

PDP-15 SYSTEMS

FP15

FLOATING POINT PROCESSOR

MAINTENANCE MANUAL

VOLUME 2

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MASTER DRAWING LIST

[illegible][illegible][illegible]

PRINT SET				DWG. NO.	REV. NO. OF LET. SHEETS	TITLE	OPTION NO.
FP15-0							
X				D-DI-FP15-0-67	1	DRAWING INDEX LIST (FP15)	
X				D-UA-FP15-0-0	A	FLOATING POINT PROCESSOR	
X				A-PL-FP15-0-0	A	FLOATING POINT PROCESSOR	
X				D-FD-FP15-0-45	1	FETCH CYCLE FLOW 1	
X				D-FD-FP15-0-46	1	FETCH CYCLE FLOW 2	
X				D-FD-FP15-0-47	1	FETCH CYCLE FLOW 3	
X				D-FD-FP15-0-48	1	OPAND CYCLE FLOW 1	
X				D-FD-FP15-0-49	1	OPAND CYCLE FLOW 2	
X				D-FD-FP15-0-50	1	OPAND CYCLE FLOW 3	
X				D-FD-FP15-0-51	1	WRITE CYCLE FLOW	
X				D-FD-FP15-0-52	1	ADD. SUB. REV SUB. EXP CYCLE	
X				D-FD-FP15-0-53	1	ADD SUB. REV SUB. SUB CYCLE	
X				D-FD-FP15-0-54	1	FLOATING MUL. & DIV EXP CYCLE	
X				D-FD-FP15-0-55	1	FLOAT & INTEGER MUL FUN CYCLE	
X				D-FD-FP15-0-56	1	INTEGER DIVIDE EXP CYCLE	
X				D-FD-FP15-0-57	1	FLOAT & INTEGER DIV FUN CYCLE	
X				D-FD-FP15-0-58	1	NOR TS1 CYCLE FLOW	
X				D-FD-FP15-0-59	1	NOR TS2 CYCLE FLOW	
X				D-FD-FP15-0-60	1	ASIGN SWAP & FLOAT CONTROL	
X				D-FD-FP15-0-61	1	FIX FLOW	
X				D-FD-FP15-0-62	1	INTERRUPT FLOW	
X				D-FD-FP15-0-63	1	MAINT FLOW 1	
X				D-FD-FP15-0-64	1	MAINT FLOW 2	
X				D-BS-FP15-0-01	D	MEMORY INTERFACE CABLES	
X				D-BS-FP15-0-02	A	MEMORY DRIVERS	
X				D-BS-FP15-0-03	1	OUTPUT MULTIPLEXER (MPO)	
X				D-BS-FP15-0-04	1	MULTIPLEXER INPUTS (MPI)	
X				D-BS-FP15-0-05	1	MULTIPLEXER CONTROL	
TITLE				FLOATING POINT PROCESSOR		SHEET 2 OF 4	
				NUMBER		REV	
				SIZE		A ML	
				CODE		FP15-0	

PRINT SET		DWG. NO.	REV. NO. OF LET.	NO. OF SHEETS	TITLE	OPTION NO.
FP15-0						
X		D-BS-FP15-0-06		1	MEMORY RECEIVERS	
X		D-BS-FP15-0-07		1	BUFFERED MEM BITS 00-17	
X		D-BS-FP15-0-08		1	BUFFERED MEM BITS 18-35	
X		D-BS-FP15-0-09	B	1	TIME STATE GENERATOR	
X		D-BS-FP15-0-10	C	1	MEMORY INTERFACE CTRL 1	
X		D-BS-FP15-0-11	B	1	MEMORY INTERFACE CTRL 2	
X		D-BS-FP15-0-12		1	MEMORY INTERFACE CTRL 3	
X		D-BS-FP15-0-13		1	INSTRUCTION REGISTER (IR)	
X		D-BS-FP15-0-14		1	DIAGNOSTIC INST REG. (DIR)	
X		D-BS-FP15-0-15		1	ADDRESS REGISTER (AR)	
X		D-BS-FP15-0-16		1	DIAGNOSTIC ADDRESS REG. (DAR)	
X		D-BS-FP15-0-17		1	A EXPONENT REGISTER (EPA)	
X		D-BS-FP15-0-18	A	1	B EXPONENT REGISTER (EPB)	
X		D-BS-FP15-0-19		1	ARITH LOGIC UNIT 00-03	
X		D-BS-FP15-0-20		1	ARITH LOGIC UNIT 04-07	
X		D-BS-FP15-0-21		1	ARITH LOGIC UNIT 08-11	
X		D-BS-FP15-0-22		1	ARITH LOGIC UNIT 12-15	
X		D-BS-FP15-0-23		1	ARITH LOGIC UNIT 16-19	
X		D-BS-FP15-0-24		1	ARITH LOGIC UNIT 20-23	
X		D-BS-FP15-0-25		1	ARITH LOGIC UNIT 24-27	
X		D-BS-FP15-0-26		1	ARITH LOGIC UNIT 28-31	
X		D-BS-FP15-0-27		1	ARITH LOGIC UNIT 32-35	
X		D-BS-FP15-0-28		1	CARRY LOOK AHEAD	
X		D-BS-FP15-0-29		1	JMS EXIT ADDRESS REG. (JEA)	
X		D-BS-FP15-0-30		1	SHIFT COUNTER (SC)	
X		D-BS-FP15-0-31		1	INSTRUCTION DECODER (IR)	
X		D-BS-FP15-0-32		1	MANTISSA EXPONENT CTRL	
X		D-BS-FP15-0-33		1	ALU CONTROL	
X		D-BS-FP15-0-34		1	LOAD & STORE CONTROL 1	
X		D-BS-FP15-0-35		1	LOAD & STORE CONTROL 2	
X		D-BS-FP15-0-36	B	1	ADD & SUBTRACT CTRL 1	
X		D-BS-FP15-0-37	B	1	ADD & SUBTRACT CTRL 2	
X		D-BS-FP15-0-38	A	1	MULTIPLY & DIVIDE CTRL 1	

TITLE

FLOATING POINT PROCESSOR

SHEET 3 **OF** 4

SIZE CODE

A **ML**

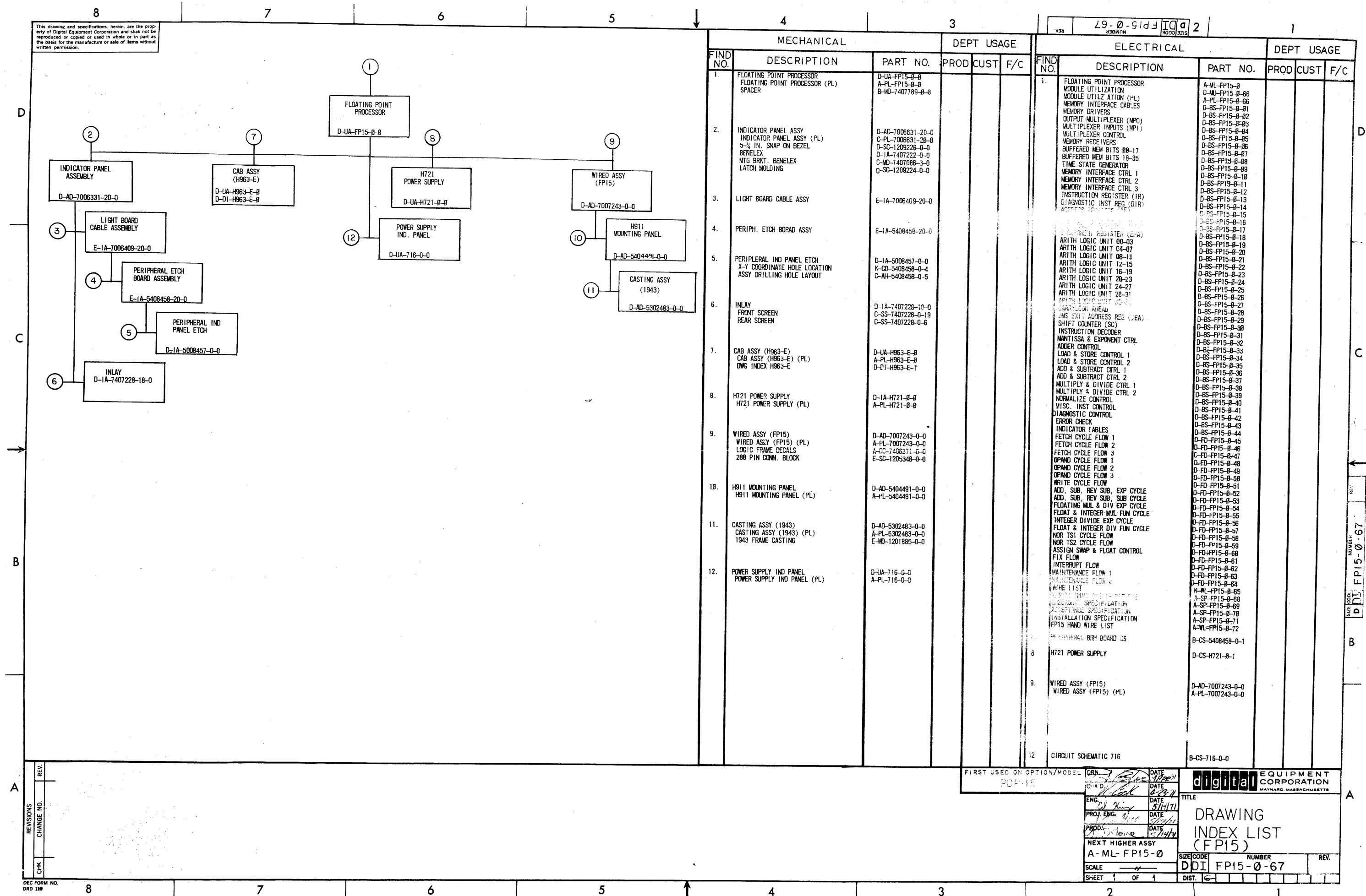
NUMBER

FP15-0

RFV

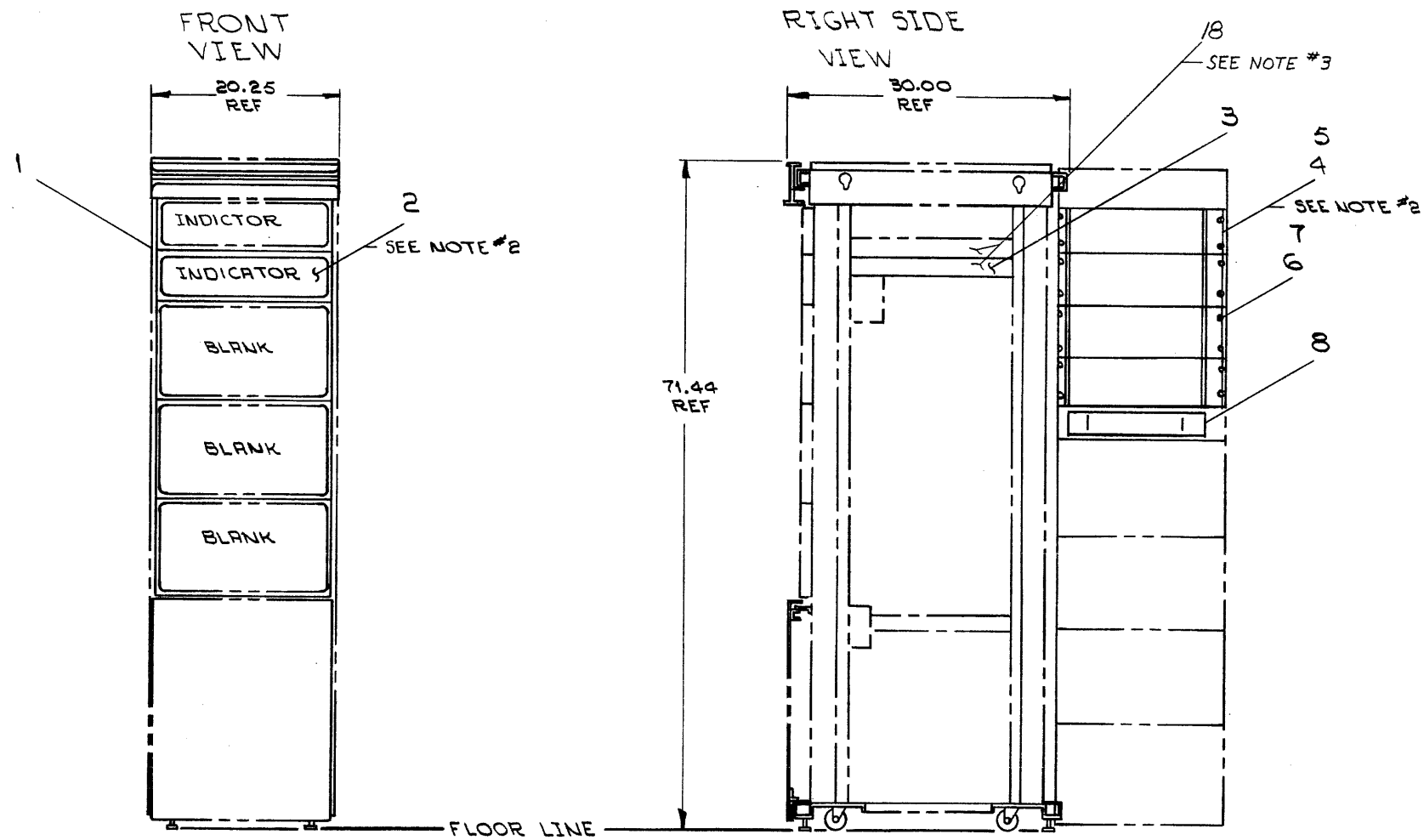
R

[illegible]



NOTES:

1. FOR DRAWING INDEX LIST REFER TO: D-DI-FPIS-Q-67
2. REMOVE EXISTING HARDWARE AND PLACE ITEMS AS SHOWN.
3. PLACE FOUR TWO INCH STRIPS OF GROMMET ON REAR EDGES OF 716 P.S.



FIRST USED ON OPTION/MODEL
PDP-15

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED

DIMENSION IN INCHES

TOLERANCES

	ANGLES = 0°30'
FINAL SURFACE QUALITY ✓	
REMOVE BURRS AND BREAK SHARP CORNERS	

MATERIAL

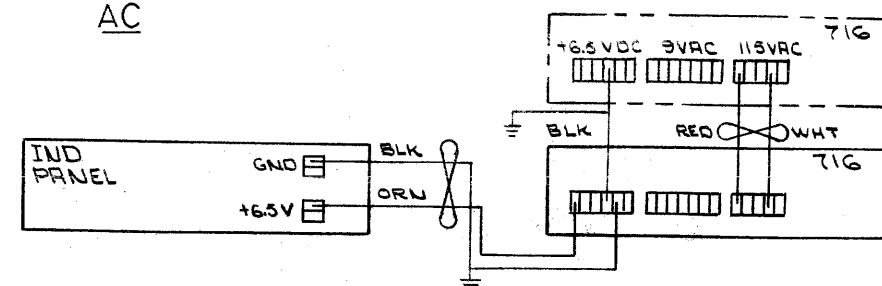
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FINISH

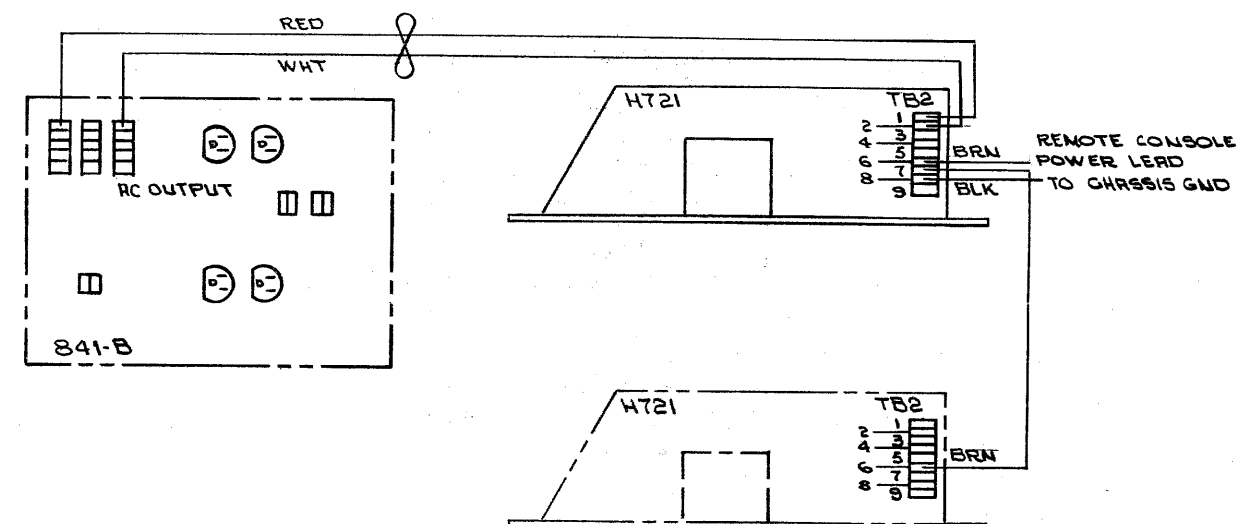
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QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN. <i>1</i>	DATE <i>3/16/74</i>	 DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. <i>W. Cook</i>	DATE <i>4/8/74</i>		
ENG. <i>C. King</i>	DATE <i>5/14/74</i>		
PROJ. ENG. <i>W. King</i>	DATE <i>5/14/74</i>		
PROD. <i>W. King</i>	DATE <i>5/14/74</i>		
NEXT HIGHER ASSY A-ML-FP15-0		TITLE FLOATING POINT PROCESSOR	
SCALE	NONE	SIZE CODE DUA	NUMBER FP15-0-0
SHEET	OF 2	DIST.	REV. A

DC



1. CONNECT BLK WIRE BETWEEN INO PWR. AND THE CHASSIS GND.
2. CONNECT BOTH 7IG PWR. SUPPLIES TO CABINET CHASSIS GND.



3. CONNECT THE RED AND WHITE TWISTED PAIR FROM THE 24VDC PWR CONTROL TO THE H721 PWR SUPPLY AC INPUT TERMINALS (TB2-1 & 2). REFER TO DCS-H721-G-1 FOR INTERNAL CONNECTIONS.
4. CONNECT A BLK WIRE FROM TB2-8 TO CABINET CHASSIS GND.
5. DISCONNECT THE CONSOLE PWR. SWITCH LEAD (BRN) FROM THE EXISTING H721 PWR. SUPPLY (TB2-6) AND CONNECT IT TO THE REDD H721 AT TB2-6. CONNECT A WIRE FROM TB2-6 ON THE ORIGINAL H721 TO TB2-7 ON THE REDD H721. THESE CONNECTIONS WILL CONNECT BOTH H721 THERMOSTAT CIRCUITS IN SERIES WITH THE CONSOLE POWER SWITCH.

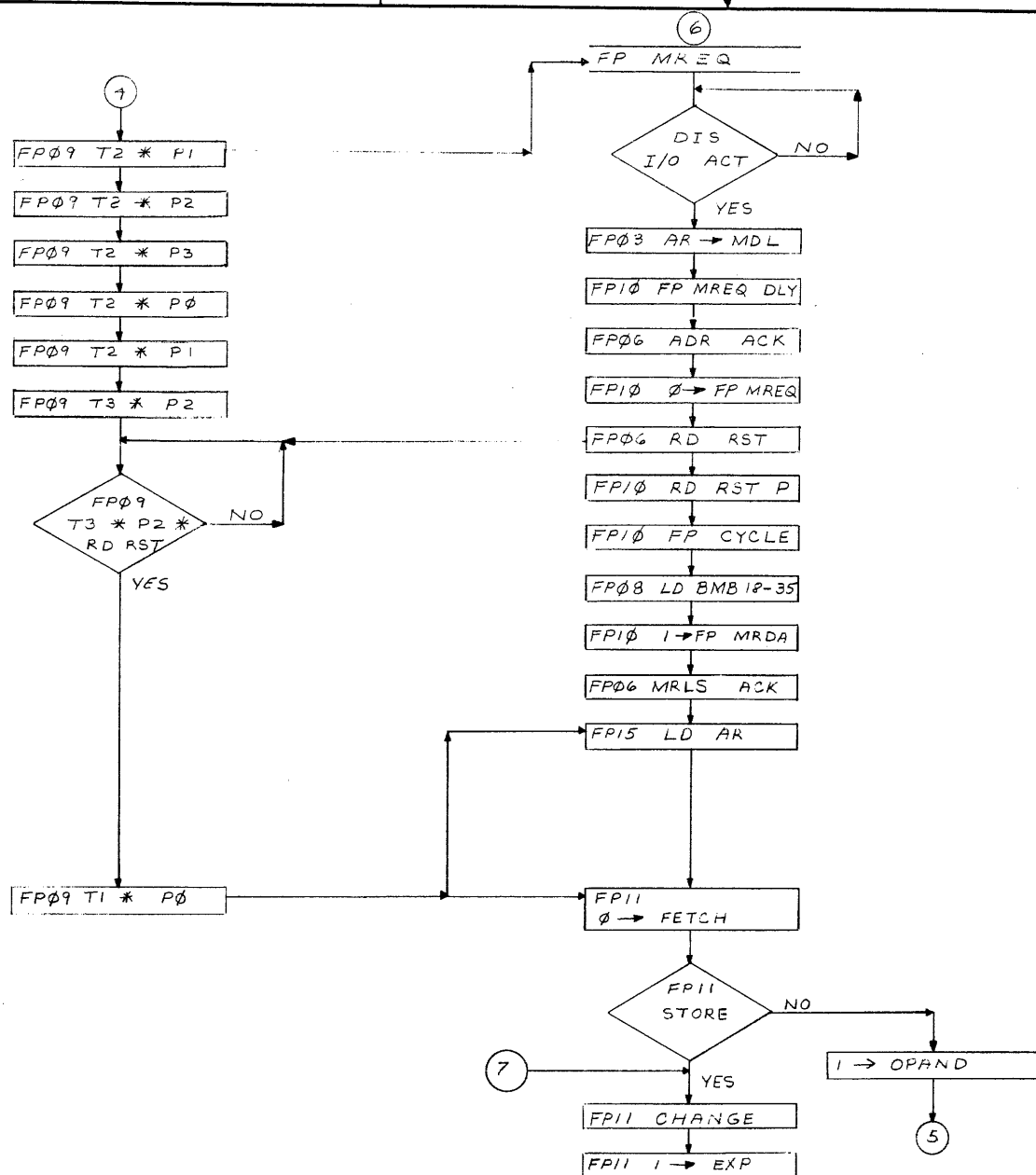
[illegible]

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS					QUANTITY / VARIATION															
PARTS LIST																				
MADE BY P. J. LeBLANC		CHECKED <i>RC</i>		SECTION 1																
DATE 4/13/71		DATE 4-23-71																		
ENG <i>Ed King</i>		PROD <i>D. Deane</i>		ISSUED SECT. 1																
DATE 5/14/71		DATE 5/14/71																		
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																		
1	D-UA-H963-E-Ø	CAB ASSY (H963-E)				1														
2	D-AD-7006331-20-0	INDICATOR PANEL ASSY				1														
3	D-UA-716-0-0	POWER SUPPLY IND PANEL				1														
4	D-AD-7007243-0-0	WIRED ASSY (FP15)				1														
5	B-MD-7407789-0-0	SPACER				8														
6	9006074-1	SCR, PHL HD PAN #10-32 X 5/8 LG				24														
7	9007786	SPEED NUT #10-32 TINNEMAN				24														
8	D-UA-H721-Ø-Ø	H721 POWER SUPPLY				1														
9	1209340-0-0	8 CIRCUIT MATE-N-LOCK CONN				4														
10	1209378-01	PIN, #60620-4 AMD (MALE)				16														
11	120935-12	SOCKET HOUSING #1-480278-0 MATE-N-LOCK				1														
12	9107440-50	WIRE #14 AWG STRD TWP GRN/BLK				A/R														
13	9107440-29	WIRE #14 AWG STRD TWP RED/WHT				A/R														
14	9107370-00	WIRE #14 AWG STRD TEF INS BLK				A/R														
15	9107370-11	WIRE #14 AWG STRD TEF INS BRN				A/R														
16	9107370-33	WIRE #14 AWG STRD TEF INS ORN				A/R														
17	D-UA-BCØ8-A-3	MEMORY BUS CABLE				3														
REF	D-MU-FP15-Ø-66	MODULE UTILIZATION																		
18	9007036	GROMMET # 122-37-2500				A/R														
TITLE		ASSY NO.		SIZE	CODE	NUMBER				REV.	ECO NO.									
FLOATING POINT PROCESSOR		D-UA-FP15-Ø-Ø		A	PL	FP15-Ø-Ø				A	FP15-00013									
		SHEET 1 OF 1		DIST.	G															

DEC FORM NO.16-1031
DRA 110

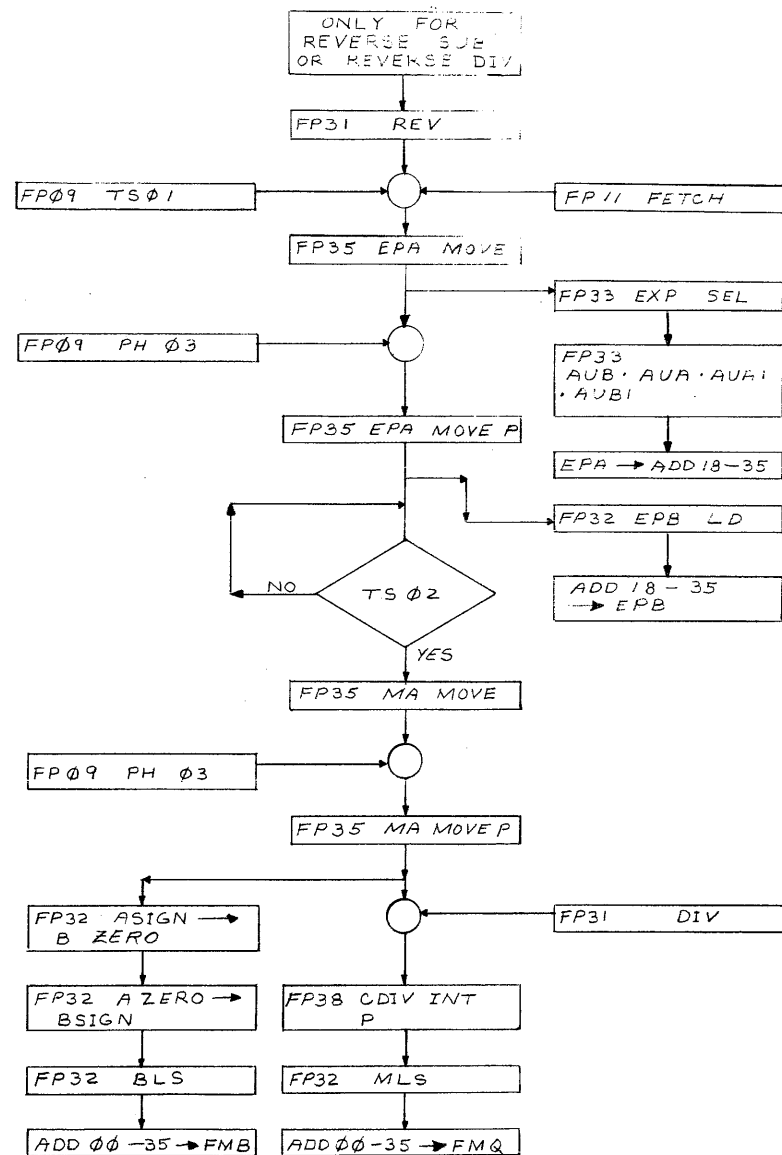


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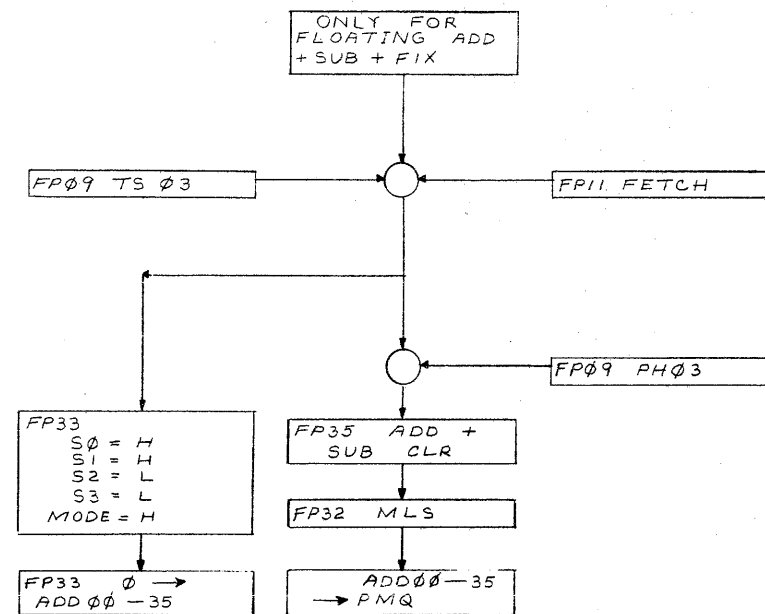


FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN <i>E. Wilson</i>	DATE 4/20/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS		CHK'D <i>L.R. Hootes</i>	DATE 5/14/71	TITLE	
ANGLES		ENG. <i>E. King</i>	DATE 5/14/71	FETCH CYCLE	
.XXX = .005 .XX = .02 .X = .1		PROJ. ENG. <i>J. B. Hootes</i>	DATE 5/14/71	FLOW 2	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. <i>J. B. Hootes</i>	DATE 5/14/71	SIZE CODE	
MATERIAL		NEXT HIGHER ASSY.		NUMBER	
FINISH		SCALE		REV.	
SHEET		OF		DIST.	

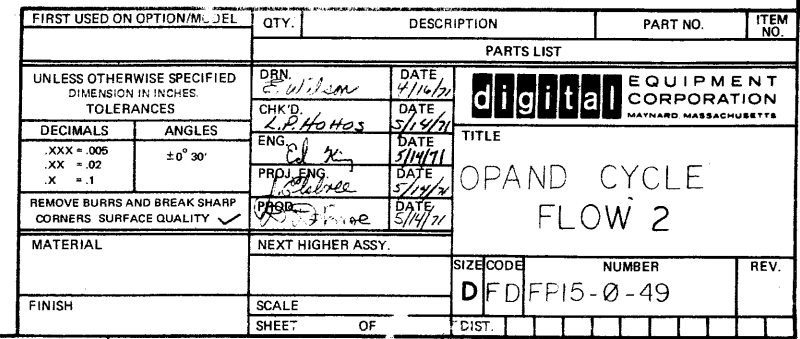
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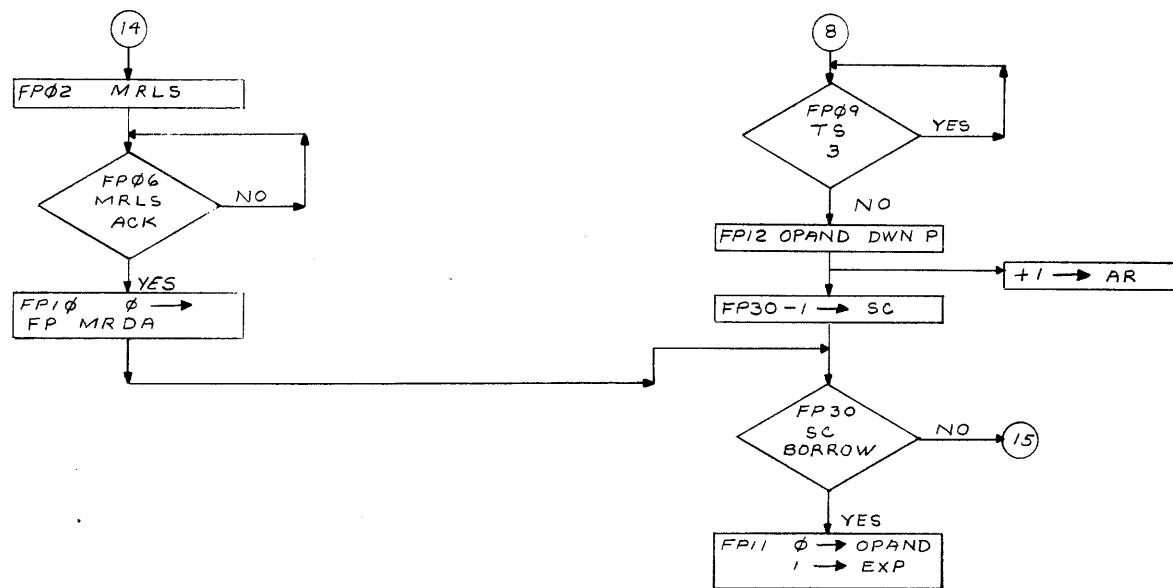
NOTE: FMA IS ON
ADD 00-35



FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN. 5/14/71	DATE 5/14/71	PARTS LIST	
DECIMALS		CHK'D. 5/14/71	DATE 5/14/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
ANGLES		ENG. 5/14/71	DATE 5/14/71	TITLE	
XXX = .005 XX = .02 X = .1		PROJ. ENG. 5/14/71	DATE 5/14/71	FETCH CYCLE FLOW 3	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. 5/14/71	DATE 5/14/71	SIZE CODE D	
MATERIAL		NEXT HIGHER ASSY.		NUMBER FD FPI5-0-47	
FINISH		SCALE		REV.	
SHEET		OF		DIST.	

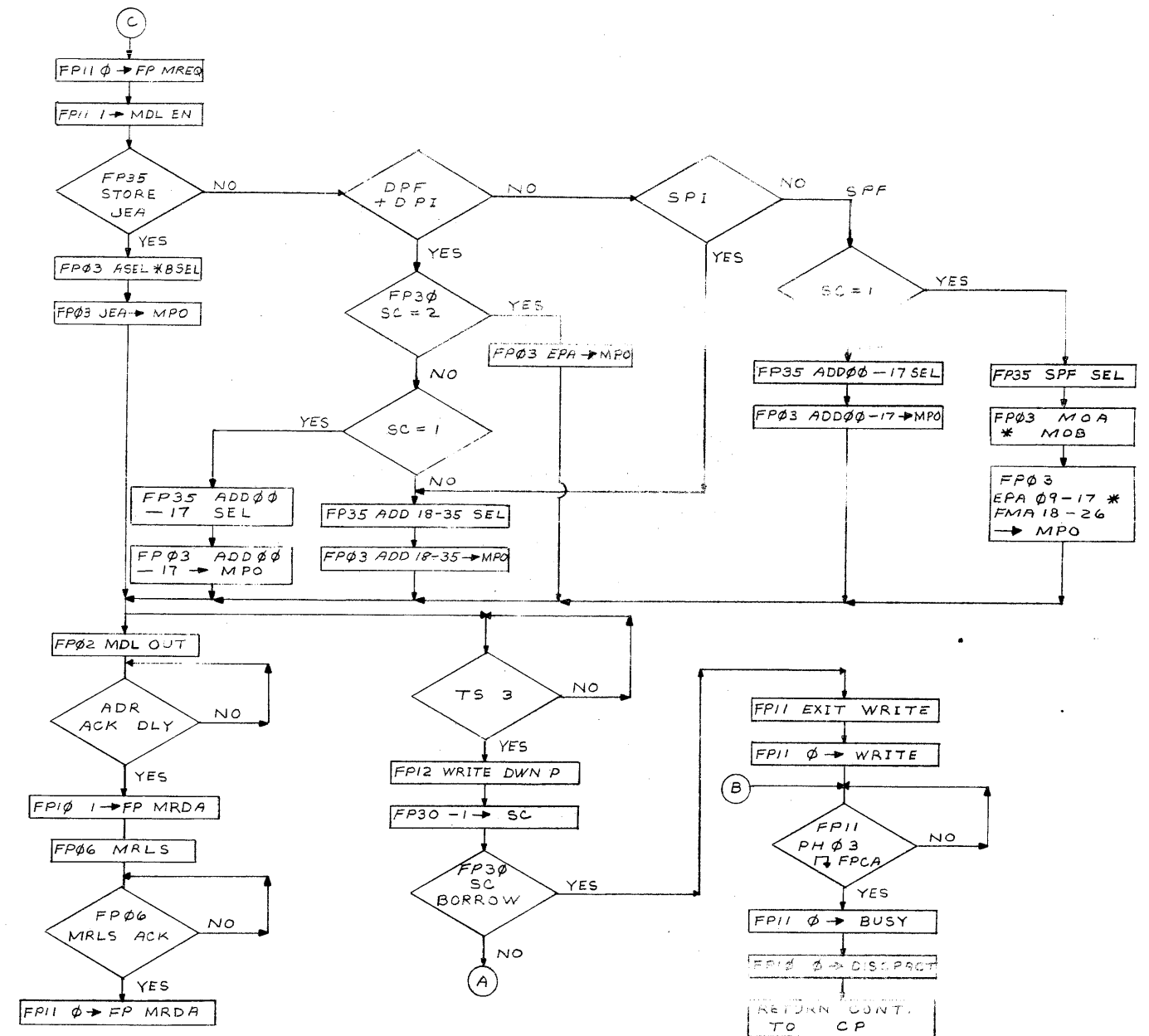


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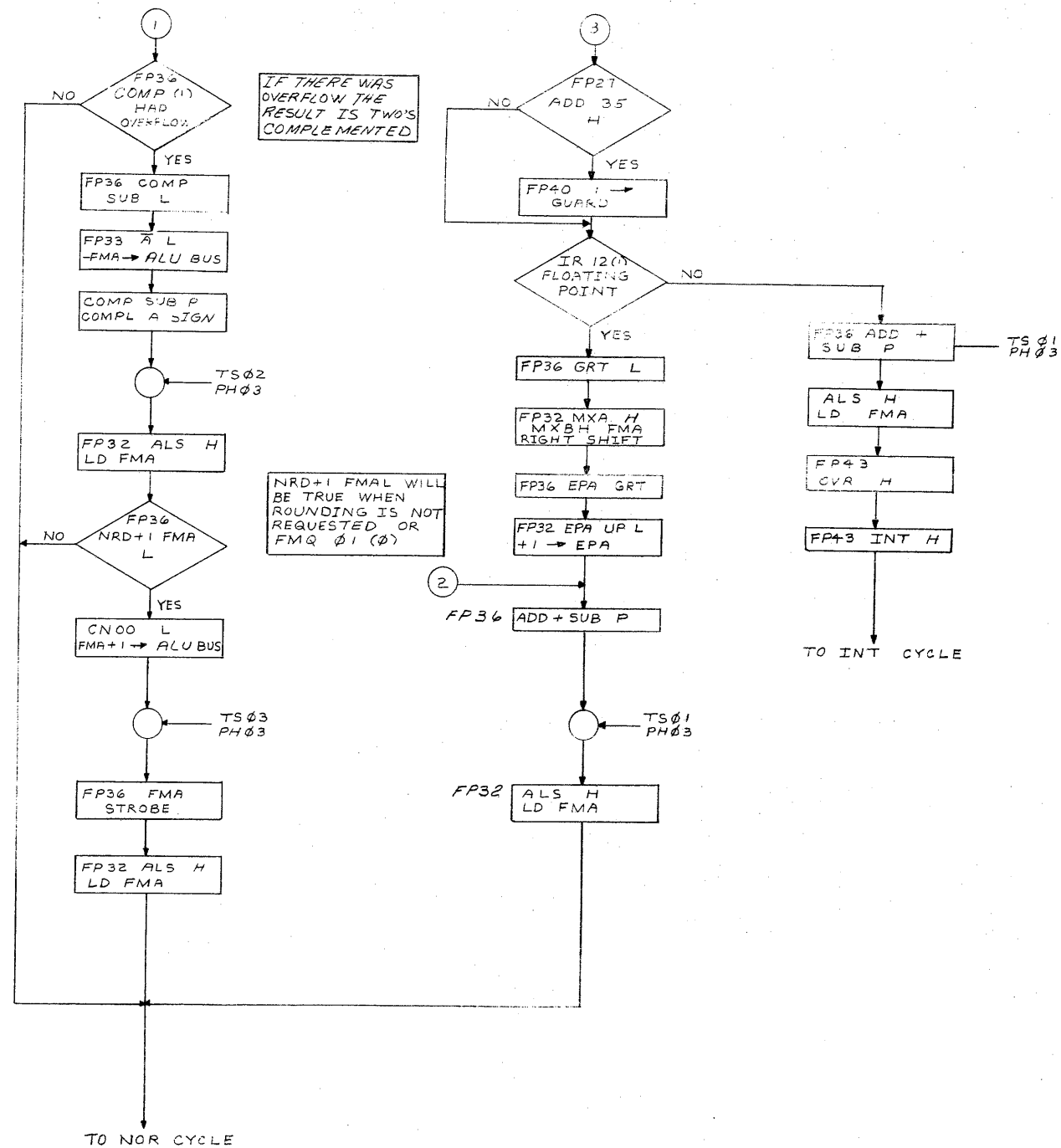
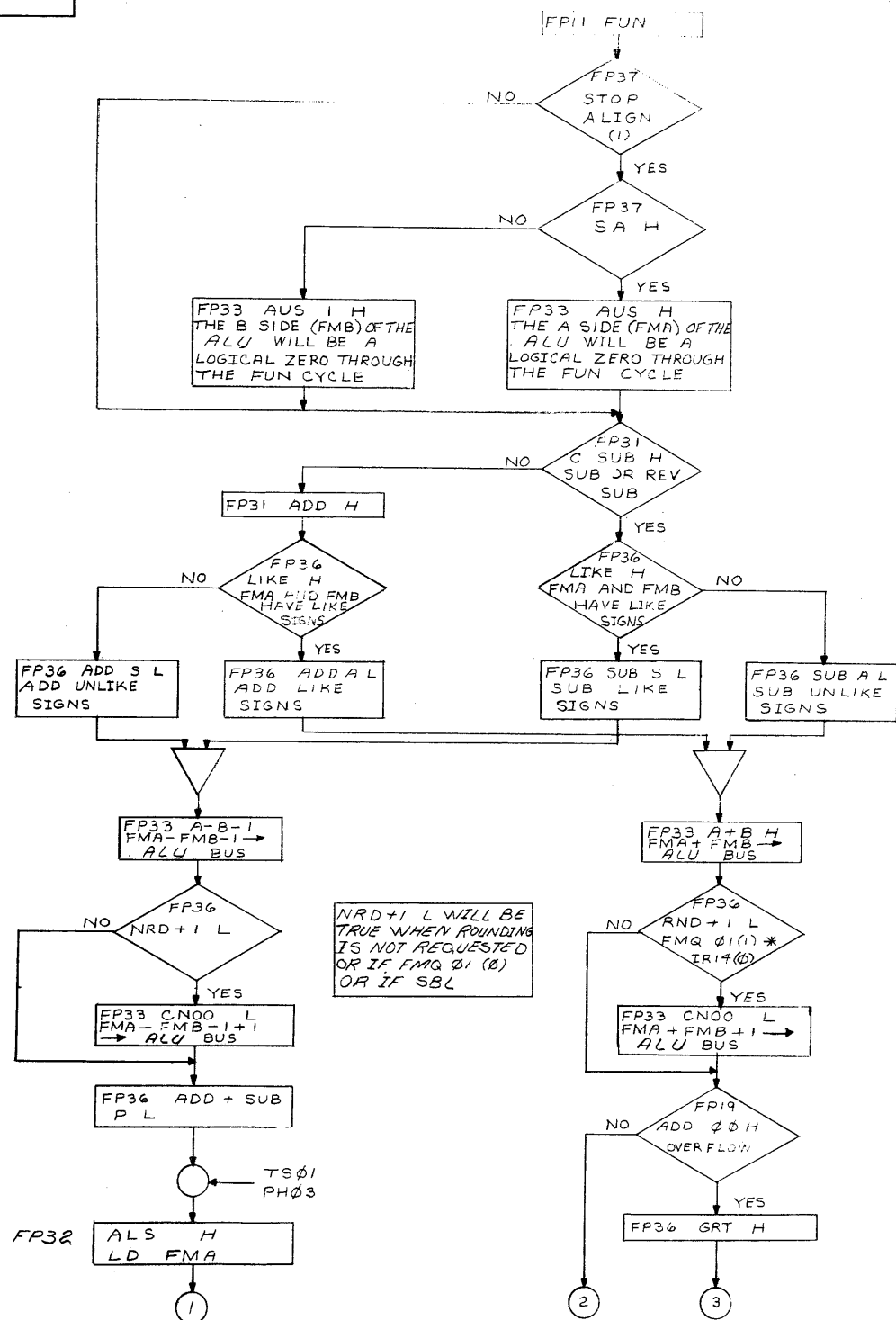
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>E. Wilson</i>	DATE <i>4/15/71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	CHK'D <i>L.P. Hottel</i>	DATE <i>5/14/71</i>		
ANGLES	ENG. <i>Col. King</i>	DATE <i>5/14/71</i>		
.XXX = .005 .XX = .02 .X = .1	PROJ. ENG. <i>J. Collette</i>	DATE <i>5/14/71</i>		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>[Signature]</i>	DATE <i>5/14/71</i>		
MATERIAL	NEXT HIGHER ASSY.		TITLE OPAND CYCLE FLOW 3	
FINISH	SCALE	SHEET	OF	DIST.
SIZE CODE D			NUMBER FD	REV P15-0-50

REVISIONS
CHANGE NO.
REV.



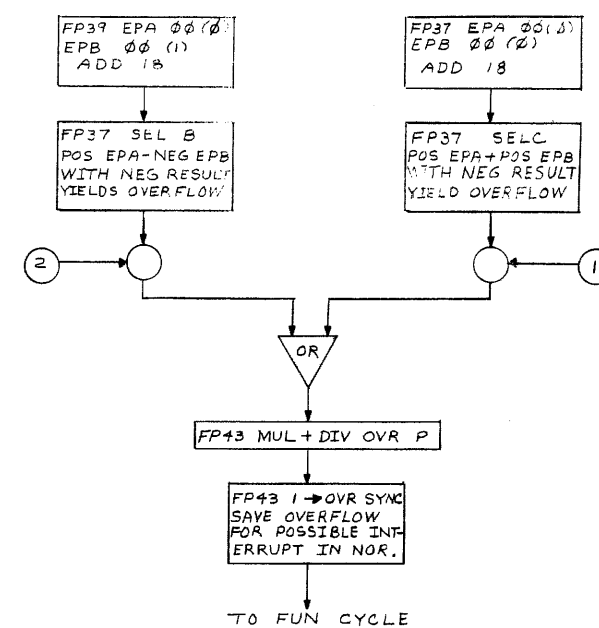
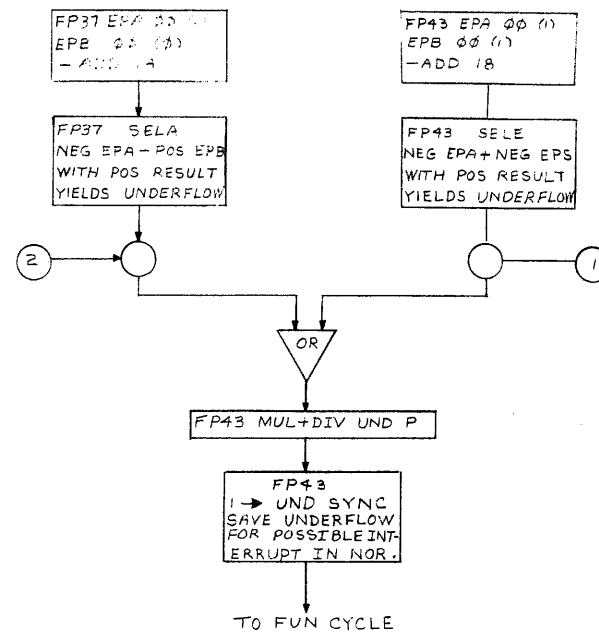
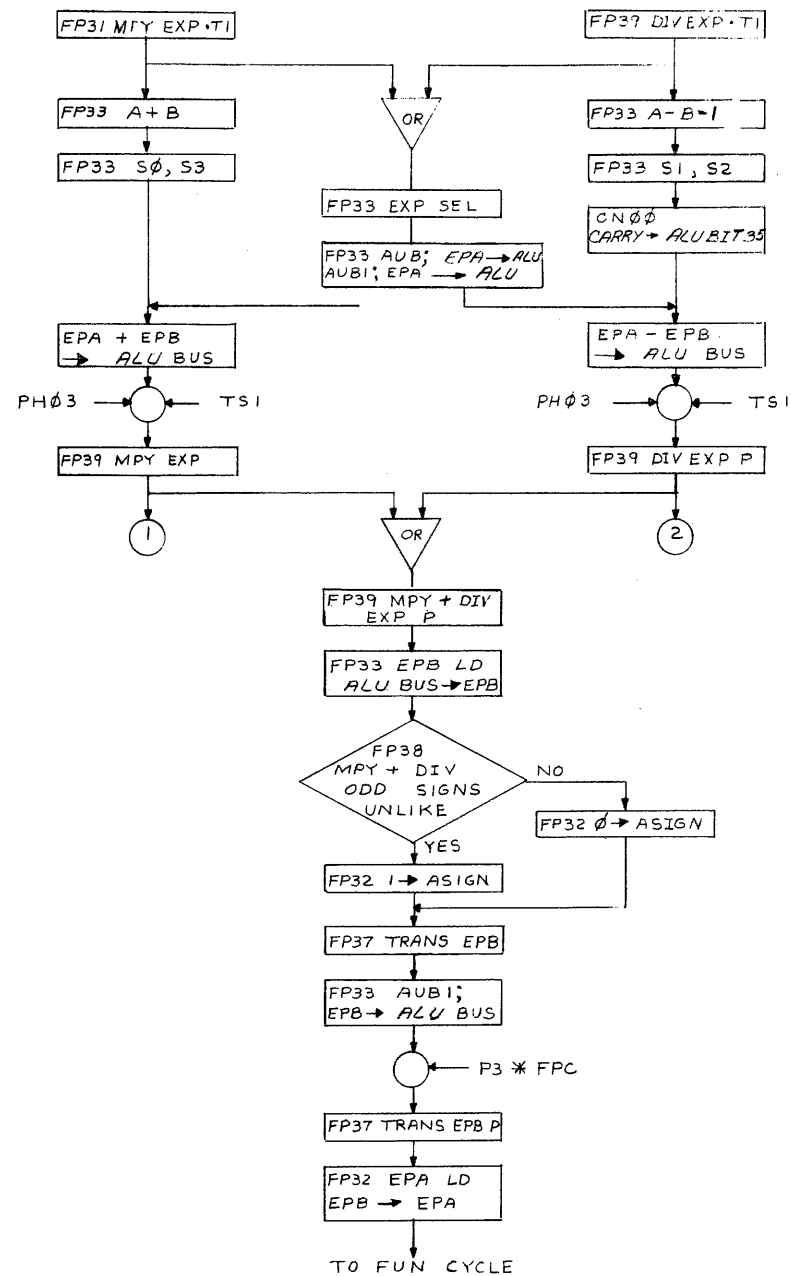
FIRST USED ON OPTION		QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>E. Wilson</i>	DATE 4/15/71		
		CHK'D <i>L.B. Hooper</i>	DATE 5/14/71		
DECIMALS	ANGLES	ENG. <i>J. King</i>	DATE 5/14/71	TITLE WRITE CYCLE FLOW	
.XXX ± .005 .XX ± .02 .X ± .1	± 0° 30'	PROJ. ENG. <i>L.B. Hooper</i>	DATE 5/14/71		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		DRG'D. <i>E. Wilson</i>	DATE 5/14/71		
MATERIAL	NEXT HIGHER ASSY.		SIZE CODE	NUMBER	REV.
			D	FPI 5-0-51	
FINISH	SCALE	SHEET	OF	DIST.	

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QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED			
DRN	DATE	DATE	
CHK'D	DATE	DATE	
ENG	DATE	DATE	
PROJ ENG	DATE	DATE	
PROD	DATE	DATE	
FIRST USED ON			
MATERIAL			
FINISH			
SCALE			
SHEET OF			
TITLE			
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
ADD, SUB, REV SUB FUN CYCLE			
SIZE CODE NUMBER REV.			
DFD FPI5 - 0 - 53			
DIST.			

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REVISIONS
CHANGE NO.
CHK

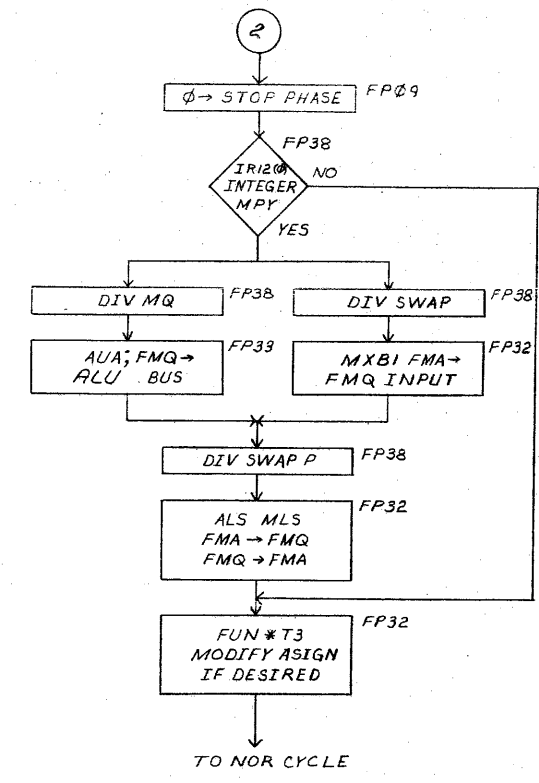
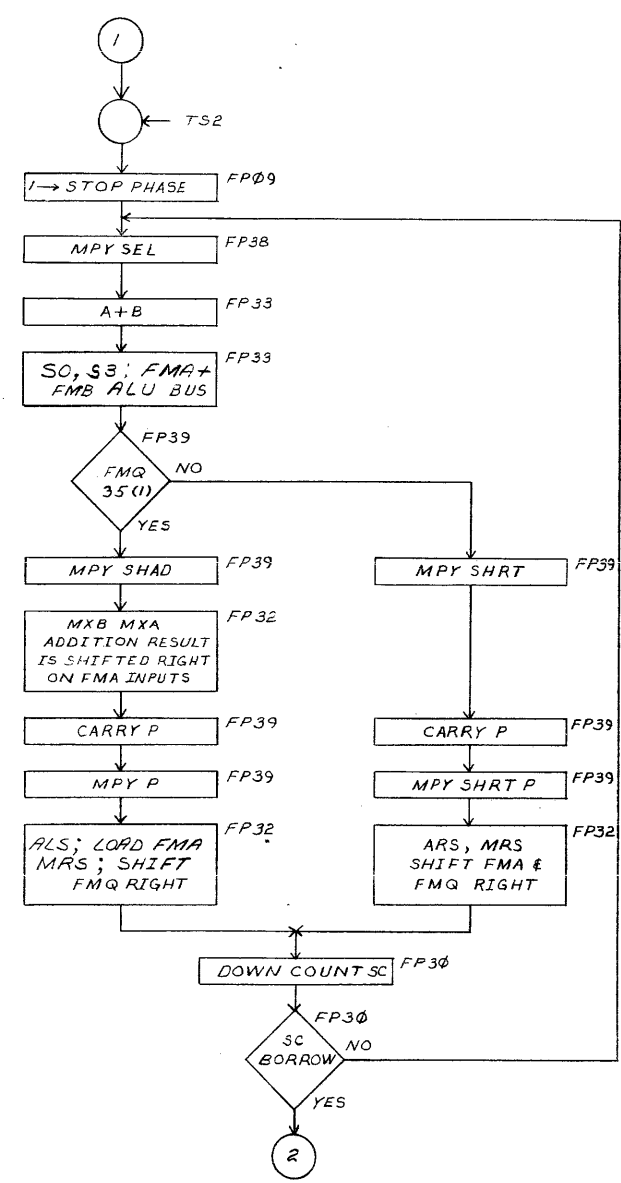
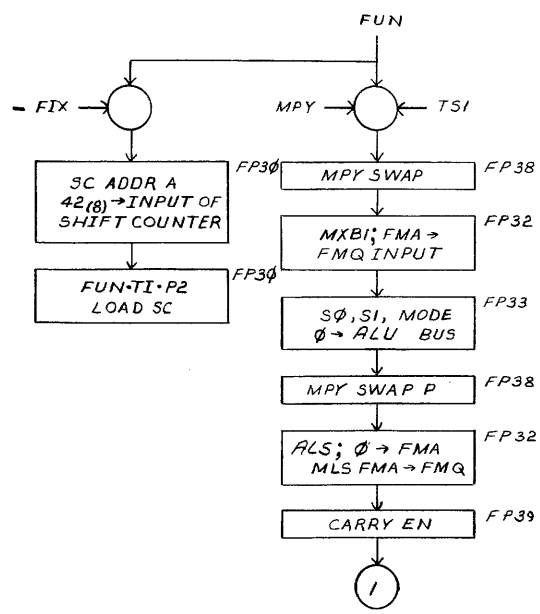
FIRST USED ON OPTION / MODEL

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES
± .005 ± 1/64 ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL
FINISH

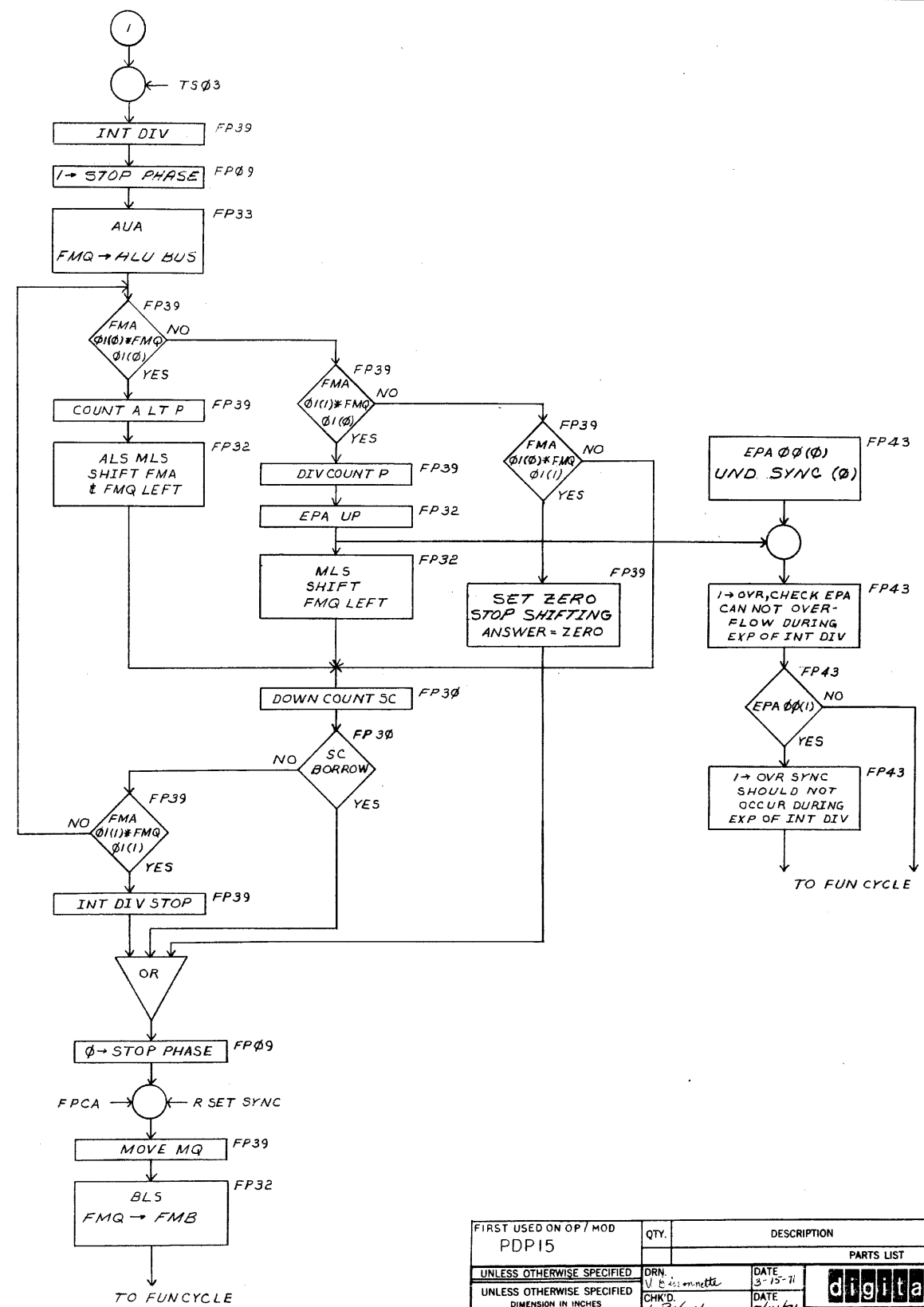
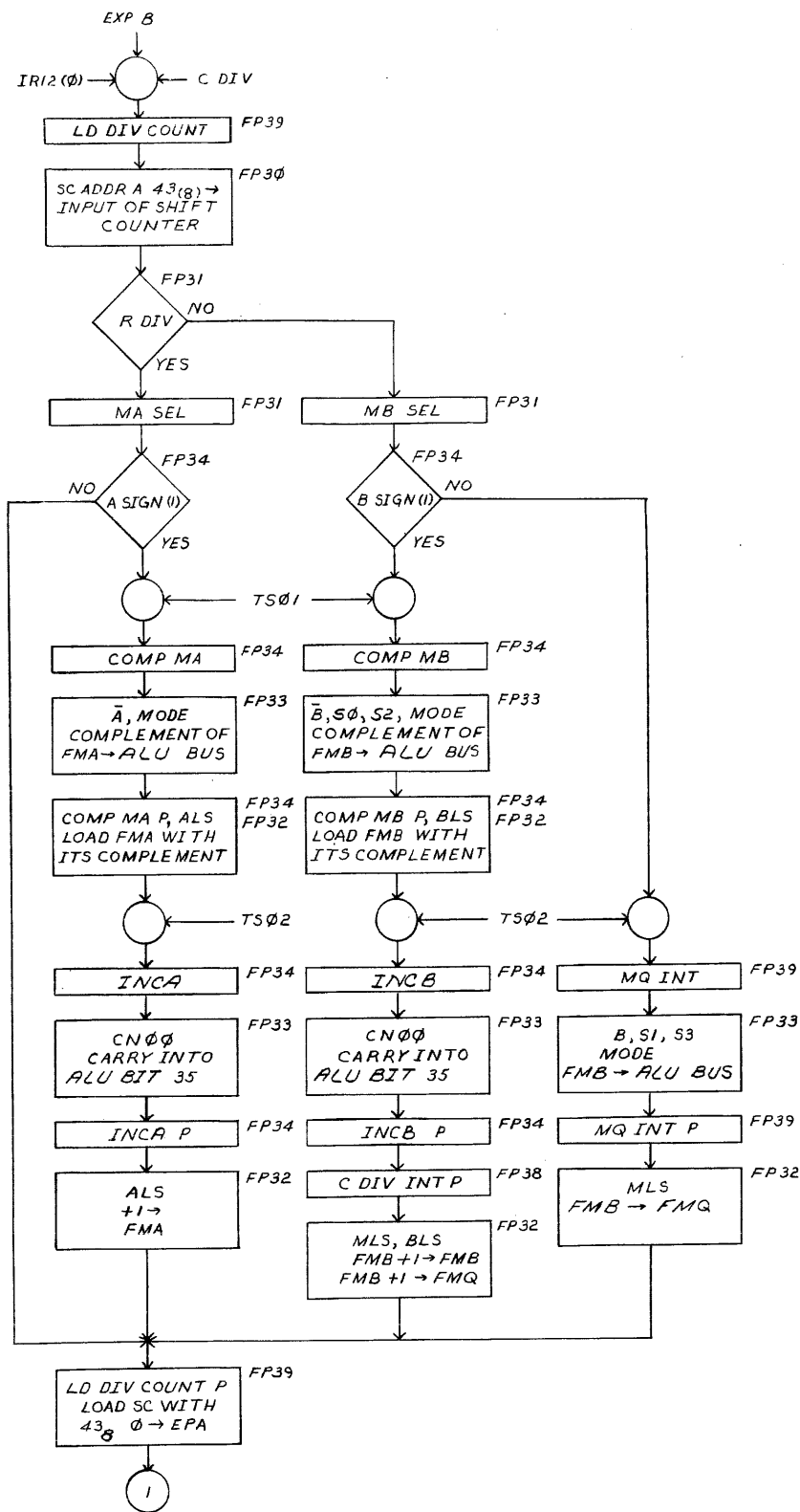
QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN	DATE 3/20/71	digital CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D	DATE 5/4/71		
ENG	DATE 5/14/71	TITLE FLOATING MUL & DIV EXP CYCLE	
PROJ. ENG	DATE 5/14/71		
PROD	DATE 5/14/71	NEXT HIGHER ASSY	
SCALE	OF		
SHEET	DIST.	SIZE CODE DFD	NUMBER FP15 - 0 - 54
		REV.	

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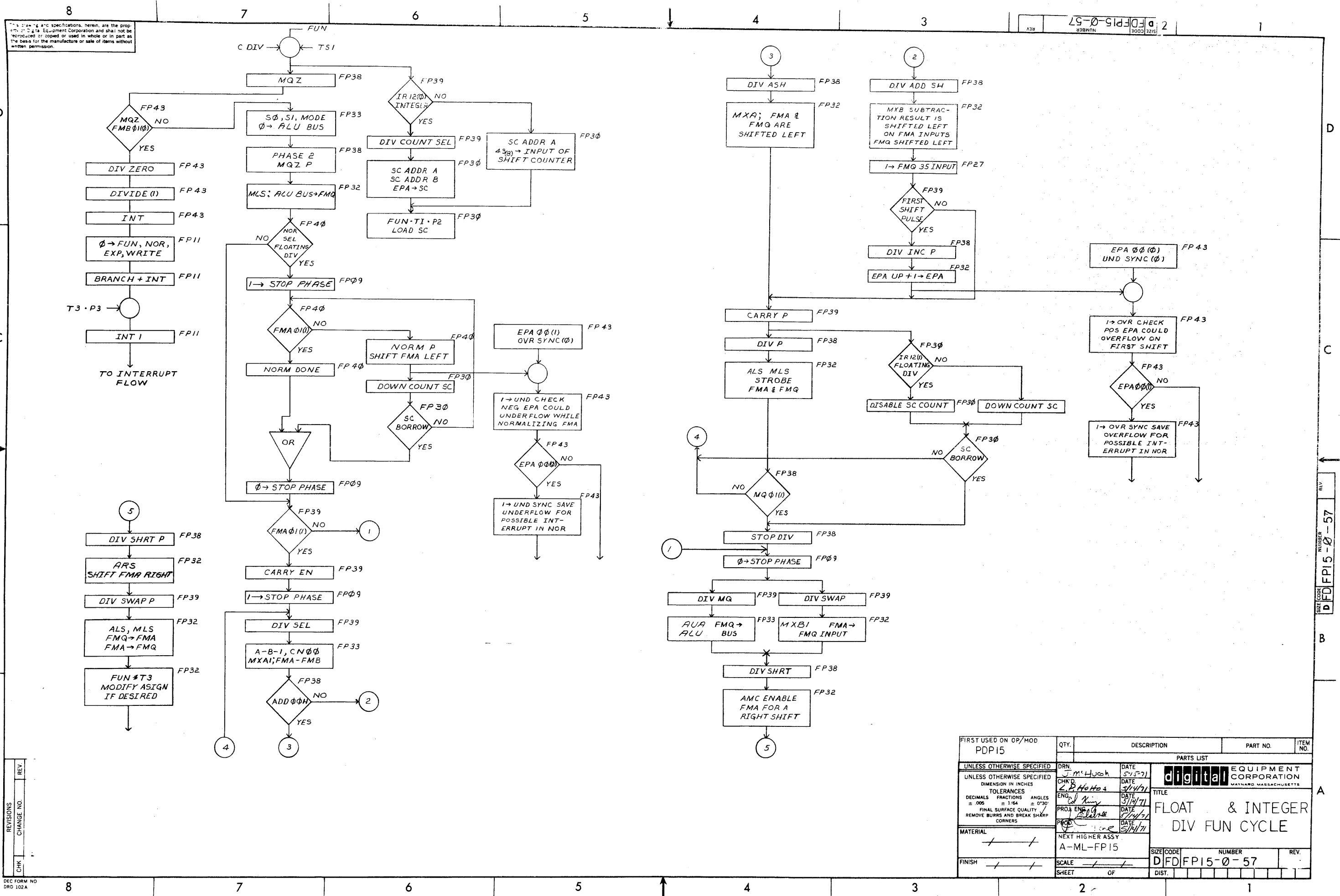


FIRST USED ON OP/MOD PDP15		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		DRN	DATE	PARTS LIST	
UNLESS OTHERWISE SPECIFIED		CHK'D	DATE	digital EQUIPMENT CORPORATION	
DIMENSION IN INCHES		ENG.	DATE	TITLE	
TOLERANCES		PROJ. ENG.	DATE	FLOAT & INTEGER	
DECIMALS FRACTIONS ANGLES		PROD.	DATE	MUL FUN CYCLE	
± .005 ± 1/64 ± 0°30'		NEXT HIGHER ASSY			
FINAL SURFACE QUALITY		A-ML-FP15			
REMOVE BURRS AND BREAK SHARP CORNERS		SCALE			
MATERIAL		SHEET			
FINISH		OF			
SIZE CODE		NUMBER			
DFD FP15-0-55		REV.			
DIST.		REV.			

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FIRST USED ON OP / MOD		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP15					
UNLESS OTHERWISE SPECIFIED		DRN.	DATE	PARTS LIST	
DIMENSION IN INCHES		CHK'D.	DATE	digital EQUIPMENT CORPORATION	
TOLERANCES		ENG.	DATE	MAYNARD, MASSACHUSETTS	
DECIMALS FRACTIONS ANGLES		PROJ. ENG.	DATE	TITLE	
± .005 ± 1/64 ± 0°30'		PROD.	DATE	INTEGER DIVIDE	
FINAL SURFACE QUALITY				EXP CYCLE	
REMOVE BURRS AND BREAK SHARP CORNERS					
MATERIAL		FIRST USED ON		SIZE CODE	NUMBER
A-ML-FP15		A-ML-FP15		DFD	FP15-0-56
FINISH		SCALE		SHEET	REV.
		OF		DIST.	



FIRST USED ON OP/MOD PDP15		QTY.	DESCRIPTION		PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		DRN.	DATE		PARTS LIST	
UNLESS OTHERWISE SPECIFIED		CHK'D	DATE		digital EQUIPMENT CORPORATION	
DIMENSION IN INCHES		ENG.	DATE		MAYNARD, MASSACHUSETTS	
TOLERANCES		PROJ. ENG.	DATE		TITLE	
DECIMALS FRACTIONS ANGLES		PROJ. ENG.	DATE		FLOAT & INTEGER	
± .005 ± 1/64 ± 0°30'		PROJ. ENG.	DATE		DIV FUN CYCLE	
FINAL SURFACE QUALITY		PROJ. ENG.	DATE		MATERIAL	
REMOVE BURRS AND BREAK SHARP CORNERS		PROJ. ENG.	DATE		NEXT HIGHER ASSY.	
		PROJ. ENG.	DATE		A-ML-FP15	
		PROJ. ENG.	DATE		SCALE	
		PROJ. ENG.	DATE		SHEET OF	
		PROJ. ENG.	DATE		DIST.	
		PROJ. ENG.	DATE		REV.	
		PROJ. ENG.	DATE		D/FD/FP15-0-57	

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INITIALLY IN THE FUN CYCLE

FP11 FUN (1) H

FP30 ADDR A
THIS PLACES +2
AT SC INPUTS

FP11 NOR (1) H

FP12 T3 * P3 H

FP40 LD NORM COUNT
SETS S: 12-17 TO 42₆

FP11 NOR B H

FP09 TS 1

FP12 NOR * T1

FP40
IS THIS
A STORE ?

YES

FP40
IS THIS
A DIV

YES

NO

FP31 FLT PT

NORMALIZE BIT

FP13 IRI3 (0)

FP40 NOR SEL

FP40
WAIT
FOR HPCIN
AND FPC

FP40
IS
FMA01
(1)

YES

FP40 NORM DONE

NO

FP40 NORM P

FP09 STOP PHASE

FP38 NORM EN H

FP38
IS THIS
AMPY +
SWAP

YES

MMC FMA IS ALSO
LEFT SHIFTED
AS AN FMA EXTENSION

MXA, MMC MLS ALS
SHIFTS FMA 1 LEFT
DWN COUNTS EPA 1
DWN COUNTS SC 12-17

NO

FP09
IS THERE
AN SC
BORROW

YES

FP09 RSET (1)

RSET SYNC

ST PHASE → 0
ENABLES THE FP
TS GEN

NOR CYCLE TS 1

* THIS IS ACTUALLY A 0+B+1
COMPLETING THE 2'S COMPLEMENT
FORMATING - THE 1'S COMPLEMENT
WAS PERFORMED IN THE FUN CYCLE.
DURING INTEGER STORE INSTRUCTIONS,
THE FMA CONTAINS THE NON COMPLEMENTED
RESULT AND THE FMB CONTAINS THE
2'S COMPLEMENTED RESULT.

FP33 AUS;
0 → A SIDE OF ALU

FP33 CN 00 L

FP09 PHASE 2

FP32 B L S

FP35 INT INC

YES

NO

INTEGER
FORMAT
BIT 12
(0)2

FP35 IRI4 (0) * FLT PT

FP35 STORE RND

FP19 AD 00 H

FP36 GRT

FP40 FLOAT + FIX

FP36 GRT

FP32 MXB, MXA

FP09 PH03 (1) H

FP40 EPA GRT L

FP32 EPA UP

IF ROUNDING CAUSES A
CARRY FROM MSB, THEN
FMA RT SHTD + EPA INCR.

FP35 STORE RND A

FP32 ALS

AVAL WHICH
PLACES +00
ON B SIDE
OF ALU

A+B IS STILL VALID

IF BIT 27 IS A ONE IT IS
SHIFTED TO 26 AND
FMA 27-35 → 0

TO WRITE CYCLE

2

TO WRITE CYCLE

2

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES: TOLERANCES	DRN Wilson	DATE 3/23/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK'D L.P. Ho Has	DATE 5/14/71		
ANGLES	ENG C.K.	DATE 5/14/71		
.XXX = .005 .XX = .02 .X = .1	PROJ. ENG. J. Ho Has	DATE 5/14/71		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. J. Ho Has	DATE 5/14/71	TITLE NOR TSI CYCLE FLOW	
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	SCALE	OF	D FDFP15-0-58	
	SHEET	OF	DIST.	

REV.	CHANGE NO.	CHK

DEC FORM NO
DRD 102-B

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REV. 2
NUMBER DIEDFPI5-0-59
SIZE CODE

D

C

B

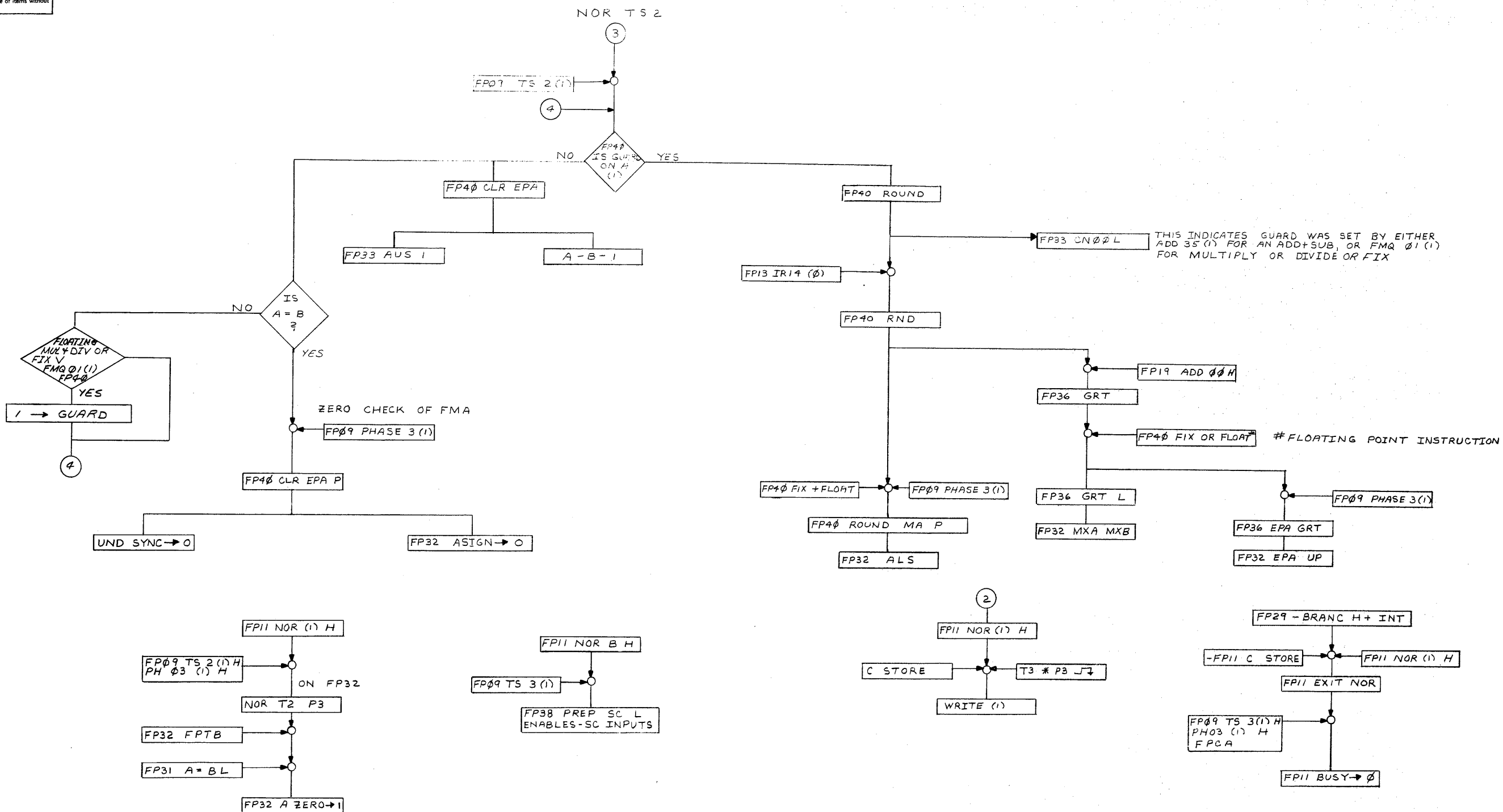
A

D

C

B

A



REV.	CHANGE NO.	CHK

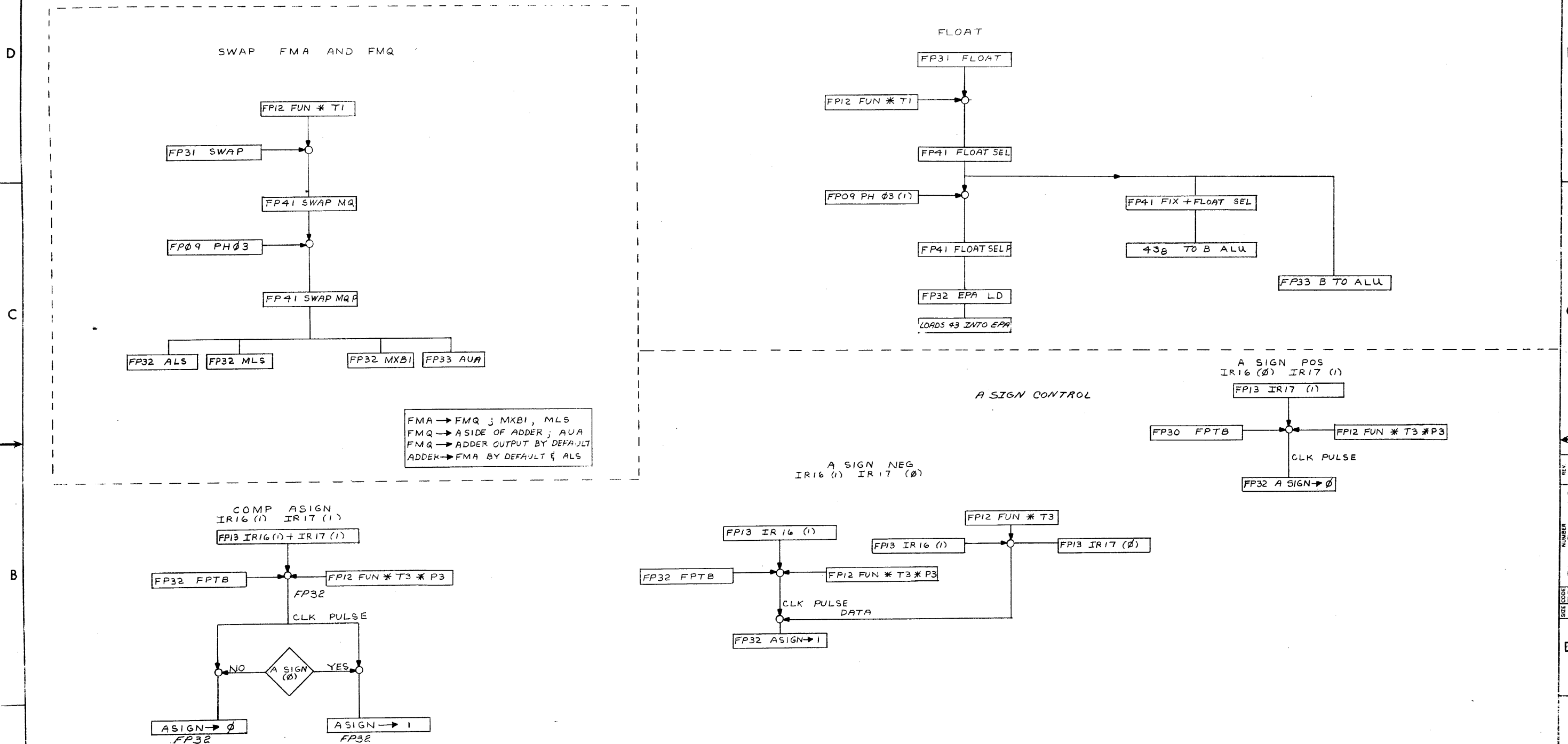
DEC FORM NO. DRD 100

FIRST USED ON OPTION/ MODEL

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES
± .005 ± 1/64 ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN.	DATE	3/23/70	3/23/70
CHK'D.	DATE	3/14/71	3/14/71
ENG.	DATE	3/14/71	3/14/71
PROJ. ENG.	DATE	3/14/71	3/14/71
PROD.	DATE	3/14/71	3/14/71
NEXT HIGHER ASSY			
SCALE	OF	DIST.	REV.
TITLE			
NOR TS2 CYCLE FLOW			
digital EQUIPMENT CORPORATION			
MAYNARD, MASSACHUSETTS			
SIZE CODE NUMBER			
DIEDFPI5-0-59			

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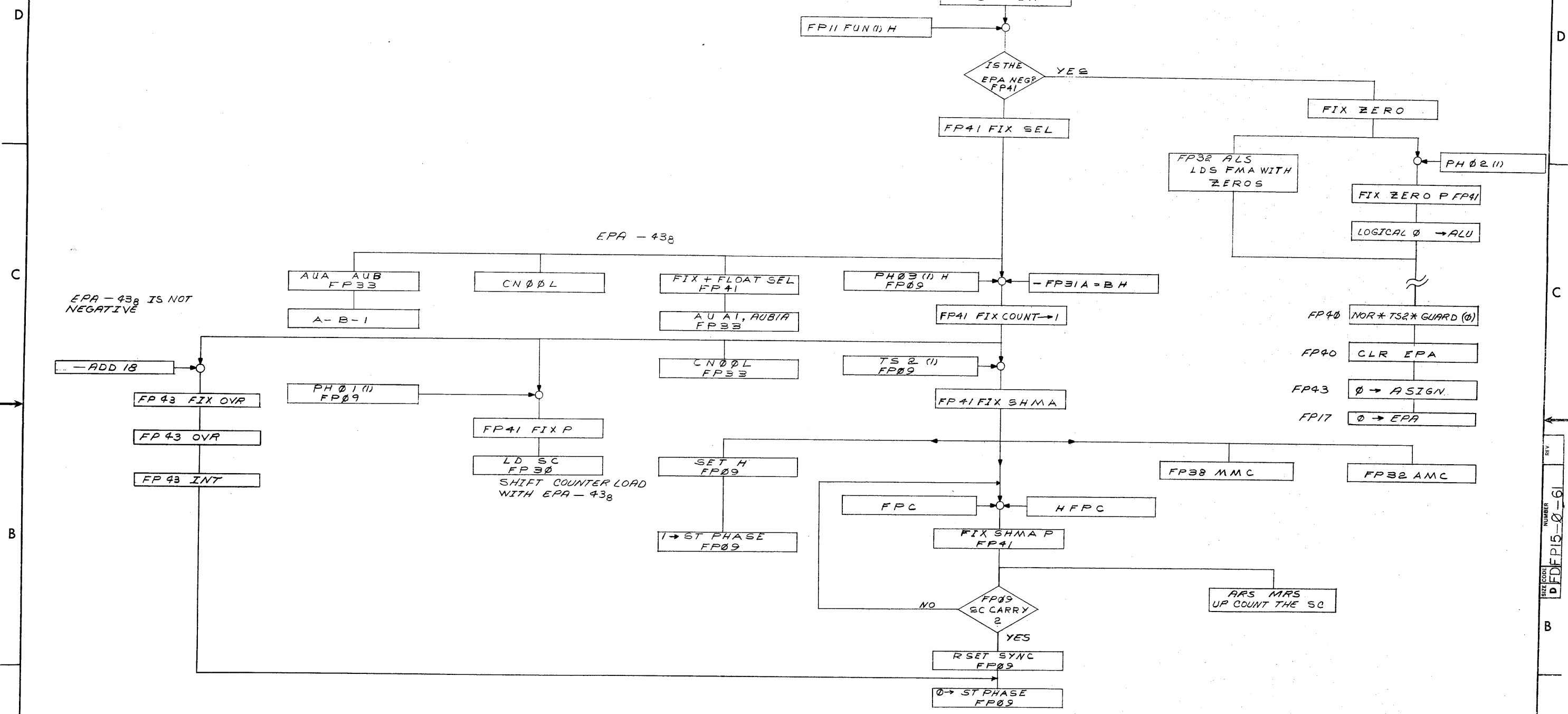


REV	CHANGE NO.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. G. Wilson DATE 3/24/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	CHKD. L. P. H. H. S. DATE 3/14/71	TITLE FLOAT, SWAP AND ASIGN CONTROL	
.XXX = .005	±0° 30'	ENG. C. J. King DATE 3/14/71	REV.	
.XX = .02		PROJ. ENG. J. C. H. S. DATE 3/14/71	SIZE CODE D F D	
.X = .1		REDD. J. C. H. S. DATE 3/14/71	NUMBER FP15-0-60	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.		
MATERIAL		SCALE		
FINISH		SHEET OF		
		DIST.		

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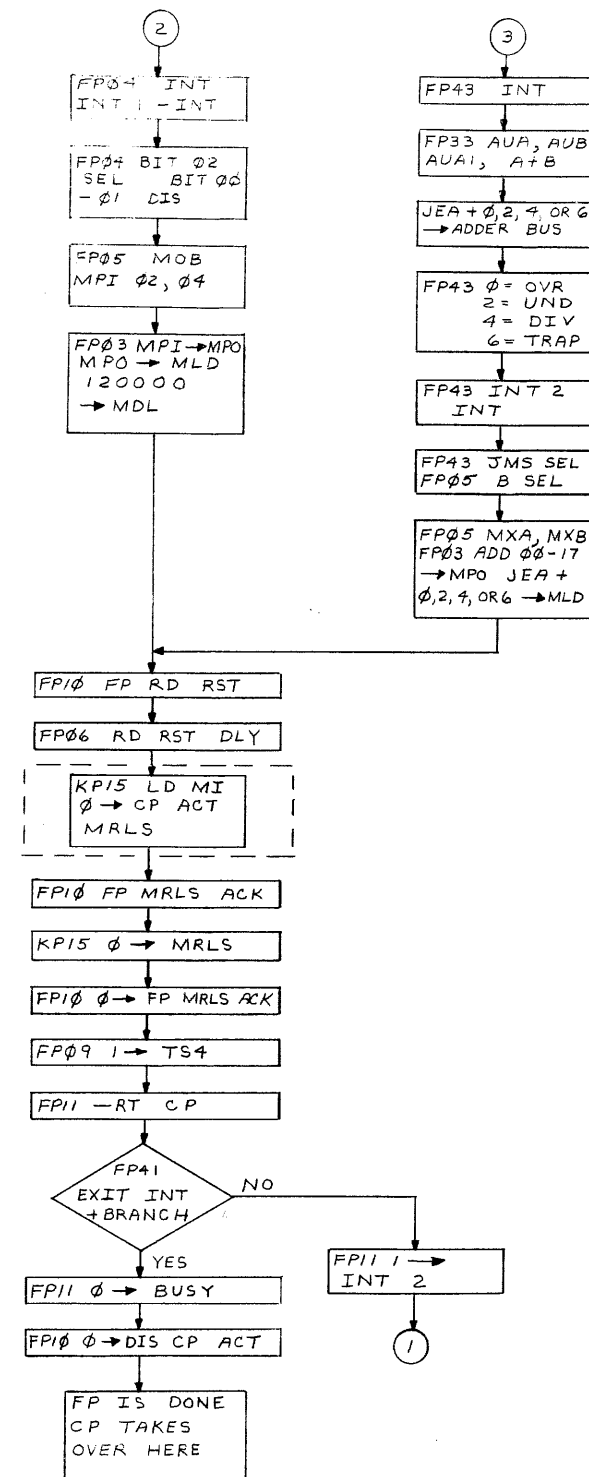
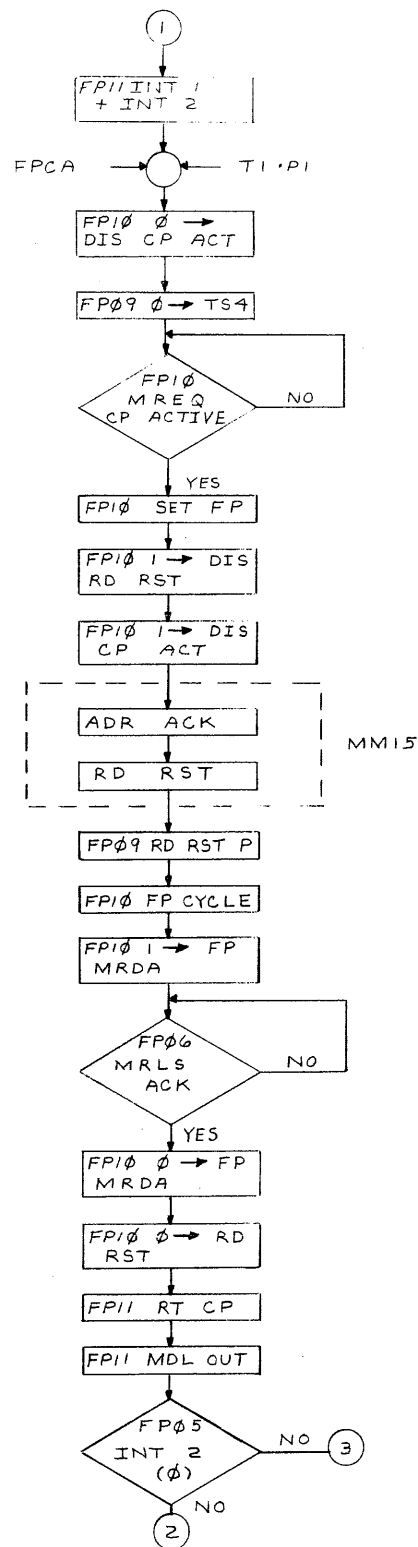
19-8-91 02



FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>M. Quinn</i>	DATE <i>4-20-71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
		CHK'D <i>L.P. Holmes</i>	DATE <i>5/14/71</i>		
DECIMALS .XXX = .005 .XX = .02 .X = .1		ENG. <i>Col. K.</i>	DATE <i>5/14/71</i>		
ANGLES ±0° 30'		PROJ. ENG. <i>J. Clever</i>	DATE <i>5/14/71</i>		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. <i>W.D. Dene</i>	DATE <i>5/14/71</i>	TITLE FIX FLOW	
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE NUMBER REV.	
FINISH		SCALE NONE		DFD FPI5-0-61	
SHEET 1 OF 1		DIST.			

REV.	CHANGE NO.	REVISIONS
CHK		

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REV 2
NUMBER 1
SIZE CODE 13/15
DIFDFP15-0-62

REV 2
NUMBER 1
SIZE CODE 13/15
DIFDFP15-0-62

REV	CHANGE NO.
1	1

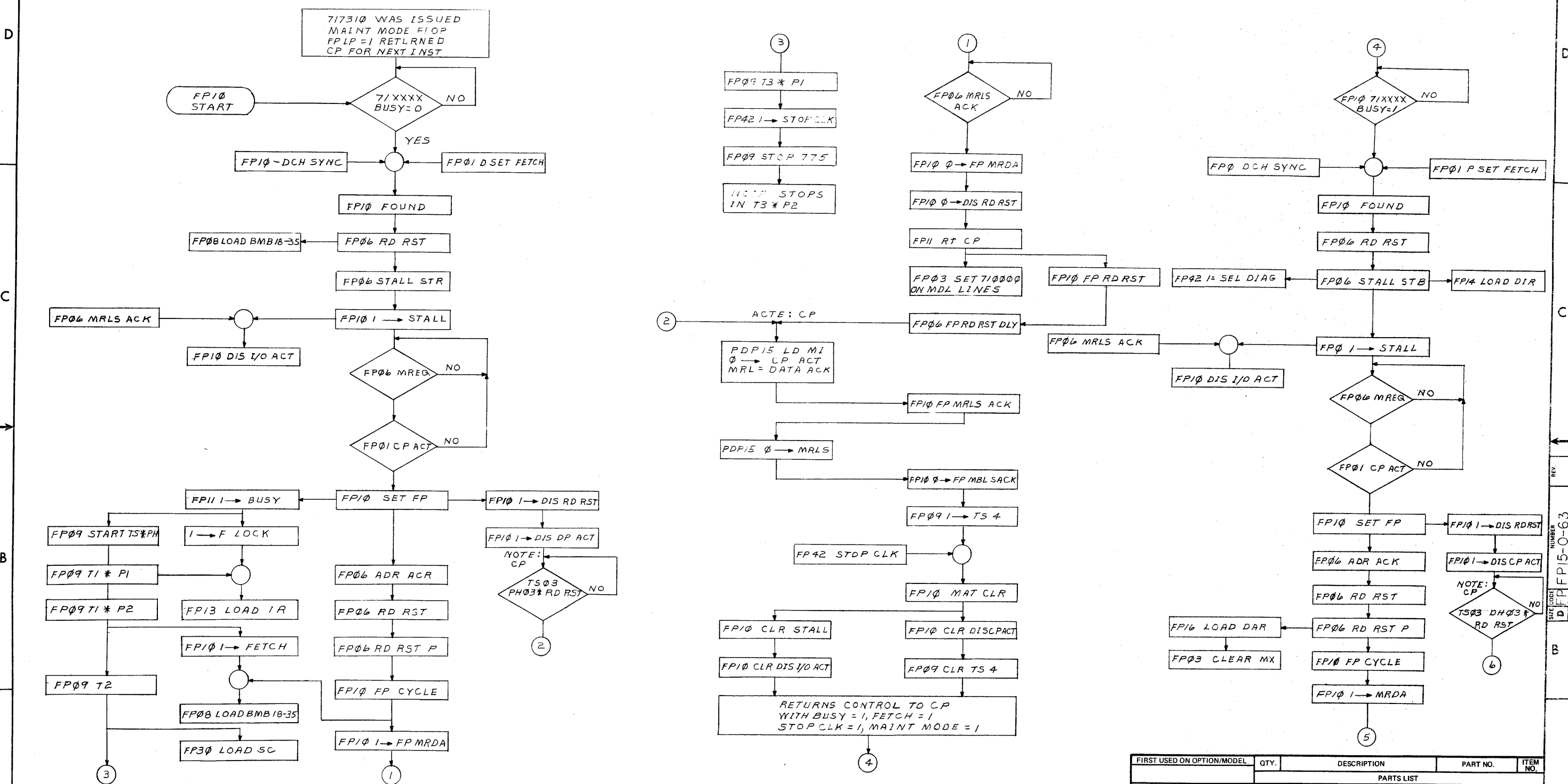
DEC FORM NO
DRD 1024

UNLESS OTHERWISE SPECIFIED		DRN	DATE	3/21/71
UNLESS OTHERWISE SPECIFIED		CHK'D	DATE	3/14/71
DIMENSION IN INCHES		ENG	DATE	3/14/71
TOLERANCES		PROJ ENG	DATE	3/14/71
DECIMALS FRACTIONS ANGLES		PROJ	DATE	3/14/71
= .005 = 1/64 = 0°30'				
FINAL SURFACE QUALITY				
REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL		FIRST USED ON		
FINISH		SCALE		
SHEET		OF		
DIST.		SIZE CODE NUMBER REV.		
		DIFDFP15-0-62		

digital EQUIPMENT CORPORATION
NATWAD, MASSACHUSETTS

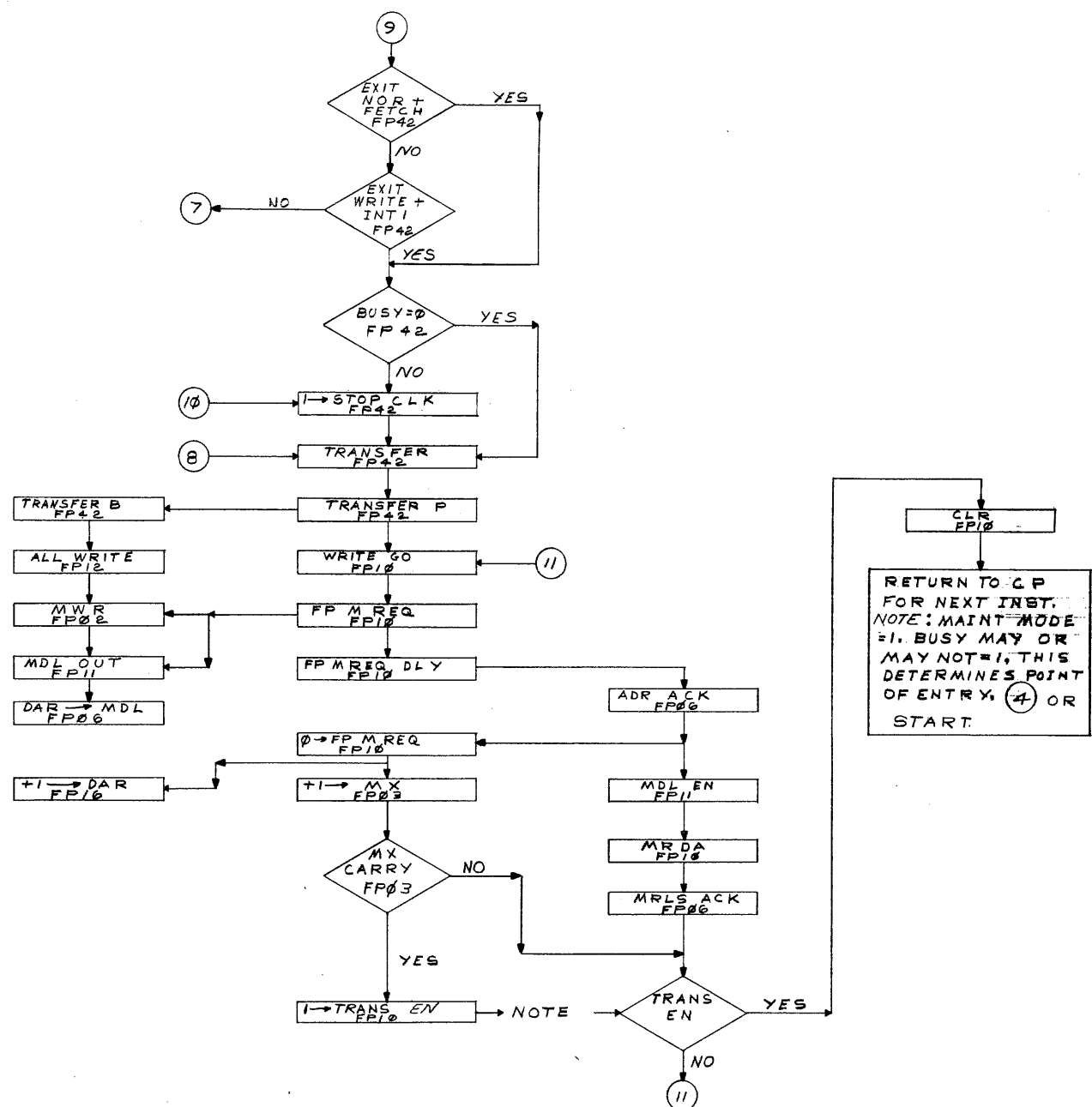
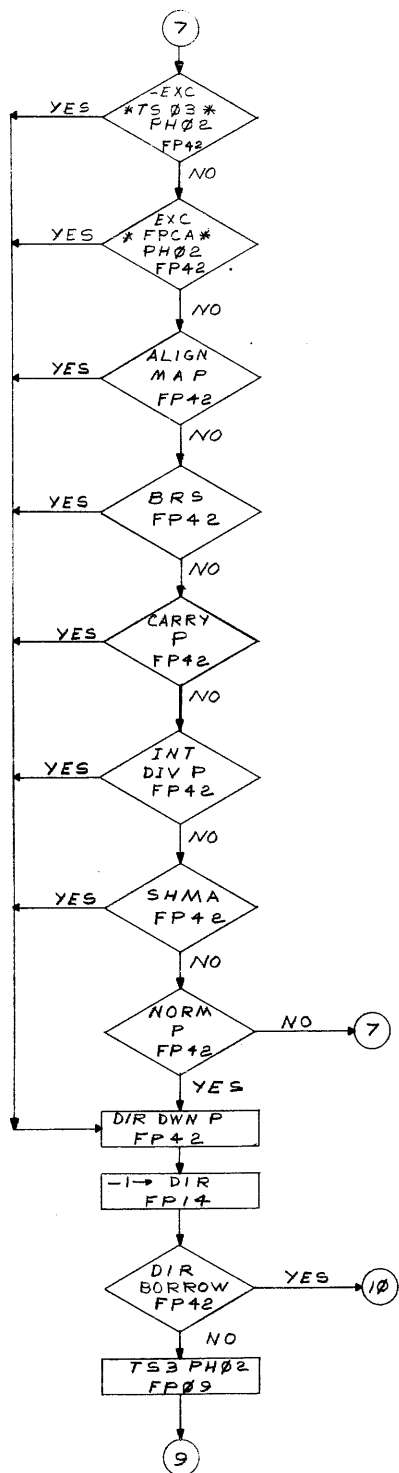
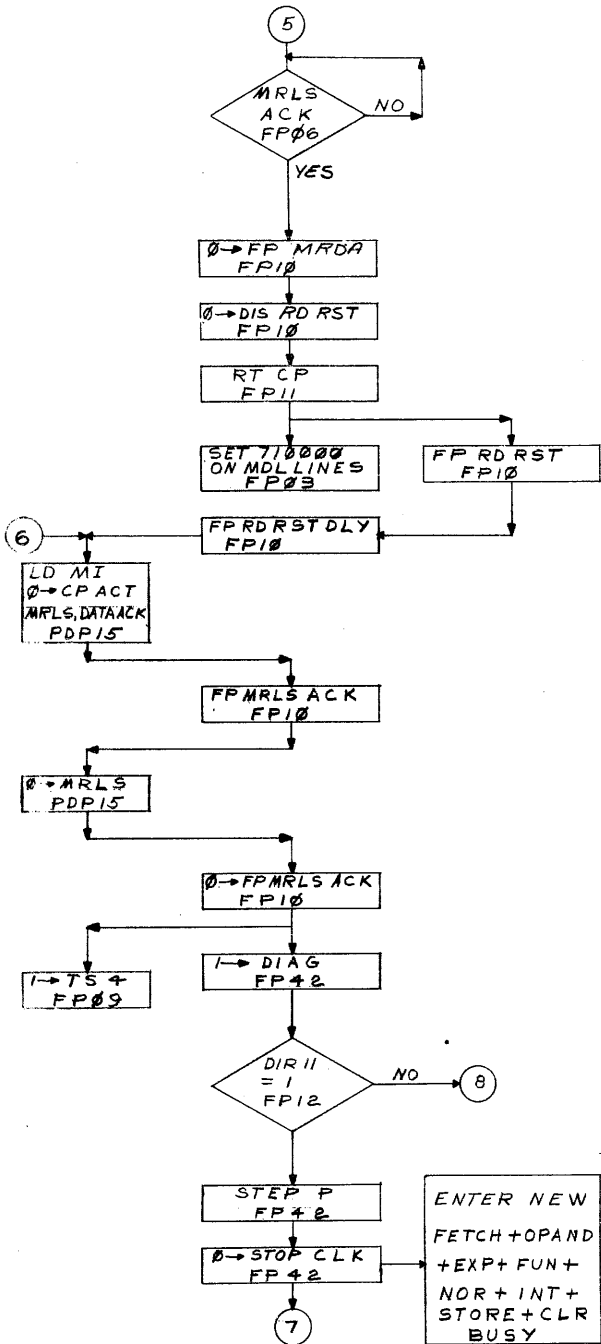
INTERRUPT
FLOW

A |



FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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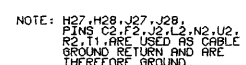
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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRM M-6mm	DATE 4-16-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	CHK'D L.H.H. 4/16/71	DATE 5/14/71	TITLE MAINT FLOW 2	
ANGLES	ENG'D K. King	DATE 5/14/71	REV.	
.XXX = .005	PROJ. ENG. J. D. Dwyer	DATE 5/14/71	SIZE CODE DFD FPI5-0-64	
.XX = .02	DATE 5/14/71	NUMBER		
.X = .1	DATE 5/14/71	REV.		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	DATE 5/14/71	SHEET OF		
MATERIAL	NEXT HIGHER ASSY.	SCALE NONE		
FINISH	DATE	DIST.		

902. 902 902 902

UNLESS OTHERWISE SPECIFIED		DRN K FRENCH		DATE 5/14/71		 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		CHKD B TRIVILAND		DATE 5/14/71			
TOLERANCES		ENG E KING		DATE 5/14/71		TITLE MEMORY INTERFACE CABLES	
DECIMALS FRACTIONS ANGLES ± .005 ± 1/64 ± 0°30'		PROJ. ENG. J ELSBREE		DATE 5/14/71			
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		PROD. D DESORCE		DATE 5/14/71			
MATERIAL // //		FIRST USED ON PLATE		SIZE CODE			
FINISH // //		SCALE NONE		D BS		FP15-0-01	D
		SHEET OF		DIST.			

[illegible]

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP15		PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. K FRENCH CHK'D. G HAYLAND ENG. F KING PROJ. ENG. J L BRPCE PROD. D DROME	DATE 5/14/71 DATE 5/14/71 DATE 5/14/71 DATE 5/14/71 DATE 5/14/71 DATE 5/14/71	 DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	TITLE MEMORY DRIVERS			
.XXX = .005 .XX = .02 .X = .1	±0° 30'				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓					
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
				D BS	FP15-0-02
FINISH		SCALE NONE		REV.	
		SHEET 1 OF 1		A	
		DIST.			

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FP11 BUSY (1)H S2
FP32 ASIGN (1)H T2
FP23 ADD 18 H M1
FP32 ASIGN (1)H N1
FP23 FMO 18 (1)H P1
FP32 ASIGN (1)H R1
FP23 FMB 18 (1)H S1
FP32 ASIGN (1)H L1
FP18 EPB 00 (1)H F1
FP23 FMA 18 (1)H H1
FP32 ASIGN (1)H J1
FP17 EPA 00 (1)H K1
FP30 SC 12 (1)H M2
FP08 BMB 18 (1)H L2
FP07 BMB 00 (1)H K2
FP04 MPI 00 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 FETCH (5)H S2
FP40 GUARD (1)H T2
FP23 ADD 19 H M1
FP19 ADD 31 H N1
FP23 FMO 19 (1)H P1
FP23 FMB 19 (1)H S1
FP19 FMA 21 (1)H R1
FP18 EPB 01 (1)H F1
FP23 FMA 19 (1)H H1
FP19 FMA 01 (1)H J1
FP17 EPA 01 (1)H K1
FP30 SC 13 (1)H M2
FP08 BMB 19 (1)H L2
FP07 BMB 01 (1)H K2
FP04 MPI 01 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 JPNV (4)H S2
FP24 ADD 20 H T2
FP14 ADD 02 H M1
FP24 FMO 22 (1)H P1
FP14 FMA 23 (1)H R1
FP19 FMA 03 (1)H J1
FP18 EPB 02 (1)H F1
FP24 FMA 21 (1)H H1
FP19 FMA 03 (1)H J1
FP17 EPA 03 (1)H K1
FP30 SC 15 (1)H M2
FP08 BMB 20 (1)H L2
FP07 BMB 02 (1)H K2
FP04 MPI 02 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 EXP (3)H S2
FP29 JEA 03 (1)H T2
FP24 ADD 21 H M1
FP19 ADD 24 H N1
FP24 FMO 21 (1)H P1
FP19 FMA 03 (1)H J1
FP18 EPB 03 (1)H F1
FP24 FMA 21 (1)H H1
FP19 FMA 03 (1)H J1
FP17 EPA 03 (1)H K1
FP30 SC 15 (1)H M2
FP08 BMB 21 (1)H L2
FP07 BMB 03 (1)H K2
FP04 MPI 03 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 FWH (3)H S2
FP29 JEA 04 (1)H T2
FP24 ADD 22 H M1
FP22 ADD 34 H N1
FP24 FMO 22 (1)H P1
FP24 FMA 23 (1)H R1
FP19 FMA 03 (1)H J1
FP18 EPB 04 (1)H F1
FP24 FMA 22 (1)H H1
FP23 FMA 04 (1)H J1
FP17 EPA 04 (1)H K1
FP30 SC 16 (1)H M2
FP08 BMB 22 (1)H L2
FP07 BMB 04 (1)H K2
FP04 MPI 04 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 HGR (5)H S2
FP29 JEA 05 (1)H T2
FP24 ADD 23 H M1
FP20 ADD 05 H N1
FP24 FMO 23 (1)H P1
FP24 FMA 23 (1)H R1
FP24 FMA 23 (1)H S1
FP18 EPB 05 (1)H F1
FP24 FMA 23 (1)H H1
FP23 FMA 05 (1)H J1
FP17 EPA 05 (1)H K1
FP30 SC 17 (1)H M2
FP08 BMB 23 (1)H L2
FP07 BMB 05 (1)H K2
FP04 MPI 05 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 WRITE (1)H S2
FP29 JEA 06 (1)H T2
FP25 ADD 24 H M1
FP20 ADD 06 H N1
FP25 FMO 24 (1)H P1
FP25 FMA 24 (1)H R1
FP25 FMA 24 (1)H S1
FP20 FMB 06 (1)H L1
FP18 EPB 06 (1)H F1
FP25 FMA 24 (1)H H1
FP20 FMA 06 (1)H J1
FP27 EPA 06 (1)H K1
FP13 IR 06 (1)H M2
FP08 BMB 24 (1)H L2
FP07 BMB 06 (1)H K2
FP04 MPI 06 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 INT (1)H S2
FP29 JEA 07 (1)H T2
FP25 ADD 25 H M1
FP20 ADD 07 H N1
FP25 FMO 25 (1)H P1
FP25 FMA 25 (1)H R1
FP25 FMA 25 (1)H S1
FP20 FMB 07 (1)H L1
FP18 EPB 07 (1)H F1
FP25 FMA 25 (1)H H1
FP20 FMA 07 (1)H J1
FP27 EPA 07 (1)H K1
FP13 IR 07 (1)H M2
FP08 BMB 25 (1)H L2
FP07 BMB 07 (1)H K2
FP04 MPI 07 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP11 INT 2 (1)H S2
FP29 JEA 08 (1)H T2
FP25 ADD 26 H M1
FP21 ADD 08 H N1
FP25 FMO 26 (1)H P1
FP21 FMA 09 (1)H R1
FP25 FMA 26 (1)H S1
FP21 FMA 09 (1)H J1
FP18 EPB 08 (1)H F1
FP25 FMA 26 (1)H H1
FP21 FMA 09 (1)H J1
FP17 EPA 08 (1)H K1
FP13 IR 08 (1)H M2
FP08 BMB 26 (1)H L2
FP07 BMB 08 (1)H K2
FP04 MPI 08 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP09 TS 01 (1)H S2
FP29 JEA 09 (1)H T2
FP25 ADD 27 H M1
FP21 ADD 09 H N1
FP25 FMO 27 (1)H P1
FP21 FMA 09 (1)H R1
FP25 FMA 27 (1)H S1
FP21 FMA 09 (1)H J1
FP18 EPB 09 (1)H F1
FP25 FMA 27 (1)H H1
FP21 FMA 09 (1)H J1
FP17 EPA 09 (1)H K1
FP13 IR 09 (1)H M2
FP08 BMB 27 (1)H L2
FP07 BMB 09 (1)H K2
FP04 MPI 09 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP09 TS 02 (1)H S2
FP29 JEA 10 (1)H T2
FP26 ADD 28 H M1
FP21 ADD 10 H N1
FP26 FMO 28 (1)H P1
FP21 FMA 10 (1)H R1
FP26 FMA 28 (1)H S1
FP21 FMA 10 (1)H J1
FP18 EPB 10 (1)H F1
FP26 FMA 28 (1)H H1
FP21 FMA 10 (1)H J1
FP17 EPA 10 (1)H K1
FP13 IR 10 (1)H M2
FP08 BMB 28 (1)H L2
FP07 BMB 10 (1)H K2
FP04 MPI 10 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP09 TS 03 (1)H S2
FP29 JEA 11 (1)H T2
FP26 ADD 29 H M1
FP21 ADD 11 H N1
FP26 FMO 29 (1)H P1
FP21 FMA 11 (1)H R1
FP26 FMA 29 (1)H S1
FP21 FMA 11 (1)H J1
FP18 EPB 11 (1)H F1
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FP21 FMA 11 (1)H J1
FP17 EPA 11 (1)H K1
FP13 IR 11 (1)H M2
FP08 BMB 29 (1)H L2
FP07 BMB 11 (1)H K2
FP04 MPI 11 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP14 DIR 12 (1)H S2
FP29 JEA 12 (1)H T2
FP26 ADD 30 H M1
FP22 ADD 12 H N1
FP26 FMO 30 (1)H P1
FP22 FMA 12 (1)H R1
FP26 FMA 30 (1)H S1
FP22 FMA 12 (1)H L1
FP18 EPB 12 (1)H F1
FP26 FMA 30 (1)H H1
FP22 FMA 12 (1)H J1
FP17 EPA 12 (1)H K1
FP13 IR 12 (1)H M2
FP08 BMB 30 (1)H L2
FP07 BMB 12 (1)H K2
FP04 MPI 12 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP14 DIR 13 (1)H S2
FP29 JEA 13 (1)H T2
FP26 ADD 31 H M1
FP22 ADD 13 H N1
FP26 FMO 31 (1)H P1
FP22 FMA 13 (1)H R1
FP26 FMA 31 (1)H S1
FP22 FMA 13 (1)H L1
FP18 EPB 13 (1)H F1
FP26 FMA 31 (1)H H1
FP22 FMA 13 (1)H J1
FP17 EPA 13 (1)H K1
FP13 IR 13 (1)H M2
FP08 BMB 31 (1)H L2
FP07 BMB 13 (1)H K2
FP04 MPI 13 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
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FP14 DIR 14 (1)H S2
FP29 JEA 14 (1)H T2
FP27 ADD 32 H M1
FP22 ADD 14 H N1
FP27 FMO 32 (1)H P1
FP22 FMA 14 (1)H R1
FP27 FMA 32 (1)H S1
FP22 FMA 14 (1)H L1
FP18 EPB 14 (1)H F1
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FP08 BMB 32 (1)H L2
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FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP14 DIR 15 (1)H S2
FP29 JEA 15 (1)H T2
FP27 ADD 33 H M1
FP22 ADD 15 H N1
FP27 FMO 33 (1)H P1
FP22 FMA 15 (1)H R1
FP27 FMA 33 (1)H S1
FP22 FMA 15 (1)H L1
FP18 EPB 15 (1)H F1
FP27 FMA 33 (1)H H1
FP22 FMA 15 (1)H J1
FP17 EPA 15 (1)H K1
FP13 IR 15 (1)H M2
FP08 BMB 33 (1)H L2
FP07 BMB 15 (1)H K2
FP04 MPI 15 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

FP14 DIR 16 (1)H S2
FP29 JEA 16 (1)H T2
FP27 ADD 34 H M1
FP23 ADD 16 H N1
FP27 FMO 34 (1)H P1
FP23 FMA 16 (1)H R1
FP27 FMA 34 (1)H S1
FP23 FMA 16 (1)H L1
FP18 EPB 16 (1)H F1
FP27 FMA 34 (1)H H1
FP23 FMA 16 (1)H J1
FP17 EPA 16 (1)H K1
FP13 IR 16 (1)H M2
FP08 BMB 34 (1)H L2
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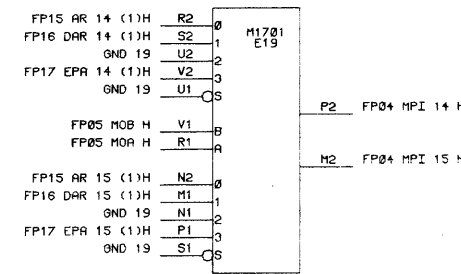
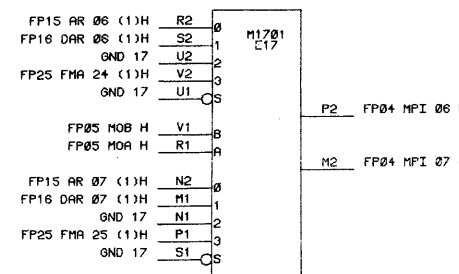
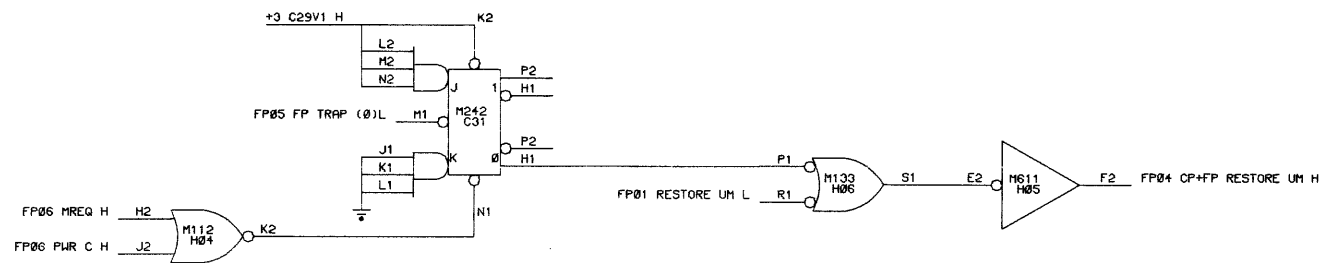
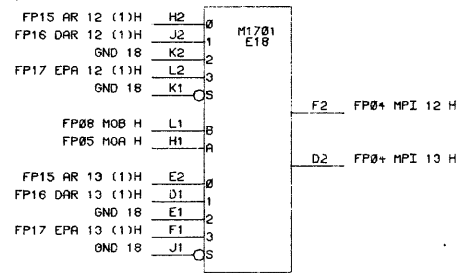
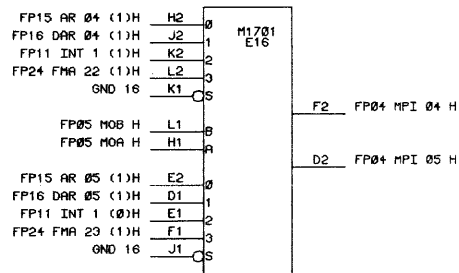
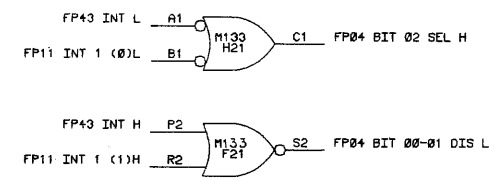
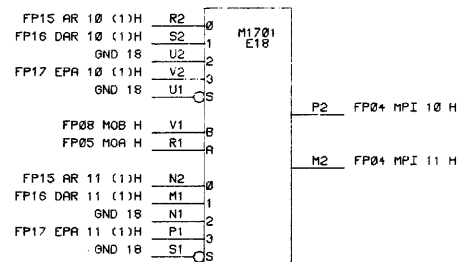
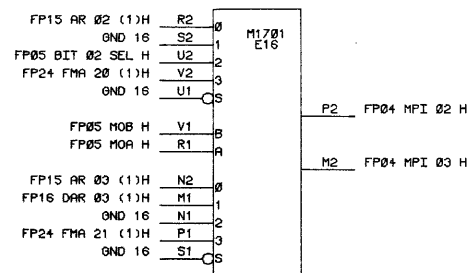
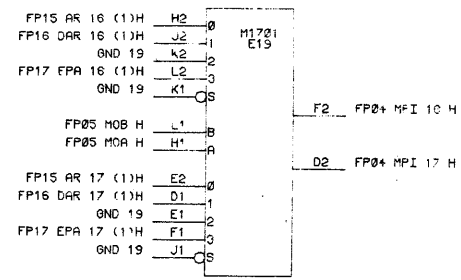
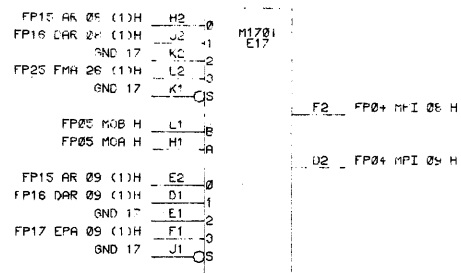
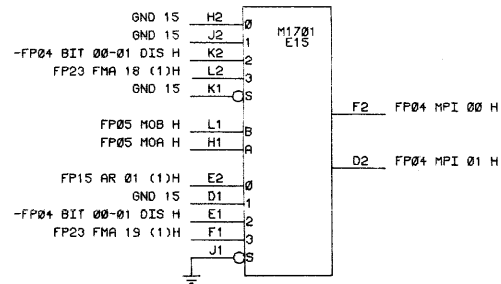
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FP27 FMA 35 (1)H S1
FP23 FMA 17 (1)H L1
FP18 EPB 17 (1)H F1
FP27 FMA 35 (1)H H1
FP23 FMA 17 (1)H J1
FP17 EPA 17 (1)H K1
FP13 IR 17 (1)H M2
FP08 BMB 35 (1)H L2
FP07 BMB 17 (1)H K2
FP04 MPI 17 H E2
FP05 MXA L F2
FP05 MXB L H2
FP05 MXC L J2
FP05 MXD L N2

REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN. R. Friedman	DATE 5-14-71
CHK'D. J. H. H. H.	DATE 5-14-71
ENG. C. H. H.	DATE 5-14-71
PROJ. ENG. H. H. H.	DATE 5-14-71
PROG. H. H. H.	DATE 5-14-71
FIRST USED ON PDP15	
SCALE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TITLE MULTIPLEXER OUTPUT (MPO)	
SIZE CODE D BS	NUMBER FP15-0-03
DIST.	REV. 00

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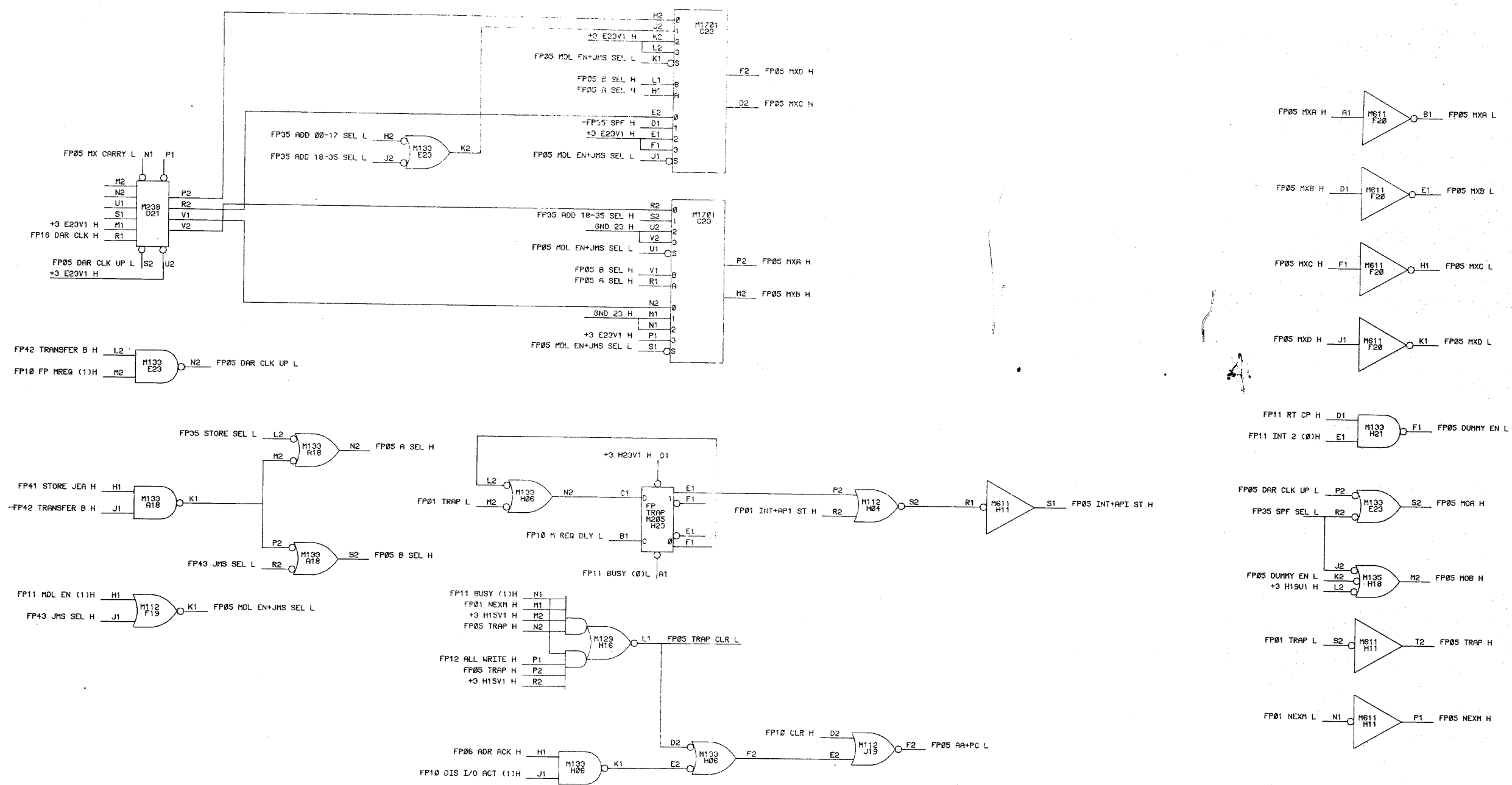


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-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRAWN R. P. P. P.	DATE 5/14/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D M. J. J. J.	DATE 5/14/71	
ENG C. J. J. J.	DATE 5/14/71	
PROJ. ENG C. J. J. J.	DATE 5/14/71	
PROD. C. J. J. J.	DATE 5/14/71	
FIRST USED ON PDP15		TITLE MULTIPLEXOR INPUTS (MPI)
SCALE SHEET 1 OF 1	SIZE/CODE D BS	NUMBER FP15-0-04
DIST.		REV. 00

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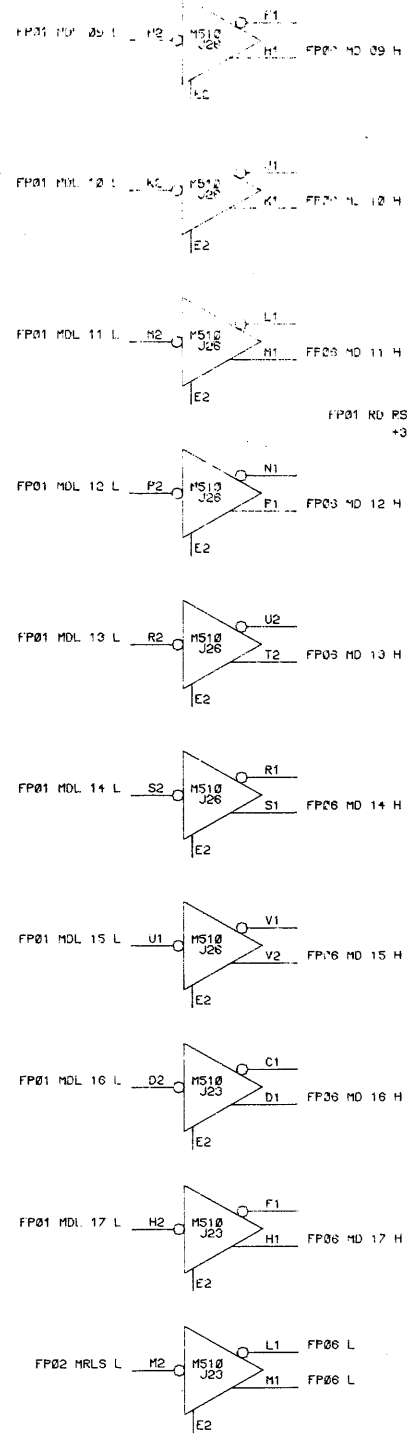
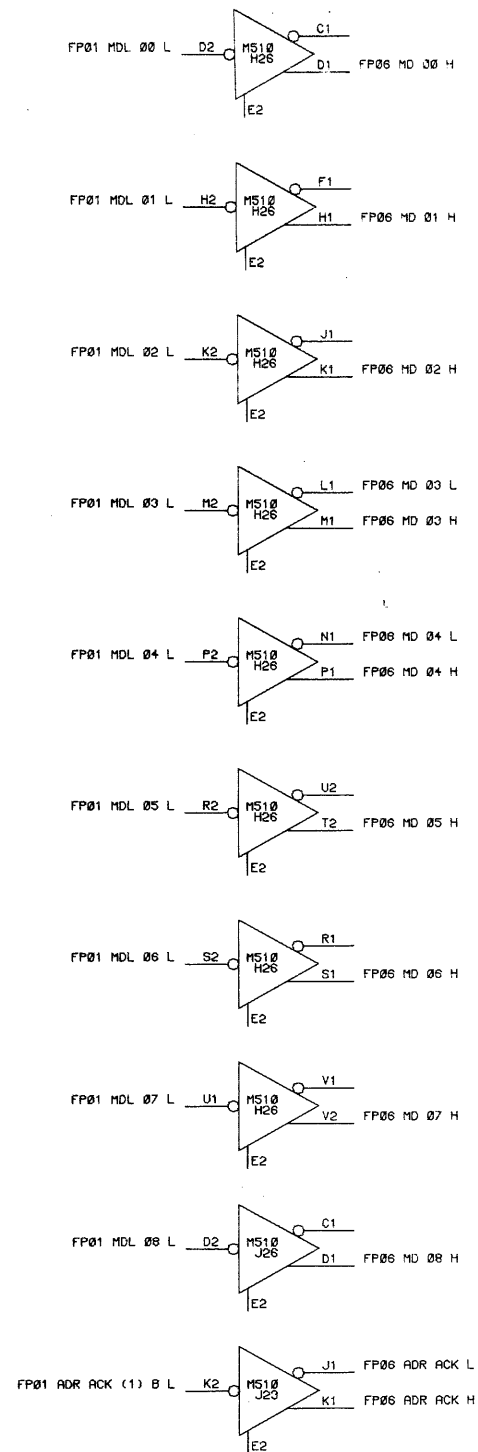


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CHK.	CHANGE NO.	REV.

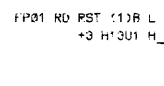
PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

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CHK'D.	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROJ. MGR.	DATE	
FIRST USED ON		MULTIPLEXER CONTROL
PDP15		
SCALE		
SHEET 1 OF 1	DIST.	REV. 00

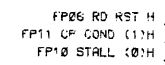
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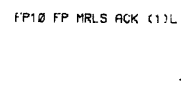
FP01 RD PST (1) B L
+3 H'3U1 H



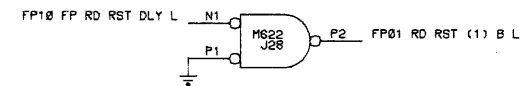
FP06 RD RST H
FP11 CP COND (1) H
FP10 STALL (0) H



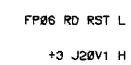
FP10 FP MRLS ACK (1) L



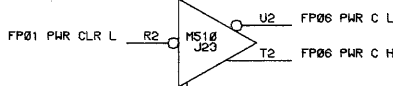
FP10 FP RD RST DLY L



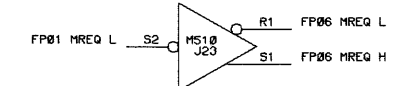
FP06 RD RST L
+3 J20V1 H



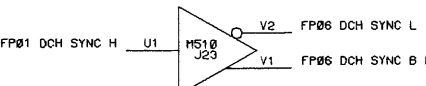
FP01 PWR CLR L



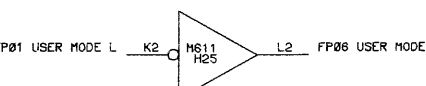
FP01 MREQ L



FP01 DCH SYNC H



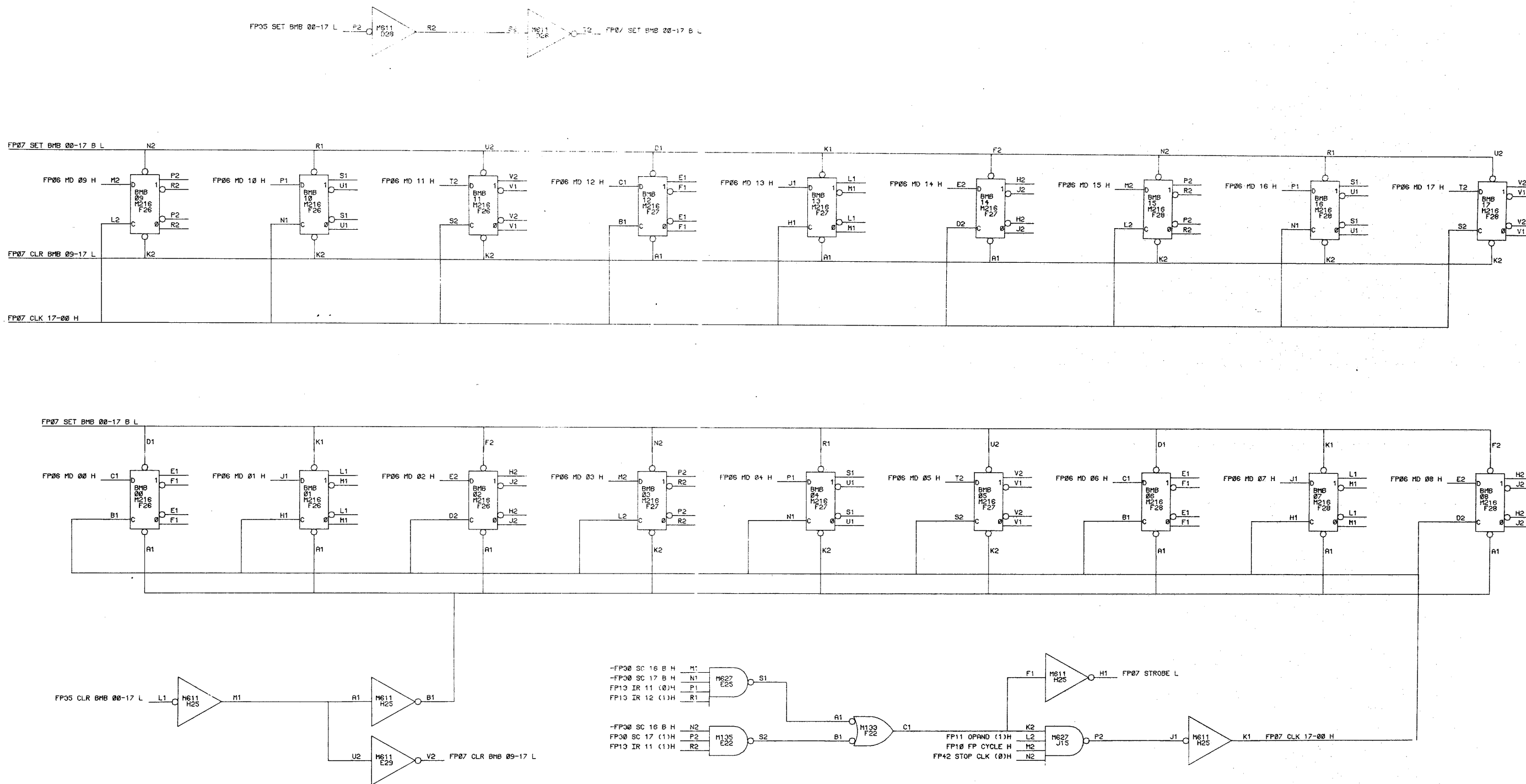
FP01 USER MODE L



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DRN. 5-14-71	DATE 5-14-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. 5-14-71	DATE 5-14-71	
ENG. 5-14-71	DATE 5-14-71	
PROJ. ENG. 5-14-71	DATE 5-14-71	
PROJ. MGR. 5-14-71	DATE 5-14-71	
FIRST USED ON PDP15		TITLE MEMORY RECEIVERS
SCALE SHEET 1 OF 1	SIZE/CODE D BS	NUMBER FP15-0-06
		REV. 00

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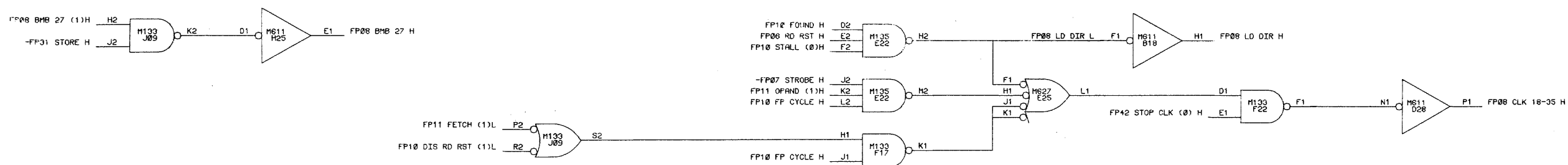
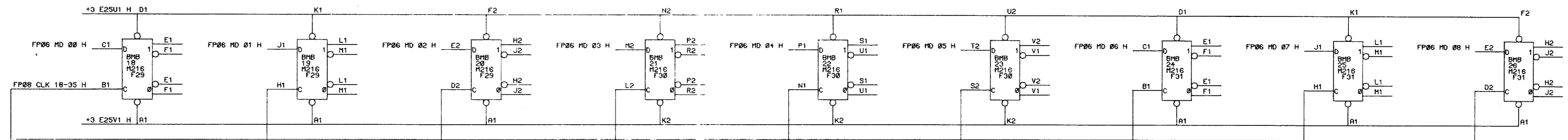
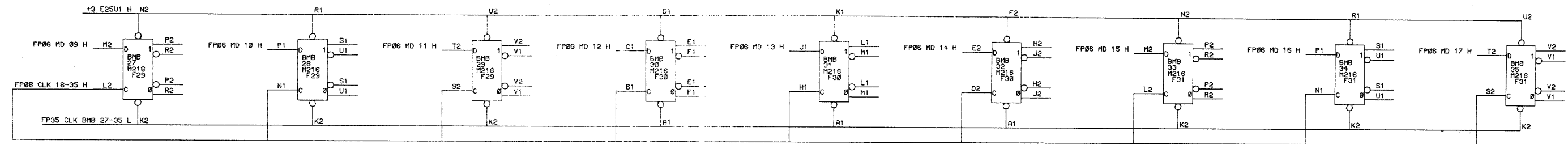


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DRN	DATE	digital CORPORATION MAYNARD, MASSACHUSETTS		
CHK'D	DATE			
ENG	DATE			
PROJ. ENG	DATE			
DESIGN	DATE			
FIRST USED ON		TITLE		
PDP15		BUFFERED MEM BITS 00-17		
SCALE		SIZE CODE	NUMBER	REV.
SHEET 1 OF 1		D BS	FP15-0-07	00

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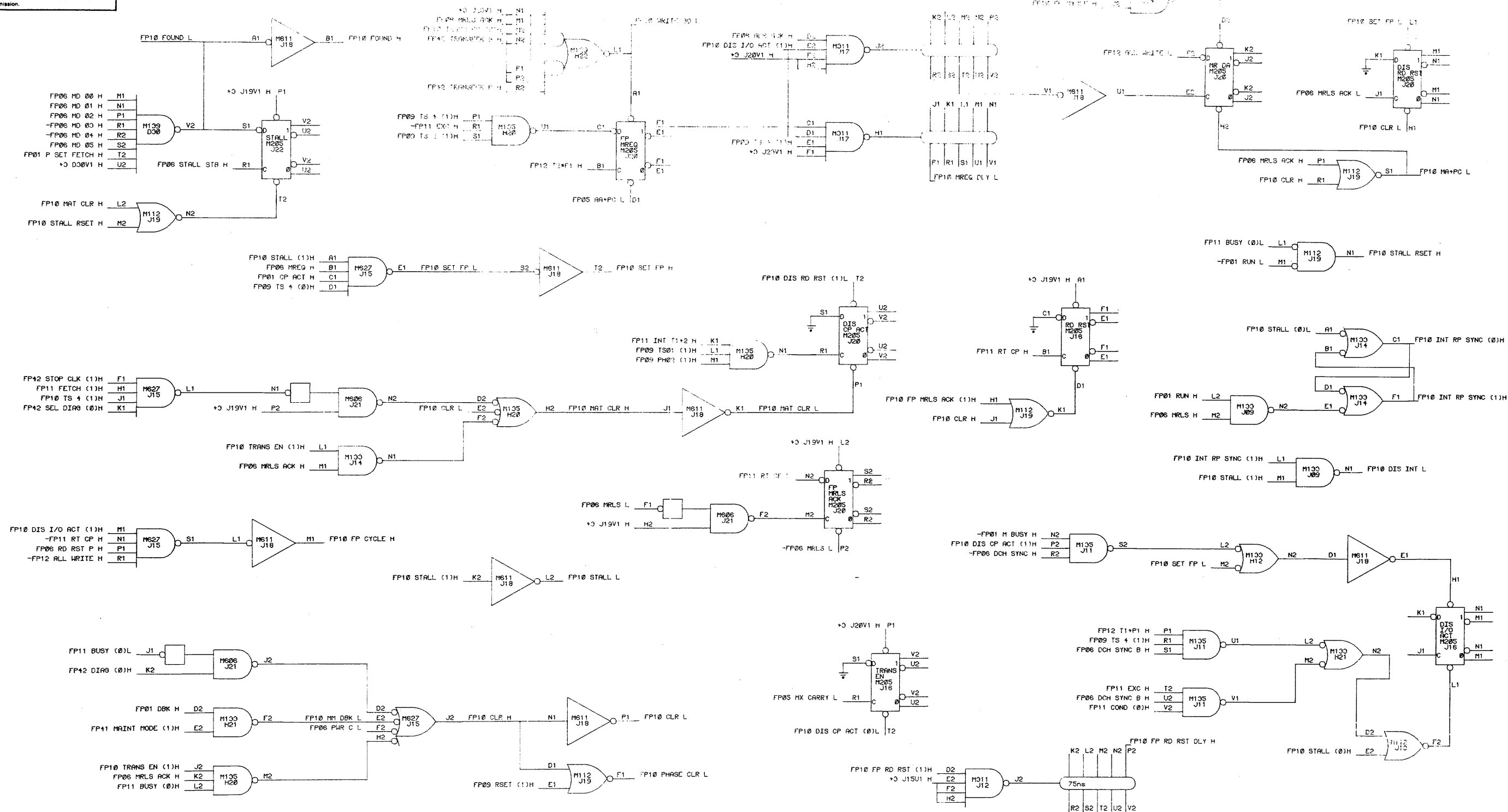


REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-	
DRN P. Frisch	DATE 5-14-71
CHKD. D. D. D.	DATE 5-14-71
ENG. C. H. H.	DATE 5-14-71
PROJ. ENG. C. H. H.	DATE 5-14-71
PROB. C. H. H.	DATE 5-14-71
FIRST USED ON PDP15	
SCALE SHEET 1 OF 1	TITLE BUFFERED MEM BITS 18-35
SIZE CODE 0 0S	NUMBER FP15-0-08
DIST.	REV. 00

[illegible]

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REVISIONS			
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GH	FP15-00000		A
	R SOFKA 7/15/71		
	E KING 7/16/71		
G.H.	FP15-00004		B
	N COTE 8/20/71		
	ED KING 8/26/71		
W.H.	FP15-00007		C
	K. French 11/2/72		
	GH R 11/14/72		

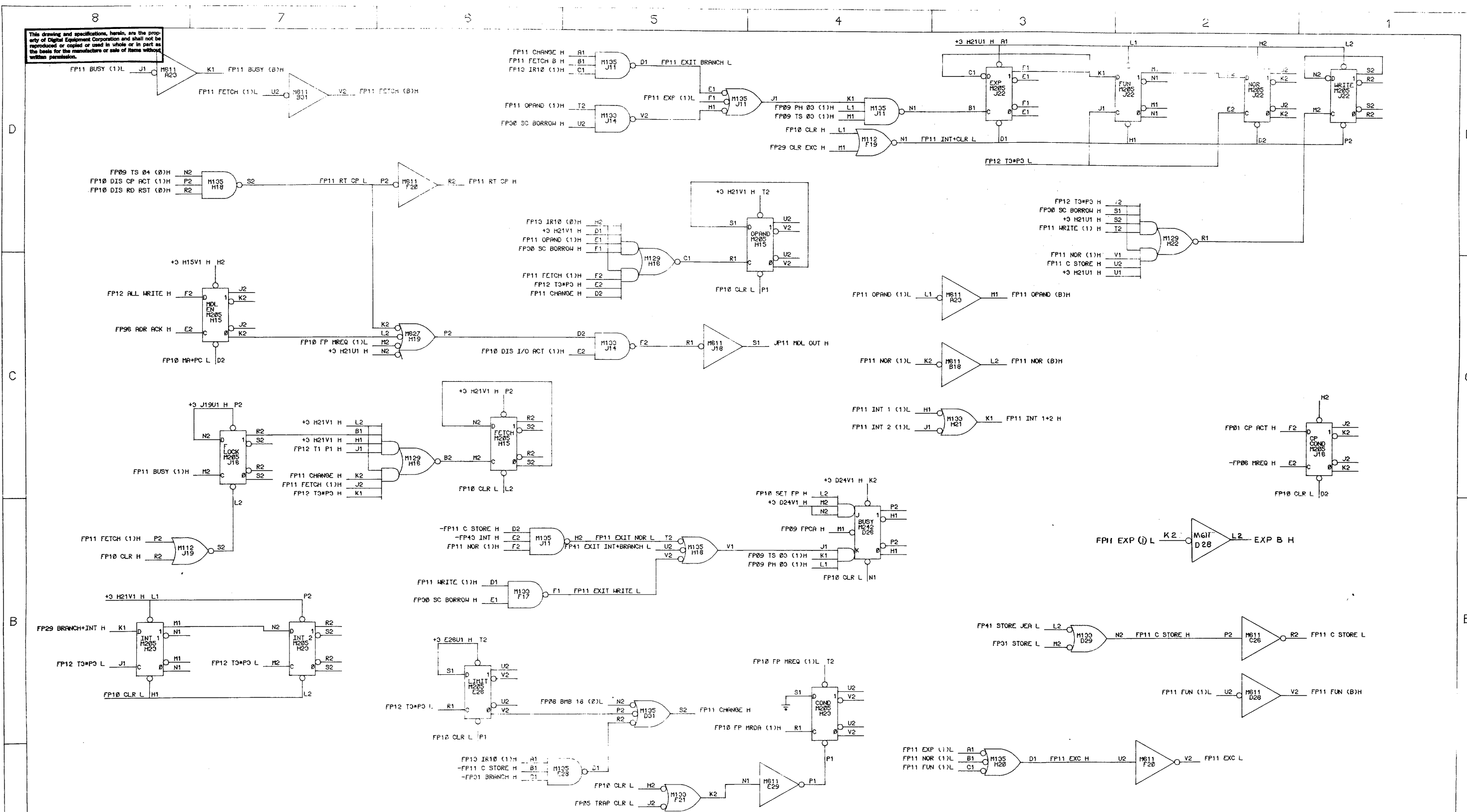
D.R.N. K FRENCH	DATE 5/14/71
CHK'D G HAVILAND	DATE 5/14/71
ENG. E KING	DATE 5/14/71
PROJ. ENG. J ELSBREE	DATE 5/14/71
PROD. D DEROME	DATE 5/14/71
FIRST USED ON PDP-10	
SCALE NONE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE	
MEMORY INTERFACE CTRL 1	

SIZE CODE	NUMBER	REV.
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DIST.		

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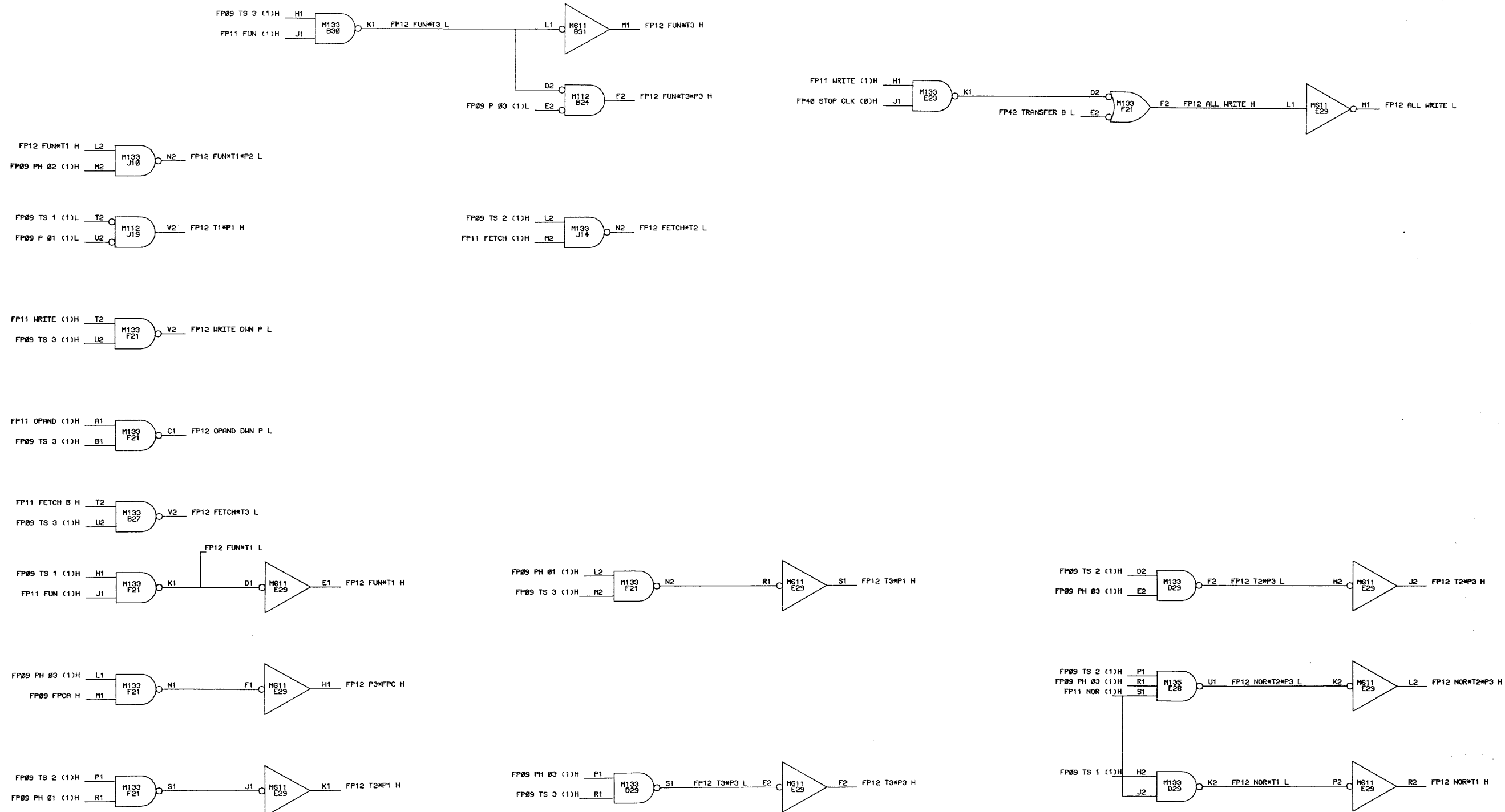


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3	FP15-00024	C
4	FP15-00034	D
5	FP15-00044	E
6	FP15-00054	F
7	FP15-00064	G
8	FP15-00074	H
9	FP15-00084	I
10	FP15-00094	J
11	FP15-00104	K
12	FP15-00114	L
13	FP15-00124	M
14	FP15-00134	N
15	FP15-00144	O
16	FP15-00154	P
17	FP15-00164	Q
18	FP15-00174	R
19	FP15-00184	S
20	FP15-00194	T
21	FP15-00204	U
22	FP15-00214	V
23	FP15-00224	W
24	FP15-00234	X
25	FP15-00244	Y
26	FP15-00254	Z
27	FP15-00264	AA
28	FP15-00274	AB
29	FP15-00284	AC
30	FP15-00294	AD
31	FP15-00304	AE
32	FP15-00314	AF
33	FP15-00324	AG
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38	FP15-00374	AL
39	FP15-00384	AM
40	FP15-00394	AN
41	FP15-00404	AO
42	FP15-00414	AP
43	FP15-00424	AQ
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51	FP15-00504	AY
52	FP15-00514	AZ
53	FP15-00524	BA
54	FP15-00534	BB
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56	FP15-00554	BD
57	FP15-00564	BE
58	FP15-00574	BF
59	FP15-00584	BG
60	FP15-00594	BH
61	FP15-00604	BI
62	FP15-00614	BJ
63	FP15-00624	BK
64	FP15-00634	BL
65	FP15-00644	BM
66	FP15-00654	BN
67	FP15-00664	BO
68	FP15-00674	BP
69	FP15-00684	BQ
70	FP15-00694	BR
71	FP15-00704	BS
72	FP15-00714	BT
73	FP15-00724	BU
74	FP15-00734	BV
75	FP15-00744	BW
76	FP15-00754	BX
77	FP15-00764	BY
78	FP15-00774	BZ
79	FP15-00784	CA
80	FP15-00794	CB
81	FP15-00804	CC
82	FP15-00814	CD
83	FP15-00824	CE
84	FP15-00834	CF
85	FP15-00844	CG
86	FP15-00854	CH
87	FP15-00864	CI
88	FP15-00874	CJ
89	FP15-00884	CK
90	FP15-00894	CL
91	FP15-00904	CM
92	FP15-00914	CN
93	FP15-00924	CO
94	FP15-00934	CP
95	FP15-00944	CQ
96	FP15-00954	CR
97	FP15-00964	CS
98	FP15-00974	CT
99	FP15-00984	CU
100	FP15-00994	CV

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	
FIRST USED ON	DATE	TITLE
PDP15		MEMORY INTERFACE CTRL 2
SCALE	SIZE CODE	NUMBER
SHEET 1 OF 1	D BS	FP15-B-11
	DIST.	REV. B

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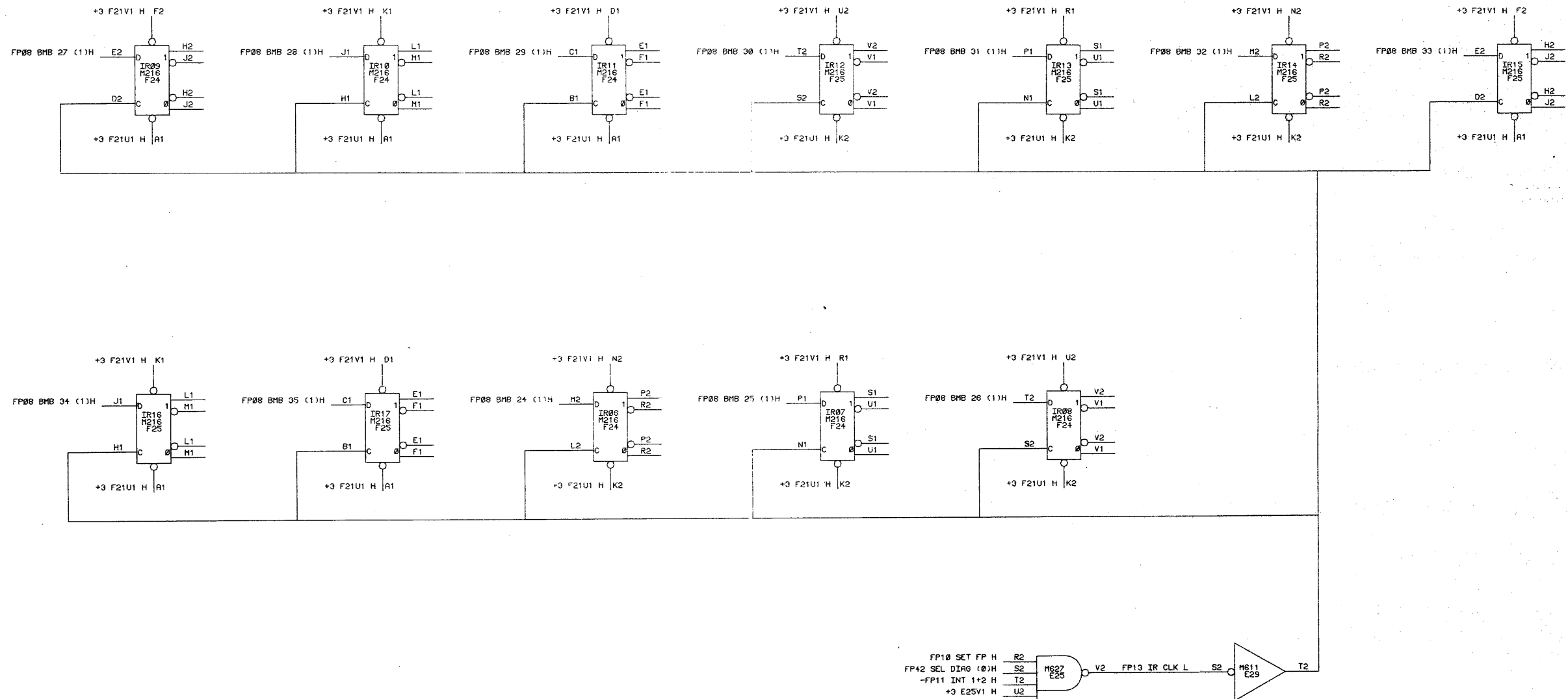
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DRN	K. French	DATE	5-11-71
CHKD	M. Napolitano	DATE	5-14-71
ENG	C. King	DATE	5-14-71
PROJ ENG	L. Lohman	DATE	5-14-71
PROD	C. D. Rane	DATE	5-14-71
FIRST USED ON	PDP15	SIZE CODE	D 8S
SCALE	1 OF 1	DIST.	
SHEET		NUMBER	FP15-0-12
		REV.	00

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
MEMORY INTERFACE
CTRL 3

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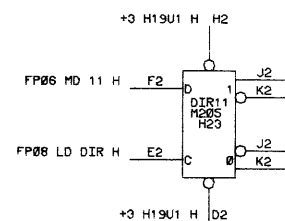
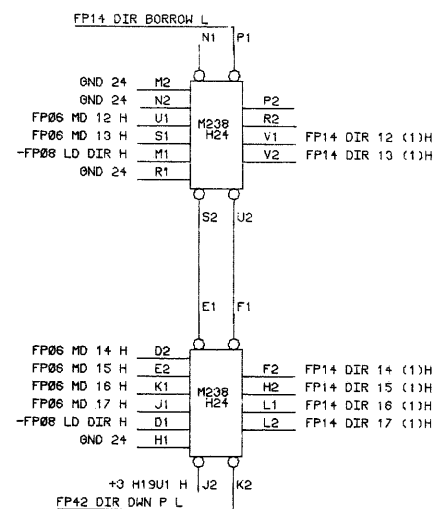


REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRN. <i>K. J. ...</i>	DATE <i>2-14-71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE INSTRUCTION REGISTER (IR)
CHK'D. <i>K. J. ...</i>	DATE <i>2-14-71</i>	
ENG. <i>K. J. ...</i>	DATE <i>3/14/71</i>	
PROJ. ENG. <i>K. J. ...</i>	DATE <i>3/14/71</i>	
PROG. <i>K. J. ...</i>	DATE <i>3/14/71</i>	
FIRST USED ON PDP15	SIZE CODE D BS	NUMBER FP15-8-13
SCALE SHEET 1 OF 1	DIST.	REV. 08

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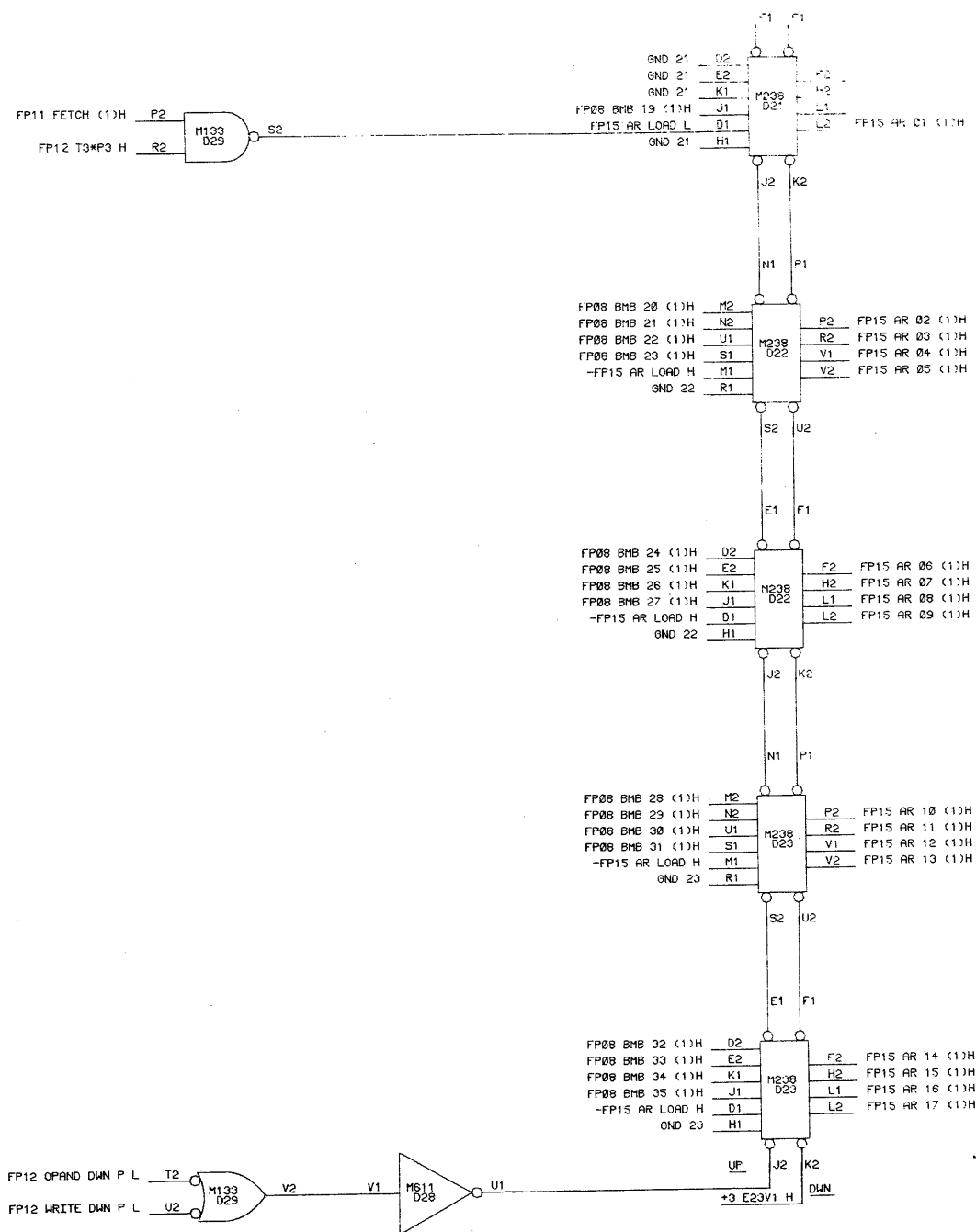


REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRN. <i>K. Funch</i>	DATE <i>5/14/71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. <i>M. Harsland</i>	DATE <i>5/14/71</i>	
ENG. <i>C. King</i>	DATE <i>5/14/71</i>	
PROJ. ENG. <i>J. L. Laro</i>	DATE <i>5/14/71</i>	
PROD. <i>D. J. Laro</i>	DATE <i>5/14/71</i>	
FIRST USED ON PDP15		TITLE DIAGNOSTIC INST REGISTER
SCALE SHEET 1 OF 1	SIZE CODE D BS	NUMBER FP15-0-14
DIST.		REV. 00

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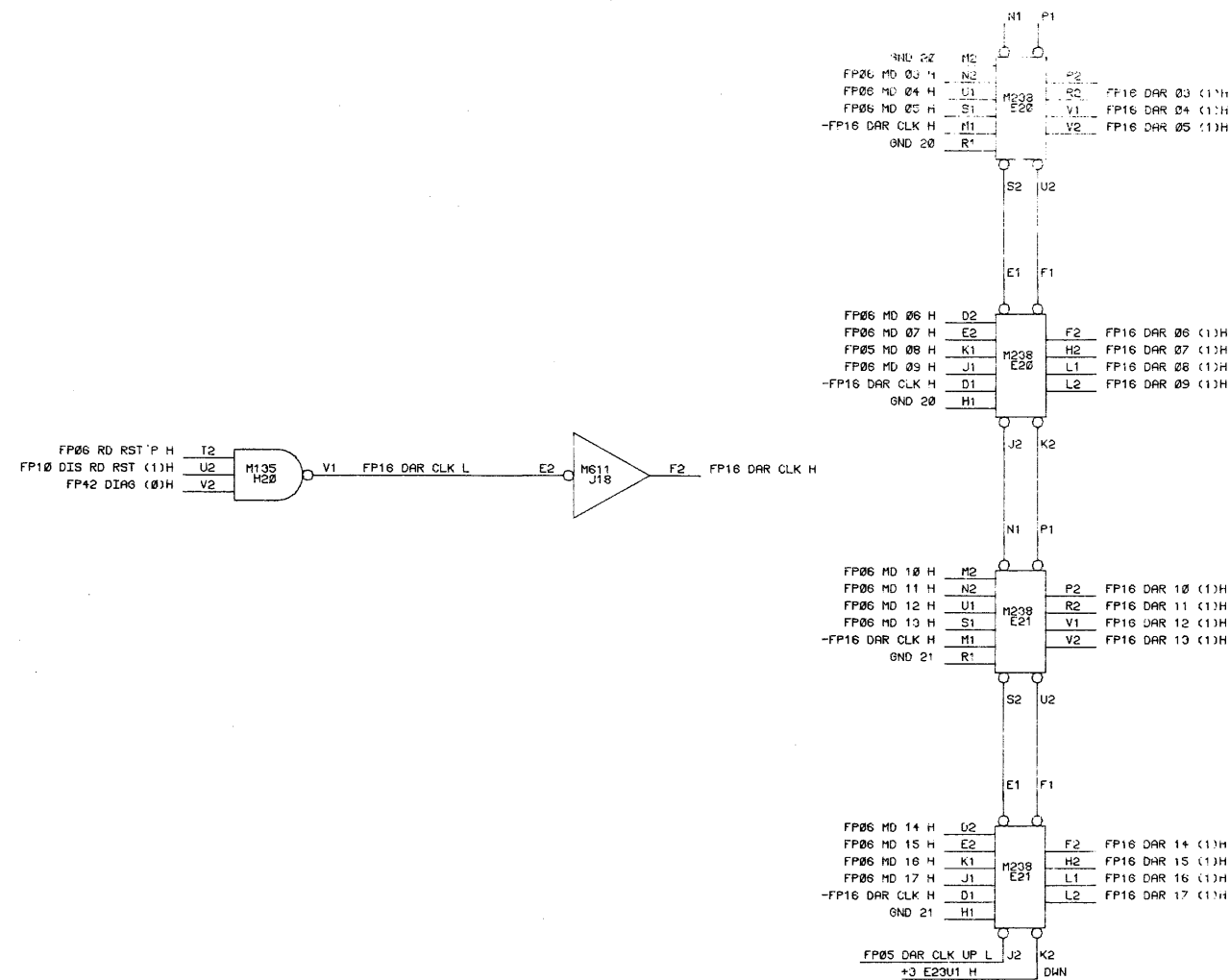


REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE
CHKD	DATE		
EGG	DATE		
PROJ ENG	DATE		
PROB	DATE		
FIRST USED ON			
PDP15		SIZE CODE	NUMBER
SCALE		D BS	FP15-0-15
SHEET 1 OF 1		DIST.	REV. 00

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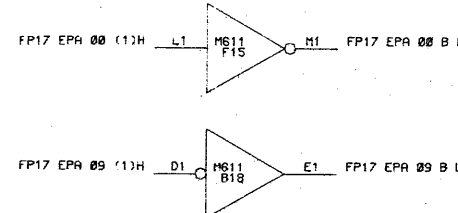
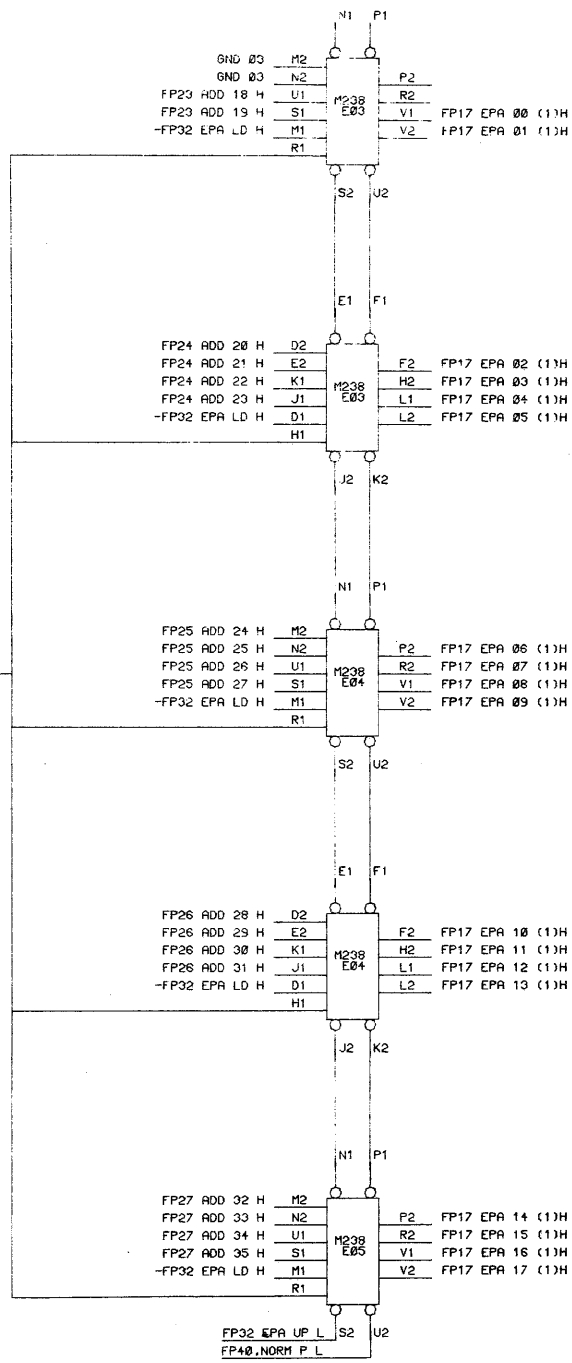
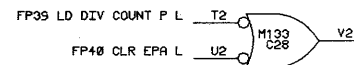


REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D	DATE	
ENG	DATE	
PROJ. ENG	DATE	
PROD.	DATE	
FIRST USED ON		TITLE
PDP15		DIAGNOSTIC ADDRESS REGISTER (DAR)
SCALE	SIZE CODE	NUMBER
SHEET 1 OF 1	D BS	FP15-0-16
	DIST.	REV. 00

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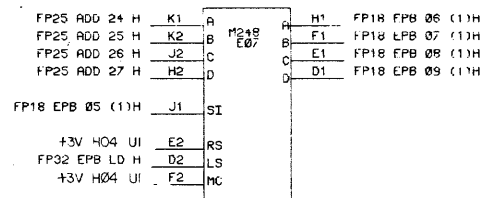
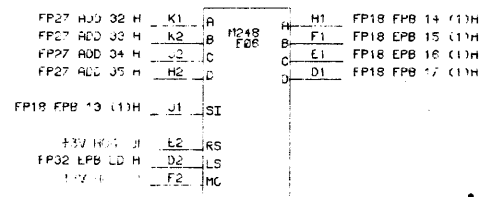
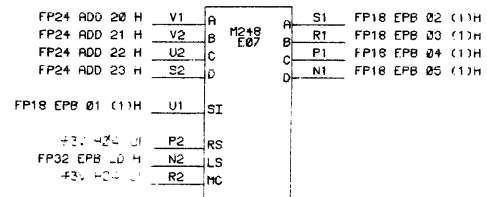
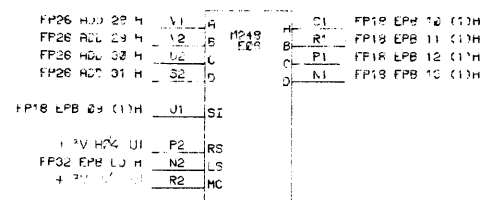
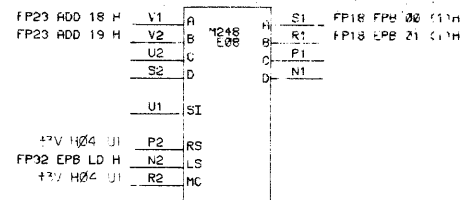


REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D.	DATE		
ENG.	DATE		
PROJ. ENG.	DATE		
PROD.	DATE		
FIRST USED ON		TITLE A EXPONENT REGISTER (EPA)	
SCALE	SIZE CODE	NUMBER	REV.
SHEET 1 OF 1	D	05	00
	DIST.		

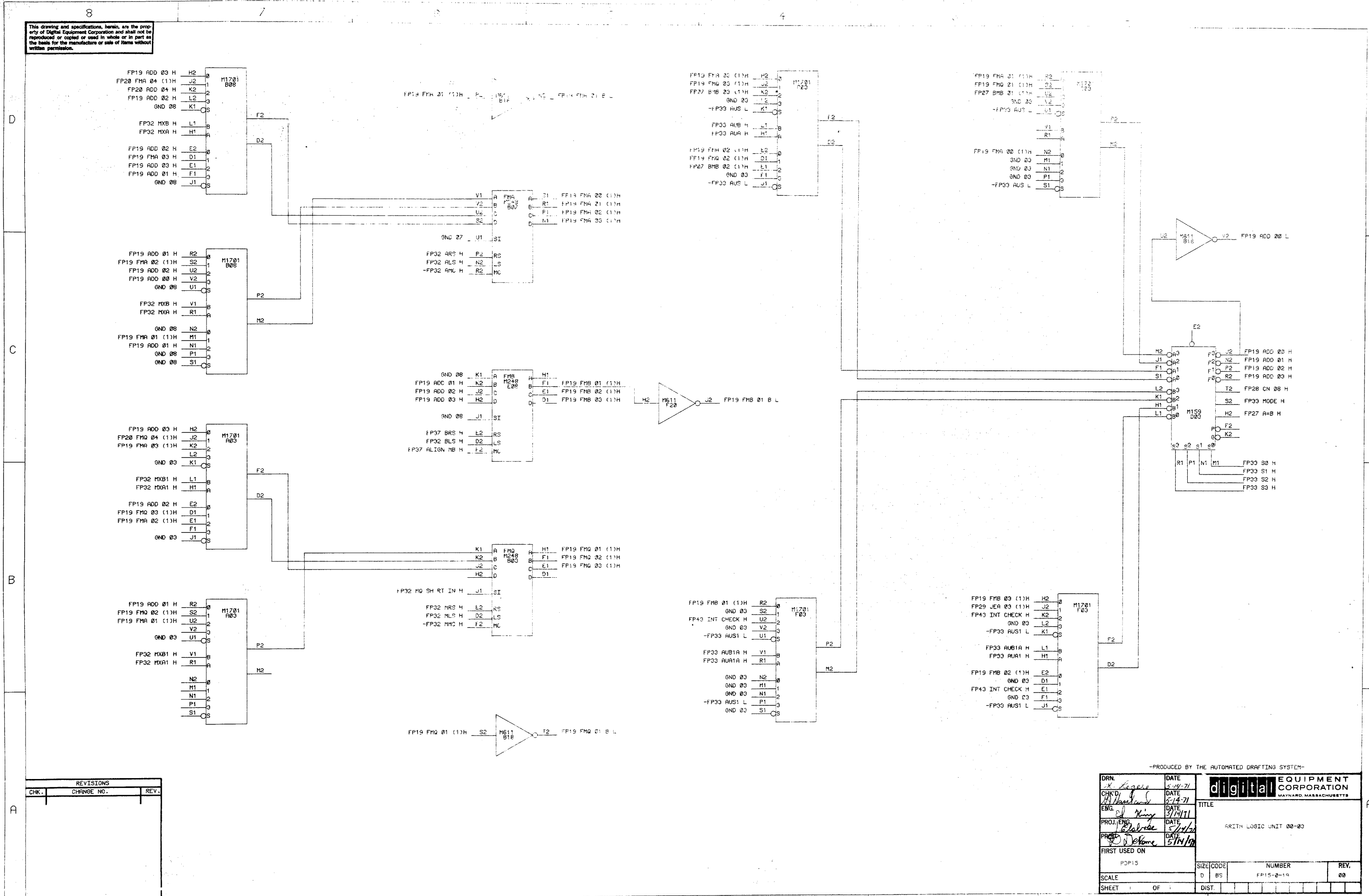
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CHK.	CHANGE NO.	REV.
1	FP15-00014	A
2	10-13-77	

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DRN. A. L. L. L.	DATE 5-14-71
CHKD. D. L. L. L.	DATE 5-14-71
ENG. J. L. L. L.	DATE 5-14-71
PROJ. ENG. J. L. L. L.	DATE 5-14-71
PROJ. MGR. J. L. L. L.	DATE 5-14-71
FIRST USED ON PDP15	
SCALE SHEET 1 OF 1	TITLE B EXPONENT REGISTER
SIZE/CODE D BS	NUMBER FP15-0-18
DIST.	REV. A

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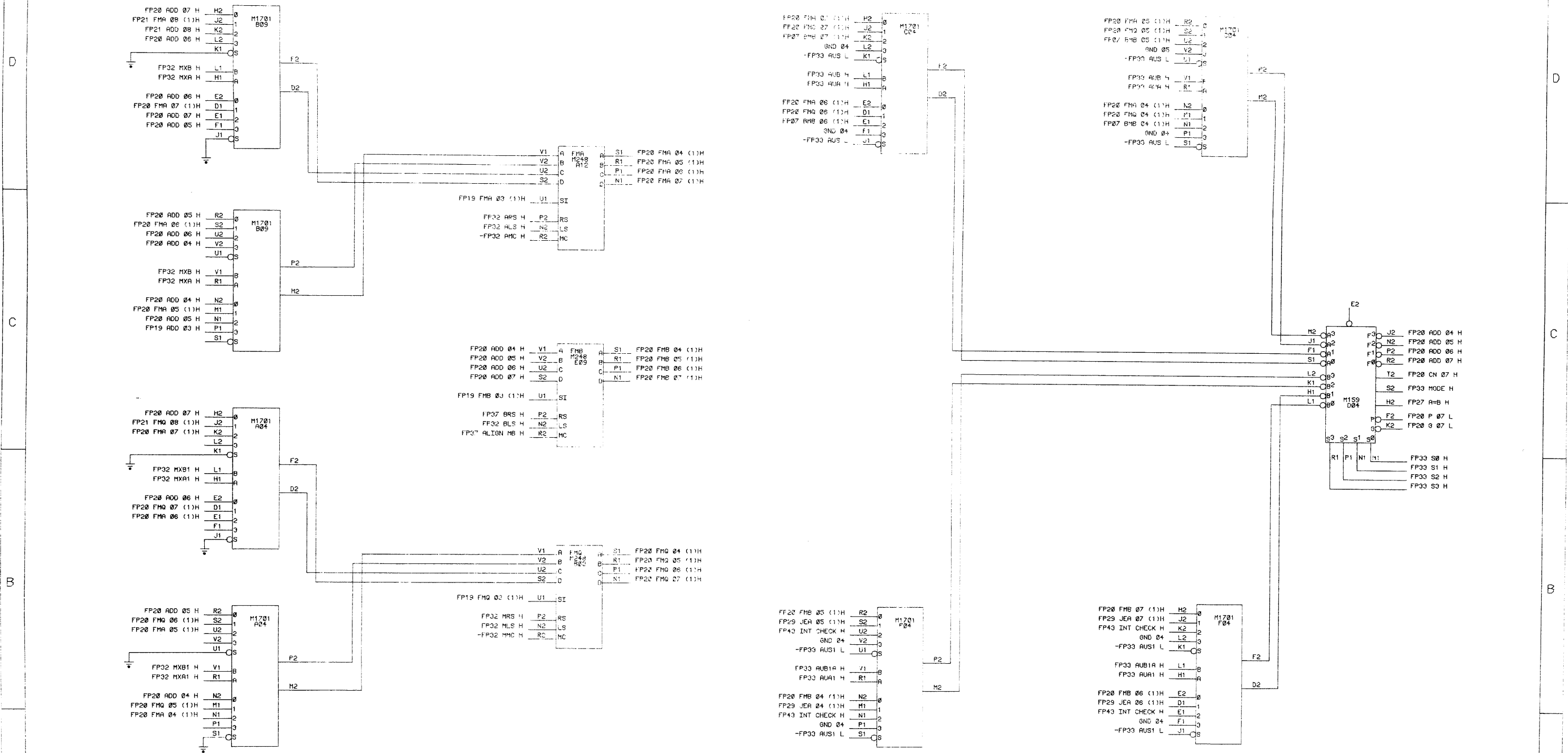


REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE ARITH LOGIC UNIT 00-03		
CHK'D.	DATE			
ENG.	DATE			
PROJ. ENG.	DATE			
PROD.	DATE			
FIRST USED ON	POP15	SIZE CODE	NUMBER	REV.
SCALE	D	BS	FP15-0-19	00
SHEET	OF	DIST.		

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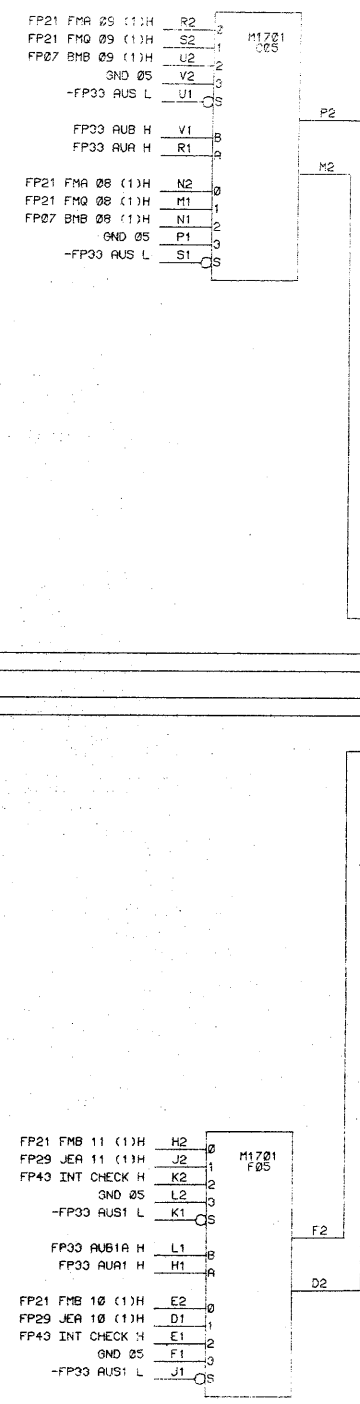
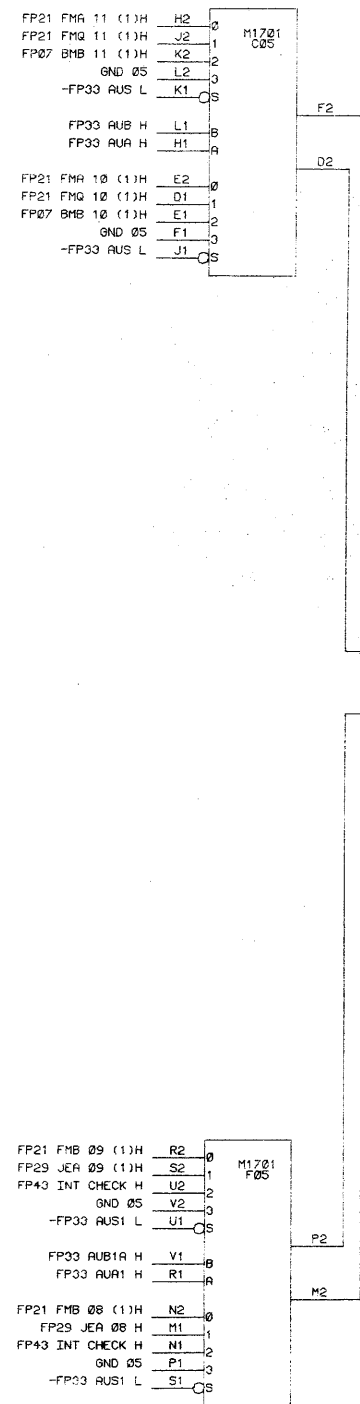
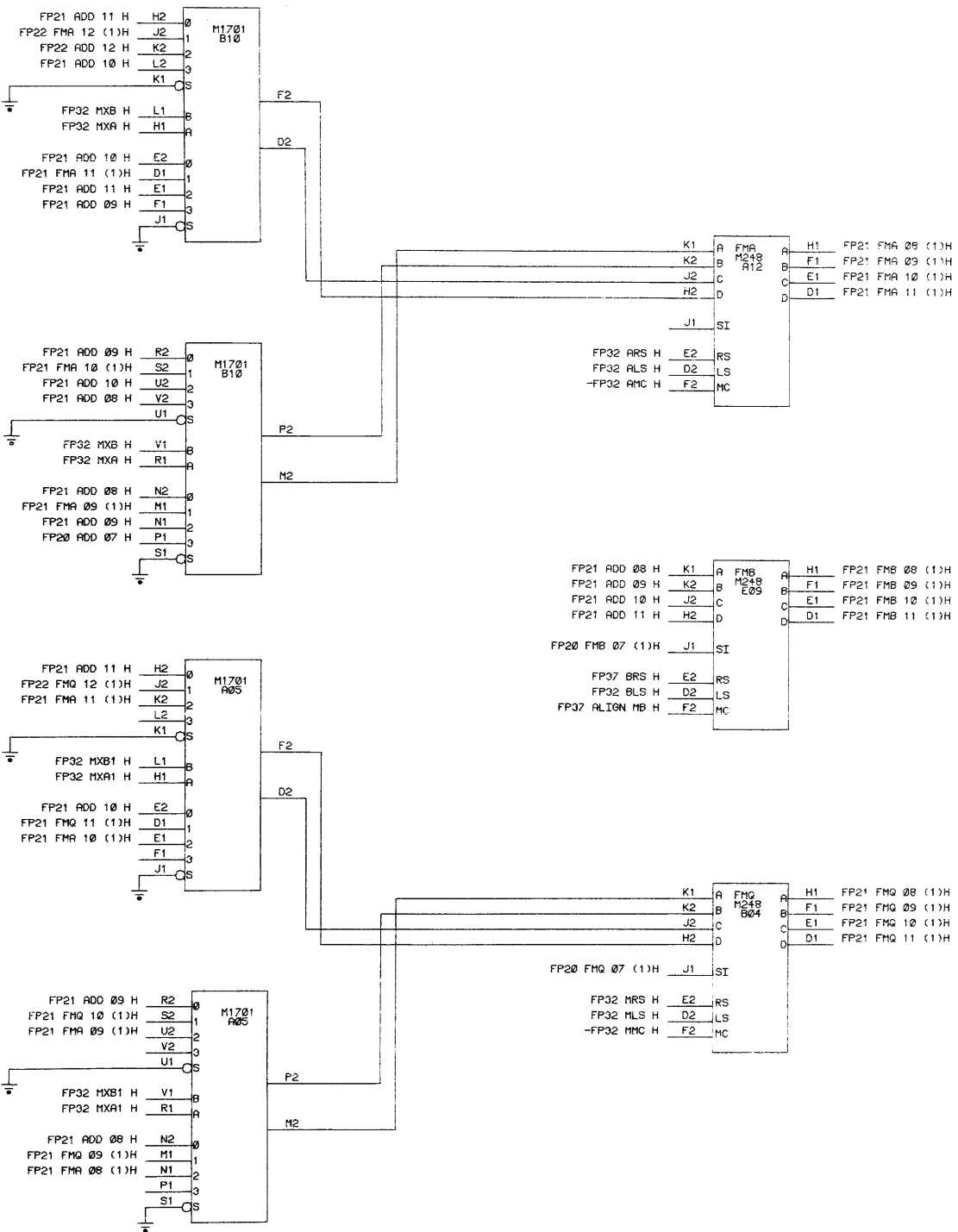


REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D.	DATE		
ENG.	DATE		
PROJ. ENG.	DATE		
PROD.	DATE		
FIRST USED ON		TITLE	
POP15		ARITH LOGIC UNIT 04-07	
SCALE	SIZE CODE	NUMBER	REV.
SHEET 1 OF 1	D BS	FP15-0-20	00
	DIST.		

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE ARITH LOGIC UNIT 08 11
CHK'D.	DATE	
ENG.	DATE	
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PROD.	DATE	
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SCALE	SIZE CODE	NUMBER
SHEET	DIST.	REV.

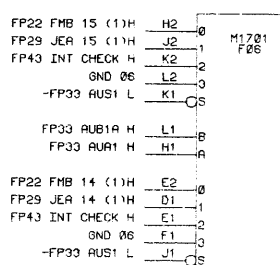
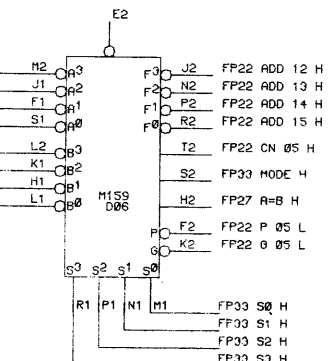
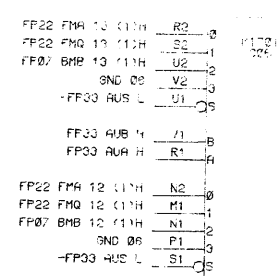
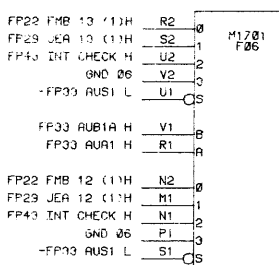
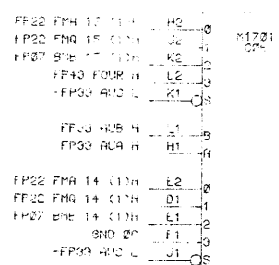
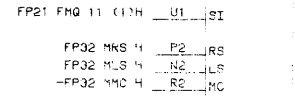
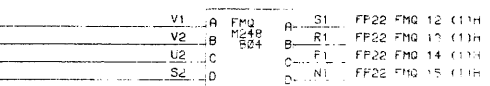
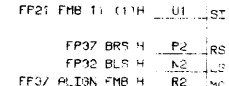
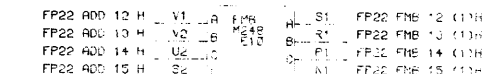
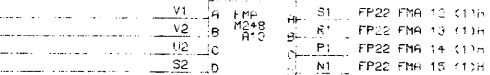
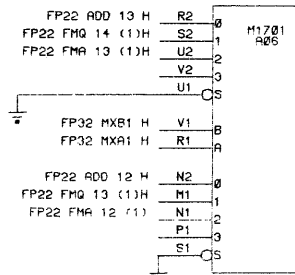
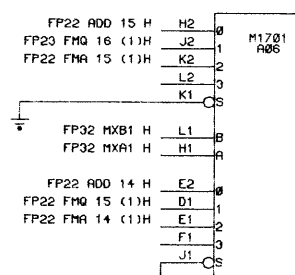
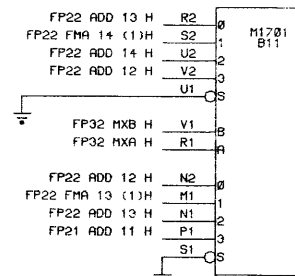
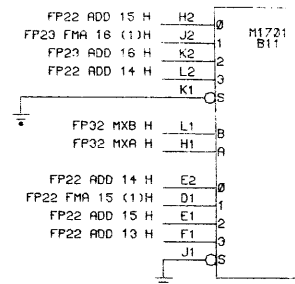
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D

C

B

A

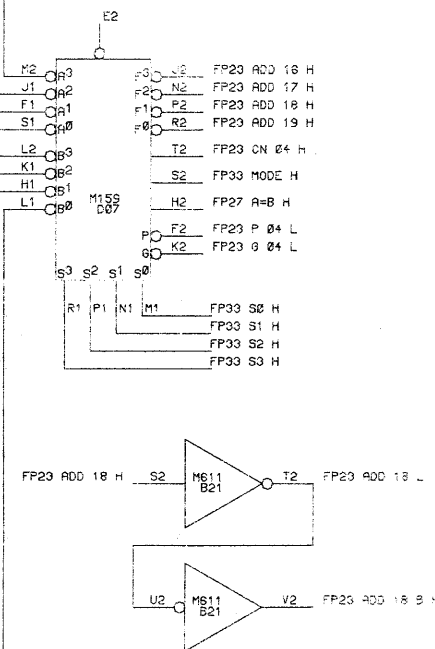
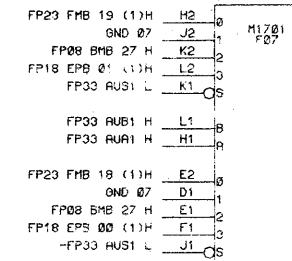
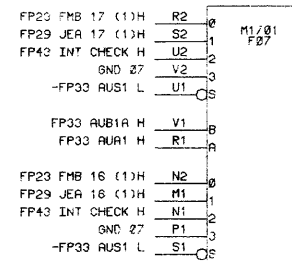
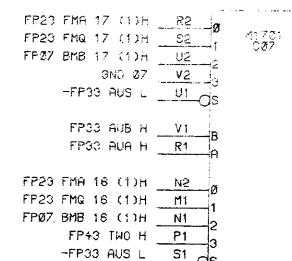
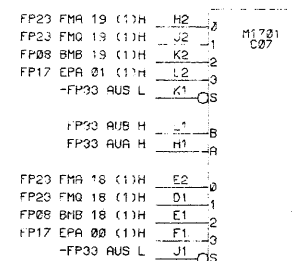
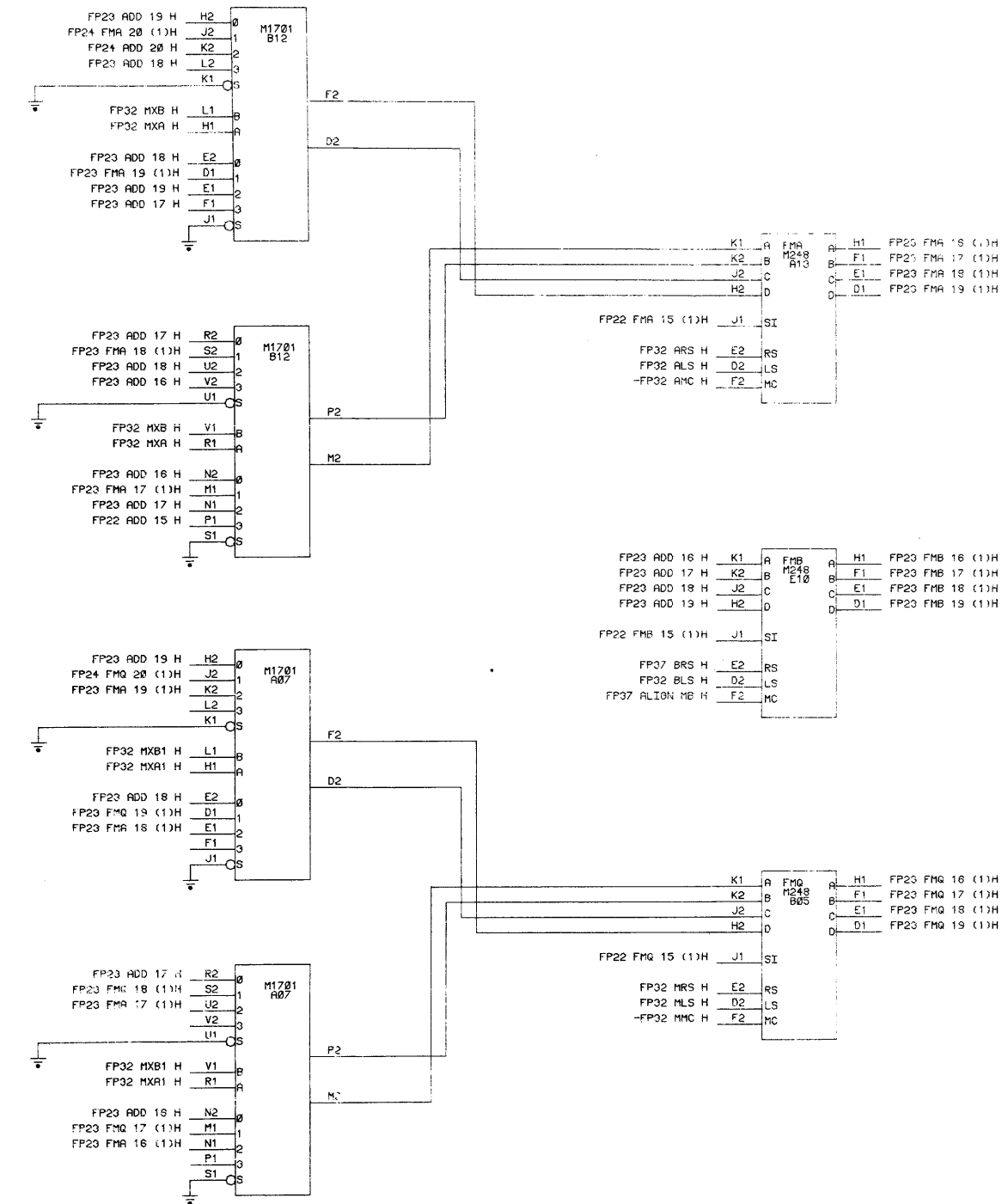


REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRN. <i>H. Legere</i>	DATE <i>5-14-71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. <i>R. J. Newman</i>	DATE <i>5-14-71</i>	
ENG. <i>E. J. Kane</i>	DATE <i>5/14/71</i>	
PROJ. ENG. <i>R. DeLoe</i>	DATE <i>5/14/71</i>	
PROD. <i>R. DeLoe</i>	DATE <i>5/14/71</i>	
FIRST USED ON PDP15	TITLE ARITH LOGIC UNIT 12-15	
SCALE SHEET 1 OF 1	SIZE CODE D BS	NUMBER FP15-8-22
	DIST.	REV. 00

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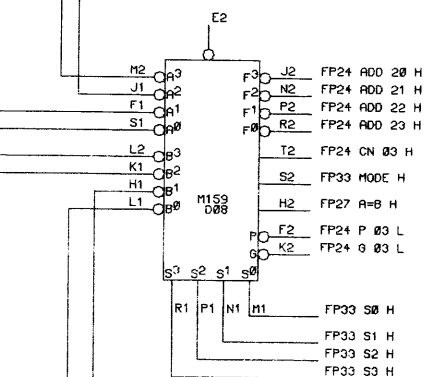
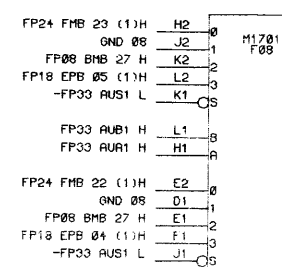
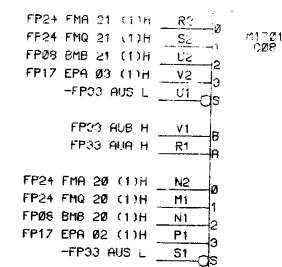
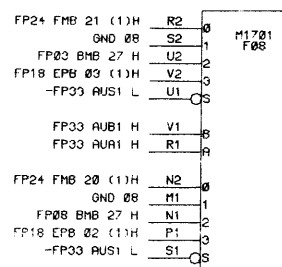
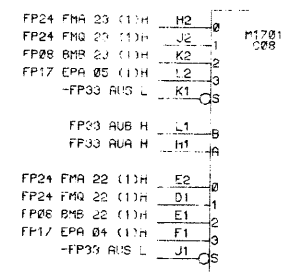


REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-	
DRN H. Leggett	DATE 5/14/71
CHKD M. Namias	DATE 5/14/71
ENG J. King	DATE 5/14/71
PROJ ENG J. Blum	DATE 5/14/71
PROD J. DeBorne	DATE 5/14/71
FIRST USED ON PDP-15	
SCALE SHEET 1 OF 1	SIZE CODE D BS
NUMBER FP15-0-20	
REV. 00	

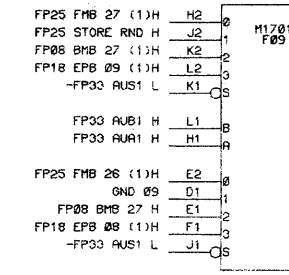
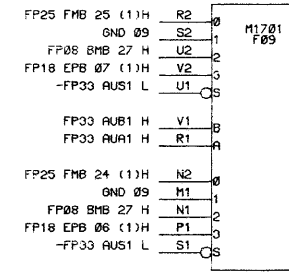
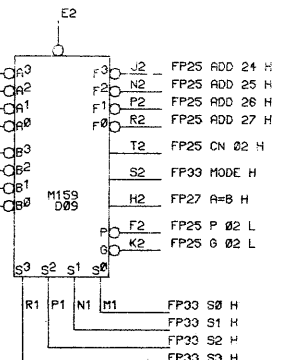
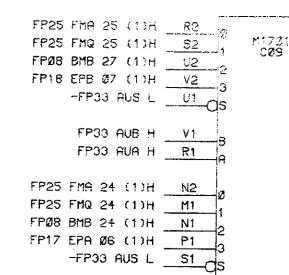
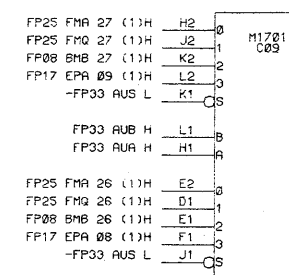
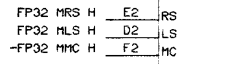
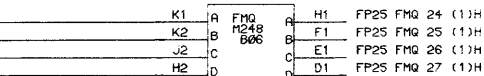
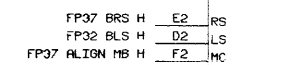
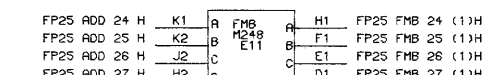
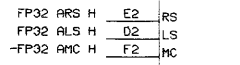
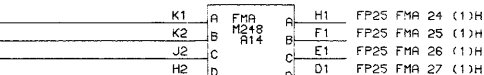
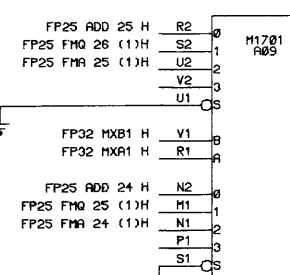
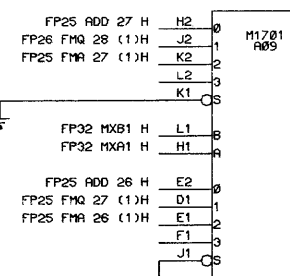
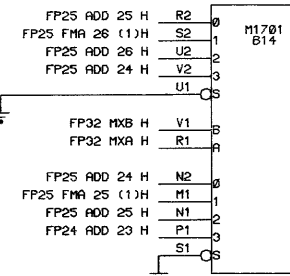
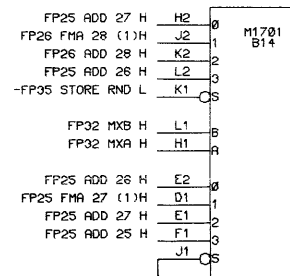
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ARITH LOGIC UNIT 16-19

[illegible]

DRAWN <i>L. Legere</i>	DATE 5-14-71	digital CORPORATION MAYNARD, MASSACHUSETTS	
CHECK'D <i>H. Hagan</i>	DATE 5-14-71	TITLE ARITH LOGIC UNIT 20-23	
ENG. <i>E. King</i>	DATE 5/14/71		
PROJ ENGR <i>J. Calabrese</i>	DATE 5/14/71		
PROB. <i>P. O'Brien</i>	DATE 5/14/71		
FIRST USED ON			
PDP15			
SCALE	CODE	NUMBER	REV.
SHEET 1 OF 1	D BS	FP15-g-24	00
DIST.			

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REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D.	DATE		
ENG.	DATE		
PROJ. ENG.	DATE		
PROJ. MGR.	DATE		
FIRST USED ON	DATE	TITLE	
POP15	5/14/71	ARITH LOGIC UNIT 24-27	
SCALE	SIZE CODE	NUMBER	REV.
SHEET 1 OF 1	D BS	FP15-0-25	00

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FP26 ADD 31 H H2 0
FP27 FMA 32 (1)H J2 1
FP27 ADD 32 H K2 2
FP26 ADD 30 H L2 3
-FP35 STORE RND L K1 3
FP32 MXB H L1 0
FP32 MXA H H1 1
FP26 ADD 30 H E2 0
FP26 FMA 31 (1)H D1 1
FP26 ADD 31 H E1 2
FP26 ADD 29 H F1 3
-FP35 STORE RND L J1 3

FP26 ADD 29 H R2 0
FP26 FMA 30 (1)H S2 1
FP26 ADD 30 H U2 2
FP26 ADD 28 H V2 3
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FP32 MXB H V1 0
FP32 MXA H R1 1
FP26 ADD 28 H N2 0
FP26 FMA 29 (1)H M1 1
FP26 ADD 29 H N1 2
FP25 ADD 27 H P1 3
FP35 STORE RND L S1 3

FP26 ADD 31 H H2 0
FP27 FMA 32 (1)H J2 1
FP26 FMA 31 (1)H K2 2
L2 3
K1 3
FP32 MXB1 H L1 0
FP32 MXA1 H H1 1
FP26 ADD 30 H E2 0
FP26 FMA 31 (1)H D1 1
FP26 FMA 30 (1)H E1 2
F1 3
J1 3

FP26 ADD 29 H R2 0
FP26 FMA 30 (1)H S2 1
FP26 FMA 29 (1)H U2 2
V2 3
U1 3
FP32 MXB1 H V1 0
FP32 MXA1 H R1 1
FP26 ADD 28 H N2 0
FP26 FMA 29 (1)H M1 1
FP26 FMA 28 (1)H N1 2
P1 3
S1 3

FP25 FMA 27 (1)H U1 SI
FP32 ARS H P2 RS
FP32 H13 H N2 LS
-FP32 AMC H R2 MC

FP26 ADD 28 H V1 A FMA H S1 SP26 FMB 29 (1)H
FP26 ADD 29 H V2 B FMA H R1 FP26 FMB 29 (1)H
FP26 ADD 30 H U2 C FMA H P1 FP26 FMB 30 (1)H
FP26 ADD 31 H S2 D FMA H N1 FP26 FMB 31 (1)H

FP25 FMB 27 (1)H U1 SI
FP37 BR5 H P2 RS
FP37 BL5 H N2 LS
FP37 ALIGN MB H R2 MC

FP25 FMA 27 (1)H U1 SI
FP32 ARS H P2 RS
FP32 H13 H N2 LS
-FP32 AMC H R2 MC

FP25 FMA 27 (1)H U1 SI
FP32 ARS H P2 RS
FP32 H13 H N2 LS
-FP32 AMC H R2 MC

FP26 FMA 31 (1)H H2 0
FP26 FMA 31 (1)H J2 1
FP26 FMA 31 (1)H K2 2
FP17 FPA 13 (1)H L2 3
-FP33 AUS L K1 3
FP33 AUB H L1 0
FP33 AUA H H1 1
FP26 FMA 30 (1)H E2 0
FP26 FMA 32 (1)H D1 1
FP26 FMA 30 (1)H E1 2
FP17 FPA 12 (1)H F1 3
-FP33 AUS L J1 3

FP26 FMB 29 (1)H R2 0
GND 10 S2 1
FP26 FMB 29 (1)H U2 2
FP18 EPB 11 (1)H V2 3
-FP33 AUS1 L U1 3
FP33 AUB1 H V1 0
FP33 AUA1 H R1 1
FP26 FMB 28 (1)H N2 0
GND 10 M1 1
FP26 FMB 28 (1)H N1 2
FP18 EPB 10 (1)H P1 3
-FP33 AUS1 L S1 3

FP26 FMA 29 (1)H R2 0
FP26 FMA 29 (1)H S2 1
FP26 FMA 29 (1)H U2 2
FP17 FPA 11 (1)H V2 3
-FP33 AUS L U1 3
FP33 AUB H V1 0
FP33 AUA H R1 1
FP26 FMA 28 (1)H N2 0
FP26 FMA 28 (1)H M1 1
FP26 FMA 28 (1)H N1 2
FP17 FPA 10 (1)H P1 3
-FP33 AUS L S1 3

FP26 FMB 31 (1)H H2 0
GND 10 J2 1
FP26 FMB 31 (1)H K2 2
FP18 EPB 13 (1)H L2 3
-FP33 AUS1 L K1 3
FP33 AUB1 H L1 0
FP33 AUA1 H H1 1
FP26 FMB 30 (1)H E2 0
FP41 FIX FLOAT H D1 1
FP26 FMB 30 (1)H E1 2
FP18 EPB 12 (1)H F1 3
-FP33 AUS1 L J1 3

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DRN. <i>Ch. Eugene</i>	DATE <i>5-14-71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. <i>Ch. Eugene</i>	DATE <i>5-14-71</i>	
ENG. <i>Ch. Eugene</i>	DATE <i>5/14/71</i>	
PROJ. ENG. <i>Ch. Eugene</i>	DATE <i>5/14/71</i>	
DATE <i>5/14/71</i>		
FIRST USED ON PDP15		TITLE ARITH LOGIC UNIT 28-31
SCALE SHEET 1 OF 1	SIZE CODE D BS	NUMBER FP15-2-26
	DIST.	REV. 00

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FP27 ADD 35 H H2 0
FP32 MA SHT IN H J2 1
GND 16 K2 2
FP27 ADD 34 H L2 3
-FP35 STORE RND L K1 0
FP32 MXB H L1 8
FP32 MXA H H1 9
FP27 ADD 34 H E2 0
FP27 FMA 35 (1)H D1 1
FP27 ADD 35 H E1 2
FP27 ADD 33 H F1 3
-FP35 STORE RND L J1 0

FP27 ADD 33 H R2 0
FP27 FMA 34 (1)H S2 1
FP27 ADD 34 H U2 2
FP27 ADD 32 H V2 3
-FP35 STORE RND L U1 0
FP32 MXB H V1 8
FP32 MXA H R1 9
FP27 ADD 32 H N2 0
FP27 FMA 33 (1)H M1 1
FP27 ADD 33 H N1 2
FP26 ADD 31 H P1 3
-FP33 STORE RND L S1 0

FP27 ADD 35 H H2 0
FP38 DIV ADD SH H J2 1
FP27 FMA 35 (1)H K2 2
L2 3
K1 0
FP32 MXB1 H L1 8
FP32 MXA1 H H1 9
FP27 ADD 34 H E2 0
FP27 FMQ 35 (1)H D1 1
FP27 FMA 34 (1)H E1 2
F1 3
J1 0

FP27 ADD 33 H R2 0
FP27 FMQ 34 (1)H S2 1
FP27 FMA 33 (1)H U2 2
V2 3
GND 11 U1 0
FP32 MXB1 H V1 8
FP32 MXA1 H R1 9
FP27 ADD 32 H N2 0
FP27 FMQ 33 (1)H M1 1
FP27 FMA 32 (1)H N1 2
P1 3
S1 0

K1 A FMA M248 A15 H1 FP27 FMA 32 (1)H
K2 B F1 FP27 FMA 33 (1)H
J2 C E1 FP27 FMA 34 (1)H
H2 D D1 FP27 FMA 35 (1)H

FP26 FMA 31 (1)H J1 SI
FP32 ARS H E2 RS
FP32 ALS H D2 LS
-FP32 AMC H F2 MC

FP27 ADD 32 H K1 A FMB M248 E12 H1 FP27 FMB 32 (1)H
FP27 ADD 33 H K2 B F1 FP27 FMB 33 (1)H
FP27 ADD 34 H J2 C E1 FP27 FMB 34 (1)H
FP27 ADD 35 H H2 D D1 FP27 FMB 35 (1)H

FP26 FMB 31 (1)H J1 SI
FP37 BRS H E2 RS
FP32 BLS H D2 LS
FP37 ALIGN MB H F2 MC

K1 A FMQ M248 807 H1 FP27 FMQ 32 (1)H
K2 B F1 FP27 FMQ 33 (1)H
J2 C E1 FP27 FMQ 34 (1)H
H2 D D1 FP27 FMQ 35 (1)H

FP26 FMQ 31 (1)H J1 SI
FP32 MRS H E2 RS
FP32 MLS H D2 LS
-FP32 MMC H F2 MC

FP27 FMA 35 (1)H H2 0
FP27 FMQ 35 (1)H J2 1
FP27 BMB 35 (1)H K2 2
FP17 EPA 17 (1)H L2 3
-FP33 AUS L K1 0
FP33 AUB H L1 8
FP33 AUA H H1 9
FP27 FMA 34 (1)H E2 0
FP27 FMQ 34 (1)H D1 1
FP38 BMB 34 (1)H E1 2
FP17 EPA 16 (1)H F1 3
-FP33 AUS L J1 0

K1 A FMA M248 A15 H1 FP27 FMA 32 (1)H
K2 B F1 FP27 FMA 33 (1)H
J2 C E1 FP27 FMA 34 (1)H
H2 D D1 FP27 FMA 35 (1)H

FP26 FMA 31 (1)H J1 SI
FP32 ARS H E2 RS
FP32 ALS H D2 LS
-FP32 AMC H F2 MC

FP27 ADD 32 H K1 A FMB M248 E12 H1 FP27 FMB 32 (1)H
FP27 ADD 33 H K2 B F1 FP27 FMB 33 (1)H
FP27 ADD 34 H J2 C E1 FP27 FMB 34 (1)H
FP27 ADD 35 H H2 D D1 FP27 FMB 35 (1)H

FP26 FMB 31 (1)H J1 SI
FP37 BRS H E2 RS
FP32 BLS H D2 LS
FP37 ALIGN MB H F2 MC

K1 A FMQ M248 807 H1 FP27 FMQ 32 (1)H
K2 B F1 FP27 FMQ 33 (1)H
J2 C E1 FP27 FMQ 34 (1)H
H2 D D1 FP27 FMQ 35 (1)H

FP26 FMQ 31 (1)H J1 SI
FP32 MRS H E2 RS
FP32 MLS H D2 LS
-FP32 MMC H F2 MC

FP27 FMB 33 (1)H R2 0
GND 11 S2 1
FP38 BMB 33 H U2 2
FP18 EPB 15 (1)H V2 3
-FP33 AUS1 L U1 0
FP33 AUB1 H V1 8
FP33 AUA1 H R1 9
FP27 FMB 32 (1)H N2 0
GND 11 M1 1
FP38 BMB 32 (1)H N1 2
FP18 EPB 14 (1)H P1 3
-FP33 AUS1 L S1 0

FP27 FMA 33 (1)H R2 0
FP27 FMQ 33 (1)H S2 1
FP38 BMB 33 (1)H U2 2
FP17 EPA 15 (1)H V2 3
-FP33 AUS L U1 0
FP33 AUB H V1 8
FP33 AUA H R1 9
FP27 FMA 32 (1)H N2 0
FP27 FMQ 32 (1)H M1 1
FP38 BMB 32 (1)H N1 2
FP17 EPA 14 (1)H P1 3
-FP33 AUS L S1 0

K1 A FMA M248 A15 H1 FP27 FMA 32 (1)H
K2 B F1 FP27 FMA 33 (1)H
J2 C E1 FP27 FMA 34 (1)H
H2 D D1 FP27 FMA 35 (1)H

FP26 FMA 31 (1)H J1 SI
FP32 ARS H E2 RS
FP32 ALS H D2 LS
-FP32 AMC H F2 MC

FP27 ADD 32 H K1 A FMB M248 E12 H1 FP27 FMB 32 (1)H
FP27 ADD 33 H K2 B F1 FP27 FMB 33 (1)H
FP27 ADD 34 H J2 C E1 FP27 FMB 34 (1)H
FP27 ADD 35 H H2 D D1 FP27 FMB 35 (1)H

FP26 FMB 31 (1)H J1 SI
FP37 BRS H E2 RS
FP32 BLS H D2 LS
FP37 ALIGN MB H F2 MC

K1 A FMQ M248 807 H1 FP27 FMQ 32 (1)H
K2 B F1 FP27 FMQ 33 (1)H
J2 C E1 FP27 FMQ 34 (1)H
H2 D D1 FP27 FMQ 35 (1)H

FP26 FMQ 31 (1)H J1 SI
FP32 MRS H E2 RS
FP32 MLS H D2 LS
-FP32 MMC H F2 MC

FP27 FMB 33 (1)H R2 0
FP41 FIX+FLOAT SEL H J2 1
FP38 BMB 33 (1)H U2 2
FP18 EPB 15 (1)H V2 3
-FP33 AUS1 L U1 0
FP33 AUB1 H V1 8
FP33 AUA1 H R1 9
FP27 FMB 32 (1)H N2 0
FP41 FIX+FLOAT SEL H D1 1
FP38 BMB 32 (1)H N1 2
FP18 EPB 14 (1)H P1 3
-FP33 AUS1 L S1 0

E2 0
J1 0
F1 0
S1 0
L2 0
K1 0
H1 0
L1 0
S3 0
S2 0
S1 0
R1 0
P1 0
N1 0
M1 0
FP27 ADD 32 H J2 0
FP27 ADD 33 H N2 0
FP27 ADD 34 H P2 0
FP27 ADD 35 H F1 0
FP33 CN 00 L R2 0
FP33 MODE H S2 0
FP27 A=B H H2 0
FP27 P 00 L F2 0
FP27 G 00 L K2 0

FP27 FMQ 34 (1)H K2 0
MS11 A23 L2 0
FP27 FMQ 34 B L

FP27 FMQ 35 (1)H R1 0
MS11 D28 S1 0
FP27 FMQ 35 B L

REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-	
DRN. <i>Ch. Leger</i>	DATE 5-14-71
CHK'D. <i>W. Leger</i>	DATE 5-14-71
ENG. <i>Ch. King</i>	DATE 5/14/71
PROJ. ENG. <i>W. Leger</i>	DATE 5/14/71
PROD. <i>W. Leger</i>	DATE 5/14/71
FIRST USED ON	PDP'S
SCALE	SIZE/CODE
SHEET 1 OF 1	DIST.

digital EQUIPMENT CORPORATION	
MAYNARD, MASSACHUSETTS	
TITLE	
ARITH LOGIC UNIT 32-35	
NUMBER	REV.
FP15-2-27	00

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FP24 P03 L H2 P3 F2 FP28 FP00 L
FP24 003 L J2 G3 E2 FP28 0000 L
FP25 P02 L J1 P2 M191
FP25 002 L H1 G2 E13 CN+Z D2 FP28 CN03 H
FP26 P01 L L1 P1 D1 FP28 CN02 H
FP26 001 L K1 G1 CN+Y
FP27 P00 L K2 P0 E1 FP28 CN01 H
FP27 000 L L2 G0 CN+X
FP33 CN00 L F1 CN

FP20 P07 L R2 P3 F2 FP28 0001 L
FP20 007 L S2 G3 E2 FP28 PP01 L
FP21 P06 L S1 P2 M191
FP21 006 L R1 G2 E14 CN+Z M2 FP28 CN07 H
FP22 P05 L V1 P1 D1 FP28 CN06 H
FP22 005 L U1 G1 CN+Y
FP23 P04 L U2 P0 E1 FP28 CN05 H
FP23 004 L V2 G0 CN+X
FP28 CN04 L P1 CN

FP28 PP01 L L1 P1 D1 FP28 CN06 H
FP28 0001 L K1 G1 CN+Y
FP28 PP00 L K2 P0 E1 FP28 CN04 H
FP28 0000 L L2 G0 CN+X
FP33 CN00 L F1 CN

TRUE CARRY INSERT=LOW			
P0	00	CN	CN+X
L	L	L	H
L	L	H	H
H	H	H	L
L	H	L	L

REVISIONS		
CHK.	CHANGE NO.	REV.

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DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHKD.	DATE		
ENG.	DATE	TITLE	
PROJ. ENG.	DATE		
PROD.	DATE	CARRY LOOK AHEAD	
FIRST USED ON	DATE		
PDP15		SIZE CODE	NUMBER
SCALE		D BS	FP15-8-28
SHEET 1 OF 1	DIST.		REV. 00

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FP08 BMB 21 (1)H K1 A H1 FP29 JER 03 (1)H
FP08 BMB 22 (1)H K2 B F1 FP29 JER 04 (1)H
FP08 BMB 23 (1)H J2 C E1 FP29 JER 05 (1)H
FP08 BMB 24 (1)H H2 D D1 FP29 JER 06 (1)H

J1 SI
+3 D29U1 H E2 RS
FP41 LD JMS P H D2 LS
+3 D29U1 H F2 HC

FP08 BMB 29 (1)H K1 A H1 FP29 JER 11 (1)H
FP08 BMB 30 (1)H K2 B F1 FP29 JER 12 (1)H
FP08 BMB 31 (1)H J2 C E1 FP29 JER 13 (1)H
FP08 BMB 32 (1)H H2 D D1 FP29 JER 14 (1)H

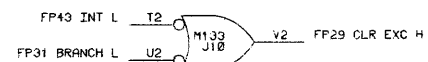
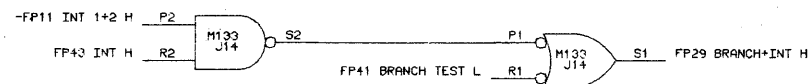
FP29 JER 10 (1)H J1 SI
+3 D29U1 H E2 RS
FP41 LD JMS P H D2 LS
+3 D29U1 H F2 HC

FP08 BMB 25 (1)H V1 A S1 FP29 JER 07 (1)H
FP08 BMB 26 (1)H V2 B R1 FP29 JER 08 (1)H
FP08 BMB 27 (1)H U2 C P1 FP29 JER 09 (1)H
FP08 BMB 28 (1)H S2 D N1 FP29 JER 10 (1)H

FP29 JER 06 (1)H U1 SI
+3 D29U1 H F2 RS
FP41 LD JMS P H N2 LS
+3 D29U1 H R2 HC

FP08 BMB 33 (1)H V1 A S1 FP29 JER 15 (1)H
FP08 BMB 34 (1)H V2 B R1 FP29 JER 16 (1)H
FP08 BMB 35 (1)H U2 C P1 FP29 JER 17 (1)H
FP08 BMB 35 (1)H S2 D N1 FP29 JER 17 (1)H

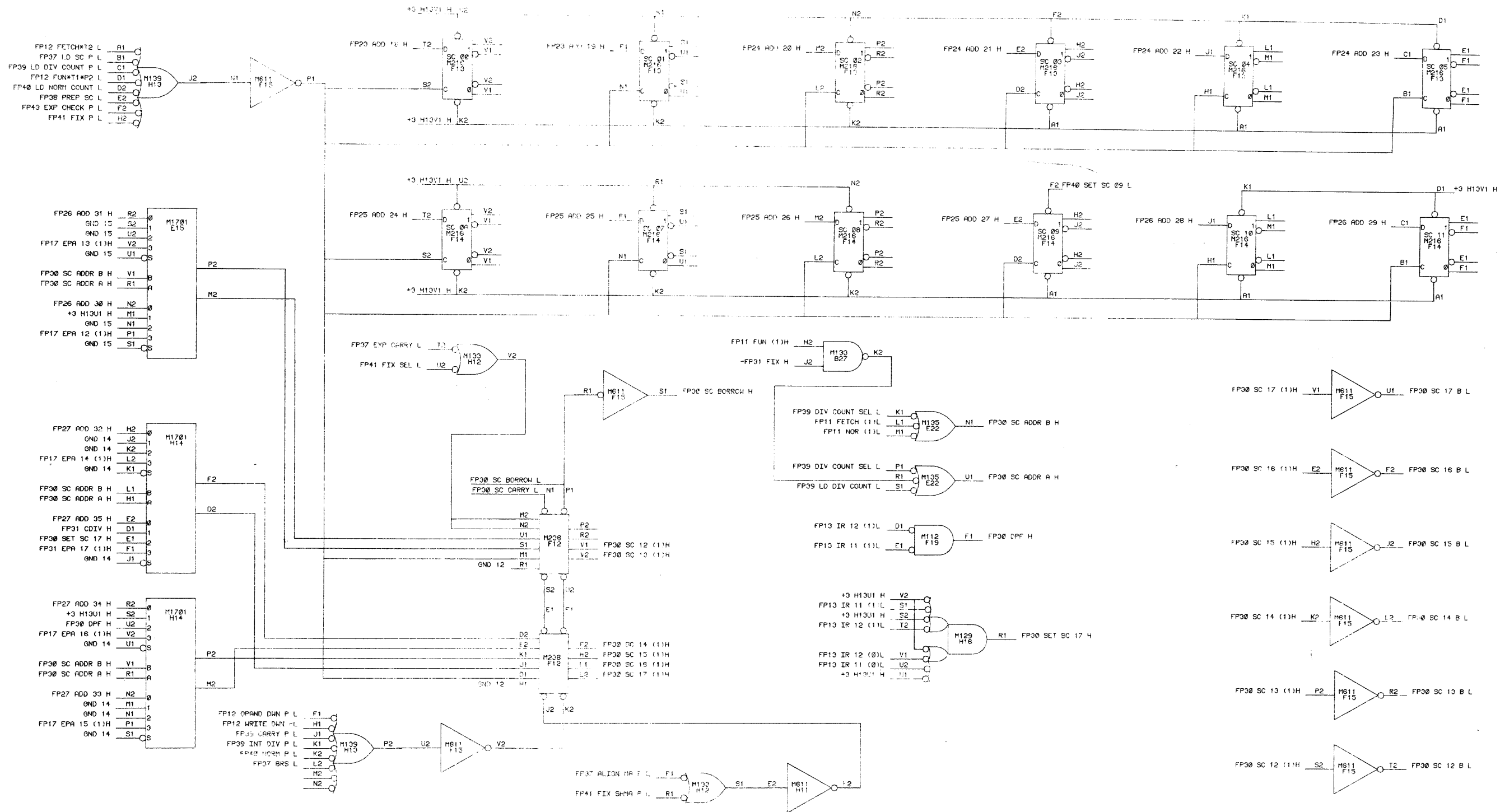
U1 SI
+3 D29U1 H F2 RS
FP41 LD JMS P H N2 LS
+3 D29U1 H R2 HC



REVISIONS		
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DRN <i>M. Cote</i>	DATE 5/14/71
CHK'D <i>M. Hamilton</i>	DATE 5/14/71
ENG <i>J. G. ...</i>	DATE 5/14/71
PROJ. ENG <i>J. G. ...</i>	DATE 5/14/71
PROD <i>J. G. ...</i>	DATE 5/14/71
FIRST USED ON	
SCALE	
SHEET 1 OF 1	
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TITLE JMS EXIT ADDRESS REG (JER)	
SIZE CODE D BS	NUMBER FP15-0-29
DIST.	REV. 00

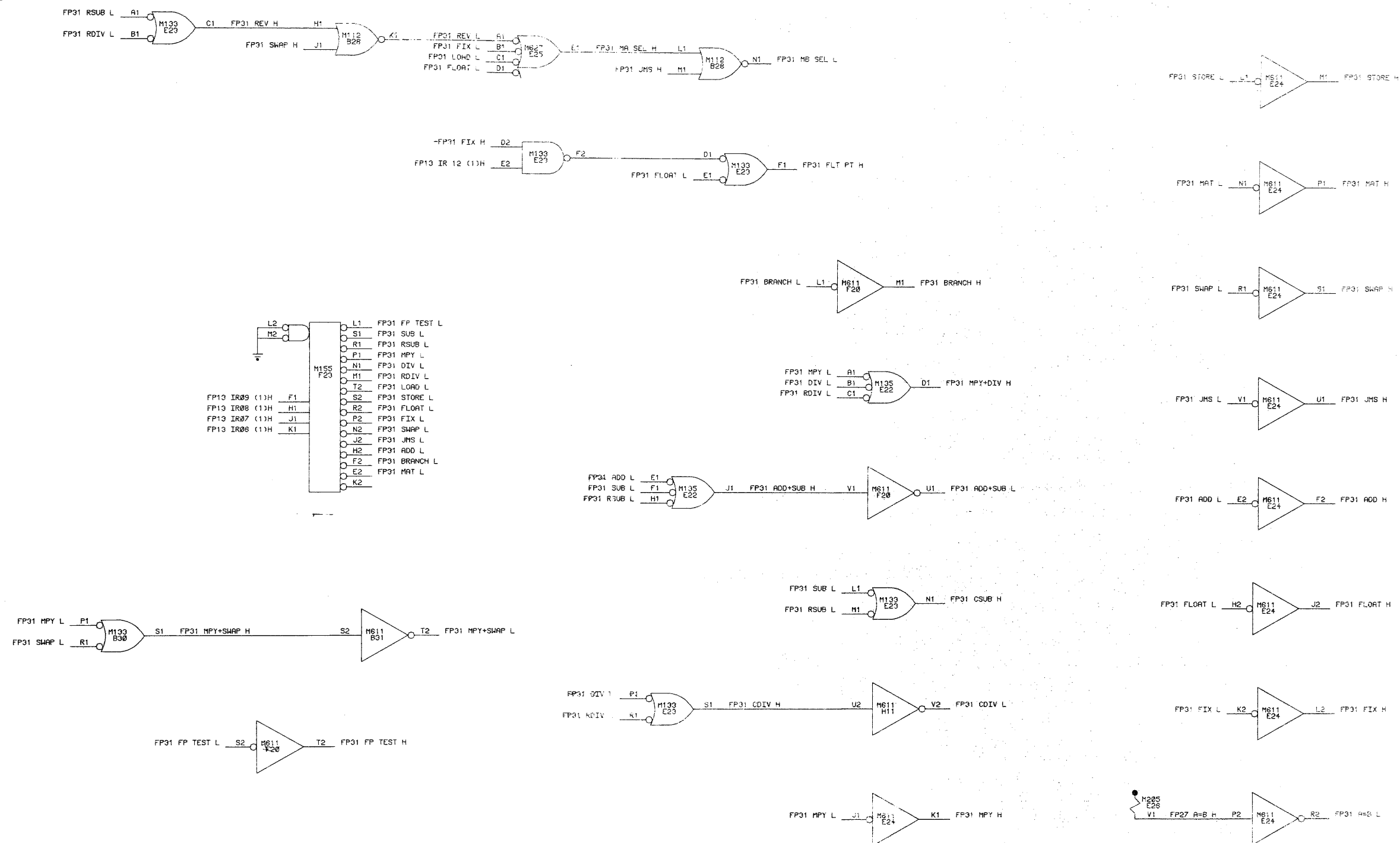
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CHK'D	DATE
ENG	DATE
PROJ. ENG.	DATE
PROD.	DATE
FIRST USED ON	
PDP15	
SCALE	SIZE CODE
SHEET 1 OF 1	DIST.
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TITLE	
SHIFT COUNTER	
NUMBER	REV.
FP15-0-30	00

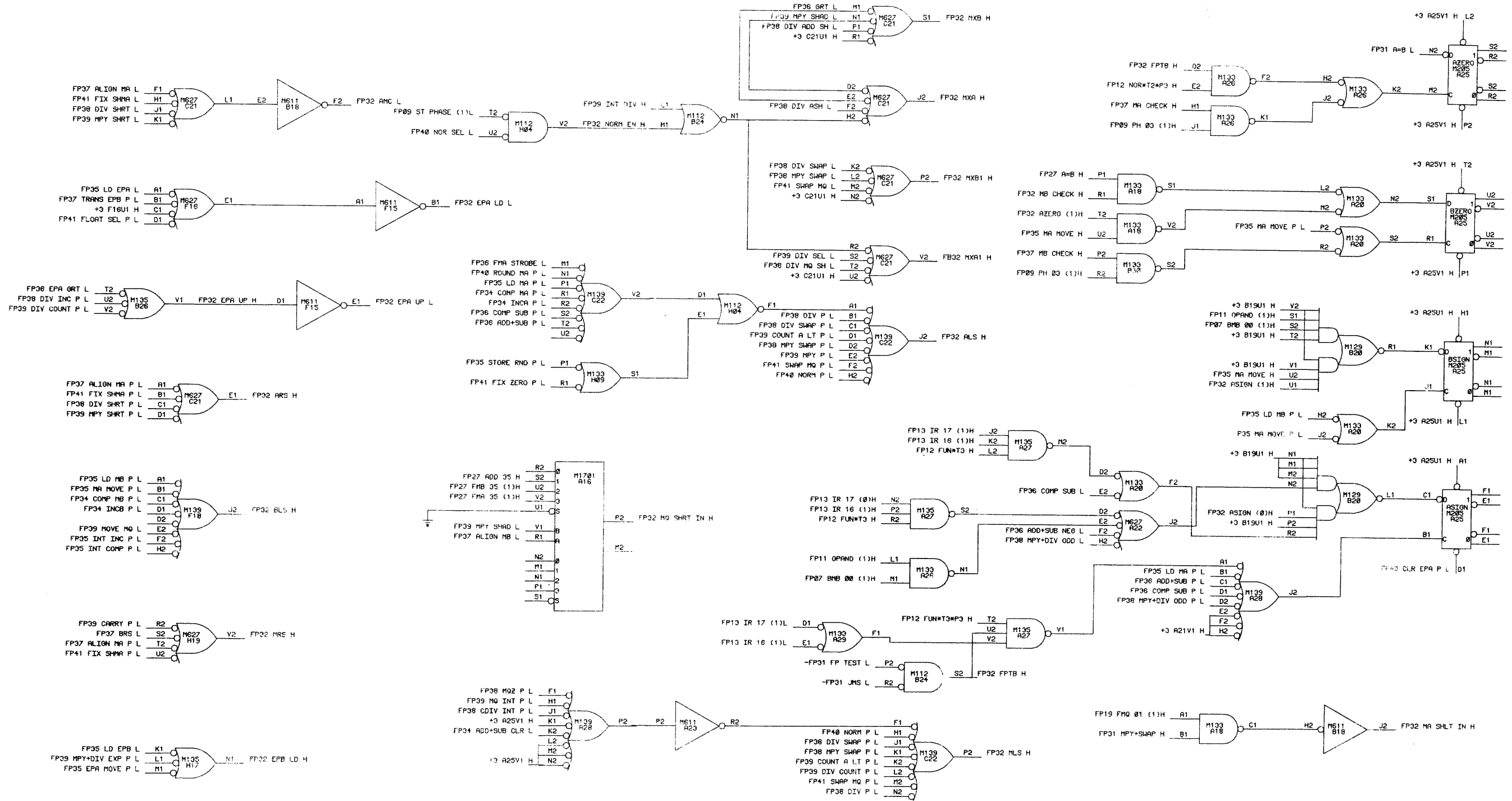
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DRN.	DATE	digital EQUIPMENT CORPORATION WATNARD, MASSACHUSETTS	TITLE		
CHN'D	DATE				
ENG	DATE				
PROJ ENG	DATE				
PROP	DATE				
FIRST USED ON					
PDP15		SIZE	CODE	NUMBER	REV.
SCALE		D	BS	FP15-0-31	00
SHEET	1 OF 1	DIST.			

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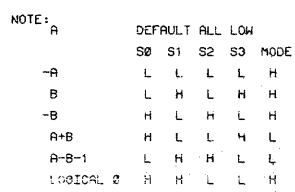


REVISIONS		
CHK.	CHANGE NO.	REV.

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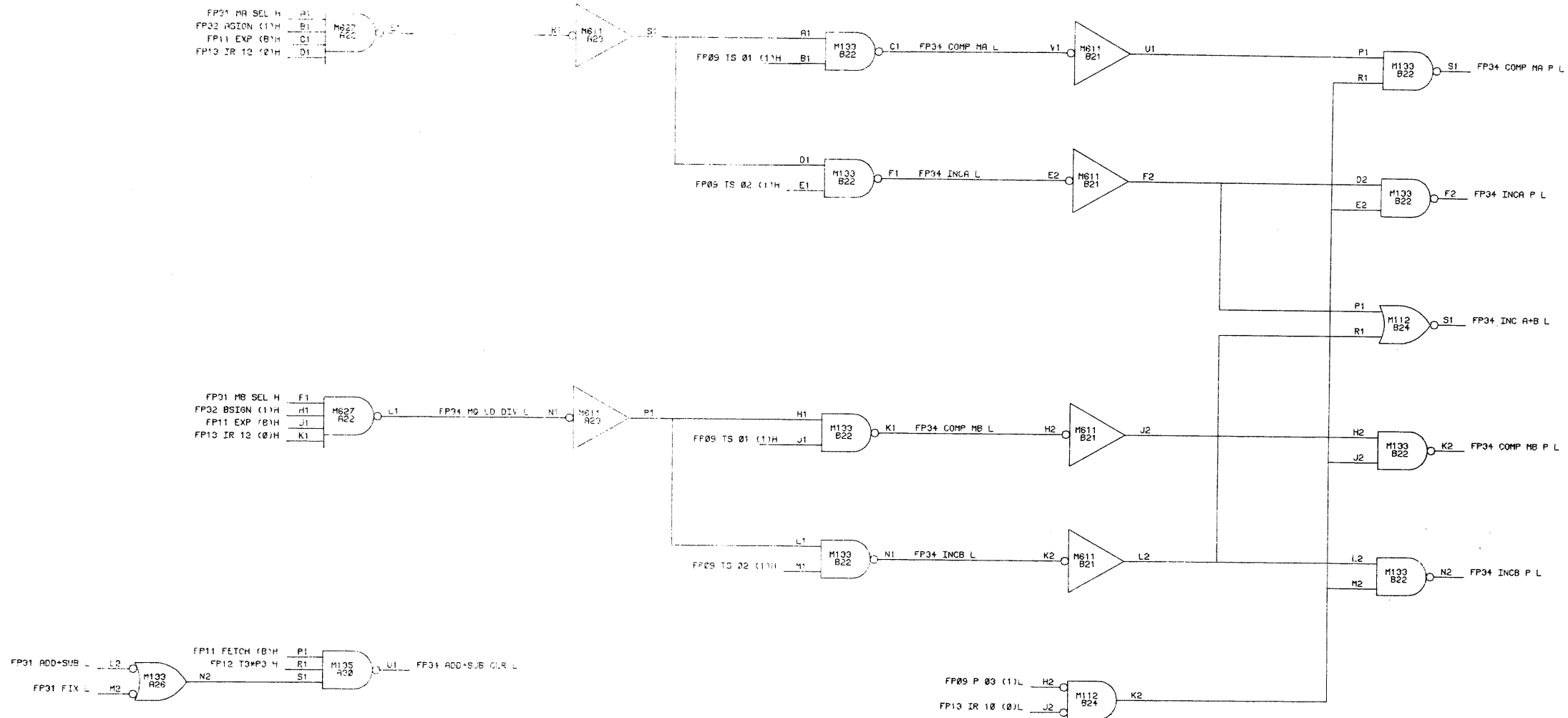
DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D	DATE		
ENG	DATE		
PROJ ENG	DATE		
PROD	DATE		
FIRST USED ON	DATE	TITLE	
PDP15	5/14/71	MANIPULATOR-EXPONENT CTRL	
SCALE	SIZE CODE	NUMBER	REV.
SHEET 1 OF 1	D BS	FP15-8-32	00
	DIST.		

A



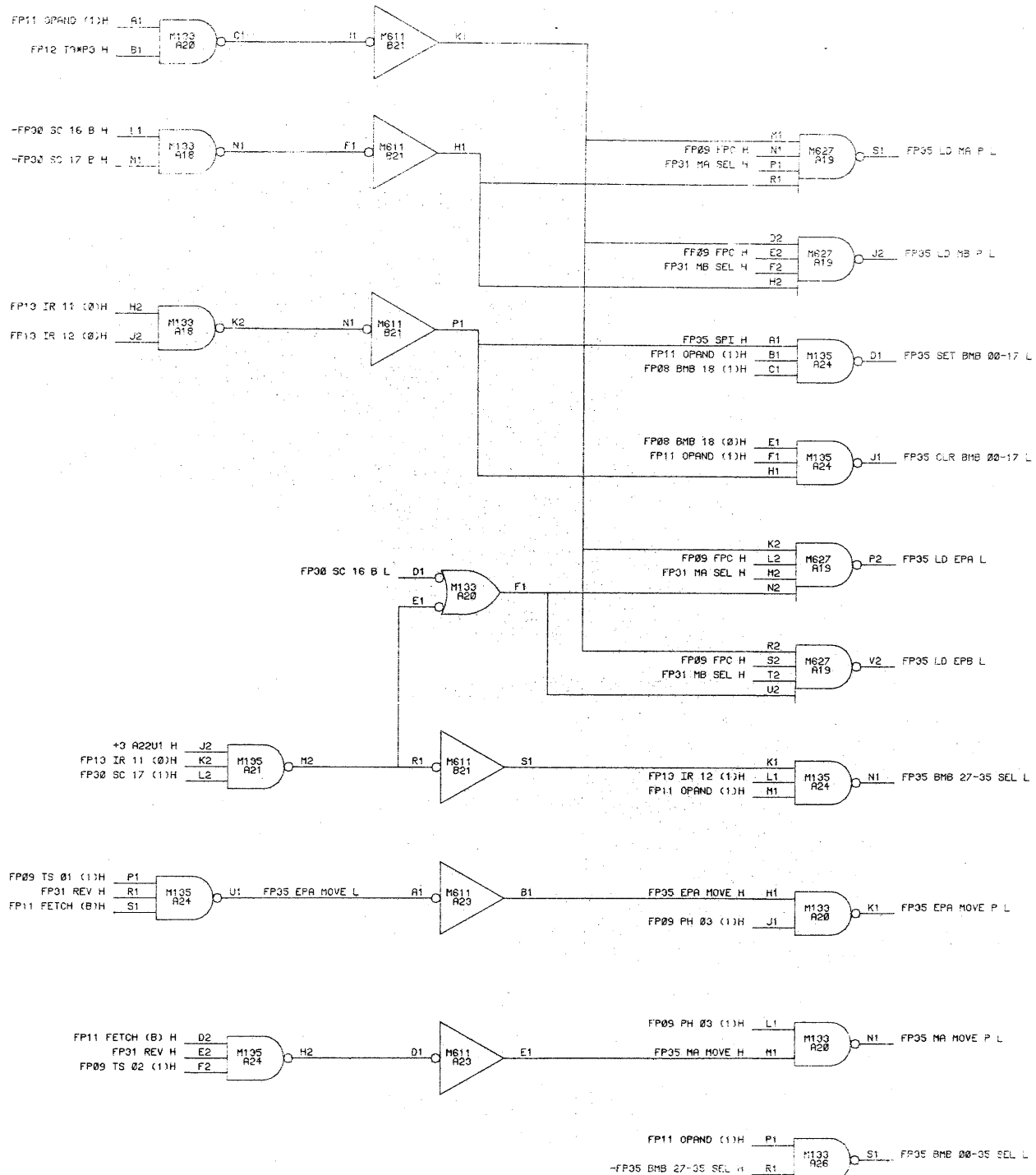
-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-	
DRN. <i>7</i>	DATE <i>5-14-71</i>
CHK'D. <i>Hand</i>	DATE <i>5-14-71</i>
ENG. <i>Ed King</i>	DATE <i>5/14/71</i>
PROL ENG. <i>Ed King</i>	DATE <i>5/14/71</i>
PROF. <i>Ed King</i>	DATE <i>5/14/71</i>
FIRST USED ON	
POP15	
SIZE CODE	NUMBER
D BS	FP15-0-93
SCALE	REV.
SHEET 1 OF 1	00
DIST.	

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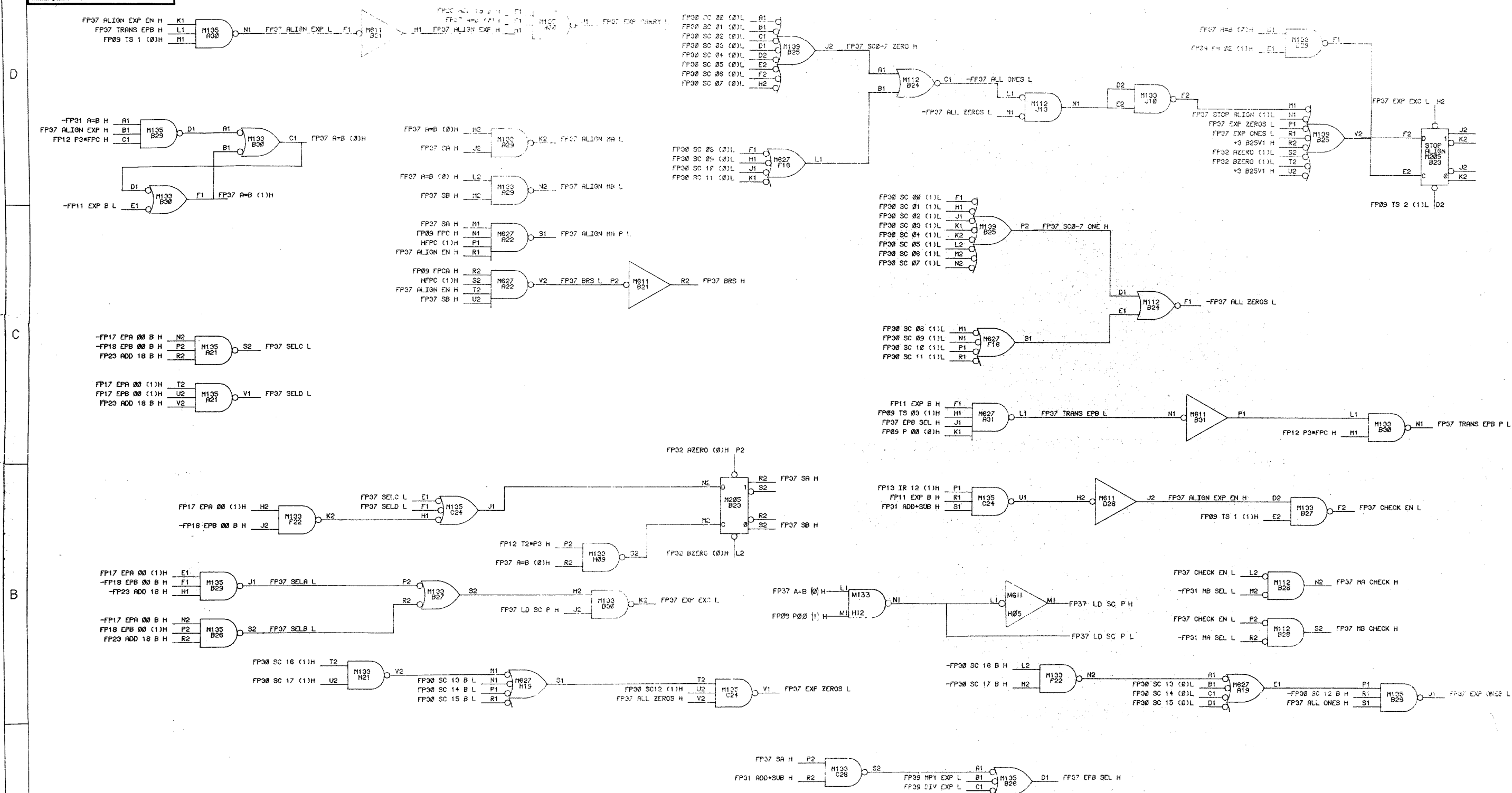
REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-	
DRN. 1000	DATE 5/14/71
CHK'D. J. J. King	DATE 5/14/71
ENG. J. J. King	DATE 5/14/71
PROJ. ENG. J. J. King	DATE 5/14/71
PROD. J. J. King	DATE 5/14/71
FIRST USED ON	
PDP15	
SCALE	
SHEET 1 OF 1	
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TITLE LOAD+STORE CONTROL 1	
SIZE CODE D BS	NUMBER FP15-0-34
DIST.	REV. 00

[illegible]

DRM <i>1/1/71</i>	DATE <i>5/14/71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
CHK'D <i>1/1/71</i>	DATE <i>5/14/71</i>			
ENG <i>1/1/71</i>	DATE <i>5/14/71</i>	TITLE LOAD AND STORE CONTROL 2		
PROJ ENG <i>1/1/71</i>	DATE <i>5/14/71</i>			
PROD <i>1/1/71</i>	DATE <i>5/14/71</i>			
FIRST USED ON				
PDP15		SIZE CODE	NUMBER	REV.
SCALE		D	BS	88
SHEET 1	OF 1	DIST.		

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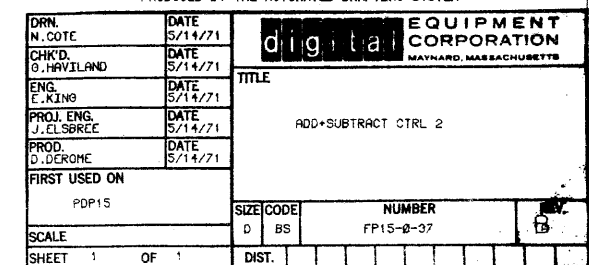


REVISIONS		
CHK	CHANGE NO.	REV.
6/12	FP15-00002	A
	W. Co. 6/2/74	
	J. King 6/23/74	
7/4	FP15-00014	B
	2/ Jones 10-11-74	
	F. Hall 10-13-74	

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DRN. N. COTE	DATE 5/14/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. B. HAYLAND	DATE 5/14/71	
ENG. E. KING	DATE 5/14/71	
PROJ. ENG. J. ELSBREE	DATE 5/14/71	
PROD. D. DEROME	DATE 5/14/71	
FIRST USED ON PDP1S		TITLE ADD+SUBTRACT CTRL 2
SCALE		
SHEET 1 OF 1		
DIST.		SIZE CODE D BS
		NUMBER FP15-2-37
		B

REVISIONS		
CHK	CHANGE NO.	REV.
112	FP15-00002	A
	W. Cote	4/21/71
	D. King	6/23/71
24	FP15-00014	B
	W. Fisher	10-11-74
	F. Wall	10-13-74



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REVISIONS		
CHK.	CHANGE NO.	REV.
87	FP15-00010	A
3-20-73		
E. KING		
2-4-		

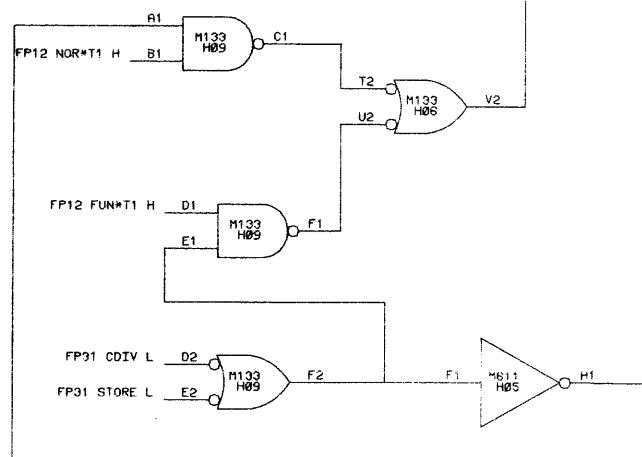
DRN: <i>5/1/71</i>	DATE: <i>5-1-71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D: <i>W. Newland</i>	DATE: <i>5-14-71</i>		
ENG: <i>Cd King</i>	DATE: <i>5/14/71</i>		
PROJ. ENG: <i>6/1/71</i>	DATE: <i>5/14/71</i>		
PRD: <i>5/14/71</i>	DATE: <i>5/14/71</i>		
FIRST USED ON		TITLE MULTIPLY+DIVIDE CTRL 2	
FP15			
SIZE CODE			
SCALE	D BS	NUMBER FP15-0-39	REV. A
SHEET 1	OF 1	DIST.	

5/15/71

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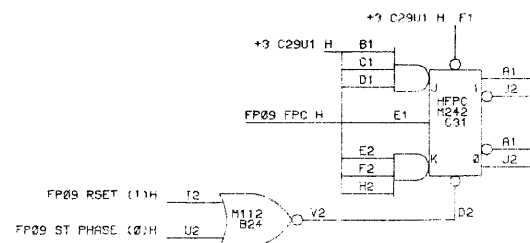
FP11 FUN (1)H P1
FP12 T3*P3 H R1
M133 F22 S1
FP40 LD NORM COUNT L

FP31 FLT PT H A1
FP13 IR 13 (0)H B1
M135 D31 C1
FP40 NOR SEL L D1
M611 C26 K2
FP40 NOR SEL H L2



FP40 NOR SEL H M1
FP40 HFPC (1)H N1
FP09 FPC H P1
-FP19 FMA 01 B H R1
M627 A51 S1
FP40 NORM F L V1
M611 B18 U1
FP40 NORM P H

FP40 NOR SEL H R2
FP40 HFPC (1)H S2
FP09 FPC H T2
FP19 FMA 01 (1)H U2
M627 A31 V2
FP40 NORM DONE L



FP11 NOR (1)H J2
FP09 TS 2 (1)H K2
FP40 GUARD (0)H L2
M135 A24 M2
FP31 A=B L D2
M112 B28 F2
FP09 PH 03 (1)H E1
M133 A26 F1
FP40 CLR EPA P L

FP27 ADD 35 H N2
FP09 PH 03 (1)H P2
FP36 ORT H R2
M135 B25 S2

FP31 JMS L P1
FP08 BMB 19 (1)L R1
M112 H04 S1
-FP31 JMS L L2
FP19 FMA 01 B L M2
M112 H04 N2
FP41 LD JMS L P2
M133 J10 S2
FP11 EXP (B) H P2
FP32 FPTB H R2
M133 A26 S2

FP40 CLR EPA H E1
FP40 FLOAT+FIX H F1
M135 D31 J1

FP31 FIX L P1
M133 C28 S1

FP11 NOR (B)H J2
FP09 TS 2 (1)H K2
FP40 GUARD (1)H L2
M135 A28 M2
FP40 ROUND L D1
M112 B28 F1
FP40 RND H
-FP31 JMS H P2
M133 H12 S2
FP13 IR 14 (0)H R2
FP40 RND H N2
FP09 PH 03 (1)H P2
FP40 FLOAT+FIX H R2
M135 A30 S2
FP40 ROUND MA P L

REVISIONS		
CHK.	CHANGE NO.	REV.

PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRN: M66	DATE: 5-14-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD: M. Hamilton	DATE: 5-14-71	
ENG: C. W.	DATE: 5/14/71	
PROJENG: J. D. Jones	DATE: 5/14/71	
PRG: J. D. Jones	DATE: 5-14-71	
FIRST USED ON: PDP15	SIZE CODE: D BS	TITLE: NORMALIZE CONTROL
SCALE: SHEET 1 OF 1	NUMBER: P15-0-40	REV: 00

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D

C

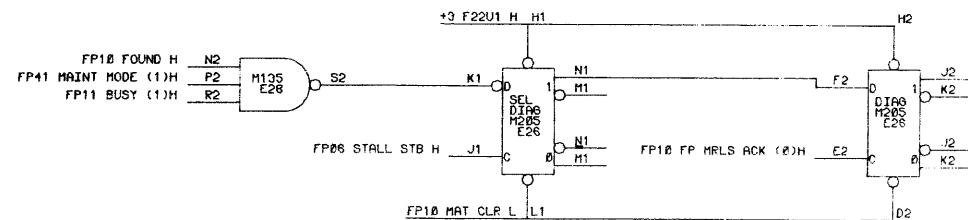
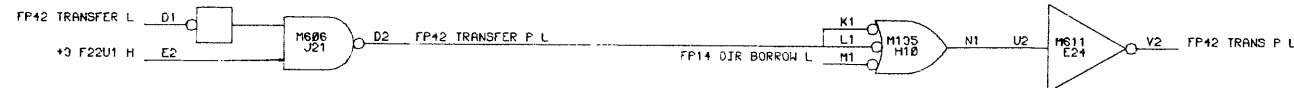
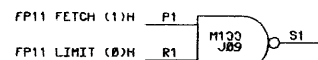
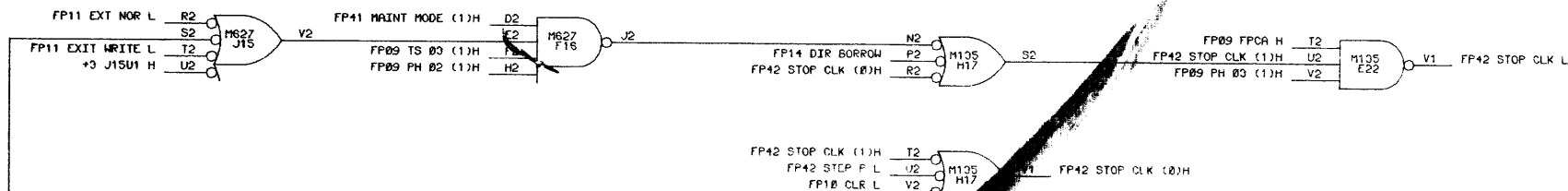
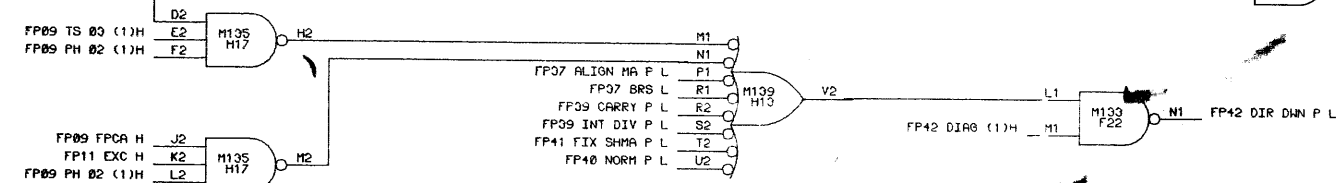
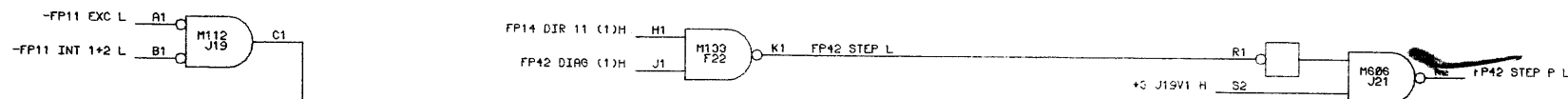
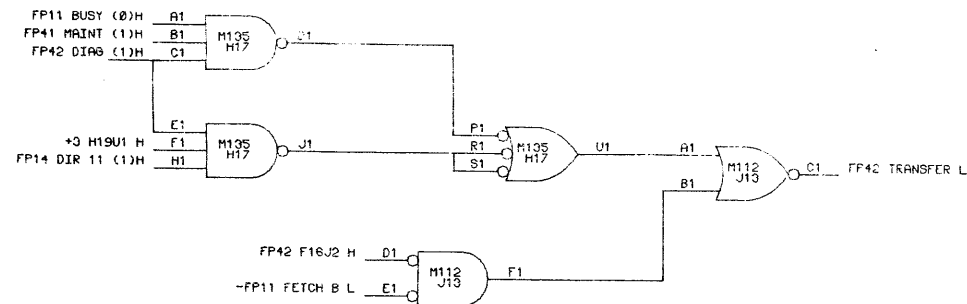
B

D

D

C

A

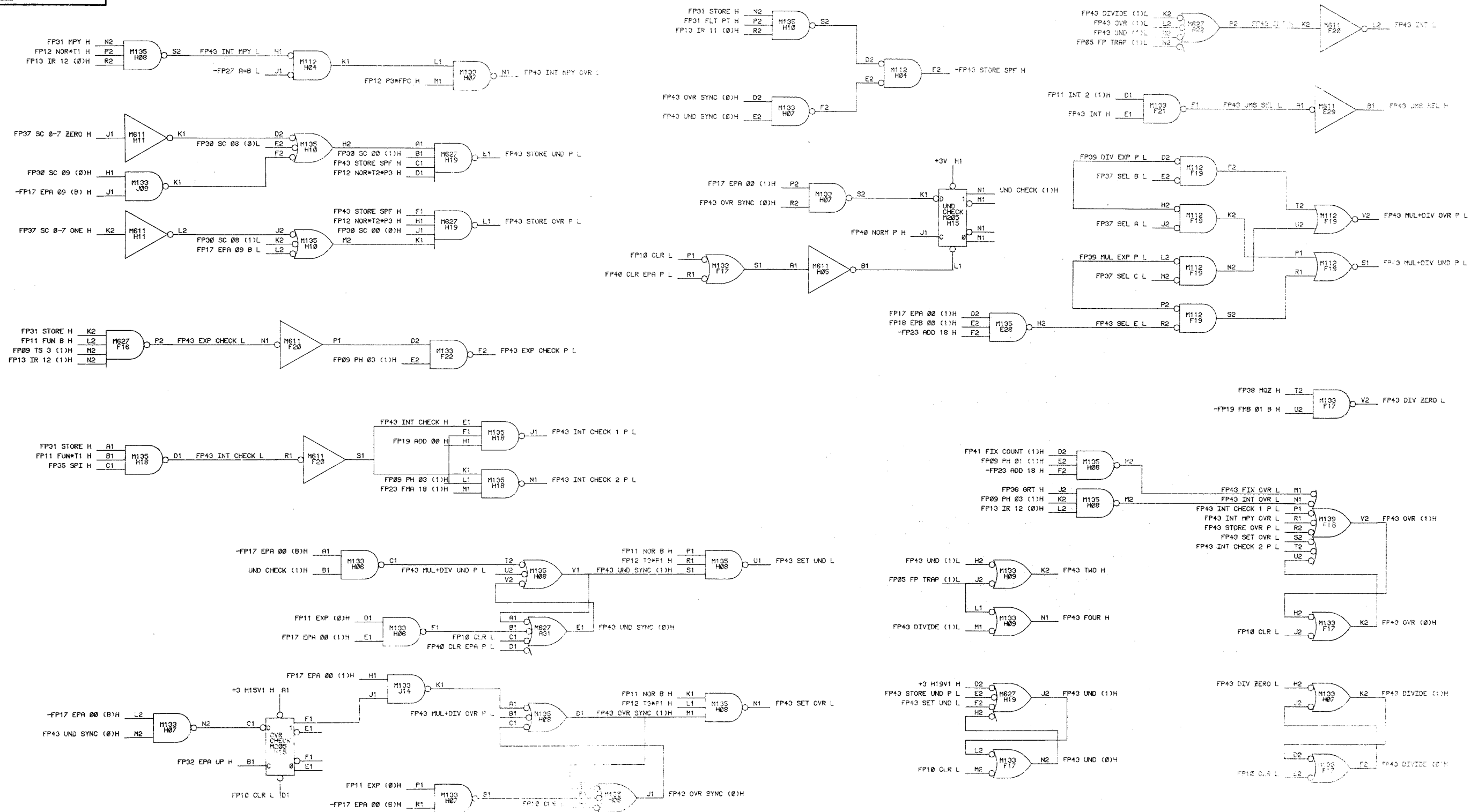


REVISIONS		
CHK.	CHANGE NO.	REV.
1	1	A
2	2	B
3	3	C
4	4	D
5	5	E
6	6	F
7	7	G
8	8	H
9	9	I
10	10	J
11	11	K
12	12	L
13	13	M
14	14	N
15	15	O
16	16	P
17	17	Q
18	18	R
19	19	S
20	20	T

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
ALCOTE	5/14/71			
CHK'D	DATE	TITLE		
S. HAVILAND	5/14/71			
ENG.	DATE	DIAGNOSTIC CONTROL		
E. KING	5/14/71			
PROJ. ENG.	DATE	FIRST USED ON		
J. ELISBERG	5/14/71			
PROD.	DATE	PDP15		
D. DEWOME	5/14/71			
SCALE	SIZE CODE	NUMBER	REV.	
SHEET 1 OF 1	D BS	1P15-B-42		
	DIST.			

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[illegible]

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-

DRN.	DATE	digital CORPORATION MAYNARD, MASSACHUSETTS		
CHWD.	DATE			
ENG.	DATE			
PRO. ENG.	DATE			
PROD.	DATE			
FIRST USED ON		ERROR CHECK		
SCALE				
SHEET	OF			
		SIZE CODE	NUMBER	REV.
		D BS	FP15-B-43	00
		DIST.		

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6775
J03

A1	FP17 EPA 00 (1)H
B1	FP17 EPA 01 (1)H
C1	FP17 EPA 02 (1)H
D1	FP17 EPA 03 (1)H
E1	FP17 EPA 04 (1)H
F1	FP17 EPA 05 (1)H
H1	FP17 EPA 06 (1)H
J1	FP17 EPA 07 (1)H
K1	FP17 EPA 08 (1)H
L1	FP17 EPA 09 (1)H
M1	FP17 EPA 10 (1)H
N1	FP17 EPA 11 (1)H
P1	FP17 EPA 12 (1)H
R1	FP17 EPA 13 (1)H
S1	FP17 EPA 14 (1)H
T1	FP17 EPA 15 (1)H
U1	FP17 EPA 16 (1)H
V1	FP17 EPA 17 (1)H

6775
J04

A1	FP32 ASIGN (1)H
B1	FP40 BWARD (1)H
C1	3RD 04
D1	FP23 JEA 32 (1)H
E1	FP29 JEA 34 (1)H
F1	FP29 JEA 35 (1)H
H1	FP29 JEA 36 (1)H
J1	FP29 JEA 37 (1)H
K1	FP29 JEA 38 (1)H
L1	FP29 JEA 39 (1)H
M1	FP29 JEA 40 (1)H
N1	FP29 JEA 41 (1)H
P1	FP29 JEA 42 (1)H
R1	FP29 JEA 43 (1)H
S1	FP29 JEA 44 (1)H
T1	FP29 JEA 45 (1)H
U1	FP29 JEA 46 (1)H
V1	FP29 JEA 47 (1)H

6775
J05

A1	FP32 BSIGN (1)H
B1	FP19 FMQ 01 (1)H
C1	FP19 FMQ 02 (1)H
D1	FP19 FMQ 03 (1)H
E1	FP20 FMQ 04 (1)H
F1	FP20 FMQ 05 (1)H
H1	FP20 FMQ 06 (1)H
J1	FP20 FMQ 07 (1)H
K1	FP21 FMQ 08 (1)H
L1	FP21 FMQ 09 (1)H
M1	FP21 FMQ 10 (1)H
N1	FP21 FMQ 11 (1)H
P1	FP22 FMQ 12 (1)H
R1	FP22 FMQ 13 (1)H
S1	FP22 FMQ 14 (1)H
T1	FP22 FMQ 15 (1)H
U1	FP23 FMQ 16 (1)H
V1	FP23 FMQ 17 (1)H

6775
J06

A1	FP23 FMQ 18 (1)H
B1	FP23 FMQ 19 (1)H
C1	FP24 FMQ 20 (1)H
D1	FP24 FMQ 21 (1)H
E1	FP24 FMQ 22 (1)H
F1	FP24 FMQ 23 (1)H
H1	FP25 FMQ 24 (1)H
J1	FP25 FMQ 25 (1)H
K1	FP25 FMQ 26 (1)H
L1	FP25 FMQ 27 (1)H
M1	FP26 FMQ 28 (1)H
N1	FP26 FMQ 29 (1)H
P1	FP26 FMQ 30 (1)H
R1	FP26 FMQ 31 (1)H
S1	FP27 FMQ 32 (1)H
T1	FP27 FMQ 33 (1)H
U1	FP27 FMQ 34 (1)H
V1	FP27 FMQ 35 (1)H

6775
J03

A2	FP32 ASIGN (1)H
B2	FP19 FMA 01 (1)H
C2	FP19 FMA 02 (1)H
D2	FP19 FMA 03 (1)H
E2	FP20 FMA 04 (1)H
F2	FP20 FMA 05 (1)H
H2	FP20 FMA 06 (1)H
J2	FP20 FMA 07 (1)H
K2	FP21 FMA 08 (1)H
L2	FP21 FMA 09 (1)H
M2	FP21 FMA 10 (1)H
N2	FP21 FMA 11 (1)H
P2	FP22 FMA 12 (1)H
R2	FP22 FMA 13 (1)H
S2	FP22 FMA 14 (1)H
T2	FP22 FMA 15 (1)H
U2	FP23 FMA 16 (1)H
V2	FP23 FMA 17 (1)H

6775
J04

A2	FP23 FMA 18 (1)H
B2	FP23 FMA 19 (1)H
C2	FP24 FMA 20 (1)H
D2	FP24 FMA 21 (1)H
E2	FP24 FMA 22 (1)H
F2	FP24 FMA 23 (1)H
H2	FP25 FMA 24 (1)H
J2	FP25 FMA 25 (1)H
K2	FP25 FMA 26 (1)H
L2	FP25 FMA 27 (1)H
M2	FP26 FMA 28 (1)H
N2	FP26 FMA 29 (1)H
P2	FP26 FMA 30 (1)H
R2	FP26 FMA 31 (1)H
S2	FP27 FMA 32 (1)H
T2	FP27 FMA 33 (1)H
U2	FP27 FMA 34 (1)H
V2	FP27 FMA 35 (1)H

6775
J05

A2	FP11 BUSY (B)H
B2	FP11 FETCH (B)H
C2	FP11 OPAND (B)H
D2	FP11 EXP (B)H
E2	FP11 FUN (B)H
F2	FP11 NOR (1)H
H2	FP11 WRITE (1)H
J2	FP11 INT 1 (1)H
K2	FP11 INT 2 (1)H
L2	FP09 TS 1 (1)H
M2	FP09 TS 2 (1)H
N2	FP09 TS 3 (1)H
P2	FP14 DIR 12 (1)H
R2	FP14 DIR 13 (1)H
S2	FP14 DIR 14 (1)H
T2	FP14 DIR 15 (1)H
U2	FP14 DIR 16 (1)H
V2	FP14 DIR 17 (1)H

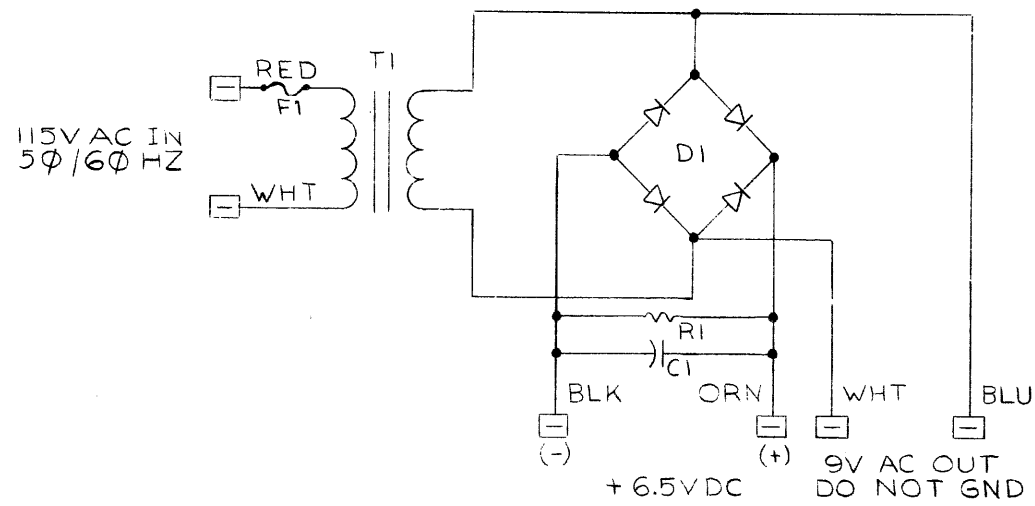
6775
J06

A2	FP10 STALL (1)H
B2	FP09 TS 4 (1)H
C2	FP09 ST PHASE (1)H
D2	FP11 MDL EN (1)H
E2	FP11 LIMIT (1)H
F2	FP32 MAT H
H2	FP41 MAINT MODE (1)H
J2	FP42 SEL DIAG (1)H
K2	FP42 DIAG (1)H
L2	FP10 TRANS EN (1)H
M2	FP10 DIS RD RST (1)H
N2	FP10 DIS CP ACT (1)H
P2	FP10 DIS I/O ACT (1)H
R2	FP11 COND (1)H
S2	FP10 FP MREG (1)H
T2	FP10 FP RD RST (1)H
U2	FP10 FP MRDA (1)H
V2	FP10 FP MRLS ACK (1)H

REVISIONS		
CHK.	CHANGE NO.	REV.

-PRODUCED BY THE AUTOMATED DRAFTING SYSTEM-			
DRN: <i>C1 606</i>	DATE: <i>5-14-71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D: <i>M. Gaudin</i>	DATE: <i>5-14-71</i>		
ENG: <i>CJ King</i>	DATE: <i>5/14/71</i>	INDICATOR CABLES	
PROJ/ENG: <i>J. Gaudin</i>	DATE: <i>5/14/71</i>		
REV: <i>M. Gaudin</i>	DATE: <i>5/14/71</i>	FIRST USED ON	
PDP15			
SCALE	SIZE/CODE	NUMBER	REV.
SHEET 1 OF 1	D BS	FP15-0-44	00
DIST.			

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT BY DIGITAL EQUIPMENT CORPORATION



F1	1/2 AMP S.B. FUSE	9007209
R1	5ohm 25W RES	1300165
C1	18000MFD 10V DC CAP	1009437
	PARTS LIST	D-UA-716-0-0
T1	XMFR*F64-U TRIAD	1609588
D1	DIODE PACK DM-2	1105397
REF DESIGNATION	DESCRIPTION	PART NO.
PARTS LIST		

REV	CHG	NO.	REV
716	0001	A	
716	0001	B	
716	0001	C	

DRN	RAIMONDI	DATE	6-18-69
CHK'D	HEALY	DATE	6-25-69
ENG.	VONADA	DATE	7-21-69
PROD.	ANTONUCCIO	DATE	7-25-69

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital
EQUIPMENT
CORPORATION
MAYNARD, MASSACHUSETTS

TITLE				CIRCUIT SCHEMATIC			
				716			
SIZE	CODE	NUMBER			REV.		
C	CS	716-0-1			C		
PRINTED CIRCUIT REV.							

Pink

REV. CHANGE NO.	REV.	FIRST USED OR OPTION / MODEL FP15	DO NOT SCALE DRAWING	DRN. J. MCHUGH	DATE 5-5-71	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE MODULE UTILIZATION	
			UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	CHK'D. <i>[Signature]</i>	DATE 5-26-71			
			TOLERANCES DECIMALS FRACTIONS ANGLES ± .005 ± 1/64 ± 0°30'	ENG. <i>[Signature]</i>	DATE 6-1-71			
			FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	PROJ. ENG. <i>[Signature]</i>	DATE 6-1-71			
MATERIAL — / —	NEXT HIGHER ASSY A-ML-FP15-0	FINISH — / —	SCALE — / —	SHEET 2 OF 4	DIST.	SIZE CODE	NUMBER	REV.
						D MU	FP15-0-66	

SIZE CODE	NUMBER	REV.
D MU	FP 15-0-66	F

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY	J. McHUGH	CHECKED	R. COOK	SECTION
DATE	5/6/71	DATE	5/26/71	1
ENG	Ed King	PROD	Extreme	ISSUED SECT.
DATE	6-1-71	DATE	6-1-71	1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION
	M112	NOR GATE
	M129	AND/OR INVERT GATE
	M113	10-2 INPUT NAND GATES
	M135	8-3 INPUT NAND GATE
	M139	3-8 INPUT NAND GATE
	M155	4 LINE TO 16 LINE DECODER
	M159	4 BIT ARITHMETIC LOGIC UNIT
	M191	LOOK AHEAD LOGIC FOR M159
	M205	5 "D" FLIP FLOPS
	M216	SIX "D" FLIP FLOPS
	M238	2 4 BIT SYNC UP/DN COUNTERS
	M242	3 J.K. FLIP-FLOPS
	M248	2-4 BIT SHIFT RT, PARALLEL LOAD
	M311	TAP DELAY
	M510	I/O BUS RECEIVER
	M606	PULSE GENERATOR
	M611	14 POWER INVERTERS
	M622	8 POSITIVE INPUT/OUTPUT DRIVERS
	M627	6-4 INPUT NAND POWER AMPLIFIER
	M775	TIME STATE GENERATOR

TITLE	MODULE UTILIZATION
-------	--------------------

ASSY NO.	D-MU-FP15-0-66
SHEET	1 OF 2

SIZE CODE	A PL
NUMBER	FP15-0-66
REV.	E
ECO NO.	FP15-00002

QUANTITY / VARIATION

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY	J. McHUGH	CHECKED	R. Cook	SECTION
DATE	5/6/71	DATE	5-26-71	1
ENG	Ed King	PROD	Extreme	ISSUED SECT.
DATE	6-1-71	DATE	6-1-71	1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION
	M1701	4-4 TO 1 MULTIPLEXERS
	M1713	16-1 MULTIPLEXER
	G829	POWER CONNECTOR
	M966	TERMINATOR MODULE

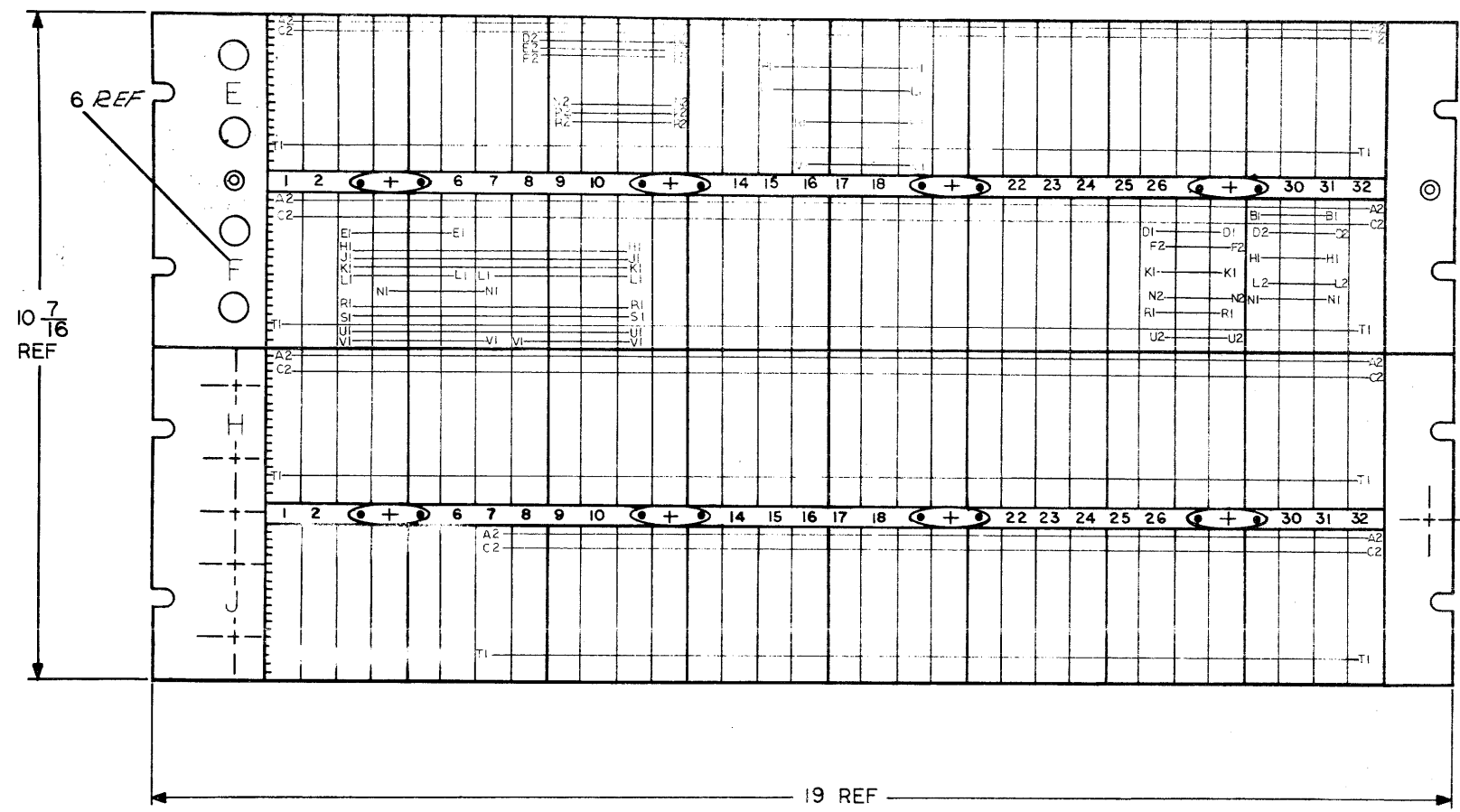
TITLE	MODULE UTILIZATION
-------	--------------------

ASSY NO.	D-MU-FP15-0-66
SHEET	2 OF 2

SIZE CODE	A PL
NUMBER	FP15-0-66
REV.	E
ECO NO.	

QUANTITY / VARIATION

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REV.	CHG.	NO.
1	1	1

UNLESS OTHERWISE SPECIFIED		DRN.	DATE	PARTS LIST		PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		CHK'D	DATE	digital EQUIPMENT CORPORATION		MAYNARD, MASSACHUSETTS	
DIMENSION IN INCHES		ENG.	DATE	TITLE		WIRED ASSY (FPI5)	
TOLERANCES		PROJ. ENG.	DATE	SIZE CODE		NUMBER	REV.
DECIMALS ± .005		PROD.	DATE	D		AD7007243-0-0	1
FRACTIONS ± 1/64		NEXT HIGHER ASSY.		SCALE		NONE	
ANGLES ± 0°30'		SCALE		SHEET		2 OF 2	
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		SHEET		DIST.			

[illegible]

digital

CONTINUATION SHEET

TITLE

FP15 ACCEPTANCE PROCEDURE

I. SCOPE:

The following steps will be followed to accept a FP15:

II. PRELIMINARY CHECKS:

The following items will be checked on the FP15 before acceptance can begin.

- A. A test and inspection record envelope will be with the FP15.
- B. The ECO status sheet will be updated and the FP15 will contain the latest ECO's.
- C. The QC Inspection Report will be filled out and all calls corrected.
- D. An updated Key Sheet will contain the serial number of the FP15.
- E. The FP15 will be ready to ship only final touch up will remain to be done.
- F. Any discrepancy noted from the above will be entered in the acceptance log.

III. SHIPPING HARDWARE AND SOFTWARE:

Refer to Appendix I and II for a complete list of necessary hardware and software.

IV TEST HARDWARE:

A PDP-15/30

V. TEST SOFTWARE:

- A. FP Instruction Test Part I Maindec 15-DOTA
- B. FP Instruction Test Part II Maindec 15-DOWA
- C. FP Instruction Test Part III
- D. FP Step Maindec 15-DOSA
- E. FP Random Exerciser
- F. PDP-15 System Exerciser

DEC FORM NO 16-1022

1. *Chlorophyll a* (Chl *a*)

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE

FP15 ACCEPTANCE PROCEDURE

G. V5A Software Package with Floating Point Fortran.

H. Software Checkout Package.

VI. PROCEDURE:

The following procedure will be followed step by step to insure the quality of the option.

A. Make a visual check of the FP15 to insure the following:

1. There are no loose wires or connections.
2. All modules are in their proper slots and well seated.
3. Remove the indicator and memory cables and see that the proper slot location is marked on the cable connectors. Replace memory cables in proper slots. Before replacing indicator cables apply power and check to see that all lights are on in the indicator panel.

B. Load and run the diagnostic programs as outlined in the following procedure.

1. Load Instruction Test Part I and also load FP Step. Start test at location 200 and insure that it runs error free for fifteen minutes.
2. Load Instruction Test Part II. Start at location 200 and insure that it runs error free for fifteen minutes.
3. Load Instruction Test Part III. Start the program at location 200 and run with all options the PDP-15 has. (MM, KM/KT, MP or KA). It must run error free for thirty minutes. While running Part III, vibrate all modules. Stop program and look at F16V2 with a scope and adjust clock in slot D24 of the FP to 68 nano seconds. Start and run Part III for fifteen minutes error free. Stop program and adjust clock to 90 nano seconds. Start and run Part III for fifteen minutes error free. Stop program and set back to 75 nano seconds.

SIZE	CODE	NUMBER	REV
A	SP	FP15-0-70	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE

FP15 ACCEPTANCE PROCEDURE

4. Load Random Exerciser. Start the program at location 200 and run in Random mode. It must run error free for an overnight run.

C. Do system generation using new floating point software and run the software checkout package.

D. Run System exerciser with all other options that are available on the system for at least one hour.

E. At the completion of these steps the acceptance will be complete except for touch up and insuring all paper work and shipping tags complete.

SIZE	CODE	NUMBER	REV
A	SP	FP15-0-70	

ENGINEERING SPECIFICATION		digital	CONTINUATION SHEET	
TITLE				
APPENDIX I				
Check list for FP15 installed in PDP-15's serial # 141 and above.				
A. One FP15 Serial # _____.				
B. One FP15 Indicator Panel Assembly.				
C. One 716 P.S. for Indicator Panel.				
D. One H721 P.S. for FP15.				
E. If PDP-15 has KM, KM/KT or MP option installed three three foot cables (BC08A-3) must be sent. If the above options are not installed five six foot cables (BC08A-6) must be sent.				
F. Twelve feet of black zipper tubing # 91-07679.				
G. Twenty inches of Caterpillar grommet # 90-07679.				
H. Assorted Mounting Hardware.				
1. Twenty four tie wraps # 90-07880.				
2. Eight Spacers # B-MD-7407789-0-0.				
3. Twenty four screws, PHL.HD. Pan # 10-32 x 5/8 LG # 90060741.				
4. Twenty four speed nuts # 10-32 tinnerman # 9007786.				
5. Six 3/8 nylon C clamps # 90-07083.				
6. Six 5/16 nylon C clamps # 90-07082.				
I. WIRES AND ASSOCIATED CONNECTORS:				
1. Eight circuit Mate-N-Lock Connectors # 1209340-0-0.				
2. One socket housing # 1-480278-0.				
3. One black #14 wire six inches long with one solderless connector DEC part # 90-07929 at one end and one solderless connector DEC part # 90-07928 at the other end.				
4. One orange # 14 wire ten inches long with two solderless connector DEC part # 90-07929 attached.				
		SIZE	CODE	NUMBER
		A	SP	FP15-0-70
				REV

ENGINEERING SPECIFICATION		digital	CONTINUATION SHEET	
TITLE				
APPENDIX I				
I. WIRES AND ASSOCIATED CONNECTORS: (continued)				
5. One black # 14 wire seven inches long with two solderless connectors DEC part # 90-07919 attached.				
6. One red and white # 14 twisted pair seven inches long with four solderless connectors DEC part # 90-07919 attached.				
7. One green and black # 14 twisted pair 31 inches long with four pins DEC part # 12-09378-01 attached.				
8. One green and black # 14 twisted pair 35 inches long with four pins DEC part # 12-09278-01.				
9. One green and black # 14 twisted pair 44 inches long with four pins DEC part # 12-09278-01 attached.				
10. One green and black # 14 twisted pair 50 inches long with four pins DEC part # 12-09378-01 attached.				
11. One red and white # 14 twisted pair 59 inches long with four solderless connectors DEC part # 90-07919.				
12. One black # 14 wire 55 inches long with two solderless connectors DEC part # 90-07919 attached.				
13. One brown # 14 wire 27 inches long with two solderless connectors DEC part # 90-07919 attached.				
14. One brown # 14 wire 47 inches long with two solderless connectors DEC part # 90-07919 attached.				
J. If machine is between serial # PDP-15 and PDP-15-320, a complete set of flex print memory cable must be sent. The latest key sheet must be checked to determine what a complete set will consist of. If flex print cables are sent MDL M910 terminators must be sent.				
K. FUSES:				
1. Five 3 amp. FP				
2. Five 5 amp FB				
3. Five 25 amp FB				
		SIZE	CODE	NUMBER
		A	SP	FP15-0-70
				REV

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE

K. FUSES - (continued)

4. Five 12 amp SB
5. Five 10 amp FB
6. Five 1/2 amp SB

L. DIAGNOSTIC PAPER TAPES AND DOCUMENTS

A. Paper Tapes

1. FP Instruction Test Part I Maindec 15-DOTA-PH.
2. FP Instruction Test Part II Maindec 15-DCUA-PH.
3. FP Instruction Test Part III Maindec 15-DOVA -PH.
4. FP Step Maindec 15-DOSA-PH.
5. FP Randon Exerciser Maindec 15-DOWA -PH.

B. Documents

1. FP Instruction Test Part I Maindec 15-DOTA-D.
2. FP Instruction Test Part II Maindec 15-DOUA-D.
3. FP Instruction Test Part II Maindec 15-DOVA -D.
4. FP Step Maindec 15-DOSA-D.
5. FP Randon Exerciser Maindec 15- DOWA-D.

M. MANUALS

1. FP Maintenance Manual Volume I.
2. FP Maintenance Manual Volume II.
3. FP Programmers Guide.
4. PDP-15 Module Manual.

N. PAPER WORK CONSISTING OF THE FOLLOWING:

1. Acceptance Log.
2. Q. C. Check List.
3. ECO Status Sheet.
4. Key Sheet.
5. Waiver Sheet.
6. Customer Acceptance Form.

O. Advanced software and advanced software checkout package.

P. Installation Procedure.

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A	SP	FP15-0-70	

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CONTINUATION SHEET

TITLE

APPENDIX II

Check list for FP15 installed in PDP-15's serial # 140 and below.

A. One # 963 Cabinet back door assembly.

B. All items listed in Appendix I with the exception of item I which is included in H963 back door assembly.

C. Wiring:

1. One black # 14 wire six inches long with one solderless connector DEC part # 90-0719 at one end and one solderless connector DEC part # 90-07928 at the other end.
2. One orange # 14 wire 10 inches long with two solderless connector DEC part # 90-07919 attached.
3. One black # 14 wire 7 inches long with two solderless connectors DEC part # 90-07919 attached.
4. One red and white # 14 twisted pair 7 inches long with four solderless connectors DEC part # 90-07919 attached.

D. Four G829 modules.

SIZE	CODE	NUMBER	REV
A	SP	FP15-0-70	

DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

DATE 5/12/71

TITLEFP15 INSTALLATION PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG

Edward King

APPD

Edward K. King

SIZE

A

CODE

SP

NUMBER

FP15-0-71

REV

Without written permission.

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3.0 Parts List Needed	10-12

digital CONTINUATION SHEET				
TITLE FP15 INSTALLATION PROCEDURE				
1.0 Procedure for Installing FP15 to PDP15 #141 and Above 1.0.1 Check the contents of the container against the Parts List (A-PL-FP15-0-0). 1.0.2 Check logic blocks for cracks and visual signs of damage. 1.0.3 Check location of modules in FP15 against Modules Utilization List. 1.0.4 Remove all blank panels above the existing 734D variable power supply on the back door of the H963-E cabinet (Bay IR) of the PDP15/20/30/40 system. 1.0.5 Remove the 5 1/4 inch cover panel (H950-P) and latch moulding directly below the RP15 indicator panel. 1.0.6 Install the FP15 indicator panel directly below the BB15 indicator panel. 1.0.7 Install the 716 power supply on the right side of the cabinet (H963-E), as viewed from the rear. Mount the 716 power supply directly below the existing 716 that provides power for the RP15 indicator panel. Apply caterpillar grommets to the side rails on the back end of both 716 power supplies. 1.0.8 Install the H721 power supply on the rear door of the cabinet (H963-E) directly above the existing 734D variable power supply. 1.0.9 Move the jones strip from inside post of the cabinet to the back side of the same post. 1.0.10 Install the FP15 logic wired assembly, with modules directly above the H721 power supply on the rear door of the cabinet (H963-E). Fasten loosely to the door with screws supplied. Place spacers (R-MD-7407789-0-0) supplied between the door and the FP15 wired assembly. Tighten all screws securely. 1.0.11 The KP15 must be modified as per handwire list supplied in the FP15 Installation Kit. 1.0.12 If the PDP15 System is below #300, a new set of Flexprint Memory cables must replace the Flat Coaxil Memory cables.				
	SIZE A	CODE SP	NUMBER FP15-0-71	REV

digital CONTINUATION SHEET				
TITLE FP15 INSTALLATION PROCEDURE				
1.1 INDICATOR POWER WIRING (AC-DC) 1.1.1 Connect a six inch #14 black wire with connectors between the FP15 indicator panel ground tab and cabinet chassis ground. 1.1.2 Connect a ten inch #14 orange wire with connectors between the +6.5 volt tab on the FP15 indicator panel and the orange tab (+6.5 volts) on the FP15 indicator power supply. 1.1.3 Connect a seven inch #14 black wire with connectors from the black tab (GND) on the FP15 indicator power supply to the black tab (GND) on the RP15 indicator power supply. 1.1.4 Connect a seven inch #14 red and white twisted pair with connectors from the red and white tabs (115 volts) on the RP15 indicator power supply to the red and white tabs (115 Volts) on the FP15 indicator power supply. 1.2 FP15 DC POWER WIRING 1.2.1 Connect a fifty inch #14 green and black twisted pair with pins to 8 circuit Mate-N-Lock connector (12-09340-0-0), pin holes one for green and 3 for black. Place connector on module G829 in racks A-P. Connect the other end to the socket housing (12-0935-12), pin holes one for black and six for green. 1.2.2 Connect a forty-four inch #14 green and black twisted pair with pins to 8 circuit Mate-N-Lock connector (12-09340-0-0), pin holes one for green and three for black. Place connector on module G829 in racks C-D. Connect the other end to the socket housing (12-0935-12), pin holes two for black and seven for green. 1.2.3 Connect a thirty-five inch #14 green and black twisted pair with pins to 8 circuit Mate-N-Lock connector (12-09340-0-0), pin holes one for green and three for black. Place connector on module G829 in racks E-P. Connect the other end to the socket housing (12-0935-12), pin holes three for black and eight for green.				
	SIZE A	CODE SP	NUMBER FP15-0-71	REV

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1.2.4 Connect a thirty-one inch #14 green and black twisted pair with pins to eight circuit Mate-M-Block connector (12-09340-0-0), pin holes one for green and three for black. Place connector on module G829 in racks H-J. Connect the other end to the socket housing (12-0935-12), pin holes four for black and nine for green.

1.2.5 Place male socket housing into female socket housing on back of H721 power supply. Dress power wires down inside cabinet door using retaining lugs supplied.

1.3 H721 POWER SUPPLY WIRING (AC)

1.3.1 Connect a 59 inch #14 red and white twisted pair from the power control to the H721 power supply AC input terminals (TP2-1 and 2). Refer to D-CS-H721-01 for internal connections.

1.3.2 Connect a twenty-eight inch #14 black wire, from TP2-8 to cabinet chassis ground on power control.

1.3.3 Remove the console power switch lead from the existing H721 power supply (TB2-6) and connect a forty-seven inch #14 brown wire from the power control console power switch tab to the added 721 power supply at TB2-6. Connect a twenty-four inch #14 brown wire from TB2-6 on the original H721 to TP2-7 on the added H721 power supply. These connections will connect both H721 thermostat circuits in series with the console power switch.

1.4 SIGNAL CABLE CONNECTIONS

1.4.1 The table below is a signal cable connection chart that indicates how to connect the FP15 into an existing PDP-15 System.

NOTE

The connections place the FP15 between the KP15 and the RB15.

TITLE FP15 INSTALLATION PROCEDURE

When the system does not include certain PB15 options (KM, KT, MP), ignore the PB15 cable connections and connect the FP15 directly to the MM15A as indicated in the table.

Connector Locations

Cable Functions	KP15	FP15		RB15		MM15A	Remarks
	OUT	IN	OUT	IN	OUT	IN	
Memory Data Lines	J02	H29	J29	R02	A02	R02	If RB15 is not included or does not contain KM15, KT15, or MP15, connect FP15-J29 MM15A-R03.
Memory Control Lines	J03	H30	J30	R03	A03	R03	Under conditions listed above, FP15-J30 to MM15A-R02.
API	H03	H31	J31	R05	--	--	This cable is not required to be connected to memory.

Signal Cable Chart Figure 1-4

Dress all cables in cabinet securely with zipper tubing.

1.5 INDICATOR BUS CABLE CONNECTIONS

1.5.1 Connect the FP15 Indicator Bus cables to the FP15 wired assembly (J03, J04, J05 and J06) as marked on on connector cable ends. Dress the indicator cables between the FP15 wired assembly and the H721 power supply.

TITLE FP15 INSTALLATION PROCEDURE

1.6 POSTINSTALLATION CHECKS AND TESTS

1.6.1 Make a final check of the completed installation to be sure that:

- a. All modules are correctly installed in the FP15 wired assembly.
- b. Major components are securely mounted in the cabinet.
- c. Cable and wired connections are correct and cables and harnesses are dressed and fastened within the cabinet.
- d. Make an OHM check between +5 volts and GND on the FP15.

1.6.2 Apply primary power to the cabinet by closing the circuit breaker on the 841R power control. Turn on consoled power. Test for +5 volts at all of the G829 modules in the FP15.

1.6.3 With scope probe on F16V2 adjust FP15 clock (M775 in D24) to 75 nanoseconds.

2.0 PROCEDURE FOR INSTALLING FP15 TO PDP15 #140 AND BELOW

2.0.1 Remove wiring harness in cabinet H963-E.

2.0.2 Remove back door on cabinet H963-E.

2.0.3 Remove G821 modules in BR15, BA15, and DW15.

2.0.4 Install G829 modules in BR15, BA15, and DW15.

2.0.5 Install new back door on cabinet H963-E.

2.0.6 Remove 734D power supply from old back door.

2.0.7 Install the 734D on new door below the H721 for the FP15.

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TITLE FP15 INSTALLATION PROCEDURE

2.0.8 Attach new wiring harness in cabinet H963-E and to places on back door that need it.

2.0.9 Remove the 5 1/4 inch cover panel (H950-P) and latch moulding directly below the BR15 indicator panel.

2.0.10 Install the FP15 indicator panel directly below the BR15 indicator panel.

2.0.11 Install the 716 power supply on the right side of the cabinet (H963-E), as viewed from the rear. Mount the 716 power supply directly below the existing 716 that provides power for the BR15 in indicator panel. Apply caterpillar grommets to the side rails on the back end of both 716 power supplies.

2.0.12 Move the jones strip from inside post of the cabinet to the back side of the same post.

2.0.13 The KP15 must be modified as per handwire list supplied in the FP15 Installation Kit.

2.0.14 Install a new set of Flexiprint Memory cables to replace the Flat Coaxial Memory cables.

2.1 INDICATOR POWER WIRING (AC-DC)

2.1.1 Connect a six inch #14 black wire with connectors between the FP15 indicator panel ground tab and cabinet chassis ground.

2.1.2 Connect a ten inch #14 orange wire with connectors between the +6.5 volt tab on the FP15 indicator panel and the orange tab (+6.5 Volt) on the FP15 indicator power supply.

2.1.3 Connect a seven inch #14 black wire with connectors from the black tab (GND) on the FP15 indicator power supply to the black tab (GND) on the BR15 indicator power supply

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- 2.1.4 Connect a seven inch #14 red and white twisted pair with connectors from the red and white tabs (115 Volts) on the FP15 716 indicator power supply to the red and white tabs (115 Volts) on the RB15 indicator power supply.

2.2 SIGNAL CABLE CONNECTIONS

- 2.2.1 The table below is a signal cable connection chart that indicates how to connect the FP15 into an existing PDP-15 System.

NOTE

The connections place the FP15 between the KP15 and the RB15.

- 2.2.2 When the system does not include certain RB15 options (KM, KT, MP) ignore the RB15 cable connections and connect the FP15 directly to the MM15A as indicated in the table.

Figure 2-2 Signal Cable Chart

Connector Locations

Cable Functions	KP15 OUT	FP15		RB15		MM15A IN	Remarks
		IN	OUT	IN	OUT		
Memory Data Lines	J02	H29	J29	B02	A02	B02	If RB15 is not included or does not contain KM15, KT15, or MP15, connect FP15-J29 to MM15A-B03
Memory Control Lines	J03	H30	J30	R03	A03	R03	Under conditions listed above, connect FP15-J30 to MM15A-R02.
API Control	H03	H31	J31	B05	--	--	This cable is not required to be connected to memory.

Dress all cables in cabinet securely with zipper tubing.

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TITLE FP15 INSTALLATION PROCEDURE

2.3 INDICATOR BUS CABLE CONNECTIONS

- 2.3.1 Connect the FP15 Indicator Bus cables to the FP15 wired assembly (J03, J04, and J05 and J06) as marked on connector cable ends. Dress the indicator cables between the FP15 wired assembly and the P721 Power Supply.

2.4 POSTINSTALLATION CHECKS AND TESTS

- 2.4.1 Make a final check of the completed installation to be sure that:

- All modules are correctly installed in the FP15 wired assembly.
- Major components are securely mounted in the cabinet.
- Cable and wired connections are correct, and cables and harnesses are dressed and fastened within the cabinet.
- Make an OHM check between +5 Volts and GND on the FP15.

- 2.3.2 Apply primary power to the cabinet by closing the circuit breaker on the 841P power control. Turn on consoled power. Test for +5 Volts at all of the G829 modules in the FP15.

- 2.4.3 With scope probe on F16V2 adjust FP15 lock (M775 in D24) to 75 nanoseconds.

- 3.0 The following is a list of wires needed. See Parts List attached.

- One black #14 wire six inches long with one solderless connector DEC Part #90-07919 at one end and one solderless connector DEC Part # 90-07928 at the other end.
- One orange #14 wire ten inches long with two solderless connector DEC Part #90-07919 attached.

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- 3. One black #14 wire seven inches long with two solderless connectors DEC Part #90-07919 attached.
- 4. One red and white #14 twisted pair seven inches long with four solderless connectors DEC Part #90-07919 attached.
- 5. One green and black #14 twisted pair 31 inches long with four pins DEC Part #12-09378-01 attached.
- 6. One green and black #14 twisted pair thirty-five inches long with four pins DEC Part #12-09378-01 attached.
- 7. One green and black #14 twisted pair forty-four inches long with four pins DEC Part #12-09378-01 attached.
- 8. One green and black #14 twisted pair fifty inches long with four pins DEC Part #12-09378-01 attached.
- 9. One red and white #14 twisted pair 59 inches long with four solderless connectors DEC Part #90-07919 attached.
- 10. One black #14 wire fifty-five inches long with two solderless connectors DEC Part #90-07919 attached.
- 11. One brown #14 wire twenty-seven inches long with two solderless connectors DEC Part #90-07919 attached.
- 12. One brown #14 wire forty-seven inches long with two solderless connectors DEC Part #90-07919 attached.

TITLE FP15 INSTALLATION PROCEDURE

DWG. NO./PART NO.	DESCRIPTION	PDP15's BELOW #140	PDP15's ABOVE #141
D-AD-7006331-20-0	INDICATOR PANEL ASSEMBLY	1	1
D-UA-716-0 0	PWR SUPPLY INDICATOR PANEL	1	1
	THREE FOOT CABLES (BC08A-3)	3*	3*
	WIRE #14 BLACK 6" WITH CONN.	1	1
	WIRE #14 ORANGE 10" WITH CONNECTORS	1	1
SEE LIST OF WIRES	WIRE #14 BLACK 7" WITH CONN.	1	1
	WIRE #14 RED & WHITE 7" WITH CONNECTORS	1	1
90-07036	20" CATERPILLAR GROMMETS	1	1
91-07679	12' BLACK ZIPPER TUBING	1	1
	COMPLETE SET OF MEM CABLES (FLEX PRINT)	ALL MACHINES BELOW #300	
	G829 MODULES	4	
	BACK DOOR WIRED	1 THIS INCLUDES ALL ITEMS LISTED BELOW.	
J-IA-7006538-0-0	HARNESS, H963F	1	
90-07880	TIE WRAPS	24	24
D-AD-7007243-0-0	WIRED ASSEMBLY (FP15)	1	1
B-MD-7407789-0-0	SPACERS	8	8
9006074-1	SCR, PHL HD PAN #10-32 x 5/8 LG	24	24
9007786	SPEED NUT #10-32 TINNFRMAN	24	24
D-UA-H721-0-0	H721 POWER SUPPLY	2	1
1209340-0-0	8CIRCUIT MATE-N-LOCK CONN.	8	8
120935-12	SOCKET HOUSING #1-480278-0	1	1
D-MD-7408089-0-0	TERM STRIP PANEL	1	
D-MD-7407341-0-0	841-B POWER CONTROL	1	
	#14 GREEN & BLACK TWISTED 31" WITH PINS	1	1
	#14 GREEN & BLACK TWISTED 35" WITH PINS	1	1
	#14 GREEN & BLACK TWISTED 44" WITH PINS	1	1
SEE LIST OF WIRES	#14 BREEN & BLACK TWISTED 50" WITH PINS	1	1
	#14 RED & WHITE TWISTED 59" WITH CONNECTORS	1	1
	#14 BROWN 27" WITH CONN.	1	1
	#14 BROWN 47" WITH CONN.	1	1
#14 BLACK 56" WITH	#14 BLACK 56" WITH CONN.	1	1
90-07083	3/8 NYLON C CLAMPS	6	6
90-07082	5/16 NYLON C CLAMPS	6	6

*If KM, KM/KT or MP option is not installed, five six foot BC08A cables should be used.

