

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 <sub>1</sub>	S <sub>0</sub>	C	L	ALU FCN			OPERAND									
ARITHMETIC	0	0	C	0	ALU FCN			R <sub>WE</sub>	INPUT			REG ADRS					
LOGICAL	0	1	C	0	ALU FCN			A <sub>WD</sub>	INPUT			REG ADRS					
FLAG	0	0	0	1	ALU FCN			R <sub>WE</sub>	INPUT			REG ADRS					
JUMP FORMAT	0	1	0	1	ALU FCN			CONSTANT				REG ADRS					
JUMP INST.	0	1	1	1				S/C	FLAG DECODE								
	S <sub>1</sub>	S <sub>0</sub>	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	FLT	HOST				
ECC LO	E21	E20	E19	E18	E17	E16	E15	E14
ECC HI	SEL'D	SEL'D	SEL'D	SEL'D	PAR	E23		E22
	3	2	1	0	OK			

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	CMUX	CMUX
						BUF	B	A
RWCL	CLR	CLR	WR	EN	EN	ECC	ECC	L/S
	DES	ECC	DATA	WR	RD	SEL	CLK	ECC
	#	#	SEL	BUF	BUF	EN		
FDC CONTROL	CLR	W/R	F/H	SPARE	TERM	A0	RD	WR
	FDC	FDC			CNT		#	#

# = LOW TRUE

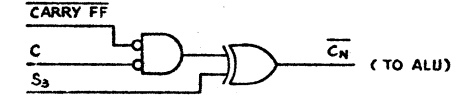
FLAGS (HIGH TRUE SIGNALS)

- 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 T BUSY
- B REQUEST DATA
- C COMMAND / DATA
- D DISABLE FDC XCVR
- E REG BANK SEL
- F ENABLE HOST XMTR

ARITHMETIC DECODE

- |   |                |                |                |                |              |
|---|----------------|----------------|----------------|----------------|--------------|
| C | S <sub>3</sub> | S <sub>2</sub> | S <sub>1</sub> | S <sub>0</sub> |              |
| 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<sub>WE</sub> = IF SET ENA REG WRITE
- A<sub>WD</sub> = 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

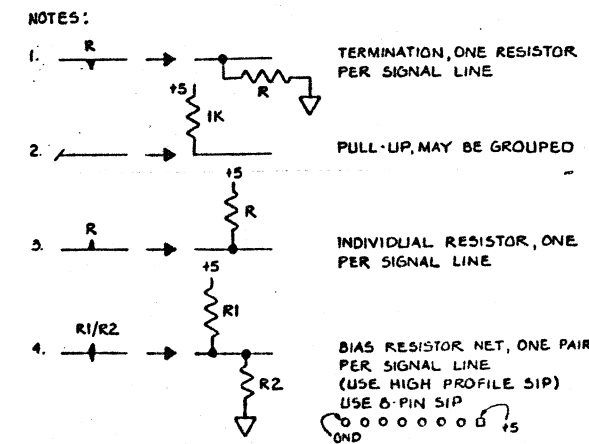
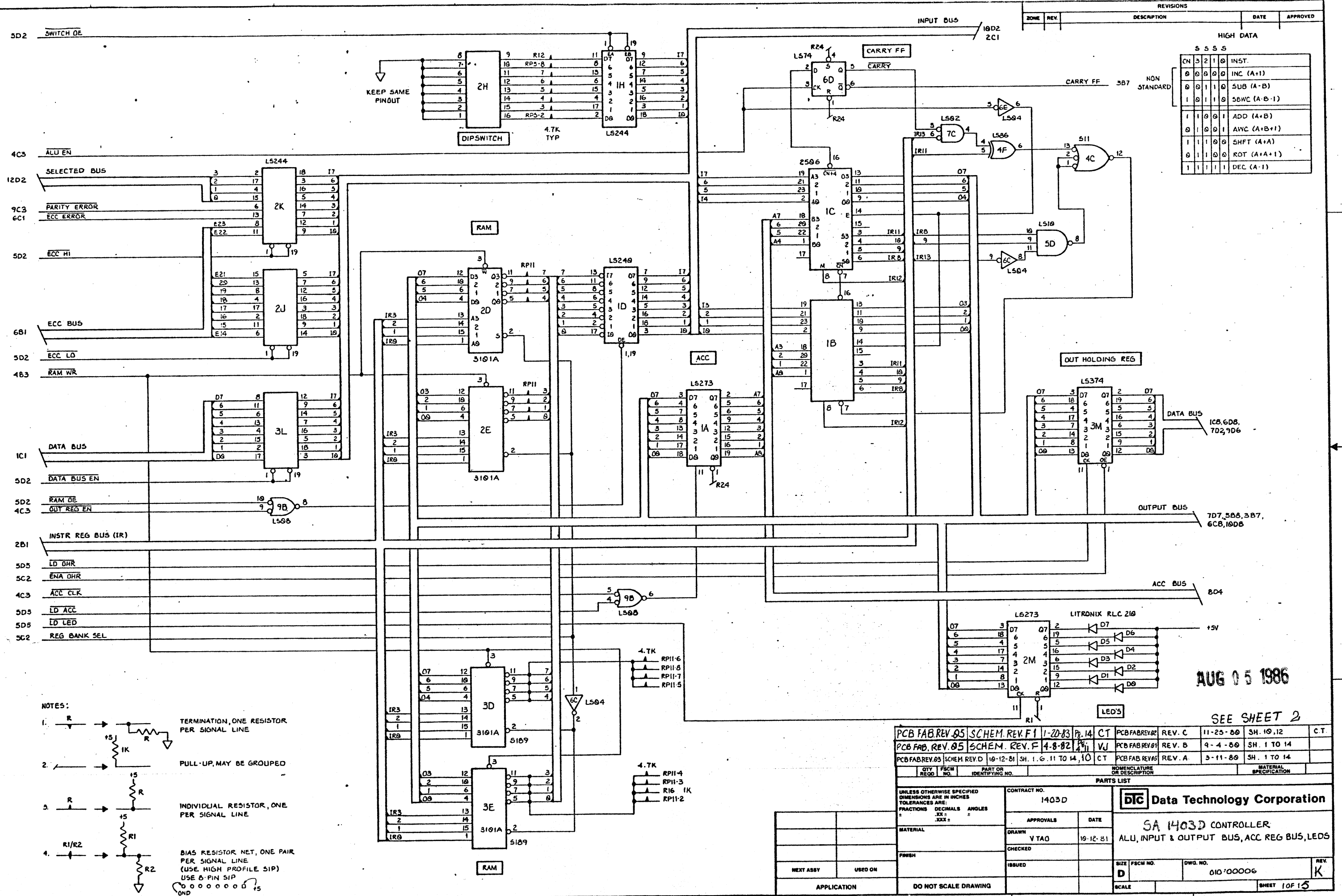
QTY REQD	FSCM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		CONTRACT NO.		
TOLERANCES ARE:		APPROVALS		
FRACTIONS	DECIMALS	ANGLES	DATE	
± .005	± .001	± .001	9-19-80	
MATERIAL	DRAWN		C. THEIN	
FINISH	CHECKED			
NEXT ASSY	USED ON		ISSUED	
APPLICATION		DO NOT SCALE DRAWING		
SCALE		SIZE FSCM NO.		REV.
		D 010 - 000 10		
		DWG. NO.		SHEET 1 OF 1

**DTC** Data Technology Corporation

1403D  
INSTRUCTION SET DECODE

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	1	0	SBWC (A-B-1)
1	1	0	1	0	ADD (A+B)
0	1	0	1	1	AWC (A+B+1)
1	1	1	0	0	SHFT (A+A)
0	1	1	0	0	ROT (A+A+1)
1	1	1	1	1	DEC (A-1)



AUG 05 1986

SEE SHEET 2

PCB FAB REV	SCHEM REV	DATE	CT	PCB FAB REV	REV	DATE	SH	CT
05	F1	1-20-83	14	02	C	11-25-80	10, 12	
05	F	4-8-82	VJ	01	B	9-4-80	1 TO 14	
05	D	10-12-81	10	01	A	3-11-80	1 TO 14	

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

CONTRACT NO.		APPROVALS		DATE	
1403D		V TAO		10-12-81	

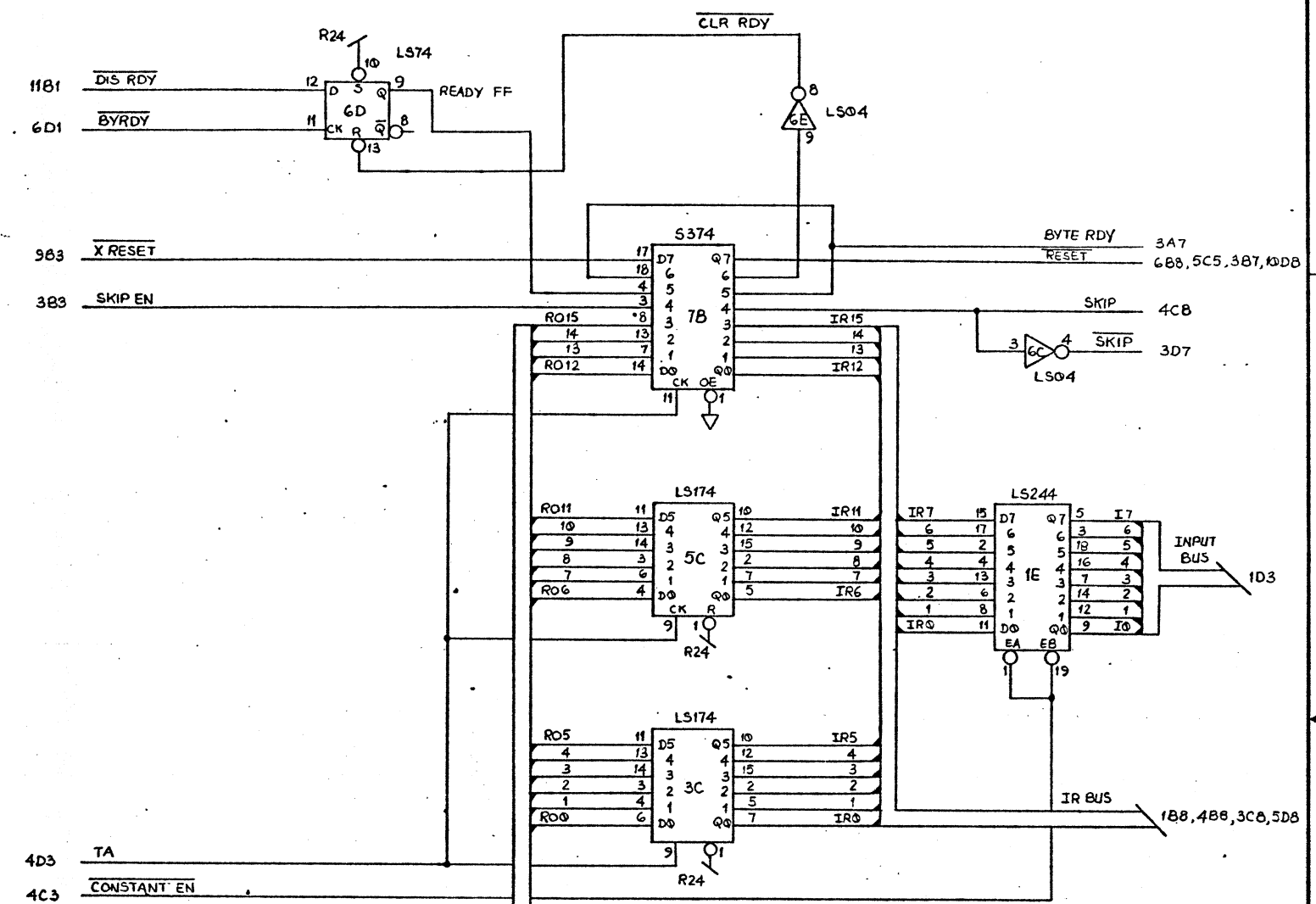
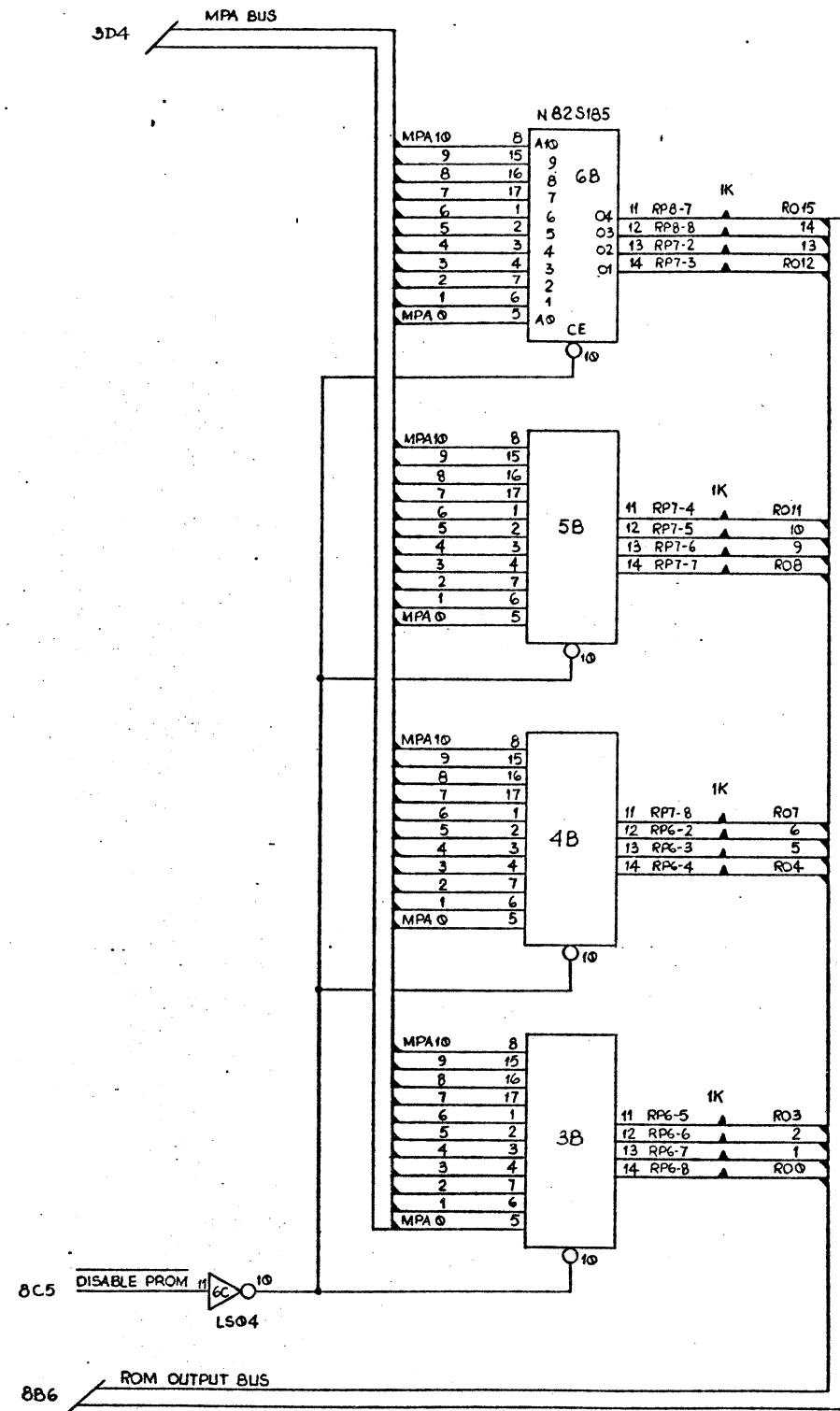
**DTIC Data Technology Corporation**

**SA 1403D CONTROLLER**  
ALU, INPUT & OUTPUT BUS, ACC REG BUS, LEDS

SIZE	PSCM NO.	DWG. NO.	REV
D		010-00006	K

SCALE: SHEET 10F15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

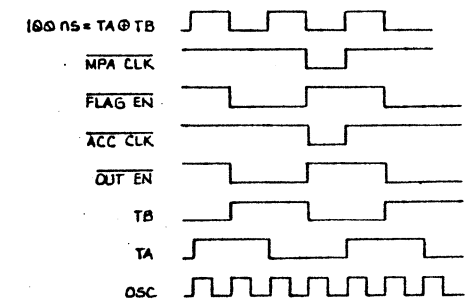
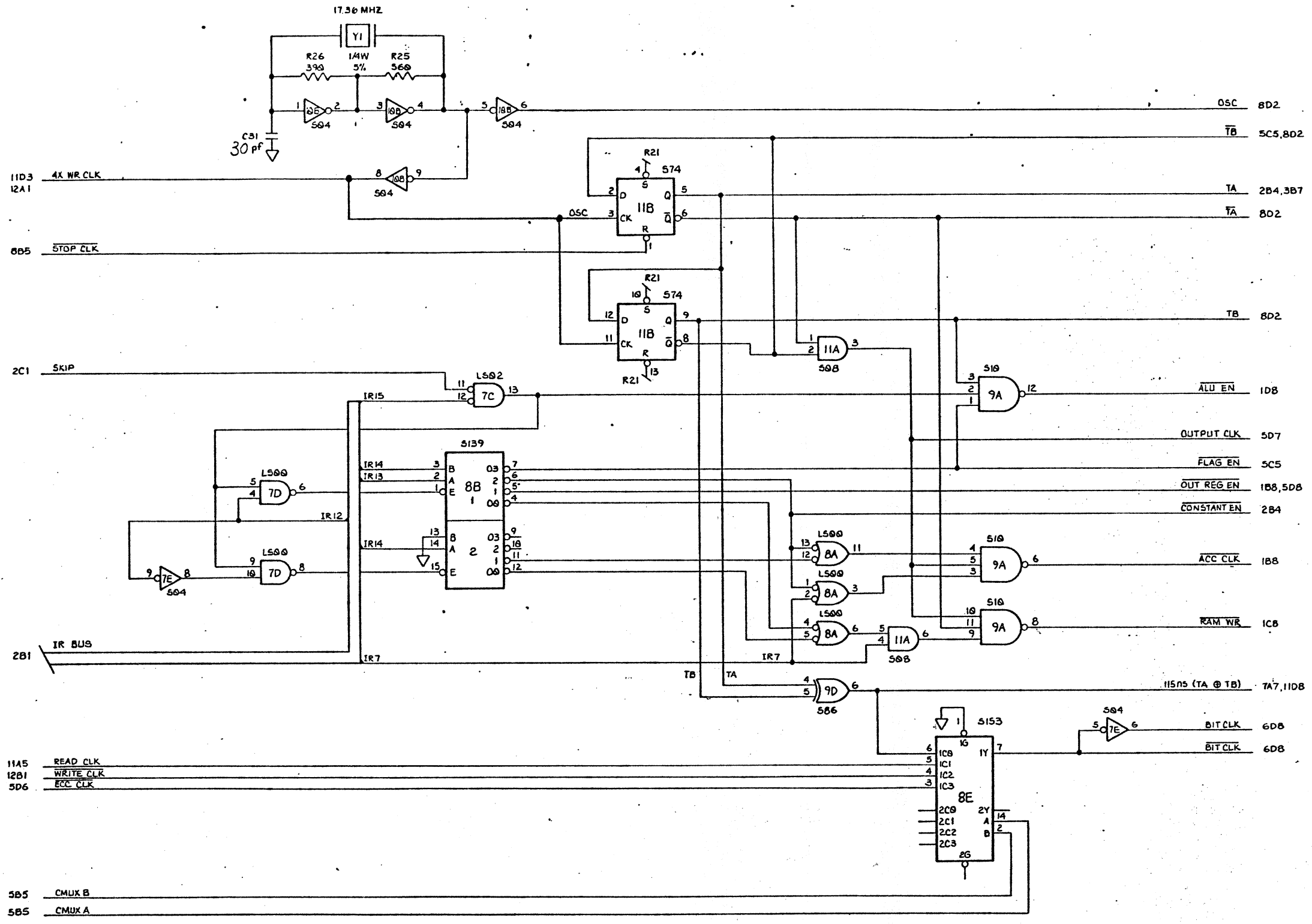


0466	K	UPDATE REV.	7/2/85	CT (CB)
0427	J	UPDATE REV.	5/2/85	CB (PM)
0383	H	CHANGE P/N AT LOC. 13K	4/8/85	KD (PM)
0105	G	CHANGE VALUE C31, C29	3/20/84	CB (PM)
ECO#	REV.	DESCRIPTION	DATE	APPROVE

QTY	FSCM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS .DECIMALS ANGLES .XXX ±		CONTRACT NO. 1403 D		
MATERIAL		APPROVALS	DATE	
FINISH		DRAWN	9-8-80	<b>SA1403D CONTROLLER</b> ROMS & INST. REG. (IR)
NEXT ASSY		CHECKED		
USED ON		ISSUED		SIZE FSCM NO. DWG. NO. 010-00006 REV. K
APPLICATION		DO NOT SCALE DRAWING		SCALE SHEET 2 OF 15



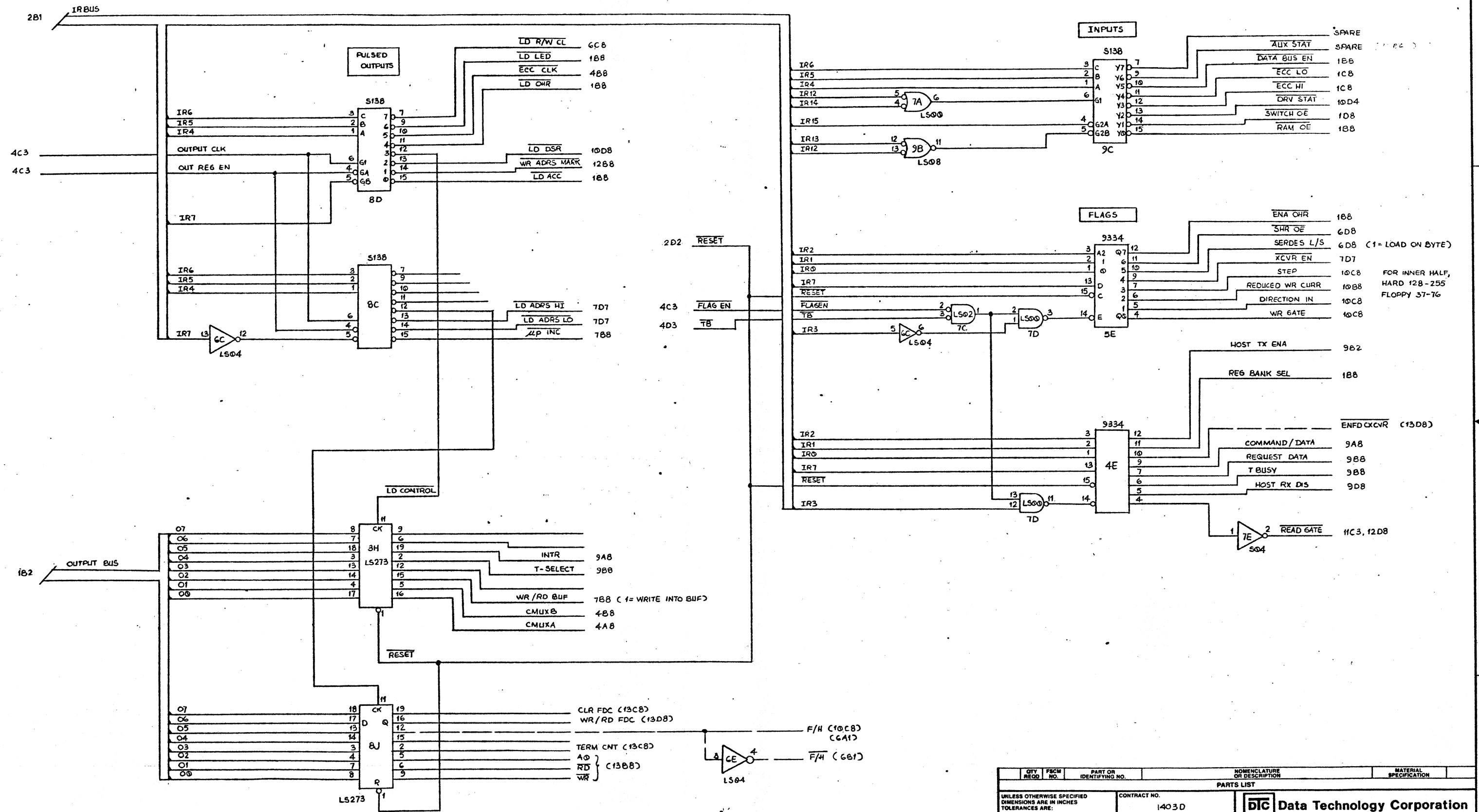
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



- 11A5 READ CLK
- 12B1 WRITE CLK
- 5D6 ECC CLK
- 5B5 CMUX B
- 5B5 CMUX A

QTY	FSCM	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		<b>DTC</b> Data Technology Corporation
MATERIAL		APPROVALS Y. TAO	DATE 4-8-82	
FINISH		CHECKED		SA 1403D CONTROLLER T0, T1, CLOCKS & DECODE (INST)
NEXT ASSY		ISSUED		
USED ON		SCALE		SIZE FSCM NO. DWG. NO. REV. D 010-00006 K
APPLICATION		DO NOT SCALE DRAWING		SHEET 4 OF 15

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



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

CONTRACT NO.		DATE	
1403D		9-21-80	

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX ± .XXX ±			
MATERIAL	DRAWN	L TSENG	
FINISH	CHECKED		
ISSUED			

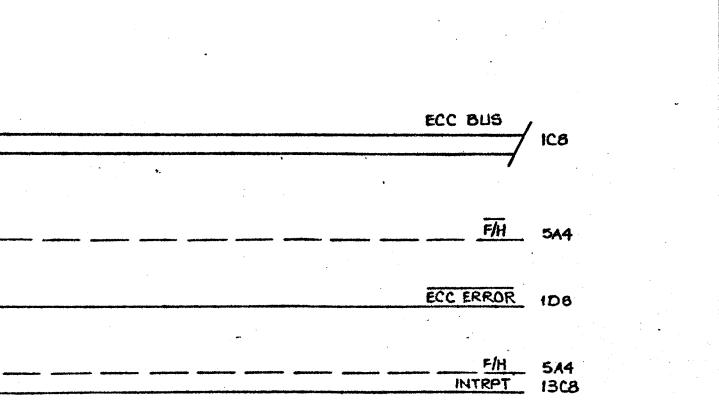
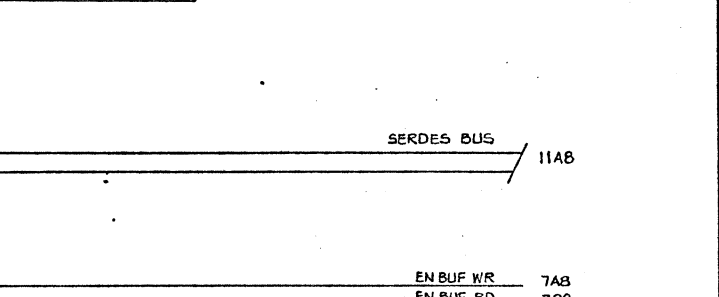
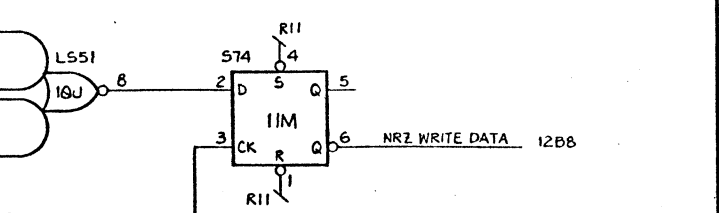
SIZE	FSCM NO.	DWG. NO.	REV.
D		010-00006	K

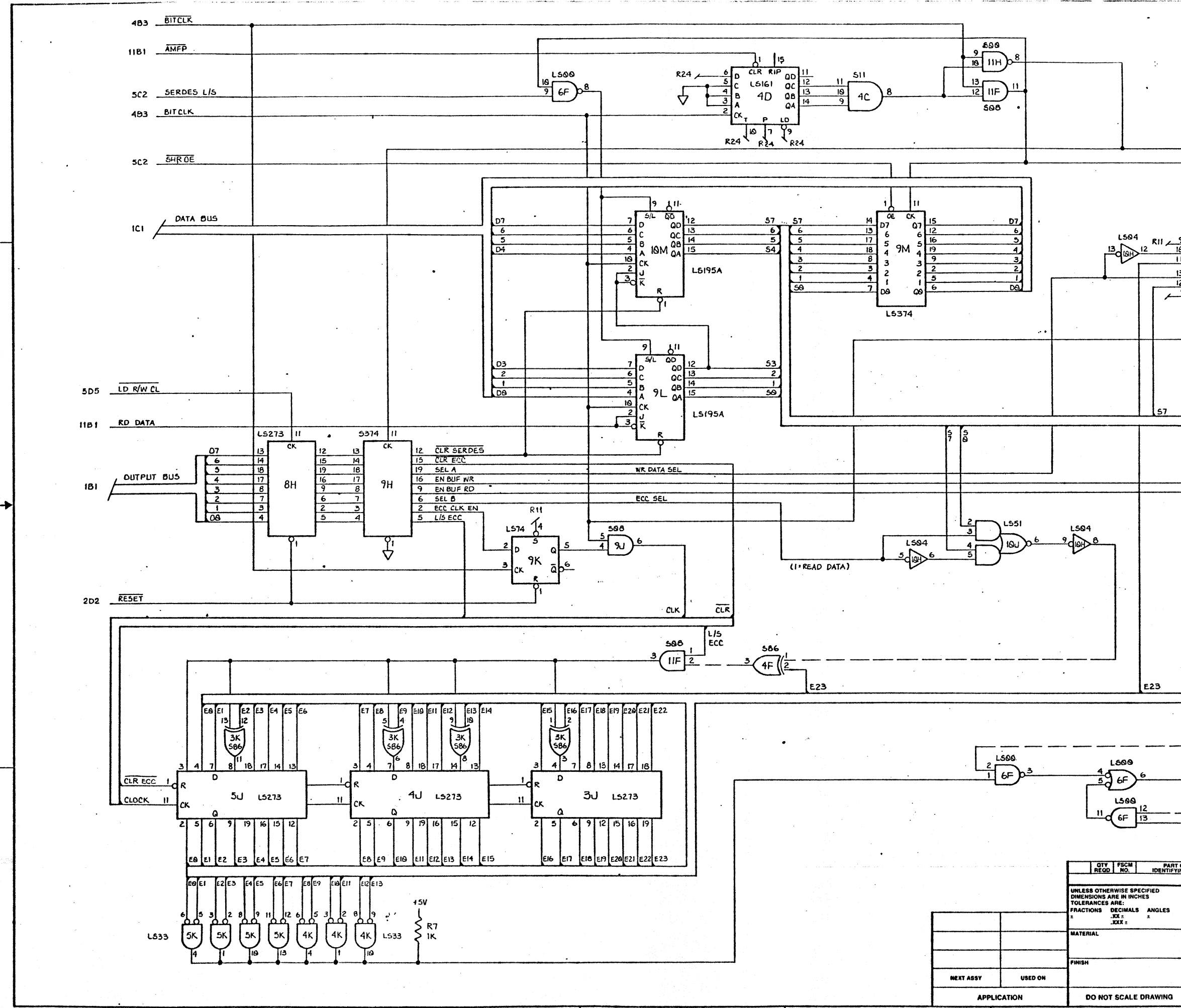
APPLICATION	DO NOT SCALE DRAWING

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		BITCLK		
		RIP		
		BITCLK		
		BYRDY = LD		

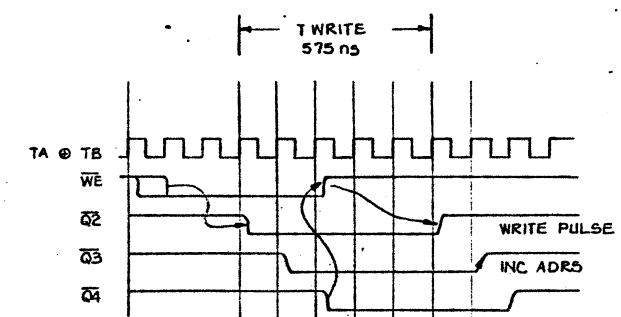
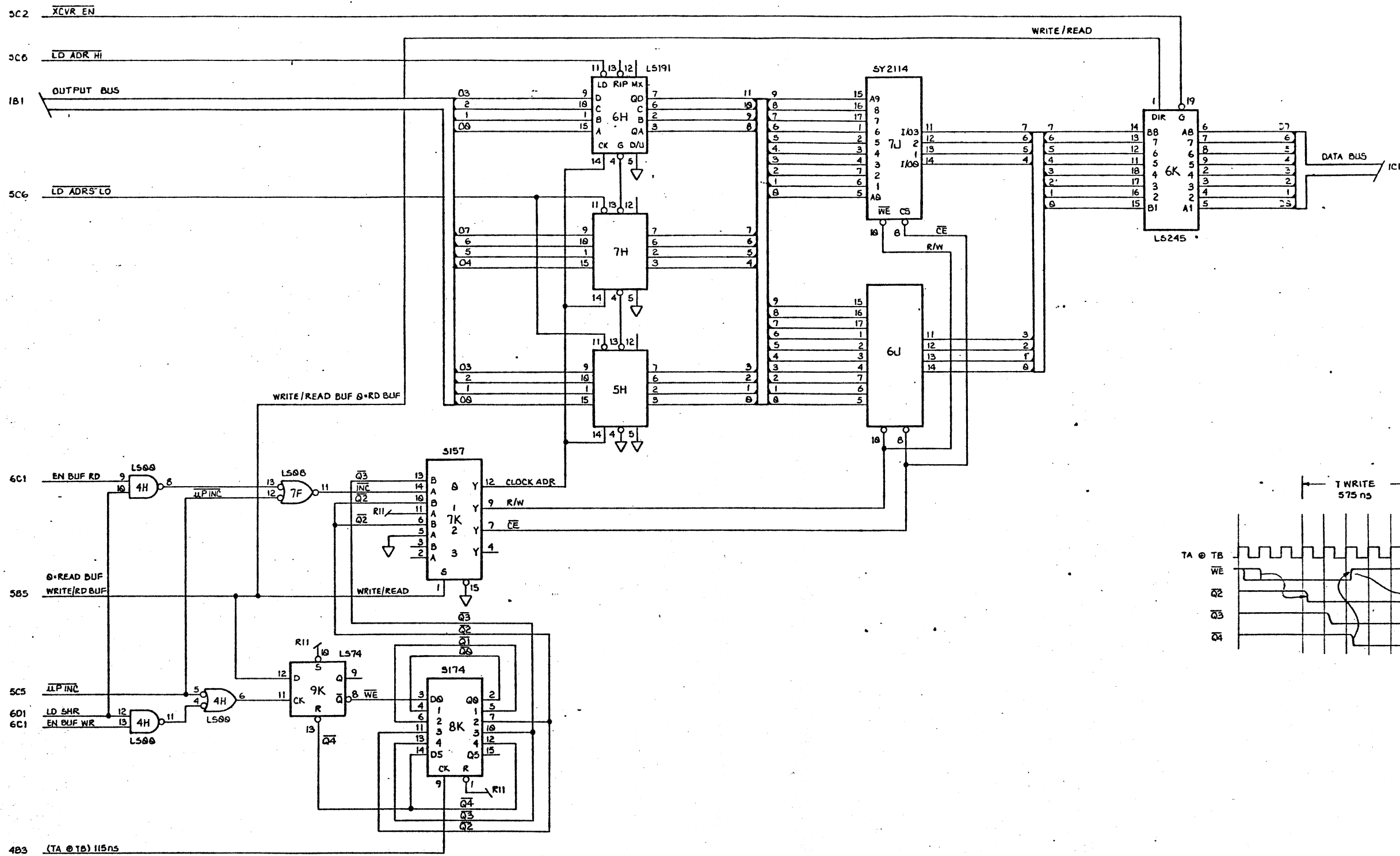
BYRDY 2D4  
LD SHR 7B8  
Td (LS195A) 26ns  
Tsu (LS374) 29ns



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



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

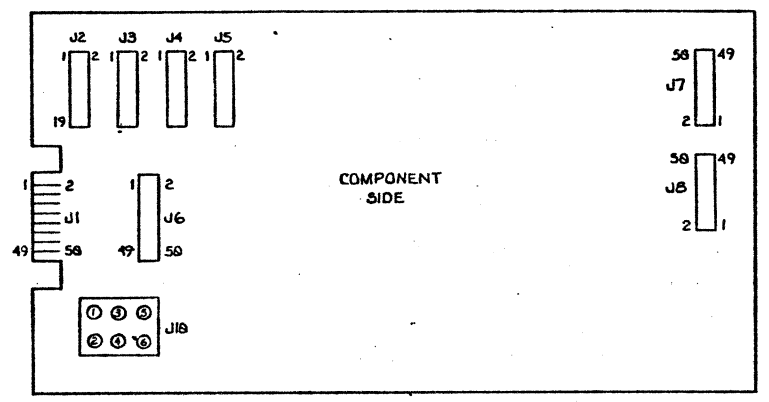
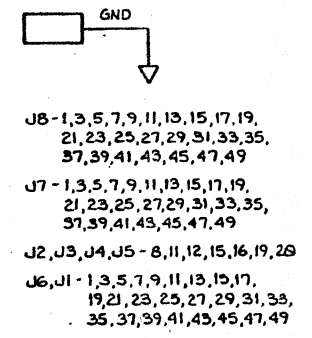
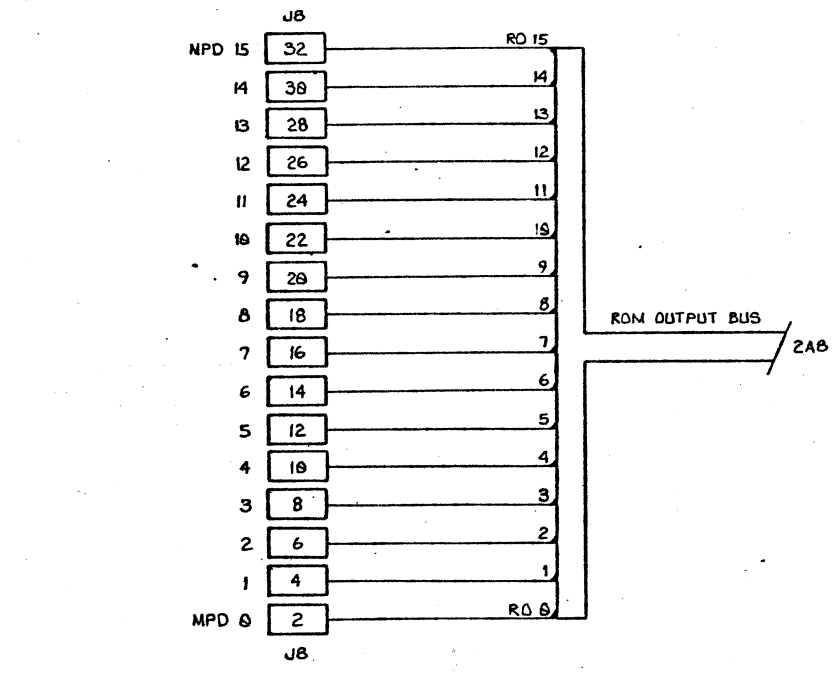
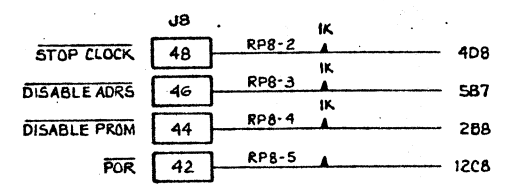
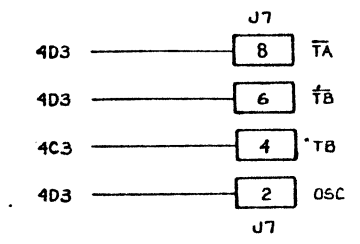
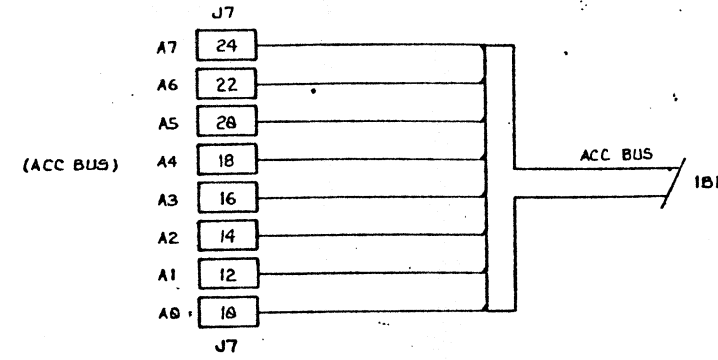
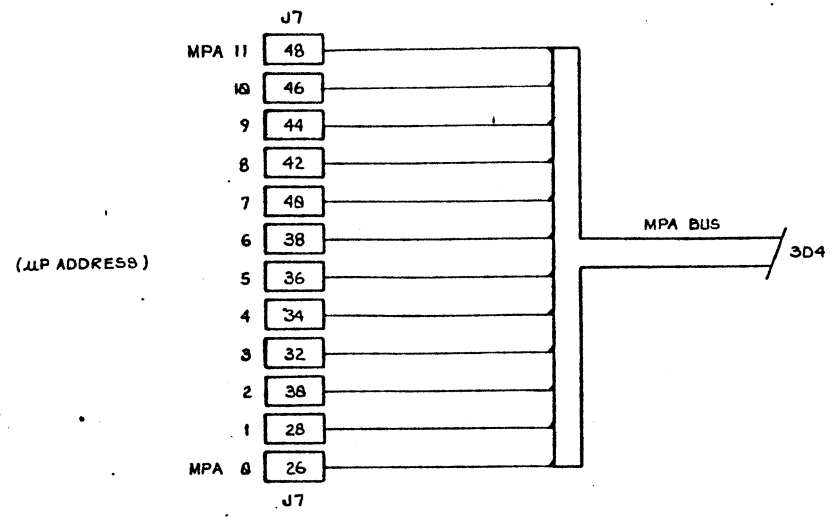


4B3 (TA @ TB) 115ns

QTY REQD	FSCM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO. 1433D		
FRACTIONS	DECIMALS	ANGLES	<b>DTIC</b> Data Technology Corporation SA 1403D CONTROLLER SECTOR BUFFER	
± .XX ±	± .XX ±	± ° ±		
MATERIAL		APPROVALS	DATE	SIZE FSCM NO. D DWG. NO. 010-00006 SCALE SHEET 7 OF 15
FINISH		DRAWN	9-15-80	
NEXT ASSY		CHECKED	ISSUED	REN K
USED ON		DO NOT SCALE DRAWING		
APPLICATION		REVISIONS		



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

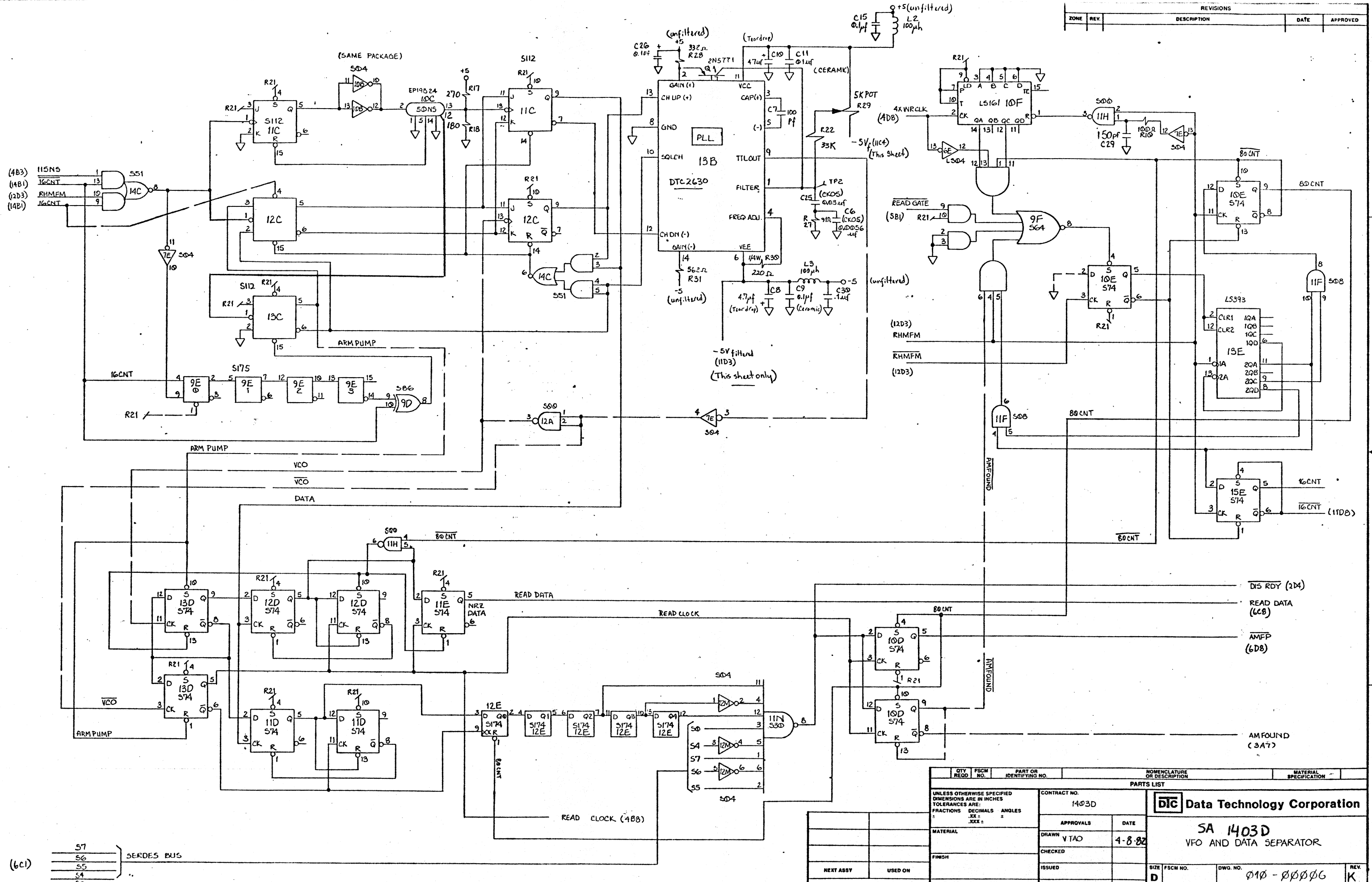


QTY REQD	FSCM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX ± .XXX ±		CONTRACT NO. 1403D		
DRAWN V.TAD		DATE 9-12-80		
CHECKED		ISSUED		<b>SA 1403D CONTROLLER BREAK POINT PANEL I/O</b>
NEXT ASSY		USED ON		
APPLICATION		DO NOT SCALE DRAWING		SIZE <b>D</b> FSCM NO. <b>010-00006</b> DWG. NO. <b>010-00006</b> REV. <b>K</b>
SCALE		SHEET 8 OF 15		

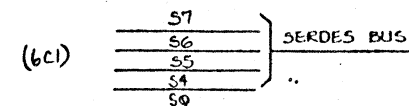




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



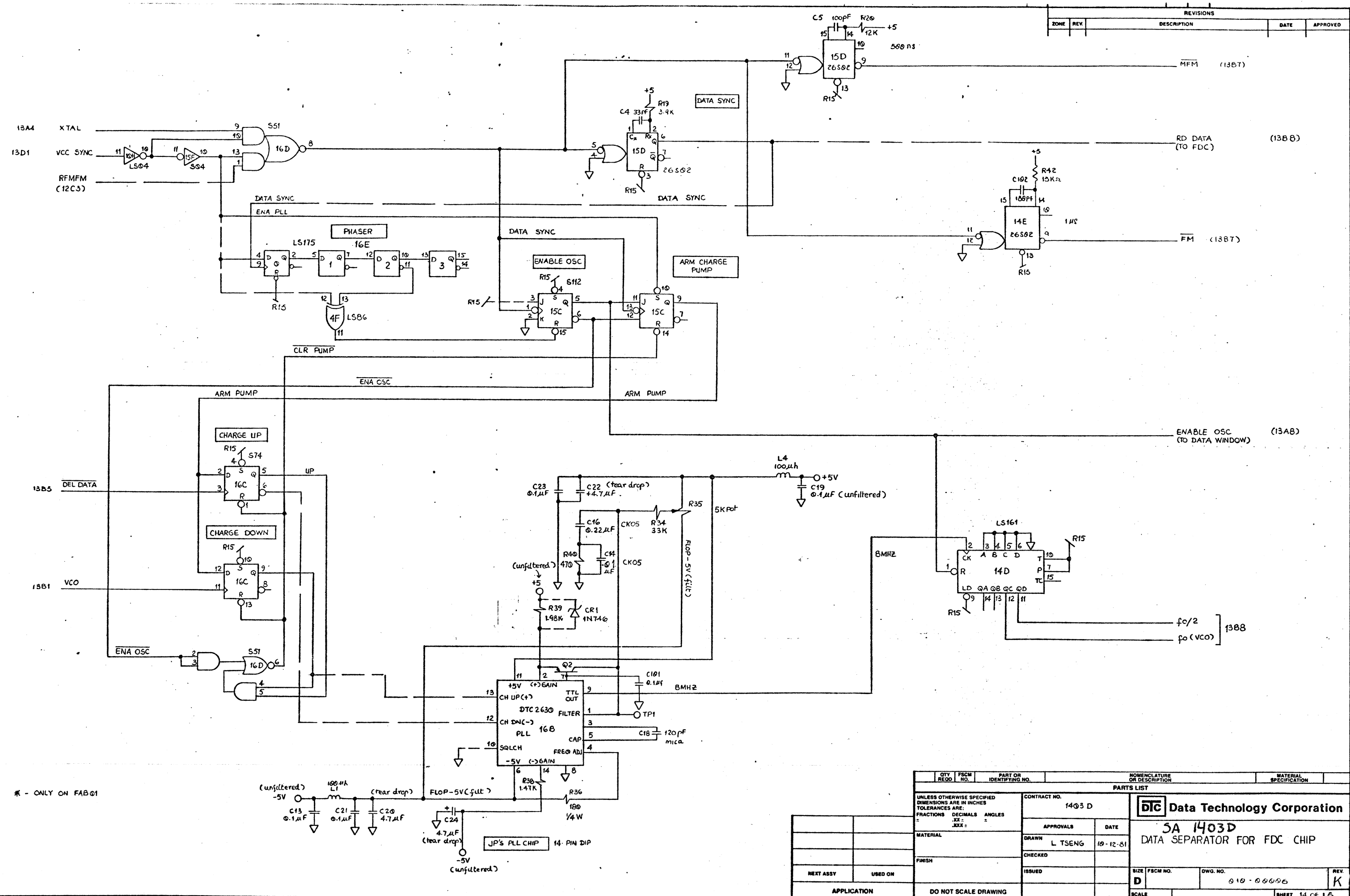
PARTS LIST		NOMENCLATURE OR DESCRIPTION		MATERIAL SPECIFICATION	
QTY	FSCM NO.	PART OR IDENTIFYING NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX ± .XXX ±		CONTRACT NO. 1403D		DTC Data Technology Corporation	
MATERIAL		APPROVALS	DATE	SA 1403D	
FINISH		DRAWN V TAO	4-8-82	VFO AND DATA SEPARATOR	
NEXT ASSY		CHECKED		SIZE FSCM NO.	DWG. NO. 010-000006
USED ON		ISSUED		SCALE	REV. K
APPLICATION		DO NOT SCALE DRAWING		SHEET 11 OF 15	







REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



\* - ONLY ON FAB01

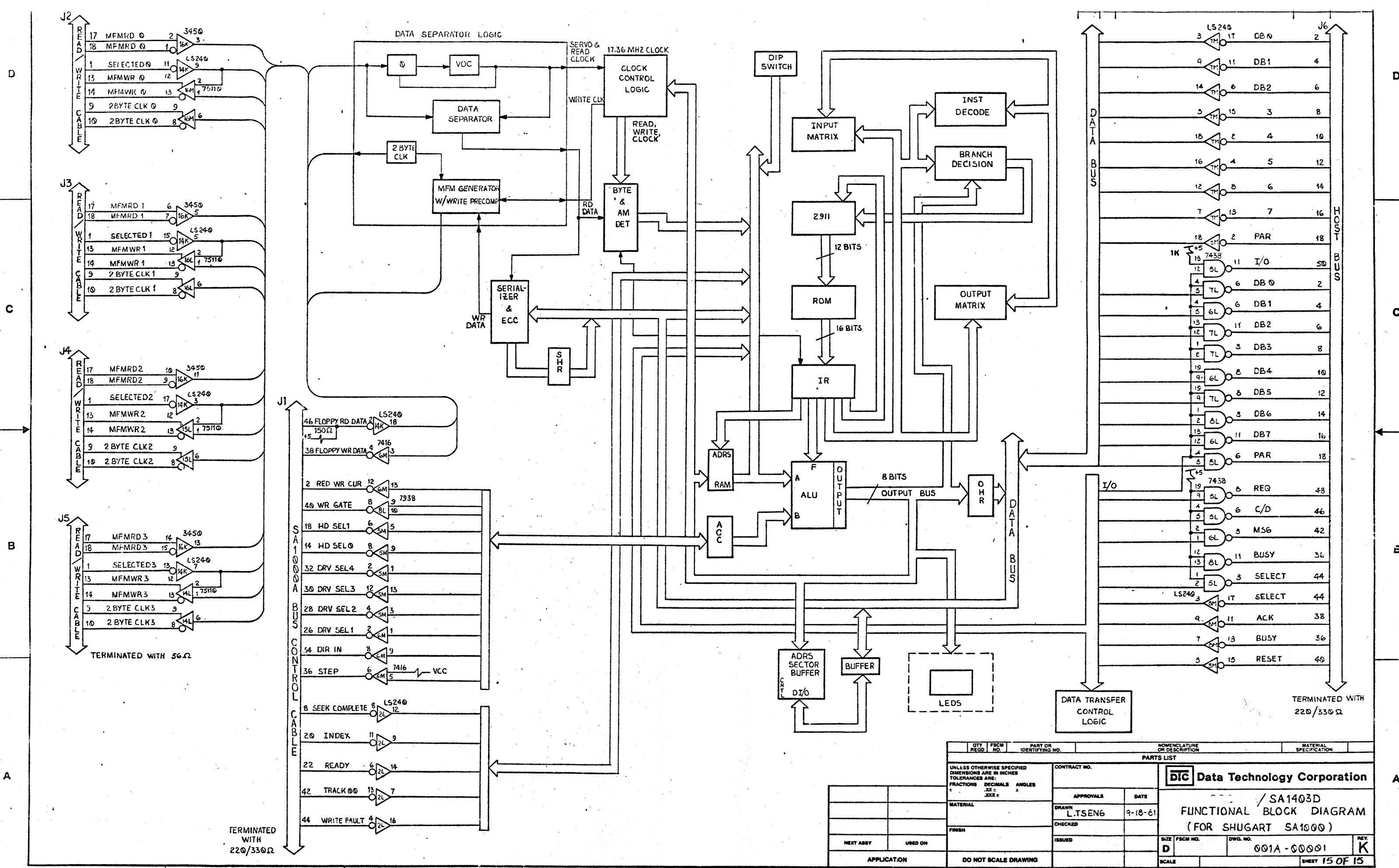
QTY	FSCM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES = .XX = .XXX = °		CONTRACT NO. 1403 D	
APPROVALS	DATE	SA 1403D DATA SEPARATOR FOR FDC CHIP	
MATERIAL	DRAWN L TSENG	10-12-81	
FINISH	CHECKED		
NEXT ASSY	ISSUED		
USED ON			
APPLICATION	DO NOT SCALE DRAWING		

SIZE	FSCM NO.	DWG. NO.	REV.
D		010-000006	K
SCALE			SHEET 14 OF 15



QTY REQD.	FSCM 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	
± .005	± .001	± .001	DATE	
MATERIAL		DRAWN L.TSENG		
FINISH		CHECKED		
NEXT ASSY		ISSUED		
USED ON		SCALE		
APPLICATION		DO NOT SCALE DRAWING		
DTC Data Technology Corporation			/ SA1403D	
FUNCTIONAL BLOCK DIAGRAM			(FOR SHUGART SA1000)	
SIZE	FSCM NO.	DWG. NO.	REV.	
D		001A-00001	K	
SHEET 15 OF 15				