPLEMENT A	$A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$ $M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$ $QOIF \leftarrow \Delta QOIF$	$W04L + AROF$	NEXT QUOTIENT DIGIT WILL BE OBTAINED BY ADDING

J06L

B + A (ADD CYCLE)

SEE NOTE ①	$B \leftarrow B + A$		
DECREASE QUOT.	$M[3 \Rightarrow 1] - 1$		
⑦	$A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$ $M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$ $QOIF \leftarrow \Delta QOIF$ $J \leftarrow 7$	$W13L + M08F + M09F + M10F$	REMAINDER $\geq 0$
COMPLEMENT A			

J07L

ADD IF  $B/A \geq 4$ ,  
A COMPLEMENTED, AND  $AROF = 1$

		$N14L + N13L + AROF + X13L$	
⑥	$J \leftarrow 6$	$QOIF$	
SHIFT B, X LEFT	$M[10 \Rightarrow 8] \leftarrow B[39 \Rightarrow 37]$ $B[3 \Rightarrow 1] \leftarrow X[39 \Rightarrow 37]$ $B[13 \Rightarrow 2] \leftarrow B[12 \Rightarrow 1]$ $X[13 \Rightarrow 2] \leftarrow X[12 \Rightarrow 1]$ $X[3 \Rightarrow 1] \leftarrow M[3 \Rightarrow 1]$ $N + 1$ $M[3 \Rightarrow 1] \leftarrow 0$	$QOIF + W04L + AROF$	
SHIFT QUOT DIGIT IN X COUNT DIVIDE CYCLES			
SEE NOTE ①	$B \leftarrow B + A$ $A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$ $M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$ $QOIF \leftarrow \Delta QOIF$	$QOIF + W04L + AROF$	NEXT QUOTIENT DIGIT WILL BE OBTAINED BY ADDING
DECOMPLEMENT A			
⑤	$J \leftarrow 5$	$QOIF + W05L + (W04L + AROF)$	NEXT QUOTIENT DIGIT $\neq 0$
⑧	$J \leftarrow 8$	$AROF + N13L + N14L + QO2F + N13L + X13L + QO2F$	QUOTIENT OBTAINED
SEE NOTE ①	$B \leftarrow B + A$	$QOIF + AROF + N13L$	
COMPLEMENT A	$A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$ $M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$ $QOIF \leftarrow \Delta QOIF$	$BR0F$	Q1 OBTAINED, A DECOMPLEMENTED
DECREASE B EXPONENT	$M[11] B[46 \Rightarrow 40] - 1$	$QO2F + N14L$	Q1 OBTAINED AFTER 14 DIVIDE CYCLES
	$A[39 \Rightarrow 1] \leftarrow X$ $QOIF \leftarrow 0$	$BR0F + N13L$	Q2 OBTAINED

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NOTE 1  $B \leftarrow B + A = M[10 \Rightarrow 8] B[39 \Rightarrow 1] \leftarrow M[10 \Rightarrow 8] B[39 \Rightarrow 1] + M[6 \Rightarrow 4] A[39 \Rightarrow 1] + QOIF$

1 06 1  
PAGE 2 OF 4

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE DOUBLE PRECISION DIVIDE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494
			SYSTEM B5000

C-11844362

B  
REV

4

3

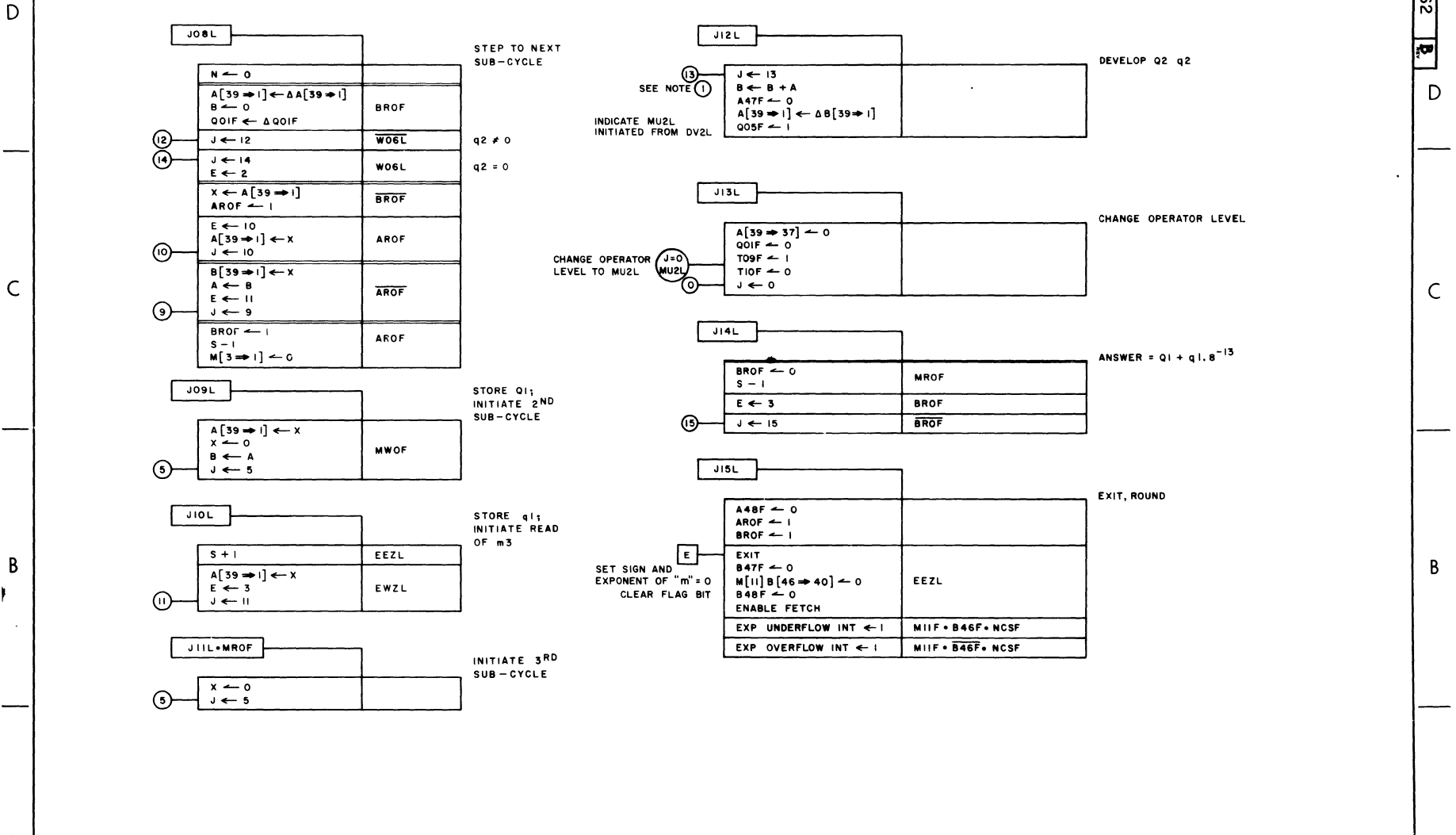
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NOTE ① B ← B + A = M[10 → 8] B[39 → 1] ← M[10 → 8] B[39 → 1] + M[6 → 4] A[39 → 1] + QOIF

1 · 06 · 2

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE DOUBLE PRECISION DIVIDE	PAGE 3 OF 4
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11844362
			SYSTEM B5000	B

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3

2

1

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 CHECKED J J [signature]  
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REV	NO	DFTSMN	CHKR	APPD	DATE

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C-11844362  
B

EXPONENT ARITHMETIC

INCREMENT EXPONENT	$M[11] B [45 \Rightarrow 40] + 1$	W15L B46F	EXPONENT B NEGATIVE
DECREMENT EXPONENT	$M[11] B [45 \Rightarrow 40] - 1$	B46F Q02F	EXPONENT B POSITIVE
	A40F ← 0	W16L	
DECREMENT EXPONENT	$M[11] B [45 \Rightarrow 40] - 1$	A40F • W16L • A46F • B46F + A40F • W16L • A46F • B46F	SIGNS OF EXPONENTS DIFFERENT
INCREMENT EXPONENT	$M[11] B [45 \Rightarrow 1] + 1$	A40F • W16L • A46F • B46F + A40F • W16L • A46F • B46F	SIGNS OF EXPONENTS EQUAL
	$M[15 \Rightarrow 12] + 1$	W15L + A40F • W16L	
SHIFT LEFT A EXPONENT, B EXPONENT AND RESULT	B45F ← M11F B[44 ⇒ 40] ← B[45 ⇒ 41] M07F ← B40F A45F ← M07F A[44 ⇒ 40] ← A[45 ⇒ 41]	A40F • W16L	
INDICATE INTERMEDIATE RESULT GOES NEGATIVE	M11F ← 0 Q06F ← 1	A40F • W16L • Q06F WBDL • W72L • M11F	
	Q06F ← 0	Q02F • M15F • M12F	
	B40F ← 0 M[7] A[45 ⇒ 40] - 1	Q06F • M11F	
DECOMPLEMENT RESULT	M[7] A[45 ⇒ 40] ← Δ M[7] A[45 ⇒ 40] B46F ← Δ B46F M11F ← 0	Q06F • M11F	RESULT OBTAINED IN COMPLEMENTARY FORM
TRANSFER RESULT TO B INDICATE OPERATION TERMINATED	B[45 ⇒ 40] ← A[45 ⇒ 40] Q02F ← 0 M12F ← 0	M11F	RESULT IN TRUE FORM
EXPONENT UNDERFLOW OR OVERFLOW	M11F ← 1	B40F + M07F	

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1 · 06 · 3

ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE DOUBLE PRECISION DIVIDE	PAGE 4 OF 4
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B5000	C-11844362 B

4

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REV	ECN	NO	DFTSMN	CHKR	APPD	DATE
A	3096		1-T	2-72		7-2-62

CHECKED *W. Kelly*

APPROVED *D. Kelly 12-11-62*

PROJ ENGR J DE BEULE

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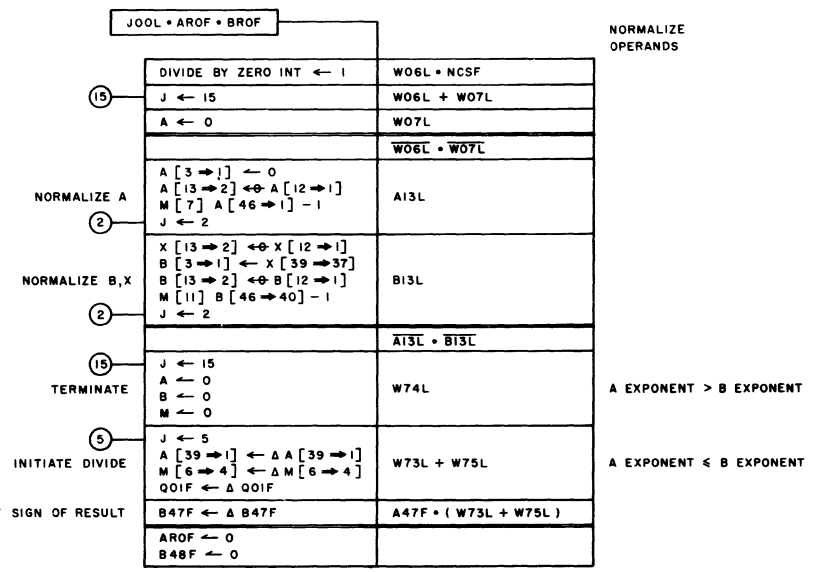
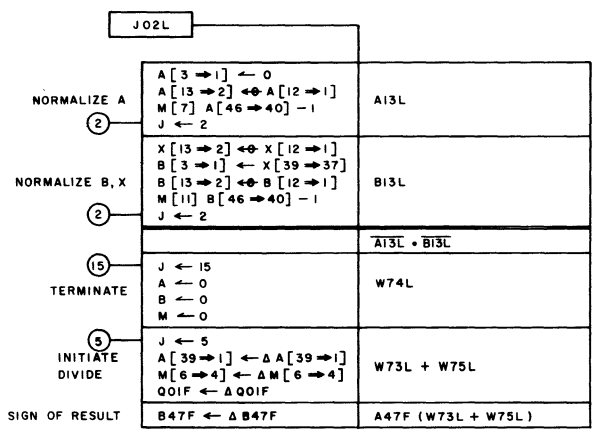
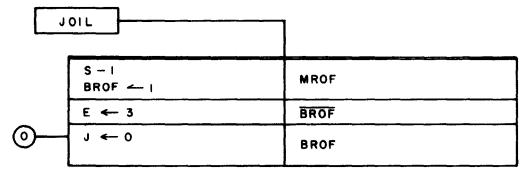
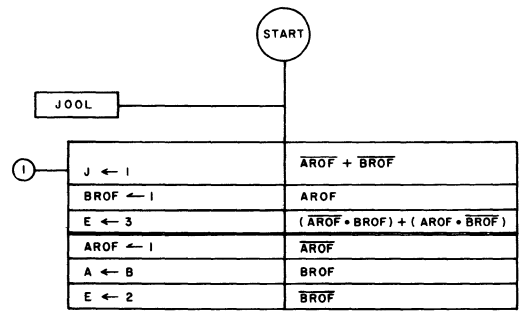
PRT *ECN 6474 10-2-62*

2

1

C-11888559

D



GLOSSARY

A13L = 13TH OCTAL DIGIT OF A = 0

A13L = 13TH OCTAL DIGIT OF A ≠ 0

B13L = 13TH OCTAL DIGIT OF B = 0

B13L = 13TH OCTAL DIGIT OF B ≠ 0

W04L = B/A > 4

W04L = B/A < 4

W05L = B/A ≠ 0

W06L = A [39 → 1] = 0

W06L = B [39 → 1] ≠ 0

W07L = B [39 → 1] = 0

W07L = B [39 → 1] ≠ 0

W12L = M [10 → 8] ≠ 0

W13L = CARRY FROM 13TH OCTAL SUM DIGIT

W13L = NO CARRY FROM 13TH OCTAL SUM DIGIT

W15L = M [15 → 12] = 2 OR 4

W16L = M [15 → 12] ≠ 2 OR 4 OR 9

W73L = EXPONENT A = EXPONENT B

W74L = EXPONENT A > EXPONENT B

W75L = EXPONENT A < EXPONENT B

X12L = 12TH OCTAL DIGIT OF X = 0

X12L = 12TH OCTAL DIGIT OF X ≠ 0

LEVEL - DV3L - 3001

1 - 07 0

PAGE 1 OF 2

ELECTRODATA M & E DIVISION

Burroughs Corporation

PASADENA CALIFORNIA

TITLE INTEGER DIVIDE

UNIT 78494

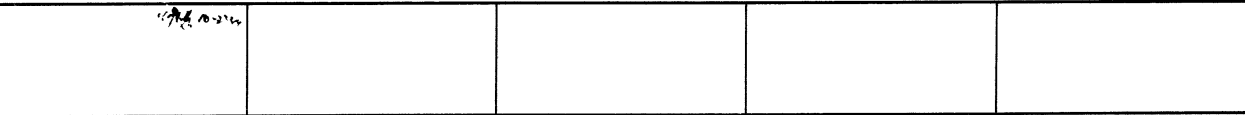
SYSTEM B5000

C-11888559

REV

DRAWN BY C BEVINS 5-15-62  
 CHECKED *J.D. B...*  
 APPROVED *D.T. Kelly* 12-1-62  
 PROJ ENGR J DE BEULE

REVISIONS					
REV	ECN NO	DTSMN	CHKR	APPD	DATE
C	6474				



**J05L**

SEE NOTE ①  
 INCREASE QUOTIENT

$B \leftarrow B + A$	$W12L + W13L + W04L$	REMAINDER $\geq 0$ , OR $\frac{B}{A} \geq 4$
$M[3 \Rightarrow 1] + 1$	$W12L + W13L$	
$J \leftarrow 7$	$W13L \cdot M10F \cdot M05F \cdot M08F$	REMAINDER $\geq 0$
$A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$	$W04L$	REMAINDER $< 0$
$M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$		NEXT QUOTIENT DIGIT WILL BE OBTAINED BY ADDING.
$Q01F \leftarrow \Delta Q01F$		

**J14L • Q02F**

⑮

$B[39 \Rightarrow 1] \leftarrow X$	
$J \leftarrow 15$	
$A \leftarrow 0$	
$M[6 \Rightarrow 4] \leftarrow 0$	
$Q[9 \Rightarrow 1] \leftarrow 0$	
$M[15 \Rightarrow 1] \leftarrow 0$	$Q04F$

**J06L**

SEE NOTE ①  
 DECREASE QUOTIENT

$B \leftarrow B + A$		$B + A$ (ADD CYCLE)
$M[3 \Rightarrow 1] - 1$		
$A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$	$W13L \cdot M10F \cdot M05F \cdot M08F$	REMAINDER $\geq 0$
$M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$		
$Q01F \leftarrow \Delta Q01F$		
$J \leftarrow 7$		

**J15L**

SEE NOTE ①  
 SET B EXPONENT = 0

EXIT	
$B \leftarrow B + A$	
$B \leftarrow 0$	$W07L$

ROUND, EXIT

**J07L**

SHIFT, ADD IF  $\frac{B}{A} > 4$  AND A COMPLEMENTED

$J \leftarrow 6$	$W75L \cdot X12L$	
$Q01F$		
$M[10 \Rightarrow 8] \leftarrow B[39 \Rightarrow 37]$		NEXT QUOTIENT DIGIT OBTAINED BY ADDING
$B[13 \Rightarrow 2] \leftarrow B[12 \Rightarrow 1]$		
$B[3 \Rightarrow 1] \leftarrow X[39 \Rightarrow 37]$		INTEGERS QUOTIENT OBTAINED
$X[13 \Rightarrow 2] \leftarrow X[12 \Rightarrow 1]$	$Q01F + W04L$	
$X[3 \Rightarrow 1] \leftarrow M[3 \Rightarrow 1]$		INTEGERS QUOTIENT CANNOT BE OBTAINED
$N + 1$		
$M[11] B[46 \Rightarrow 40] - 1$		
$M[3 \Rightarrow 1] \leftarrow 0$		
$B \leftarrow B + A$		
$A[39 \Rightarrow 1] \leftarrow \Delta A[39 \Rightarrow 1]$	$Q01F \cdot W04L$	
$M[6 \Rightarrow 4] \leftarrow \Delta M[6 \Rightarrow 4]$		
$Q01F \leftarrow \Delta Q01F$		
$J \leftarrow 5$	$Q01F \cdot W05L \cdot W04L$	
$M[11] B[46 \Rightarrow 40] \leftarrow 0$	$W73L$	
INTEGERS OVERFLOW INT $\leftarrow 1$	$W75L \cdot X12L \cdot NCSF$	
$A46F \leftarrow \Delta A46F$	$W75L \cdot X12L$	
$Q02F \leftarrow 1$		
$Q04F \leftarrow 1$		
$X[13 \Rightarrow 2] \leftarrow X[12 \Rightarrow 1]$		
$X[3 \Rightarrow 1] \leftarrow M[3 \Rightarrow 1]$	$W73L + W75L \cdot X12L$	
$J \leftarrow 14$		

	W15L	EXPONENT ARITHMETIC
INCREMENT EXPONENT	$M[11] B[45 \Rightarrow 40] + 1$	EXPONENT B NEGATIVE
DECREMENT EXPONENT	$M[11] B[45 \Rightarrow 40] - 1$	EXPONENT B POSITIVE
	$Q02F$	
	$A40F \leftarrow 0$	
	$W16L$	
DECREMENT EXPONENT	$M[11] B[45 \Rightarrow 40] - 1$	SIGNS OF EXPONENTS DIFFERENT
INCREMENT EXPONENT	$M[11] B[45 \Rightarrow 40] + 1$	SIGNS OF EXPONENTS EQUAL
	$M[15 \Rightarrow 12] + 1$	
	$W15L + A40F + W16L$	
	$B45 \leftarrow M11F$	
	$B[44 \Rightarrow 40] \leftarrow B[45 \Rightarrow 41]$	
	$M07F \leftarrow B40F$	
	$A45 \leftarrow M07F$	
	$A[44 \Rightarrow 40] \leftarrow A[45 \Rightarrow 41]$	
SHIFT RIGHT A EXPONENT B EXPONENT AND RESULT	$M11F \leftarrow 0$	$A40F \cdot W16L$
	$Q06F \leftarrow 1$	$A40F \cdot W16L \cdot Q06F$
INDICATE PARTIAL RESULT GOES NEGATIVE	$Q06F \leftarrow 0$	$W84L \cdot W72L \cdot M11F$
	$Q06F \leftarrow 0$	$Q02F \cdot M15F \cdot M12F$
	$B40F \leftarrow 0$	
	$M[7] A[45 \Rightarrow 40] - 1$	$Q06F \cdot M11F$
DECREMENT RESULT	$M[7] \leftarrow \Delta M[7]$	RESULT OBTAINED IN COMPLEMENTARY FORM
	$A[45 \Rightarrow 40] \leftarrow \Delta A[45 \Rightarrow 40]$	
	$B46F \leftarrow \Delta B46F$	
	$M11F \leftarrow 0$	
	$B[45 \Rightarrow 40] \leftarrow A[45 \Rightarrow 40]$	RESULT IN TRUE FORM
	$Q02F \leftarrow 0$	$M11F$
	$M12F \leftarrow 0$	
	$M11F \leftarrow 1$	$B40F + M07F$

NOTE ①.  $B \leftarrow B + A \equiv M[10 \Rightarrow 8] B[39 \Rightarrow 1] \leftarrow M[10 \Rightarrow 8] B[39 \Rightarrow 1] + M[6 \Rightarrow 4] A[39 \Rightarrow 1] + Q01F$





4

3

2

1

DRAWN BY R B HENNIG 1/12/62		REVISIONS				
CHECKED <i>J. De Beule</i>	REV. NO. C	ECN. NO. 6474	DISSEM. PRT.	CHGR	APPD	DATE
APPROVED <i>J. De Beule</i> 12-11-60						
PROJ ENGR DE BEULE						

C-11888567

D

D

	J07L		
		W75L * X12L	
⑥	J ← 6	Q01F	
	M [10 → 8] ← B [39 → 37]		
	B [13 → 2] ← B [12 → 1]		
	B [3 → 1] ← X [39 → 37]		
	X [13 → 2] ← X [12 → 1]		
	X [3 → 1] ← M [3 → 1]	Q01F + W04L	
	N + 1		
	M [11] B [46 → 40] - 1		
	M [3 → 1] ← 0		
	B ← B + A		
	A [39 → 1] ← Δ A [39 → 1]	Q01F + W04L	
	M [6 → 4] ← Δ M [6 → 4]		
	Q01F ← Δ Q01F		
SEE NOTE ①			
DECOMPLEMENT A			
⑤	J ← 5	Q01F + W05L + W04L	
SEE NOTE ①			
	B ← B + A	W73L * Q01F	
	Q01F ← 0		
	A ← 0	W73L	
	M [6 → 4] ← 0		
	J ← 15		
	M [6 → 4] ← 0		
	B ← 0		
	Q [9 → 1] ← 0	W75L * X12L	
	J ← 15		
	A ← 0		
TERMINATE			
⑮			
	INTEGER OVERFLOW INT. ← 1	NCSF	

SHIFT B, X LEFT  
SHIFT QUOTIENT DIGIT IN X  
COUNT DIVIDE CYCLES

SEE NOTE ①  
DECOMPLEMENT A

SEE NOTE ①

TERMINATE

SHIFT, ADD IF  $\frac{B}{A} \geq 4$   
AND A COMPLEMENTED

NEXT QUOTIENT  
DIGIT OBTAINED  
BY ADDING

INTEGER QUOTIENT OBTAINED

INTEGER QUOTIENT  
CANNOT BE OBTAINED

J15L

ROUND, EXIT

E	EXIT	
SEE NOTE ①	B ← B + A	
SET B EXPONENT = 0	B ← 0	W07L
	EXP UNDERFLOW INT. ← 1	M11F + U18FF

NOTE ①  $B \leftarrow B + A = M [10 \rightarrow 8] B [39 \rightarrow 1] \leftarrow M [10 \rightarrow 8] B [39 \rightarrow 1] + M [6 \rightarrow 4] A [39 \rightarrow 1] + Q01F$

A

A

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE REMAINDER DIVIDE	1 08 · 1
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	PAGE 2 OF 2
			SYSTEM B5000	C-11888567

C

PRINTED IN U.S.A.  
HENRY'S SUPPLY

4

3

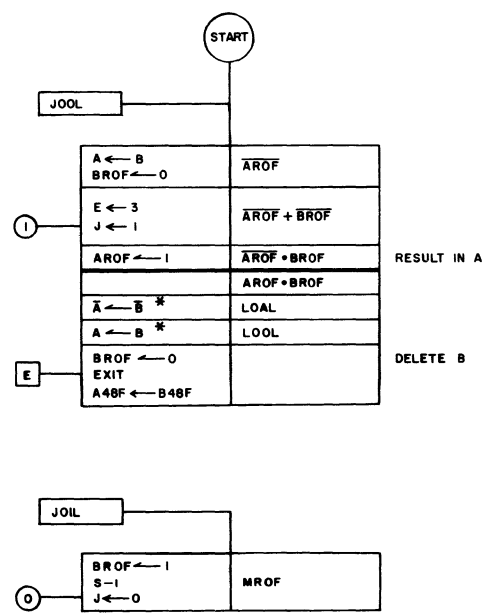
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REDUCED SIZE PRINT

FORM NO. EDD-1655 REV. 9-61

DRAWN BY G. W. HELWIG 5-5-64		REVISIONS							
CHECKED	<i>G.W. Helwig</i> 10-23-64	REV	ECNNO	DTSMM	CHK	APPD	DATE		
APPROVED	<i>H.P. Kelly</i> 10-23-64	B	6474	GMH					
PROJ ENGR.	<i>G.W. Helwig</i> 10-23-64	REVISED & REDRAWN.							

C-11834629



$\bar{A} \leftarrow B *$  = SINGLE SIDE TRANSFER OF FALSE OUTPUTS OF B[47 → 1] INTO KCL INPUTS A[47 → 1]  
 $A \leftarrow B *$  = SINGLE SIDE TRANSFER OF TRUE OUTPUTS OF B[47 → 1] INTO JCL INPUTS A[47 → 1]  
 LOGICAL AND — LOAL — 0415  
 LOGICAL OR — LOOL — 0215  
 COMMON LEVEL = T5OL \* T10F = LOAL + LOOL

ELECTRODATA M&E DIVISION		Burroughs Corporation		PASADENA CALIFORNIA	TITLE LOGICAL AND OPERATOR LOGICAL OR OPERATOR	1-09-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT					UNIT 78494	C-11834629
					SYSTEM B5000	B

DRAWN BY C BEVINS 11/21/61

REVISIONS

REV	ECN NO	DFTSMN	CHKR.	APPD	DATE
A	3076	I.T.			

B	ECN	PRT
	6474	

RELEASED

REVISED

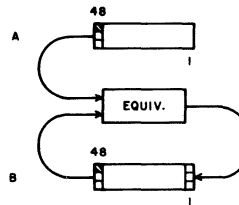
APPROVED *D. T. Kelly*

PROJ ENGR C B CARLSON

START

J = 0

A ← B BROF ← 0	AROF
E ← 3 J ← 1	AROF + BROF
AROF ← 1	AROF • BROF
	AROF • BROF
B03F ← 1	NEZL • B48F + NEZL • (A48F • B48F + A48F • B48F)
B03F ← 0	NEZL B48F + NEZL (A48F • B48F + A48F • B48F)
B02F ← 1	A47F • B47F + A47F • B47F
B02F ← 0	A47F • B47F + A47F • B47F
B01F ← 1	A46F • B46F + A46F • B46F
B01F ← 0	A46F • B46F + A46F • B46F
J ← 2	NISL
A [16 → 2] ↔ A [15 → 1] B [16 → 2] ↔ B [15 → 1] N + 1	



J = 1

BROF ← 1 S - 1 J ← 0	MROF
----------------------------	------

J = 2

AROF ← 0 EXIT	
------------------	--

LOGICAL EQUIVALENCE — LOEL-1015

1-11-0

ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE LOGICAL "EQUIVALENCE" OPERATOR	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	
			SYSTEM B5000	C-11834595 B

REDUCED SIZE PRINT

4

3

2

1

DRAWN BY C BEVINS  
 CHECKED *[Signature]*  
 APPROVED *[Signature]*  
 PROJ ENGR C B CARLSON

REVISIONS					
REV	RCN NO	DFTSMN	CHKD	APPD	DATE
A	3576	1-7	12-10-64		

RELEASED

C-11834603

D

C

B

A

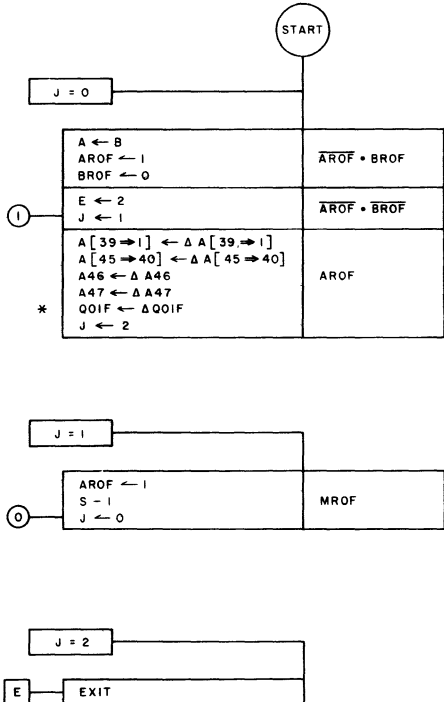
A

D

C

B

A



LOGICAL NEGATE — LONL — 0115  
 \* QOIF ← Δ QOIF IS A REDUNDANT ACTION

FOR EDUCATIONAL USE ONLY 1 12 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE LOGICAL "NEGATE" OPERATOR	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834603
			SYSTEM B5000	A REV

4

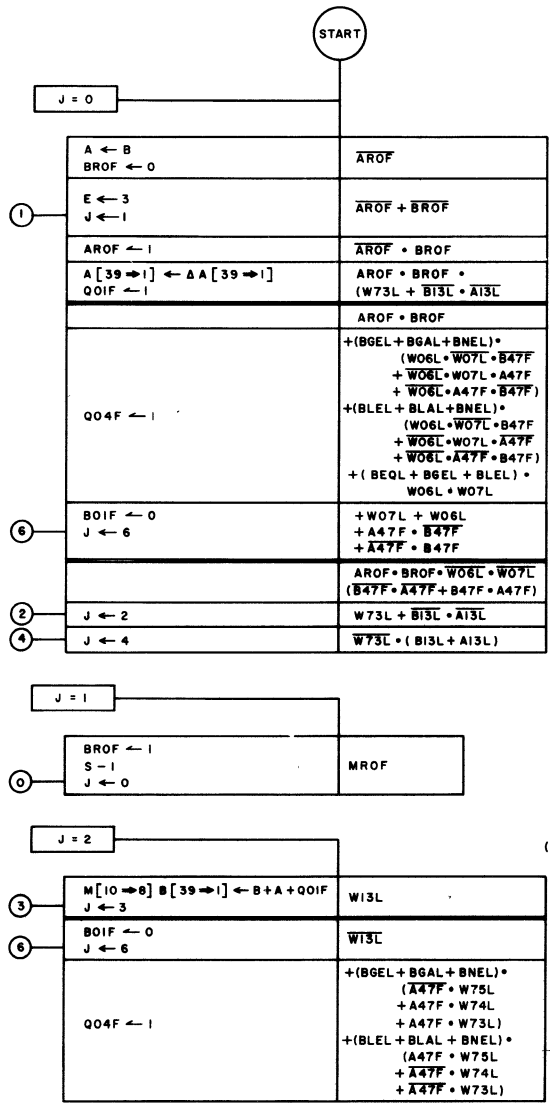
3

2

1

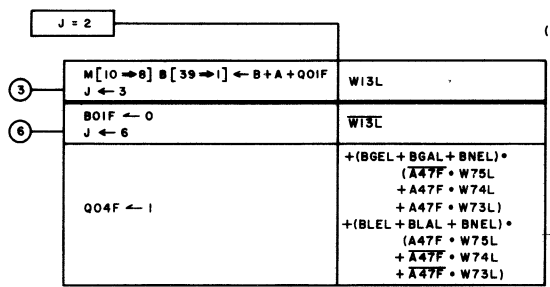
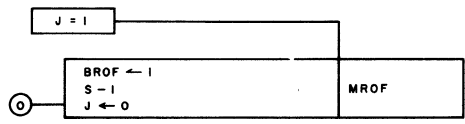
DRAWN BY R B HENNIG	REVISONS					
CHECKED <i>R.B. Hennig</i>	REV A	ECN NO 3596	DFTSMN 13	CHKD	APPD	DATE
APPROVED <i>D. F. Kelly 12-11-64</i>	RELEASED					
PROJ ENGR C B. CARLSON	REV B	ECN 8474	CHKD 4/5/64	APPD	DATE	

C-11834660

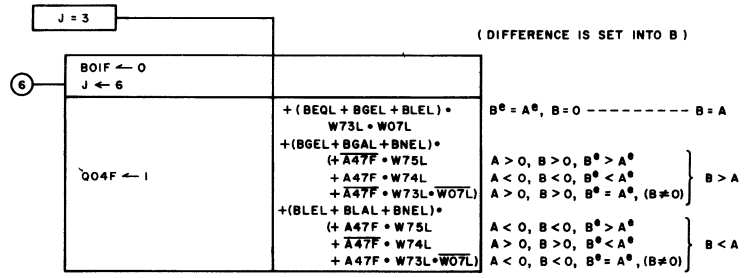


B > 0 = A } B > A  
 B = 0 > A }  
 B > 0 > A }  
 B < 0 = A } B < A  
 B = 0 < A }  
 B < 0 < A }  
 B = 0 < A } B = A

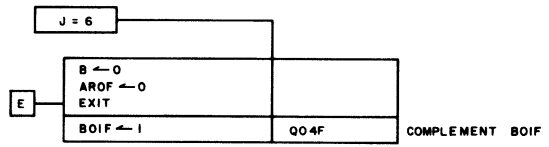
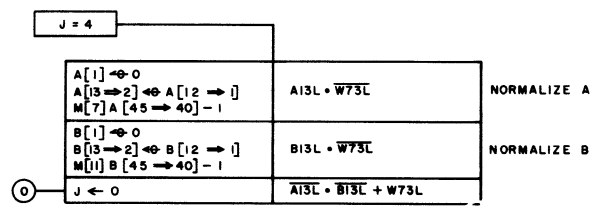
COMPARE IS MADE  
 MUST SUBTRACT B(-) A  
 MUST NORMALIZE



(TEST CARRY BEFORE DIFFERENCE IS SET INTO B)  
 |Bm| > |Am| } B > A  
 |Bm| < |Am| } B < A  
 A > 0, B > 0, B° > A° } B > A  
 A < 0, B < 0, B° < A° }  
 A < 0, B < 0, B° = A° }  
 A < 0, B < 0, B° > A° } B < A  
 A > 0, B > 0, B° < A° }  
 A > 0, B > 0, B° = A° }  
 A > 0, B > 0, B° > A° }



(DIFFERENCE IS SET INTO B)  
 B° = A°, B = 0 ----- B = A  
 A > 0, B > 0, B° > A° } B > A  
 A < 0, B < 0, B° < A° }  
 A > 0, B > 0, B° = A°, (B ≠ 0) }  
 A < 0, B < 0, B° > A° } B < A  
 A > 0, B > 0, B° < A° }  
 A < 0, B < 0, B° = A°, (B ≠ 0) }



THIS FLOW DESCRIBES 6 OPERATORS

B GREATER THAN A	- BGAL-0225	W06L = A MANTISSA = 0
B GREATER THAN OR EQUAL TO A	- BGEL-0125	W07L = B MANTISSA = 0
B EQUAL TO A	- BEQL-4425	B13L = B MANTISSA NORMALIZED
B LESS THAN OR EQUAL TO A	- BLEL-4125	A13L = A MANTISSA NORMALIZED
B LESS THAN A	- BLAL-4225	W13L = "CARRY 13" MANTISSA ADDER
B NOT EQUAL TO A	- BNEL-0425	W75L = B° > A° (7 BIT ALGEBRAIC)
		W74L = B° < A° (7 BIT ALGEBRAIC)
		W73L = B° = A° (7 BIT ALGEBRAIC)
		Bm = B MANTISSA
		Am = A MANTISSA

B

D

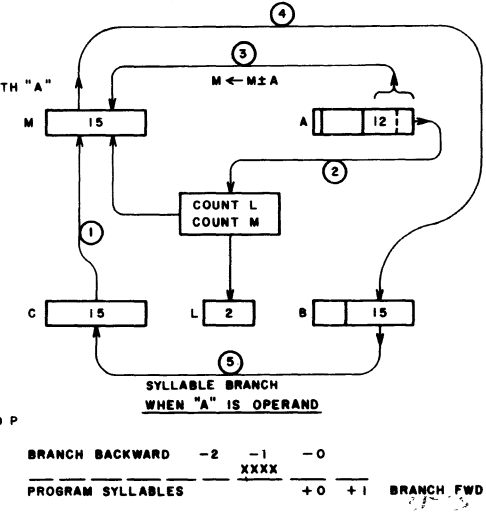
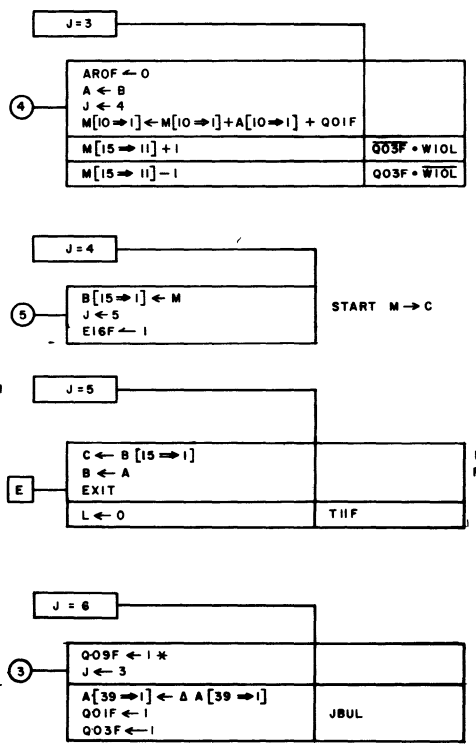
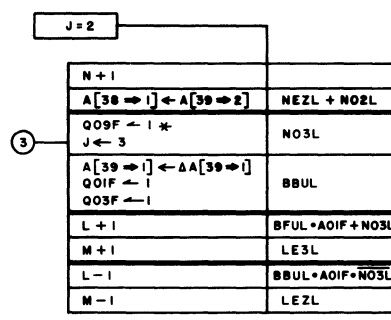
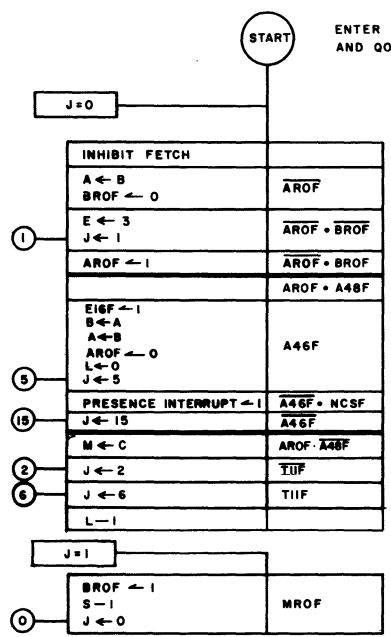
C

B

A

ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE COMPARE OPERATORS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	C-11834660
		SYSTEM B 5000	B REV

DRAWN BY R.B HENNIS 12/8/61	REVISIONS				C	ECN 4528	LHCH	50	11/13	11/13
CHECKED <i>C.B. Carlson</i>	REV NO A 3576	DATE 1.7.	CHKD	APPD	DATE	D	ECN 6474	MY	12/15/63	12/15/63
APPROVED <i>C.B. Carlson 12-11-63</i>	RELEASED	ECN NO B 3776	T.Z.	12-15-63						
PROJ ENGR C.B CARLSON										



WIOL = C<sub>10</sub> FROM ADDRESS ADDER  
Q01F = C<sub>0</sub> INTO ADDER  
Q09F = ADDRESS ADDER  
\* = REDUNDANT ACTION

SYLLABLE BRANCH FORWARD UNCONDITIONAL — BFUL-4231  
SYLLABLE BRANCH BACKWARD UNCONDITIONAL — BBUL-4131  
WORD BRANCH FORWARD UNCONDITIONAL — JFUL-6231  
WORD BRANCH BACKWARD UNCONDITIONAL — JBUL-6131

ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE UNCONDITIONAL BRANCH OPERATORS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	D
		C-11834686	1-14-0

REDUCED SIZE PRINT

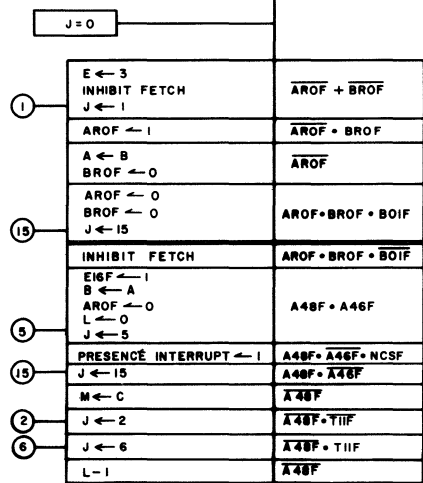
DRAWN BY R B HENNIG 12/9/61	REVISIONS					C	ECN	LHCH	225			
CHECKED <i>R.B. Hennig</i>	REV	ECN	NO	DATE	CHKR	APPD	DATE					
APPROVED <i>D. T. Kelly</i>	RELEASED	ECN	NO	DATE	CHKR	APPD	DATE					
PROJ ENGR C.B CARLSON	B	3776	2-18-62	3-26	P.A. N. (13)							

C-11834694

D  
C  
B  
A

D  
C  
B  
A

START ENTER WITH "R" IN "M"  
AND Q09F = 1



NO BRANCH  
ALLOW FETCH

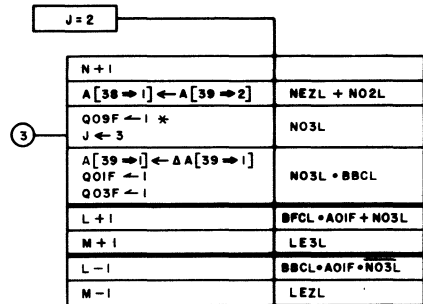
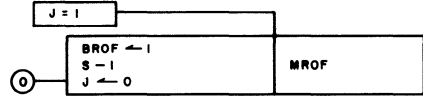
A IS DESCRIPTOR  
PROGRAM WORD  
IS PRESENT

PROGRAM WORD  
NOT PRESENT

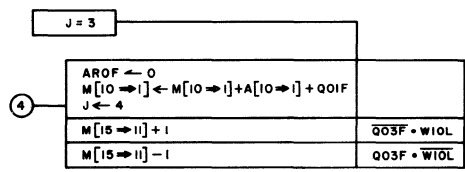
A IS OPERAND

SYLLABLE BRANCH

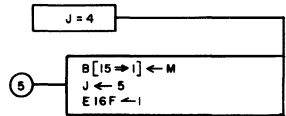
WORD BRANCH



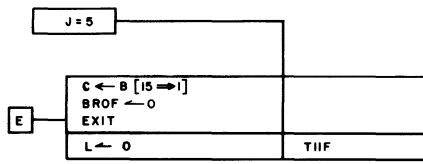
INDEX L  
CARRY INTO "C"  
("C" IS IN M)  
INCREMENT "C" & L (+1)



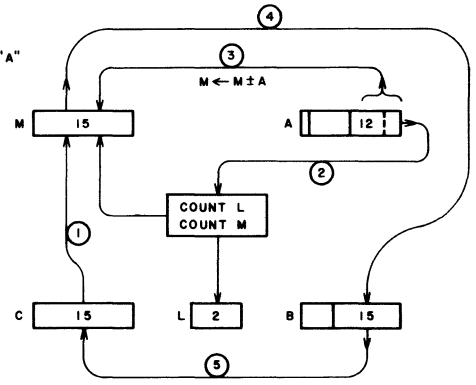
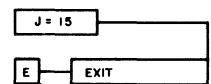
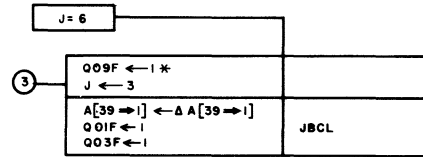
INDEX "C" WITH "A"



START M → C



INITIATE LOAD P

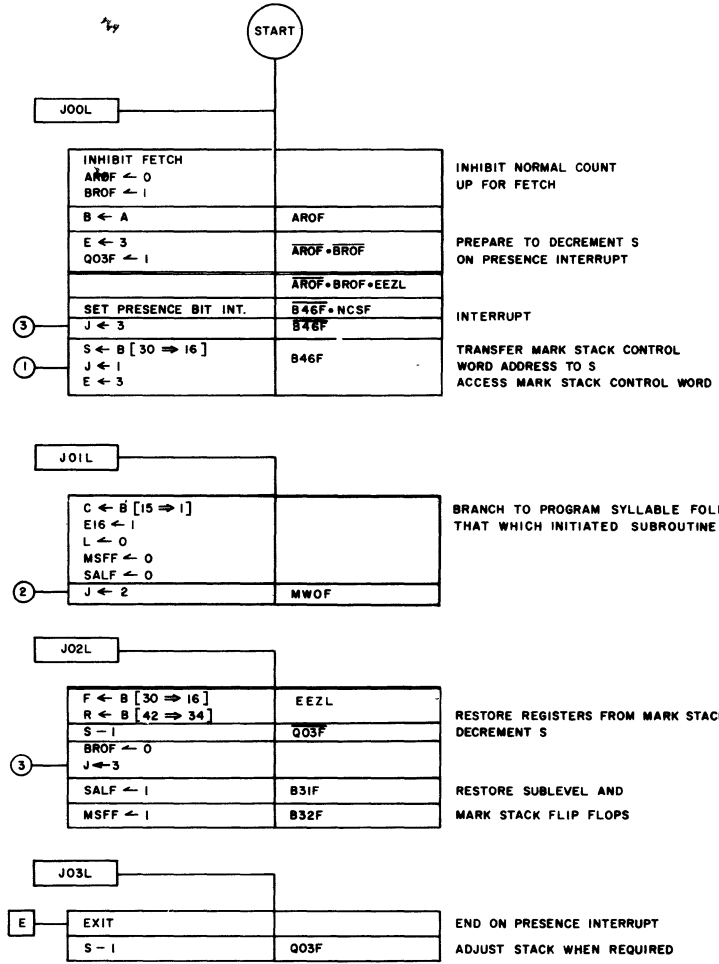


BRANCH BACKWARD -2 -1 -0  
PROGRAM SYLLABLES - XXXX +0 +1 BRANCH FWD

\* = REDUNDANT ACTION  
SYLLABLE BRANCH FORWARD CONDITIONAL — BFCL - 0231  
SYLLABLE BRANCH BACKWARD CONDITIONAL — BBCL - 0131  
WORD BRANCH FORWARD CONDITIONAL — JFCL - 2231  
WORD BRANCH BACKWARD CONDITIONAL — JBCL - 2131

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE CONDITIONAL BRANCH OPERATORS	PAGE 1 · 15 · 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	C-11834694
			SYSTEM B5000	D REV

DRAWN BY T. L. GIBSON		REVISIONS				C	ECN	LH CH	REV	DATE
CHECKED	<i>J.H. Pedersen</i>	REV	ECN NO	DFTSMAN	CHEK	APPD	DATE	4528	7-25	
APPROVED	<i>J.H. Pedersen</i>	RELEASED	A	3574	C. B.	282	8-2-63	6474	12-27	
PROJ ENGR	J. H. PEDERSEN	B	3996	8-16-63	2-1	8-16-63				



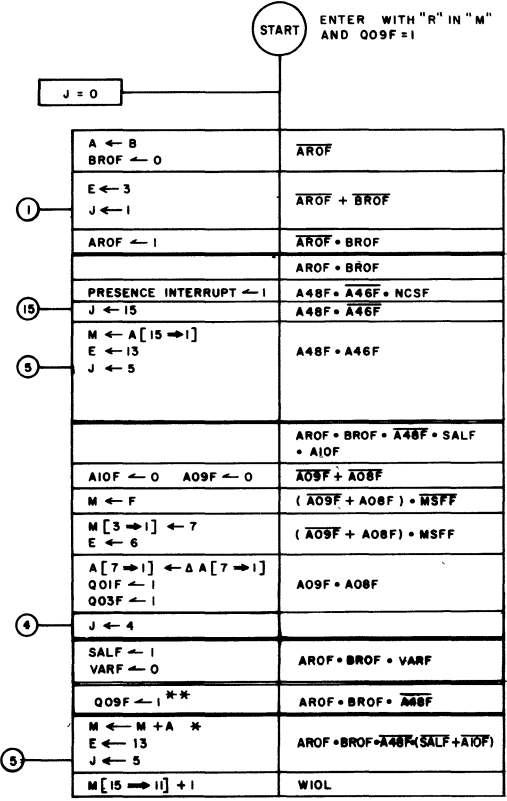
MSFF ≡ Q12F  
BRANCH RETURN OPERATOR: RJPL - 0135

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE BRANCH RETURN OPERATOR	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836160
			SYSTEM B5000	D



DRAWN BY R B HENNIG 11/2/61		REVISIONS				C	ECN 452B	LHCH	7/25/63
CHECKED	<i>R.B. Hennig</i>	REV	ECN NO	DFTSMN	CHGR	APPD	DATE		
APPROVED	<i>A.T. K... ..</i>	RELEASED							
PROJ ENGR	C.B. CARLSON	B	ECN NO	T.Z.	7-16	7-16	11/2/61		

D								
C								
D								
D								
C								
B								
A								



A IS DESCRIPTOR;  
AREA NOT PRESENT

A IS DESCRIPTOR;  
AREA IS PRESENT

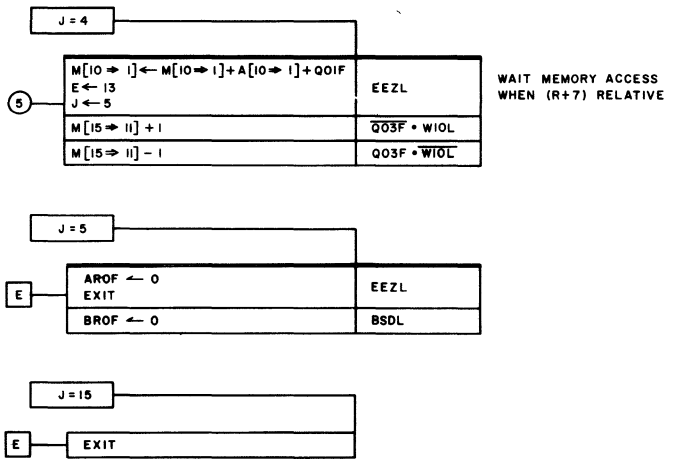
"F" RELATIVE  
DESIRED "F" IN REGISTER

DESIRED "F" IN (R+7)

(F-) RELATIVE

RESTORE SALF IF IT WAS  
RESET BY PRECEEDING VARL

R + RELATIVE -  
FAST ADD



\*\* REDUNDANT ACTION

\* M ← M + A \* M[10 → 1] ← M[10 → 1] + A[10 → 1] + Q01F

MSFF = MARK STACK FLIP-FLOP (Q12F)

E = 6 = MEMORY READ ACCESS (M) → M (15 BITS ONLY)

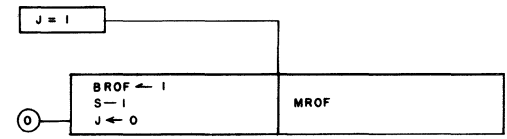
WIOL = CARRY FROM ADDRESS ADDER

Q01F = CARRY INTO ADDRESS ADDER

Q09F = ADDRESS ADDER

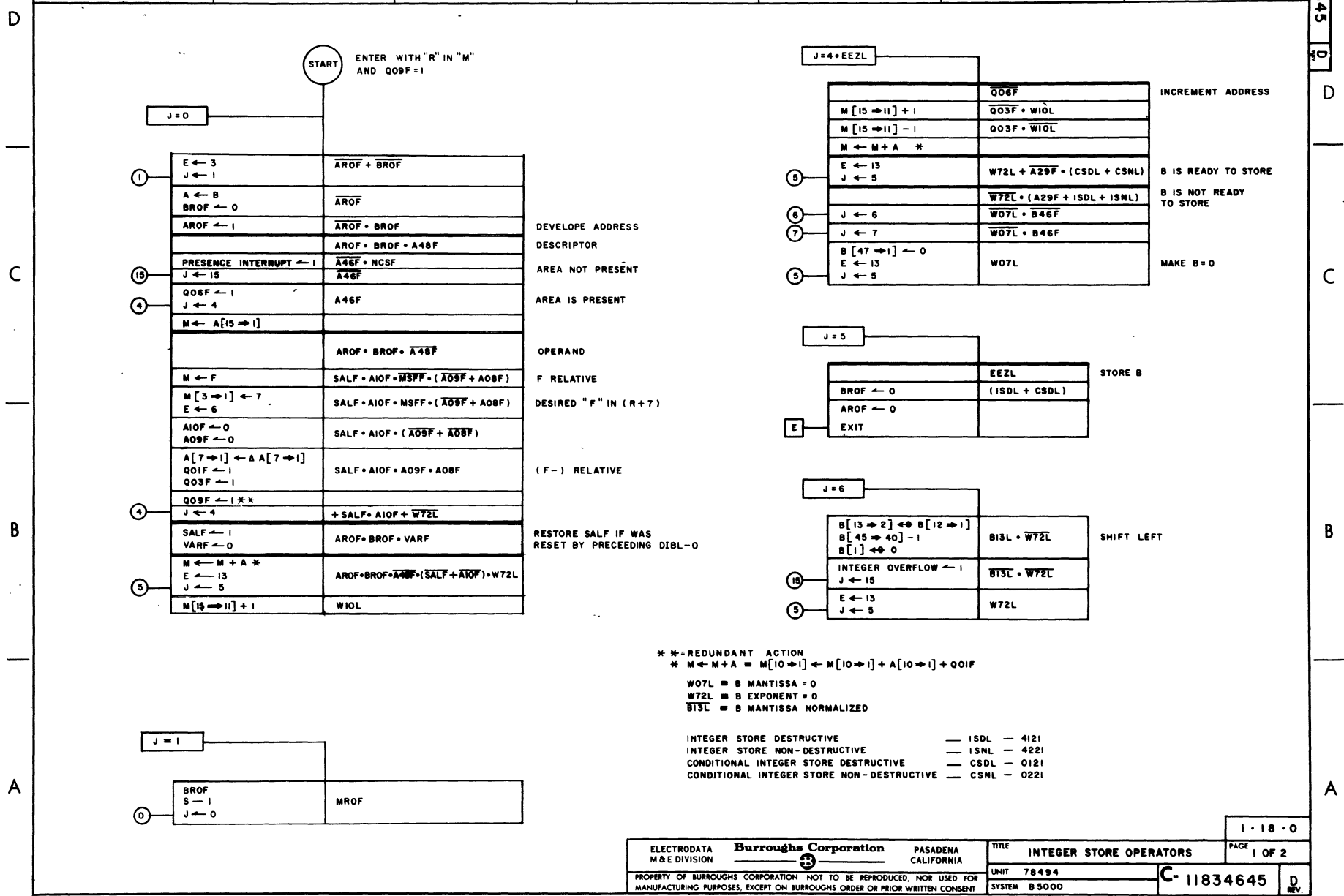
STORE DESTRUCTIVE — BSDL — 0421

STORE NON-DESTRUCTIVE — BSNL — 1021



ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE STORE OPERATORS	1.17.0 PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B5C00	C-11834637 D REV

DRAWN BY C. BEVINS 11/17/61		REVISIONS				C	ECN 4528	LHCH	EP	MB	20/20
CHECKED	<i>P.B. Parker</i>	REV	ECN NO	DFTSMN	CHKD	APPD	DATE				
APPROVED	<i>D.T. Kelly</i>	RELEASED	ECN NO	T.Z.	EC	MB	WAS				
PROJ ENGR	C.B. CARLSON		6474								

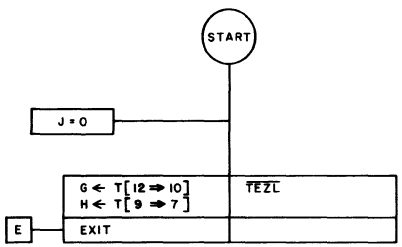


4	3	2	1	C-11834645																											
REVISIONS																															
DRAWN BY C BEVINS 11/21/61 CHECKED <i>[Signature]</i> APPROVED <i>[Signature]</i> 12-11-61 PROJ ENGR C B CARLSON	REV D EDN NO 6474 DFTSMN PRT CHKR APPD DATE																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">J=7</td> <td style="width: 50%; padding: 5px;">           * <math>X[12 \Rightarrow 1] \leftrightarrow X[13 = 2]</math>  <math>B[12 \Rightarrow 1] \leftrightarrow B[13 \Rightarrow 2]</math>  <math>X[13] \leftrightarrow B[1]</math>  <math>B[13] \leftarrow 0</math>  <math>B[45 \Rightarrow 40] - 1</math> </td> <td style="width: 20%; text-align: center;">SHIFT RIGHT</td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td style="padding: 5px;"> <math>W07L + W72L</math>  <math>Q04F \leftarrow 1</math> </td> <td></td> <td></td> </tr> <tr> <td></td> <td style="padding: 5px;"> <math>B01F + B02F + X39F</math>  <math>W72L \cdot (X39F + B47F + Q04F)</math> </td> <td style="text-align: center;">NO ROUND REQ'D</td> <td></td> </tr> <tr> <td></td> <td style="padding: 5px;"> <math>B47F \leftarrow 0</math>  <math>E \leftarrow 13</math>  <math>J \leftarrow 5</math> </td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">5</td> <td style="padding: 5px;"> <math>A[39 \Rightarrow 1] \leftarrow 0</math>  <math>Q01F \leftarrow 1</math>  <math>Q09F \leftarrow 0</math>  <math>J \leftarrow 8</math> </td> <td style="text-align: center;">ROUND REQ'D.</td> <td></td> </tr> <tr> <td style="text-align: center;">8</td> <td style="padding: 5px;"> <math>B[47 \Rightarrow 1] \leftarrow 0</math>  <math>E \leftarrow 13</math>  <math>J \leftarrow 5</math> </td> <td style="text-align: center;">MAKE B=0</td> <td></td> </tr> <tr> <td style="text-align: center;">5</td> <td style="padding: 5px;"> <math>B46F \leftarrow 0</math> </td> <td></td> <td></td> </tr> </table>					J=7	* $X[12 \Rightarrow 1] \leftrightarrow X[13 = 2]$ $B[12 \Rightarrow 1] \leftrightarrow B[13 \Rightarrow 2]$ $X[13] \leftrightarrow B[1]$ $B[13] \leftarrow 0$ $B[45 \Rightarrow 40] - 1$	SHIFT RIGHT			$W07L + W72L$ $Q04F \leftarrow 1$				$B01F + B02F + X39F$ $W72L \cdot (X39F + B47F + Q04F)$	NO ROUND REQ'D			$B47F \leftarrow 0$ $E \leftarrow 13$ $J \leftarrow 5$			5	$A[39 \Rightarrow 1] \leftarrow 0$ $Q01F \leftarrow 1$ $Q09F \leftarrow 0$ $J \leftarrow 8$	ROUND REQ'D.		8	$B[47 \Rightarrow 1] \leftarrow 0$ $E \leftarrow 13$ $J \leftarrow 5$	MAKE B=0		5	$B46F \leftarrow 0$	
J=7	* $X[12 \Rightarrow 1] \leftrightarrow X[13 = 2]$ $B[12 \Rightarrow 1] \leftrightarrow B[13 \Rightarrow 2]$ $X[13] \leftrightarrow B[1]$ $B[13] \leftarrow 0$ $B[45 \Rightarrow 40] - 1$	SHIFT RIGHT																													
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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">J=8</td> <td style="width: 50%; padding: 5px;"> <math>B[39 \Rightarrow 1] \leftarrow B + A + Q01F</math>  <math>E \leftarrow 13</math>  <math>J \leftarrow 5</math> </td> <td style="width: 20%; text-align: center;">ROUND B</td> <td style="width: 10%;"></td> </tr> </table>	J=8	$B[39 \Rightarrow 1] \leftarrow B + A + Q01F$ $E \leftarrow 13$ $J \leftarrow 5$	ROUND B																											
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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center;">J=15</td> <td style="width: 50%; padding: 5px;">           EXIT         </td> <td style="width: 20%;"></td> <td style="width: 10%;"></td> </tr> </table>	J=15	EXIT																												
J=15	EXIT																														
* REDUNDANT ACTION																															

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE INTEGER STORE OPERATORS	PAGE 2 OF 2
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	FORM NO. 820-288 REV. 5-61
			C-11834645	D

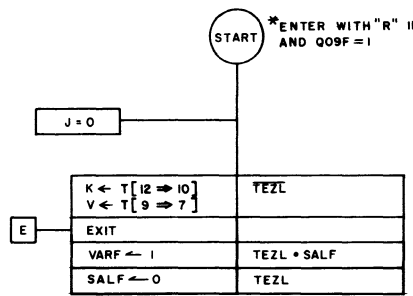
REDUCED SIZE PRINT

DRAWN BY T L GIBSON	REVISIONS				C	ECN 6474	IMY			
CHECKED R. G. [Signature]	REV A	ECN NO 3596	DFTSMN I.T.	CHKD [Signature]	APPD	DATE				
APPROVED [Signature]	RELEASED									
PROJ ENGR L E KOWALSKI	B	ECN 4528	L HCH	[Signature]	[Signature]	[Signature]				



DIAL A OPERATOR

LEVEL: DIAL - XX55 (WHERE XX ≠ 00)  
NOPL 0055 WORD MODE NOOP



DIAL B AND VARIANT OPERATOR

LEVEL: DIBL - XX61 (WHERE XX ≠ 00)  
VARL 0061 SET VARIANT OPERATOR

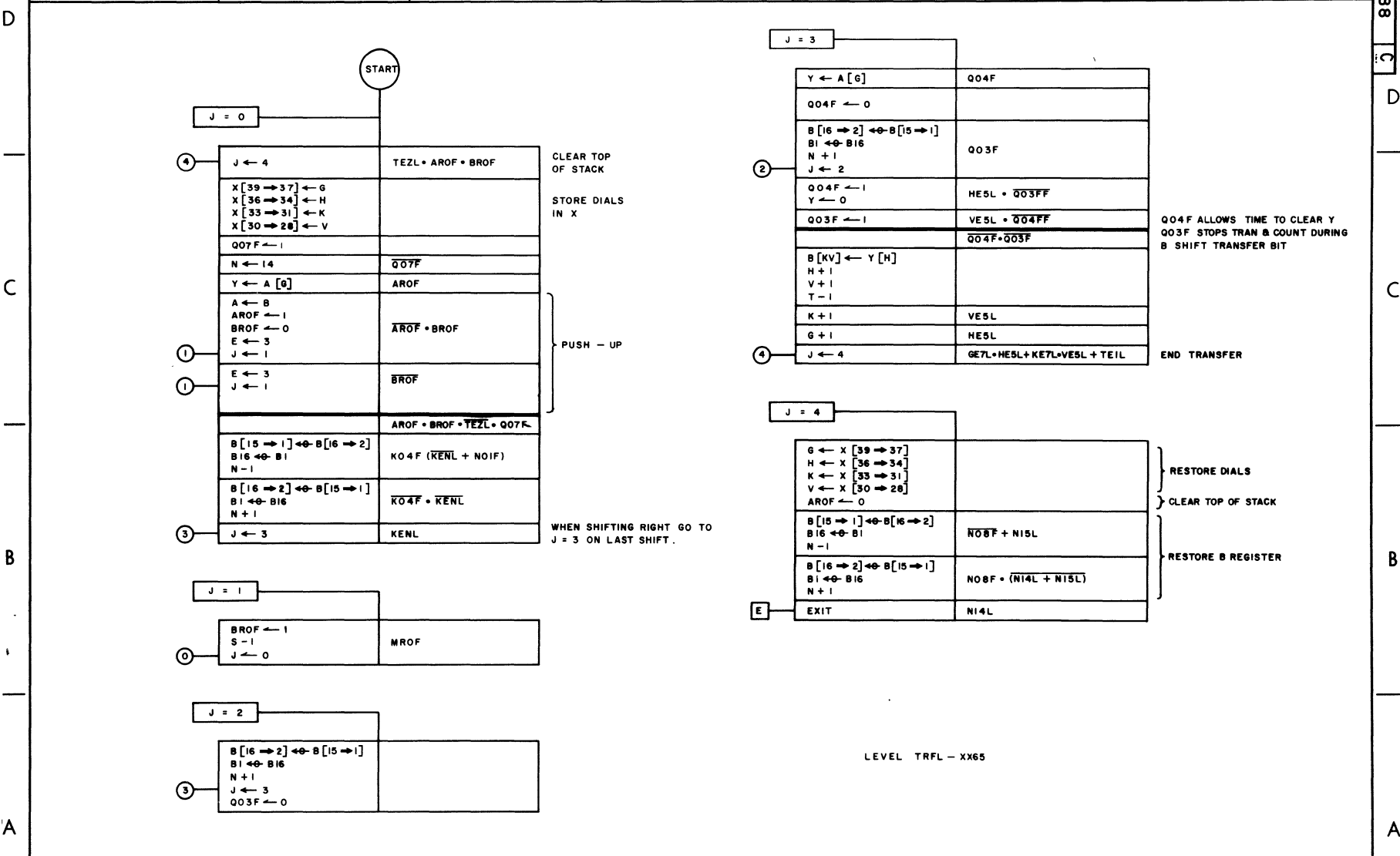
CHANGE TO PROGRAM LEVEL FOR R RELATIVE ADDRESSING IN FOLLOWING SYLLABLE

\* = REDUNDANT ACTION

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE DIAL A, DIAL B, NO OP, VARIANT	PAGE 1-19-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11837770
			SYSTEM B5000	C REV

REDUCED SIZE PRINT

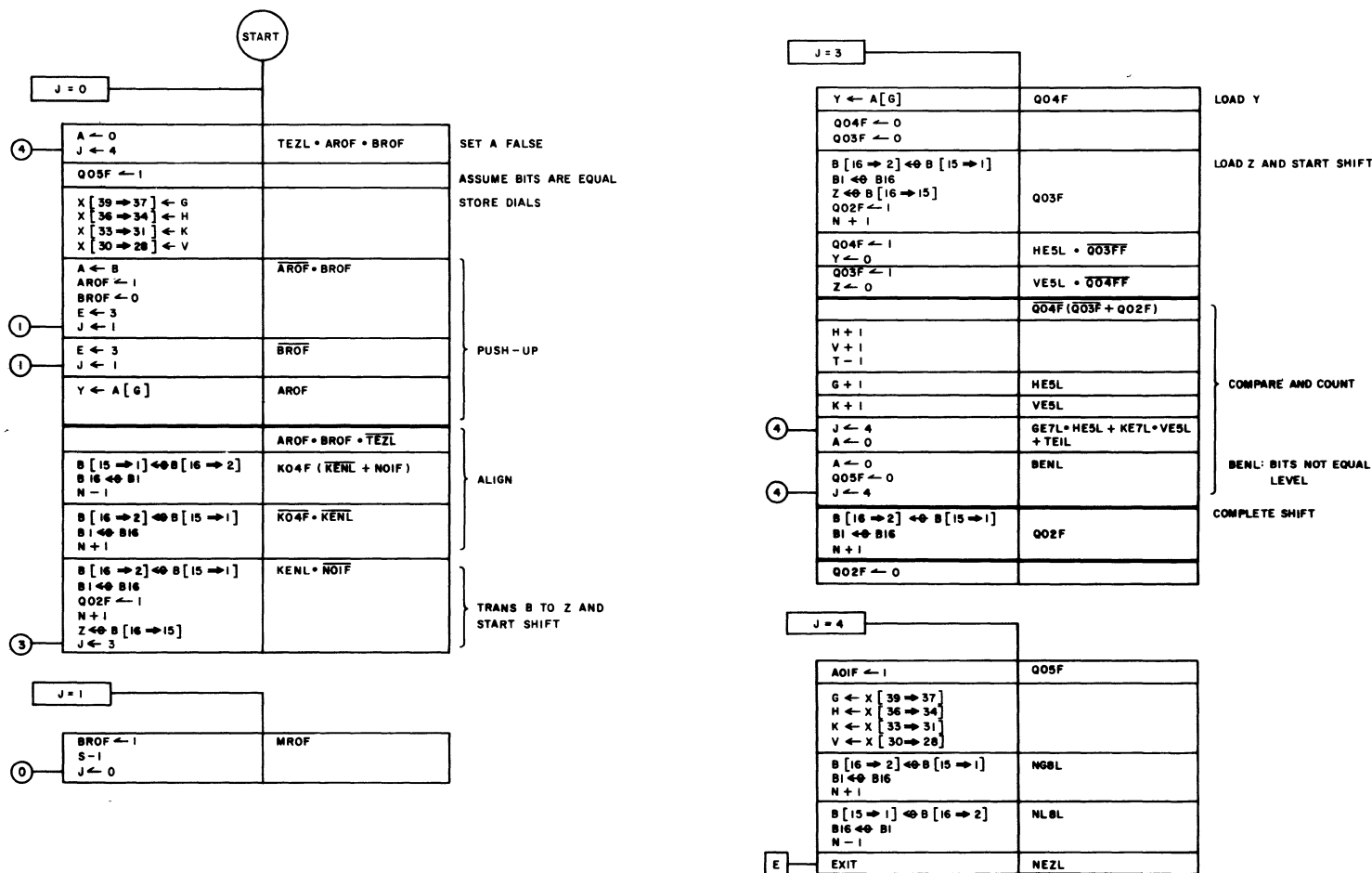
DRAWN BY L. KOWALSKI 11-22-61	REVISIONS				C	ECN 6474	MY	11-23-61
CHECKED <i>[Signature]</i>	REV A	ECN NO 3576	DFTSMN I.T.	CHKR	APPD	DATE		
APPROVED <i>[Signature]</i>	RELEASED							
PROJ ENGR L E KOWALSKI	REV B	ECN NO 3996	T.Z. 2-16-63	CHKR	APPD	DATE		



ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TRANSFER BITS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11837788
			SYSTEM B 5000	REV

DRAWN BY T.L. GIBSON		REVISIONS			
CHECKED <i>[Signature]</i>	REV. NO. A 353	DESIGN I.T.	CHKD 12-2	APPD	DATE
APPROVED <i>[Signature]</i>	RELEASED				
PROJ. ENGR L.E. KOWALSKI	TECH 6474	PRT			

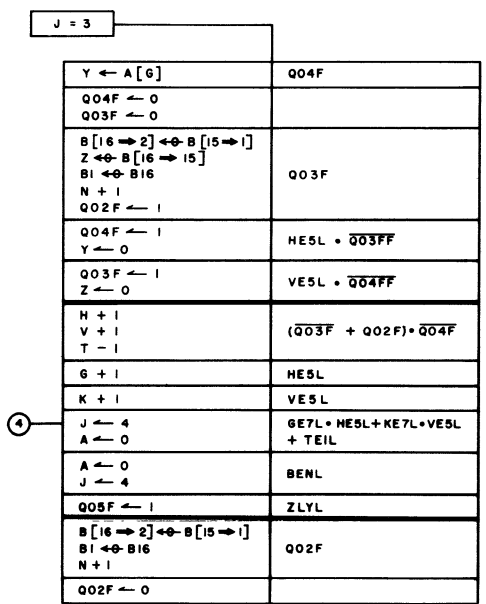
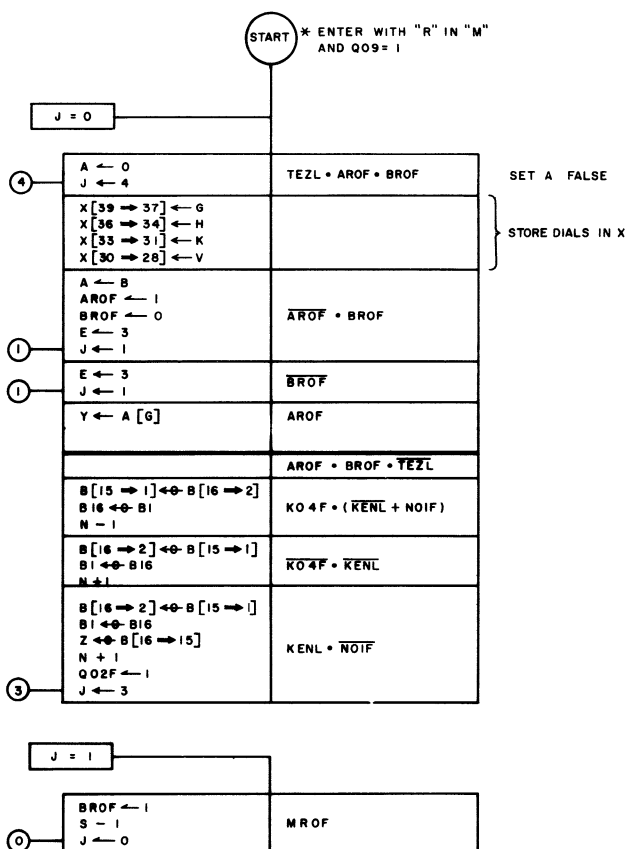
C-11837804



LEVEL: CFEL - XX75

DRAWN BY <i>L. E. KOWALSKI 11-21-61</i>	REVISIONS				
CHECKED <i>R. Kelly</i>	REV. NO. <i>A</i>	REV. DATE <i>3/27/62</i>	CHKD. DATE <i>3/27/62</i>	APPD. DATE	DATE
APPROVED <i>D. T. Kelly 11-21-61</i>	RELEASED				
PROJ. ENGR. <i>L. E. KOWALSKI</i>	B	ECN <i>6474</i>	PRT		

C-11837796



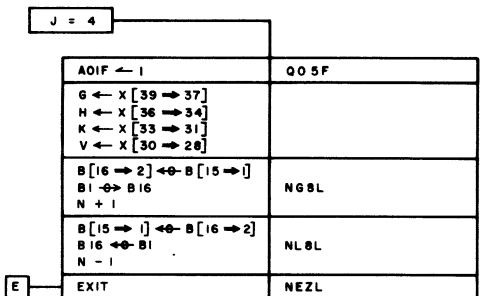
NOTE: WE MAY TRY TO SET & RESET Q03F SIMUL. (IE. V=5 UPON ENTRY)

(Q03F, Q02F) PREVENTS COMPARE WHILE B → Z & Y ← 0

COMPARE & COUNT

ZLYL: Z LESS THAN Y LEVEL

NOTE: WE MAY TRY TO SET & RESET Q03F SIMUL. (IE. V=5 UPON ENTRY)



RESTORE DIALS

RESTORE B

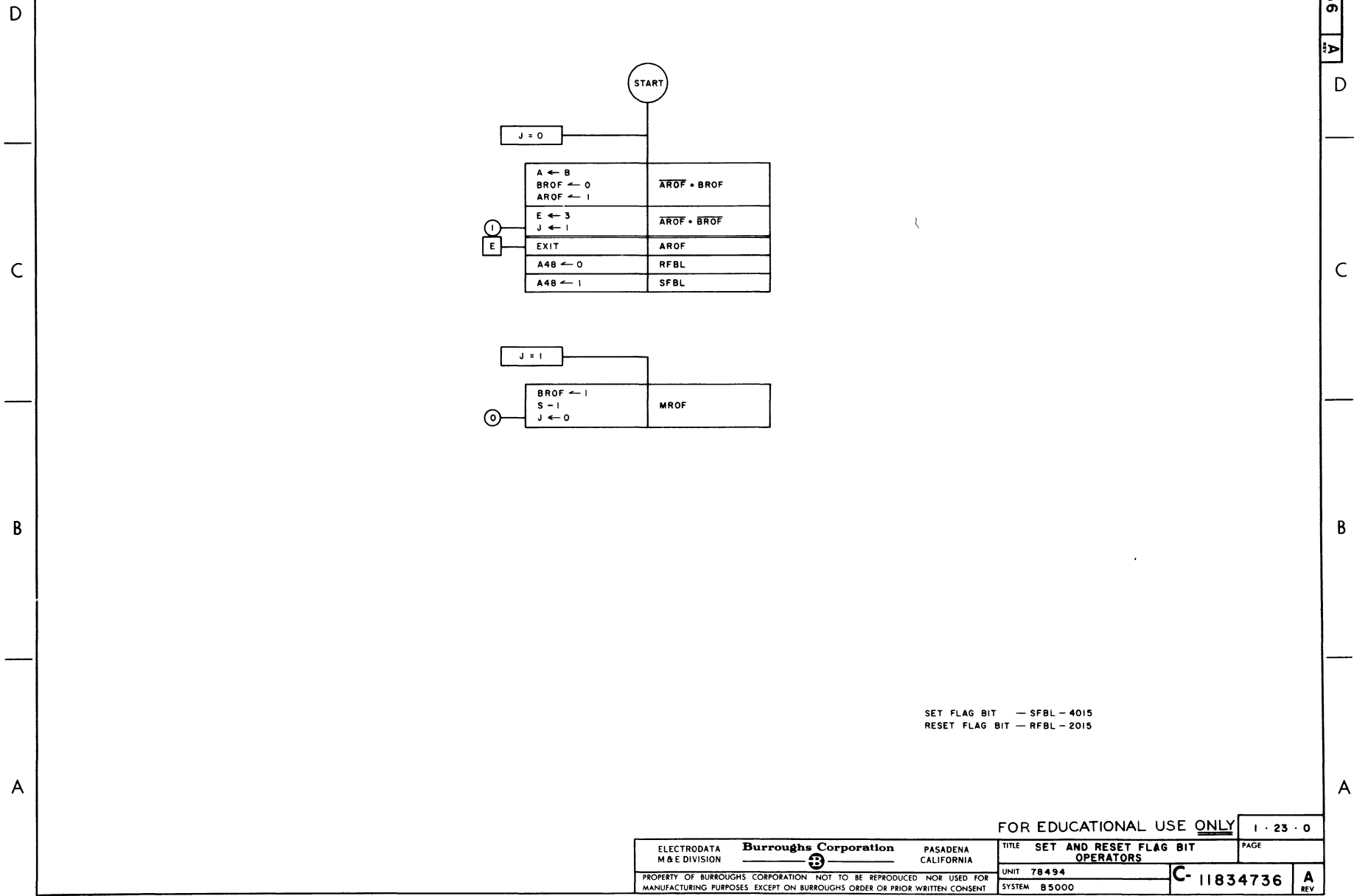
\* = REDUNDANT ACTION  
LEVEL - CFLL - XX71

ELECTRODATA M&E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE COMPARE FIELD LOW (B < A)	PAGE 1 - 22 - 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B-5000	C-11837796 B

REDUCED SIZE PRINT

4	3	2	1
DRAWN BY C BEVINS 11/24/61			
REVISIONS			
REV NO	REV NO	DATE	DATE
A	35%	1-7	
CHECKED <i>C.B. Carlson</i>			
APPROVED <i>C.B. Carlson</i> 12-1-62			
PROJ ENGR C B CARLSON			

C-11834736



SET FLAG BIT — SFBL — 4015  
 RESET FLAG BIT — RFBL — 2015

FOR EDUCATIONAL USE ONLY 1 - 23 - 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE SET AND RESET FLAG BIT OPERATORS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	<b>C-11834736</b>
			SYSTEM B5000	

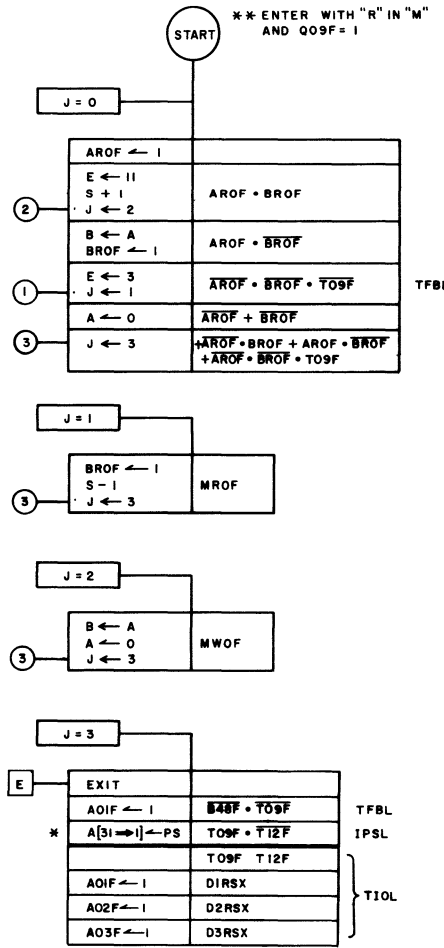


DRAWN BY R. B. HENNIG 10/28/61		REVISIONS			
CHECKED <i>[Signature]</i>	REV. NO. 3276	DFTSMN	CHKD	APPD	DATE
APPROVED <i>[Signature]</i>	RELEASED	ECN NO. 6474	6WH		
PROJ ENGR C. B. CARLSON					

C-11834678

\*A[31 → ] ← PS  
SIGNAL LINES FROM CC.

PERIPHERAL UNIT	A REG. F.F.	UNIT DESIGNATE
TSU-1	1	1
TSU-3	2	3
TSU-5	3	5
TSU-7	4	7
TSU-9	5	9
TSU-11	6	11
TSU-13	7	13
TSU-15	8	15
TSU-17	9	17
TSU-19	10	19
TSU-21	11	21
TSU-23	12	23
TSU-25	13	25
TSU-27	14	27
TSU-29	15	29
TSU-31	16	31
DRUM-1	17	4
DRUM-2	18	8
DISC FILE-1	19	6
DISC FILE-2	20	12
PRINTER-1	21	22
PRINTER-2	22	26
CARD PUNCH	23	10
CARD READER 1	24	10
CARD READER 2	25	14
SPO-KEYBOARD	26	30
PT PUNCH-1	27	18
PT READER-1	28	18
PT READER-2	29	20
PT. PUNCH-2	30	20
DATA COM CONTROL	31	16



DIRSX = T1B5 + T3B5 } THESE LEVELS ARE BUILT IN  
 D2RSX = T2B5 + T3B5 } CC AND CABLED TO DPA & DPB  
 D3RSX = T4B5  
 T1B5 = I/O UNIT 1 NOT BUSY  
 T2B5 = I/O UNIT 2 NOT BUSY  
 T3B5 = I/O UNIT 3 NOT BUSY  
 T4B5 = I/O UNIT 4 NOT BUSY  
 \*\* = REDUNDANT ACTION

TEST FLAG BIT - TFBL - 2031  
 INTERROGATE PERIPHERAL STATUS - IPSL - 2431  
 INTERROGATE I/O CHANNEL - TIOL - 6431  
 COMMON DRIVER - TFBLDI = TFBL + IPSL + TIOL

D

C

B

A

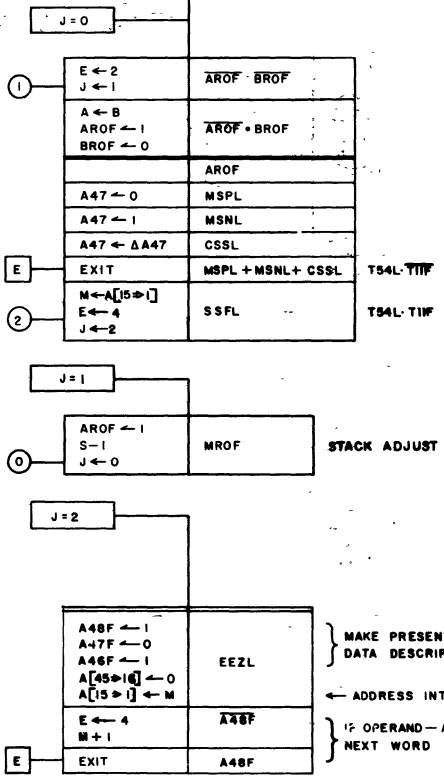
ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE TEST FLAG BIT AND INTERROGATE OPERATORS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834678
			SYSTEM B 5000	B REV

REDUCED SIZE PRINT

DRAWN BY R B HENNIG 11/3/61		REVISIONS			
CHECKED <i>[Signature]</i>	REV NO A 35%	DFTS MAN V.T.	CHKD S.C.P.	APPD	DATE
RELEASED					
APPROVED <i>[Signature]</i> 12-11-61	B	REV NO 6474	LNCH	<i>[Signature]</i>	
PROJ ENGR C B CARLSON					
REVISED					

C-11834702 B D C B A

START \*ENTER WITH "R" IN "M"  
AND Q09F=1



\* = REDUNDANT ACTION

RESET SIGN BIT — MSPL - 4431  
 SET SIGN BIT — MSNL - 0431  
 CHANGE SIGN BIT — CSSL - 1031  
 STACK SEARCH FOR FLAG — SSFL - 7031  
 COMMON LEVEL T54L = MSPL + MSNL + CSSL + SSFL

ELECTRODATA M&E DIVISION		Burroughs Corporation PASADENA CALIFORNIA		TITLE A - SIGN OPERATORS AND STACK SEARCH FOR FLAG. PAGE	
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT				UNIT 78494	C-11834702
				SYSTEM B5000	B

REDUCED SIZE PRINT

4

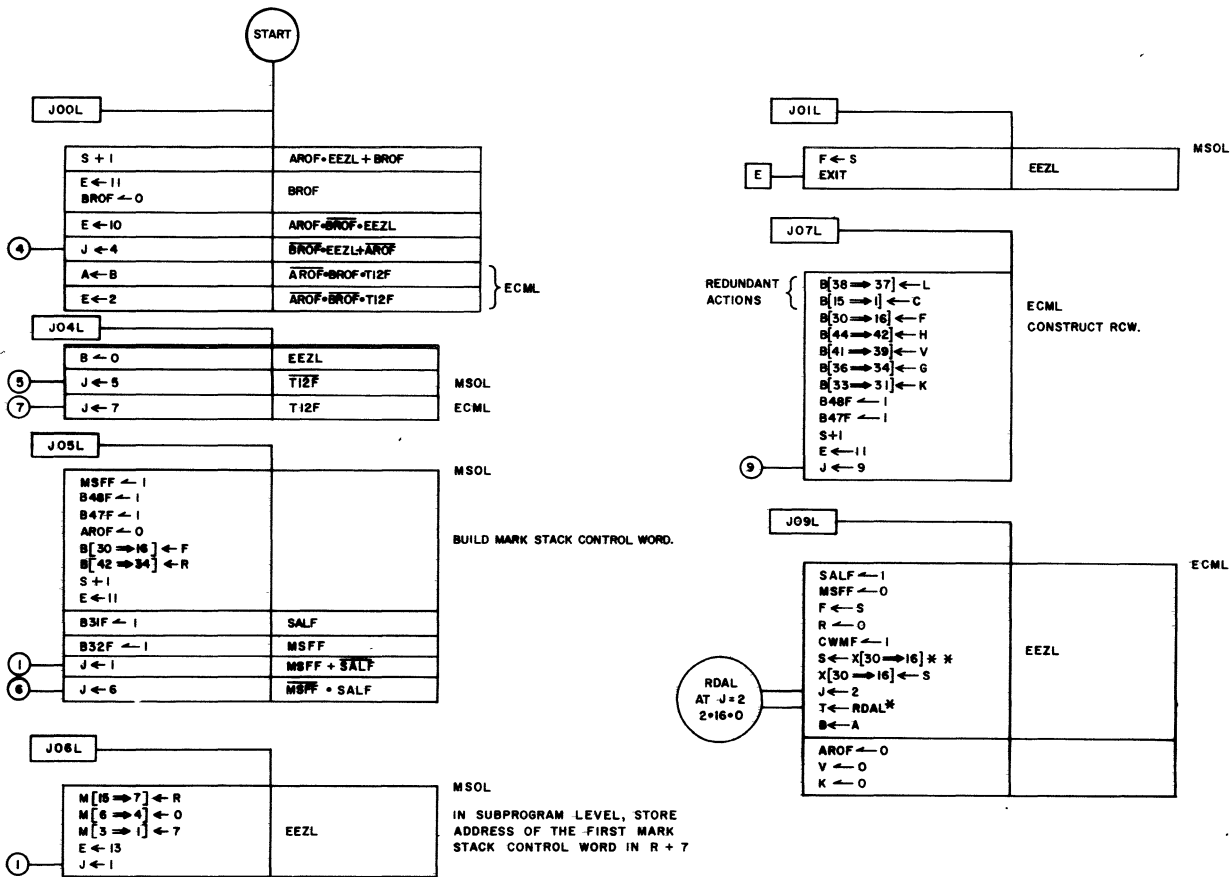
3

2

1

C-11836509

DRAWN BY T. L. GIBSON		REVISIONS			
CHECKED <i>[Signature]</i>	REV. NO. A 3076	DESIGN I.T.	CHKD	APPD	DATE
APPROVED <i>[Signature]</i>	RELEASED				
PROJ ENGR J. H. PEDERSEN	ECN B 6474	PRT	<i>[Signature]</i>		



\* \* S ← X[30 → 16] = S ← 0 SINCE X=0  
 \* T ← RDAL = SET T=0004  
 MSFF = 012F  
 MARK STACK OPERATOR — MSOL — 0441  
 ENTER CHARACTER MODE — ECML — 4441  
 COMMON DRIVER MSOLDI = MSOL + ECML

1-26-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE: MARK STACK OPERATOR AND ENTER CHARACTER MODE OP	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494 SYSTEM B5000	C-11836509

B REV

REDUCED SIZE PRINT

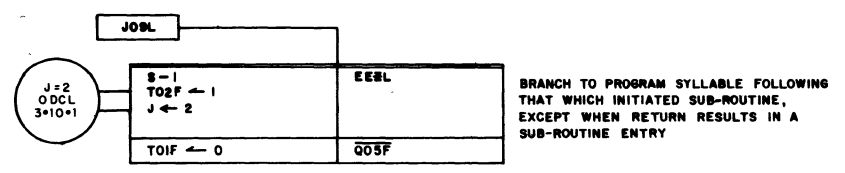
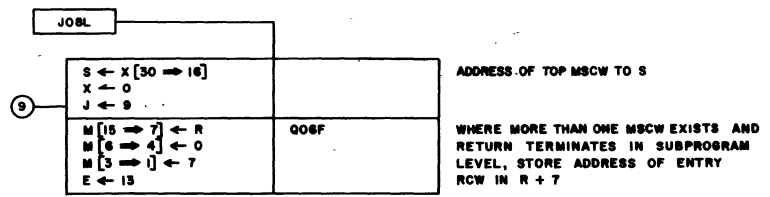
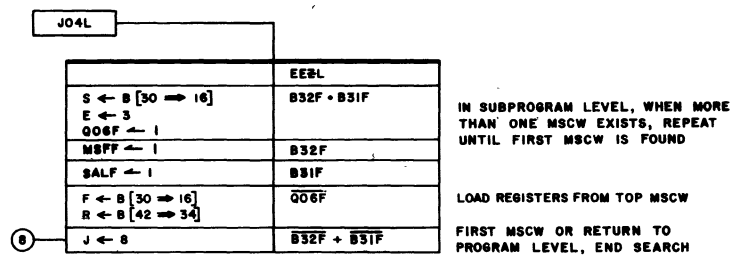
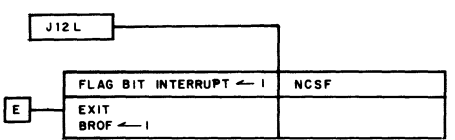
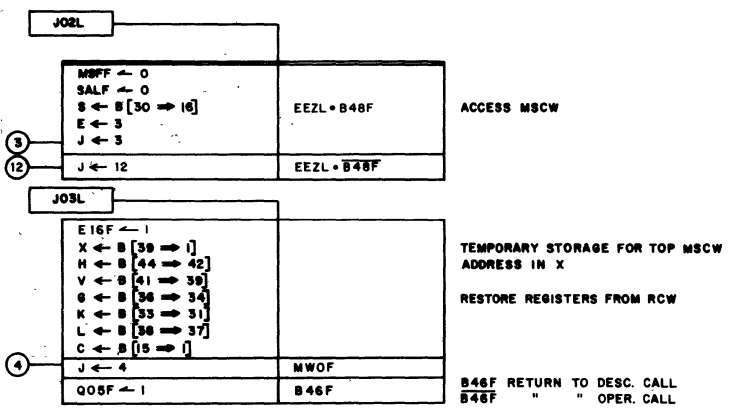
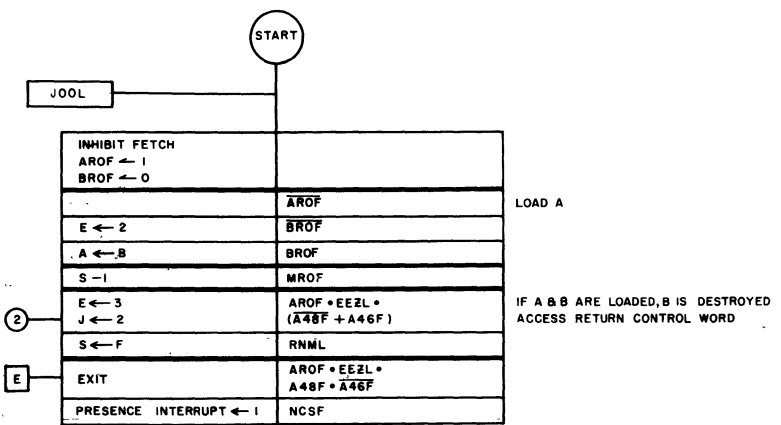
4

3

2

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HENRY'S SUPPLY

DRAWN BY: VILLARRUEL 3-19-62		REVISIONS				B	ECN 4528	LHCH	REV 7/2/63	REV 7/2/63	REV 7/2/63
CHECKED	<i>[Signature]</i>	REV	ECN NO	DFTSMN	CHKD	APPD.	DATE	C	ECN	LHCH	REV
APPROVED	<i>[Signature]</i>	A	3526	L.T.	1.1			C	6474	LHCH	REV
PROJ ENGR	J H PEDERSEN	RELEASED				REVISED					



NOTE: T02F • T01F = RETURN TO OPERAND CALL AT J = 2;  
T02F • T01F = RETURN TO DESCRIPTOR CALL AT J = 2

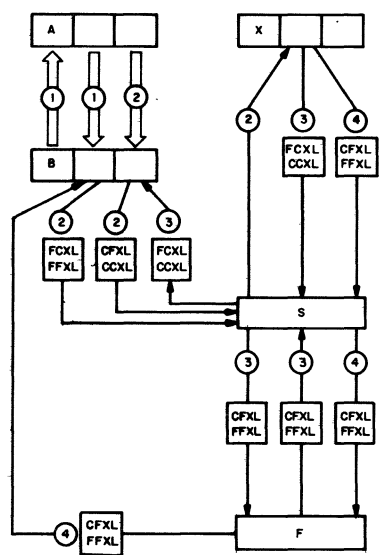
MSFF ≡ 012F  
RETURN NORMAL - RNML - 0235  
RETURN SPECIAL - RSPL - 1235

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE RETURN OPERATORS	1-27-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836178
			SYSTEM B 5000	C REV

REDUCED SIZE PRINT

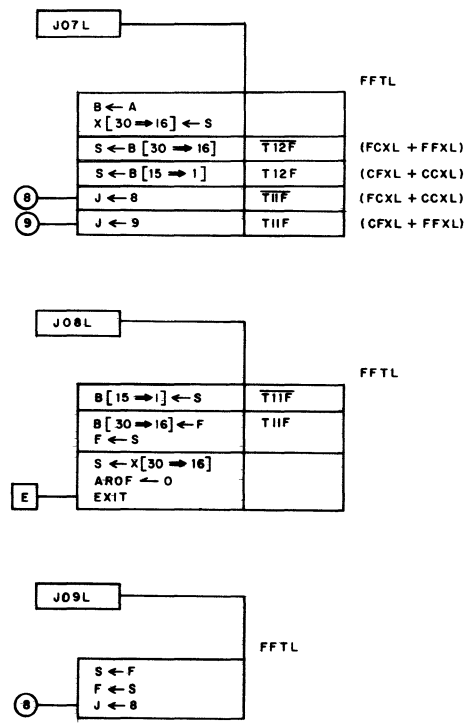
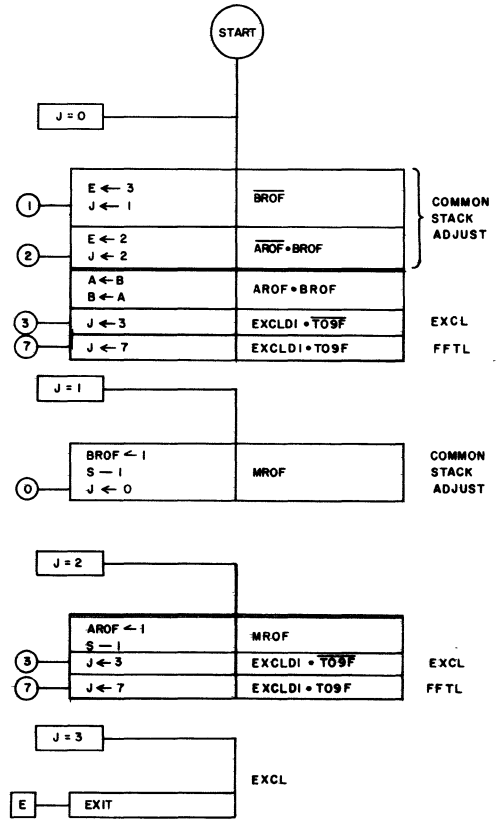
DRAWN BY T.L. GIBSON	REVISIONS			
CHECKED <i>C.B. Carlson</i>	REV NO	CHKD	APPD	DATE
APPROVED <i>D.F. Kelly</i> 12-11-64	A	I.T.		
PROJ ENGR C B CARLSON	B	6474	12-11-64	
	RELEASED			
	REVISED			

FIXED FIELD TRANSFERS



INITIAL STATE:  
 T.O.S. CONTAINS A 15 BIT FIELD  
 2ND. WORD IN STACK CONTAINS  
 THE RECEIVING WORD.

FINAL STATE:  
 THE ORIGINAL T.O.S IS DESTROYED.  
 THE F OR C FIELD IN THE 2ND WORD  
 IN STACK HAS BEEN REPLACED.



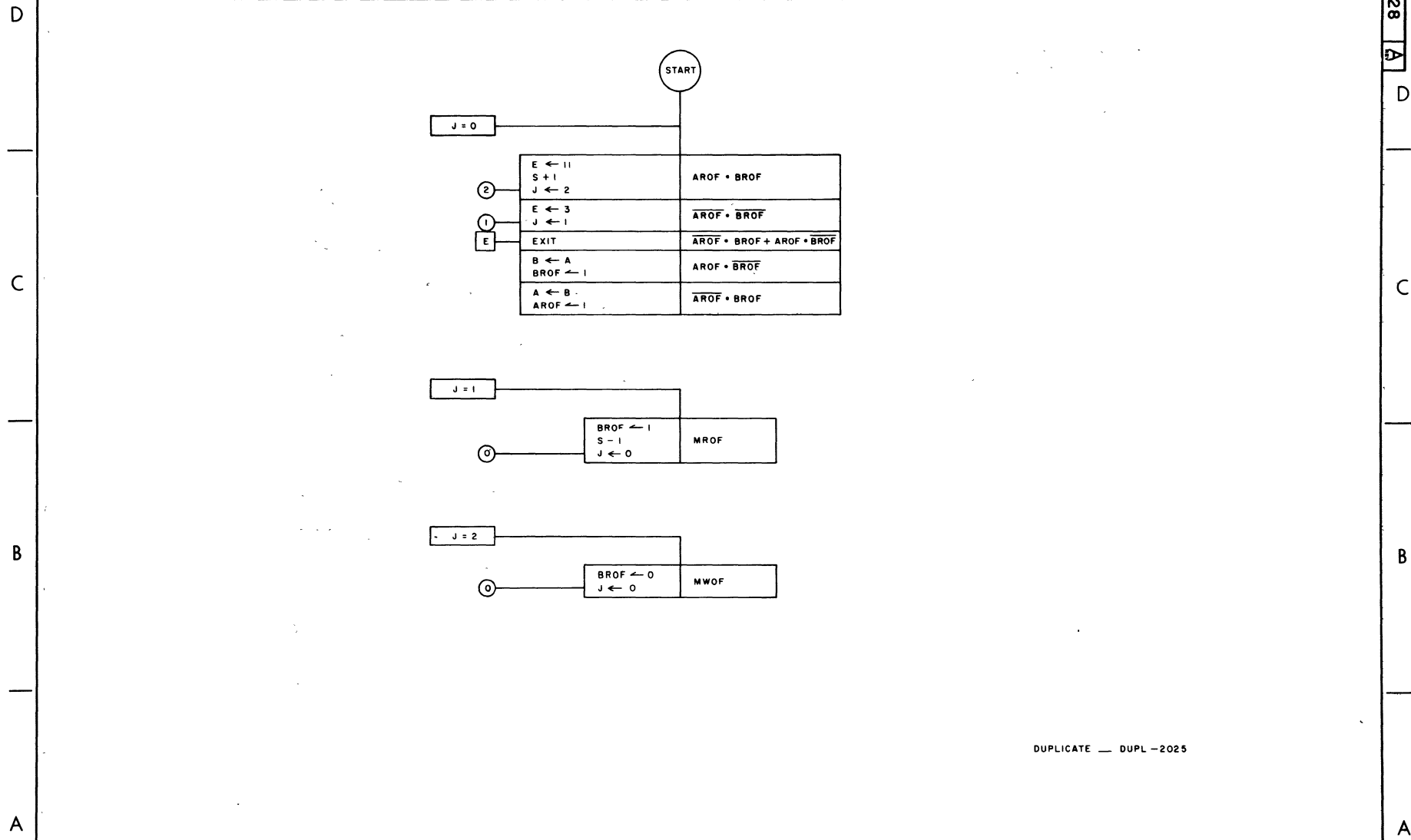
EXCL - 1025 - EXCHANGE  
 FCXL - 1425 - F FIELD TO CORE FIELD  
 FFXL - 3425 - F FIELD TO FIELD  
 CCXL - 5425 - CORE FIELD TO C FIELD  
 CFXL - 7425 - CORE FIELD TO F FIELD  
 COMMON DRIVER EXCLDI = EXCL + FFTL

ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE EXCHANGE OPERATOR AND FIXED FIELD TRANSFERS	PAGE 1-28-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM 85000	C-11834710 B

REDUCED SIZE PRINT

DRAWN BY C BEVINS 11/24/61 CHECKED <i>[Signature]</i> APPROVED <i>[Signature]</i> PROJ ENGR C B CARLSON	REVISIONS				
	REV	QTY	NO	DATE	BY
	A	3	11/24/61	11/24/61	C
RELEASED					

C-11834728



DUPLICATE — DUPL-2025

D  
C  
B  
A

FOR EDUCATIONAL USE ONLY 1-29-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE "DUPLICATE" OPERATOR	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	
			SYSTEM B5000	C-11834728

DRAWN BY <u>L.H. CHAVES</u>	REVISIONS						
	REV	EC	NO	DFTSMN	CHG	APPD	DATE
	D	6474	L.H. CH	REVISED & REDRAWN			
	APPROVED	<u>[Signature]</u> 10-23-64					
PROJ ENGR	C.B. CARLSON						

C-11834751

D

D

C

B

A

START ENTER WITH "R" IN "M" AND Q09F=1

J = 0

1	E ← 2 J ← 1	AROF ← BROF
	A ← B AROF ← 1 BROF ← 0	AROF ← BROF
5	J ← 5	AROF ← A48F
	PRESENCE INTERRUPT ← 1	A48F ← NCSF
	M ← A [15 → 1]	A46F
	E ← 4	AROF ← A48F
5	M ← M + A *	(SALF + A10F)
	E ← 4 J ← 5	
	M [15 → 11] + 1	W10L ← (SALF + A10F)
	A10F ← 0 A09F ← 0	SALF ← A10F + (A09F + A08F)
	M ← C	SALF ← A10F + MSFF + (A05F + A08F)
	M ← F	SALF ← A10F + MSFF + (A05F + A08F)
	M [3 → 1] ← 7 E ← 6	SALF ← A10F + MSFF + (A05F + A08F)
	A [7 → 1] ← Δ A [7 → 1] Q01F ← 1 Q03F ← 1 Q09F ← 1 **	A09F ← A08F + SALF + A10F
4	J ← 4	SALF ← A10F
	SALF ← 1 VARF ← 0	AROF ← VARF

"A" IS A DESCRIPTOR  
WORD ADDRESSED NOT PRESENT  
WORD ADDRESSED IS PRESENT  
"A" IS OPERAND  
"C" RELATIVE  
"F" RELATIVE  
DESIRED "F" IN (R + 7)  
(F -) RELATIVE  
RESTORE SALF IF IT WAS  
RESET BY PRECEEDING DIBL-0

J = 1

0	AROF ← 1 S ← 1 J ← 0	MROF
---	----------------------------	------

J = 4

5		EEZL	WAIT FOR ACCESS IF (R+7) RELATIVE
	M [15 → 11] + 1	Q03F ← W10L	
	M [15 → 11] - 1	Q03F ← W10L	
	M ← M + A *		
	E ← 4 J ← 5		

J = 5

E	EXIT	EEZL ← MROF
---	------	-------------

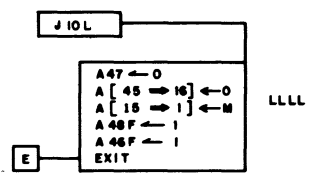
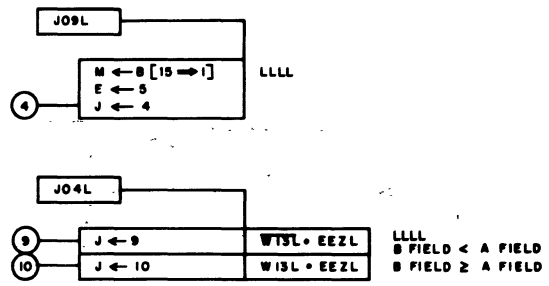
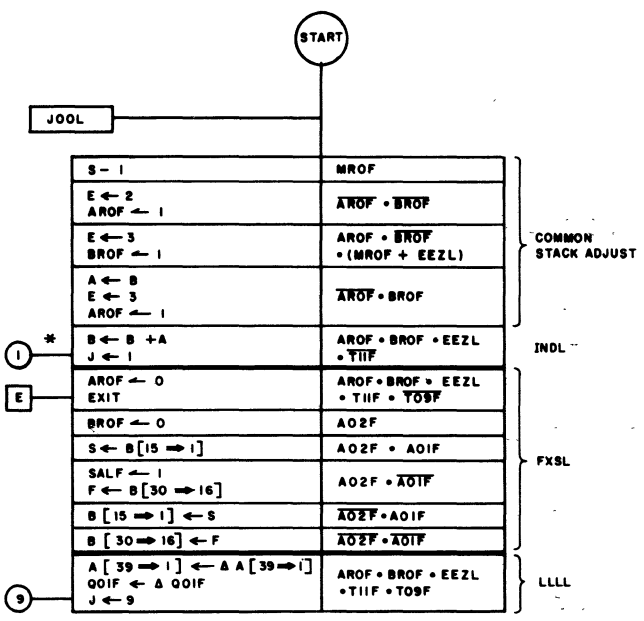
\*\* = REDUNDANT ACTION  
\* M ← M + A = M [10 → 1] ← M [10 → 1] + A [10 → 1] + Q01F  
MSFF = MARK STACK FLIP-FLOP (Q12F)  
SALF = SUB-LEVEL FLIP-FLOP  
W10L = C10 FROM ADDRESS ADDER  
Q01F = C0 INPUT TO ADDRESS ADDER  
Q09F = ADDRESS ADDER  
LOAD - LODL - 2021

1+30+0

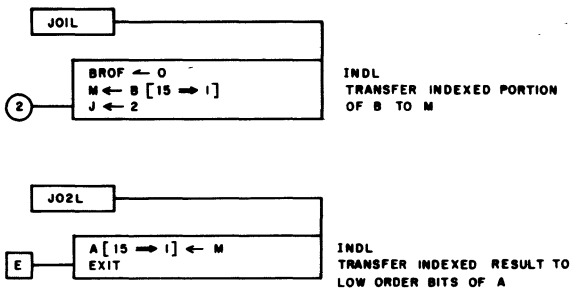
ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE LOAD OPERATOR	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834751
			SYSTEM B 5000	D REV

C-11836152  
B  
D  
C  
B  
A

4	3	2	1
DRAWN BY <i>L. McIVER</i> CHECKED <i>Dr. Kelly 10-2-64</i> APPROVED <i>Dr. Kelly 10-2-64</i> PROJ. ENGR. <i>Dr. Kelly 10-2-64</i>			
REVISIONS REV. 1 30% 1/7 RELEASED REV. 2 100% 1/7 REDRAWN			



$$* M [10 \rightarrow 8] B [39 \rightarrow 1] \leftarrow M [10 \rightarrow 8] B [39 \rightarrow 1] + M [6 \rightarrow 4] A [39 \rightarrow 1] + QOIF$$



INDEX OPERATOR - INDL - 0141  
F & S REG. SET/STORE - FXSL - 2141  
LINK LIST LOOKUP - LLLL - 2841  
COMMON LEVEL INDLI = INDL + FXSL + LLLL

ELECTRODATA M & E DIVISION	<b>Burrage Corporation</b>	PASADENA CALIFORNIA	TITLE INDEX, F & S REG. SET/STORE AND LINK LIST LOOKUP	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	
			SYSTEM B 5000	C-11836152 B



DRAWN BY T. L. GIBSON		REVISIONS			
CHECKED <i>[Signature]</i>	REV A	ECN NO 3376	DFTSMN C. B	CHKD <i>[Signature]</i>	APPD DATE
APPROVED <i>[Signature]</i>	RELEASED				
PROJ ENGR J. H. PEDERSEN	B	ECN 6474	PRT	<i>[Signature]</i>	<i>[Signature]</i>

--	--	--	--

C-11836186

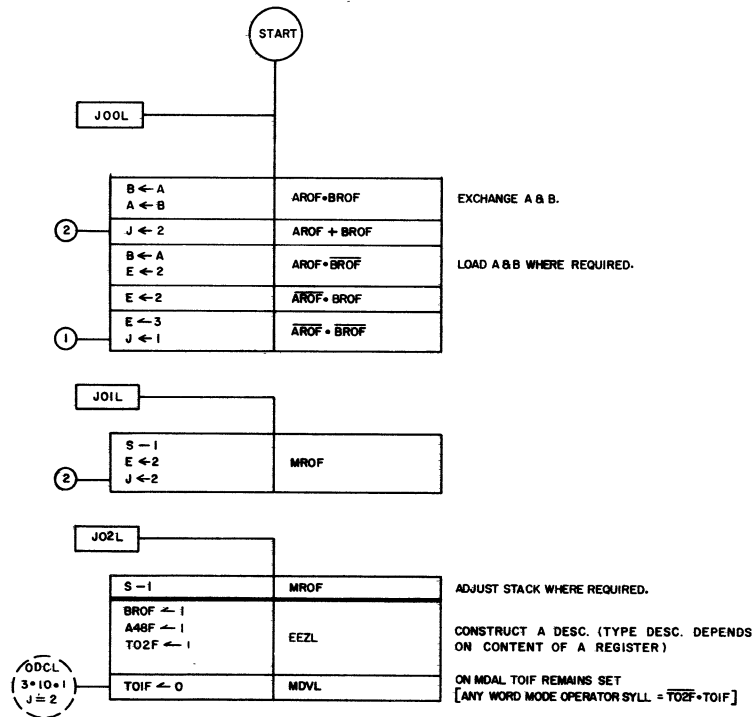
R

D

C

B

A



NOTE: T02F • TOIF - GO TO OPERAND CALL AT J=2 }  
 T02F TOIF - GO TO DESCRIPTOR CALL AT J=2 } DWG. 11836194 PAGES 2,3 & 4.

CONSTRUCT OPERAND CALL - MDVL - 0241  
 CONSTRUCT DESCRIPTOR CALL - MDAL - 1241

1-32-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE CONSTRUCT OPERAND CALL CONSTRUCT DESCRIPTOR CALL OPERATORS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836186
			SYSTEM B5000	B REV

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4

3

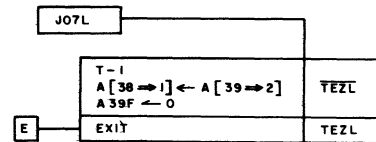
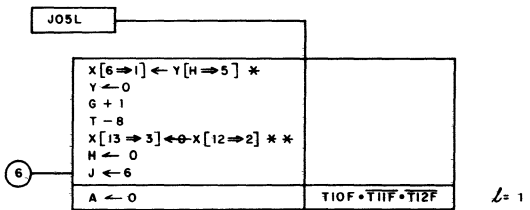
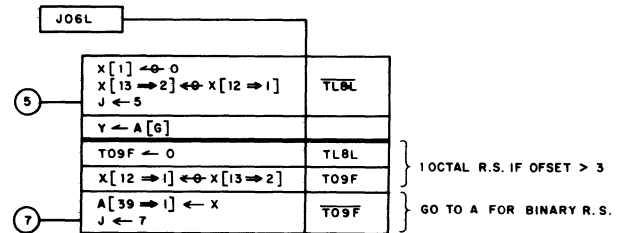
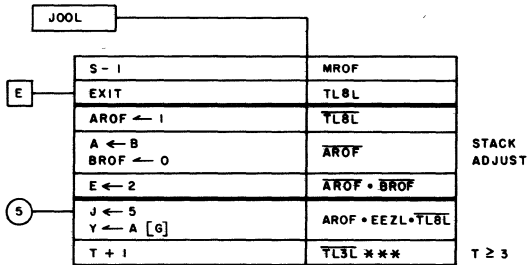
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REDUCED SIZE 1 PRINT

FORM NO EOC-1655 REV 5-61



DRAWN BY <u>L.H. CHAVES</u>	REVISIONS			
CHECKED <u>W.A. Carlson</u>	REV A	EQN NO 6474	DEFSM N PRT	APPD DATE
APPROVED <u>H.T. Kelly 10-23-67</u>	RELEASED			
PROJ ENGR C B CARLSON				



INITIAL OFSET	TL3L	ADJUSTED OFSET	OCTAL R. SHIFT	BINARY R. SHIFT
0	F	0	0	0
1	F	1	0	1
2	F	2	0	2
3	T	4	1	0
4	T	5	1	1
5	T	6	1	2
6	DISALLOWED VALUES			
7				

\* THE HIGH BIT THRU THE 5'S BIT OF THE CHARACTER IN Y ARE TRANSFERRED TO THE CORRESPONDING BITS IN X [6 → 1]

\*\* X [2] ← X [1] IS INHIBITED AT THE FLIP-FLOPS.

\*\*\* TL3L = + T09F  
+ T08F + T07F

L = NO. OF CHARACTERS THAT SPAN THE FIELD

S = OFFSET OF FIELD FROM R.H. END OF WORD

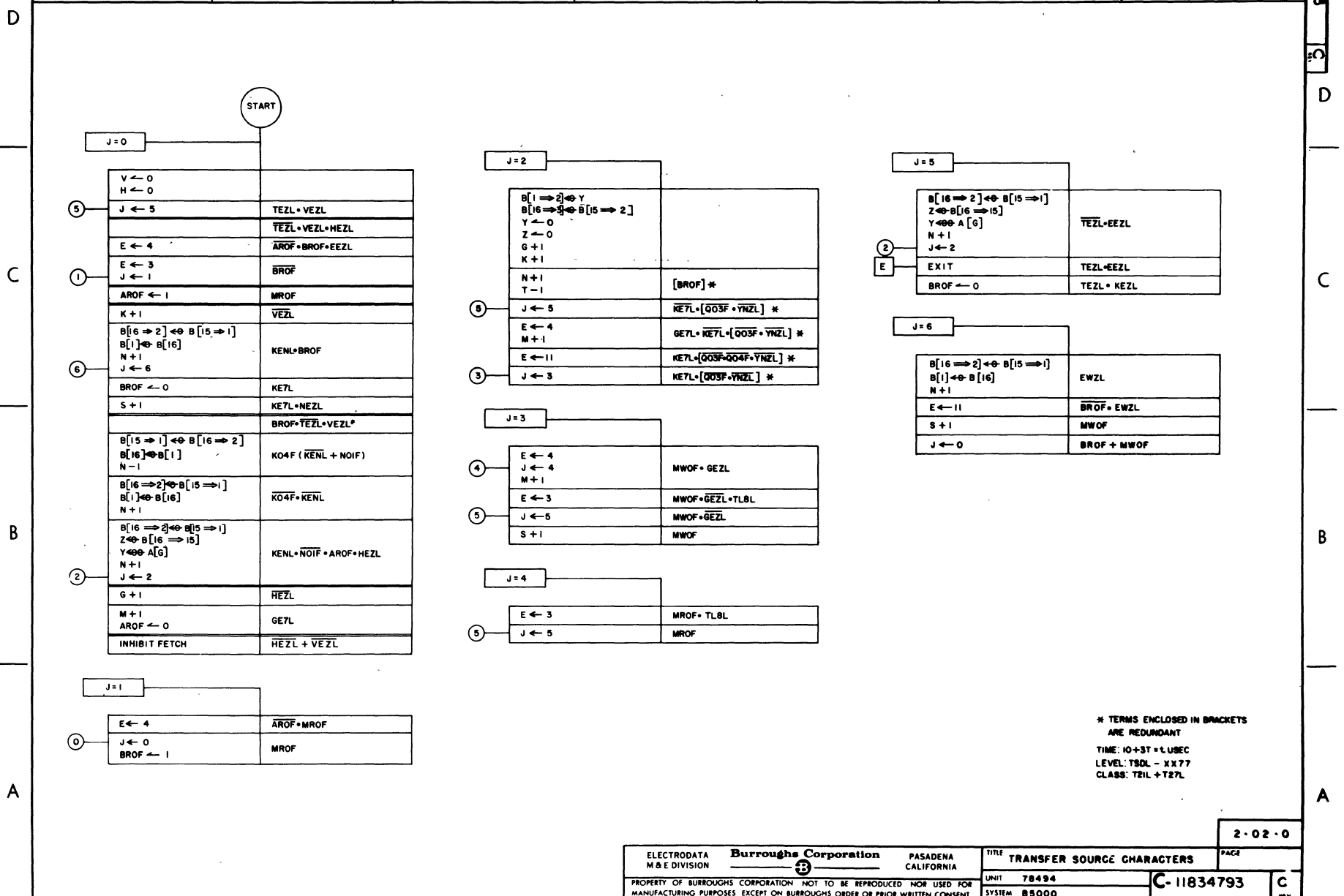
VARIABLE FIELD ISOLATE = VFIL = L545

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE VARIABLE FIELD ISOLATE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			PAGE
UNIT 78494			C-11161627
SYSTEM B 5000			REV A

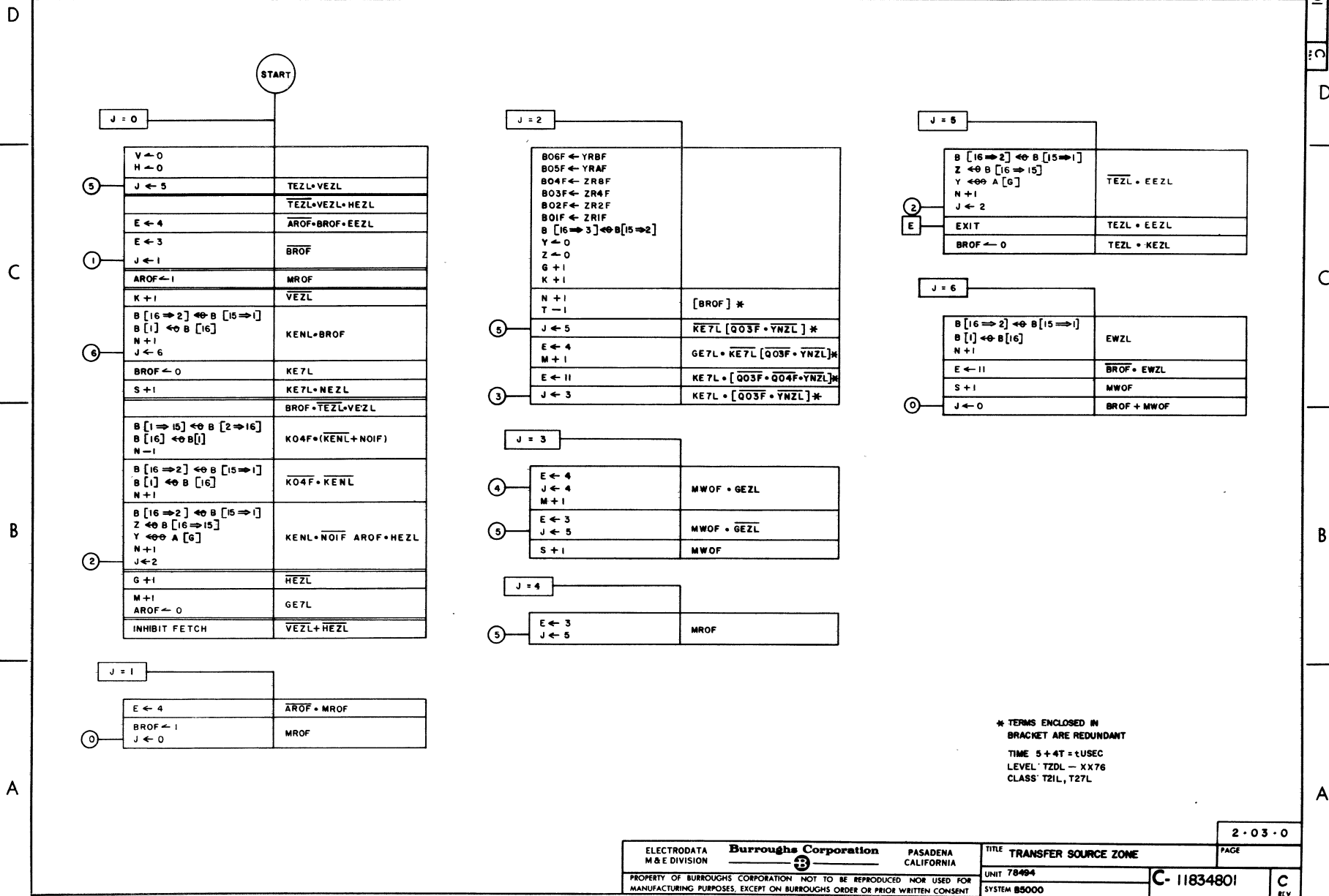
1-34-00

FORM NO EDD 1008 REV 0-61

DRAWN BY T. L. GIBSON		REVISIONS				C	ECN	PRT				
CHECKED	T. L. Gibson	REV	ECN NO	DFTSMN	CHEK	APPD	DATE					
APPROVED	T. L. Gibson	RELEASED	LEN	T. Z.	CG							
PROJ ENGR	R. V. BOCK		3596	2-14-68								



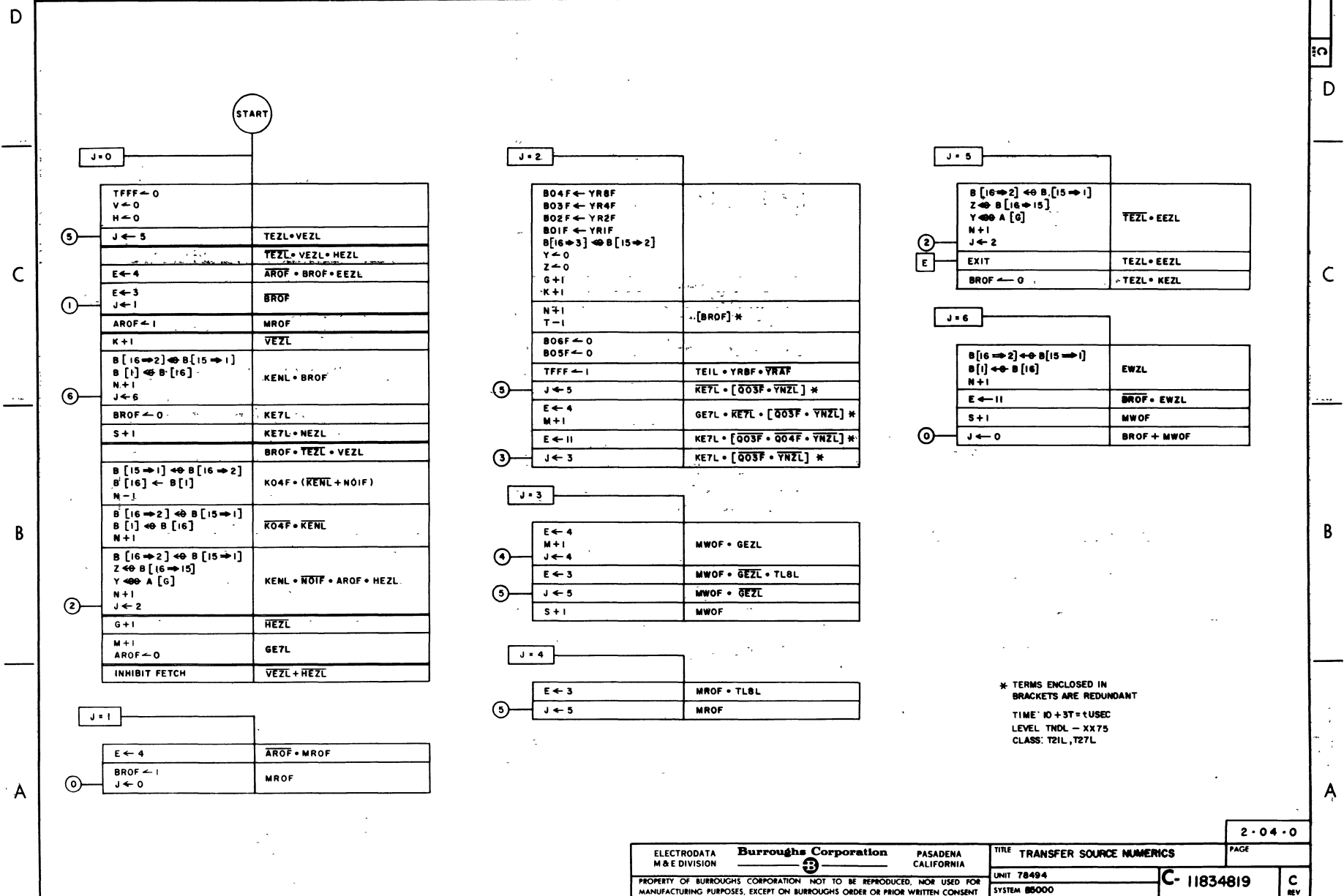
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	CHECKED	<i>[Signature]</i>	REV	ECN NO	DFTSMN	CHKD	APPD	DATE				
	APPROVED	<i>[Signature]</i>	RELEASED	REV NO	T.Z.	DATE						
	PROJ ENGR	R.V. BOCK										



\* TERMS ENCLOSED IN  
BRACKET ARE REDUNDANT  
TIME 5+4T = tUSEC  
LEVEL: TZDL - XX76  
CLASS: T21L, T27L

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TRANSFER SOURCE ZONE	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834801
			SYSTEM B5000	C REV

DRAWN BY T.L. GIBSON		REVISIONS				ECN	PRT			
CHECKED	R.T.B.	REV	ECN NO	DFTSMAN	CHKD	APPD	DATE			
APPROVED	L.T. Kelly	RELEASED								
PROJ ENGR	R.V. BOCK	B	3996	T.Z.	B-16-63		8/27/63			



C-11834827

C

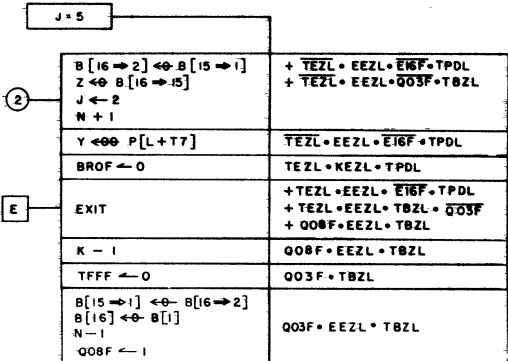
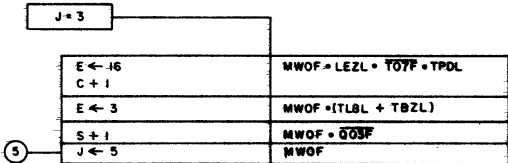
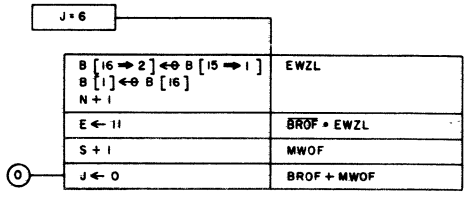
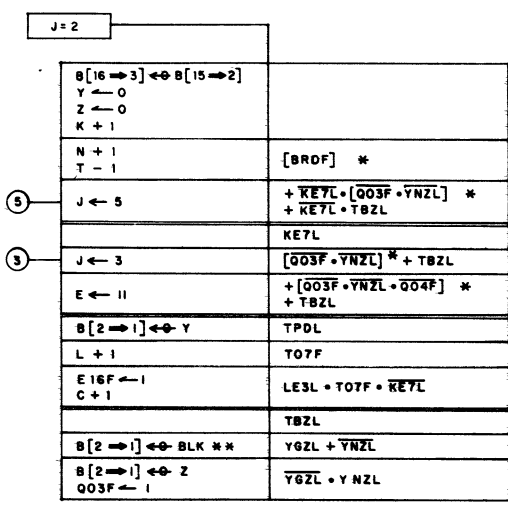
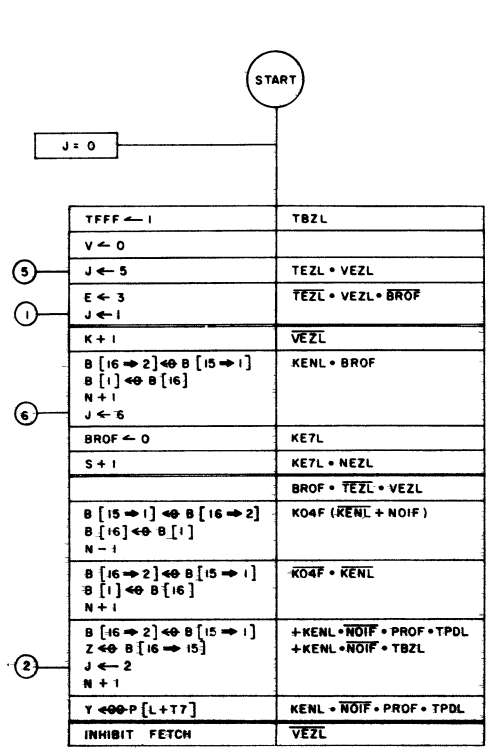
D

C

B

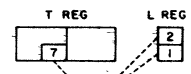
A

DRAWN BY T. L. GIBSON		REVISIONS				C ECN 6474 LMSH	
CHECKED	REV. NO. A 3596	DFTSMN I.T.	CHKD	APPD	DATE	REVISED	
APPROVED	RELEASED						
PROJ. ENGR R. V. BOCK	REV. NO. B 3996	T.Z. 2-14-53	CHKD	APPD	DATE		



Z = NON-NUMERIC } TBZL  
 Z = NUMERIC }

\*\* BLK = BLANK CHARACTER = 110000



(L+T7) CHARACTER OF P  
 EXAMPLE 6TH CHARACTER OF P WOULD BE THE CHARACTER TRANSFER IF L02F ← L01F ← T07F WERE THE STATES OF L & T

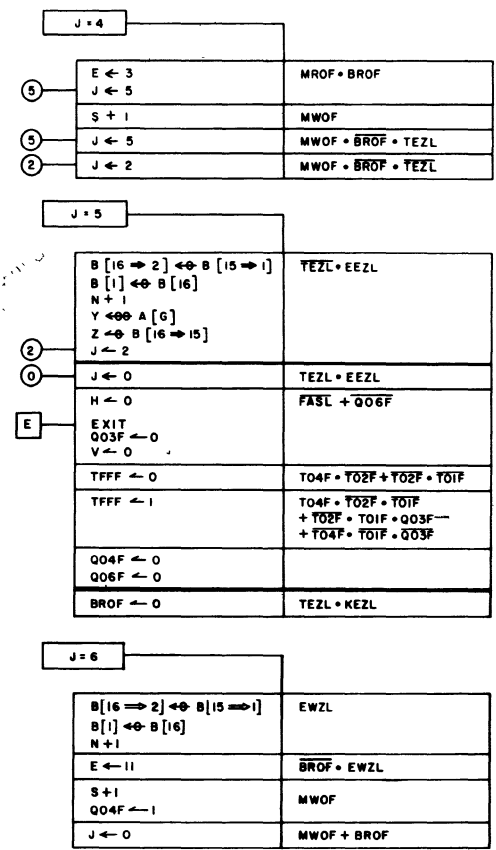
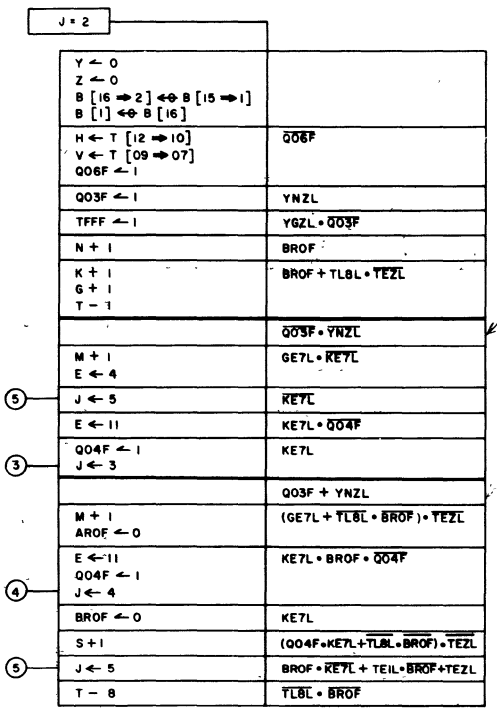
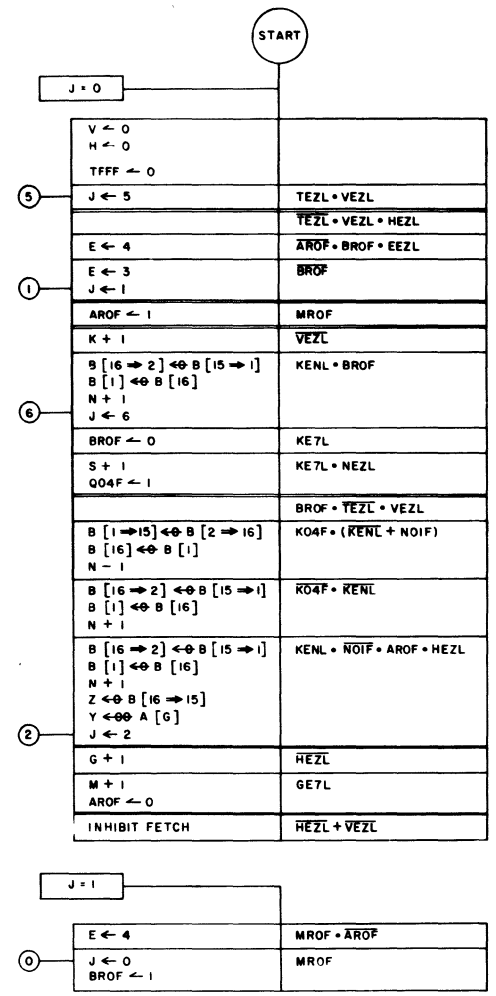
\* TERMS ENCLOSED IN BRACKETS ARE REDUNDANT.

TRANS. PROG. CHAR. - TPD - XX74  
 TRANS. BLK. FOR NON NUMERIC - TBZL - XX12  
 COMMON LEVELS T27L = COMPARES + TSOL + TZDL + TNOL  
 + TPD + FADL + FSUL + TBZL  
 T62L = T27L + STDL + FSDL + RSDL

2-05-0

ELECTRODATA M&E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE TRANSFER PROGRAM CHARACTERS TRANS. BLANK FOR NON NUMERICS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834827
			SYSTEM B5000	C

DRAWN BY T. L. GIBSON		REVISIONS				ECN	PRT							C-11834835
CHECKED	<i>R. R. R.</i>	REV	ECN NO	DFTSMN	CHKD	APPD	DATE							
APPROVED	<i>S. T. Kelly</i>	RELEASED												
PROJ ENGR	R. V. BOCK	B	3776	T.Z.	2-16-63									



LEVELS - SE0L - XX60  
 SNEL - XX61  
 SGEL - XX62  
 SGTL - XX63  
 SLEL - XX70  
 SLTL - XX71  
 FASL - XX73 OR XX72  
 CLASS - T21L, T23L, T27L

YGZL + Y COMPARES GREATER  
 YNZL + Y NOT EQUAL TO Z

A <sub>i</sub> to B <sub>i</sub>	TFFF	Q03F
>	1	1
<	0	1
=	0	0

Q04F IS USED TO PREVENT THE STORING OF B AFTER THE FIRST TIME

Q03F INDICATES AN UNEQUAL COMPARISON



4

3

2

1

DRAWN BY T L GIBSON  
 CHECKED *R.R. Ruz*  
 APPROVED *D. Kelly* 12-11-66  
 PROJ ENGR R V BOCK

REVISIONS					
REV	BY	NO	DATE	APPD	DATE
A	RELEAS	35796	1.1		

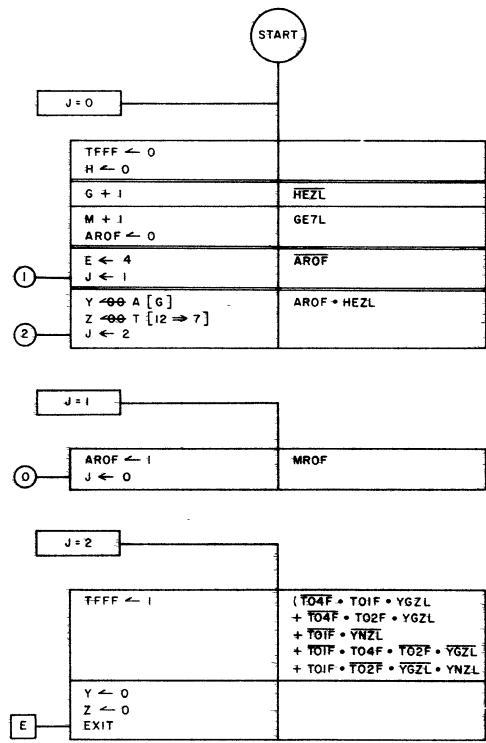
C-11834843  
A

D

C

B

A



TIME MAX = 10 USEC MIN = 2 USEC  
 LEVEL TEQL - XX24  
 TGEL - XX26  
 TLEL - XX34  
 TGTL - XX27  
 TLTL - XX35  
 TNEL - XX25  
 CLASS T22L T34L

FOR EDUCATIONAL USE ONLY 2-07-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TEST OPERATORS	PAGE 2-07-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	REV A
			SYSTEM B5000	C-11834843

4

3

2

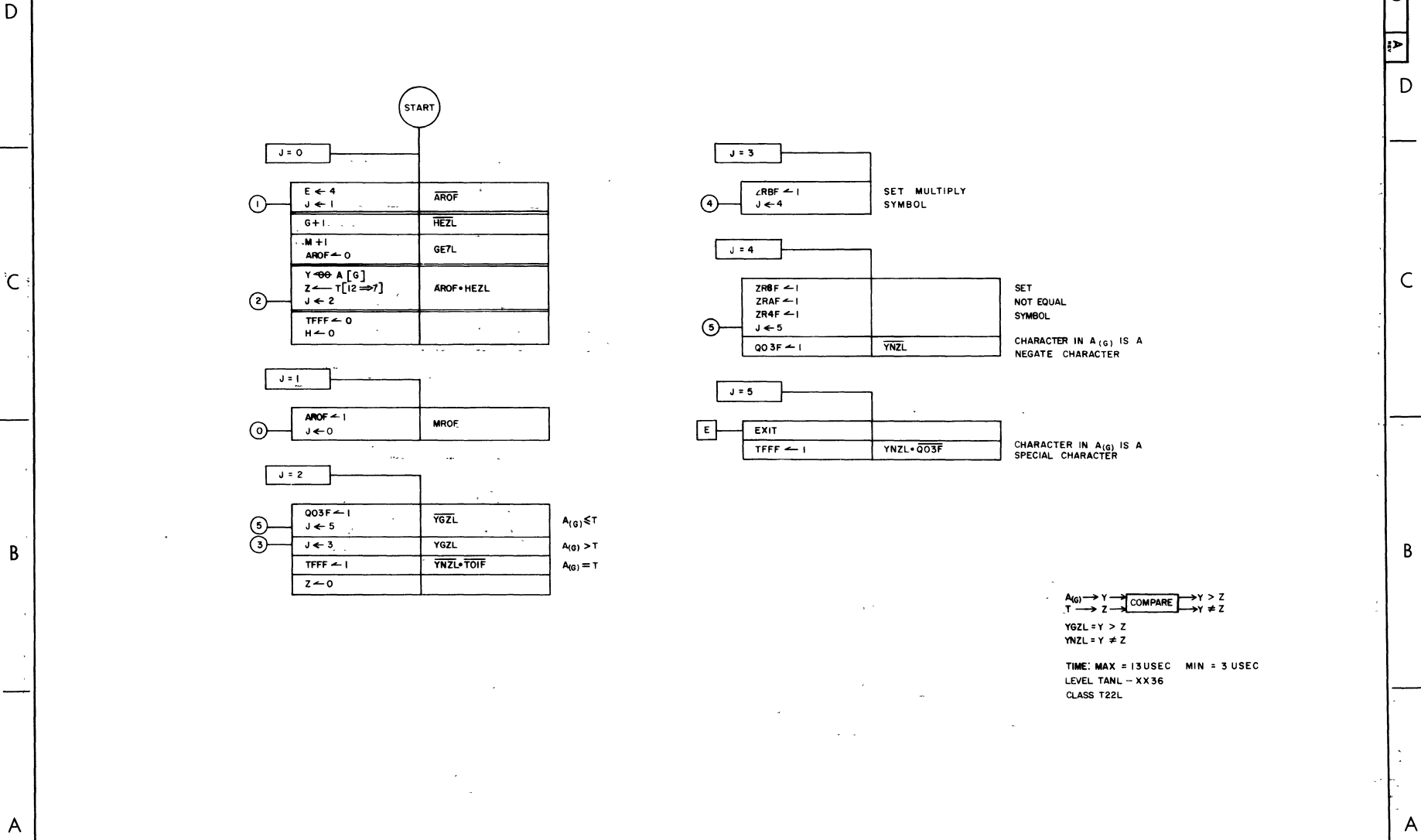
1

DRAWN BY T. L. GIBSON  
 CHECKED R. C. BOCK  
 APPROVED W. F. KELLY 12-11-64  
 PROJ ENGR R. V. BOCK

REVISIONS				
REV	BY	NO	DFTSMN	DATE
A	3576			
RELEASED				

--	--	--	--	--	--	--	--	--	--

C-11834850  
A



A(6) → Y → COMPARE → Y > Z  
 T → Z → COMPARE → Y < Z  
 YGZL = Y > Z  
 YNZL = Y ≠ Z

TIME: MAX = 13 USEC MIN = 3 USEC  
 LEVEL TANL - XX36  
 CLASS T22L

FOR EDUCATIONAL USE ONLY 2-08-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TEST FOR ALPHANUMERIC	PAGE 2-08-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834850
			SYSTEM B5000	A REV

4

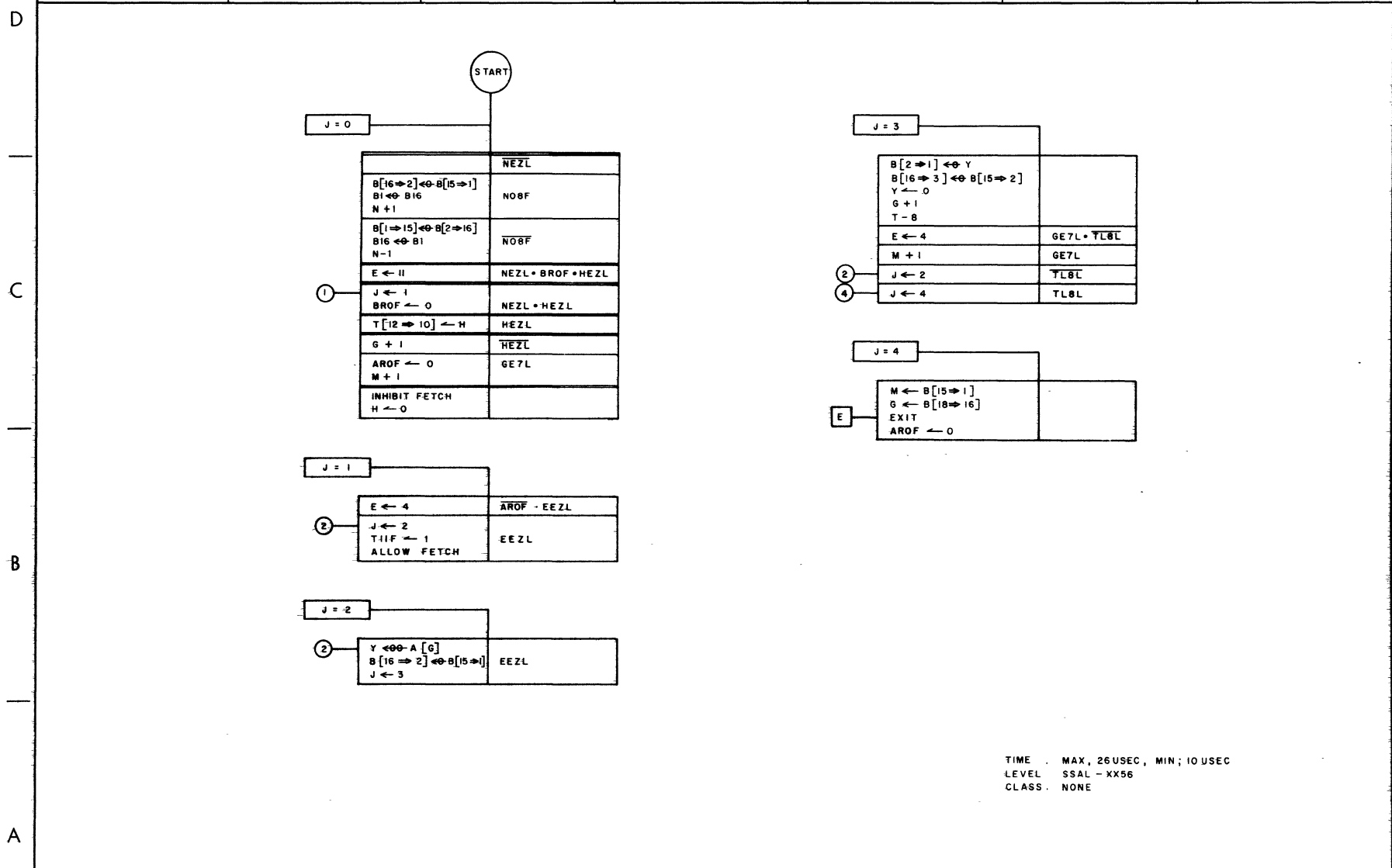
3

2

1

DRAWN BY <i>Z.L. GIBSON</i>	REVISIONS				
CHECKED <i>R.V. BOCK</i>	REV A	ECN NO 3576	DFTSMN I.T.	CHKD <i>R.V. BOCK</i>	APPD DATE
APPROVED <i>G. Kelly 12-11-66</i>	RELEASED				
PROJ ENGR <i>R.V. BOCK</i>					

C-11834868



D

C

B

A

TIME . MAX, 26USEC, MIN; 10USEC  
 LEVEL . SSAL - XX56  
 CLASS . NONE

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TRANSFER SOURCE ADDRESS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834868
			SYSTEM B 5000	

A

4

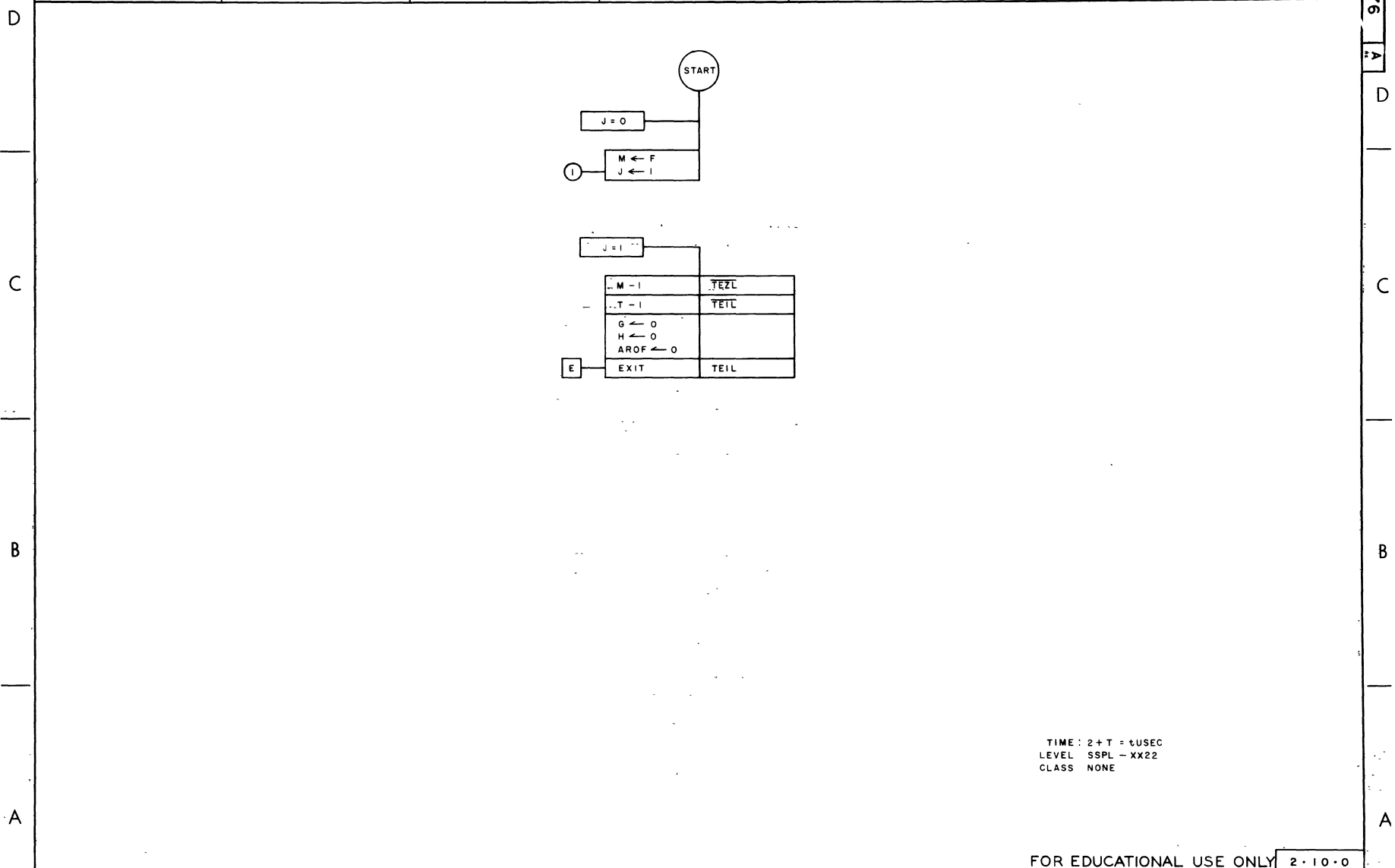
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2

1

4	3	2	1
DRAWN BY R B HENNIG 10/30/61		REVISIONS	
CHECKED <i>R.B. Hennig</i>	REV. NO. A	DESIGN NO. 3576	CHKD. DATE 11/16/61
APPROVED <i>T. Kelly 11-11-61</i>	RELEASED		
PROJ ENGR R V BOCK			

C-11834876  
A



D  
D  
C  
B  
A

TIME: 2 + T = tUSEC  
LEVEL SSPL - XX22  
CLASS NONE

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE SET SOURCE ADDRESS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	REV A
			SYSTEM B5000	C-11834876

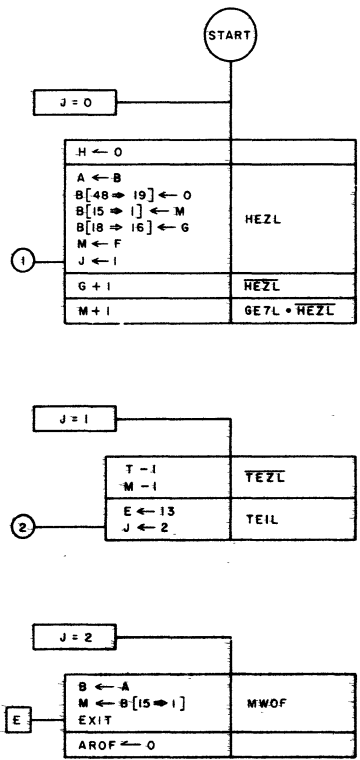
DRAWN BY R B HENNIG 11/1/61  
 CHECKED *R B H*  
 APPROVED *R F Kelly 12-11-61*  
 PROJ ENGR R V BOCK

REVISIONS				
REV	BY	NO	DTS	MIN
A	<i>R B H</i>	3976	I.T.	

RELEASED

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C-11834884  
A  
D  
C  
B  
A



TIME : 5 + T = tUSEC  
 LEVEL : STSL - XX15  
 CLASS : T25L

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE STORE SOURCE ADDRESS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834884
			SYSTEM B5000	

4.

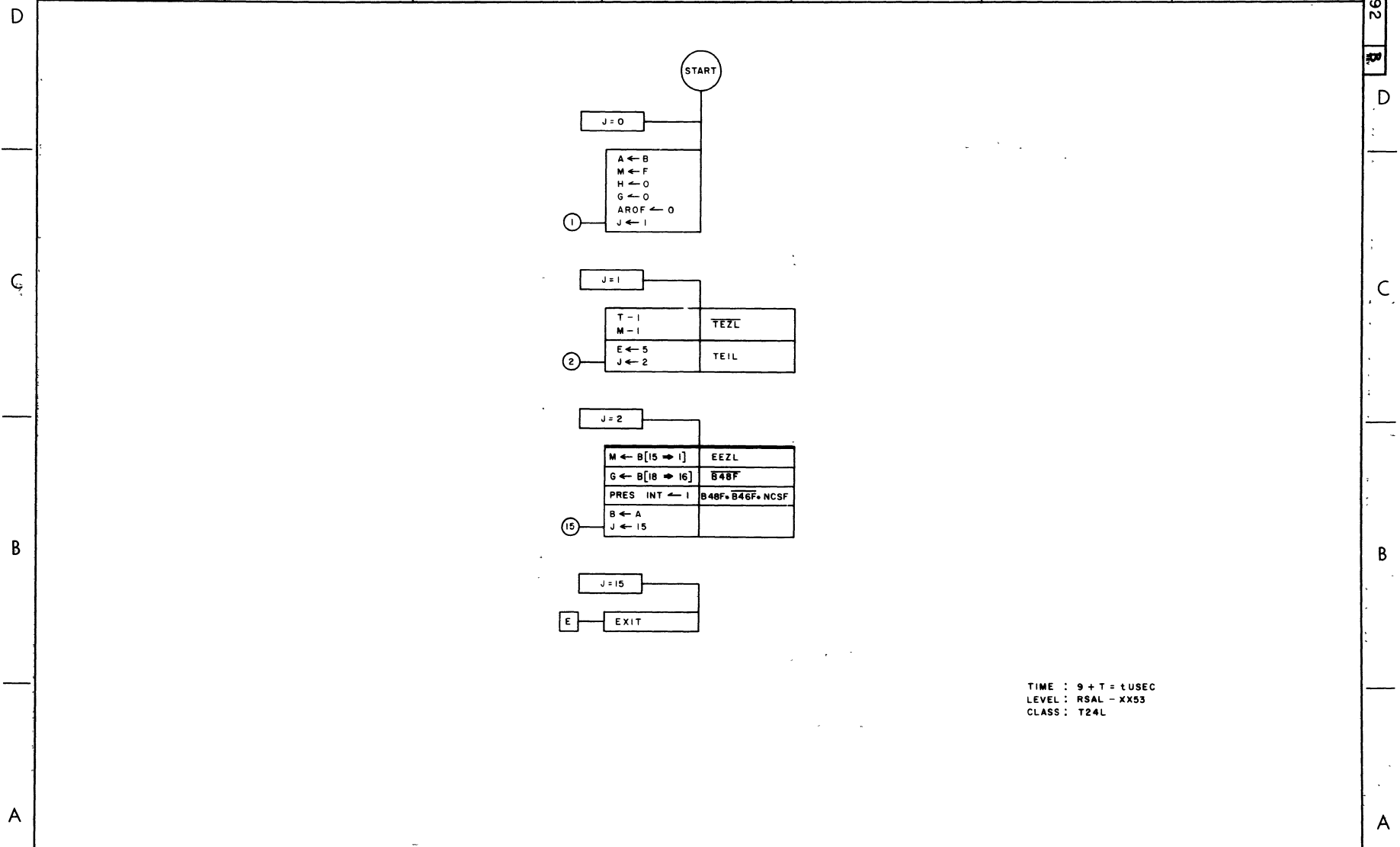
3

2

1

DRAWN BY R B HENNIG 11/2/61		REVISIONS			
CHECKED <i>R B Hennig</i>	REV A	RCN NO 3576	DFTSMN I.T.	CHKR <i>RBH</i>	APPD <i>11/2/61</i>
APPROVED <i>R B Hennig</i>	RELEASED				
PROJ ENGR R V BOCK	REV B	RCN NO 3996	TZ 2-16-63	CHKR <i>RBH</i>	APPD <i>2/16/63</i>

C-11834892



TIME : 9 + T = t USEC  
 LEVEL : RSAL - XX55  
 CLASS : T24L

FOR EDUCATIONAL USE ONLY

2-12-0

ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE RECALL SOURCE ADDRESS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834892
			SYSTEM B5000	B REV

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2

1

FORM NO EDD-1695 REV 5-61







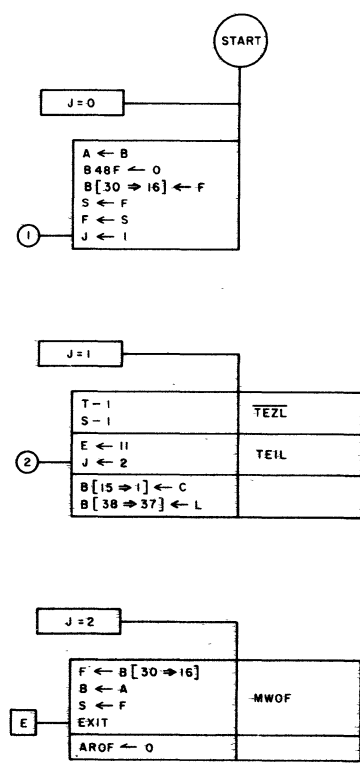
DRAWN BY C BEVINS 11/1/61  
 CHECKED *R. Bock*  
 APPROVED *S. T. Kelly*  
 PROJ ENGR R V BOCK

REVISIONS					
REV	ECNNO	DTSMN	CHKR	APPD	DATE
A	3596	LT	RB		

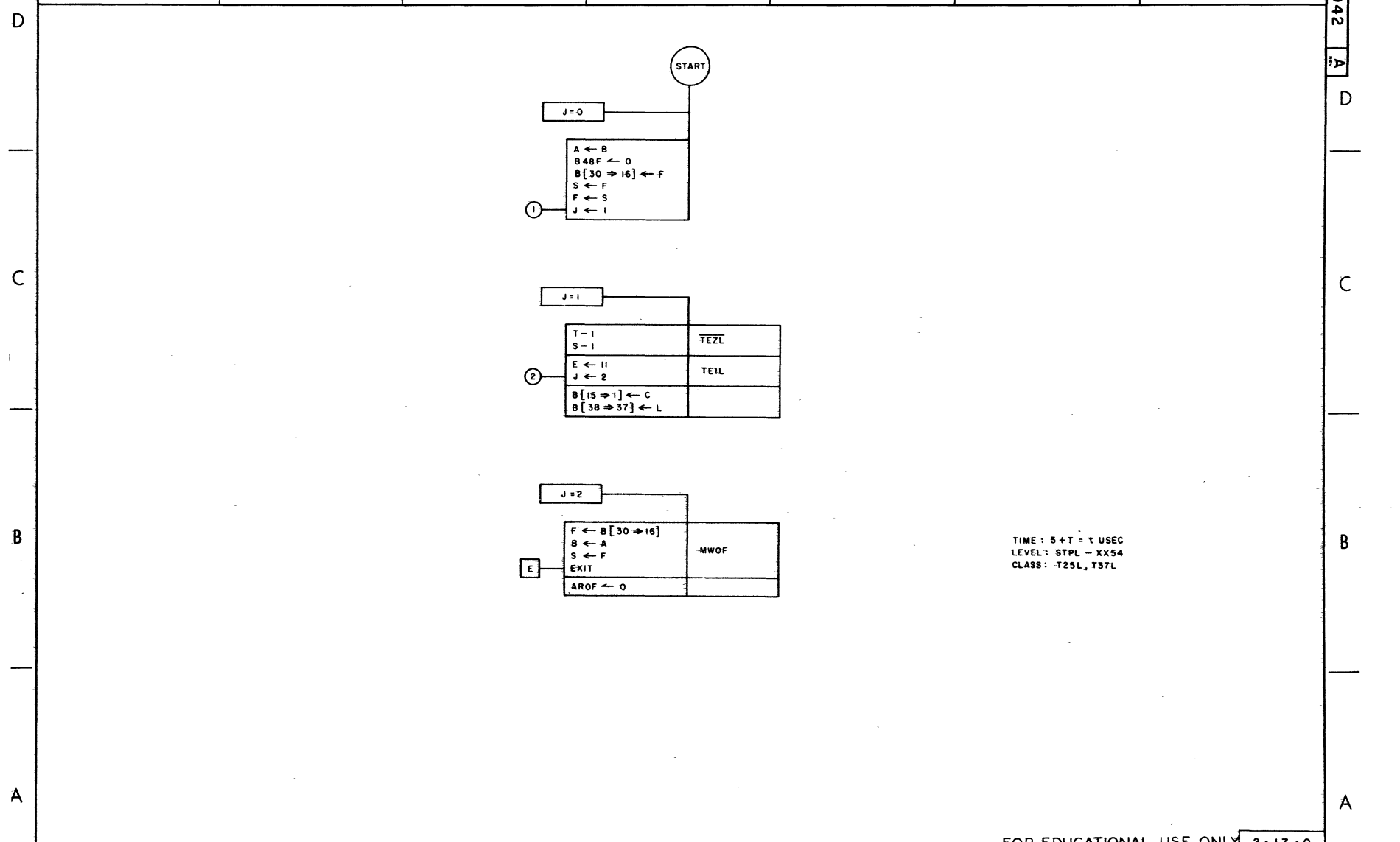
RELEASED

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C-11834942 A



TIME : 5 + T = t USEC  
 LEVEL: STPL - XX54  
 CLASS: T25L, T37L

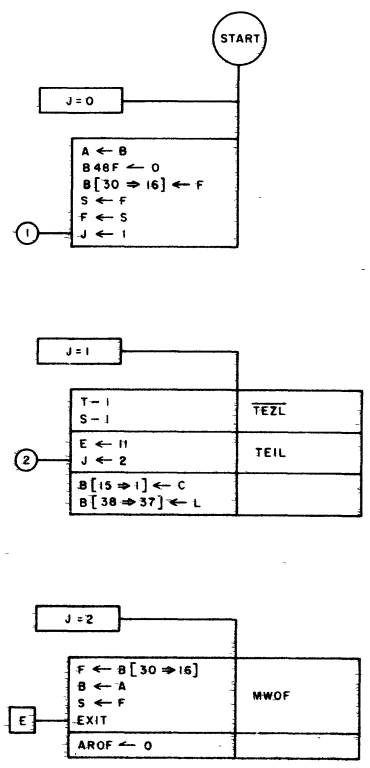


ELECTRODATA M & E DIVISION		<b>Burroughs Corporation</b>		PASADENA CALIFORNIA		FOR EDUCATIONAL USE ONLY		2-17-0	
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT						TITLE STORE CONTROL ADDRESS		PAGE	
						UNIT 78494		C-11834942	
						SYSTEM B 5000		A	



4	3	2	1
DRAWN BY C BEVINS 11/1/61		REVISIONS	
CHECKED <i>R. Boock</i>	REV. REC. NO. A 3596	DFTSMN I.T.	CHKD APPD DATE
APPROVED <i>R. V. Boock</i>	RELEASED		
PROJ ENGR R V BOCK			

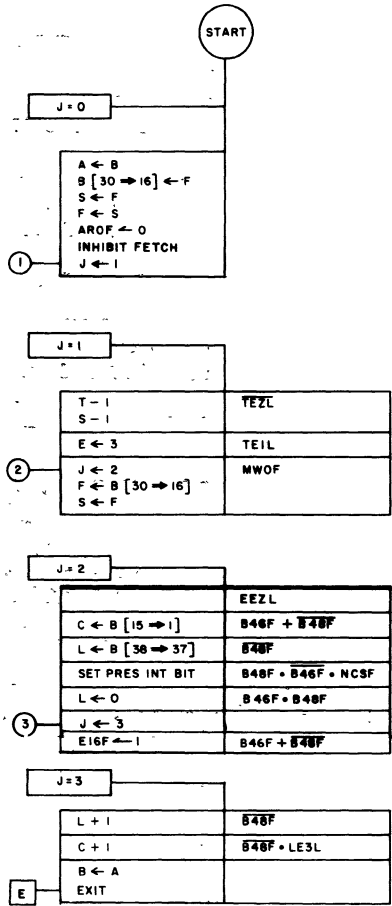
C-11834942  
A  
D  
C  
B  
A



TIME: 5 + T = t USEC  
LEVEL: STPL - XX54  
CLASS: T25L, T37L

ELECTRODATA M & E DIVISION		<b>Burroughs Corporation</b>		PASADENA CALIFORNIA		FOR EDUCATIONAL USE ONLY		2-17-0	
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT						TITLE STORE CONTROL ADDRESS		PAGE	
						UNIT 78494		C-11834942	
						SYSTEM B5000		A	

DRAWN BY T L GIBSON		REVISIONS				C	ECN	L.H.CH				
CHECKED	<i>R. B. ...</i>	REV	NO	DATE	BY	4528						
APPROVED	<i>A. T. Kelly</i>	REL	NO			6474	PRT					
PROJ ENGR	R V BOCK	B										



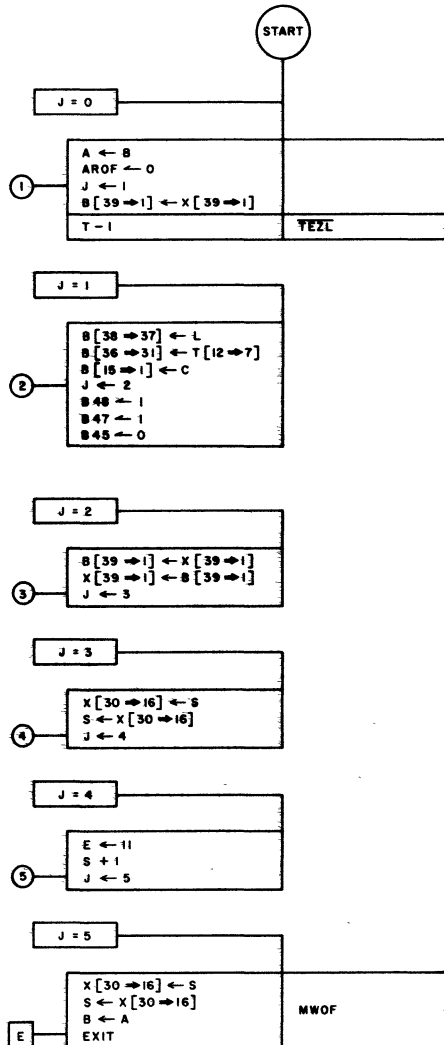
LEVEL RPAL - XX50  
CLASS T24L, T37L

2 · 1 8 · 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE RECALL CONTROL ADDRESS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	
			SYSTEM B5000	C-11834959
				D REV

REDUCED SIZE PRINT

DRAWN BY T L GIBSON		REVISIONS			
CHECKED R. V. BOOK	REV A	REN NO 3594	DFTSMAN C B	CHKD [initials]	APPD B-17
APPROVED [signature]	RELEASED				
PROJ ENGR R. V. BOOK	B	ECN 6474	MLY [initials]	[initials]	[initials]



LEVEL : BELL - XX52  
CLASS : T24L

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE BEGIN LOOP	PAGE 2 19 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11834967
			SYSTEM B5000	B REV

REDUCED SIZE PRINT

C-11834967

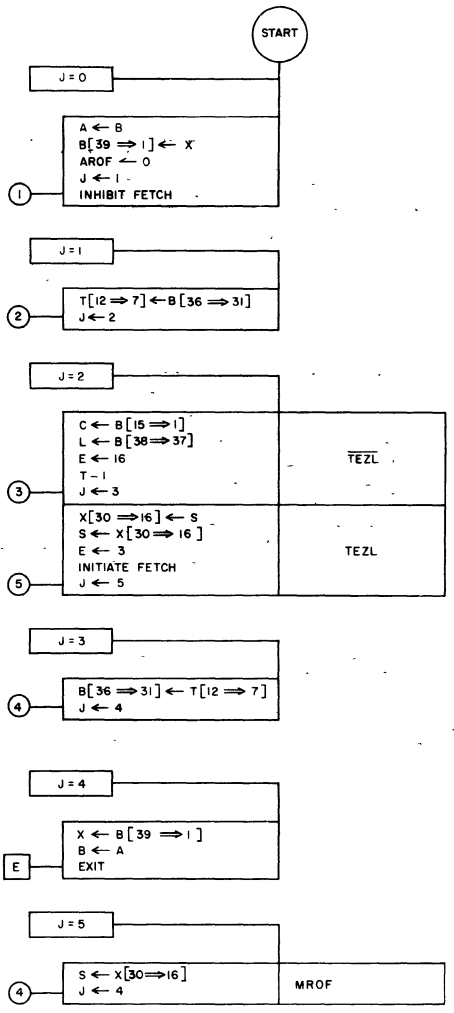
D

C

B

A

DRAWN BY T. L. GIBSON	REVISIONS				
CHECKED <i>R. B. [signature]</i>	REV. NO. A 3596	DTFSM N I.T.	CHKR [signature]	APPD [signature]	DATE
APPROVED <i>L. [signature]</i> 12-11-60	RELEASED				
PROJ ENGR R. V. BOCK	B 6474	LNCH	[signature]	[signature]	[signature]
	REVISED				

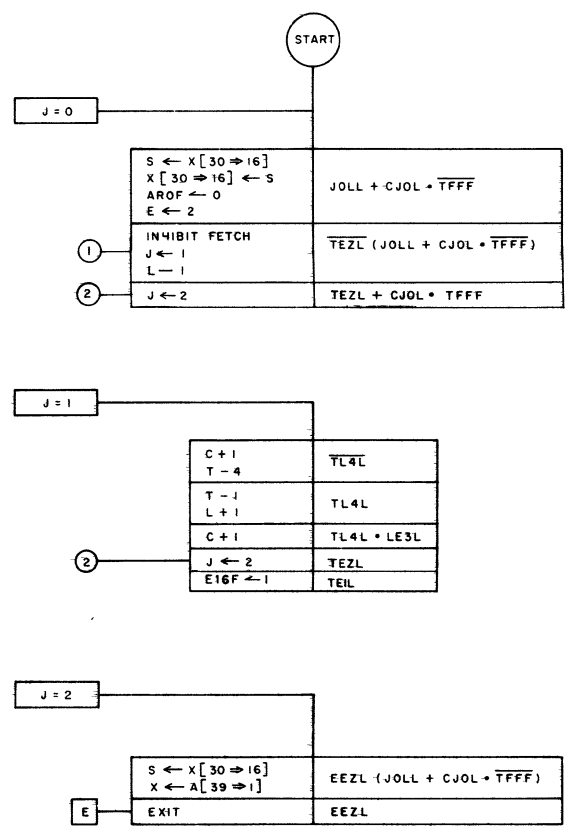


LEVEL ENLL - XX51  
CLASS T24L

2-20-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE END LOOP	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494 SYSTEM B5000	C-11834975
				B REV

DRAWN BY C REVINS 12/1/61		REVISIONS				ECN	LNCH	ECN	LNCH	ECN	LNCH
CHECKED	RS [signature]	REV	ECN NO	DFTSMN	CHGR	APPD	DATE	6474	1-1-62	10-22	
APPROVED [signature]		RELEASED									
PROJ ENGR	R V BOCK	ECN NO	T.Z.	EC							
		3996	2-14-63	2-14							



LEVEL: JOLL - XX46  
 CJOL - XX44  
 CLASS: T29L, T32L, T33L, T30L

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE JUMP OUT OF LOOP B CONDITIONAL JUMP OUT OF LOOP	PAGE 2-21-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B.5000	C-11834983 C REV

4

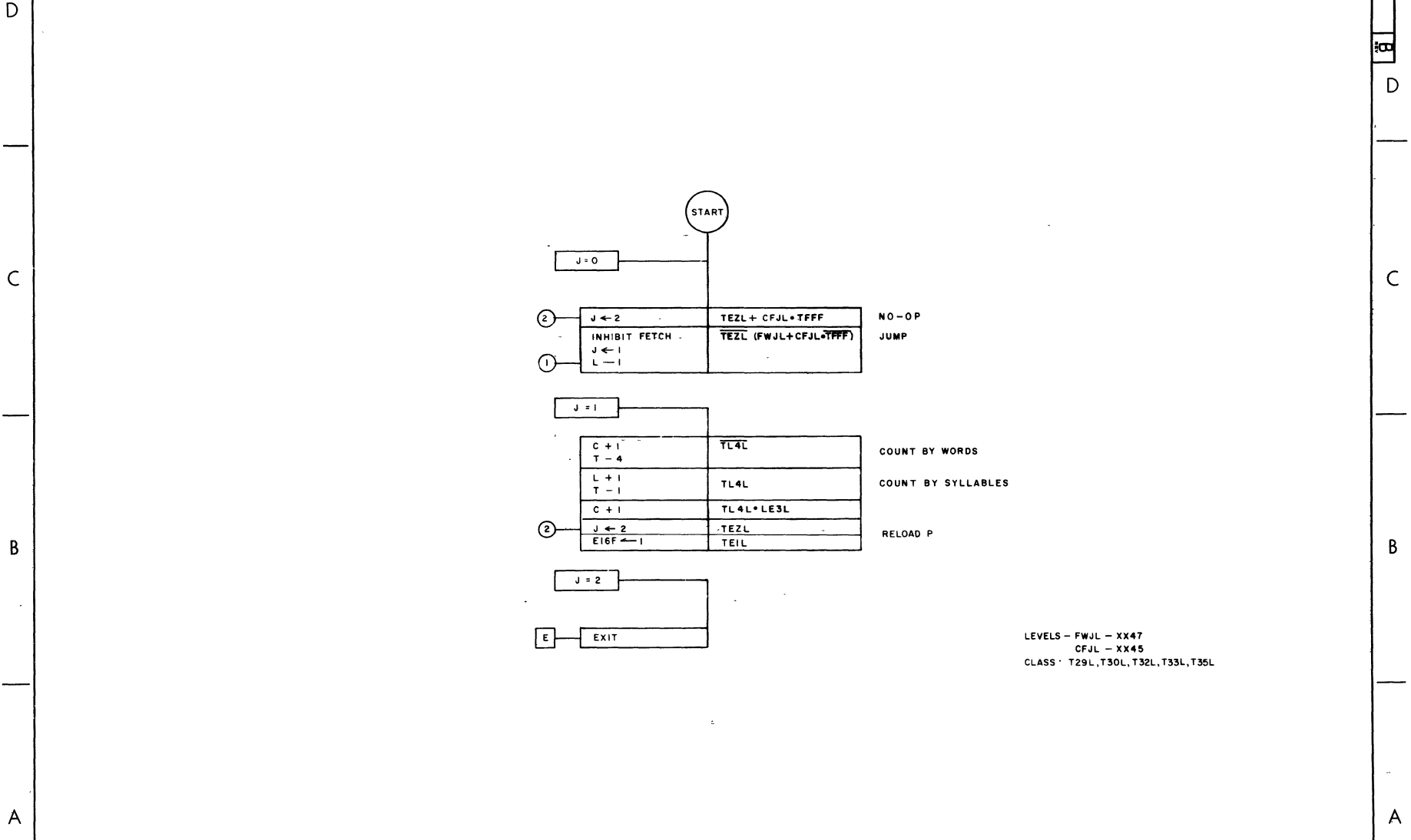
3

2

1

DRAWN BY T L GIBSON		REVISIONS				
CHECKED <i>R. V. Bock</i>	REV. NO. A	ECN NO. 3596	DESMN. I.T.	CHKD. 12-10	APPD.	DATE
APPROVED <i>R. V. Bock 12-10-64</i>	RELEASED					
PROJ ENGR R V BOCK	ECN 6474	LNCH	12-10-64			

C-11834991



LEVELS - FWJL - XX47  
 CFJL - XX45  
 CLASS - T29L, T30L, T32L, T33L, T35L

2 22 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE JUMP FWD. & CONDITIONAL JUMP FWD	PAGE
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNI 78494	C-11834991
			SYSTEM B5000	B REV

FORM NO. EDD-1655 REV. 5-61

REDUCED SIZE PRINT

4

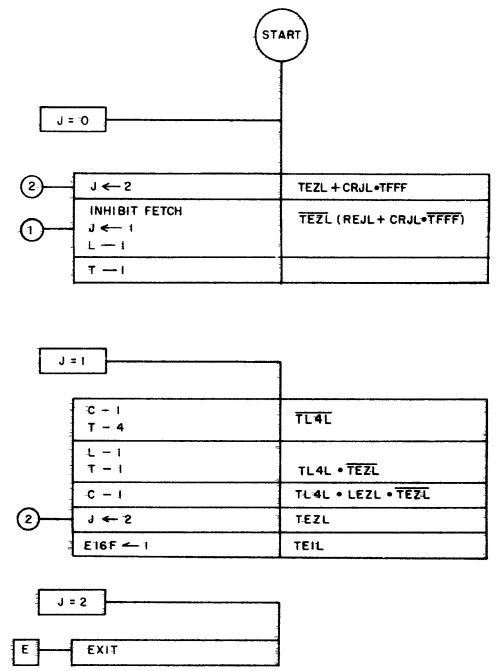
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DRAWN BY T. L. GIBSON		REVISIONS					3		2		1	
CHECKED	<i>[Signature]</i>	REV	ED	NO	DFTSMN	CHKR	APPD					
		A	3576	C	B	E-W						
APPROVED	<i>[Signature]</i>	RELEASED										
		B	6474	J. N. G.	12-23							
PROJ ENGR	R. V. BOCK	REVISED										

C-11835006  
B  
D  
C  
B  
A



LEVEL - REJL - XX57  
 CRJL - XX55  
 CLASS - T30L, T32L, T33L, T35L, T38L

ELECTRODATA M & E DIVISION		<b>Burroughs Corporation</b>		PASADENA CALIFORNIA	TITLE JUMP REVERSE & CONDITIONAL JUMP REVERSE	PAGE 2 23 0
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT					UNIT 78494	REV B
					SYSTEM 85000	C-11835006

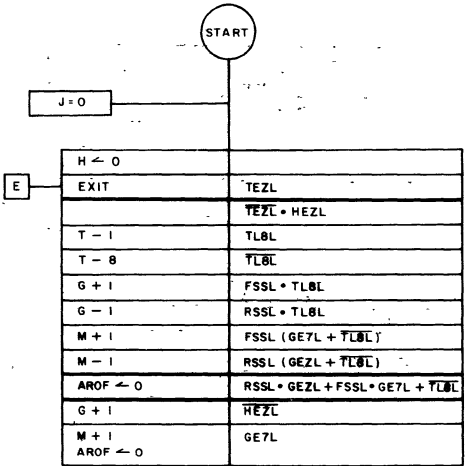
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REDUCED SIZE PRINT

FORM NO. EDD-1655 REV. 9-61

4	3	2	1
DRAWN BY T. L. GIBSON		REVISIONS	
CHECKED <i>RFB</i>	REV. NO. 3096	DFTSMAN I.T.	DATE
APPROVED <i>R. Kelly 12-11-64</i>	RELEASED		
PROJ ENGR R. V. BOCK			

C-11835014  
A  
D  
C  
B  
A



CLASS T26L  
 LEVELS - FSSL - XX31  
           RSSL - XX30  
 TIME . 1 + U + V = t USEC  
       U + V =  $\frac{t}{8}$

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE SKIP SOURCE FORWARD & REVERSE	PAGE 2 24 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	SYSTEM B5000
C-11835014			A REV.

4

3

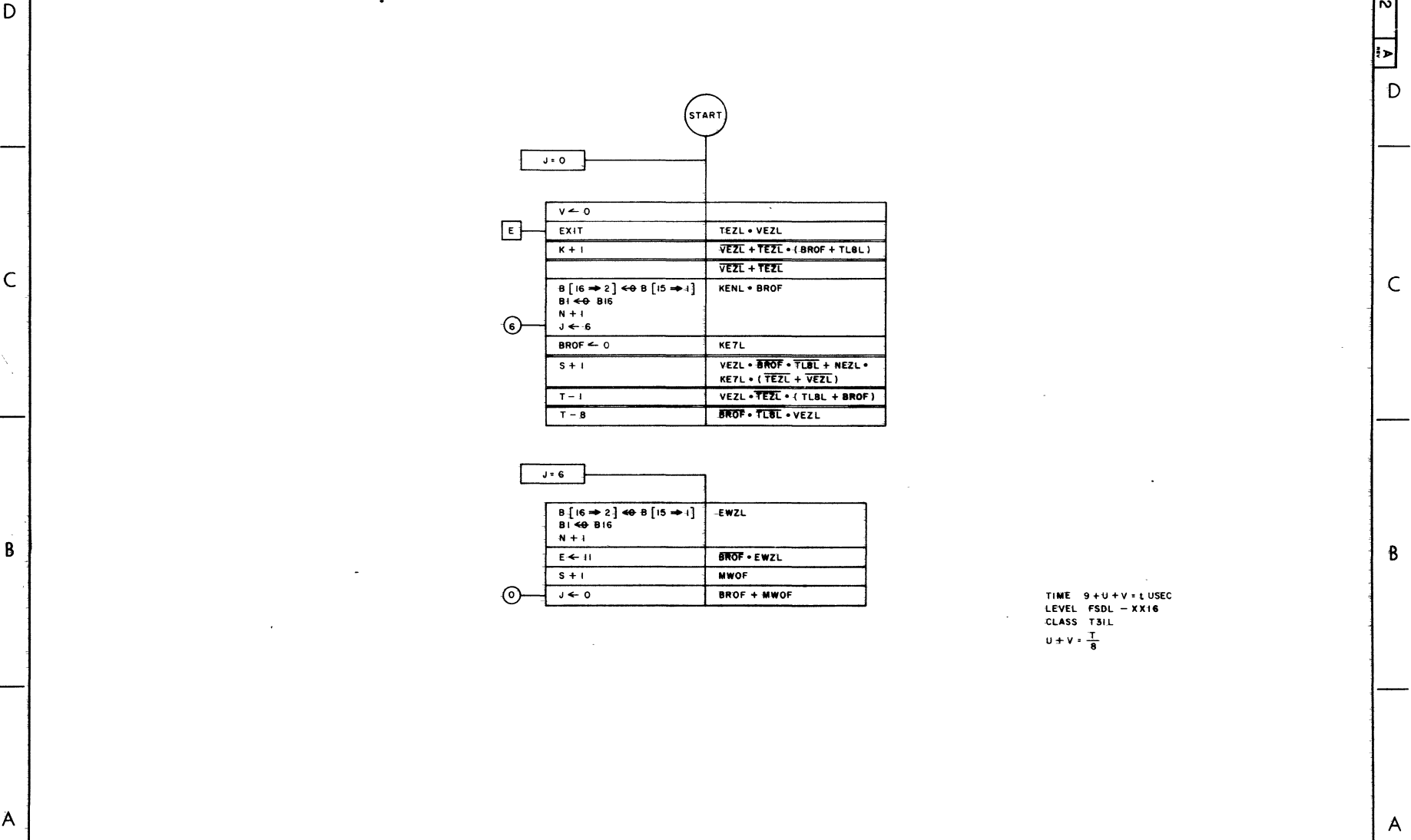
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1

DRAWN BY T. L. GIBSON  
 CHECKED *[Signature]*  
 APPROVED *[Signature]* 12-1-62  
 PROJ ENGR R. V. BOCK

REVISIONS				
REV	NO	DFTSMN	CHKD	DATE
A	3596	I.T.	[Signature]	
RELEASED				

C-11835022



TIME 9 + U + V = L USEC  
 LEVEL FSDL - XX16  
 CLASS T31L  
 U + V =  $\frac{T}{8}$

4

3

2

1

4

3

2

1

DRAWN BY T L GIBSON		REVISIONS				
CHECKED <i>R. Bock</i>	REV A	ECN NO 3596	DFTSMN 1.T.	CHKD <i>EG</i>	APPD	DATE
APPROVED <i>R. V. Bock</i>	RELEASED					
PROJ ENGR R V BOCK	B	ECN 6474	PRT	<i>EG</i>	<i>10-23</i>	

C-11835030

D

C

B

A

START

J = 0

	B [15 => 1] ←← B [16 => 2] B16 ←← B1 N - 1	NOIF
	V ← 0	
E	EXIT	VEZL * TEZL
	K + 1	VEZL
	B [16 => 2] ←← B [15 => 1] B1 ←← B16 N + 1 J ← 6	KENL * BROF
6	BROF ← 0	KE7L
	S + 1	KE7L * NEZL
		VEZL * TEZL
	BROF ← 0	KENL
	K - 1 T - 1	BROF * TLBL + BROF * KENL * NOIF
	S - 1	BROF (KEZL + TLBL)
	B [15 => 1] ←← B [16 => 2] B16 ←← B1 N - 1	BROF * KENL * NEZL
	T - 8	BROF * TLBL
1	E ← 11 J ← 1	BROF * KENL * NOIF * KEZL
	INHIBIT FETCH	VEZL

J = 1

	S - 1 J ← 0	MWOF
0	BROF ← 0	

J = 6

	B [16 => 2] ←← B [15 => 1] B1 ←← B16 N + 1	EWZL
	E ← 11	BROF * EWZL
	S + 1	MWOF
0	J ← 0	BROF + MWOF

LEVEL RSDL - XX17  
CLASS - T31L

2 26 0

ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE SKIP REVERSE DESTINATION	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNI 78494 SYSTEM B5000	C-11835030 B REV

4

3

2

4

3

2

1

DRAWN BY T. L. GIBSON		REVISIONS					
CHECKED <i>R. Bock</i>	REV A	ECN NO 3596	DFTSMAN I.T.	CHKD <i>R.B.</i>	APPD	DATE	
APPROVED <i>R. Bock</i>	RELEASED						
PROJ. ENGR R. V. BOCK							

C-11836129

A

D

C

B

A

START

J = 0

H ← 0	
G ← 0	
B[16 ⇒ 2] ⇔ B[15 ⇒ 1]	NEZL • NOBF
B16 ⇔ B1	
N + 1	
B[1 ⇒ 15] ⇔ B[2 ⇒ 16]	NEZL • NOBF
B16 ⇔ B1	
N - 1	
E ← 11	NEZL • BROF
J ← 1	NEZL
M + 1	HEZL + GEZL
AROF ← 0	

1

J = 1

E ← 4	AROF • TEZL • EEZL
S + 1	(KEZL • VEZL) • EEZL
K ← 0	
V ← 0	EEZL
J ← 2	
BROF ← 0	

2

J = 2

AROF ← 0	
	TEZL
E ← 10	
M + 1	MROF • EWZL
T - 1	
E ← 4	EEZL • MWOF
S + 1	EEZL • MWOF
EXI.	EEZL • TEZL

E

TIME 11+8T+t USEC  
 LEVEL TWDL - XX05  
 CLASS T28L

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TRANSFER WORDS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836129
			SYSTEM B5000	A REV

4

3

2

1

DRAWN BY C BEVINS 12/4/61		REVISIONS							
CHECKED	<i>R. E. Boyd</i>	REV	ECN NO	DEFSM N	CHKR	APPD	DATE		
		A	3576	1.T.	<i>R. E. Boyd</i>				
APPROVED <i>u. i. Kelly</i>		RELEASED							
PROJ ENGR	L. E. KOWALSKI	B	6474	MLY	<i>R. E. Boyd</i>				

START AT J = 0  
OF CHARACTER COMPARE

NOTE 1ST PHASE OF ADD FIELD IS THE COMPARE CHARACTER OPERATION. SEE DRAWING NO. 11834835 CHARACTER MODE. THE COMPARE IS NUMERIC. THE RESULT OF THE COMPARE IS STORED IN TFFF & Q03F.

J = 5		
0	J ← 0	TEZL • EEZL
E	EXIT	Q06F
	T06F ← 0	
	G - 1	
	K - 1	TEZL • EEZL
	B[15 → 1] ↔ B[16 → 2]	Q06F • FASL
	B16 ↔ B1	
	N - 1	BROF • KEZL
	M - 1	GEZL
	AROF ← 0	
	S - 1	KEZL
	BROF ← 0	

CHANGE LEVEL  
FROM T23L  
TO FAXL  
OR FSXL

J = 0		
1	B[15 → 1] ↔ B[16 → 2]	
	B16 ↔ B1	
	T[12 → 10] ← H	
	T[9 → 7] ← V	
	J ← 1	
	N - 1	BROF

J = 1		
2	E ← 3	BROF
	J ← 2	
	E ← 4	AROF • BROF • EEZL
	AROF ← 1	MROF
		AROF • BROF
6	N ← 13	NEZL
	J ← 6	
3	B[16 → 2] ↔ B[15 → 1]	NEZL
	B1 ← B16	
	J ← 3	

J = 2		
1	J ← 1	MROF
	BROF ← 1	
	E ← 4	AROF

J = 3		
4	B[16 → 2] ↔ B[15 → 1]	
	B1 ↔ B16	
	J ← 4	

J = 4		
6	B[16 → 2] ↔ B[15 → 1]	
	B1 ↔ B16	
	J ← 6	

J = 6		
7	B[16 → 2] ↔ B[15 → 1]	KENL • (K04F + KE7L)
	B1 ↔ B16	
	N + 1	
	B[15 → 1] ↔ B[16 → 2]	KENL • K04F • KE7L
	B16 ↔ B1	+ KENL • NOIF
	N - 1	
	Y ← A[6]	
	Z ↔ B[3 → 2]	KENL • NOIF
	J ← 7	

ALIGN TO  
SECOND OUTPUT  
STATION

LEVEL - FSUL - XX72  
FADL - XX73  
FSXL - XX32  
FAXL - XX33

2 · 28 · 0

ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE FIELD ADD - SUBTRACT	PAGE 1 OF 2
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	C-11837689
		SYSTEM B5000	B REV

REDUCED SIZE PRINT

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FORM NO. EDD-1885 REV. 9-61

DRAWN BY C BEVINS 12/5/61		REVISIONS			
CHECKED <i>R.S. [Signature]</i>	REV	NO	DATE	CHKR	APPD
APPROVED <i>S.T. Kelly 12/11/61</i>					
PROJ ENGR L E KOWALSKI					

C-11837689

B

D

C

B

A

J = 7

Q08F ← 1	
Q09F ← 1	NEGL • Q08F
Q02F ← 1	CADL • Q08F
Q07F ← 1	
Q04F ← 1	TFFF • CADL • Q08F
B [15 → 1] ↔ B [16 → 2]	
B16 ↔ B1	
N - 1	Q08F
J ← 8	
Y ↔ A [6]	
Z ↔ B [3 → 2]	Q04F
Z ↔ Δ B [3 → 2]	Q04F

SIGN ESTABLISHED FROM MATRIX  
 COMPLEMENT ADD  
 CARRY FF  
 Z COMPLEMENT LEVEL  
 FIRST BINARY ADD  
 9'S COMPLEMENT

J = 10

Q05F ← 0	
N - 1	
B [46 → 43] ← [DECIMAL CORRECT MATRIX]	EEZL
B [14 → 1] ↔ B [15 → 2]	
Z ↔ B [3 → 2]	Q04F
Z ↔ Δ B [3 → 2]	Q04F
Y ↔ A [6]	
TFFF ← 1	ZDCL
Q07F ← 1	
B48F ← 1	Q09F
Q09F ← 0	
E ← 11	Q05F
J ← 9	
J ← 8	Q05F • TEZL
J ← 11	Q05F • TEZL

NORMAL BINARY ADD

J = 8

B [15 → 1] ↔ B [16 → 2]	
B16 ↔ 0	
Z ← Y + Z	
N - 1	
T - 1	
Y ← 0	
TFFF ← 0	
Q07F ← 0	
K - 1	TEZL
G - 1	
E ← 4	TEZL • GEZL
M - 1	
Q05F ← 1	KEZL
J ← 10	

DECIMAL CORRECT

J = 11

B [15 → 1] ↔ B [16 → 2]	
B16 ↔ B1	
N - 1	N13L • K04F
B [16 → 2] ↔ B [15 → 1]	
B1 ↔ B16	
N + 1	N13L • K04F
E ← 11	N13L • EWZL
J ← 12	MWOF
T [12 → 10] ← H	
T [9 → 7] ← V	

RESTORE B REGISTER

STORE B

J = 9

E ← 3	MWOF • TEZL • EEZL
S - 1	
T [12 → 10] ← H	
T [9 → 7] ← V	
J ← 12	TEZL • MWOF
B [16 → 2] ↔ B [15 → 1]	
B1 ↔ B16	
N + 1	EWZL • TEZL
J ← 7	

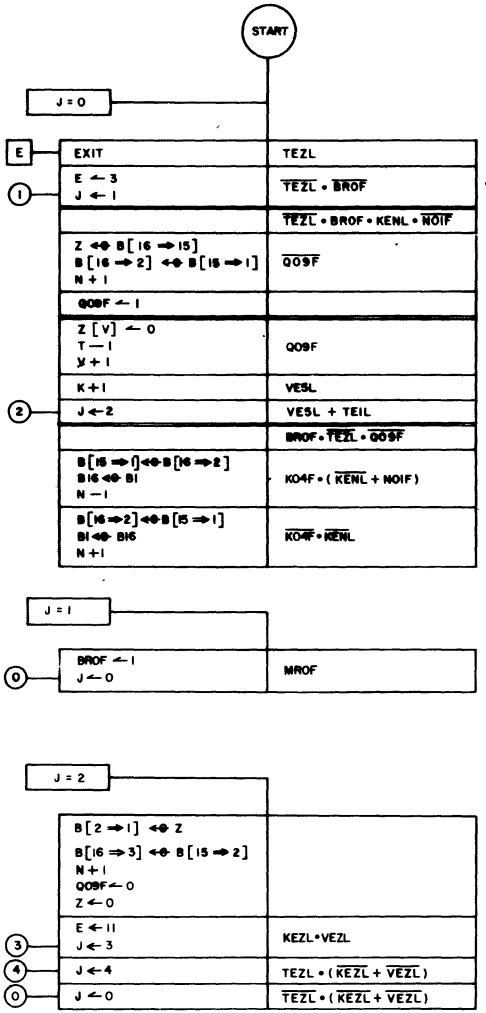
J = 12

AROF ← 0	
BROF ← 0	
N ← 0	
H ← 0	
V ← 0	
TFFF ← 0	Q02F
M + 1	
S + 1	TL8L
T - 8	
G + 1	
K + 1	TL8L • TEZL
T - 1	
S + 1	KE7L
M + 1	GE7L
EXIT	EEZL • TEZL

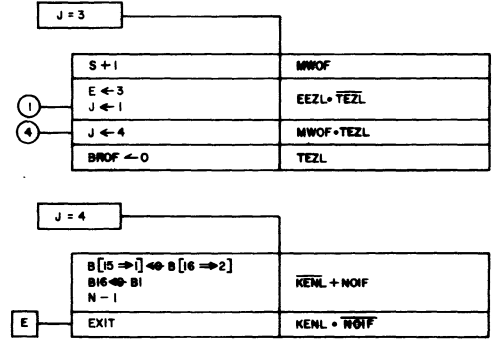
\* ADD Y [1 → 8] AND Z [1 → 8]  
 PLACE BINARY SUM INTO Z [1 → 8]  
 PLACE BINARY CARRY INTO ZRBF

DRAWN BY T. L. GIBSON	REVISIONS			
CHECKED <i>R. J. [Signature]</i>	REV. NO. <b>A</b>	DATE <b>12-11-66</b>	BY <b>[Signature]</b>	DATE
APPROVED <i>B. T. Kelly</i>	RELEASED			
PROJ ENGR L. E. KOWALSKI				

C-11837697  
A  
D  
C  
B  
A



Q09F REQUIRES THAT THE TRANSFER FROM B<sub>16</sub> TO B<sub>15</sub> TO Z BE COMPLETE BEFORE Z[V] ← 0



LEVEL REBL - XX65

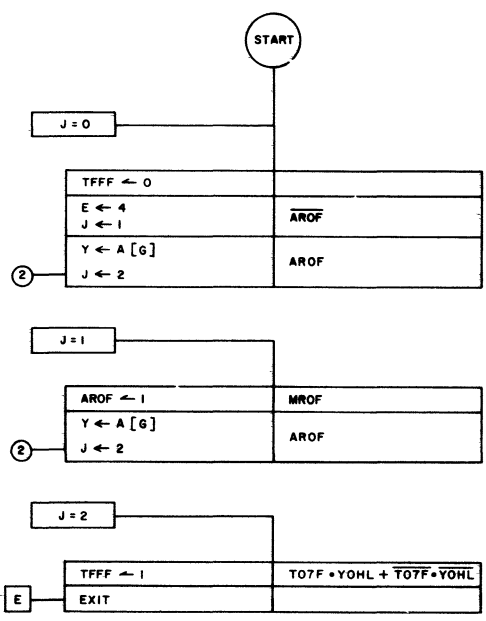


DRAWN BY T. L. GIBSON  
 CHECKED *R. G. Galt*  
 APPROVED *D. F. Kelly 12-11-64*  
 PROJ ENGR L. E. KOWALSKI

REVISIONS					
REV	NO	BY	DATE	APPD	DATE
A	3596	LT	12-11-64		
RELEASED					

--	--	--	--

C-11837705  
A  
D  
C  
B  
A



LEVEL: TEBL - XX37  
 TFFF = Q12F

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE TEST BIT	PAGE 2 · 30 · 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11837705
			SYSTEM B5000	A REV



4

3

2

1

DRAWN BY T. L. GIBSON		REVISIONS								
CHECKED <i>R. P. Reed</i>	REV A	REASON 3576	DTSMN I.T.	CHKZ 8/2	APPD 12-11-66	DATE				
APPROVED <i>L. E. Kowalski</i>	RELEASED									
PROJ ENGR L. E. KOWALSKI										

C-11837721

A

D

C

B

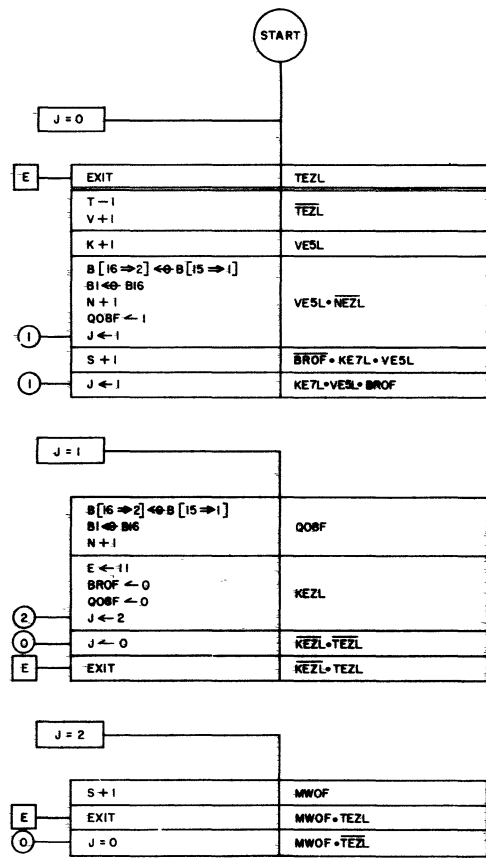
A

D

C

B

A



LEVEL SBDL - XX02

FOR EDUCATIONAL USE ONLY 2 · 32 · 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE SKIP BIT DESTINATION	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSEN.			UNIT 78494	C-11837721
			SYSTEM B5000	A REV

4

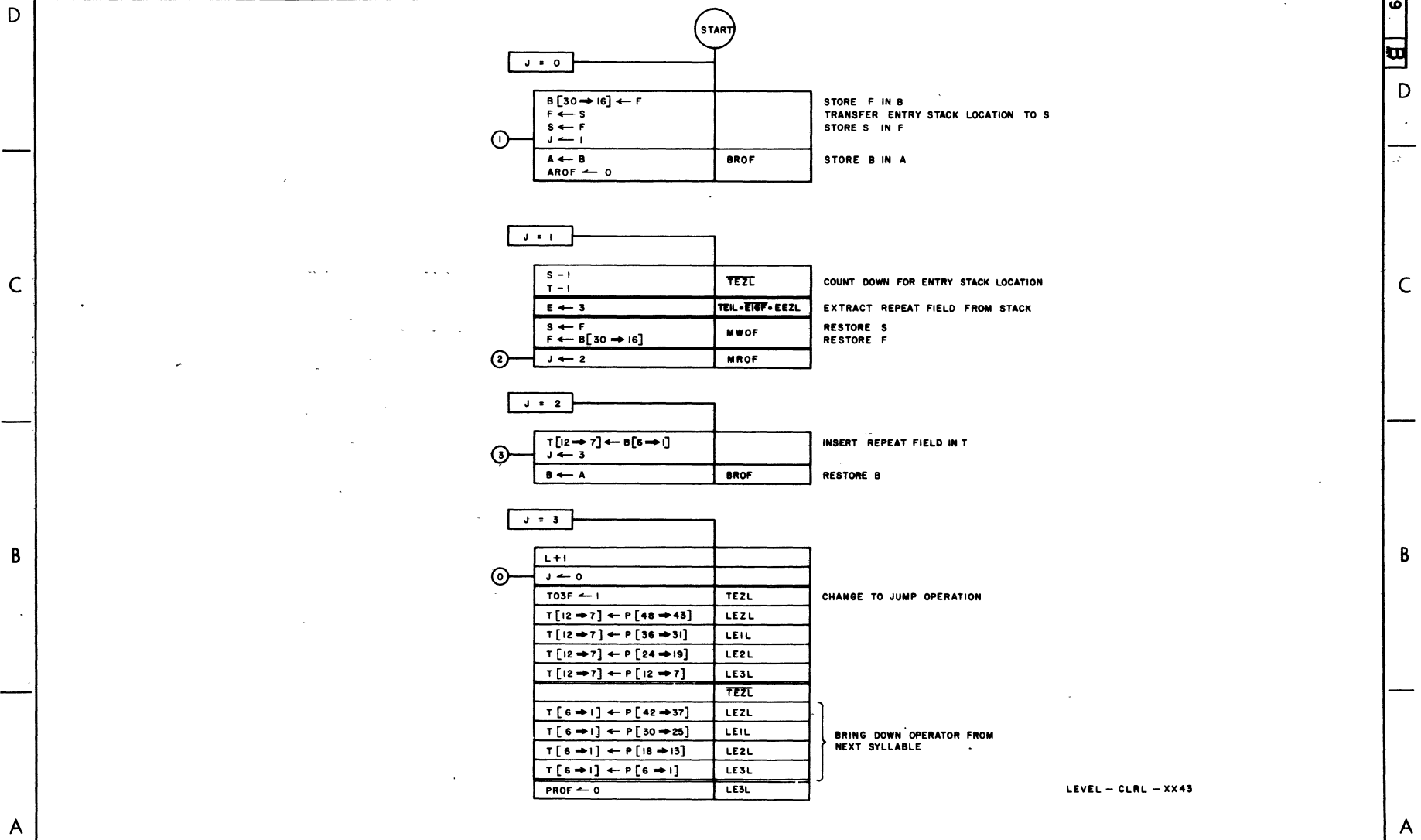
3

2

1

DRAWN BY <i>L. McHAYRE 11-18-61</i>		REVISIONS			
CHECKED <i>[Signature]</i>	REV. NO. <i>357</i>	DESIGN. I.T.	CHKD. <i>[Signature]</i>	APPD.	DATE
APPROVED <i>D. G. Kelly 12-11-61</i>					
PROJ ENGR L E KOWALSKI	B 6474	PRT	<i>[Signature]</i>		
	REVISED				

C-11837739



LEVEL - CLRL - XX43

2-33 0

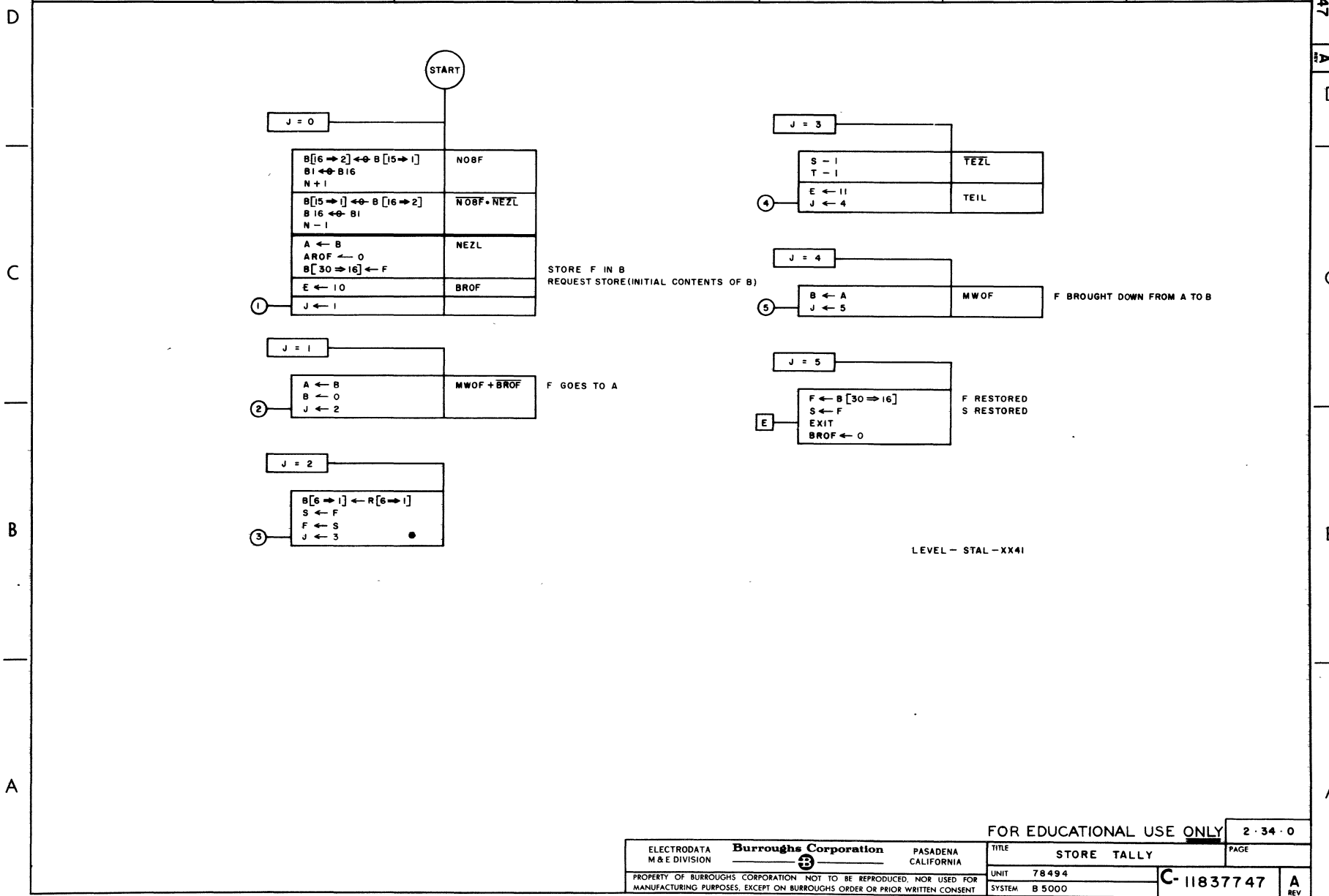
ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE CALL REPEAT FIELD	PAGE 2-33 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494	C-11837739
		SYSTEM B5000	B REV

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HENRY S. BURROUGHS

FORM NO. EDD-1888 REV. 5-61

REDUCED SIZE PRINT

4	3	2	1
DRAWN BY <i>L. Kowalski 11-17-61</i>			
REVISIONS			
REV	RC	NO	DATE
A	3576	JT	25
RELEASED			
CHECKED <i>R. B. [Signature]</i>			
APPROVED <i>D. T. K. [Signature]</i>			
PROJ ENGR L E KOWALSKI			

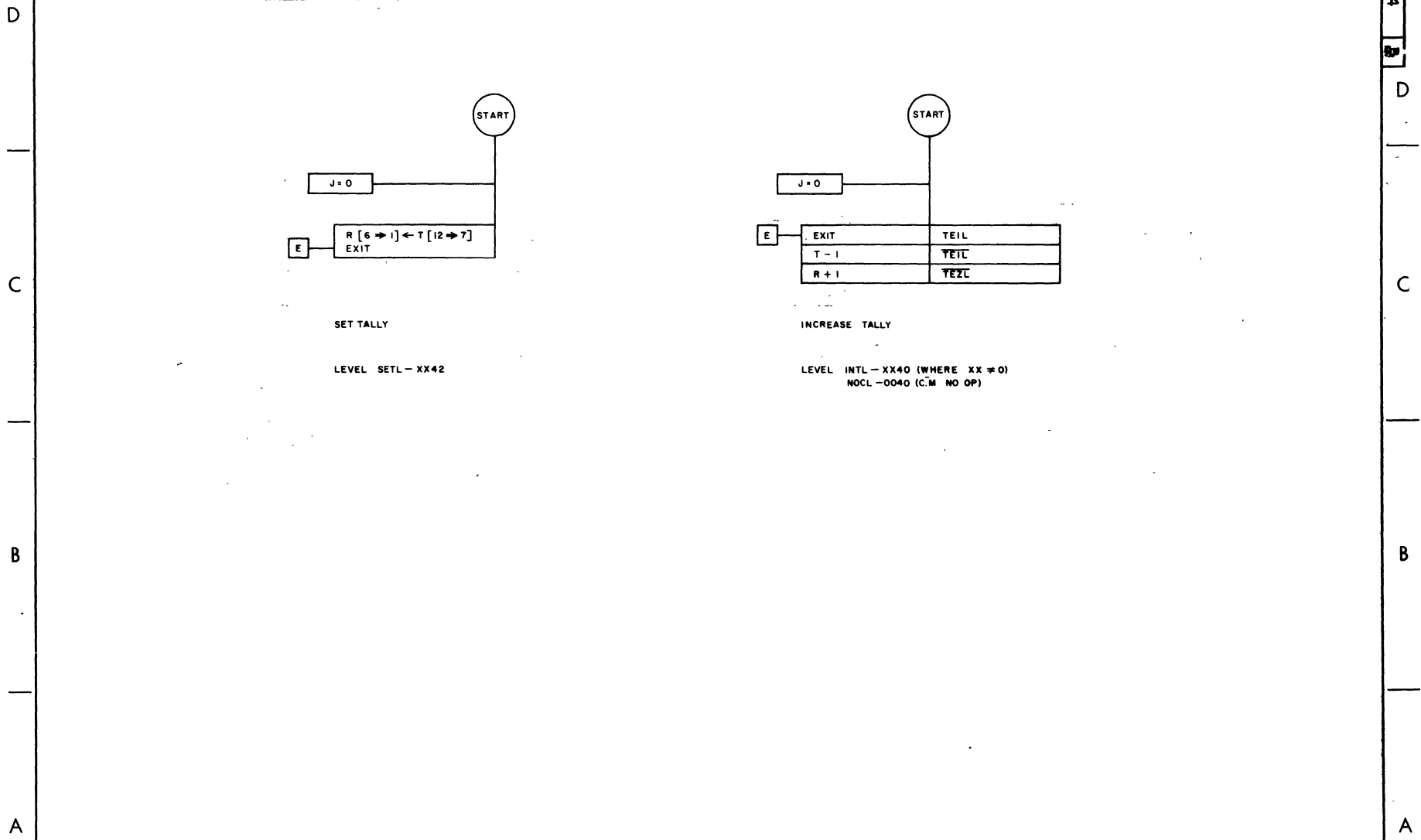


C-11837747 A D C B A

ELECTRODATA M & E DIVISION		<b>Burroughs Corporation</b>		PASADENA CALIFORNIA	FOR EDUCATIONAL USE ONLY		2-34-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT				TITLE	STORE TALLY	PAGE	
				UNIT	78494	C-11837747	A
				SYSTEM	B 5000	REV	

DRAWN BY T. L. GIBSON		REVISIONS			
CHECKED <i>R. P. [Signature]</i>	REV. NO. A	REV. DATE 3/5/64	CHKD. BY I.T.	APPD. DATE 3/5/64	
APPROVED <i>[Signature]</i>	RELEASED				
PROJ. ENGR. L. E. KOWALSKI	ECN 6474	PRT	<i>[Signature]</i>		

C-11837754



SET TALLY  
LEVEL SETL - XX42

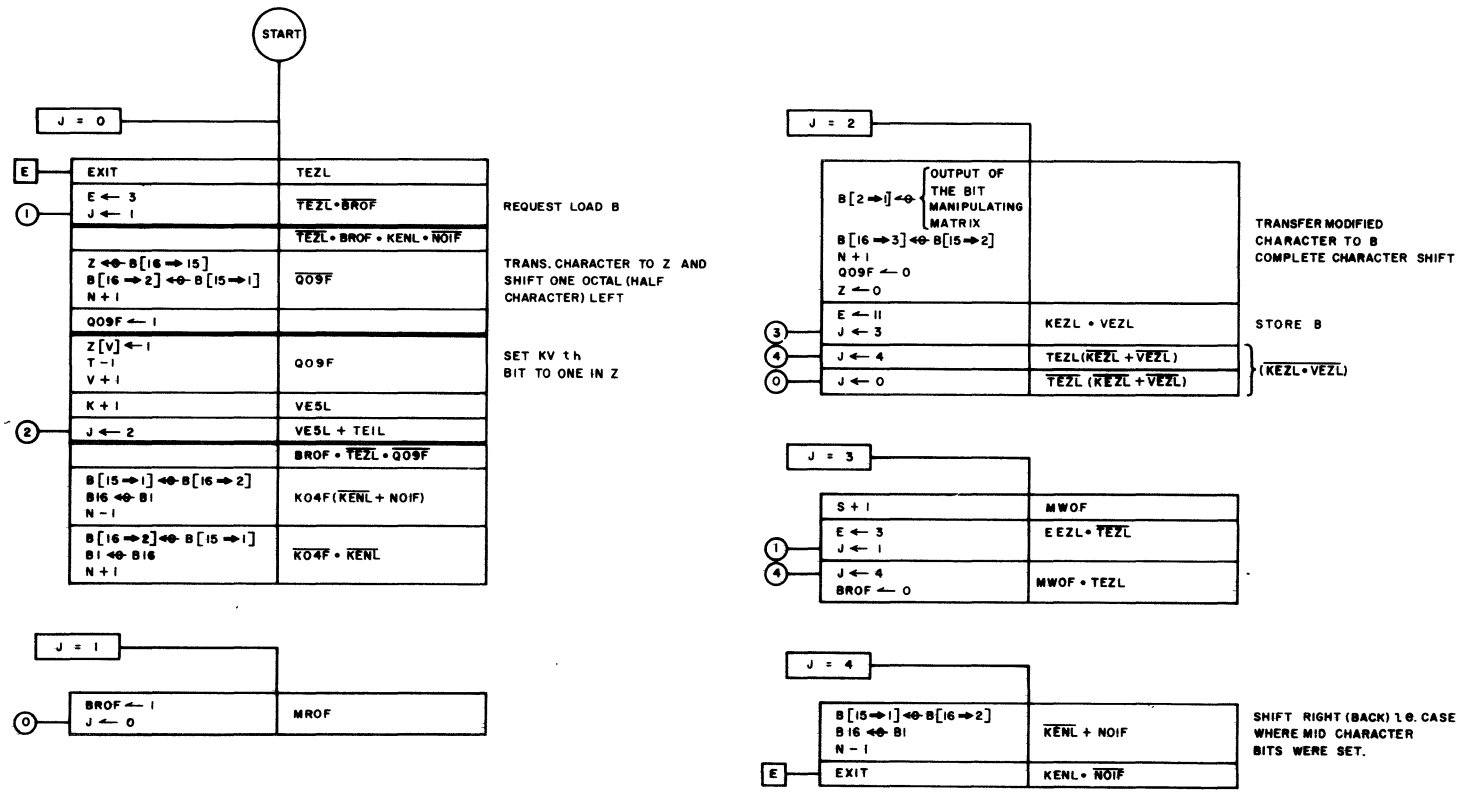
INCREASE TALLY  
LEVEL INTL - XX40 (WHERE XX ≠ 0)  
NOCL - 0040 (C.M. NO OP)

ELECTRODATA M & E DIVISION		Burroughs Corporation		PASADENA CALIFORNIA	TITLE SET TALLY, INCREASE TALLY & NO OP	PAGE 2-35-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT				UNIT 78494	C-11837754	B
				SYSTEM B5000		

REDUCED SIZE PRINT

DRAWN BY <i>L.H. CHAMBERLAIN</i> 11-27-61		REVISONS								
CHECKED <i>R. J. ...</i>	REV. NO. <b>A</b>	ISS. DATE <b>12-12-61</b>	OPTSMAN <b>J.T. ...</b>	CHKD <b>...</b>	APPD. DATE					
APPROVED <i>P.T. Kelly</i> 12-14-61	RELEASED									
PROJ ENGR L.E. KOWALSKI										

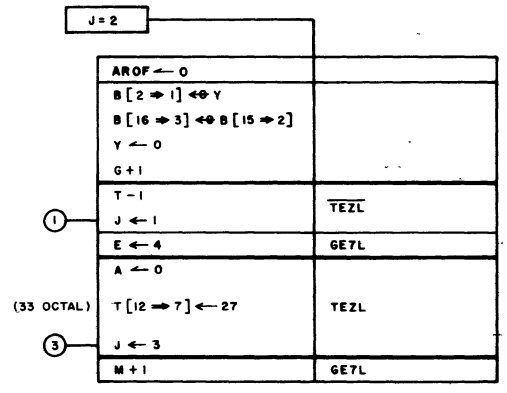
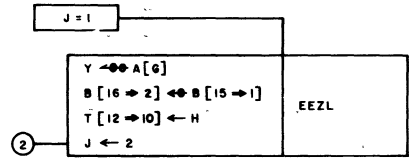
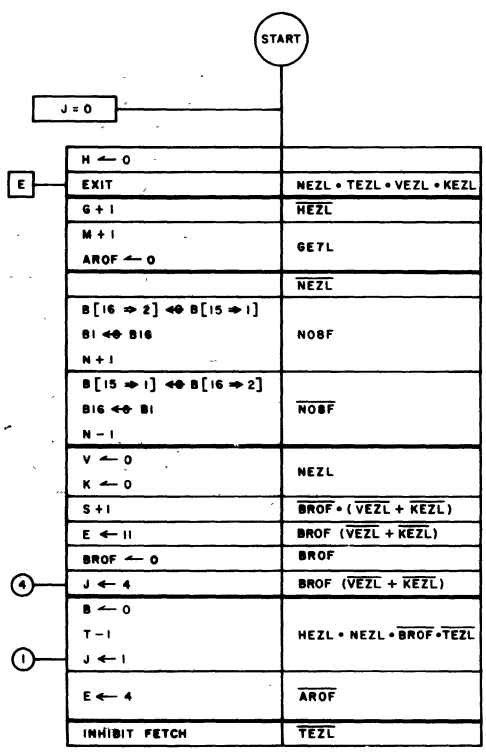
C-11837762 A D C B A



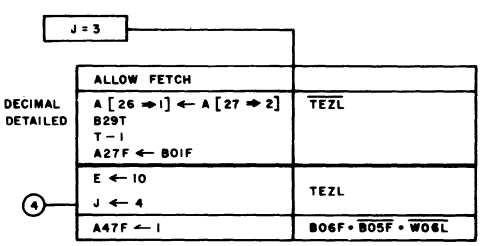
LEVEL - SEBL - XX64

ELECTRODATA M&E DIVISION		<b>Burroughs Corporation</b>		PASADENA CALIFORNIA	TITLE	SET BIT	PAGE	2 · 36 · 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT					UNIT	78494	C-11837762	A REV
					SYSTEM	B5000		

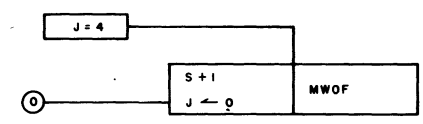
DRAWN BY C BEVINS 11/3/61		REVISIONS			
CHECKED <i>[Signature]</i>	REV A	ECN NO 3576	DFTSMAN I.T.	CHKD BY [Signature]	APPD DATE
APPROVED <i>[Signature]</i>	RELEASED				
PROJ ENGR DE BEULE R BOCK	B	ECN 6474	MY	[Signature]	



CONVERT 6 BIT DECIMAL TO OCTAL. FOR DETAILED OPERATION SEE A-11835972



W06L = A [39 → 1] ≠ 0



INPUT CONVERT - ICOL - XX67

ELECTRODATA M&E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE INPUT CONVERT	PAGE 2 · 37 · 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B 5000	C-11835931 B REV

REDUCED SIZE PRINT



DRAWN BY C BEVINS 11/7/61		REVISIONS			
CHECKED <i>[Signature]</i>	REV A	NO 30%	DFTSMN I.T.	APPD	DATE
APPROVED <i>[Signature]</i>	RELEASED				
PROJ ENGR DE BEULET - R BOCK					

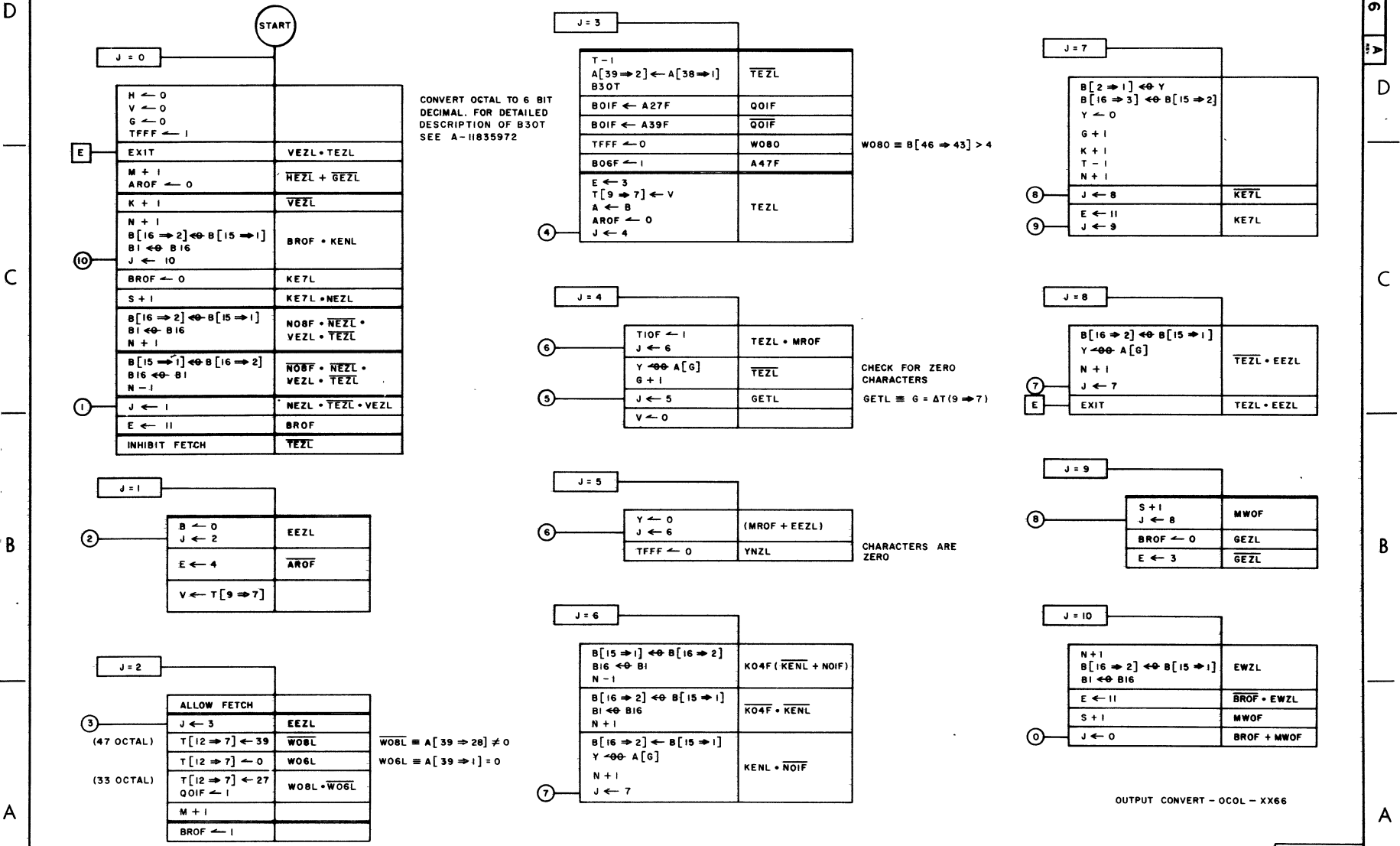
CONVERT OCTAL TO 6 BIT DECIMAL. FOR DETAILED DESCRIPTION OF B30T SEE A-11835957

W080 = B[46 ⇒ 43] > 4

CHECK FOR ZERO CHARACTERS  
GETL = G = ΔT(9 ⇒ 7)

CHARACTERS ARE ZERO

OUTPUT CONVERT - OCOL - XX66



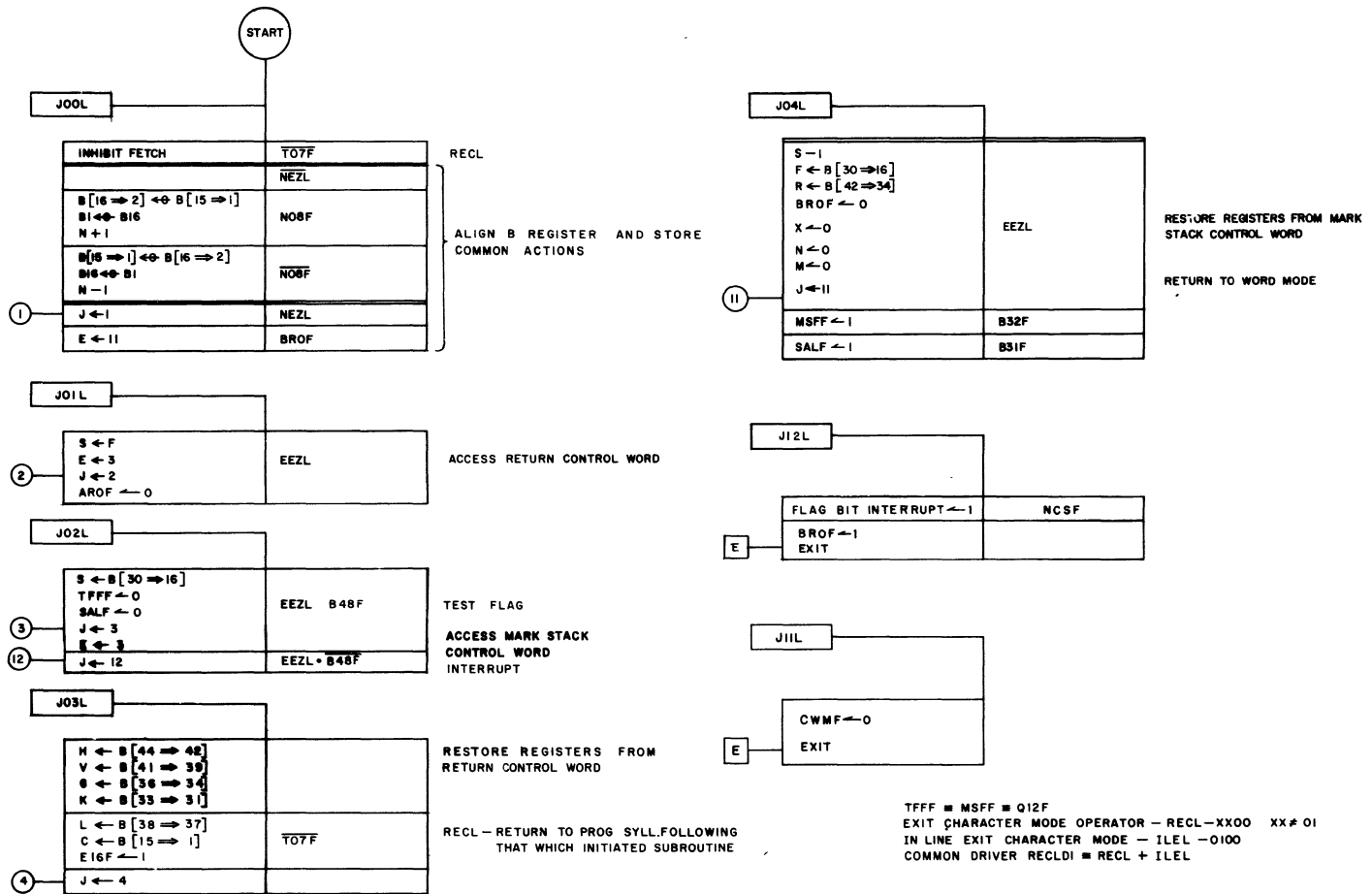
FOR EDUCATIONAL USE ONLY 2-38-0

ELECTROPATA M & E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE OUTPUT CONVERT	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B5000	REV A

DRAWN BY	T.L. GIBSON	REVISIONS			
CHECKED	<i>[Signature]</i>	REV	NO	DATE	APPD
APPROVED	<i>[Signature]</i>	A	3075	1.1	12/12
PROJ ENGR	J.H. PEDERSEN	B	6474	1/14	12/12

C-11837218

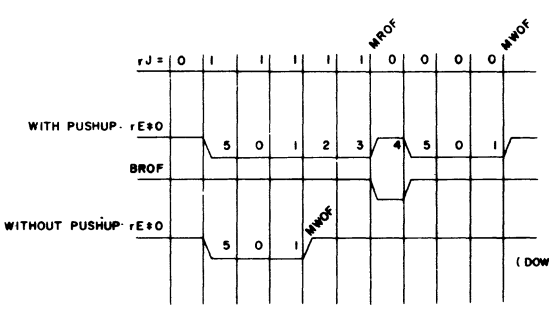
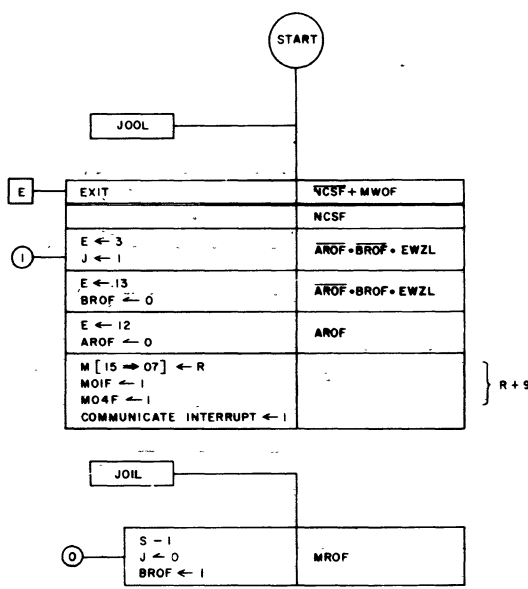
D  
C  
B  
A



2 · 39 · 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE EXIT CHARACTER MODE AND IN LINE EXIT CHARACTER MODE	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11837218
			SYSTEM 85000	B REV.

DRAWN BY T. L. GIBSON		REVISIONS			
CHECKED <i>R.P.P.</i>	REV. NO. A	ECN. NO. 3576	DIFF. SMN. 1-T	CHK. BY <i>EG</i>	APPD. DATE 12-76
APPROVED <i>T. L. Gibbon</i>	RELEASED				
PROJ. ENGR. R. V. BOCK	TECH. NO. B	3976	T. Z. 2-12-68	EC. <i>EG</i>	<i>12/16</i>



TIME 4μS (WITHOUT STACK ADJUST)  
10μS (WITH STACK ADJUST)

COML. COMMUNICATE LEVEL - 1011

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE COMMUNICATE	PAGE 3 01 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836541
			SYSTEM B5000	B REV

4

3

2

1

DRAWN BY T. L. GIBSON		REVISIONS			
CHECKED <i>R.V. Bock</i>	REV <b>A</b>	E.C.N. NO <b>6596</b>	DFTSMN I.T.	CHKD <i>8/25/60</i>	APPD DATE
APPROVED <i>D. T. Kelly</i>	RELEASED				
PROJ. ENGR R. V. BOCK	REV <b>B</b>	E.C.N. NO <b>6474</b>	DFTSMN <i>L.H.G.</i>	CHKD <i>8/25/60</i>	APPD DATE
	REVISED				

C-11836558

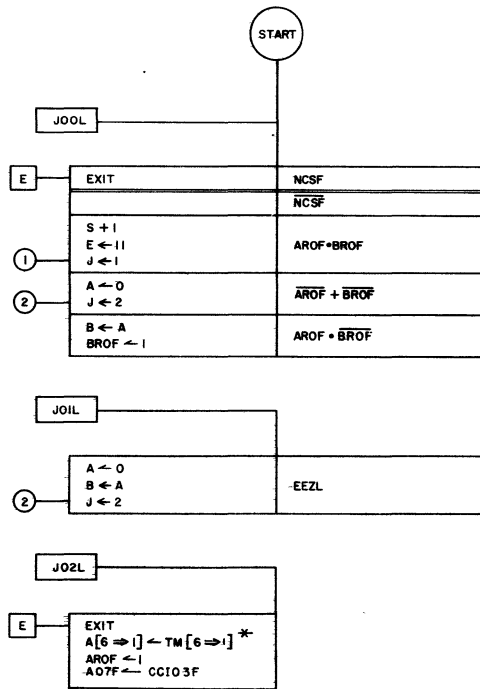
B

D

C

B

A



3.\* TM = TIMER REGISTER IN C C  
 2. CC103F = DTMX LEVEL = TIMER INTERRUPT BIT  
 NOTE 1. RDTL = READ TIMER LEVEL — 0411  
 TM<sub>n</sub>F<sub>n</sub> = REAL TIME CLOCK FF

3 · 02 · 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE <b>READ TIMER</b>	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT <b>78494</b>	C-11836558
			SYSTEM <b>B5000</b>	

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HENRY'S SUPPLY

4

3

2

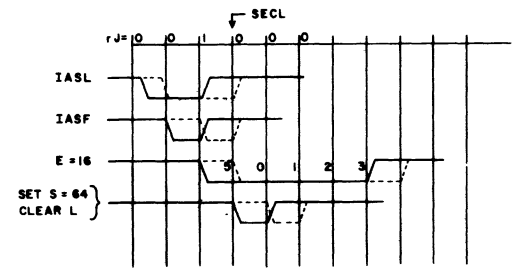
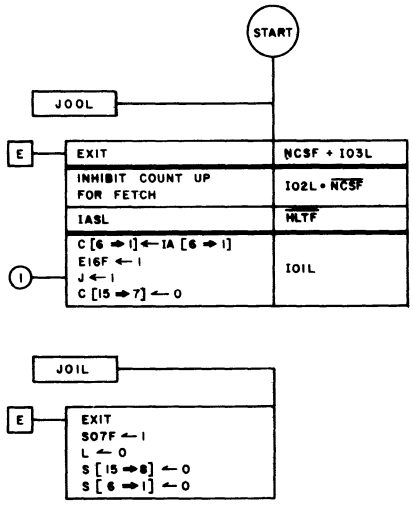
REDUCED SIZE PRINT

FORM NO EDD-1695 REV 9-61

DRAWN BY M YENGLIN 12-2-61		REVISIONS			
CHECKED	<i>R. Bock</i>	REV A	ECN NO 3594	DFTSMN C B	CHKD
APPROVED	<i>R. Bock</i>	RELEASED	REV B	ECN NO 3594	T.Z. 8-10-61
PROJ ENGR	R V BOCK				

4	3	2	1
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C-11836533 B D C B A



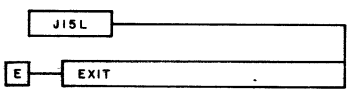
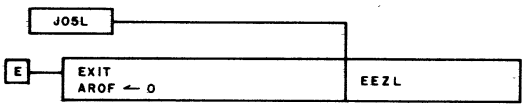
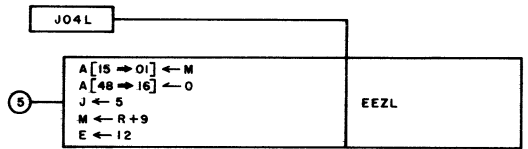
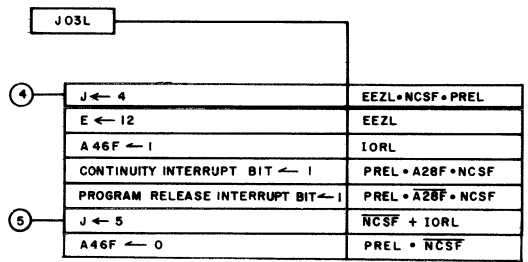
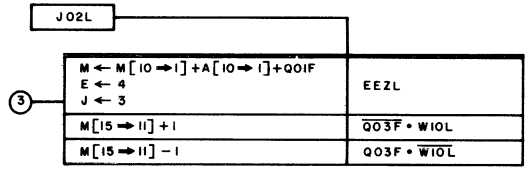
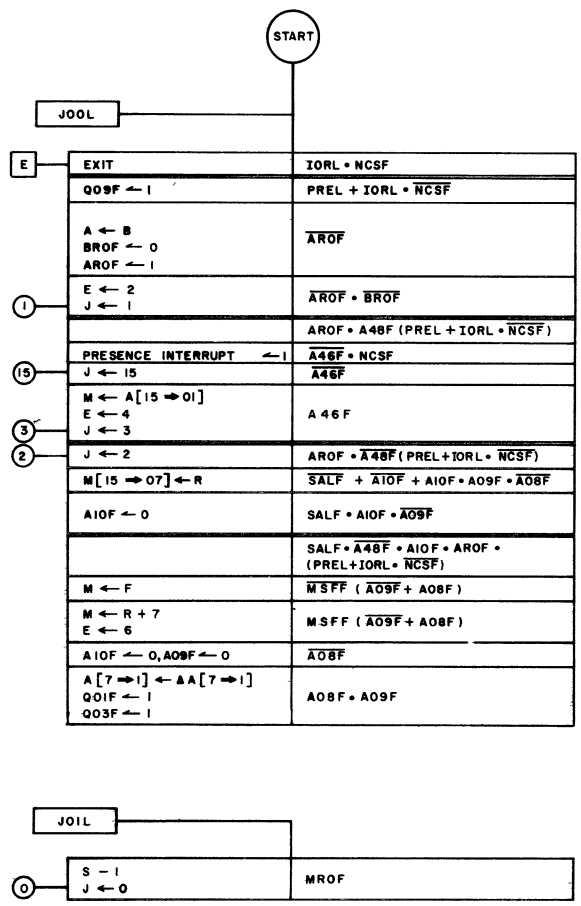
TIME: 1 USEC (NORMAL STATE)  
 2 USEC (NO INTERRUPT)  
 7 USEC (INTERRUPT + 1 USEC SYNC)  
 8 USEC (INTERRUPT + 2 USEC SYNC) } INCLUDES FETCH

NCSF = NORMAL/CONTROL STATE FF  
 IASL = INTERRUPT ADDRESS SYNC SET  
 IANF8 = INTERRUPT ADDRESS FF (CC)  
 IINL = INTERROGATE INTERRUPT LEVEL - 0211  
 IOF8 = INTERRUPT BITS (PK)

FOR EDUCATIONAL USE ONLY 3 · 03 · 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE INTERROGATE INTERRUPT	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836533
			SYSTEM B 5000	B REV

4	3	2	1
DRAWN BY <i>L. McHAYES 12-1-61</i>		REVISIONS	
CHECKED <i>R.G.E.</i>	REV. A	ECN NO. 3596	DATE 12/1/61
APPROVED <i>J.P. Kelly 12-11-61</i>	REV. B	ECN NO. 3996	DATE 12/11/61
PROJ ENGR R.V. BOCK	T.Z. 12-11-61	12-11-61	12-11-61

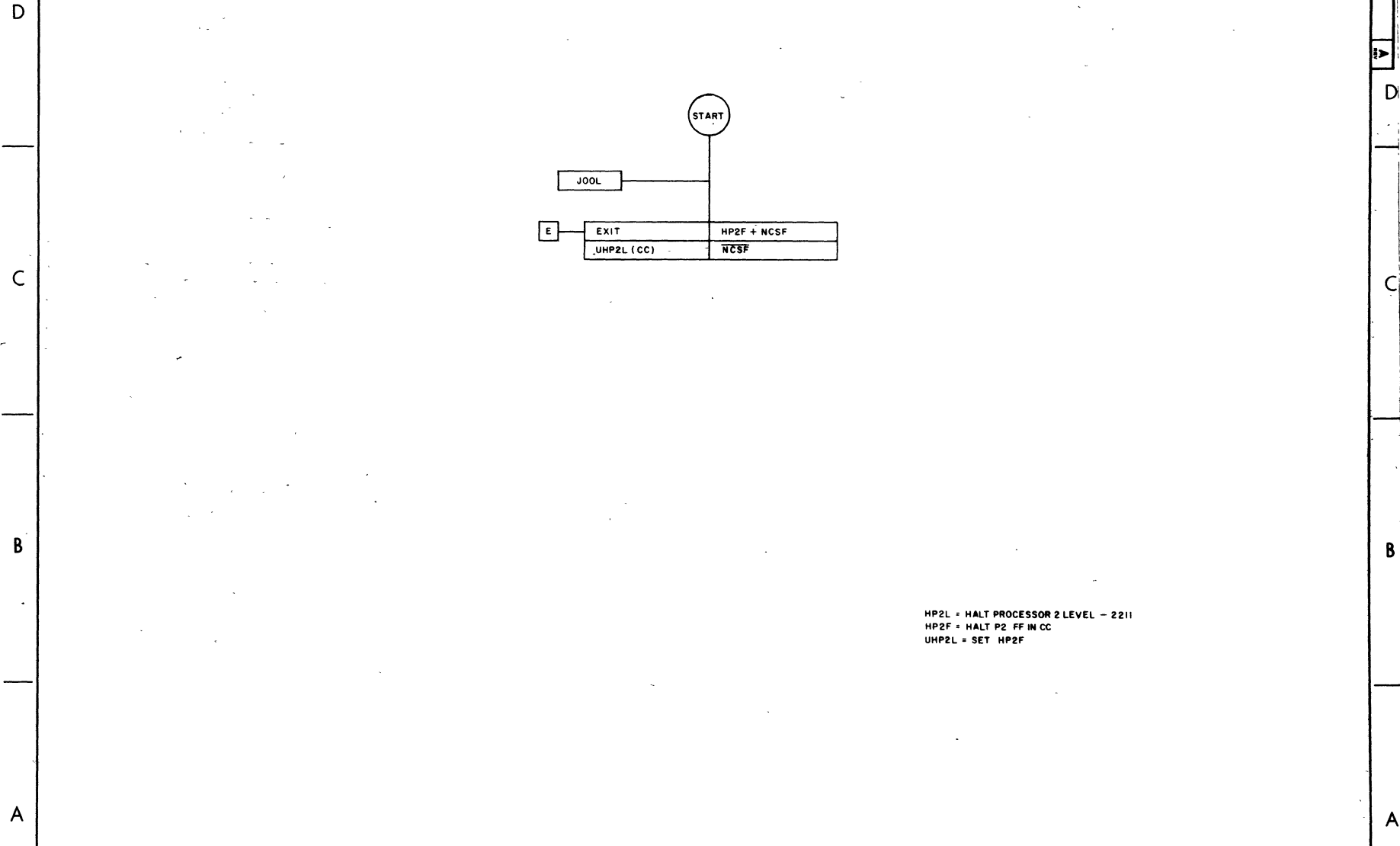


PIRL = I/O OR PROGRAM RELEASE LEVEL - 2111 OR 0111  
 IORL = I/O RELEASE - 2111  
 PREL = PROGRAM RELEASE - 0111  
 NCSF = NORMAL/ CONTROL STATE FF  
 COMMON LEVEL = T61L

ELECTRODATA M & E DIVISION	Burroughs Corporation PASADENA CALIFORNIA	TITLE PROGRAM - I/O RELEASE	PAGE 3 · 04 · 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494 SYSTEM B5000	C-11836525

REDUCED SIZE PRINT

4	3	2	1
DRAWN BY T L GIBSON		REVISIONS	
CHECKED <i>R. B. G.</i>	REV. NO. <b>A</b>	REV. NO. <b>3596</b>	DFTSMN. I.T.
APPROVED <i>R. T. Kelly 12-11-66</i>	RELEASED		
PROJ ENGR. R V BOCK			

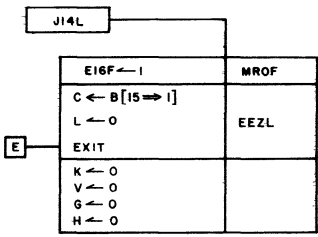
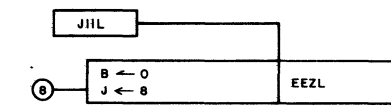
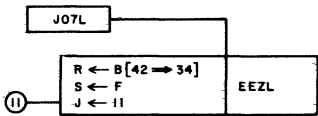
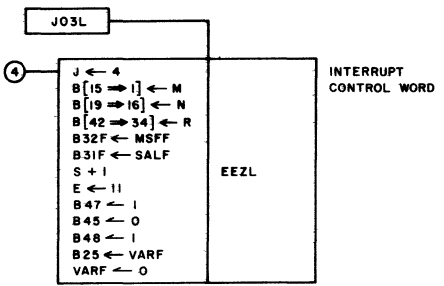
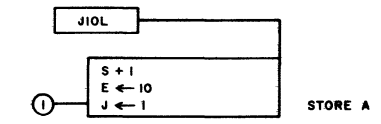
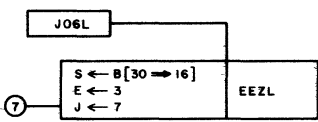
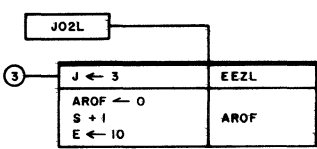
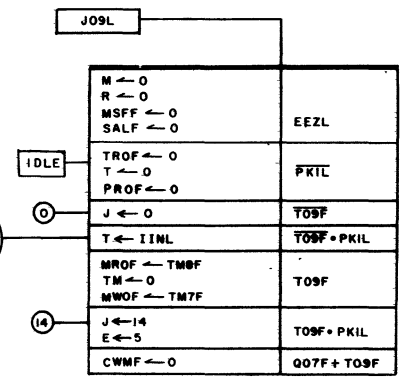
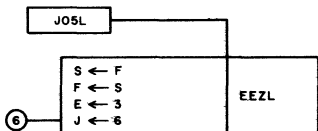
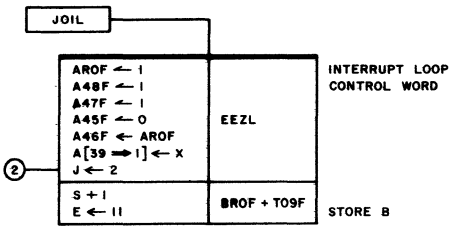
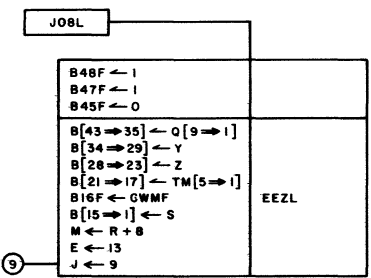
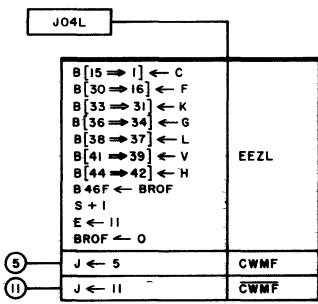
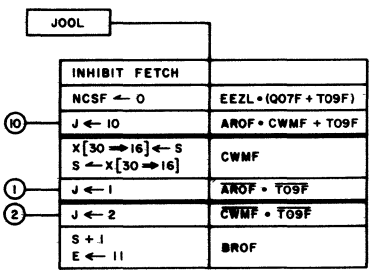


HP2L = HALT PROCESSOR 2 LEVEL - 2211  
 HP2F = HALT P2 FF IN CC  
 UHP2L = SET HP2F

ELECTRODATA M & E DIVISION			<b>Burroughs Corporation</b>		PASADENA CALIFORNIA	TITLE HALT P2	3 - 05 - 0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED NOR USED FOR MANUFACTURING PURPOSES. EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT						UNIT 78494	C-11836517
						SYSTEM B5000	A REV

DRAWN BY M. L. YENGLIN		REVISIONS			
CHECKED	<i>[Signature]</i>	REV	ECN NO	DFTSMN	DATE
APPROVED	<i>[Signature]</i>	D	6474	MY	19-2-64
PROJ. ENGR.	A. Y. BOCK	REVISED & REDRAWN			

C-11836491

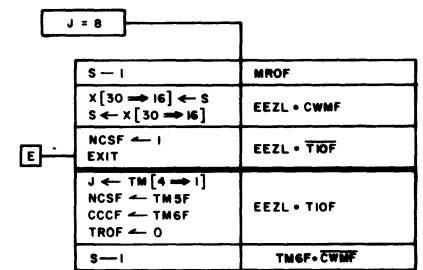
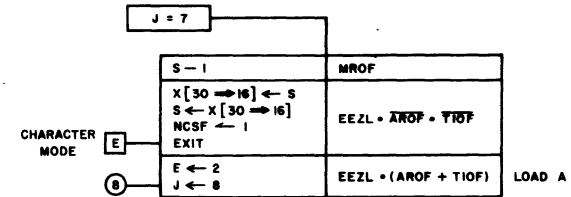
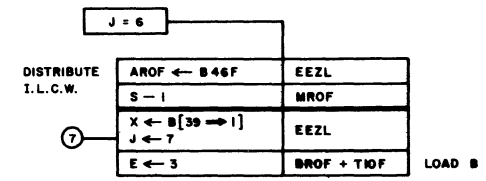
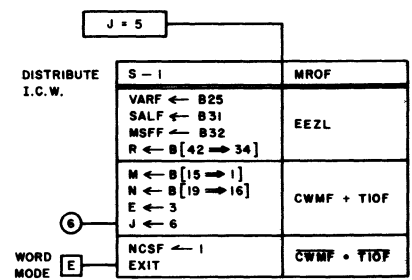
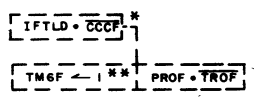
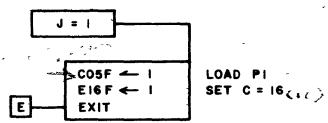
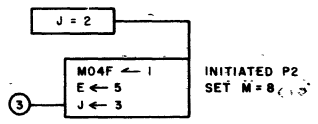
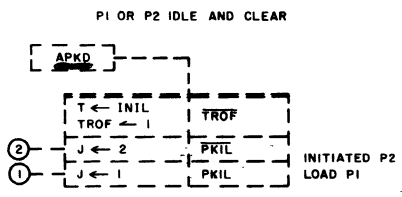
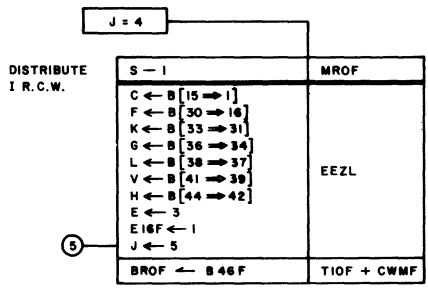
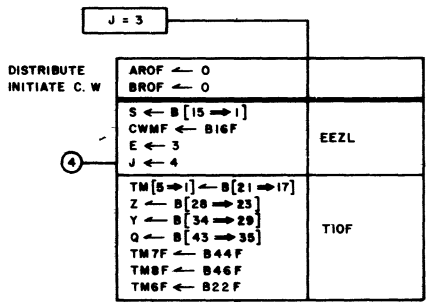
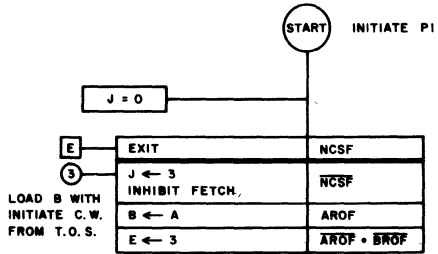


COMMON DRIVER SFILT1 = SFIL + SFTL  
 PKIL = MECHANICAL SWITCH FOR PROCESSOR 1.  
 OP SFTL = 3411 = (SFILT11 + SFILT12) + T09F.  
 OP SFIL = 3011 = (SFILT11 + SFILT12) + T09F.

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE STORE FOR INTERRUPT STORE FOR TEST	PAGE 3-06-0
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836491
			SYSTEM B5000	D REV.



DRAWN BY M. L. YENGLIN	REVISIONS		
CHECKED <i>[Signature]</i>	REV ECN NO	DTSMN	APPD. DATE
APPROVED <i>[Signature]</i>	C 6474	MLY	
PROJ. ENGR. <i>[Signature]</i>	REVISED & REDRAWN		



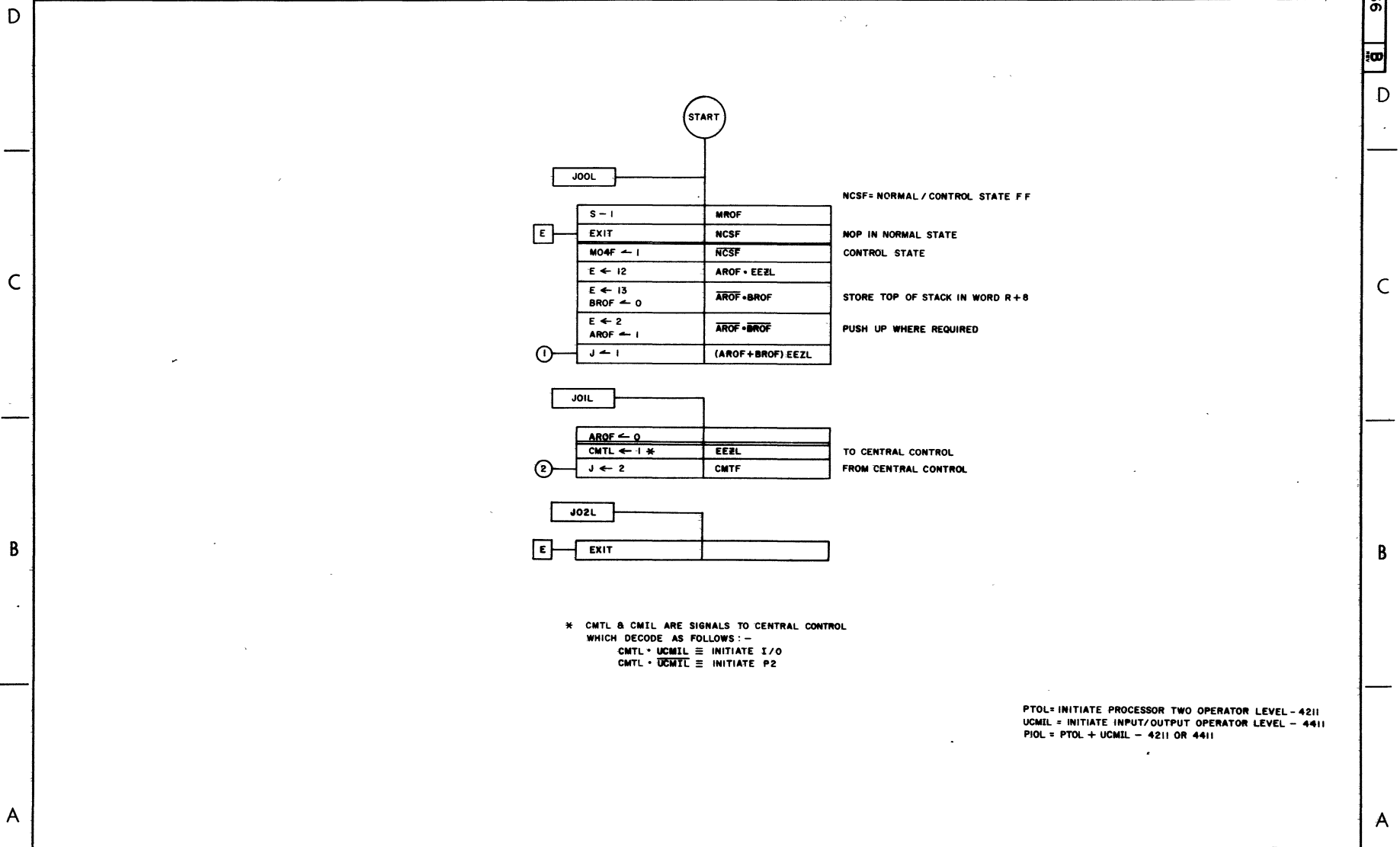
- NOTE:
- 7 COMMON DRIVER INILD = INIL + IFTL.
  6. APKD = PKIL + LOFF + PKIL + INITIATE
  - \*\* 5 TM6F IS COMPLEMENTED ON. IT IS USED TO INSURE COUNT UP FOR FETCH WHEN OP "X" IS INITIATED WITH CCCF = 0, SEE FLOW 3-13-0.
  - \* 4 THIS LEVEL IS TRUE FOLLOWING JOBL = EEZL + TIOF PROF WILL BE TRUE WITH FETCH OF OP "X".
  3. IFTLD = OP. LEVEL IFTL W/O TROF.
  2. OP. LEVEL INIL = 4111 = INILD + TIOF = INITIATE - NORMAL.
  1. OP. LEVEL IFTL = 5111 = INILD + TIOF = INITIATE - TEST.

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE INITIATE P1/INITIATED P2/LOAD OR INITIATE FOR TEST	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C
			SYSTEM B5000	REV.

C-11836574

DRAWN BY T. L. GIBSON		REVISIONS				
CHECKED <i>[Signature]</i>	REV A	ECN NO 5596	DFTSMN I.T.	CHKD	APPD	DATE
APPROVED <i>[Signature]</i>	RELEASED					
PROJ ENGR J. H. PEDERSEN	B	ECN 6474	MY	CHKD	APPD	DATE

C-11836566

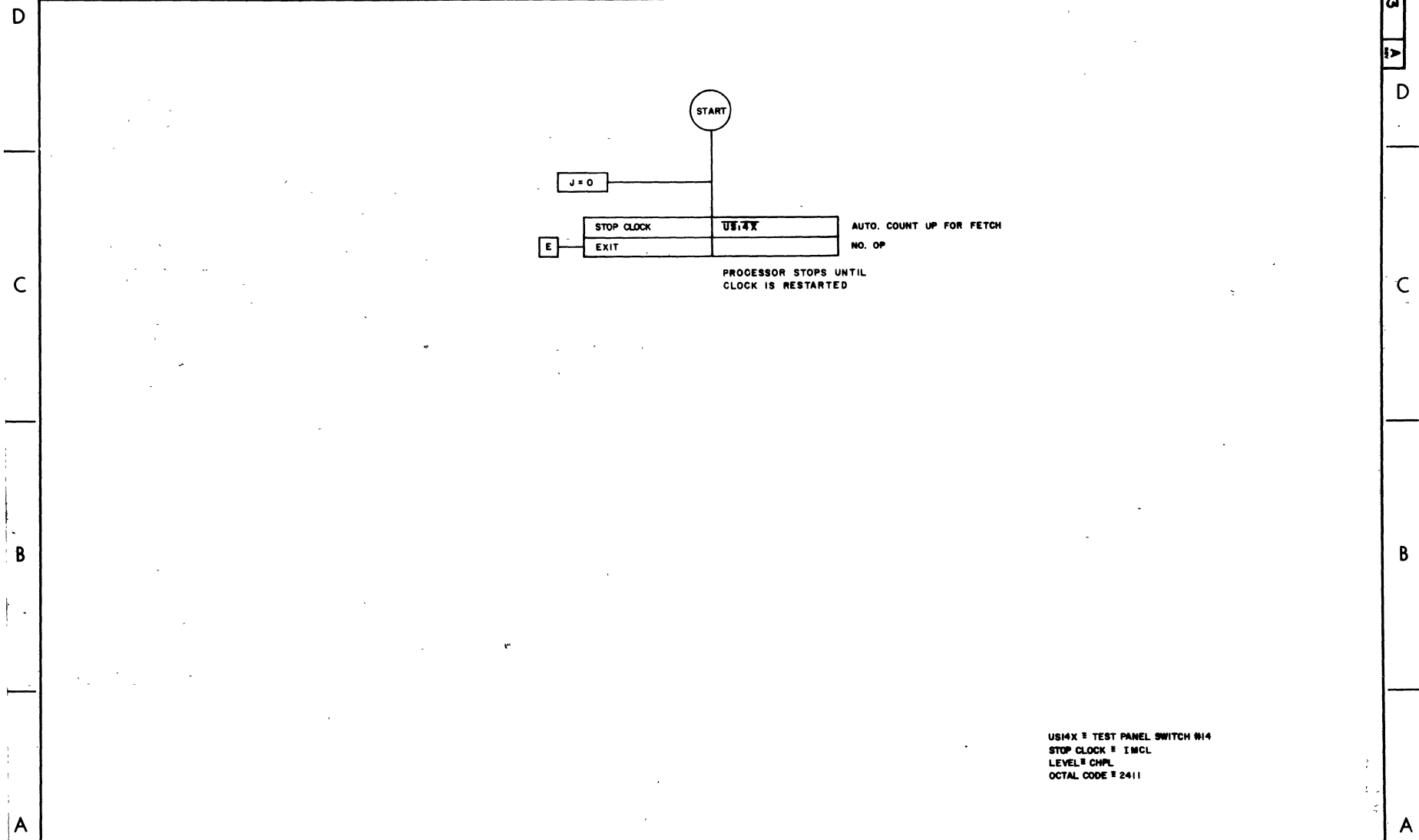


3 - 08 - 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE INITIATE P2 OR I/O OPERATORS	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836566
			SYSTEM B5000	

DRAWN BY T. L. GIBSON		REVISIONS									
CHECKED	<i>[Signature]</i>	REV	NO	DATE	BY	APPD	DATE				
APPROVED	<i>[Signature]</i> 12-11-62	RELEASED									
PROJ ENGR C. B. CARLSON											

C-11884053  
A



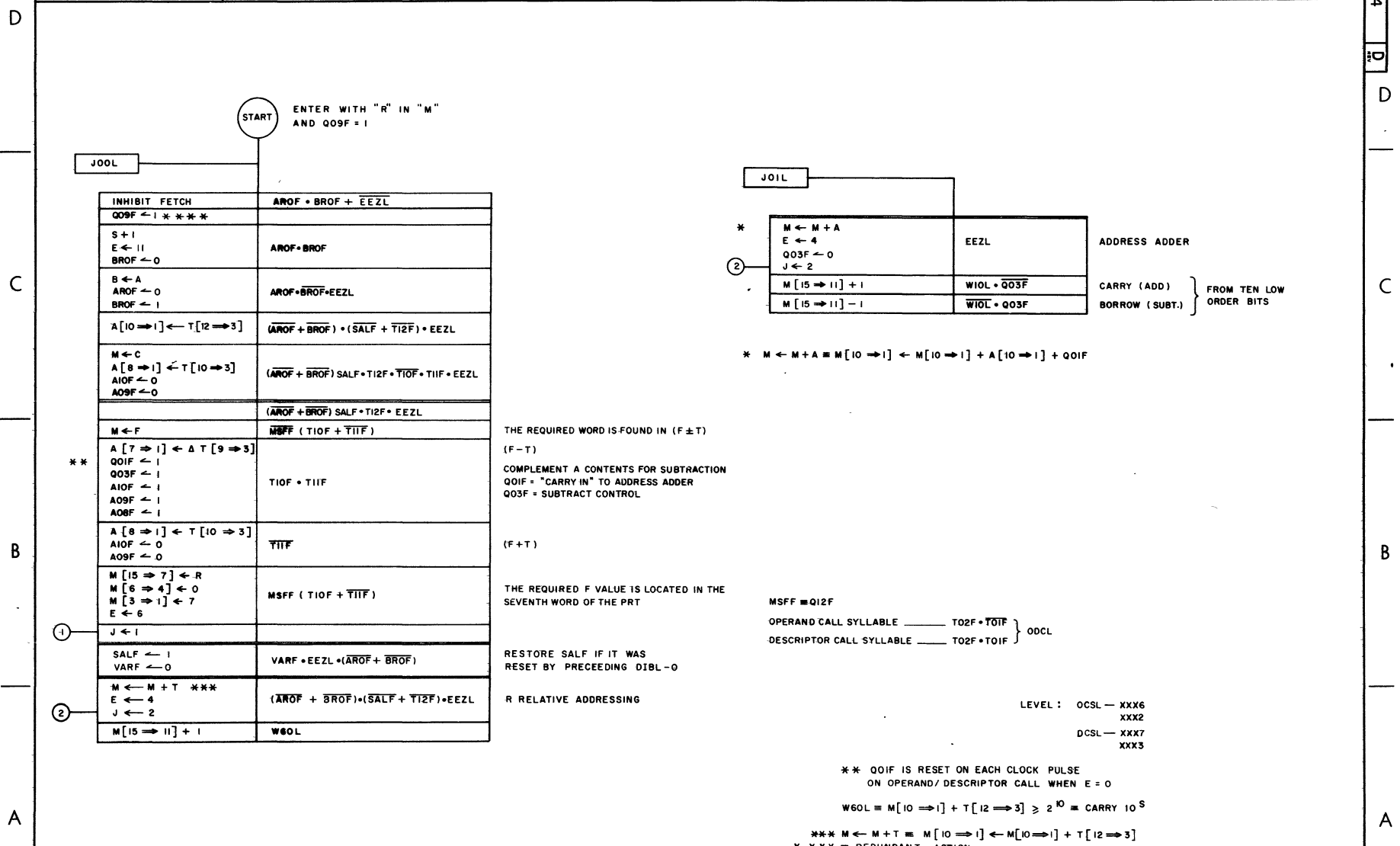
US4X = TEST PANEL SWITCH #14  
 STOP CLOCK = IMCL  
 LEVEL = CHPL  
 OCTAL CODE = 2411

FOR EDUCATIONAL USE ONLY 3-09-0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE CONDITIONAL HALT OPERATOR	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11884053
			SYSTEM 85000	A

DRAWN BY T L GIBSON	REVISIONS					C	ECN	LHCH	4528			
CHECKED <i>[Signature]</i>	REV	NO	DFTSMN	CHKR	APPD	DATE						
APPROVED <i>[Signature]</i>	RELEASED					D	ECN	MY	6474			
PROJ ENGR J H PEDERSEN	B	3996	T:Z	EC	9/10/63							

C-11836194



D  
C  
B  
A

3 · 10 · 0

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE OPERAND CALL SYLLABLE DESCRIPTOR CALL SYLLABLE	PAGE 1 OF 4
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	C-11836194
			SYSTEM B5000	D REV

C-11836194

DRAWN BY C BEVINS		REVISIONS					
CHECKED <i>[Signature]</i>	REV D 6474	ECRNO	DFTSMN	CHRR	APPD	DATE	
APPROVER <i>[Signature]</i>							
PROJ ENGR J H PEDERSEN							

JO2L

JO2L CONTINUED

E	AROF ← 1 EXIT	+(A48F + A47F + A45F) • EEZL + TOIF • MROF • DD4BX • EOIF	OPERAND OR CONTROL WORD - END. LOOK AHEAD FOR OPERAND
	A48F ← 1 A47F ← 0 A46F ← 1 A [45 → 16] ← 0 A [15 → 1] ← M	TOIF	DESC. CALL, MAKE ZERO LENGTH ARRAY DATA DESC. RESET ALL NON-SIGNIFICANT BIT POSITIONS.
15	PRESENCE INT. BIT ← 1 J ← 15	A48F • A46F • (A47F + A45F) • EEZL • NCSF A48F • A46F • (A47F + A45F) • EEZL	PROG. DESC OR DATA DESC. W/O PRESENCE - INTERRUPT.
E	AROF ← 1 EXIT	A48F • A47F • A46F • TOIF • W09L • EEZL	DATA DESC., PRESENT, DESC CALL, ARRAY LENGTH = 0, END.
4	M ← A [15 → 1] E ← 4 J ← 4	A48F • A47F • A46F • TOIF • W09L • EEZL	DATA DESC., PRESENT OPERAND CALL ARRAY LENGH = 0, GO TO SECOND ACCESS.
	E ← 3 BROF ← 1 Q04F ← 1	A48F • A47F • A46F • W09L • BROF • EEZL	DATA DESC., PRESENT, ARRAY LENGTH ≠ 0 B EMPTY - PUSH-UP
	Q04F ← 0	EEZL	ADJUST STACK FOLLOWING PUSHUP
	S - 1	Q04F	
		DDPL • W09L	DATA DESC. PRESENT ARRAY LENGTH ≠ 0, B LOADED.
**	B [12 → 1] ↔ B [13 → 2] X [12 → 1] ↔ X [13 → 2] B [39 → 37] ← 0 X13 ↔ B1 B [45 → 40] + 1	W72L • W07L • B46F	NEG. EXP., NON - INTEGER, SCALE, UNDER FLOW → X. INCREMENT B EXP
	B [13 → 2] ↔ B [12 → 1] B [45 → 40] - 1 B1 ↔ X13	W72L • W07L • B46F • B13L	NON-NORMALIZED, POS. EXP, NON-INTEGGER - NORMALIZE, DECREMENT B EXP. RESET B1
	B ← 0 X39F ← 0	W72L • W07L	B MANTISSA POSITIVE ZERO
15	INTEGER OVERFLOW INT. ← 1 J ← 15	W72L • B46F • B13L • NCSF W72L • B46F • B13L	NORMALIZED, POS EXP., NON-INTEGGER - INTERRUPT
15	INVALID INDEX INT. ← 1 J ← 15	W72L • (SCKL + B47F • W07L) • NCSF W72L • (SCKL + B47F • W07L)	INVALID INDEX CONDITIONS - INTERRUPT.
10	M ← 0 Q0IF ← 1 J ← 10	W72L • X39F	SET CARRY TO ADDRESS ADDER FOR ROUND OFF.
	B ← A A ← B	W72L • SCKL • (B47F + W07L)	
3	M ← A [15 → 1] BROF ← 0 J ← 3	W72L • SCKL • (B47F + W07L) • X39F	INTEGER, DOES NOT VIOLATE SIZE CHECK, GO TO ADDRESS ADDER ( INTERCHANGE A & B, TRANSFER A TO M ).
	Q09F ← 1	W72L	

15	J ← 15	A48F • A47F • A45F (A43F • MSFF + A43F • A44F) EEZL	PROGRAM DESCRIPTOR. PARAMETERS REQUIRED, NOT SUPPLIED OR CHARACTER MODE ENTRY, PARAM- ETERS NOT REQUIRED. GO TO END.
	BROF ← 0	A48F • A47F • A46F • A45F • EEZL • (A43F • MSFF + A43F • A44F)	
	B ← 0	BROF	
	S + 1 E ← 11	BROF	
7	J ← 7	A43F	
5	J ← 5	A43F	

PROGRAM DESCRIPTOR. PARAMETERS  
REQUIRED, NOT SUPPLIED OR  
CHARACTER MODE ENTRY, PARAM-  
ETERS NOT REQUIRED. GO TO END.

PUSH DOWN

W09L = A [40 → 31] = 0  
W09L = A [40 → 31] ≠ 0  
DDPL = A48F • A47F • A46F • BROF • EEZL  
SCKL = B [10 → 1] ≥ A [40 → 31]  
SCKL = B [10 → 1] < A [40 → 31]  
W72L = B EXP = 0  
W72L = B EXP ≠ 0  
W07L = B MANTISSA = 0  
W07L = B MANTISSA ≠ 0  
B13L = B [13] = 0  
B13L = B [13] ≠ 0  
MSFF = Q12F

THIS FLOW IS SHARED BY  
THE FOLLOWING OPERATORS: }  
CONSTRUCT OPERAND CALL,  
CONSTRUCT DESCRIPTOR CALL;  
RETURN, NORMAL / SPECIAL. }  
DWG. 11836186  
DWG. 11836178

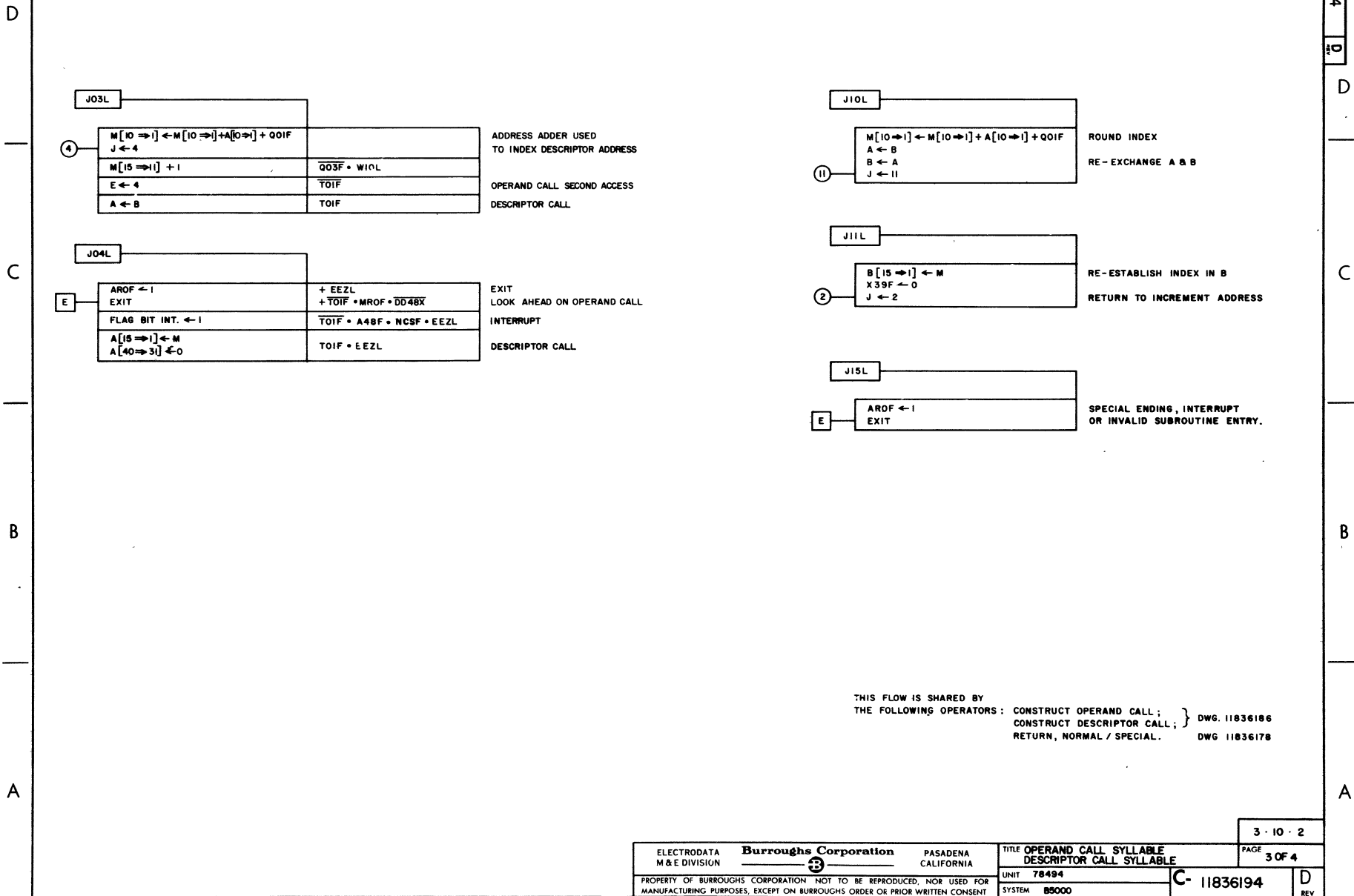
\* Q0IF IS RESET ON EACH CLOCK PULSE  
ON OPERAND / DESCRIPTOR CALL WHEN E = 0. CONTINUED THIS PAGE

\*\* THIS ACTION IS INCLUDED AS PART OF THE  
COMMON ACTIONS ASSOCIATED WITH THE  
RIGHT SHIFT OF B.

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE OPERAND CALL SYLLABLE DESCRIPTOR CALL SYLLABLE	PAGE 2 OF 4
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11836194
			SYSTEM B 5000	D REV

DRAWN BY T. L. GIBSON		REVISIONS					
CHECKED	<i>[Signature]</i>	REV D	ECN NO 6474	DFTSMN PRT	CHKR	APPD	DATE
APPROVED	<i>[Signature]</i> 12-11-64						
PROJ ENGR J. H. PEDERSEN							

C-11836194  
D

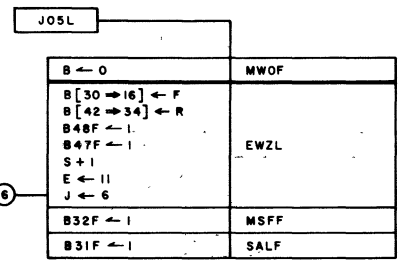


THIS FLOW IS SHARED BY THE FOLLOWING OPERATORS: CONSTRUCT OPERAND CALL; CONSTRUCT DESCRIPTOR CALL; RETURN, NORMAL / SPECIAL. DWG. 11836186 DWG. 11836178

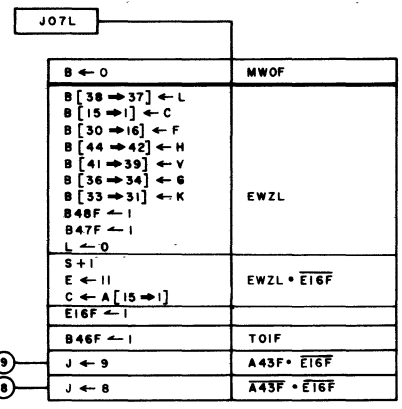
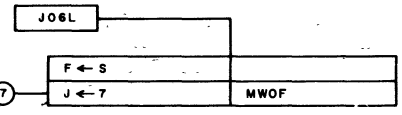
ELECTRODATA M & E DIVISION	<b>Burrhoughs Corporation</b>	PASADENA CALIFORNIA	TITLE OPERAND CALL SYLLABLE DESCRIPTOR CALL SYLLABLE	UNIT 78494	SYSTEM 85000
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			FORM NO. 000001 REV 1-61		

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APPROVED <i>[Signature]</i>										
PROJ ENGR J H PEDERSEN										

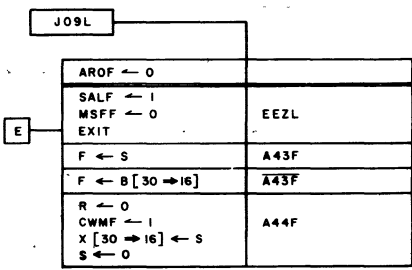
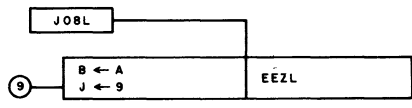


SPONTANEOUS ENTRY  
BUILD MSCW.



BUILD RETURN CONTROL WORD

STORE RETURN CONTROL WORD  
BRANCH



SUBROUTINE ENTRY  
GO TO NEXT SYLLABLE  
SPONTANEOUS ENTRY  
CHARACTER MODE ENTRY

MSFF = Q12F

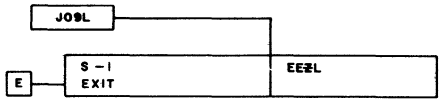
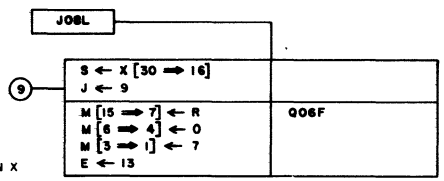
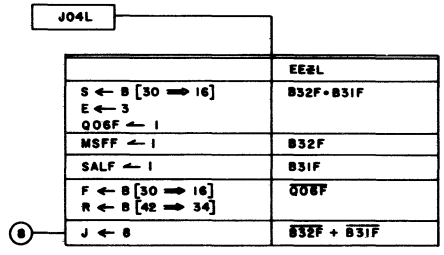
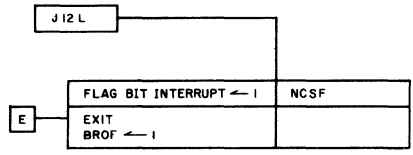
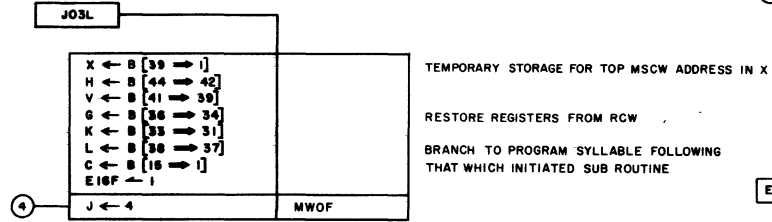
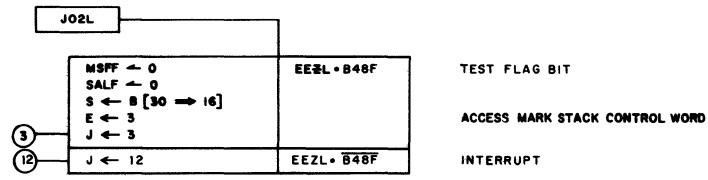
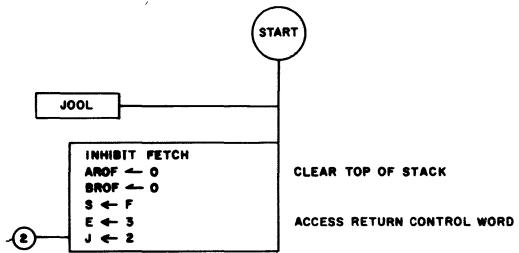
THIS FLOW IS SHARED BY THE FOLLOW OPERATORS :  
RETURN NORMAL } DWG. 11836178  
RETURN SPECIAL }

3-10-3

ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE OPERAND CALL SYLLABLE DESCRIPTOR CALL SYLLABLE	PAGE 4 OF 4
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494 SYSTEM B 5000	C-11836194 D REV

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CHECKED <i>J.P.</i>	REV	ECN	NO	DFTSMN	CHKD	APPD	DATE		
APPROVED <i>P. Kelly</i>	A	3596		I.T.					
PROJ ENGR J.H. PEDERSEN	B	4528		L.H.C.H.	2-22-62				



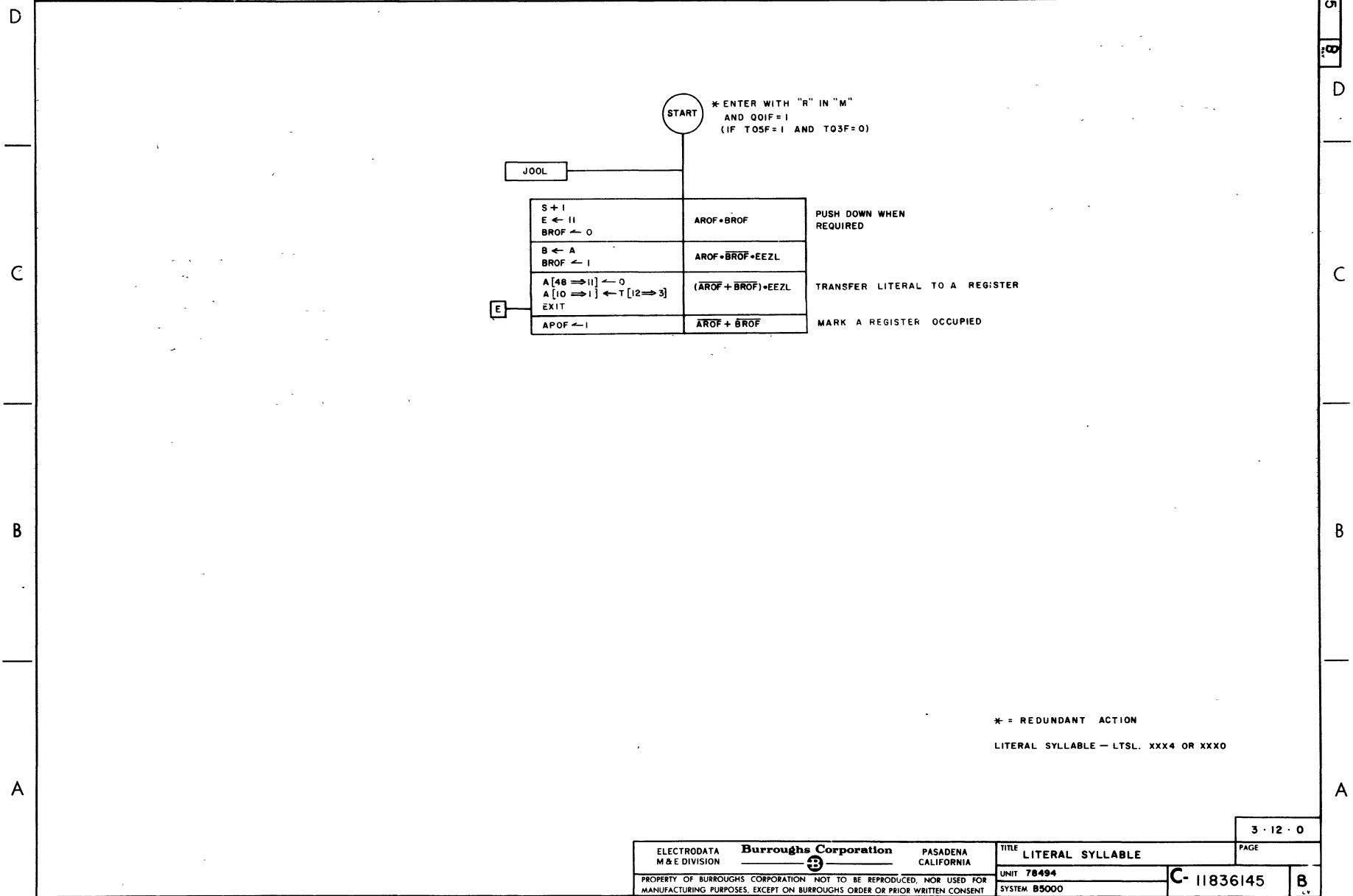
MSFF ≡ Q12F  
EXIT OPERATOR ≡ REWL - 0435

ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE EXIT OPERATOR	3-11-0 PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494 SYSTEM B5000	C-11837200 C REV

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4	3	2	1
DRAWN BY T. L. GIBSON			
REVISIONS			
CHECKED <i>H. L. Gibson</i>	REV A	ECN NO 5596	DFTSMN I.T.
RELEASED			
APPROVED <i>J. H. Pedersen</i>	B	ECN NO 6474	PRT <i>ED 1/10/54</i>
PROJ ENGR J. H. PEDERSEN			
REVISED			



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4

3

2

1

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CHECKED <i>P. B. Carlson 10-23-64</i>	REV C	ECN NO 8474	DTSN 1/504	APPRO <i>P. B. Carlson</i>	DATE <i>10-23-64</i>				
APPROVED <i>P. B. Carlson 10-23-64</i>	REVISED & REDRAWN								
PROJ ENGR C. B. CARLSON									

C-11974441

D

SECL HOUSEKEEPING

J ← 0		
Q [8 → 1] ← 0		SECL
Y ← 0		
Z ← 0		
N ← 0		
X ← 0		CWMF
M [15 → 1] ← 0		MRAL • IO4L • CWMF
Q09F ← 0		MRAL
M [15 → 7] ← R		+ MRAL • SECL • IO4L
Q09F ← 1		+ MRAL • TROF • IO4L • JOOL
N [6 → 1] ← 0		+ M TTL • JOOL • (MRBL + MRCL)

SPECIAL HOUSEKEEPING

J ← 0		
CCCF ← 0		Q04T
TM [4 → 1] ← J		
TM5F ← NCSF		
MROF ← TM8F		IO4L • TROF • PROF • E16F
MWOF ← TM7F		
TM ← 0		
VARF ← 1		CCCF • SENL

INVALID ADDRESS

E [8 → 1] ← 0		938L • E17F
E16F ← 0		938L • E17F
E17F ← 0		
PROF ← 1		

WITHDRAW DATA ACCESS REQUEST  
WITHDRAW FETCH ACCESS REQUEST

CLEAR FETCH REQUESTED BY OP "X"

E16F ← 0		Q04T
----------	--	------

C

NORMAL FETCH TO LOAD T

T ← 0		+ TROF • E17F • CCCF • IO4L
T ← P [L]		+ SECL • E16F • CCCF
T ← MIR [0]		PTTL
TROF ← 1		+ E16F • IO4L • PROF
PROF ← 0		+ M TTL
		+ E16F
		+ PTTL • LE3L

COUNT AND INITIATE FETCH

ACFL = 1		TROF • E16F • CCCF
		+ TM6F • (PKIL + NCSF)
L + 1		+ PTTL
		+ M TTL
		+ PROF • ACFL
		+ PROF • TROF • JOOL • TROF
		+ PROF • TROF • IO4L • PKIL • NCSF • E16F
C + 1		E16F
E16F ← 1		
C + 1		PROF • TROF • E16F • IO4L
		+ NCSF

STOP CLOCK

STOP CLOCK (UIMC = 1)		+ PKIL • NCSF • IO4L
		+ SPIL • IINL
		+ PKIL • NCSF • E17F
		+ DMAEX

MEMORY PARITY ERROR  
INVALID FETCH ACCESS

B

BRANCH ON INTERRUPT

T ← SFTL		Q04T
TROF ← 1		
T ← SPIL		
TROF ← 1		TROF • NCSF • IO4L
Q07F ← 1		+ JOOL
Q09F ← 0		

FETCH PRIORITY

		E16F • SENL • CCCF
E17F ← 1		+ EWZL
		+ MROF
		+ MTOL *

\* MTOL LOGIC ACTIVATED FOR SYSTEMS WITH HOMOGENEOUS 4US MEMORIES ONLY

A

IDLE

TROF ← 0		+ SECL • (E16F + PROF)
		+ SECL • NCSF • IO4L
		+ CCCF • EEZL • SENL
		+ CCCF • E08F • MTOL
		+ CCCF • EEZL • MWOF
E16F ← 1		CCCF • TROF

FETCH ACCESS

P ← 0		E17F
P ← MIR		
PROF ← 1		MRAF
E16F ← 0		
E17F ← 0		

- 16 . \* ■ SEE ALSO LTSL, DIBL, VARL, CFLL, C06L
- 15 . DMAEX ■ MEMORY ADDRESS ERROR
- 14 . MRAL ■ NEXT OP IS (ODCL + STORE + LOAD) \* (PTTL)
- 13 . PTTL ■ IO4L • PROF • E16F • (SECL + TROF)
- 12 . M TTL ■ MRAF • TROF • LEZL • IO4L • IFTL
- 11 . MTOL ■ MEMORY TIME ZERO
- 10 . Q04T ■ CCCF • TROF • EEZL • TM6F (END TEST OP "X")
- 9 . SECL ■ Q20ID + Q21ID + Q22ID • W13L
- 8 . 938L ■ NORMAL STATE B REQUEST ACCESS TO CONTROL MEMORY OR REQUEST ACCESS NOW EXSTANT MODULE
- 7 . (MRBL + MRCL) ■ NEXT OR IS (ODCL + STORE + LOAD) \* (M TTL)
- 6 . IO4L ■ (IO4L + NCSF • PKIL)
- 5 . IFTLD ■ OPERATOR LEVEL IFTL W/O TROF
- 4 . CCCF ■ CLOCK COUNT CONTROL (FOR TEST MODE)
- 3 . IO4L ■ (INTERRUPT + HP2F • PKIL) • CCCF • IFTLD
- 2 . MIR ■ MEMORY INFORMATION REGISTER
- 1 . EWZL ■ EEZL • MWOF

NOTE

3 • 13 • 0

ELECTRODATA M&E DIVISION	Burrhoughs Corporation	PASADENA CALIFORNIA	TITLE SYLLABLE INTERFACE SECL/FETCH	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11974441
			SYSTEM B 5000	REV

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3

2

REDUCED SIZE PRINT

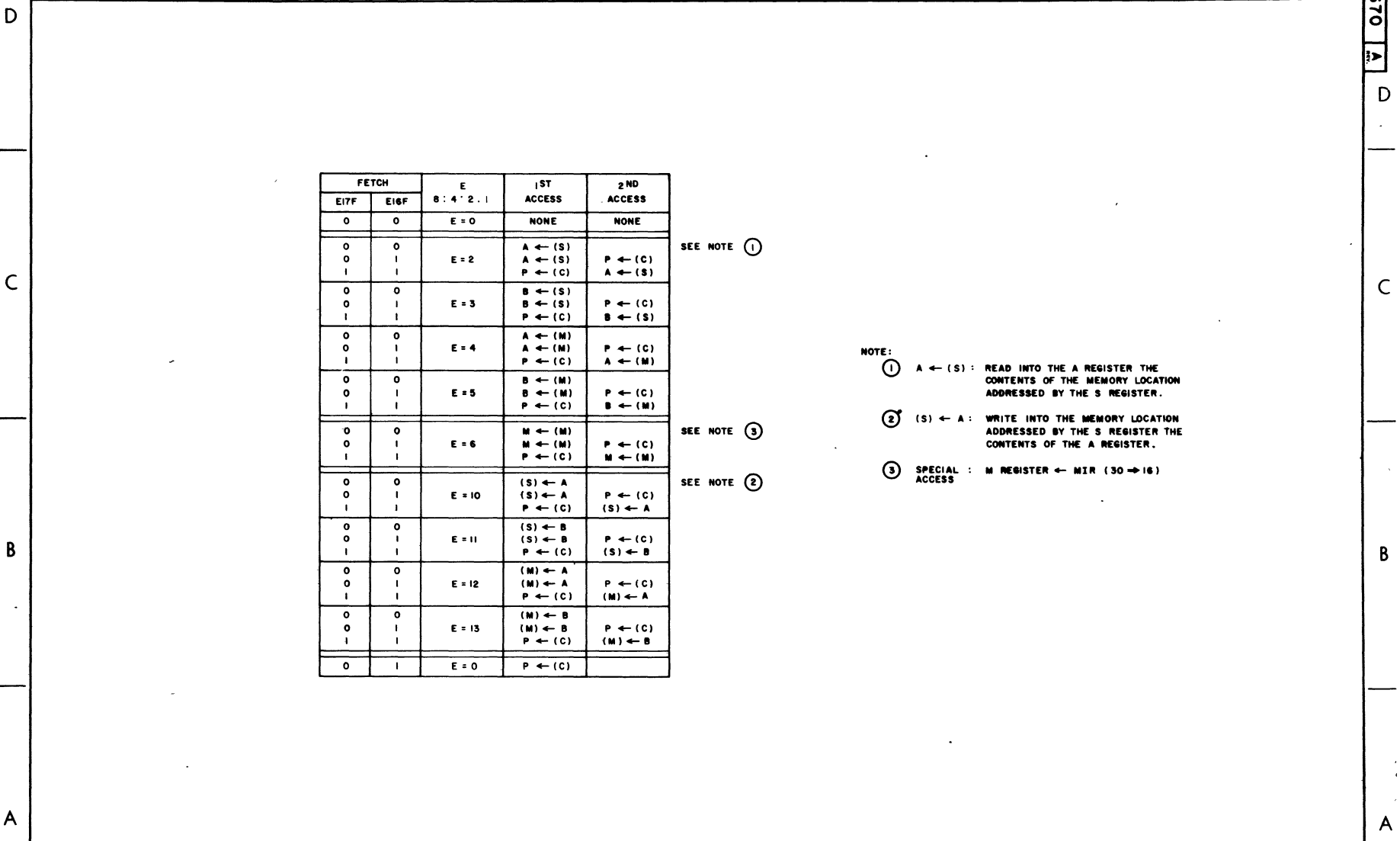
FORM NO EDD-1888 REV 8-61

4 | 3 | 2 | 1

DRAWN BY C BEVINS  
 CHECKED *R. Taylor*  
 APPROVED *D. Kelly 12-1-62*  
 PROJ ENGR C B CARLSON

REVISIONS				
REV	BY	DATE	APPD	DATE
A	3528	I.T.		
RELEASED				

C-11890670  
A



FETCH		E 8:4-2:1	1ST ACCESS	2ND ACCESS
E17F	E16F			
0	0	E = 0	NONE	NONE
0	0	E = 2	A ← (S)	
0	1		A ← (S)	P ← (C)
1	1		P ← (C)	A ← (S)
0	0	E = 3	B ← (S)	
0	1		B ← (S)	P ← (C)
1	1		P ← (C)	B ← (S)
0	0	E = 4	A ← (M)	
0	1		A ← (M)	P ← (C)
1	1		P ← (C)	A ← (M)
0	0	E = 5	B ← (M)	
0	1		B ← (M)	P ← (C)
1	1		P ← (C)	B ← (M)
0	0	E = 6	M ← (M)	
0	1		M ← (M)	P ← (C)
1	1		P ← (C)	M ← (M)
0	0	E = 10	(S) ← A	
0	1		(S) ← A	P ← (C)
1	1		P ← (C)	(S) ← A
0	0	E = 11	(S) ← B	
0	1		(S) ← B	P ← (C)
1	1		P ← (C)	(S) ← B
0	0	E = 12	(M) ← A	
0	1		(M) ← A	P ← (C)
1	1		P ← (C)	(M) ← A
0	0	E = 13	(M) ← B	
0	1		(M) ← B	P ← (C)
1	1		P ← (C)	(M) ← B
0	1	E = 0	P ← (C)	

SEE NOTE ①

SEE NOTE ③

SEE NOTE ②

- NOTE:
- ① A ← (S) : READ INTO THE A REGISTER THE CONTENTS OF THE MEMORY LOCATION ADDRESSED BY THE S REGISTER.
  - ② (S) ← A : WRITE INTO THE MEMORY LOCATION ADDRESSED BY THE S REGISTER THE CONTENTS OF THE A REGISTER.
  - ③ SPECIAL : M REGISTER ← MIR (30 → 16) ACCESS

D  
C  
B  
A

D  
C  
B  
A

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE MEMORY ACCESS REGISTER	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11890670
			SYSTEM B5000	A

4

3

2

1

DRAWN BY C BEVINS

CHECKED *B. J. ...*

APPROVED *A. G. Kelly 12-11-60*

PROJ ENGR. C B CARLSON

REVISIONS					
REV	NO	DATE	BY	APPD	DATE
A	1	12-11-60	RELEASD		

C-11891298

A

D

C

B

A

REGISTER NAME	NUMBER OF BITS	RACK LOCATION	USAGE	
			WORD MODE	CHARACTER MODE
A	48	A	HOLDS CONTENTS OF TOP OF STACK	HOLDS 8 CHARACTERS OF SOURCE STRING
B	48	B	HOLDS CONTENTS OF 2ND WORD IN STACK	HOLDS 8 CHARACTERS OF DESTINATION STRING
C	15	D	HOLDS ADDRESS OF PROGRAM WORD IN "P" REGISTER	HOLDS ADDRESS OF PROGRAM WORD IN "P" REGISTER
E	6	D	REGISTER ASSIGNMENT FOR MEMORY ACCESS	REGISTER ASSIGNMENT FOR MEMORY ACCESS
F	15	J	ADDRESS OF RETURN CONTROL WORD OR MARK STACK CONTROL WORD	ADDRESS OF RETURN CONTROL WORD
G	3	D	CHARACTER ADDRESS WITHIN "A" REGISTER	CHARACTER ADDRESS WITHIN "A" REGISTER
H	3	D	BIT ADDRESS WITHIN A CHARACTER IN "A" REGISTER	BIT ADDRESS WITHIN A CHARACTER IN "A" REGISTER
I	7	E	INTERRUPT BITS	INTERRUPT BITS
J	4	E	PRIMARY CONTROL COUNTER	PRIMARY CONTROL COUNTER
K	3	D	CHARACTER ADDRESS WITHIN "B" REGISTER	CHARACTER ADDRESS WITHIN "B" REGISTER
L	2	D	SYLLABLE ADDRESS WITHIN "P" REGISTER	SYLLABLE ADDRESS WITHIN "P" REGISTER
M	15	A	MEMORY ADDRESS OF WORD PLACED IN "A" OTHER THAN BY STACK ADJUSTMENT	ADDRESS OF CURRENT WORD IN SOURCE STRING
N	4	E	COUNTER	COUNTER
P	48	E	HOLDS PROGRAM WORD	HOLDS PROGRAM WORD
Q	10	SEE NOTE (1)	MISCELLANEOUS LOGICAL STORAGE	MISCELLANEOUS LOGICAL STORAGE
R	9	D	BASE OF P.R.T. & UPPER LIMIT OF STACK	COUNT REGISTER (LOW ORDER 6 BITS)
S	15	D	ADDRESS OF TOP WORD IN THE STACK	ADDRESS OF CURRENT WORD IN DESTINATION STRING
T	12	E	HOLDS SYLLABLE BEING EXECUTED	HOLDS SYLLABLE BEING EXECUTED
V	3	D	BIT ADDRESS WITHIN A CHARACTER IN "B" REGISTER	BIT ADDRESS WITHIN A CHARACTER IN "B" REGISTER
X	39	J	EXTENSION OF "A" OR "B" REGISTERS	STORAGE
Y	6	D	TEMPORARY CHARACTER STORAGE	TEMPORARY CHARACTER STORAGE
Z	6	D	TEMPORARY CHARACTER STORAGE	TEMPORARY CHARACTER STORAGE

NOTE (1) THE Q FLIP-FLOPS ARE DISTRIBUTED THROUGHOUT THE PROCESSOR UNIT

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ELECTRODATA M & E DIVISION	Burroughs Corporation	PASADENA CALIFORNIA	TITLE	REGISTER USAGE TABLE	PAGE
			UNIT 78494		
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			SYSTEM 85000	C-11891293	A

4

3

2

1

4

3

2

1

DRAWN BY C BEVINS		REVISIONS							
CHKD	BY	NO	DATE	APPD	DATE				
APPROVED	RELEASED								
PROJ ENGR. C B CARLSON									

C-11891215

### COLLATING SEQUENCE

CHAR.	B5000 INTERNAL CODE		BCL CODE		CARD CODE	
	BA	0421	OCTAL CODE	BA	0421	ZONE NUM.
BLANK	11	0000	60	01	0000	- -
.	01	1010	32	11	1011	12 8-3
[	01	1011	33	11	1100	12 8-4
(	01	1101	35	11	1101	12 8-5
<	01	1110	36	11	1110	12 8-6
←	01	1111	37	11	1111	12 8-7
6	01	1100	34	11	0000	12 -
\$	10	1010	52	10	1011	11 8-3
*	10	1011	53	10	1100	11 8-4
)	10	1101	55	10	1101	11 8-5
:	10	1110	56	10	1110	11 8-6
∞	10	1111	57	10	1111	11 8-7
-	10	1100	54	10	0000	11 -
/	11	0001	61	01	0001	0 1
'	11	1010	72	01	1011	0 8-3
%	11	1011	73	01	1100	0 8-4
=	11	1101	75	01	1101	0 8-5
]	11	1110	76	01	1110	0 8-6
"	11	1111	77	01	1111	0 8-7
#	00	1010	12	00	1011	- 8-3
@	00	1011	13	00	1100	- 8-4
:	00	1101	15	00	1101	- 8-5
>	00	1110	16	00	1110	- 8-6
∞	00	1111	17	00	1111	- 8-7
+	01	0000	20	11	1010	12 0
A	01	0001	21	11	0001	12 1
B	01	0010	22	11	0010	12 2
C	01	0011	23	11	0011	12 3
D	01	0100	24	11	0100	12 4
E	01	0101	25	11	0101	12 5
F	01	0110	26	11	0110	12 6
G	01	0111	27	11	0111	12 7
H	01	1000	30	11	1000	12 8
I	01	1001	31	11	1001	12 9

COLLATING SEQUENCE  
LOW  
HIGH

CHAR.	B5000 INTERNAL CODE		BCL CODE		CARD CODE	
	BA	0421	OCTAL CODE	BA	0421	ZONE NUM.
X	10	0000	40	10	1010	11 0
J	10	0001	41	10	0001	11 1
K	10	0010	42	10	0010	11 2
L	10	0011	43	10	0011	11 3
M	10	0100	44	10	0100	11 4
N	10	0101	45	10	0101	11 5
O	10	0110	46	10	0110	11 6
P	10	0111	47	10	0111	11 7
Q	10	1000	50	10	1000	11 8
R	10	1001	51	10	1001	11 9
∞	11	1100	74	01	1010	0 8-2
S	11	0010	62	01	0010	0 2
T	11	0011	63	01	0011	0 3
U	11	0100	64	01	0100	0 4
V	11	0101	65	01	0101	0 5
W	11	0110	66	01	0110	0 6
X	11	0111	67	01	0111	0 7
Y	11	1000	70	01	1000	0 8
Z	11	1001	71	01	1001	0 9
0	00	0000	00	00	1010	- 0
1	00	0001	01	00	0001	- 1
2	00	0010	02	00	0010	- 2
3	00	0011	03	00	0011	- 3
4	00	0100	04	00	0100	- 4
5	00	0101	05	00	0101	- 5
6	00	0110	06	00	0110	- 6
7	00	0111	07	00	0111	- 7
8	00	1000	10	00	1000	- 8
9	00	1001	11	00	1001	- 9
?	00	1100	14	00	0000	ALL OTHER CARD CODES

COLLATING SEQUENCE  
LOW  
HIGH

- NOTES
- STANDARD CHARACTER SET SHOWN.
  - BCL CODE HAS EVEN PARITY - (EVEN NUMBER OF 1 BITS)
  - SIGNS OF B5000 NUMERIC CHARACTERS ARE SHOWN IN THE TABLE.

	B	A
0	0	+
1	0	+
1	0	-
1	1	+

D  
C  
B  
A

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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE COLLATING SEQUENCE	PAGE
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	REV.
			SYSTEM B5000	C-11891215

4

3

2

1

DRAWN BY M. YENGLIN  
 CHECKED *M. Yenclin*  
 APPROVED *A. D. [unclear]*  
 PROJ. ENGR. G. B. GARSON

REVISIONS  
 NO. DATE BY APPR. DATE  
 1 11-1-66 [unclear]

### FLOW CHART SYMBOLS

#### ACTION BOX SYMBOLS

- ← REPLACE DOUBLE ENDED
- REPLACE SINGLE ENDED
- ◊ REPLACE OCTAL DOUBLE ENDED
- ◊ REPLACE OCTAL SINGLE ENDED
- ◊ REPLACE CHARACTER DOUBLE ENDED
- ◊ REPLACE CHARACTER SINGLE ENDED
- + ADD (INCREMENT)
- SUBTRACT (DECREMENT)
- Δ I'S COMPLEMENT
- THROUGH
- [ ] ENCLOSE A FIELD DEFINITION

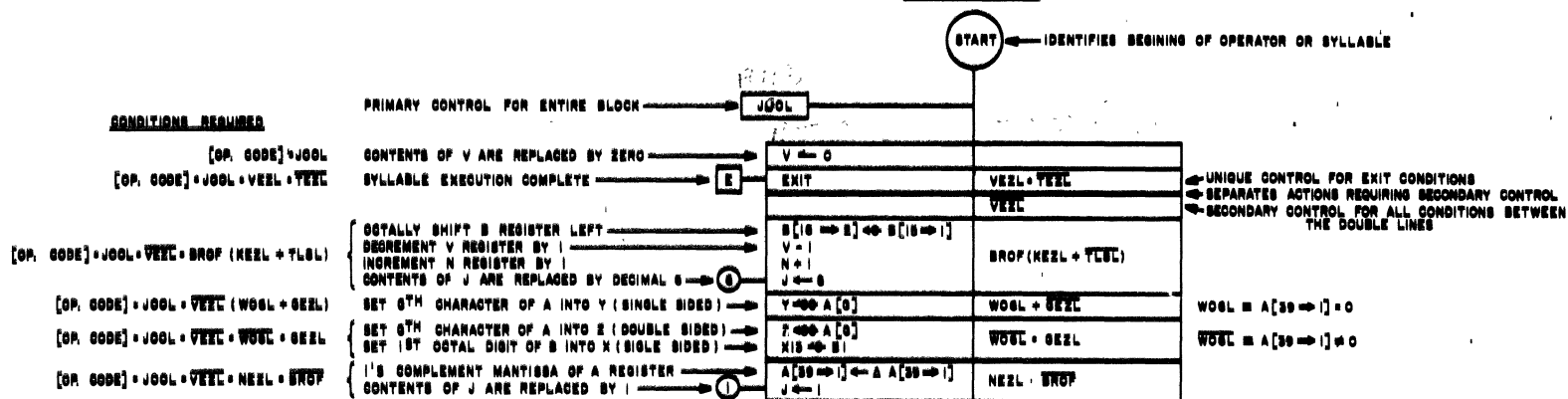
#### CONTROL BOX SYMBOLS

- ≠ COMPLEMENT OF n
- = EQUALS
- ≠ NOT EQUAL
- < LESS THAN
- > GREATER THAN
- ≤ LESS THAN OR EQUAL TO
- ≥ GREATER THAN OR EQUAL TO
- OR (PLUS WHEN INCLUDED IN A "NAME" OR "FIELD DEFINITION")
- MINUS WHEN INCLUDED IN A "NAME" OR "FIELD DEFINITION"
- [ ] ENCLOSE A SPECIAL NAME OR FIELD DEFINITION
- "AND"
- ( ) GROUPING OF "OR" TERMS

#### MISCELLANEOUS SYMBOLS

- IDENTICAL
- EXIT
- J ← n

#### EXAMPLE ONLY



- NOTE:
4. "UNIQUE CONTROL" INFLUENCES ONLY THE ACTION THAT APPEARS TO THE LEFT OF THAT CONTROL.
  3. "SECONDARY CONTROL" INFLUENCES ALL ACTION WITHIN A BLOCK UNTIL A DOUBLE LINE OR THE BOTTOM OF THE BLOCK IS ENCOUNTERED.
  2. "PRIMARY CONTROL" INFLUENCES ALL ACTION WITHIN THE BLOCK.
  1. ALL CONDITIONS IN THE BOX ARE SAMPLED SIMULTANEOUSLY.

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ELECTRODATA M & E DIVISION	Surowska Corporation	PASADENA CALIFORNIA	TITLE FLOW CHART SYMBOLS	PAGE
PROPERTY OF SUROWSKA CORPORATION. NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON SUROWSKA ORDER OR PRIOR WRITTEN CONSENT.			UNIT 78494	C-11894508
			SYSTEM 88000	A

C-11894508

A

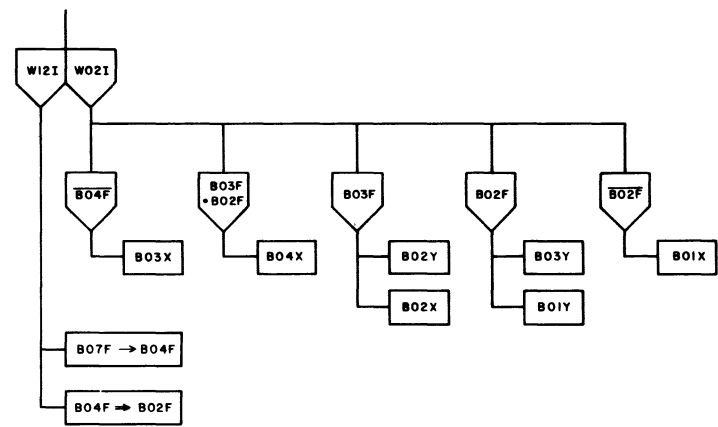
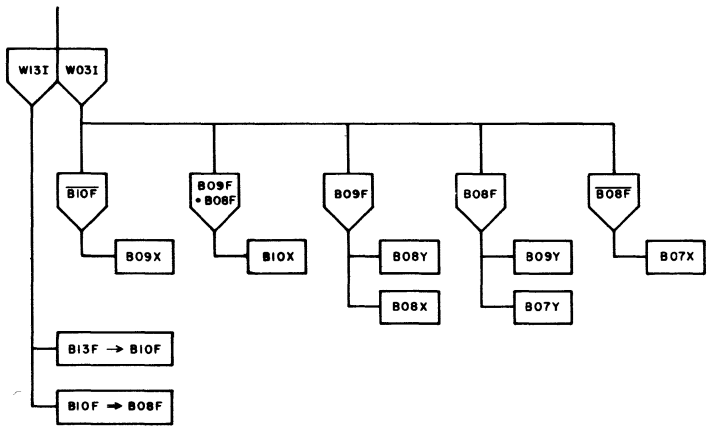
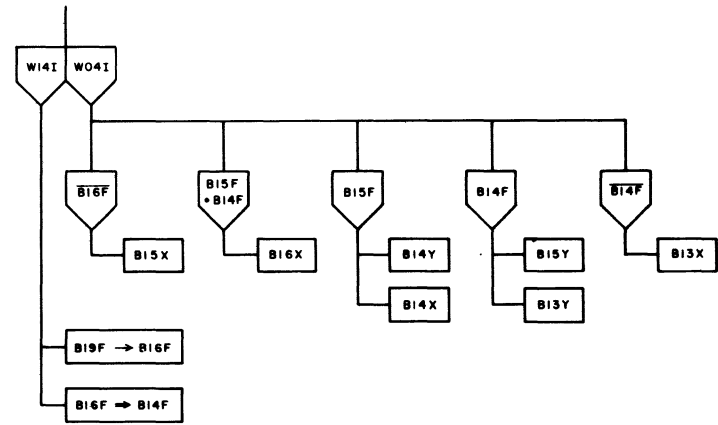
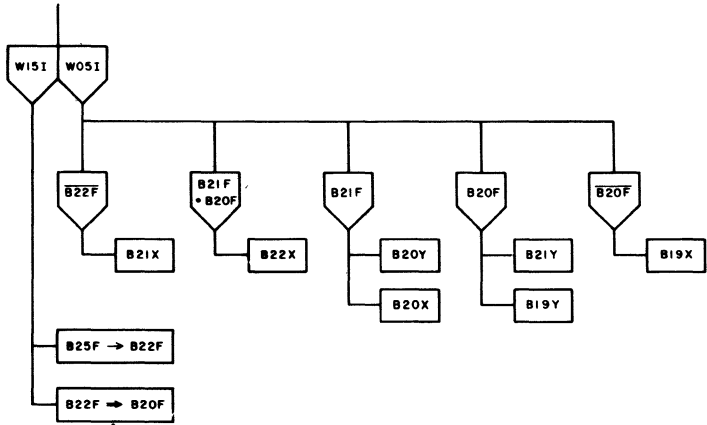
D

C

B

A

DRAWN BY C. BEVINS 6-14-62		REVISIONS			
CHECKED	<i>R. B. ...</i>	REV. NO.	DATE	BY	APPD.
APPROVED	<i>W. F. ...</i>	A	3596	T.	
PROJ ENGR. R. V. BOCK		RELEASED			

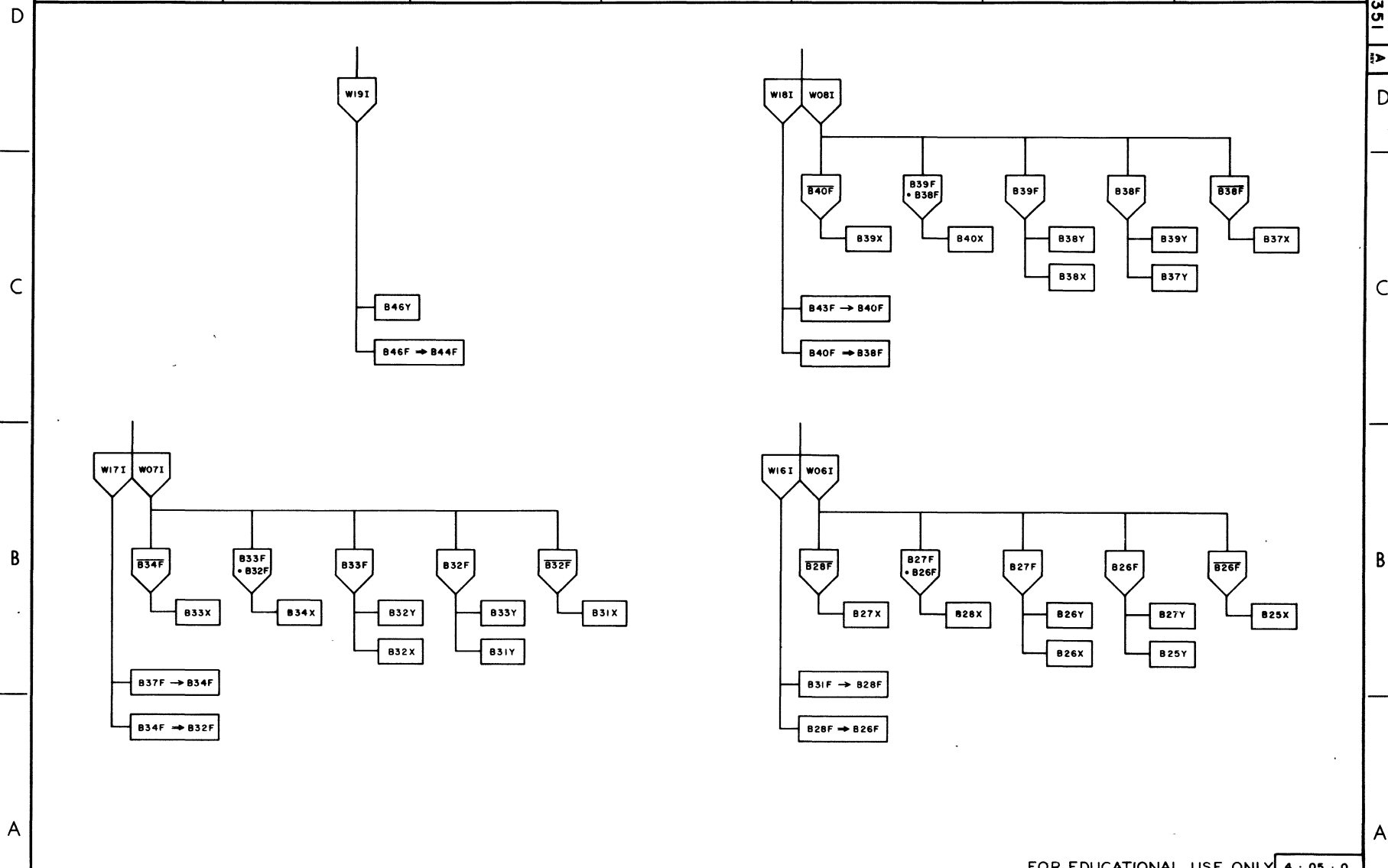


$W0[n+1]I = B_1 + 6n = 1$  FOR  $n = 1, 2, 6, 7$   
 $W1[n+1]I = B_1 + 6n = 0$  FOR  $n = 1, 2, 7, 8$

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ELECTRODATA M&E DIVISION	<b>Burroughs Corporation</b>	PASADENA CALIFORNIA	TITLE INPUT CONVERT - B29T	PAGE 1 OF 2
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT			UNIT 78494	C-11925351 A
			SYSTEM B5000	

DRAWN BY C BEVINS 6-14-62		REVISIONS									
CHECKED <i>R. V. Bock</i>	REV. NO. A	ECN NO.	DPTSMAN I.T.	CHKD <i>EB</i>	APPD.	DATE					C-11925351 A D C B A
APPROVED <i>R. V. Bock</i> 12-7-62											
PROJ. ENGR. R. V. BOCK											



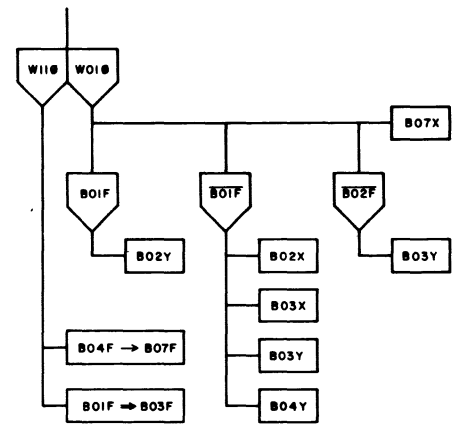
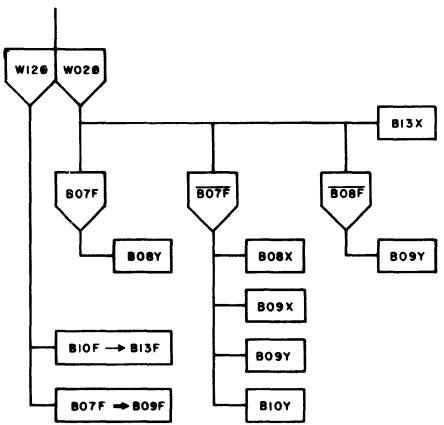
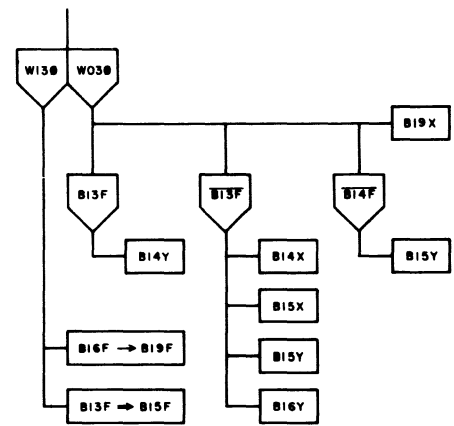
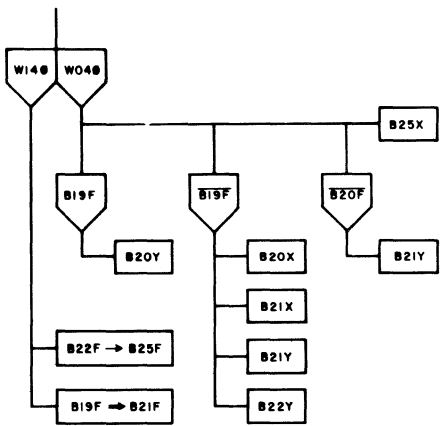
ELECTRODATA M & E DIVISION		<b>Burroughs Corporation</b> PASADENA CALIFORNIA		TITLE INPUT CONVERT - B29T		PAGE 2 OF 2	
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT				UNIT 78494 SYSTEM B5000		C-11925351	
						A REV	

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FORM NO. EDD-1095 REV. 8-61



4	3	2	1
DRAWN BY C BEVINS 6-12-62		REVISIONS	
CHECKED	REV A	REV B	
APPROVED	REV A	REV B	
PROJ ENGR R.V. BOCK	REV A	REV B	



$WO[n+1] \theta = (B_4 + 6n, B_3 + 6n, B_2 + 6n, B_1 + 6n) \geq 5, \text{ FOR } n = 0, 1 \dots 7$   
 $WI[n+1] \theta = (B_4 + 6n, B_3 + 6n, B_2 + 6n, B_1 + 6n) < 5, \text{ FOR } n = 0, 1 \dots 7$

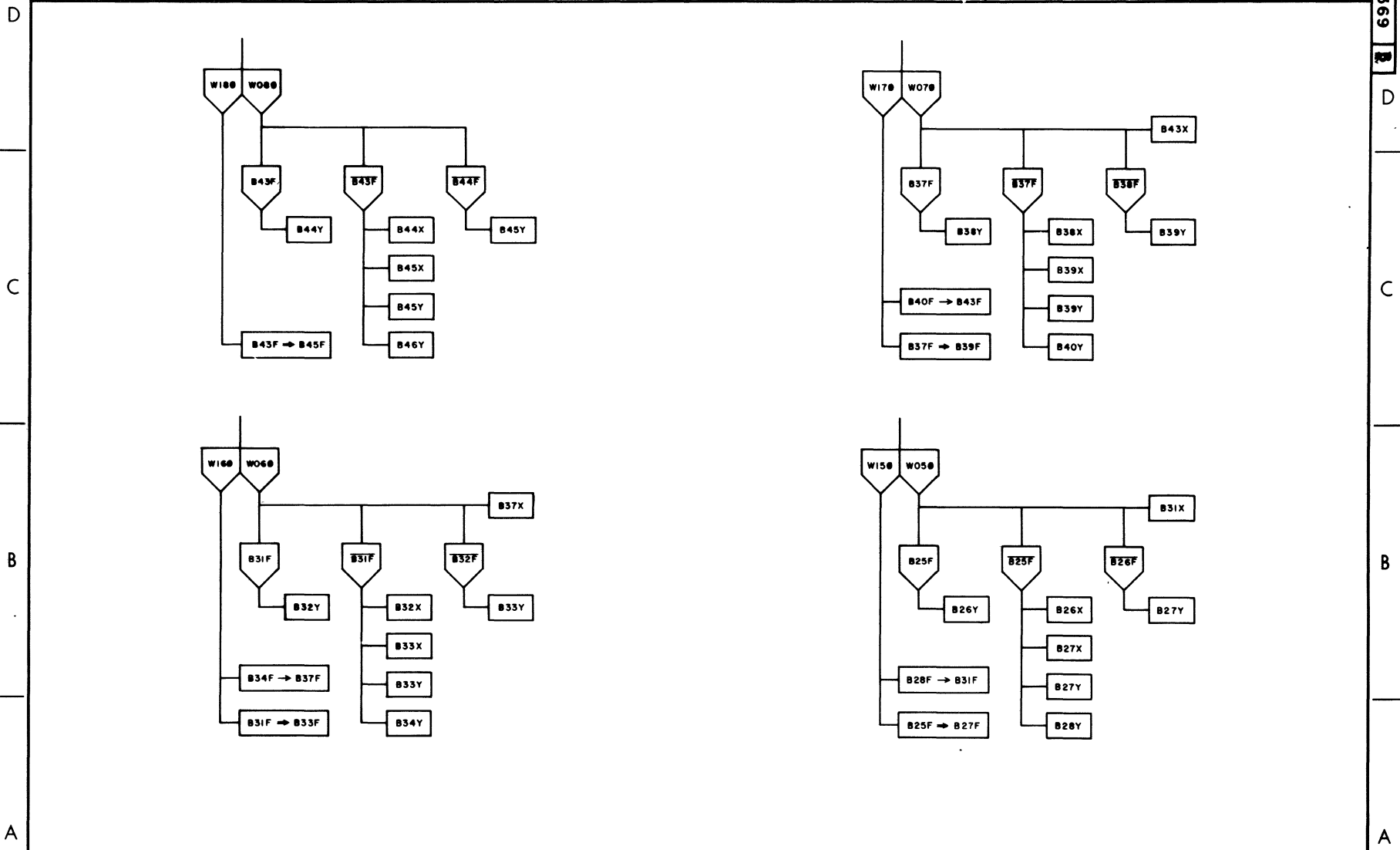
ELECTRODATA M&E DIVISION		Burroughs Corporation PASADENA CALIFORNIA		TITLE OUTPUT CONVERT - B30T		PAGE 1 OF 2	
PROPERTY OF BURROUGHS CORPORATION NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT		UNIT 78494		SYSTEM B5000		C-11925369 B	

DRAWN BY C. BEVINS 6-12-62  
 CHECKED *[Signature]*  
 APPROVED *[Signature]*  
 PROJ ENGR R.V. BOCK

REVISIONS					
REV	ECN NO	DRS MAN	CHK	APPD	DATE
A		J.T.			

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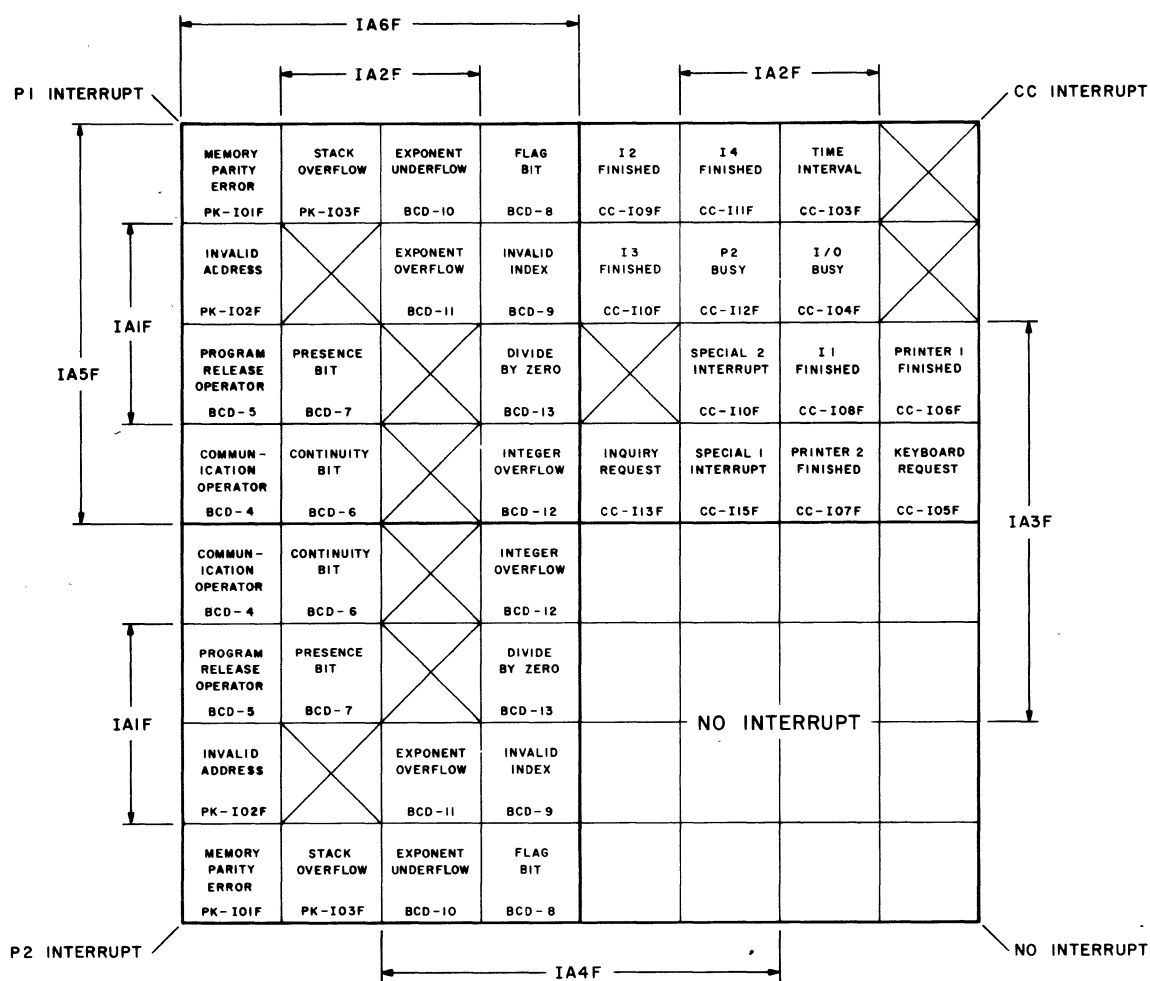
C-11925369



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ELECTRODATA M & E DIVISION	<b>Burroughs Corporation</b> PASADENA CALIFORNIA	TITLE OUTPUT CONVERT - B30T	PAGE 2 OF 2
PROPERTY OF BURROUGHS CORPORATION. NOT TO BE REPRODUCED, NOR USED FOR MANUFACTURING PURPOSES, EXCEPT ON BURROUGHS ORDER OR PRIOR WRITTEN CONSENT.		UNIT 78494 SYSTEM B5000	C-11925369 B REV.

4	3	2	1
DRAWN BY C BEVINS 6-6-62		REVISIONS	
CHECKED <i>[Signature]</i>	REV. NO. A 13526	DATE 1.1.	APPD. DATE
APPROVED <i>[Signature]</i>	RELEASED		
PROJ ENGR R V BOCK			



PROCESSOR INTERRUPT FLIP-FLOPS  
 101F = PARITY ERROR  
 102F = INVALID ADDRESS  
 103F = STACK OVERFLOW  
 105F, 106F, 107F, 108F, = BCD REGISTER  
 EXAMPLE: BCD-4 = 107F = 1 AND 105F + 106F + 108F = 0

CENTRAL CONTROL INTERRUPT ADDRESS FLIP-FLOPS  
 IA6F = 32  
 IA5F = 16  
 IA4F = 8  
 IA3F = 4  
 IA2F = 2  
 IA1F = 1

IA6F + IA5F = P1 INTERRUPTS  
 IA6F + IA5F = P2 INTERRUPTS  
 IA6F + IA5F = CC INTERRUPTS  
 IA6F + IA5F = NO INTERRUPTS

IA6F + IA4F + IA3F = SYLLABLE INDEPENDENT  
 IA6F (IA4F + IA3F) = SYLLABLE DEPENDENT

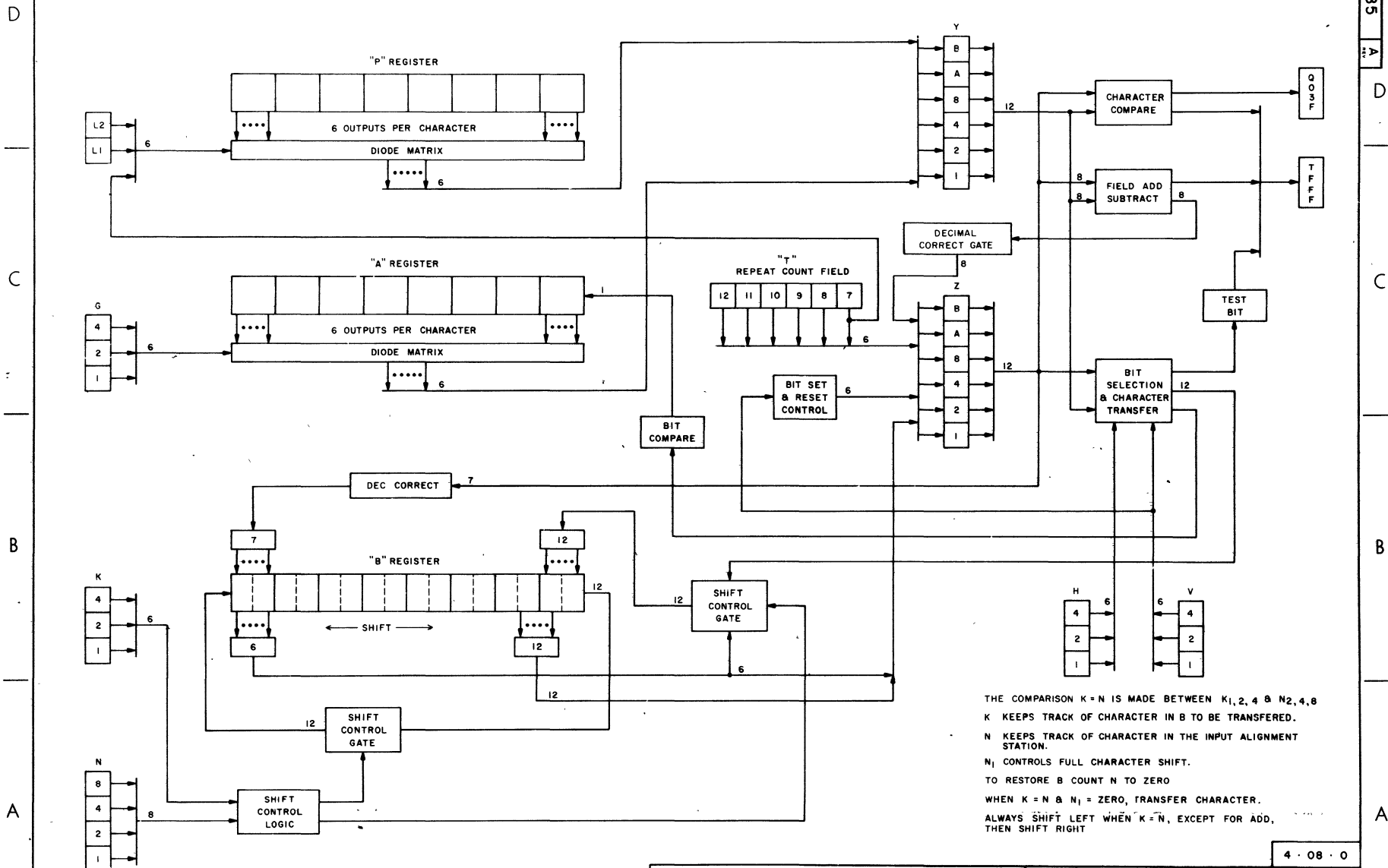
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				SYSTEM B 5000		A	

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 PROJ ENGR R V ROCK

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A	3596				
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C-11834785 A



THE COMPARISON  $K = N$  IS MADE BETWEEN  $K_1, 2, 4$  &  $N_2, 4, 8$   
 K KEEPS TRACK OF CHARACTER IN B TO BE TRANSFERRED.  
 N KEEPS TRACK OF CHARACTER IN THE INPUT ALIGNMENT STATION.  
 $N_1$  CONTROLS FULL CHARACTER SHIFT.  
 TO RESTORE B COUNT N TO ZERO  
 WHEN  $K = N$  &  $N_1 = ZERO$ , TRANSFER CHARACTER.  
 ALWAYS SHIFT LEFT WHEN  $K \neq N$ , EXCEPT FOR ADD,  
 THEN SHIFT RIGHT

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