

ELITE 1520A
TECHNICAL MANUAL

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INTRODUCTION

The DATAMEDIA Elite 1520A Video Terminal is a stand-alone separable terminal containing an alphanumeric display, keyboard, storage, control logic and an asynchronous communications interface.

The Elite 1520A is plug compatible with Teletypewriter* Models 33 and 35 and is a convenient substitute where the requirement for hard-copy is a secondary consideration.

There are certain additional advantages:

- quiet operation
- editing plus roll mode
- 50 to 9600 Baud
- 80 characters per line
- no end of line hangups
- Upper/Lower Case (optional)
- addressable cursor
- tape mode
- greater reliability
- electronic keyboard
- attractive modern styling
- modular construction to facilitate maintainance
- computer or operator-controlled printer output
- fixed tab

The Elite 1520A is an ideal terminal for data entry and information retrieval. The applications are only limited by the imagination of the user.

The physical characteristics and styling are on level with office or data processing decor.

Both domestic and European models of the Elite 1520A are available.

The low cost, low maintenance and high quality of the Elite 1520A is a reason it will become an integral part of systems tailored to meet the growing demands in the data communications industry.

* Teletypewriter is a registered trademark of Teletype Corporation, Skokie, Illinois

ELITE 1520A SPECIFICATIONS

SCREEN CAPACITY	1920 characters		
SCREEN TYPE/SIZE	P4 white, 12 inch		
SCREEN FILTER	Gray or Green		
CHARACTERS PER LINE	80		
LINES OF DISPLAY	24		
CHARACTER GENERATION	5 x 7 dot matrix within a 5 x 9 dot field to provide true lower case descenders		
CHARACTER SIZE	0.18"H x 0.09"W		
CHARACTER SET	Full ASCII - upper/lower case 128 codes stored		
REFRESH RATES	50 or 60 Hz		
DATA RATES	50 to 9600bps, asynchronous		
MEMORY TYPE	MOS		
KEYBOARD	Electronic, typewriter layout with numeric cluster and cursor controls		
CURSOR	Addressable X-Y coordinates; non-destructive, blinking cursor up, down, right, left, home and fixed tab		
KEY CONTROLS	Erase screen, erase to end of page		
OPERATING MODES	Full or Half Duplex, Roll or Tape Mode		
ALARM	Audible on alarm code or eight characters from end of line		
INTERFACE-LINE	RS232C; lamp indicators for carrier detect, and clear to send		
INTERFACE-PRINTER	Printer output computer or keyboard-controlled		
VIDEO OUTPUT	Provision to drive up to 16 external monitors		
DIMENSIONS	Display/Controller Keyboard		
Depth	35.24cm (13.875 in.)	21.21cm (8.35 in.)	
Height	37.78cm (14.875 in.)	8.38cm (3.30 in.)	
Width	35.56cm (14.00 in.)	45.72cm (18.00in.)	
Weight	14.06kg (31 lbs.)	3.25kg (7.16 lbs.)	
OPERATING ENVIRONMENT	+10°C to +40°C (+50°F to +100°F) Humidity +10% to +80% (non-condensing)		
POWER	100/125V 200/250V	50/60Hz 50/60Hz	75 Watts 75 Watts

TERMINAL ENVIRONMENTAL CONSIDERATIONS

The Datamedia Elite 1520 Video Terminal will operate within the parameters and characteristics listed below:

Terminal Physical and Environmental Characteristics

DIMENSIONS	Display/Controller	Keyboard
Depth	35.24cm (13.875 in.)	21.21cm (8.35 in.)
Height	37.78cm (14.875 in.)	8.38cm (3.30 in.)
Width	35.56cm (14.00 in.)	45.72cm (18.00in.)
Weight	14.06kg (31 lbs.)	3.25kg (7.16 lbs.)
OPERATING ENVIRONMENT	+10° ^C to +40° ^C (+50° ^F to +100° ^F) Humidity +10% to +80% (non-condensing)	
POWER REQUIREMENTS	100/125V 200/250V	50/60Hz 50/60Hz
POWER CORD	6 Feet (standard length)	
DATA SET CABLE (optional)	6 Feet (standard length)	
KEYBOARD CABLE	6 Feet (standard length)	

OPERATION

UNPACKING

The Elite 1520A has been carefully packed to ensure its safety during shipment. To remove the Elite 1520A from the shipping carton, the terminal should be lifted by grasping the underside of the base with both hands. It is recommended that the terminal be lifted in this manner at all times and never lifted by grasping the hood. In the event that shipping damage has occurred, file a claim against the carrier and notify Datamedia Corporation immediately.

INSTALLATION

1. Check that the hood has not been shifted or the base damaged in any way.
2. Insert the power cord into a normal power outlet 100/125 VAC grounded wall plug, or if specified, 200/250 VAC.
3. Set the DATA RATE switch to any one of the two speeds which you have pre-selected.
4. Insert the modem cable into the RS-232 output of the terminal and other end into an RS-232 compatible acoustical coupler or modem. (Connector plug in the rear of the terminal marked LINE).
5. Turn on the POWER switch, (power switch is located on the right side of the terminal), wait 30 seconds for the raster to appear, adjust contrast and brightness located on the right side of the terminal to your own liking.
6. With the FULL DUP (Full Duplex) switch in the UP (Half Duplex) position, type several characters and check for the correct display.

FIRST-TIME OPERATION

Turn on primary power using the ON/OFF switch located to the right side of the Terminal. The Select switches should be set for HALF DUPLEX. Select any character and hold that key depressed along with the REPEAT key and verify that the screen fills up with that character.

Adjust the brightness control until the raster is no longer visible and then adjust the contrast control for the most pleasing presentation. A moment spent on determining the optimum setting for both brightness and contrast controls is well spent since this will reduce operator fatigue and remember that the setting may require to be changed as ambient light levels change.

When entering the data from the keyboard, an audible alarm (beep) should be heard when the eighth character position from the end of each line is reached. This alarm serves the same purpose as the bell on a typewriter. The only other condition that will cause the alarm to sound will be the reception of the bell code (CTRL) (G). Characters will enter on the bottom line and the display will move up one position as each line is filled.

For your convenience, two of the common signal indicators available from your communications modem have been extended through the Video Display Terminal to the front panel where they activate lamp indicators. The lamp (CD) will indicate CARRIER DETECT and the lamp (RS) will indicate READY TO SEND.

TRANSMISSION MODES

The Video Display Terminal is designed for serial transmission over data lines. Transmission may be HALF DUPLEX (computer to display alternates with keyboard to display and computer), or FULL DUPLEX (computer to display simultaneous with keyboard to computer). The attention of the user is drawn to the fact that the terminal is factory-programmed for two particular transmission speeds, with one or two Bits as stop mark.

CONTROLS

The control functions should now be checked in the Half Duplex Mode to verify that:

REPEAT:	Standard Keyboard Controls used in conjunction with any other character or function to cause a repeat.
CARRIAGE RETURN:	Causes the cursor to move to the first position of the line.
LINE FEED: ↓	Moves the display up one row from bottom row.
SHIFT:	Located on both sides of the keyboard; used with dual legend keys to select the upper legend.

ELITE 1520A
TRANSMISSION MODES

1. Half Duplex Roll - provides for interactive operation whereby all keyboard entries are sent to the computer and display; simultaneously, the computer may also enter data to the display.
2. Full Duplex Roll - Computer to display simultaneous with keyboard to computer. In this mode, data can be echoplexed from the computer, and the terminal functions as in Half Duplex.
3. Tape Mode - In Tape Mode, the keyboard has no control over the positioning of the cursor. There are 128 ASCII codes, which may be stored by the terminal.

GENERAL OPERATING INFORMATION

The Elite 1520A has been designed to receive and transmit data up to 9600 baud and perform all functions with no additional controls.

1. Home (EM) - will return the cursor to the Home position (first character, first line).
2. Forward Cursor (FS) - a non-destruct code, will cause the cursor to advance one character position to the right. If there are no character positions to the right, the cursor will advance to the first character of the next line.
3. Back Cursor (BS) - a non-destruct code, will cause the cursor to move one character position to the left. This control is normally strapped such that when the cursor is in character position one, it will not move on receipt of a BS code. However, it may be strapped to move to the 80th character position of the line above. See programming information.
4. Up Row Cursor (US) - a non-destruct code, will cause the cursor to move up one row. When the first row is reached the cursor will remain there.
5. Down Row Cursor (LF) - a non-destruct code, will move the cursor down one row. When the last row is reached it will move the data up one row leaving the last row blank.
6. Return (CR) - a non-destruct code, will cause the cursor to move to the first character position of the line, and is normally strapped to generate an automatic line feed. This control may be strapped for return only. See programming information.
7. Erase to End of Line (GS) - This code will erase all data from the cursor to the end of the line.
8. Erase to End of Page (VT) - This code will erase all data from cursor to end of page.
9. Erase (FF) - This code will erase all data and home the cursor.
10. Start Address (RS) - This code will place the terminal in the X-Y addressing mode. The next character will be the character address, and the following character the row address. Data may be entered from that point in the normal manner.
11. Printer On (SO) - This code will cause all receive or transmit data to be directed to the printer output, which is an RS232 Interface.
12. Printer Off (SI) - This code will remove the printer output connection.
13. Horizontal Tab (HT) - Normally fixed to every eighth character position, strappable to every fourth character position. Tab positions are fixed and do not depend on starting point of cursor. See programming information.

14. Escape Sequence (ESC) - When enabled, requires the decoding of an ESC character before the following codes can be operated on: HT, VT, FF, SO, SI, GS, RS. See programming information.

STANDARD FEATURES AVAILABLE

A. PARITY GENERATION

The system transmits even parity; however, the parity bit may be forced to a constant mark by use of an internal program strap.

B. TWO SPEED SELECTION

The system has made two speeds available to the user in the manner of a mode switch on the keyboard panel. Speeds available are in the range of 50 baud up to 9600 baud.

C. FULL/OR HALF DUPLEX SWITCH

Selectable from front panel.

D. RECEIVE/TRANSMIT TO PRINTER

Control Code Selectable.

E. LINE CONDITIONS

Lamp indicators on the front panel, (CD) Carrier Detect and (RS) Ready to Send.

F. CURSOR CONTROL

Non-destructive, up, down, right, left, home.

G. AUDIBLE END OF LINE INDICATOR

Audible end of line bell sounds when the 72nd character of a line is entered; also, sounds when the "bell" character is received.

H. X-Y COORDINATES

X-Y coordinates cursor positioning.

I. ROLL MODE

Roll type operation from bottom line of display.

J. EIA INTERFACE

K. FIXED TAB

L. PROGRAMMABLE LEAD IN CHARACTER (ESC)

OPTIONAL FEATURES

- A. Numeric Pad Keyboard
- B. 128 ASCII Codes stored in Tape Mode.
- C. Upper and lower case Keyboard and Display
- D. Optical Interface - 20 milliamp
- E. Optional Control Sets (Factory-programmed as required by User)
- F. Special Character Fonts

CONTROLS PROVIDED WITH OPTIONAL
LOWER CASE KEYBOARD

EOL:	Erase data from cursor to end of the line
EOS:	Erase data from cursor to end of page
CLEAR:	Erase Page and home cursor
TAPE:	Mode key controls Tape mode entry
PRINT OFF:	Stops output to printer
PRINT:	Enables output to printer
UP ROW CURSOR: ↑	Up row cursor
BACK CURSOR: ←	Back cursor
HOME:	Home
FORWARD CURSOR: →	Forward cursor
DOWN CURSOR: ↓	Down cursor

ELITE 1520 UPPER/LOWER CASE

		7		BITS		7		0		0		0		0		1		1		1	
		6		6		6		0		0		1		1		0		0		1	
		5		BITS		5		0		1		0		1		0		1		0	
CONTROL		4		3		2		1													
NUL	DLE							00000		R0											
SOH	DC1							00001		R0											
STX	DC2							00100		R0											
ETX	DC3							00111		R0											
EOT	DC4							01000		R0											
ENQ	NAK							01011		R0											
ACK	SYN							01100		R0											
BEL	ETB							01111		R0											
BS	CAN	*						10000		R0											
HT	EM							10011		R0											
TAB	HOME							10011		R0											
LF	SUB	*						10100		R0											
VT	ESC							10111		R0											
ERASE EOS	ESC							10111		R0											
FF	FS	*						11000		R0											
MASTER RESET		*						11000		R0											
CR	GS							11011		R0											
RETURN	ERASE EOL							11011		R0											
SO	RS							11100		R0											
PRINT	X-Y ADDRESS							11110		R0											
SI	US	*						11111		R0											
PRINT OFF		*						11111		R0											

* → CURSOR CONTROL

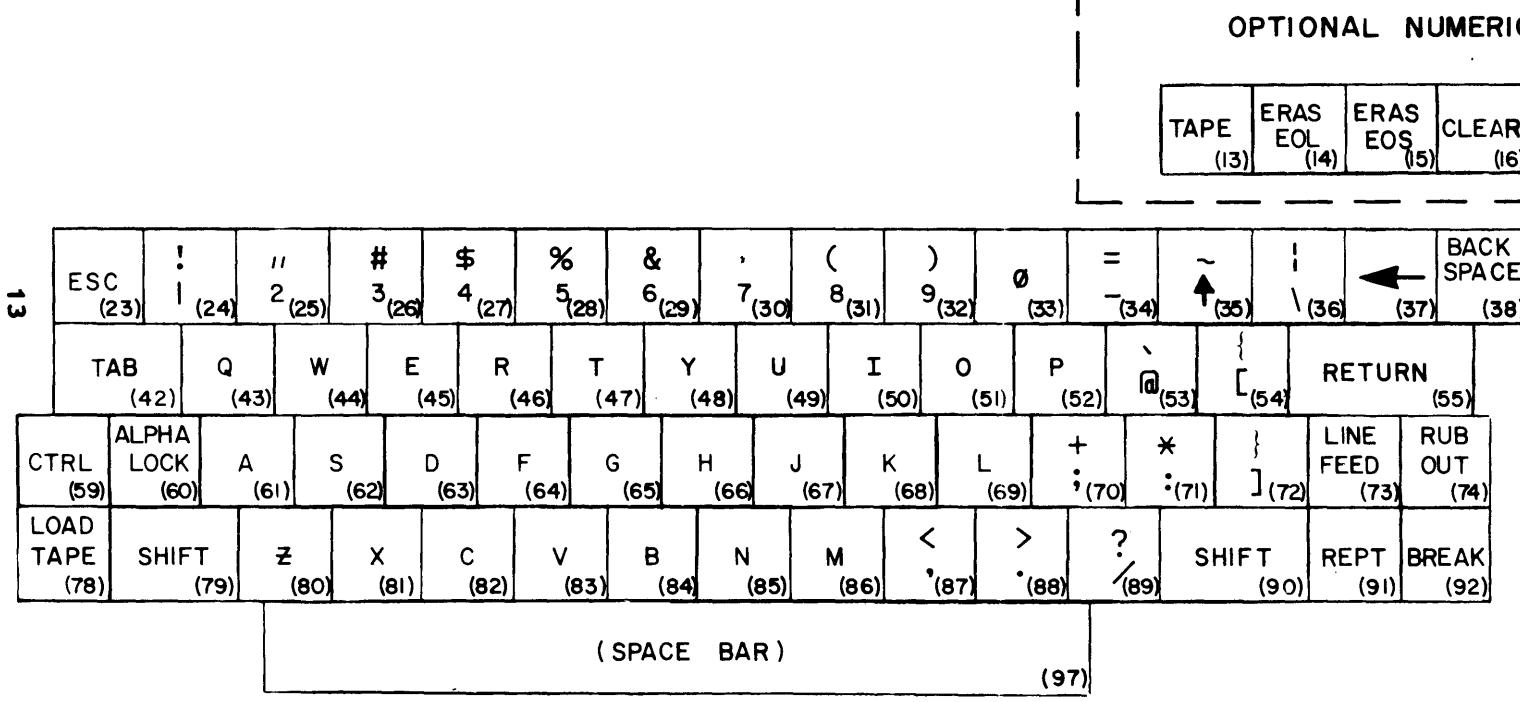
ELITE 1520 UPPER/ LOWER CASE ANSI STANDARD

0 0		7 BITS		7		0 0 0 0 1 1 1 1							
0 0		6		6		0 0 1 1 0 0 1 1							
0 1		5 BITS		5		0 1 0 1 0 1 0 1							
CONTROL		4 3 2 1											
NUL	DLE												
SOH	DC1												
STX	DC2												
ETX	DC3												
EOT	DC4												
ENQ	NAK												
ACK	SYN												
BEL	ETB												
BS	CAN	*											
HT	EM												
TAB	HOME												
LF	SUB	*											
VT	ESC												
ERASE	ESC												
EOS													
FF	FS		*										
MASTER		→											
RESET													
CR	GS												
RETURN	ERASE												
SO	RS												
PRINT	X-Y ADDRESS												
SI	US	*											
PRINT OFF		↑	*										

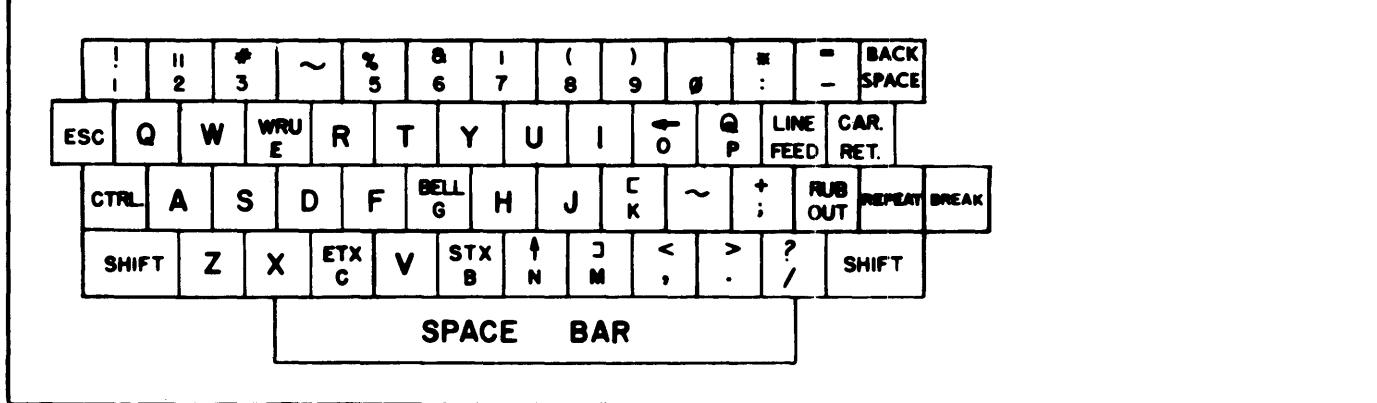
* → CURSOR CONTROL

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E1520A UPPER LOWER CASE KEYBOARD



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ELITE 1520A KEYBOARD
UPPER CASE

CODE GENERATION

TABLE I

This chart gives the codes that can be transmitted from the Elite 1520 keyboard.

Bit 7 →					0	0	0	0	1	1	1	1
Bit 6 →					0	0	1	1	0	0	1	1
Bit 5 →					0	1	0	1	0	1	0	1
Col →					0	1	2	3	4	5	6	7
Bit 4 ↓	Bit 3 ↓	Bit 2 ↓	Bit 1 ↓	Row ↓	Note 4	Note 2	Note 3	Note 1			Note 5	
0	0	0	0	0	NUL	DLE	SP	0	@	P	`	p
0	0	0	1	1	SOH	DC1	!	1	A	Q	a	q
0	0	1	0	2	STX	DC2	"	2	B	R	b	r
0	0	1	1	3	ETX	DC3	#	3	C	S	c	s
0	1	0	0	4	EOT	DC4	\$	4	D	T	d	t
0	1	0	1	5	WRU	NAK	%	5	E	U	e	u
0	1	1	0	6	ACK	SYN	&	6	F	V	f	v
0	1	1	1	7	BEL	ETB	'	7	G	W	g	w
1	0	0	0	8	BS*	CAN	(	8	H	X	h	x
1	0	0	1	9	HT*	EM*	)	9	I	Y	i	y
1	0	1	0	10	LFF*	SUB	*	:	J	Z	j	z
1	0	1	1	11	VT*	ESC	+	;	K	C	k	{
1	1	0	0	12	FF*	FS*	,*	<	L	\	l	:
1	1	0	1	13	CR*	GS*	-*	=	M	]	m	}
1	1	1	0	14	SO*	RS*	.*	>	N	↑	n	~
1	1	1	1	15	SI*	US*	/*	?	O	<	o	Rub

Note 1. *available on the keyboard (see General Operating Information). (Optional)

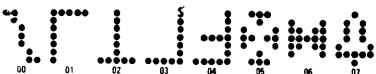
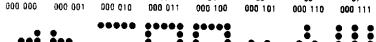
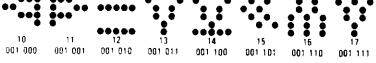
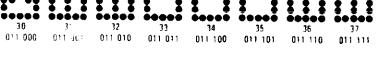
Note 2. Can be transmitted by (CTRL) key and adjacent character column 5 (some characters available on the keyboard).

Note 3. Can be displayed by (shift) key and adjacent character column 3 (some characters available on the keyboard).

Note 4. Can be transmitted by (CTRL) key and adjacent character column 4 (some characters available on the keyboard). (displayed in Tape Mode)

Note 5. Can be transmitted and displayed in the lower case form. (Optional)

CONTROL CODE FONT

B1	B2	B3	B4	B5	B6	B7	Octal	Display Char.	ASCII
0	0	0	0	0	0	0	000		NUL
1	0	0	0	0	0	0	001		SOH
0	1	0	0	0	0	0	002		STX
1	1	0	0	0	0	0	003		ETX
0	0	1	0	0	0	0	004		EOT
1	0	1	0	0	0	0	005		WRU
0	1	1	0	0	0	0	006		ACK
1	1	1	0	0	0	0	007	 00 000 000 000 000 000 000 000 01 001 001 001 001 001 001 001 02 010 010 010 010 010 010 010 03 011 011 011 011 011 011 011 04 000 100 000 100 000 100 000 05 000 101 000 101 000 101 000 06 000 110 000 110 000 110 000 07 000 111 000 111 000 111 000	BEL
0	0	0	1	0	0	0	010		BS
1	0	0	1	0	0	0	011	 10 000 000 000 000 000 000 000 11 001 001 001 001 001 001 001 12 010 010 010 010 010 010 010 13 001 011 001 011 001 011 001 14 001 100 001 100 001 100 001 15 001 101 001 101 001 101 001 16 001 110 001 110 001 110 001 17 001 111 001 111 001 111 001	HT
0	1	0	1	0	0	0	012		LF
1	1	0	1	0	0	0	013	 20 000 000 000 000 000 000 000 21 010 000 010 000 010 000 010 22 010 001 010 001 010 001 010 23 010 010 010 010 010 010 010 24 010 011 010 011 010 011 010 25 010 100 010 100 010 100 010 26 010 101 010 101 010 101 010 27 010 110 010 110 010 110 010 28 010 111 010 111 010 111 010	VT
0	0	1	1	0	0	0	014		FF
1	0	1	1	0	0	0	015	 30 000 000 000 000 000 000 000 31 011 000 011 000 011 000 011 32 011 001 011 001 011 001 011 33 011 010 011 010 011 010 011 34 011 011 011 011 011 011 011 35 011 100 011 100 011 100 011 36 011 101 011 101 011 101 011 37 011 110 011 110 011 110 011	CR
0	1	1	1	0	0	0	016		SO
1	1	1	1	0	0	0	017		SI
0	0	0	0	1	0	0	020		DLE
1	0	0	0	1	0	0	021		DC1
0	1	0	0	1	0	0	022		DC2
1	1	0	0	1	0	0	023		DC3
0	0	1	0	1	0	0	024		DC4
1	0	1	0	1	0	0	025		NAK
0	1	1	0	1	0	0	026		SYN
1	1	1	0	1	0	0	027		ETB
0	0	0	1	1	0	0	030		CAN
1	0	0	1	1	0	0	031		EM
0	1	0	1	1	0	0	032		SUB
1	1	0	1	1	0	0	033		ESC
0	0	1	1	1	0	0	034		FS
1	0	1	1	1	0	0	035		GS
0	1	1	1	1	0	0	036		RS
1	1	1	1	1	0	0	037		US

TECHNICAL DESCRIPTION

A. INTRODUCTION

The information contained in this manual applies to the Upper/Lower case Elite 1520A Video Display Terminal.

B. GENERAL

1. Power Supply
2. Monitor
3. Backplane
4. Mode Switches
5. Memory Display Board
6. 7-Level Memory (Part of Unit 5)
7. Recirculation Registers (Part of Unit 5)
8. ROM (Part of Unit 5)
9. Output Register and Mixer (Part of Unit 5)
10. Timing Board
11. Video Timing (Part of Unit 10)
12. Memory Timing (Part of Unit 10)
13. Transceiver
14. Speed Control Timing (Part of Unit 13)
15. UAR/T (Part of Unit 13)
16. Memory Coincidence Timing (Part of Unit 13)
17. Memory Control Timing (Part of Unit 13)
18. Upper and Lower Case Keyboard
19. Keyboard Cable and Base

1. Power Supply provides four independently regulated voltage buss levels: +15, +12, -12 and +5. The three higher voltage regulators are 1 Amp regulator chips, using external components for voltage adjustments. These chips are internally current limited, have thermal shut down and are essentially blowout proof. The 5 Volt circuit has an IC regulator with external booster transistors added. Foldback current limiting is employed. Protective diodes across the busses protect each regulator against accidental buss-to-buss shorts. The output voltage of each buss is adjustable over a limited voltage range by 'trim-pots' mounted on the power supply PC board.

The 5V supply is provided with over-voltage protection which is normally set up so that a rise of voltage on the buss above the preset limit will cause the over-voltage protective circuit to trip, which effectively crowbars the supply. The load connected externally to the 5V supply is further protected against a catastrophic power supply failure, such as a shorted 'pass transistor' by a fuse in series with the raw DC input to the regulator. If the over-voltage protection is tripped as a result of some transient phenomena, the supply may be reset by momentarily turning off the primary AC power input.

The power supply transformer is provided with a split primary winding which allows the primary to be connected for either 117V AC or 230V AC nominal operation to suit domestic and/or European requirements. The transformer is also provided with an electrostatic shield between primary and secondary windings in accordance with GPO requirements. Since AC fusing appears in the Elite 1520A of which the power supply is a sub-assembly, there is no provision for primary fusing on the supply itself.

2.1 MONITOR DESCRIPTION

The TV monitor is a solid-state unit for use in industrial and commercial installations where reliability and high quality video reproduction are desired.

The monitor features printed circuit board construction for reliability and uniformity. All circuits of the TV monitor are transistorized. The synchronization circuits have been custom designed to accept vertical and horizontal drive signals thus enabling the interfacing of this monitor with industrial or simple sync sources. This feature simplifies the user's sync processing and mixing and allows the unit to operate without requiring composite sync. The electronic packaging has been miniaturized for compatibility with small volume requirements.

Internal Set Up Controls

- (1) Height
- (2) Vertical Linearity
- (3) Vertical Hold
- (4) Focus
- (5) Width

External Set Up Controls

- | | |
|----------------|--|
| (1) Brightness | (100 Kilohm potentiometer \geq 1/8 Watt) |
| (2) Contrast | (500 ohm potentiometer \geq 1/8 Watt) |

The Brightness and Contrast controls are mounted on the right-hand side of the controller base above the on/off switch.

3. Backplane - utilizes three 60 pin leaf pin type connections.
4. Mode Switch - an eight-position, double pole, double throw switch assembly. Only four switches are used as single pole, single throw.
5. Memory Display Board - 2DAAA01800 (Units 6, 7, 8, 9)
6. Memory - made up of dual 512-bit MOS dynamic shift registers. These registers are arranged to make a 2048 bit shift register. The seven ASCII Data bits are stored in these registers in a parallel arrangement.
7. Recirculating Registers - are Quad 80-Bit dynamic shift registers with an internal recirculating path.
8. R.O.M. SCM3094L - is an Upper/Lower case, 128 character, 5 x 9 static character generator.
9. Output Register and Mixer - the output register is a 5-bit parallel in, serial out shift register. The mixer modulates Video Data and Composite Sync to develop Composite Video.
10. Video Timing - 380DAE0600, 380DAE1000 (Units 11, 12)
11. Memory Timing - the memory time is driven by a 9.36 MHz oscillator. There are three memory counters: Video Bit Counter is a three-stage shift register, Memory Character Counter is a seven-stage divide by 80 counter, and Memory Row Counter is a five-stage divide by 32 counter. The arrangement of these counters develop $\varnothing 1$ and $\varnothing 2$ memory clocks, which occur 2048 times per memory timing cycle.

12. Video Timing - driven by a 9.36 MHz oscillator. There are four Video Counters: the Video Bit Counter is a four-stage divide by six counter shift register, Video Character Counter is an eight-stage divide by 100 counter, Video Line Counter is a four-stage divide by 10 counter, and Video Row Counter is a five-stage divide by 26 or 31 row counter for 60 Hz or 50 Hz respectively, exactly 260 lines or 312 lines respectively.
13. Transceiver - 2DAAA01600 (Units 14, 15, 16, 17)
14. Special Control Timing - a 12-stage programmable counter designed to divide 3.12 MHz by 2 to 4097. Its output is equal to 16 times the operating baud rate. It is controlled by two program gates. (See Page 22 for Programming Information)
15. UAR/T - The Universal Asynchronous Receiver/Transmitter is an LSI subsystem which receives and transmits binary characters from the Keyboard in parallel or from a computer in serial.

FEATURES

DTL and TTL Compatible--no interfacing circuits required--drives one TTL load.

Fully Double Buffered--eliminates need for system synchronization, facilitates high-speed operation.

Full Duplex Operation--can handle multiple baud rates (receiving-transmitting) simultaneously.

Start Bit Verification--decreases error rate with center sampling.

Receiver center sampling of serial input; above 40% distortion immunity.

16. Memory Coincidence Timing - is a comparison of Memory Character Timing (MC#) to the Static Character count (CC#) along with Memory Row count (MR#) to the Static Row count (CR#) to develop (MC) and (DCOIN).
17. Memory Control Timing - is the gating control circuits necessary to recognize control codes as they are received and complete their operation within one character time at 9600 baud. (See General Operating Information for Control Codes)

18. Upper/Lower Case Keyboard - The Elite 1520A Keyboard circuit is designed with a divide by 16 counter for keyboard bits 1 through 4. The counter advances continuously until a key is depressed. When a key is depressed, the counter will stop at the count determined by the key depressed. The counter outputs will be gated into bits 5 through 7 in order to develop output bits 1 through 7. The gating that develops bits 5 through 7 generates Keyboard Strobe.

Keyboard Strobe is delayed to compensate for switch bounce. Keyboard Strobe remains for a short period of time after the key has been released. The coding of the key is determined by the ASCII character code required.

19. Keyboard Cable and Base - The keyboard cable length is 6' long and is terminated in a 25-pin male cinch Jones connector.

DATA RATE PROGRAMMING

Data Rate selector switch: programmable for two speed control.

DATA RATE PROGRAMMING

SPEED	F	E	D	C	R	A	H	ACTUAL SPEED
50	9	10	11	12	4	5	6	50
75	2	10	3	12	6			75
110	2	10	11	4	6	7	8	110
150	9	2	11	5				150
300		10	4				8	300
600	1	2				7	0	600
1200	1				6		8	1196
1800	2		4		6	7		1806
2400	2	3	4			7	1	2407
3600		3	4		6			3611
4800	2	3			6		1	4756
7200			4	5			1	7222
9600	2			5				9750

$$\left(\frac{195000}{\text{SPEED IN BAUD}} \right)$$

-2 = WEIGHT TO BE PROGRAMMED

PROGRAMMING INFORMATION

It is recommended that whenever possible, logic cards should be returned to the factory for programming. Should you find it desirable to do it yourself, the following information is provided for your convenience.

- A. Jack Locations - In the Elite 1520A, the logic cards are arranged as follows:

Jack One - MEMORY DISPLAY
Jack Two - TIMING
Jack Three - TRANSCEIVER

Jacks are numbered from top to bottom. Access to the card cage is through the front panel.

- B. Transceiver (J3) Programming:

1. Back Space: No back space from first character position--
TT-UU.
2. Return: Auto line feed on CR--G1-F1.
No auto line feed on CR--G1-H1.
3. Horizontal Tab: Every eighth character position--YY-ZZ
Every fourth character position--cut YY-ZZ
4. Escape Lead-in Enabled--add A1-B1
5. Parity: Odd G to M
Even V to M (Factory)
None V to J
6. Stop Bits: 1 Stop Bit (Speed 1) Z to Y
1 Stop Bit (Speed 2) AA to BB
2 Stop Bits No Strap
7. Mark Parity: No Parity (See 5)
2 Stop Marks (See 6)

INTERFACE INFORMATION

RS-232 Line Interface

The connectors shown in Table Two (2) are the communications interface for the Elite 1520A.

TABLE 2
CONNECTION TO MODEM, EIA RS-232 INTERFACE
CONNECTOR TYPE CINCH DB-25

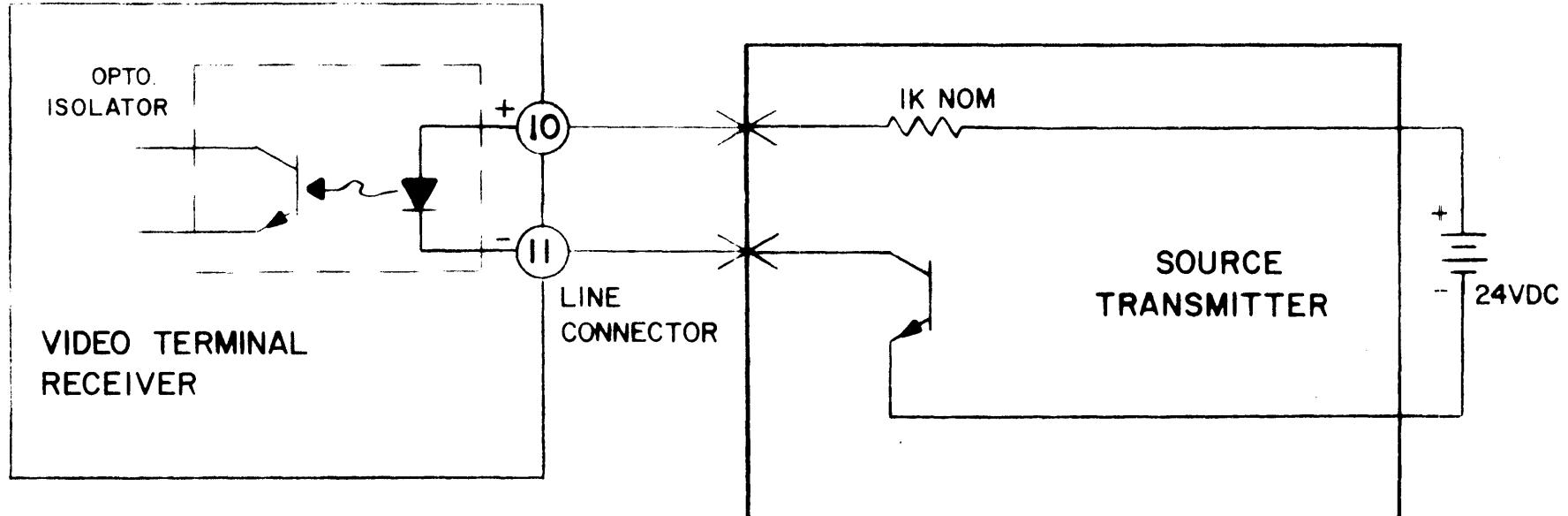
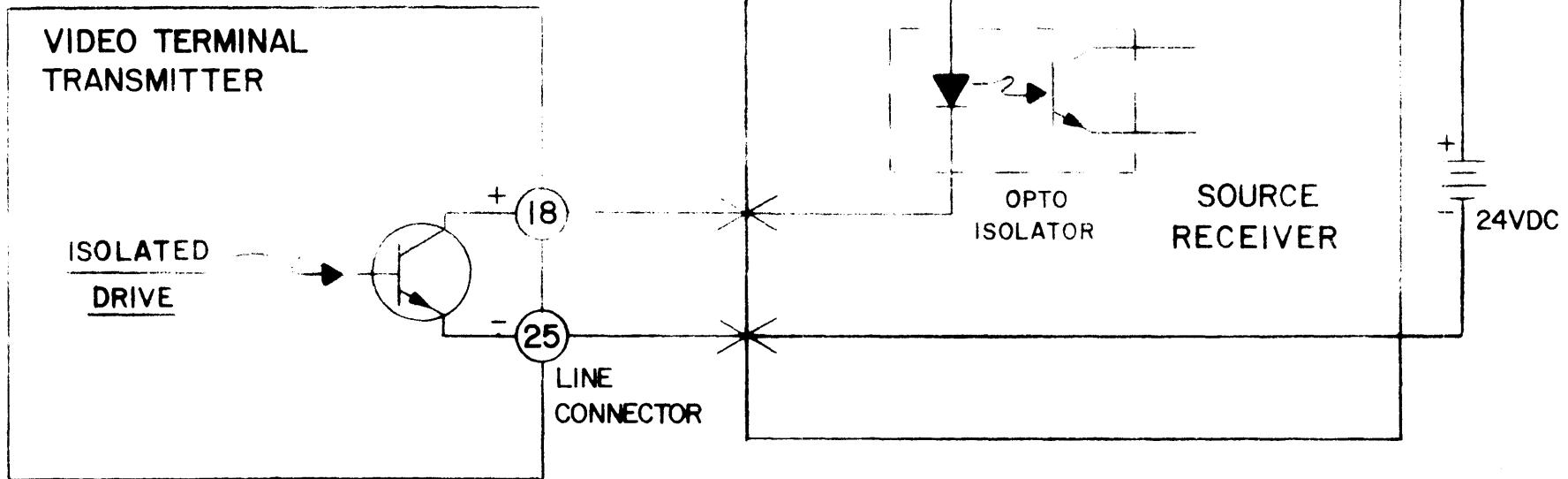
<u>PIN ASSIGNMENT</u>	<u>FUNCTION</u>
2	Transmit Data Mark = -6V, space = +6V
3	Receive Data Mark = -V, space = +V
4	Request to send +12 Volts
5	Clear to send
7	Signal Ground
8	Carrier on
10	Current loop receive +
11	Current loop receive -
20	Data terminal ready +12 Volts
18	Current loop Xmit +
25	Current loop Xmit -

INTERFACE INFORMATION

RS-232 Printer Interface

<u>PIN ASSIGNMENT</u>	<u>FUNCTION</u>
3	Transmit data mark = -6V, space = +6V
6	Request to send +12 Volts
8	Data terminal ready +12 Volts
7	Signal Ground

23A



CURRENT LOOP INTERFACE

EQUIVALENT TRANSMIT AND RECEIVE CIRCUITS
SHOWING REQUIRED EXTERNAL CONNECTIONS

MAINTAINABILITY

The terminal is comprised of a group of modular sub-assemblies, bolted on a rigid metal chassis. The standard logic functions are contained on a group of four printed circuit cards mounted in a single card cage. All logic function cards are readily removable. The backplane wiring for the card cage is accessible by removing the back panel.

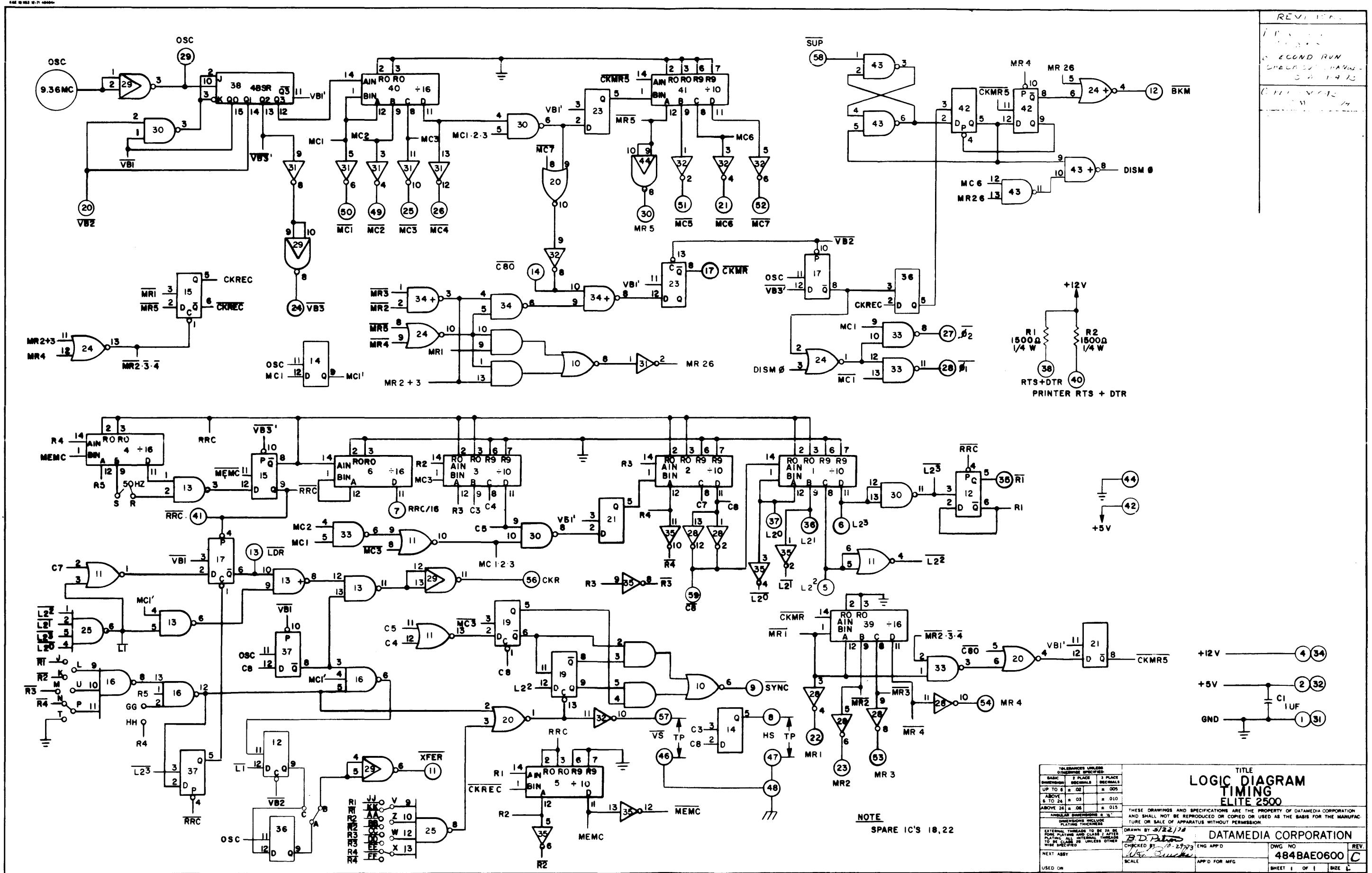
The power supply is a sub-assembly bolted to the main frame below the video monitor. The video monitor is a readily replaceable sub-assembly which is plug-connected to the control section of the terminal.

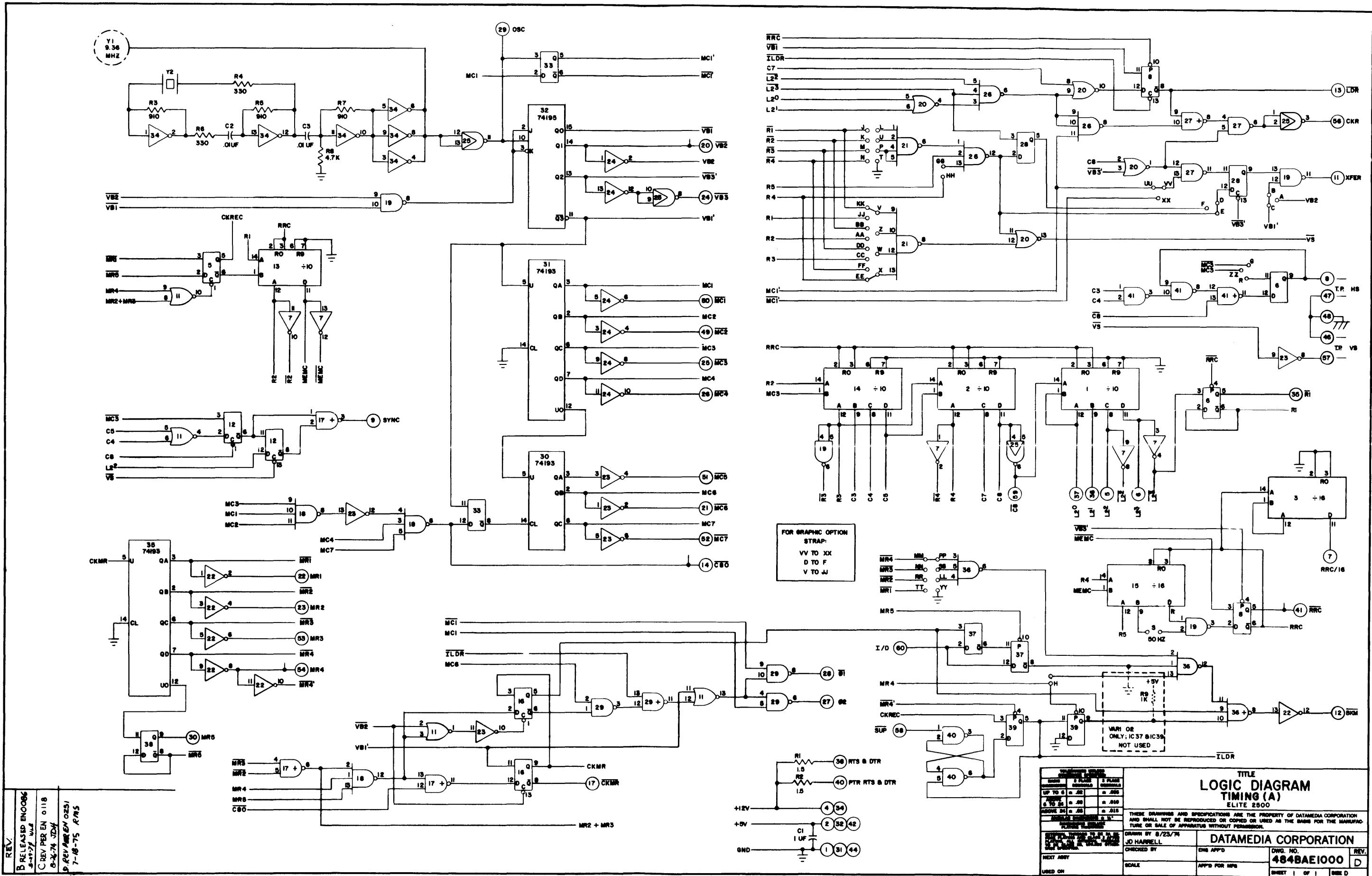
MODULE REPLACEMENT

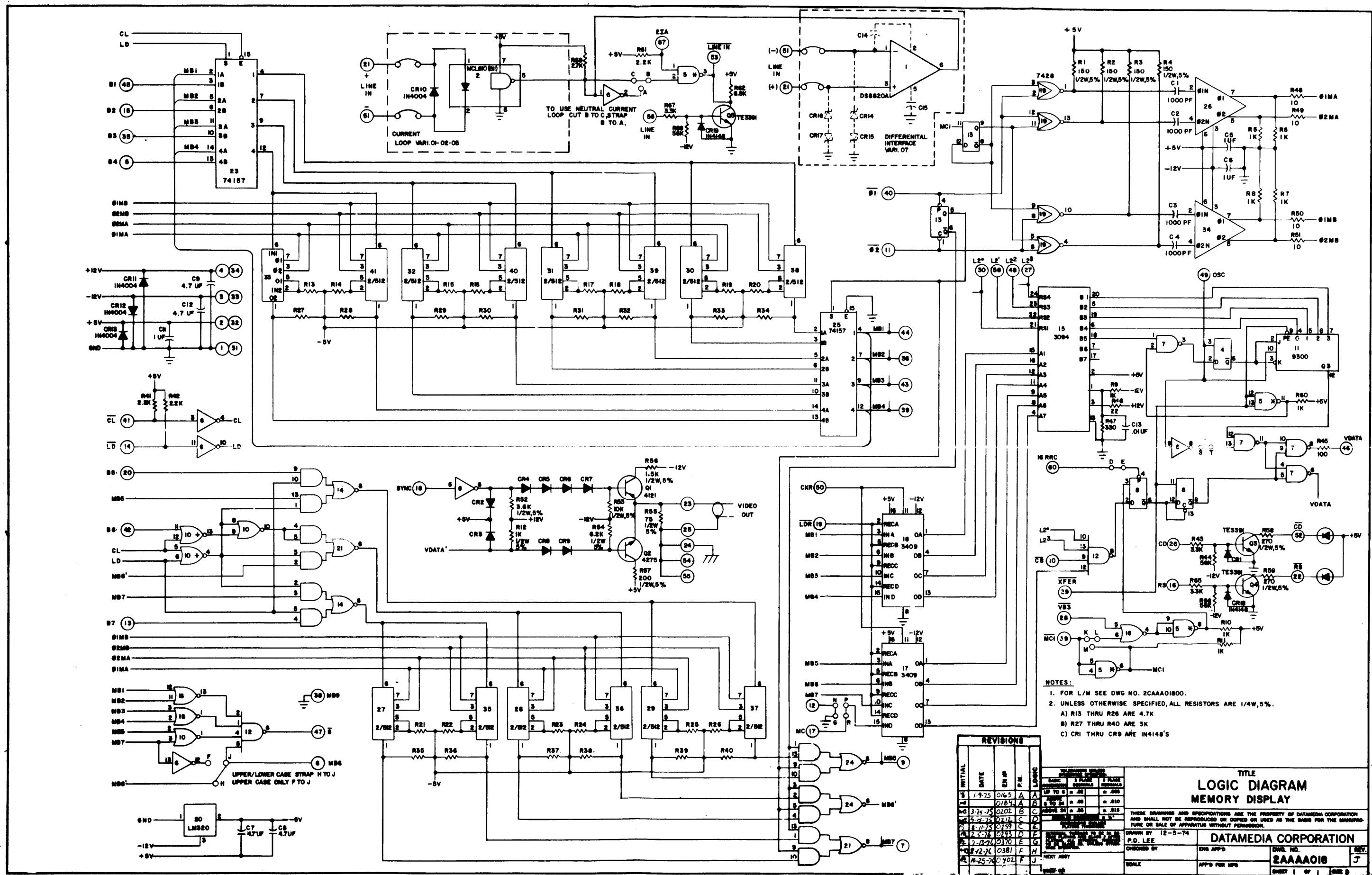
The modular construction of the terminal lends itself to this approach; it is quite simple to diagnose video monitor or power supply failures, and replacement of either sub-assembly is also quite simple. Logic card failure can be diagnosed even if their functions are not known by a simple card substitution test. The above mentioned procedures, in most cases, will permit rapid restoral of normal operation. Problems with the keyboard can be similarly isolated.

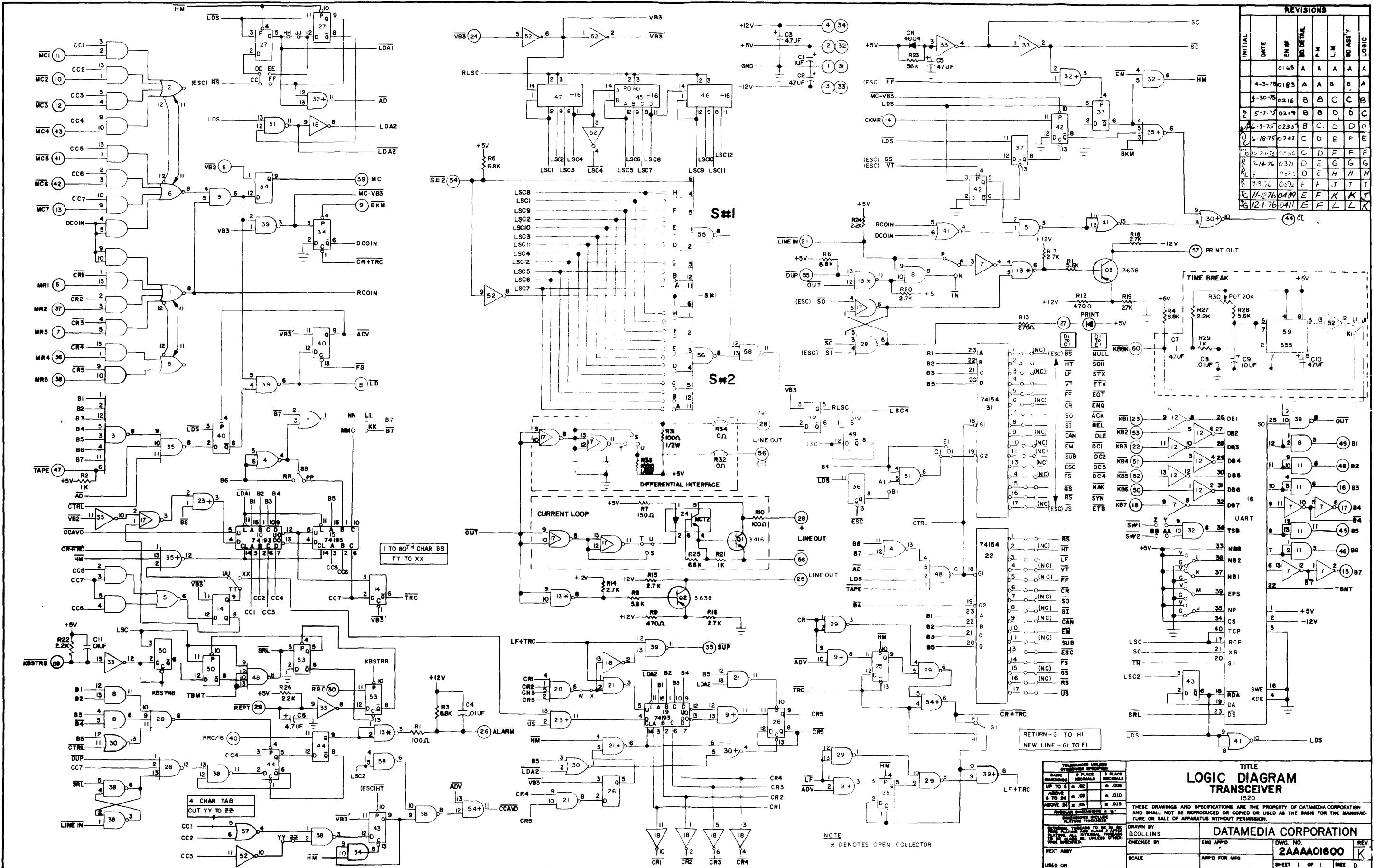
P. C. CARD REPAIR

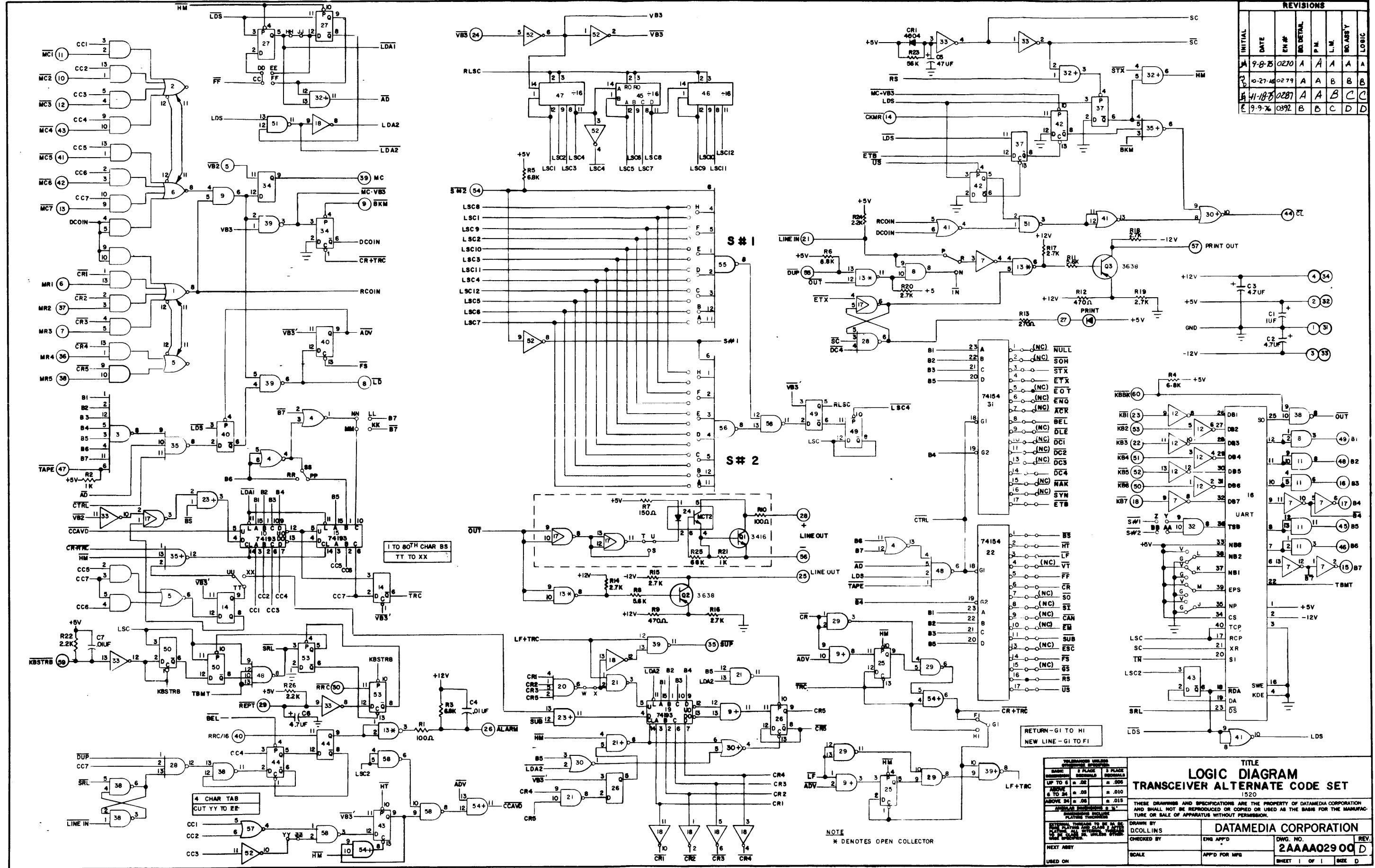
All sub-assemblies are burned-in and tested for a minimum of 72 hours before shipment; however, if a problem should occur, the factory or local facility has adequate equipment on hand to permit rapid isolation of card and/or component failure.

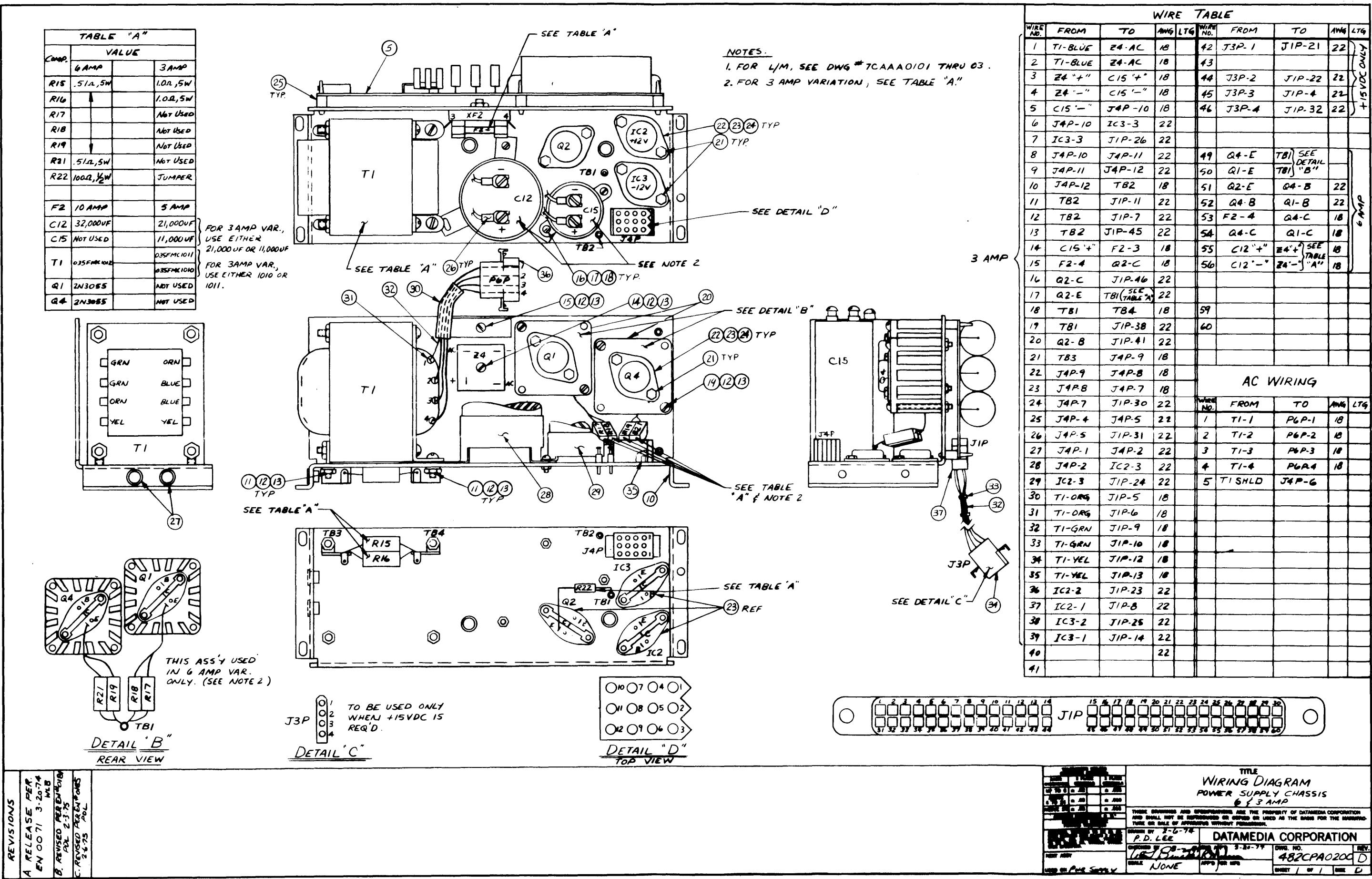








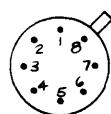
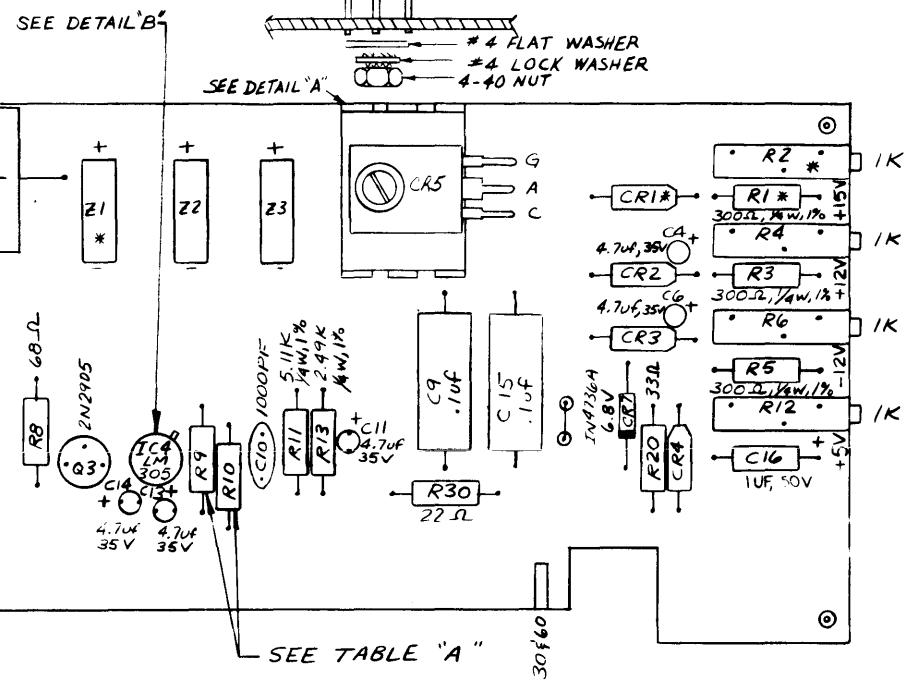
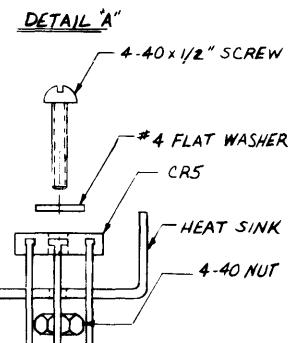




REVISIONS

A. RELEASE PER
EN0071
3-20-74
WB
B. PER EN 0107
WB 8-24-74
C PER EN 0181
WB 2-4-75
D PER EN 0262
DC 8-13-75
E PER EN 0380
8-11-76 WB
F PER EN 0387
RL 8-30-76

TABLE "A"		
COMP.	VALUE	
	6 AMP	3 AMP
R9	33Ω, 1/2W	51Ω, 1/2W
R10	80.6Ω, 1/2W	121Ω, 1/2W

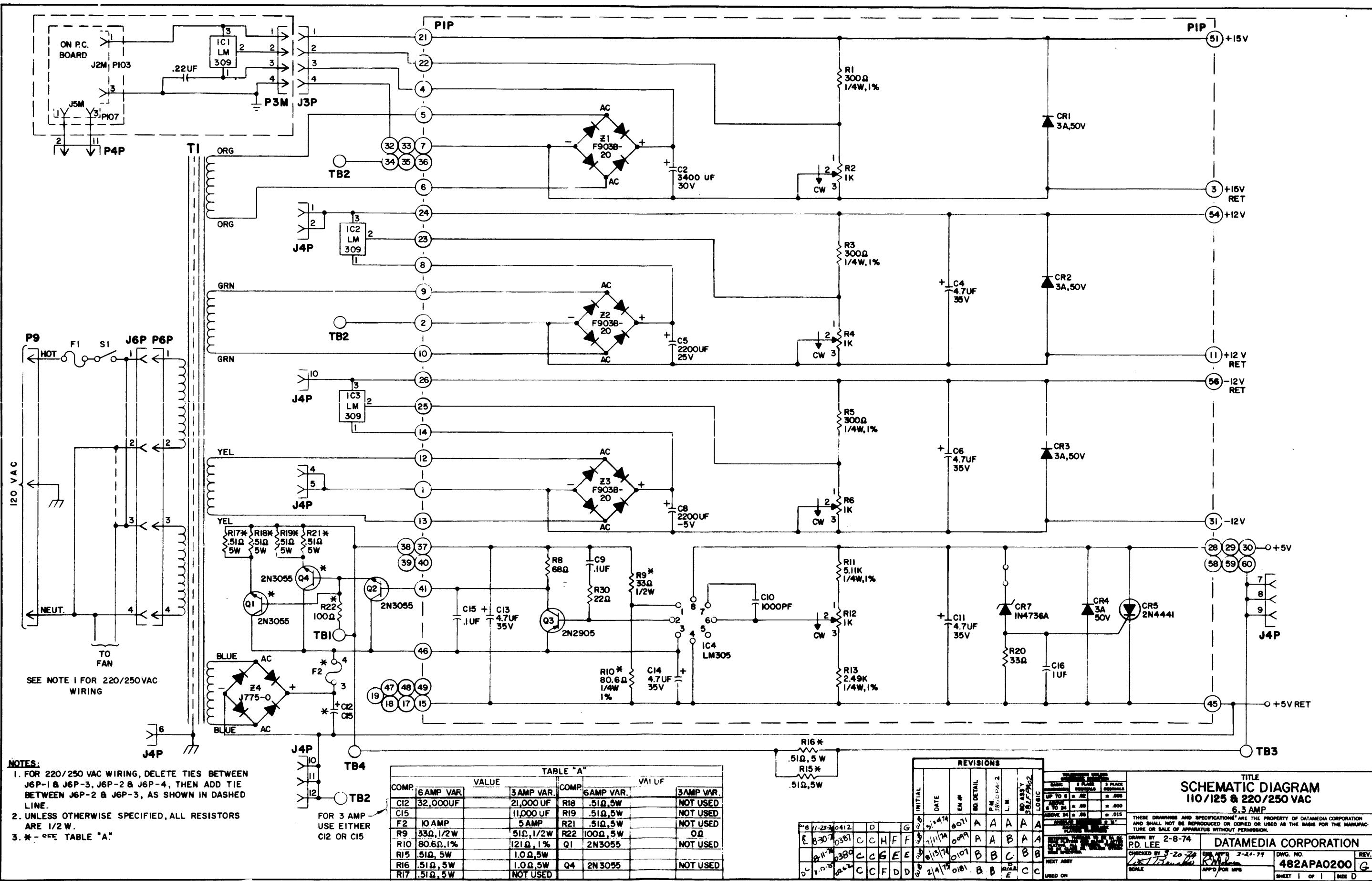


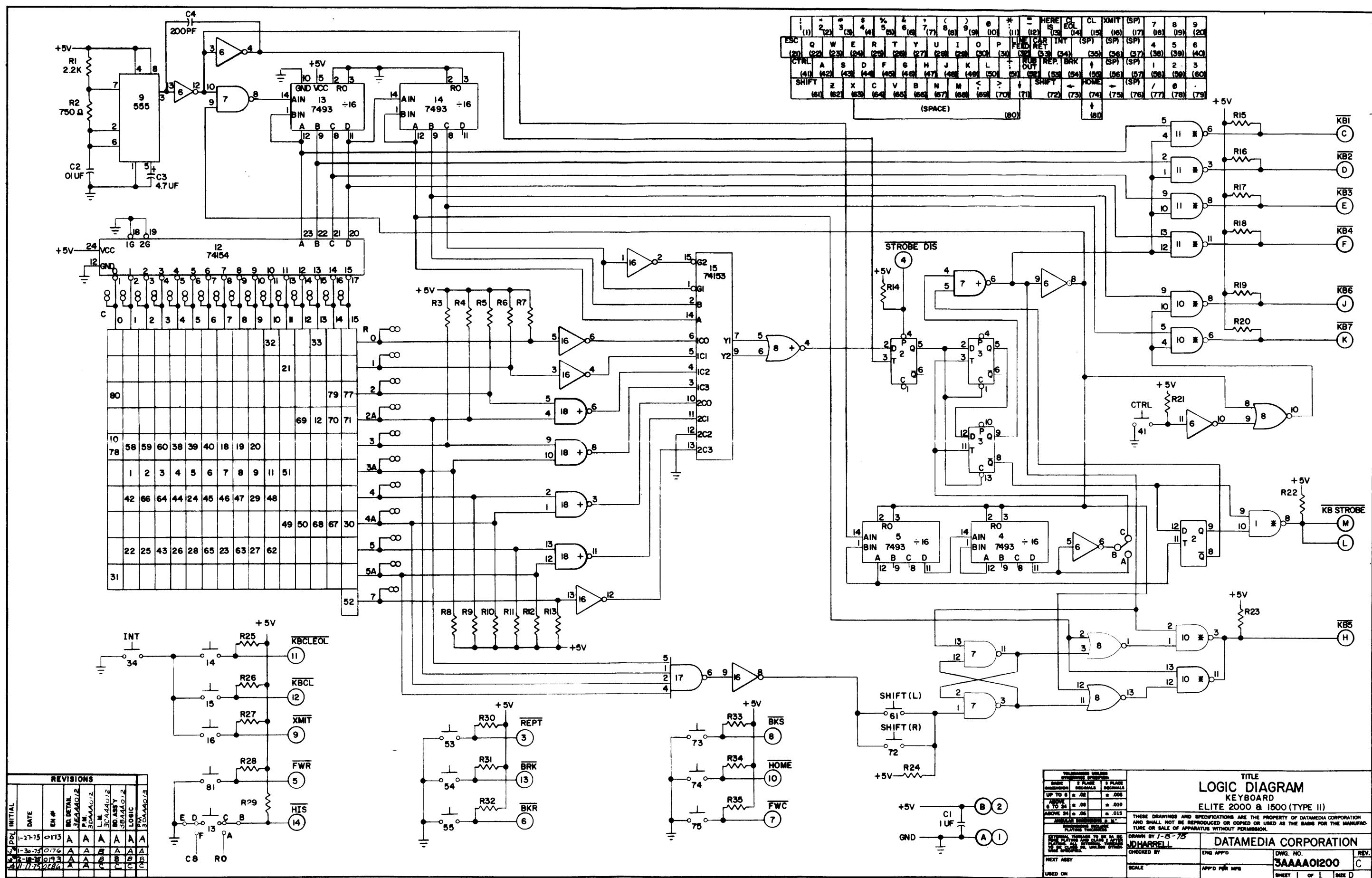
DETAIL "B"
TOP VIEW

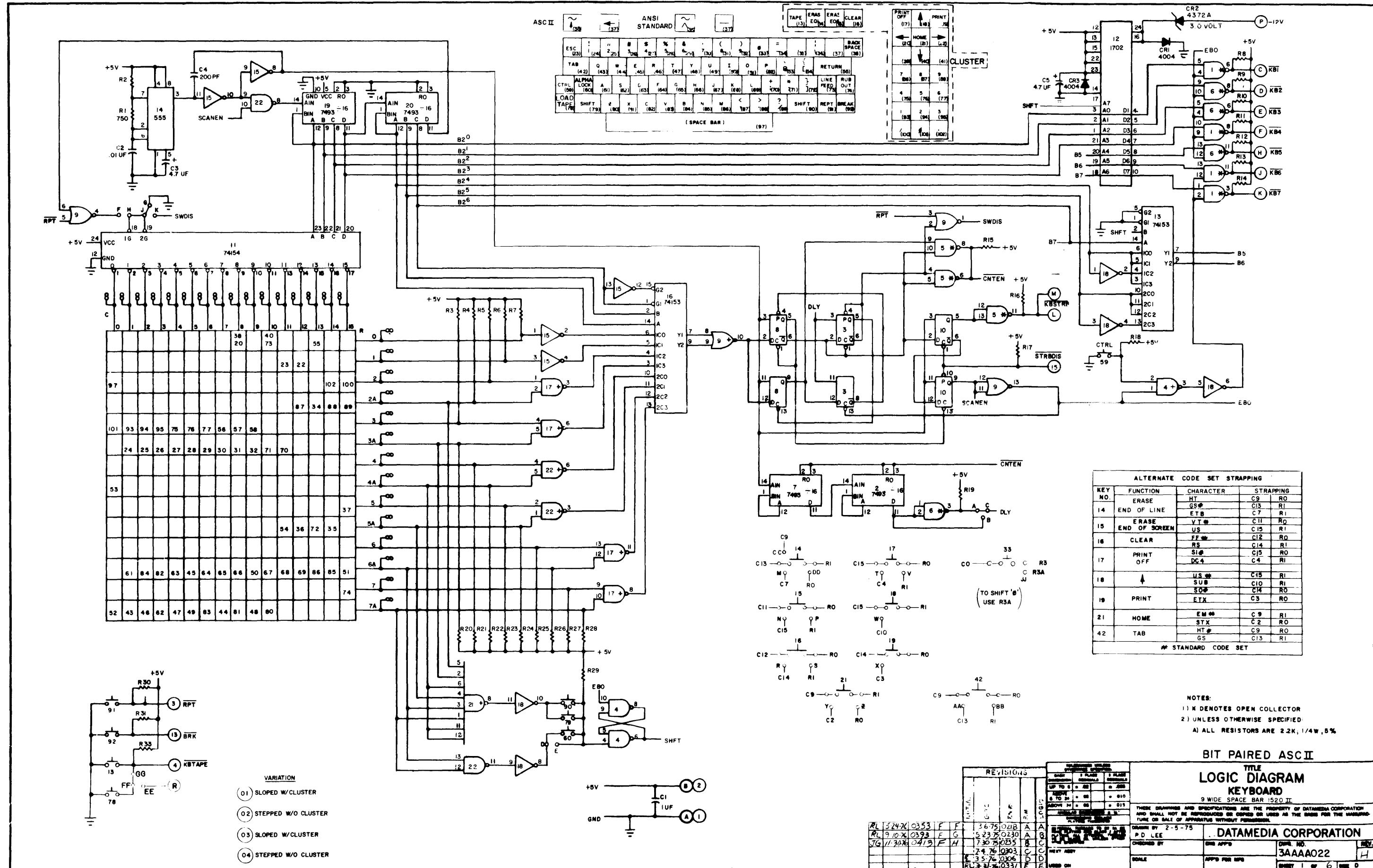
NOTES:

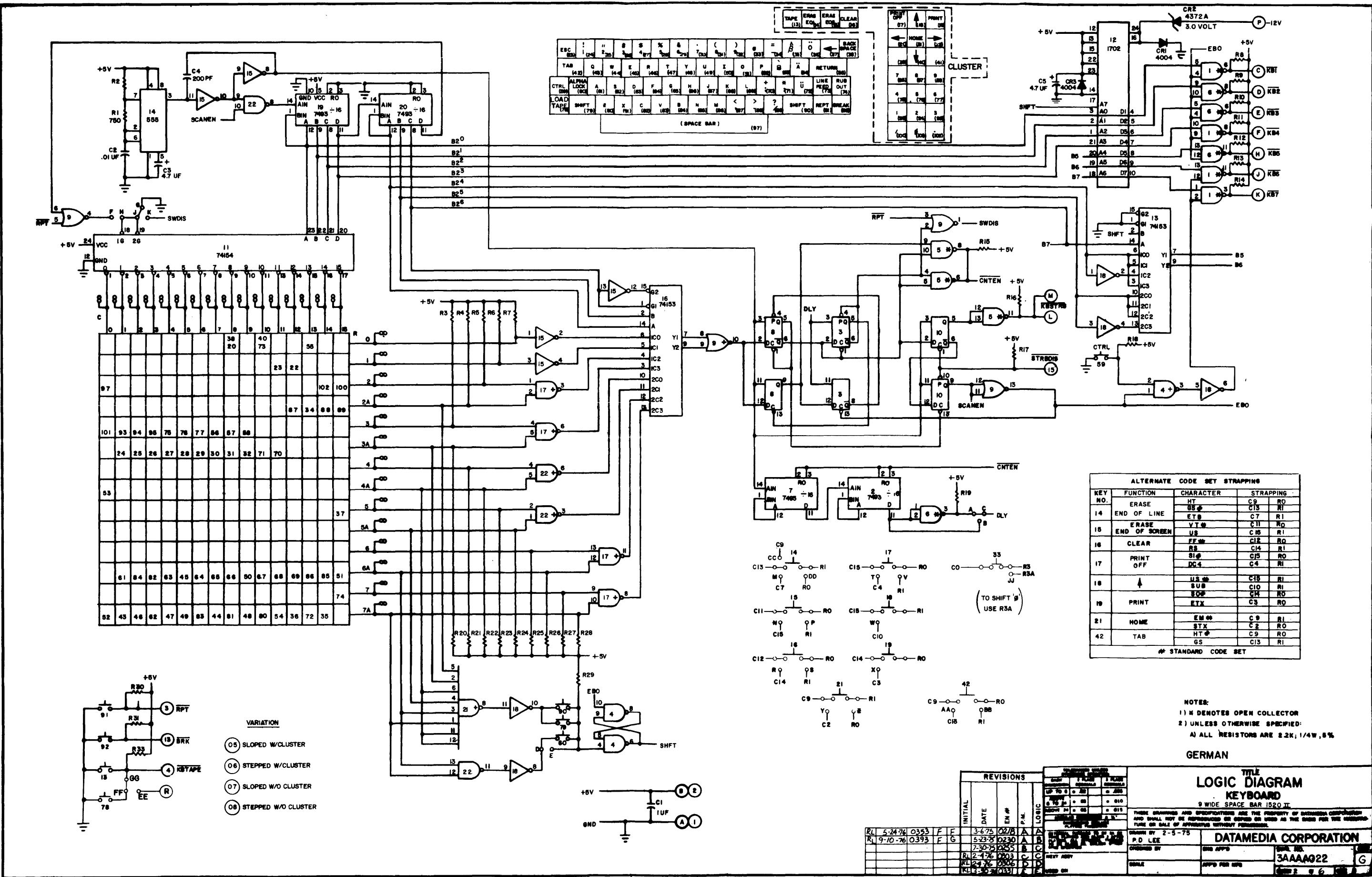
1. FOR L/M SEE DWG NO. 182EPA0200
2. Z1, Z2 & Z3 ARE F903B-20 BRIDGE RECTIFIERS.
3. CR1 THRU CR4 ARE 3A, 50V DIODES.
4. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE 1/2 W.
5. * PARTS NOT NEEDED WHEN +15V IS NOT USED

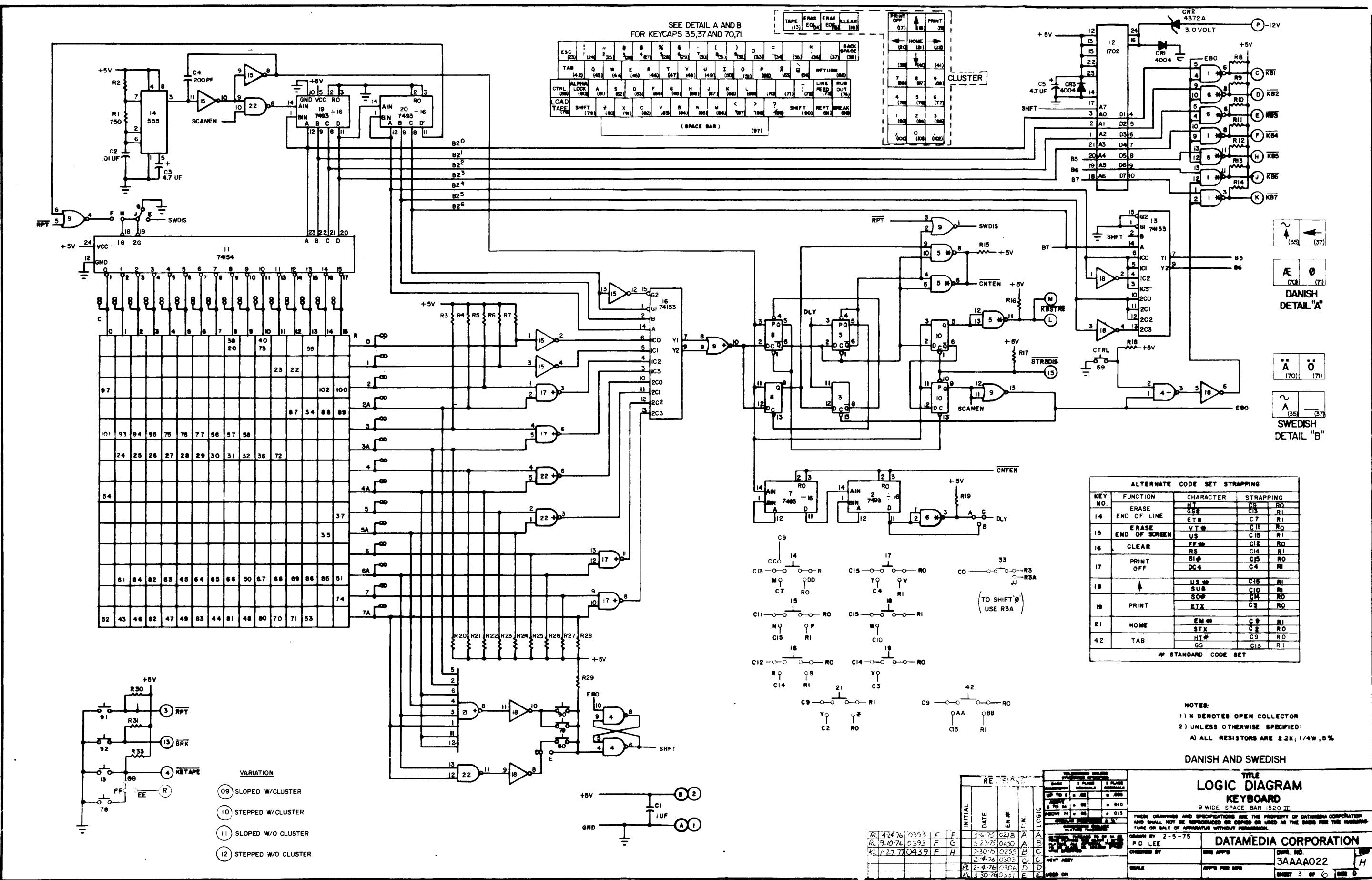
TELEGRAMMED UNLESS OTHERWISE SPECIFIED		
BASIC DIMENSION	2 PLACES DECIMALS	3 PLACES DECIMALS
UP TO 5	= .00	= .005
6 TO 24	= .01	= .010
ABOVE 24	= .05	= .015
DIMENSIONS IN INCHES ± 1/16"		
DIMENSIONS INCLUDE PLATING THICKNESS		
SHEET 1 OF 1 DRAWN BY P.D. LEE DATE 3-20-74		
SPECIFICATIONS AND DRAWINGS ARE THE PROPERTY OF DATAMEDIA CORPORATION		
AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS WITHOUT PERMISSION.		
DRAWN BY P.D. LEE DATE 3-20-74		
CHECKED BY L.G. HANNA DATE 3-20-74		
APPROVED FOR PRODUCTION BY K.N. HANNA DATE 3-20-74		
NEXT ASSY 482EPA02		
SCALE 2:1		
REV. F		
SHEET 1 OF 1 SIZE D		

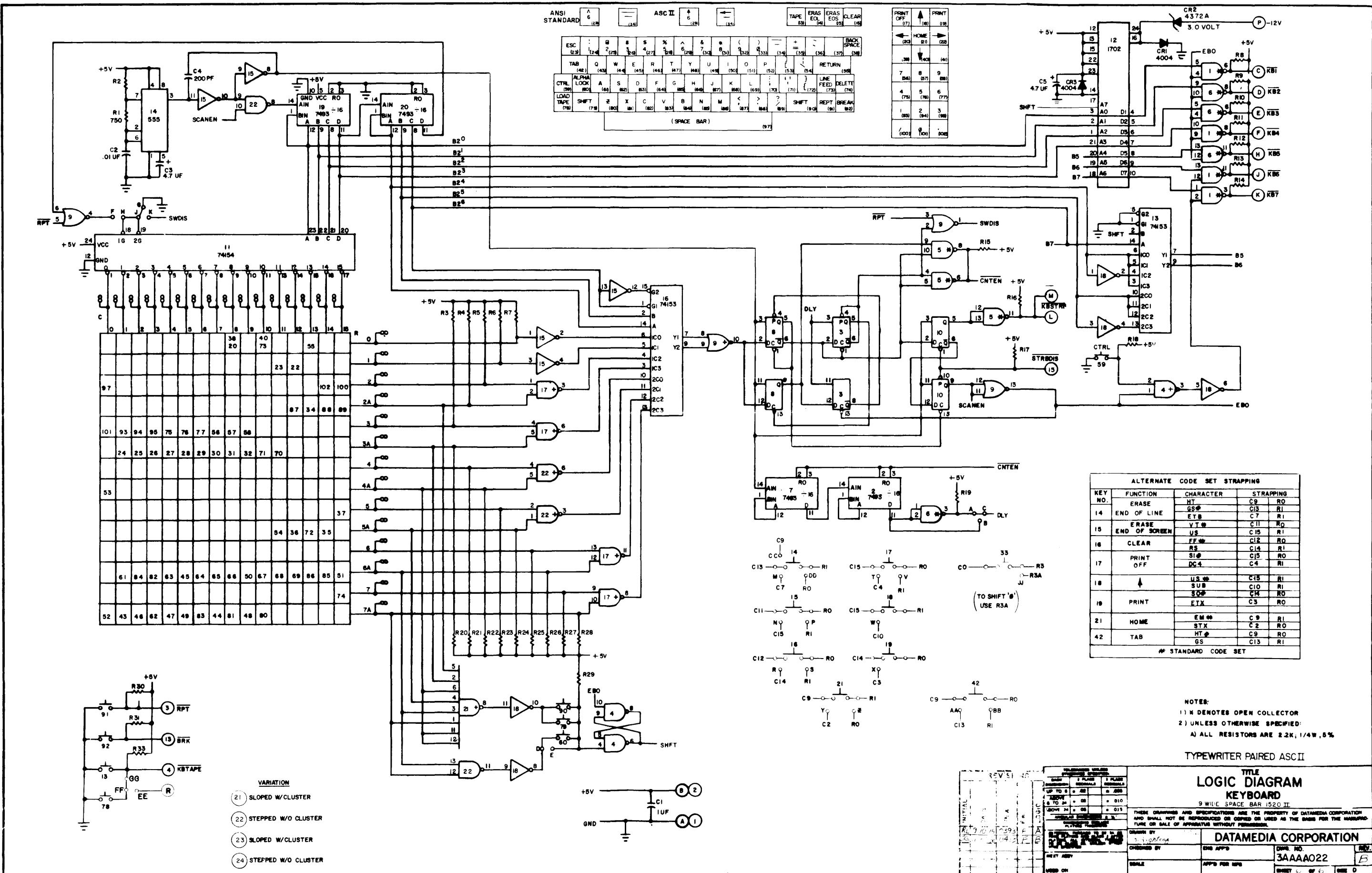


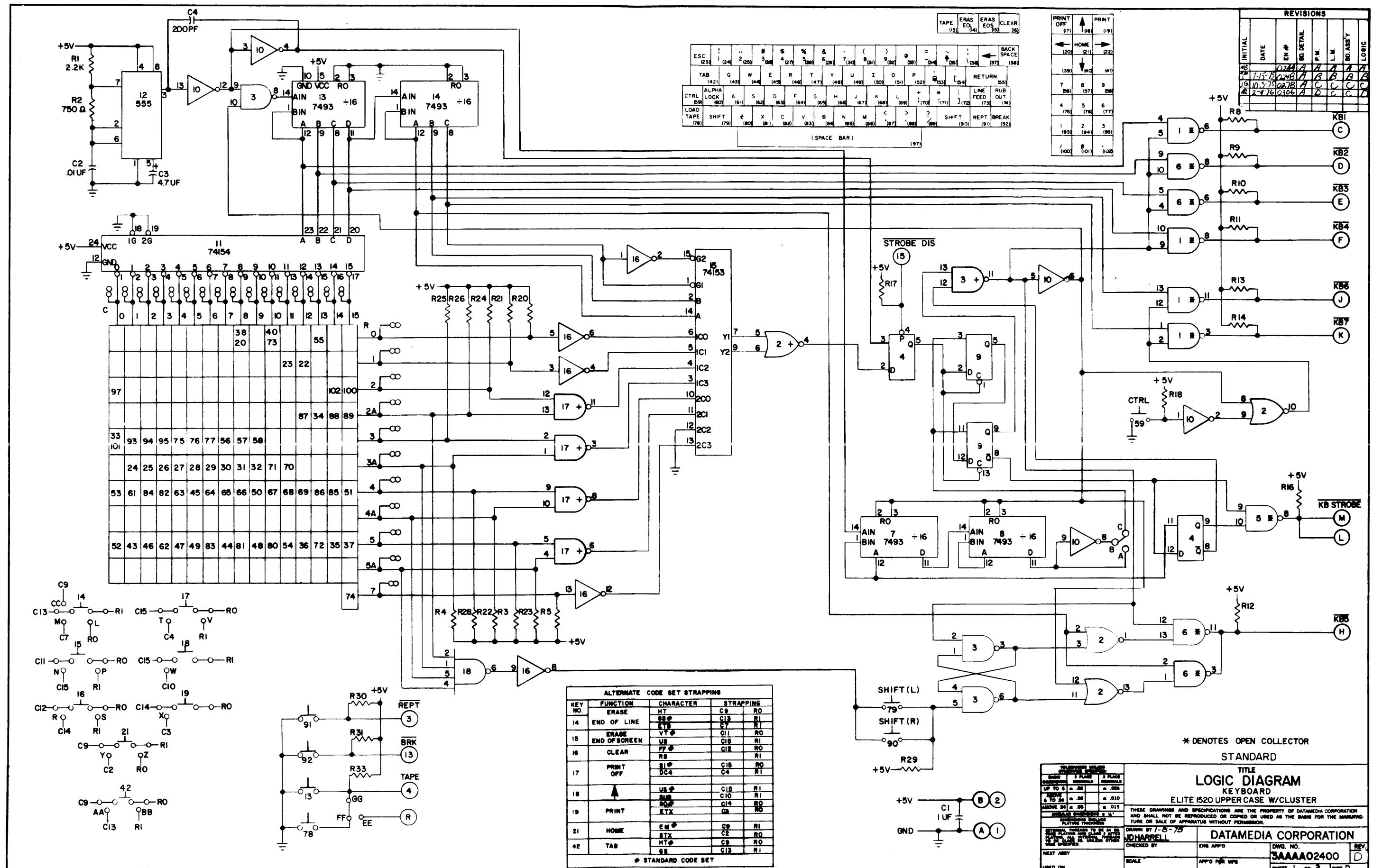


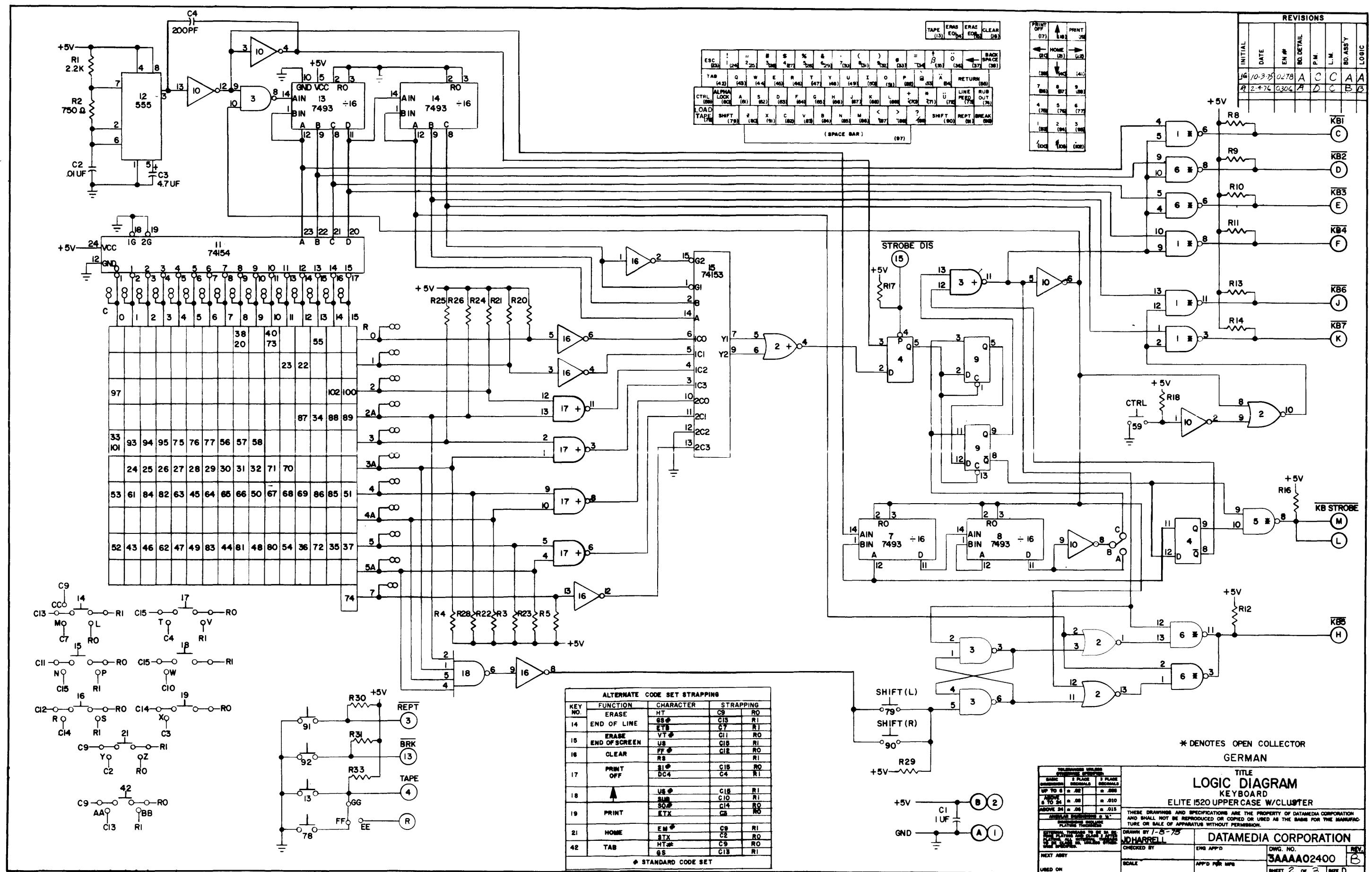


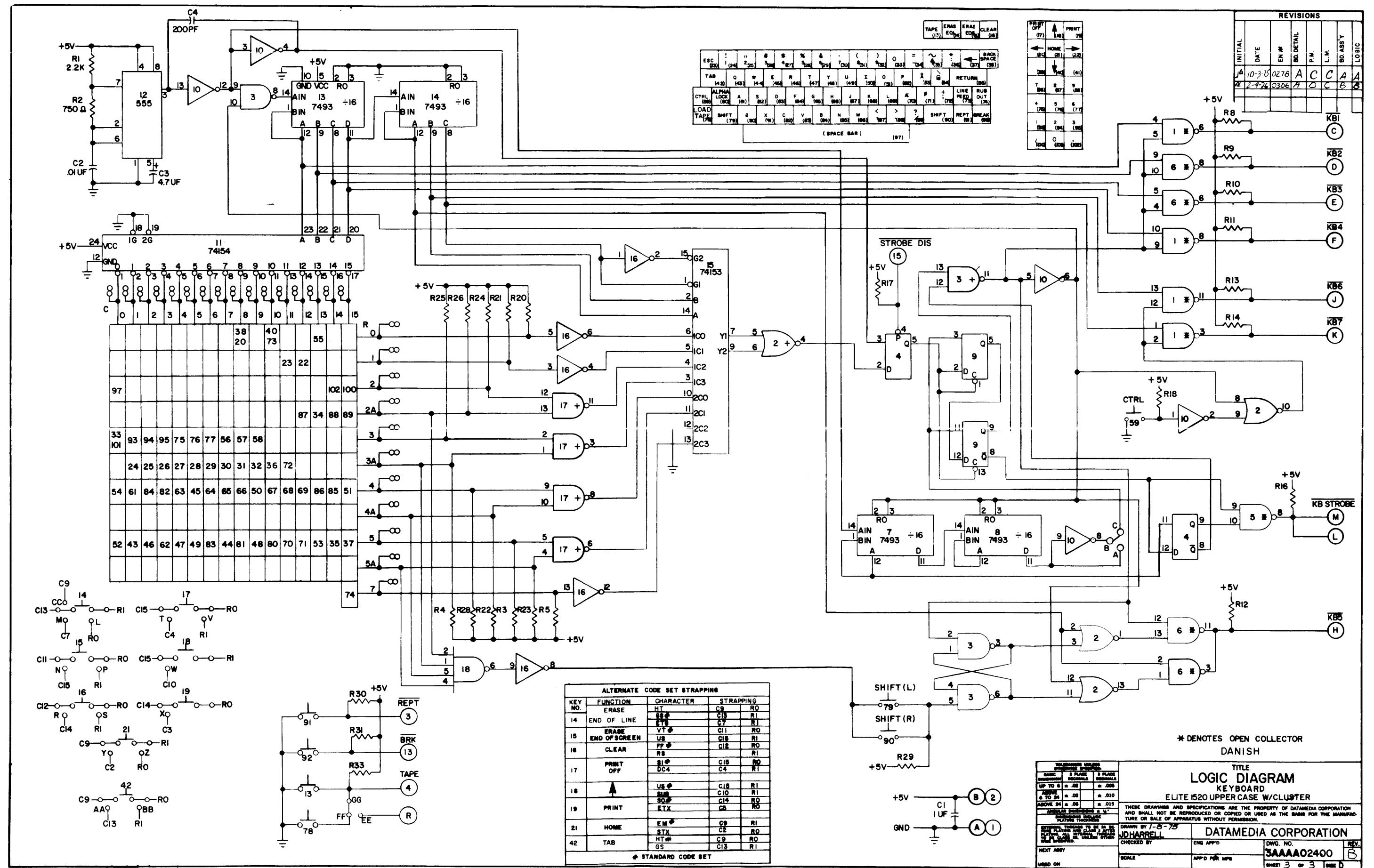












X-Y ADDRESSING FOR ELITE 1520A
CURSOR ADDRESS

Character Address

Dec.	B ₇	B ₆	B ₅	B ₄	B ₃	B ₂	B ₁	ASCII
1.	0	1	0	0	0	0	0	SPACE
2.								!"
3.								#\$%
4.								&-()
5.								*+
6.								-.
7.								/0123456789
8.								.;"
9.								.,V
10.								=
11.								?
12.								@
13.								A
14.								B
15.								C
16.								D
17.								E
18.								F
19.								G
20.								H
21.								I
22.								J
23.								K
24.								L
25.								M
26.								N
27.								O
28.								P
29.								Q
30.								R
31.								S
32.								T
33.								U
34.								V
35.								W
36.								X
37.								Y
38.								Z
39.								?
40.								~
41.								^
42.								@
43.								€
44.								€
45.								€

X-Y ADDRESSING FOR ELITE 1520A

Character Address (continued)

Dec.	B ₇	B ₆	B ₅	B ₄	B ₃	B ₂	B ₁	ASCII
46.	1	0	0	1	1	1	0	M
47.	1	1	0	1	1	1	0	N
48.	1	1	1	0	1	1	0	O
49.	1	1	1	1	0	1	0	P
50.	1	1	1	1	1	0	0	R
51.	1	1	1	1	1	1	0	S
52.	1	1	1	1	1	1	1	T
53.	1	1	1	1	1	1	1	U
54.	1	1	1	1	1	1	0	V
55.	1	1	1	1	1	1	1	X
56.	1	1	1	1	1	1	1	Y
57.	1	1	1	1	1	1	1	Z
58.	1	1	1	1	1	1	1	/
59.	1	1	1	1	1	1	1	←
60.	1	1	1	1	1	1	1	↑
61.	1	1	1	1	1	1	1	↓
62.	1	1	1	1	1	1	1	↔
63.	1	1	1	1	1	1	1	ψ
64.	1	1	1	1	1	1	1	~,
65.	1	1	1	1	1	1	1	a
66.	1	1	1	1	1	1	1	b
67.	1	1	1	1	1	1	1	c
68.	1	1	1	1	1	1	1	d
69.	1	1	1	1	1	1	1	e
70.	1	1	1	1	1	1	1	g
71.	1	1	1	1	1	1	1	h
72.	1	1	1	1	1	1	1	i
73.	1	1	1	1	1	1	1	j
74.	1	1	1	1	1	1	1	k
75.	1	1	1	1	1	1	1	l
76.	1	1	1	1	1	1	1	m
77.	1	1	1	1	1	1	1	n
78.	1	1	1	1	1	1	1	o
79.	1	1	1	1	1	1	1	
80.	1	1	1	1	1	1	1	

X-Y ADDRESSING FOR ELITE 1520A

Row Address

	B ₇	B ₆	B ₅	B ₄	B ₃	B ₂	B ₁
1.	x	x	0	0	0	0	0
2.	x	x	0	0	0	0	1
3.	x	x	0	0	0	1	0
4.	x	x	0	0	0	1	1
5.	x	x	0	0	1	0	0
6.	x	x	0	0	1	0	1
7.	x	x	0	0	1	1	0
8.	x	x	0	0	1	1	1
9.	x	x	0	1	0	0	0
10.	x	x	0	1	0	0	1
11.	x	x	0	1	0	1	0
12.	x	x	0	1	0	1	1
13.	x	x	0	1	1	0	0
14.	x	x	0	1	1	0	1
15.	x	x	0	1	1	1	0
16.	x	x	0	1	1	1	1
17.	x	x	1	0	0	0	0
18.	x	x	1	0	0	0	1
19.	x	x	1	0	0	1	0
20.	x	x	1	0	0	1	1
21.	x	x	1	0	1	0	0
22.	x	x	1	0	1	0	1
23.	x	x	1	0	1	1	0
24.	x	x	1	0	1	1	1
25.	x	x	1	1	0	0	0

W A R R A N T Y

The Warranty Period for the equipment is ninety (90) days commencing from the receipt of each unit.

Under the Warranty, Datamedia Corporation will correct any defects in materials and workmanship when the unit or relevant sub-assembly is returned to the factory prepaid. Written authorization must be obtained and confirmed in writing by Datamedia Corporation before returning units or sub-assemblies to the factory.

Under this Warranty, Datamedia Corporation will provide the necessary components required by the customer to repair the unit in the field. The components will be shipped, prepaid, on an invoice which will be cancelled upon receipt of the defective components at the factory. When ordering components for repair or replacement, the Model Number and Serial Number of the unit must be included on the customer request.

This Warranty is invalid if the Terminal is subject to misuse, abuse, neglect, accident, improper installation or application, alteration or negligence in use, storage, transportation or handling and where the Serial Number has been removed, defaced or changed.

COMMENT & EVALUATION SHEET
DATAMEDIA CORPORATION

Elite 1520A
Video Terminal

Datamedia Corporation would appreciate your evaluation of this manual. Your suggestions and comments will be used to enhance the manual and as a basis for future product improvements.

FROM:

Name: _____

Business
Address: _____

COMMENTS:

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Fold

Fold

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