

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

INPUT (LOW TRUE PULSE)

- 0 REG
- 1 SWITCHES
- 2 DRIVE STAT
- 3 ECC HI
- 4 ECC LO
- 5 DATA BUS
- 6 AUX STAT
- 7 SPARE

OUTPUT REGS (LOW TRUE PULSE)

- 0 LD ACCUMULATOR
- 1 WR ADRS MARK
- 2 LD DSR
- 3 LD CCL
- 4 LD OHR
- 5 ECC CLK
- 6 LD LED
- 7 LD RWCL
- 8 UP INC
- 9 LD BUFFER ADRS LO
- A LD BUFFER ADRS HI
- B LD FDC CONTROL
- C SPARE
- D SPARE
- E SPARE
- F SPARE

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
INSTRUCTION FORMAT	S ₁	S ₀	C	L	ALU FCN			OPERAND								
ARITHMETIC	0	0	C	0	ALU FCN			R _{WE}	INPUT			REG ADRS				
LOGICAL	0	1	C	0	ALU FCN			A _{WD}	INPUT			REG ADRS				
FLAG	0	0	0	1	ALU FCN			R _{WE}	OUTPUT			REG ADRS				
JUMP FORMAT	0	1	0	1	ALU FCN			CONSTANT								
JUMP INST.	0	1	1	1				S/C	FLAG DECODE							
	S ₁	S ₀	P/P	FE	F/T	ADDRESS										
	1	1	1	1	0	ADDRESS										
	1	0	0	1	0	ADDRESS										
	1	1	X	0	0	ADDRESS										
	1	X	0	0	F/T	COND CODE										

- Q.(ACC.INPUT) → REG
- Q.(ACC.INPUT) → ACC
- L.(ACC.INPUT) → REG
- L.(ACC.REG) → OUTPUT
- L.(ACC.CONSTAT) → ACC
- JSR - JUMP & PUSH
- RET - RETURN & POP
- JUMP
- CONDITIONAL SKIP

BYTE	BIT							
	7	6	5	4	3	2	1	0
DRV STAT	SEEK	INDX	DRV	TRK	WR	ACK	SEL	BUSY
	COMP	RDY	00	00	FLT	*	*	*
ECC LO	E21	E20	E19	E18	E17	E16	E15	E14
ECC HI	SEL'D	SEL'D	SEL'D	SEL'D	PAR	OK	E23	E22
	3	2	1	0				

ECC OK (FLOPPY INTRPT)

BYTE	BIT							
	7	6	5	4	3	2	1	0
DSR	DRV	DRV	DRV	DRV	SPARE	HD	HD	HD
	3	2	1	0		2	1	0
CCL	SPARE	SPARE	INTR	TSEL	SPARE	W/R	CHLD	CMUX
						BUF	B	A
RWCL	CLR	CLR	WR	EN	EN	ECC	ECC	L/S
	SER	ECC	DATA	WR	RD	SEL	CLK	ECC
	DES	#	SEL	BUF	BUF	EN		
	#	#						
FDC CONTROL	CLR	W/R	F/H	SPARE	TERM	AG	RD	WR
	FDC	FDC			CNT		E	#

* = LOW TRUE

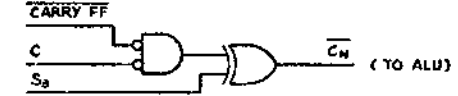
FLAGS (HIGH TRUE SIGNALS)

- 0 WRITE GATE
- 1 DIRECTION IN
- 2 REDUCED WRITE CURRENT
- 3 STEP
- 4 BUFFER XCVR DISABLE
- 5 SERDES LOAD/SHIFT
- 6 SERDES HOLDING REG OUTPUT DISABLE
- 7 DISABLE OUTPUT HOLDING REG
- 8 READ GATE
- 9 DISABLE HOST RCVR
- A TBUSY
- B REQUEST DATA
- C COMMAND / DATA
- D DISABLE FDC XCVR
- E REG BANK SEL
- F ENABLE HOST XMTR

ARITHMETIC DECODE

C	S ₃	S ₂	S ₁	S ₀	
1	0	0	0	0	INC (PORT A)
1	0	1	1	0	SUB
0	0	1	1	0	SBWC
1	1	0	0	1	ADD
0	1	0	0	1	ADWC
1	1	1	0	0	SHFT
0	1	1	0	0	ROT
1	1	1	1	1	DEC
0	1	1	1	1	MOVIA

- R_{WE} = IF SET ENA REG WRITE
- A_{WD} = IF SET DISABLE ACC WRITE
- C = PSEUDO CARRY
- S/C = SET / CLR
- F/T = FALSE / TRUE
- P/P = PUSH / POP
- X = DON'T CARE



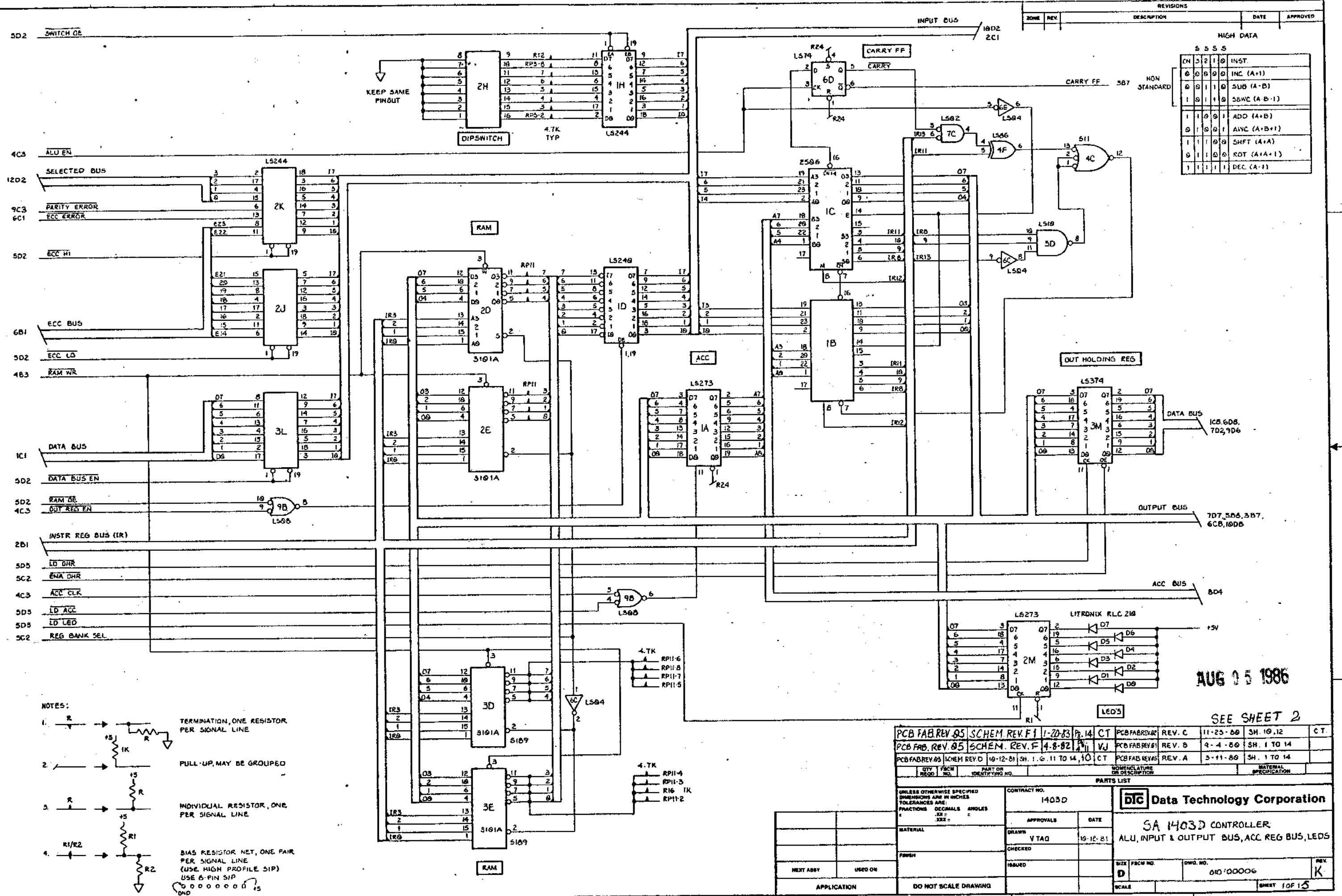
CONDITION CODES

- 0 ALU 1
- 1 3
- 2 5
- 3 7
- 4 CARRY FF
- 5 ALU = 0
- 6 BYTE RDY
- 7 ADR MARK

QTY REQD	FROM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .125 .005 .005			CONTRACT NO.	
MATERIAL		APPROVALS	DATE	
FINISH		C. THEIN	9-19-80	
NEXT ASSY		CHECKED	ISSUED	
USED ON		SCALE		
APPLICATION		DO NOT SCALE DRAWING		
			1403D INSTRUCTION SET DECODE	
SIZE	FACE NO.	DWG. NO.	REV.	
D		010-60010		
SCALE	SHEET		1 OF 1	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

HIGH DATA					
CN	3	2	1	0	INST.
0	0	0	0	0	INC (A+1)
0	0	1	1	0	SUB (A-B)
1	0	1	0	0	SBWC (A-B-1)
1	1	0	0	0	ADD (A+B)
0	1	0	0	1	AINC (A+B+1)
1	1	1	0	0	SHFT (A+A)
0	1	1	0	1	ROT (A+A+1)
1	1	1	1	1	DEC (A-1)



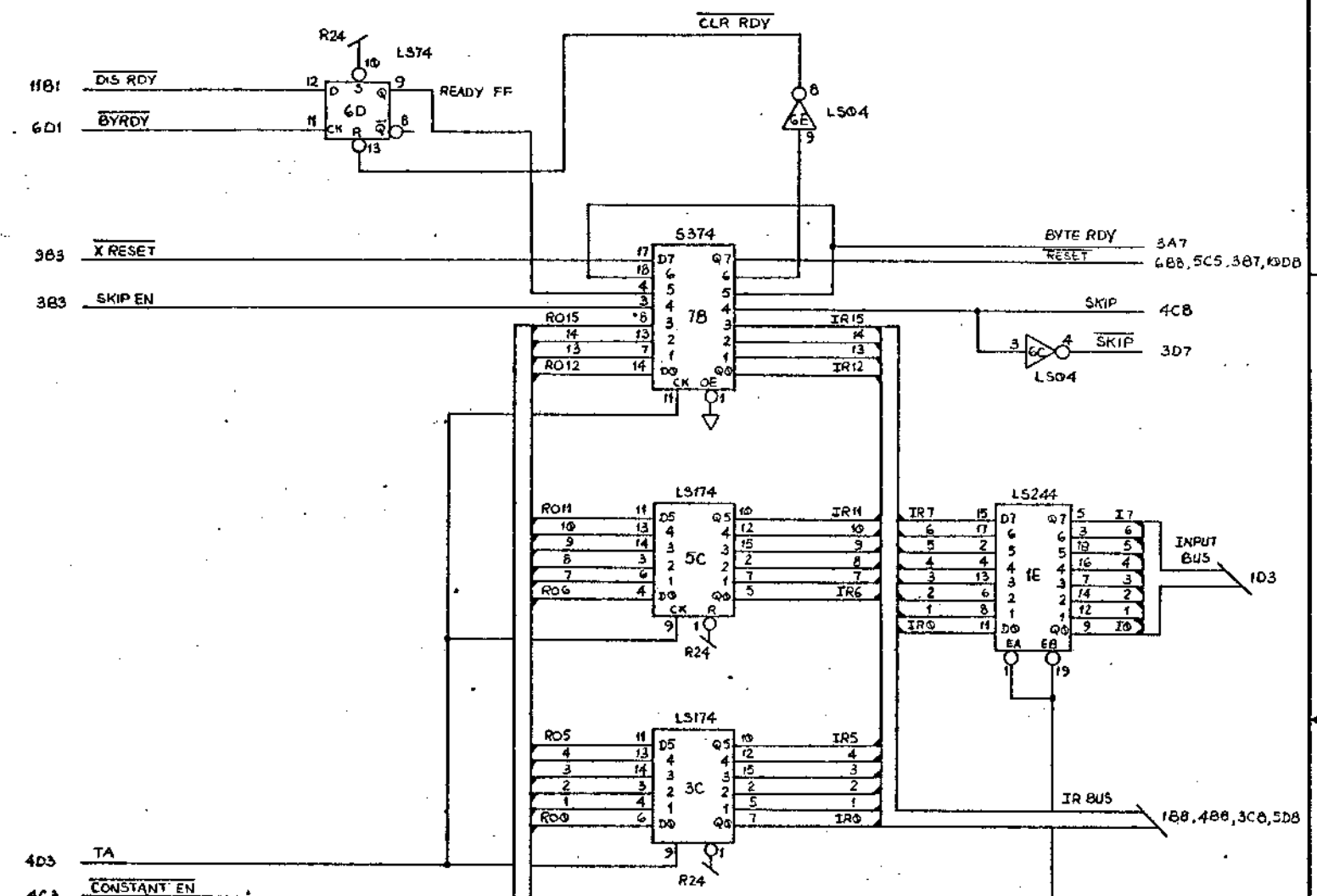
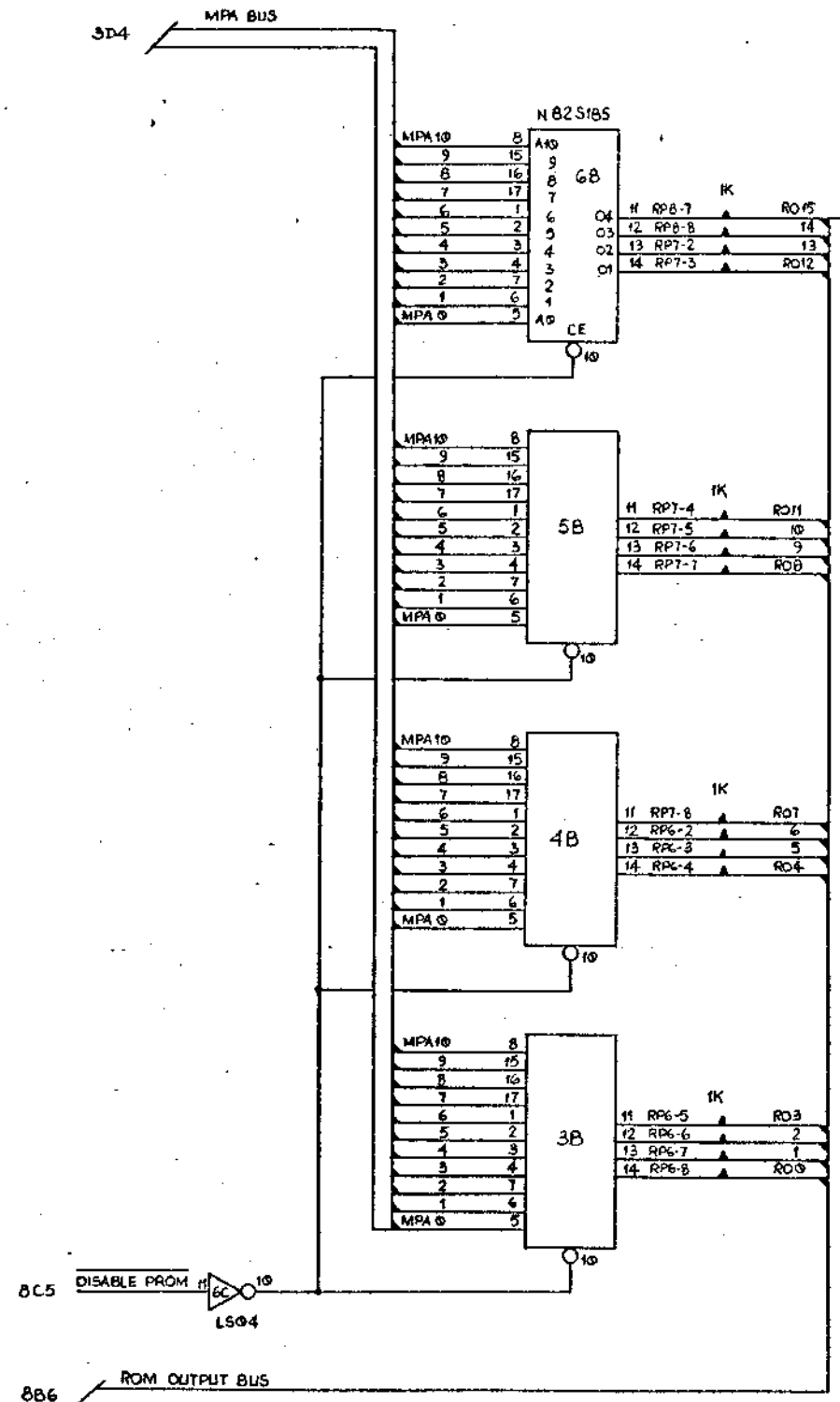
AUG 05 1986

SEE SHEET 2

PCB FAB REV. 05	SCHEM. REV. F 1-20-83	R. 14	CT	PCB FAB REV. C	REV. C	11-25-80	SH. 10, 12	CT
PCB FAB REV. 05	SCHEM. REV. F 4-8-82	VJ		PCB FAB REV. B	REV. B	2-4-80	SH. 1 TO 14	
PCB FAB REV. 05	SCHEM. REV. D 10-12-81	SH. 1, G. 11 TO 14, 10	CT	PCB FAB REV. A	REV. A	3-11-80	SH. 1 TO 14	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO. 1403D		DTC Data Technology Corporation	
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE	
			V TAQ	10-12-81	
MATERIAL		CHECKED		ISSUED	
FINISH		NEXT ASSY		USED ON	
APPLICATION		DO NOT SCALE DRAWING		SCALE	
SA 1403D CONTROLLER		ALU, INPUT & OUTPUT BUS, ACC REG BUS, LEDS		REV. K	
SIZE PCB NO. D		DWG. NO. 610-00006		REV. K	
SHEET 1 OF 15		40-00050		1	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

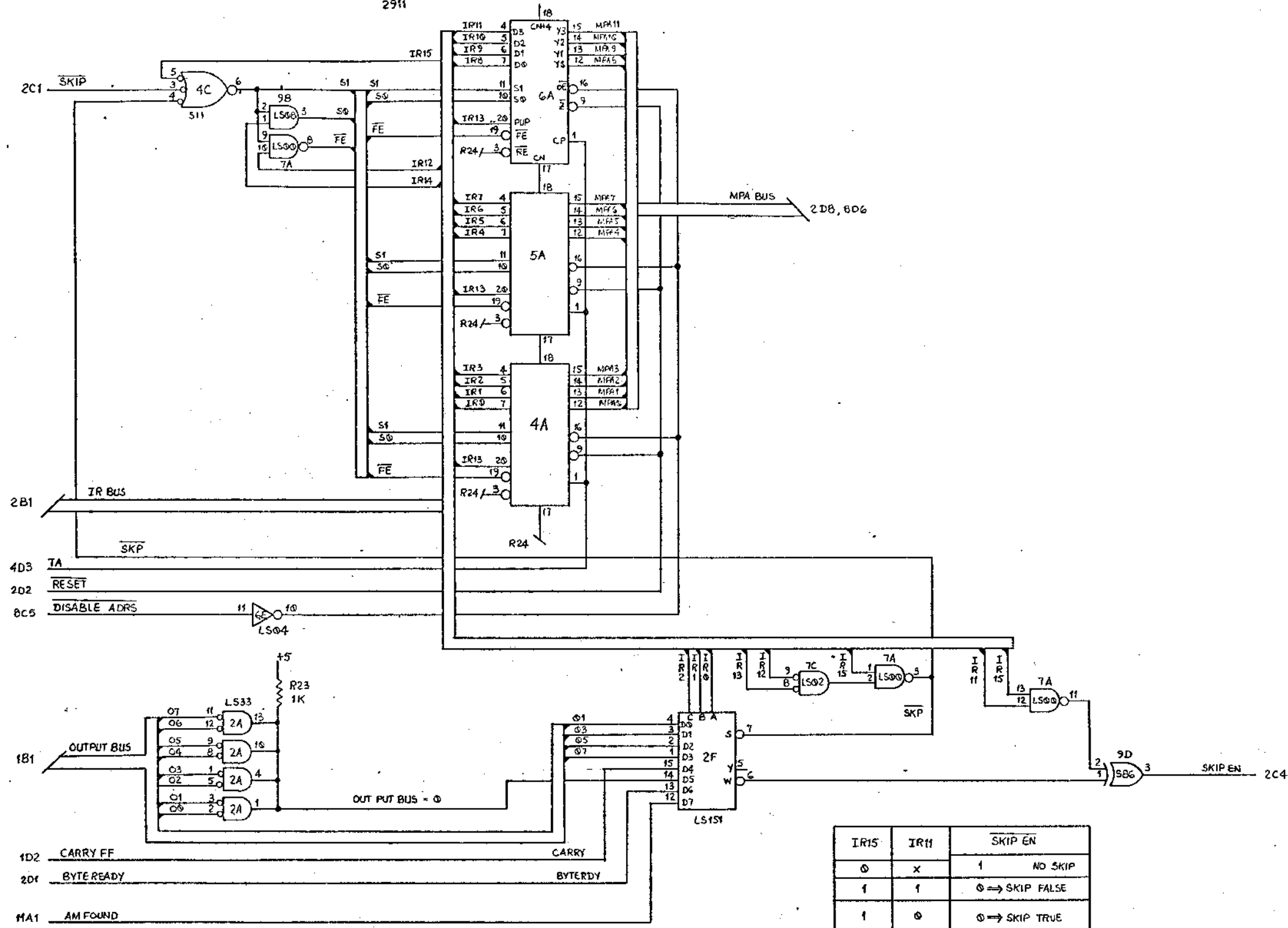


0466	K	UPDATE REV.	7/2/85	CT CB
0427	J	UPDATE REV.	5/2/85	CB PM
0383	H	CHANGE P/N AT LOC. 13K	4/8/85	KD PM
0105	G	CHANGE VALUE C31, C29	3/20/84	CB PM
ECO#	REV.	DESCRIPTION	DATE	APPROVE

QTY	FROM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XXX				
MATERIAL		CONTRACT NO. 1403 D		Data Technology Corporation
PWBH		APPROVALS	DATE	
NEXT ASSY		DRAWN	9-8-80	SA 1403 D CONTROLLER ROMS & INST. REG. (IR)
USED ON		CHECKED		
APPLICATION		ISSUED		SIZE FROM NO. D
DO NOT SCALE DRAWING				OWG. NO. 010-00006
				REV. K
				SCALE
				SHEET 2 OF 15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

GND = B, VCC = 2
2911



CITY	FROM	PART OR IDENTIFYING NO.	NO. IN QUANTITY	DESCRIPTION	MATERIAL SPECIFICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS	DECIMALS	ANGLES	1403D
± .010	± .005	± .010	
± .005	± .002	± .010	

APPROVALS		DATE	DTC Data Technology Corporation SA 1403D CONTROLLER ADDRESS REG. & SKIP DECODE
DRAWN		8-25-80	
CHECKED			
ISSUED			

NEXT ASSY	USED ON	SIZE (FSCN NO.)	DWG. NO.	REV.
		D	010 - 00006	K

APPLICATION: DO NOT SCALE DRAWING

SCALE: SHEET 3 OF 15

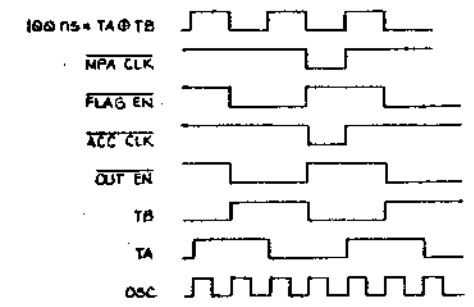
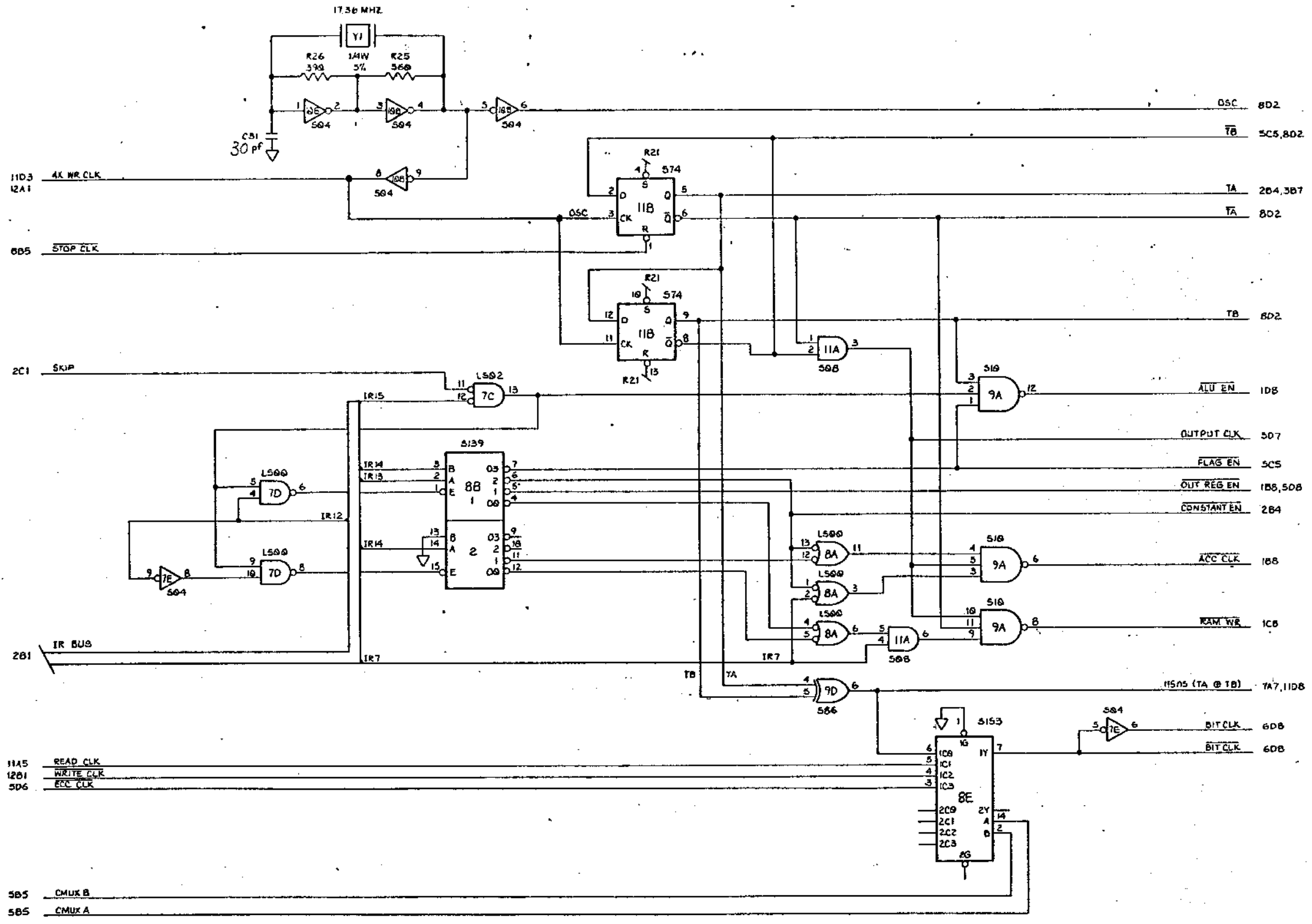
D

C

B

A

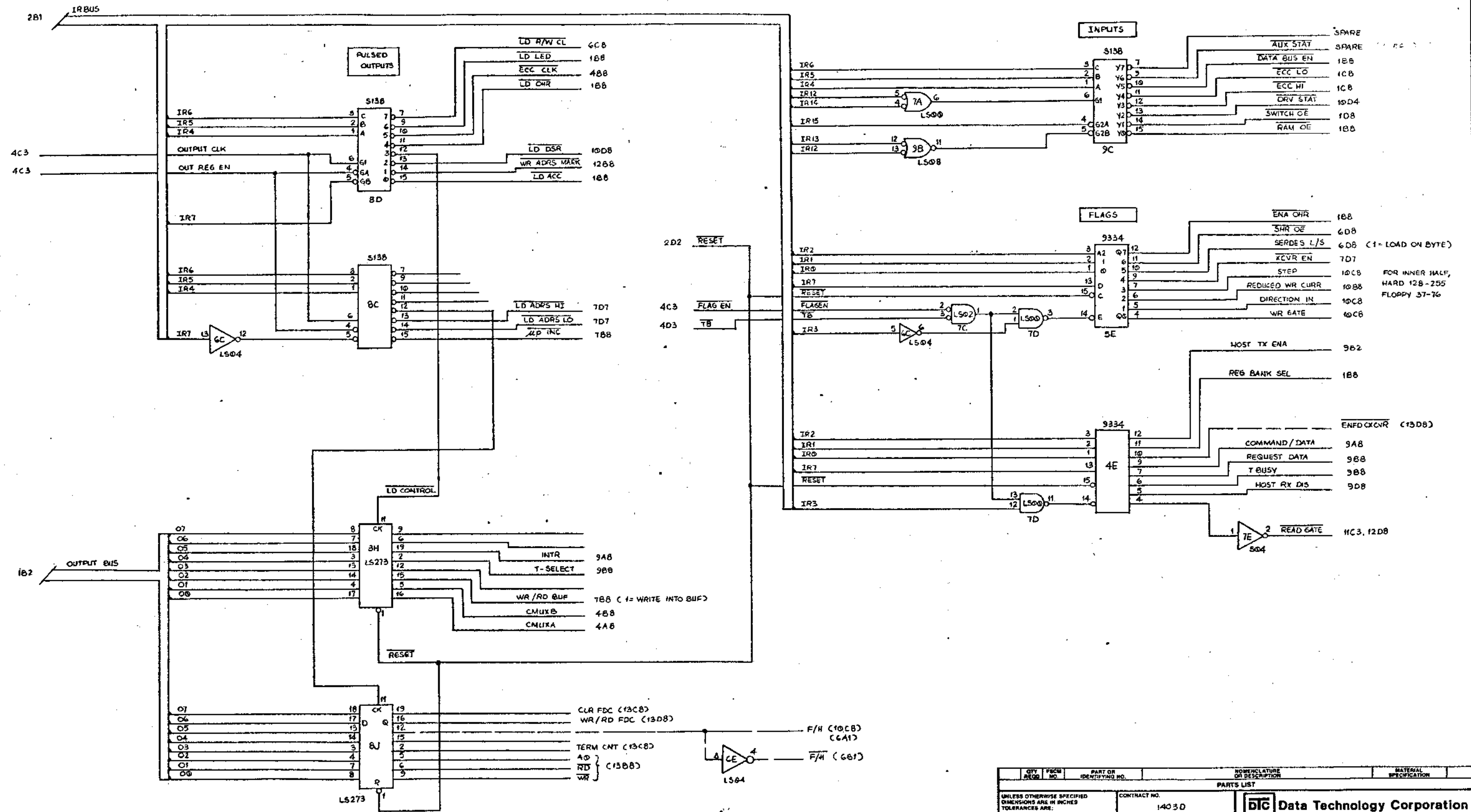
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



5B5 CMUX B
5B5 CMUX A

QTY	FROM	PART OR	NOMENCLATURE	MATERIAL
REQD	NO.	IDENTIFYING NO.	OR DESCRIPTION	SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .005 ± .002 ± .001		CONTRACT NO. 1403D		DTIC Data Technology Corporation
MATERIAL		APPROVALS Y TAO	DATE 4-8-82	
FINISH		CHECKED		SA 1403D CONTROLLER TB, TI, CLOCKS & DECODE (INST)
NEXT ASSY		ISSUED		
USED ON		SCALE		SIZE: D PCHM NO. 010-00006 REV. K
APPLICATION		DO NOT SCALE DRAWING		SHEET 4 OF 15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



QTY	FRM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES		CONTRACT NO. 1403D		
DRAWN L TSENG		DATE 9-24-80		
CHECKED		ISSUED		
NEXT ASSY		USED ON		SCALE
APPLICATION		DO NOT SCALE DRAWING		SCALE

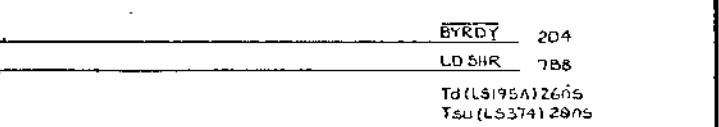
DTG Data Technology Corporation

SA 1403D CONTROLLER
 OUTPUTS, FLAGS, INPUT AND CONTROL LATCH

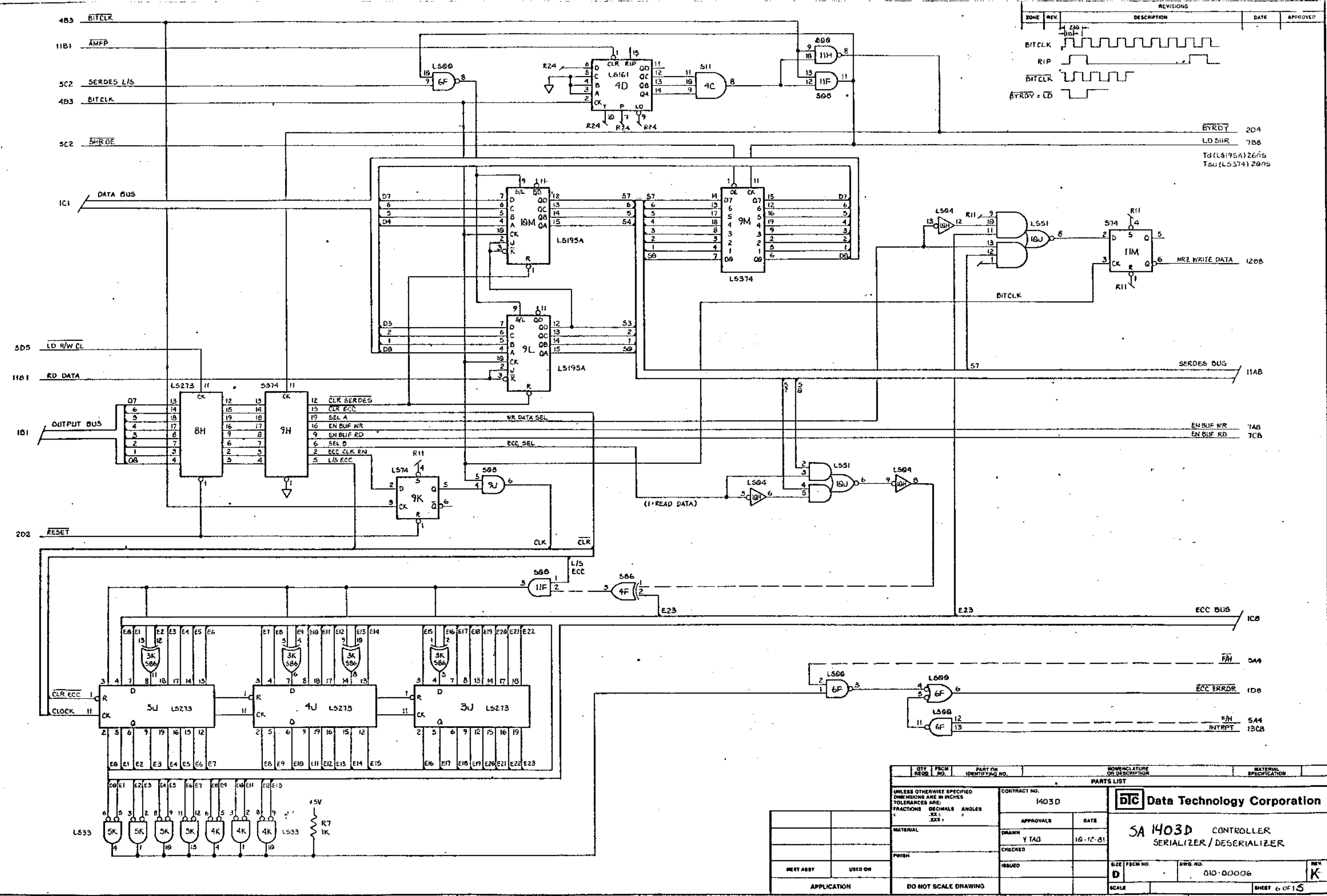
SIZE: FRM NO. D DWG. NO. 010-00006 REV. K

SHEET 5 OF 15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	220		

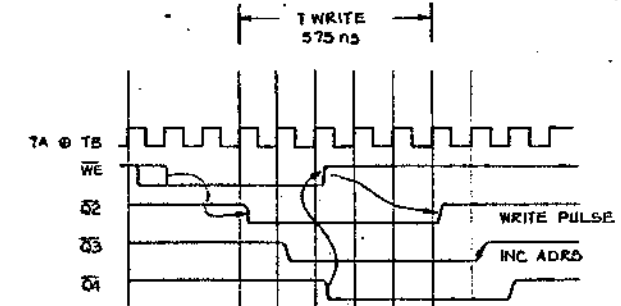
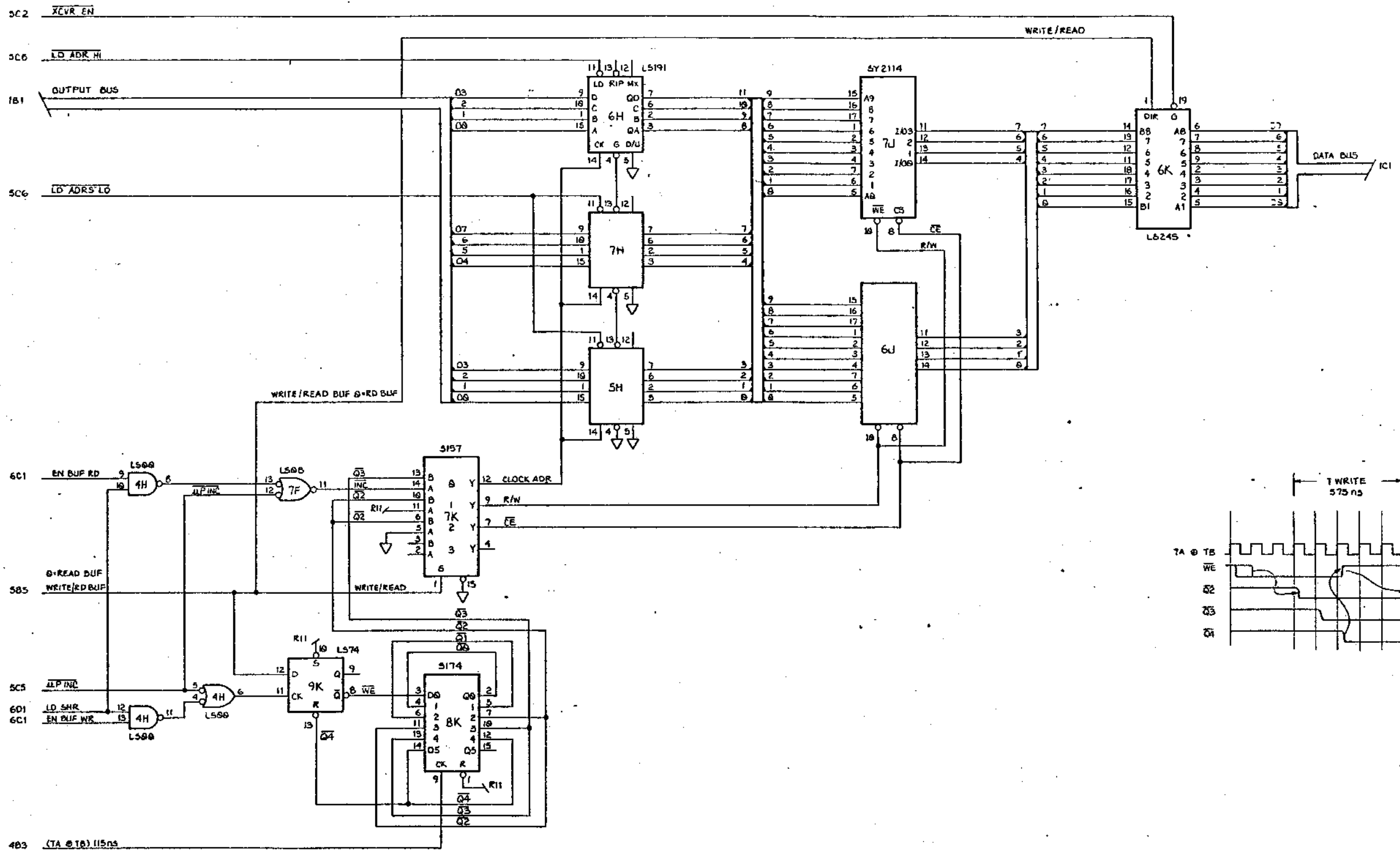


BYRDY	204
LD SHR	758
Td (LS195A) 26ns	
Tsu (LS374) 29ns	



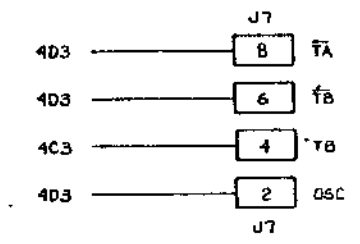
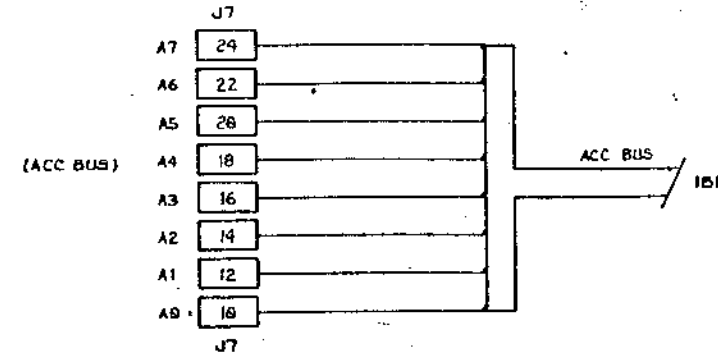
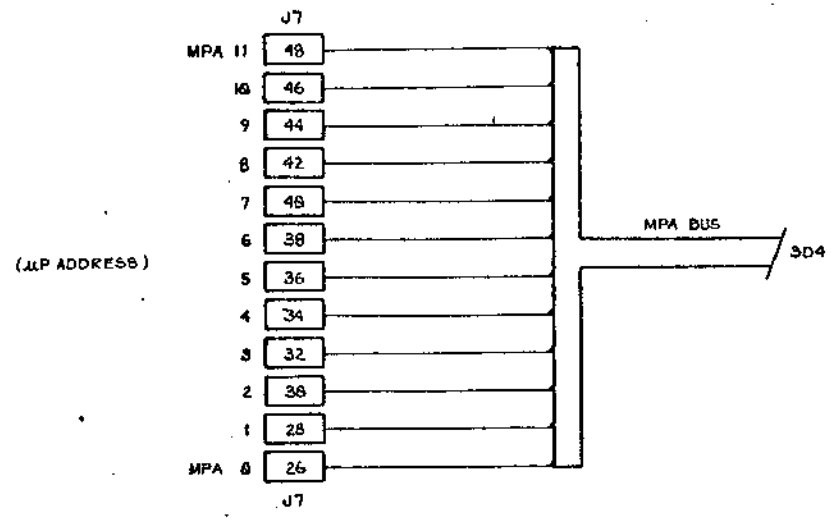
QTY	PCB	PART OR	NOMENCLATURE	MATERIAL
REQD	NO.	IDENTIFYING NO.	OR DESCRIPTION	SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .XX ± .XXX ±				
CONTRACT NO. 1403D		APPROVALS DATE 10-12-81		
MATERIAL		DRAWN Y TAO		
FINISH		CHECKED		
ISSUED		SCALE		
DO NOT SCALE DRAWING		SIZE PCB NO. D		
APPLICATION		DWG. NO. 010-00006		
		REV K		
		SHEET 6 OF 15		

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

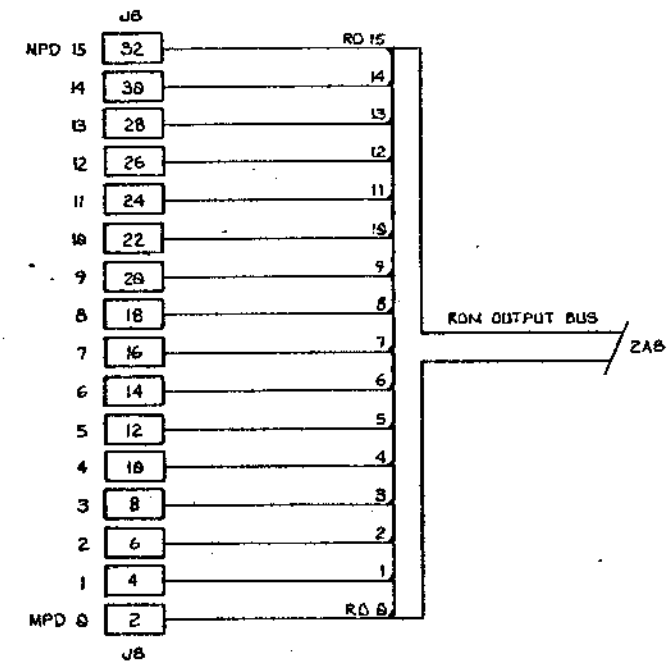


QTY	FROM	PART OR	NOMENCLATURE	MATERIAL
REQD	NO.	IDENTIFYING NO.	OR DESCRIPTION	SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .005 ± .001 ± .001		CONTRACT NO. 1433 D		DTIC Data Technology Corporation
MATERIAL		APPROVALS	DATE 9-15-80	
FINISH		CHECKED		SA 1403D CONTROLLER SECTOR BUFFER
NEXT AVAIL		ISSUED	SCALE	
USED ON		REV. NO. D		DWG. NO. 010-00006
APPLICATION		DO NOT SCALE DRAWING		REN. K
		SCALE		SHEET 7 OF 15

REVISIONS				
DATE	APPROVED	DESCRIPTION	REV.	BY



STOP CLOCK	48	RP8-2	1K	4D8
DISABLE ADDR	46	RP8-3	1K	5B7
DISABLE FROM	44	RP8-4	1K	2B8
PDR	42	RP8-5	1K	12C8



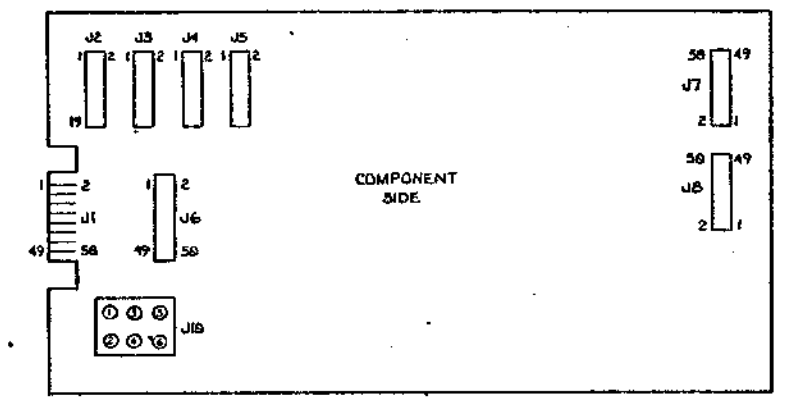
GND

J8-1,3,5,7,9,11,13,15,17,19, 21,23,25,27,29,31,33,35, 37,39,41,43,45,47,49

J7-1,3,5,7,9,11,13,15,17,19, 21,23,25,27,29,31,33,35, 37,39,41,43,45,47,49

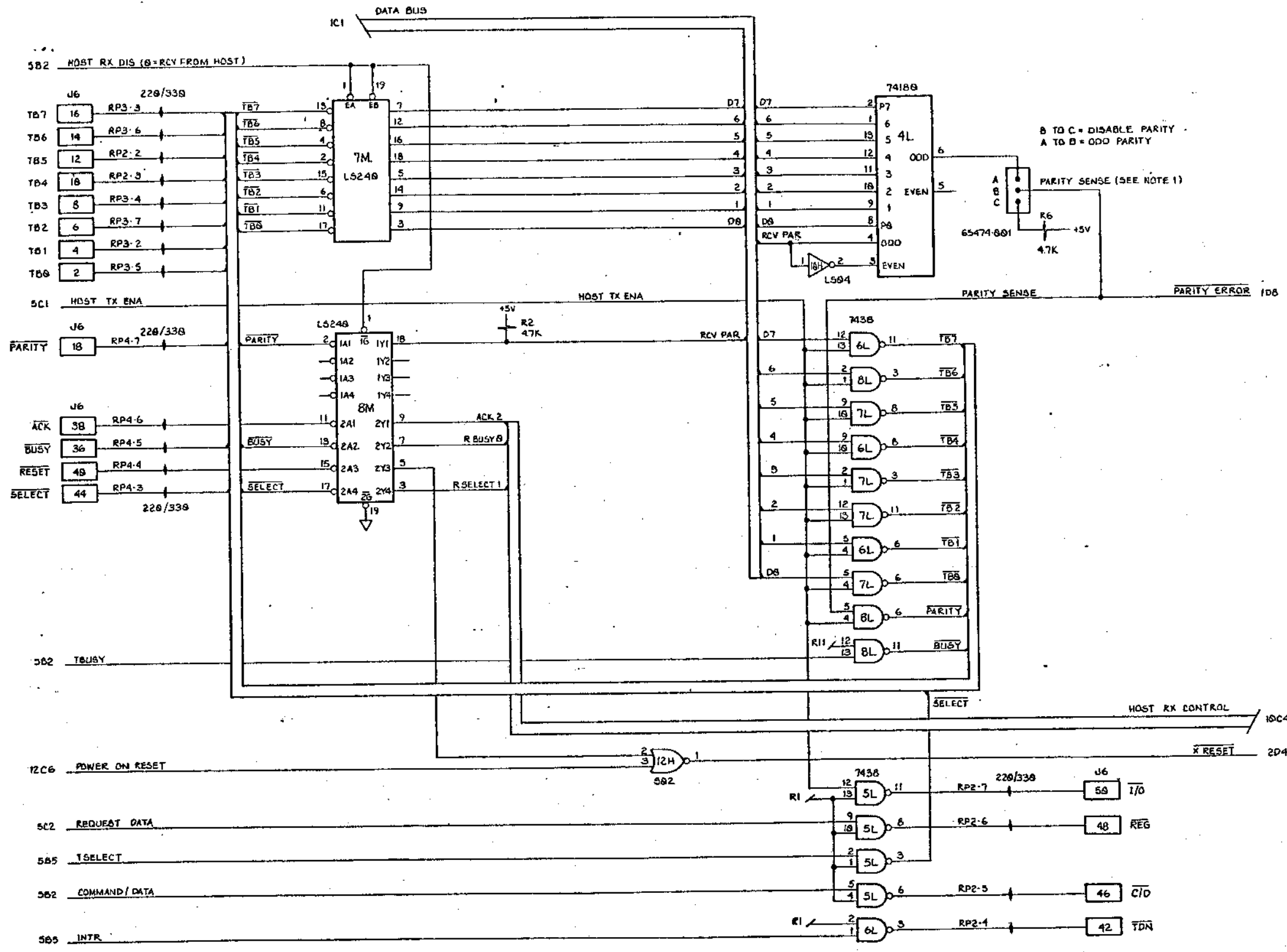
J2,J3,J4,J5-8,11,12,15,16,19,29

J6,J1-1,3,5,7,9,11,13,15,17, 19,21,23,25,27,29,31,33, 35,37,39,41,43,45,47,49



QTY	FRGM	PART OR	SCHEMATIC	MATERIAL
REQD	NO.	IDENTIFYING NO.	OR DESCRIPTION	SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES		CONTRACT NO. 1403D		DIC Data Technology Corporation
MATERIAL		APPROVALS	DATE	
PWRN		DRAWN V.TAD	9-12-80	SA 1403D CONTROLLER BREAK POINT PANEL I/O
CHECKED		ISSUED		
SIZE	FRGM NO.	DWG. NO.	REV.	
D		010-00006	K	
APPLICATION		DO NOT SCALE DRAWING		SHEET 8 OF 15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

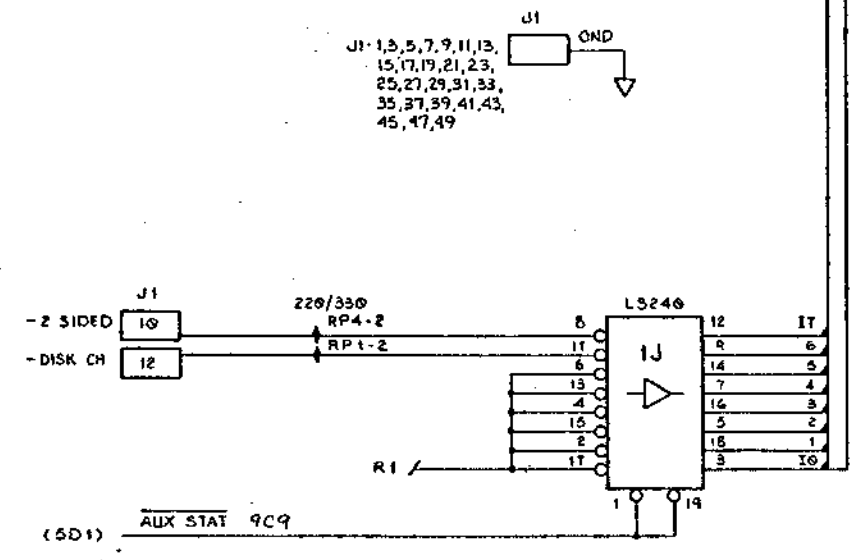
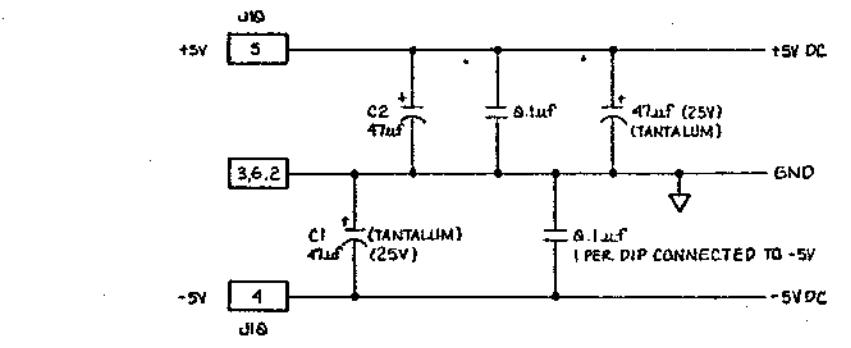
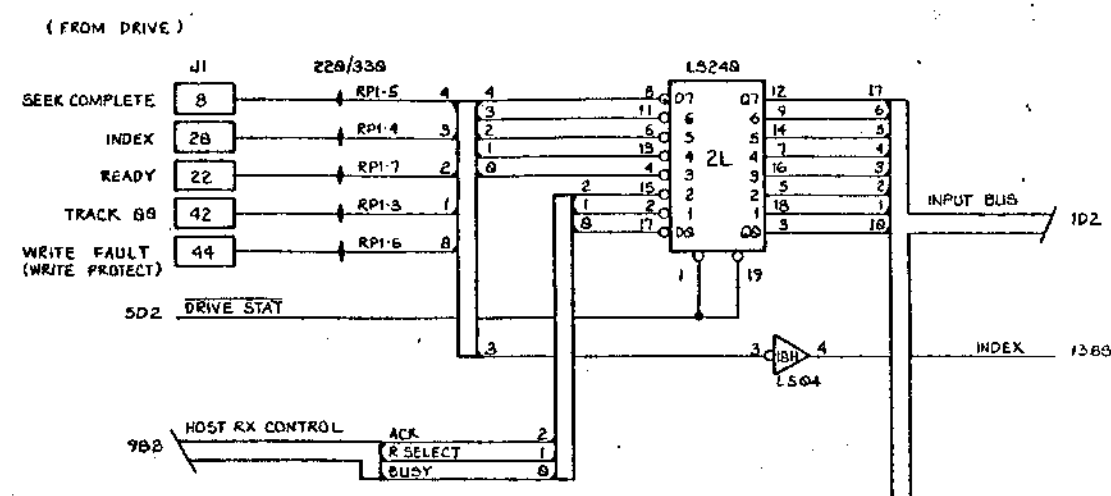
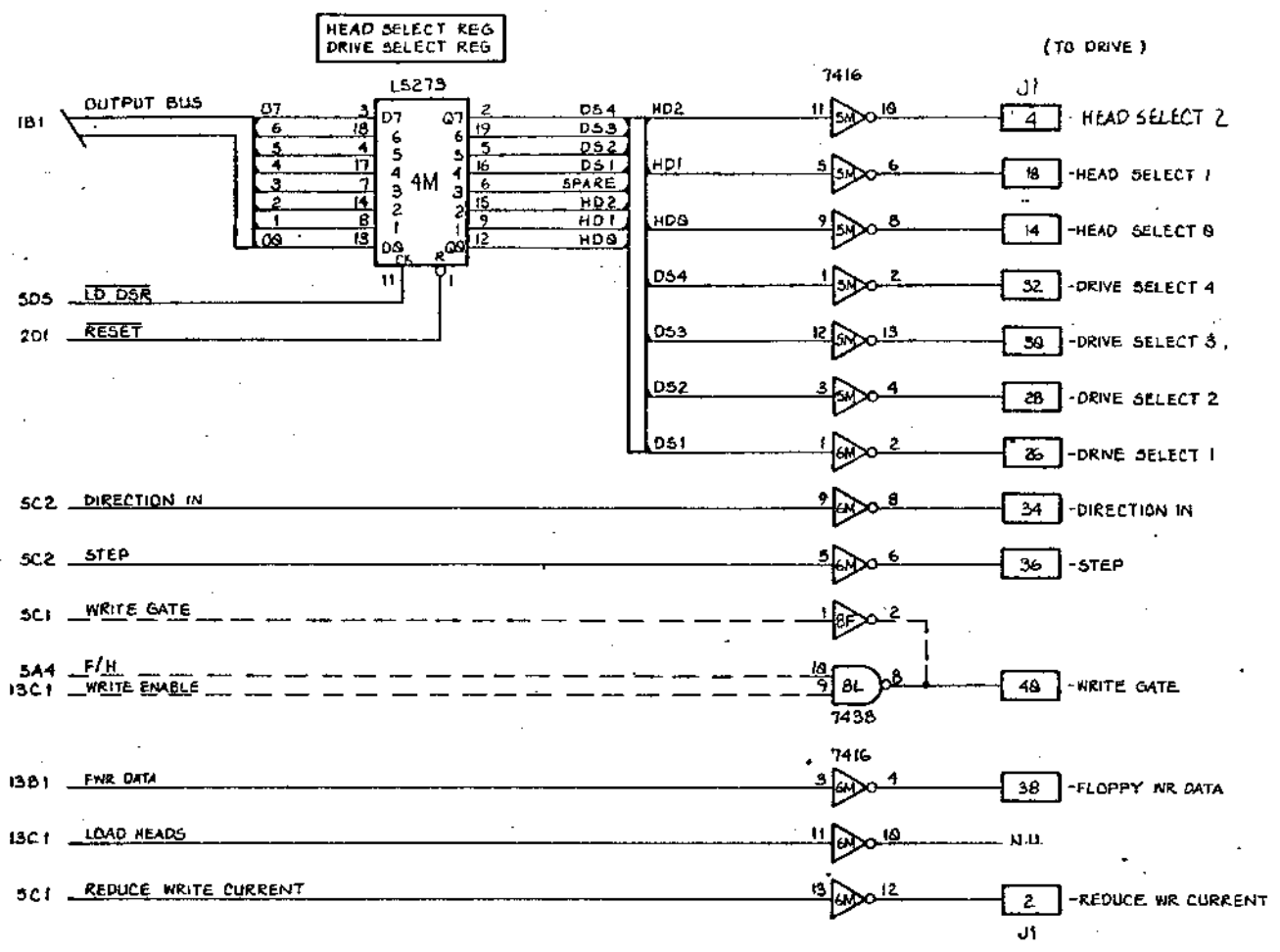


NOTE:
 1. UPON XMISSION, "PARITY SENSE" IS THE PARITY BIT SENT TO THE HOST. "RCV PAR" IS BASED TO 1. UPON RECEPTION "PARITY SENSE" IS THE "PARITY ERROR" INDICATOR; 0 = ERROR.

QTY	PCOM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX ± .XX ±		CONTRACT NO. 1403D	
APPROVALS	DATE	SA 1403D CONTROLLER HOST INTERFACE	
DRAWN YTAO	9-11-80	CHECKED	
ISSUED			

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

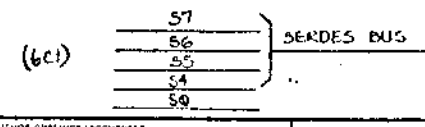
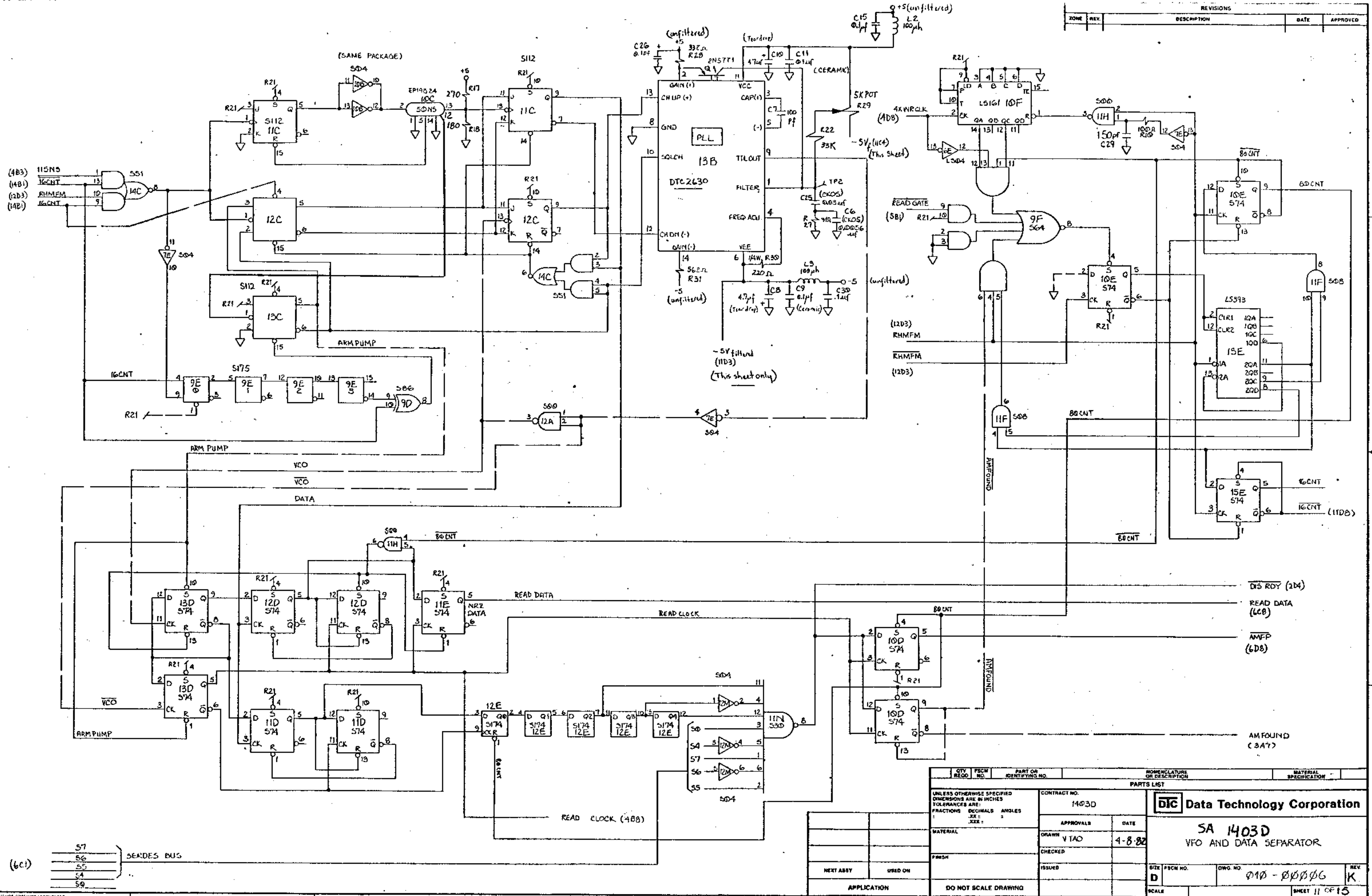


J1: 1,3,5,7,9,11,13, 15,17,19,21,23, 25,27,29,31,33, 35,37,39,41,43, 45,47,49

QTY	FRM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES		CONTRACT NO. 1483 D		
TYPICAL DIMENSIONS ARE IN INCHES		APPROVALS	DATE	
MATERIAL	FRM	DRAWN	11-25-80	SA 1403D CONTROLLER DRIVE INTERFACE, CONTROL CABLE
		CHECKED		
		ISSUED		SIZE FRM NO. DWG. NO. 010-00006 REV. K
				SCALE SHEET 10 OF 15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



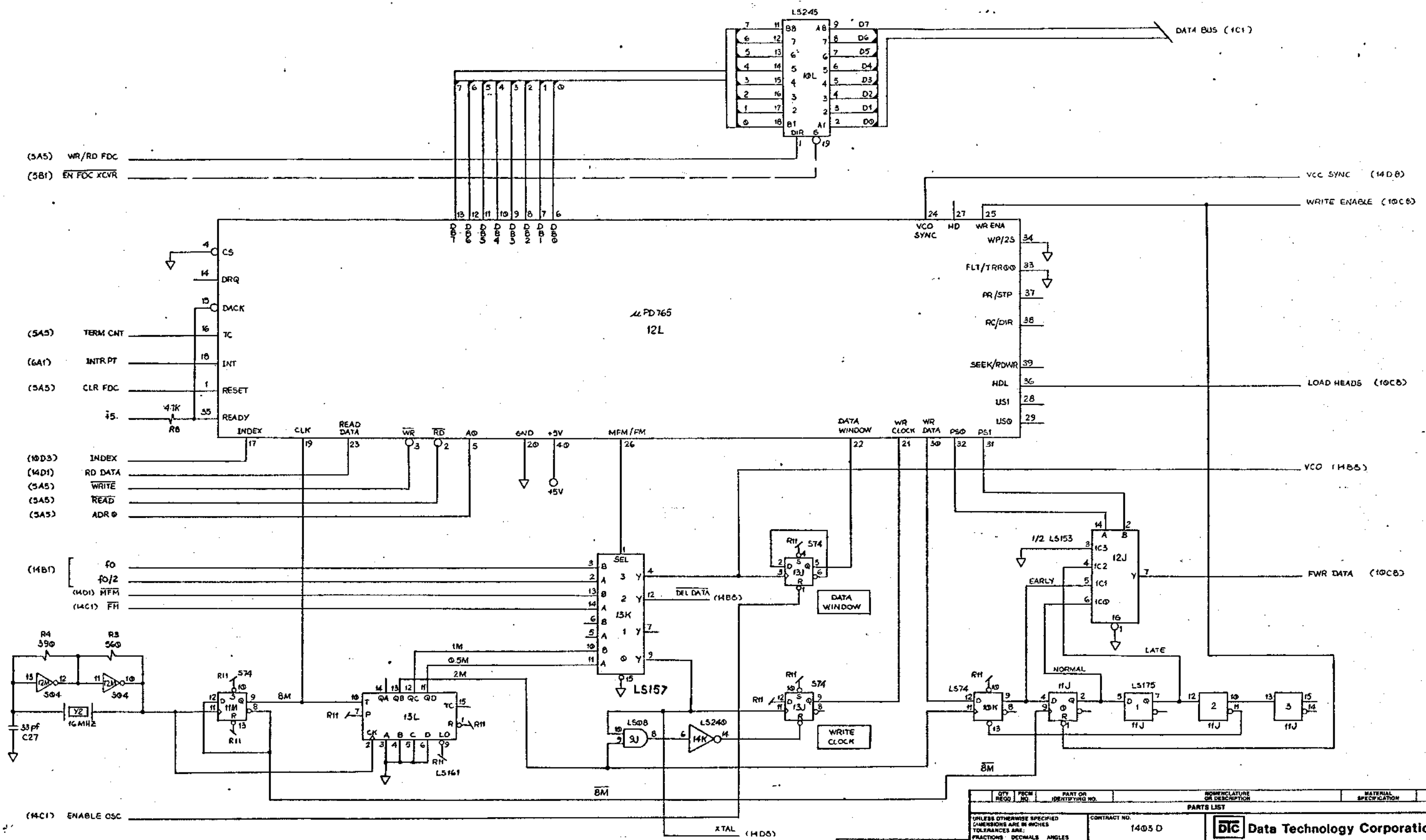
QTY	PSCM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
			DIC Data Technology Corporation	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO. 1403D		
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
		.XXX		4-8-82
MATERIAL	DRAWN	ISSUED	SA 1403D VFO AND DATA SEPARATOR	
	V TAO		SIZE	PSCM NO.
			D	010-00006
NEXT ASSY	USED ON	ISSUED	REV	
			K	
APPLICATION		DO NOT SCALE DRAWING		SHEET 11 OF 15

D

C

B

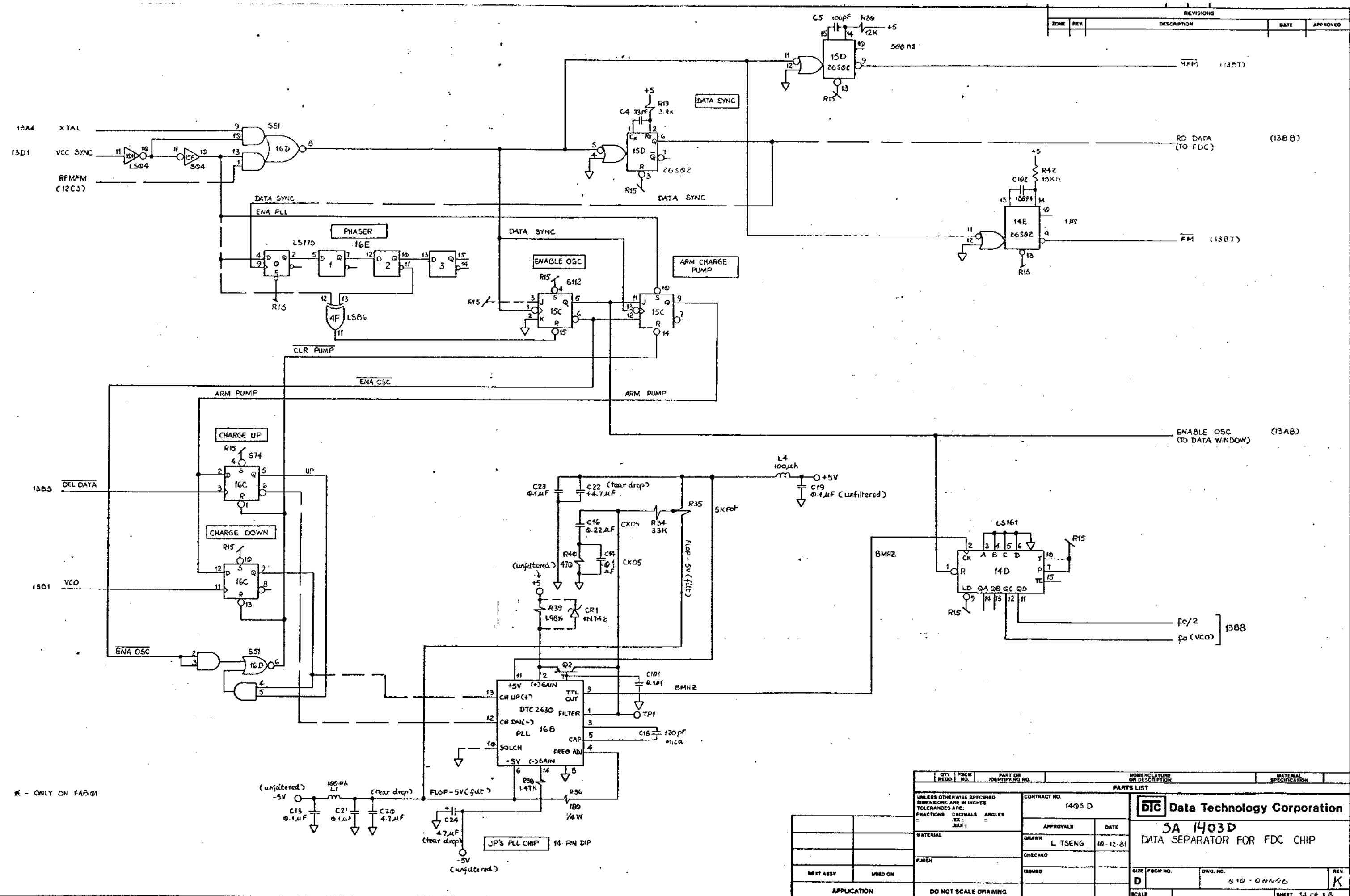
A



QTY	PCB	PART OR	NOMENCLATURE	MATERIAL
REQD	NO.	IDENTIFYING NO.	OR DESCRIPTION	SPECIFICATION
			SA 1403D	
			LS175 WRITE LOGIC	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XXX = .XXX°		CONTRACT NO. 1405 D			
MATERIAL		APPROVALS	DATE	SA 1403D	
FINISH		L. TSENG	10-12-81	LS175 WRITE LOGIC	
NEXT ASSY		CHECKED		SIZE	PCB NO.
USED ON		ISSUED		D	010-00006
APPLICATION		DO NOT SCALE DRAWING		SCALE	SHEET 13 OF 15

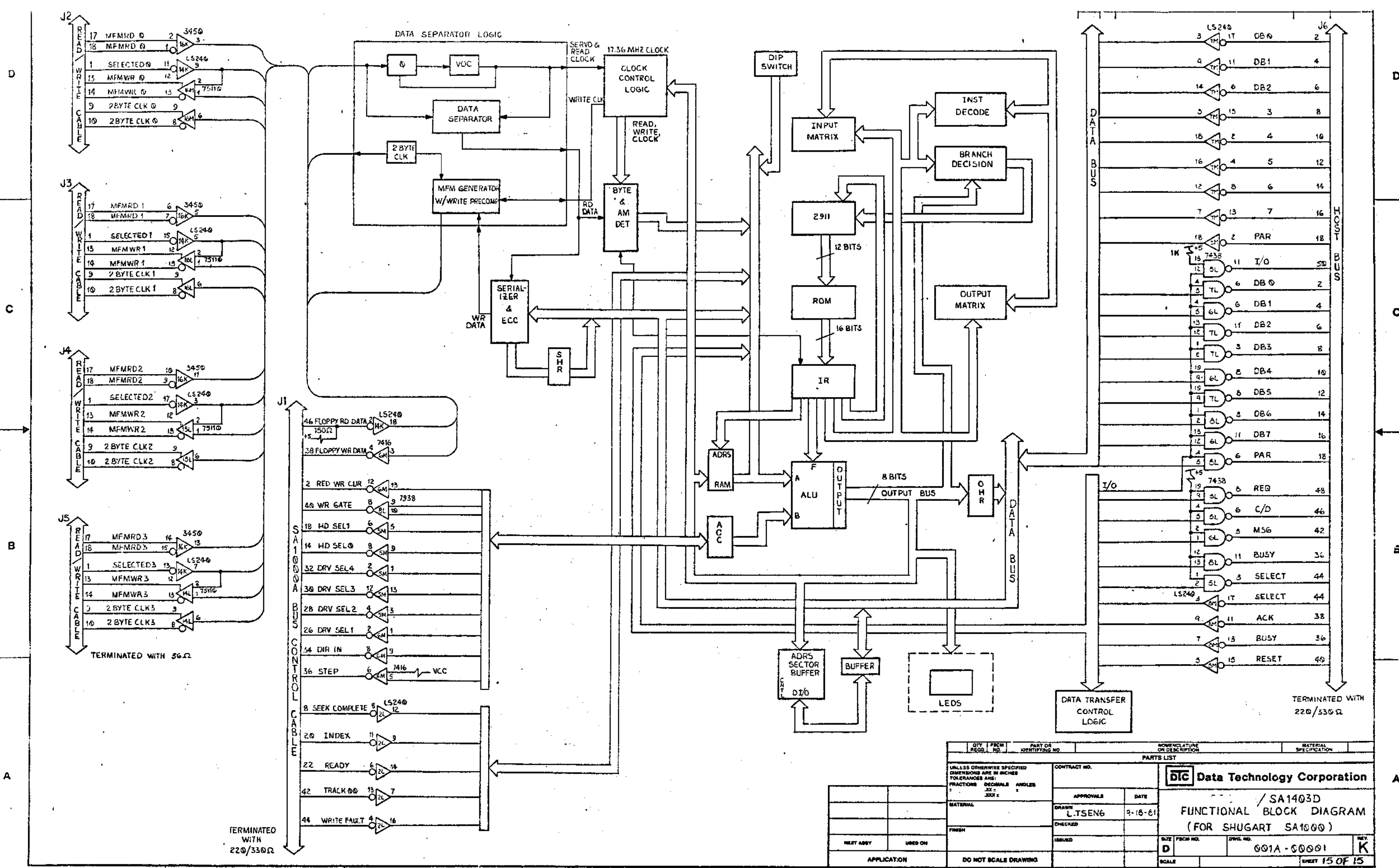
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



* - ONLY ON FAB 01

QTY		PSCM		PART OR IDENTIFYING NO.		NOMENCLATURE OR DESCRIPTION		MATERIAL SPECIFICATION			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES						CONTRACT NO. 1403 D					
DRAWN L TSENG						DATE 10-12-61					
CHECKED						ISSUED					
MATERIAL						FINISH					
NEXT ASSY						USED ON					
APPLICATION						DO NOT SCALE DRAWING					
D						SIZE FSCM NO.		DWG. NO. 010-00000		REV. K	
SCALE						SHEET 14 OF 15					

DIC Data Technology Corporation
SA 1403D
 DATA SEPARATOR FOR FDC CHIP



QTY	FROM REQ. NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
±	±	±	L.TSENG	9-18-81
MATERIAL		DRAWN		
FINISH		CHECKED		
MFGT ABBY		ISSUED		
USED ON		SCALE		
APPLICATION		DO NOT SCALE DRAWING		
		DTC Data Technology Corporation		REV. K
		/ SA1403D		001A-00001
		FUNCTIONAL BLOCK DIAGRAM		SHEET 15 OF 15
		(FOR SHUGART SA1000)		