

ITT 3287 LEVEL II

DISPLAY TERMINAL

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01899 40170 / 2DE

05/80 POP/TEP

Private Nachrichten- und Datensysteme

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<b>ITT</b>	ITT 3280 REFERENCE MANUAL										ITT 3287 LEVEL II							1		

1. STRAPPING GUIDE AND BOARD LOCATION

1.1 Strapping Guide

BOARD TYPE	SWITCH NO.	FUNCTION									
Buffer Cursor 2304 or 3112 or 2356 or 3181 (If 2594 is not used)	Strap A S 1	A	IN makes comma (,) a numeric character								
		A	ON allows alpha character to be written in numeric fields when shift key is depressed (Numeric Override)								
		B	ON if 10-Key pad keyboard installed								
		C	ON for high speed repeat (Buffer Test)								
	S 2	D	ON to enable alternate ROMs								
		A	ON enables numeric lock option								
		B	ON if data entry keyboard installed								
		C	ON causes cursor to blink								
	D	D	ON for lower case (See Note 1)								
	Buffer Cursor 2594 or 3112 or 2356 or 3181 (If 2304 is not used)	Strap A Straps B,C	A	IN makes comma (,) a numeric character							
			B,C	IN for Domestic USA OUT for ITT Germany							
Straps C,E		C,E	OUT for Domestic USA IN for ITT Germany								
Straps F,G		F,G	F-OUT, G-IN fast repeat of cursor positioning keys F-IN, G-OUT slow repeat of cursor positioning keys								
S 1		A	ON causes cursor to blink								
		B	ON if 10-Key pad keyboard installed								
		C	ON for highspeed repeat (Buffer Test)								
		D	ON to enable alternate ROMs								
S 2		A	ON allows alpha character to be written in numeric fields when shift key is depressed (Numeric Override)								
		B	ON if data entry keyboard is installed								
	C	ON enables numeric lock option									
	D	ON for lower case (See Note 1)									
Timing 2302	S 1	A	ON disables blink field								
		B	ON enables field underline								
		C	ON always lower case display. By-passes Op. panel LC switch. Off-LC switch is active. (See Note 2)								
		D	ON enables attribute characters to be displayed when F.E. switch is on								
	S 2	A	ON causes test pattern (+) to be displayed								
		B	Not used								
		C	ON displays attribute characters								
		D	Not used								
	Strap A B C	A	IN for 480 & 960 OUT for 1920								
		B	IN for 480 OUT for 960 & 1920 (40 Characters/line)								
		C	IN for 480 & 960 OUT for 1920 (12 Characters/line)								
			IN if IC 82 is not a National 8596 Chip								
Strap near IC80											
ED	1	2									



### 1.1 Strapping Guide (continued)

BOARD TYPE	SWITCH NO.	FUNCTION
CPU/DMA 2301  <i>PF-Test Mode, ch Prog. Enter</i>	S 1 A	ON enables protected field keyboard lock option
	B	ON enables field controlled auto tab option
	C	ON enables 2 key program enter option
	D	ON enables DEMO format option. See Note 3.

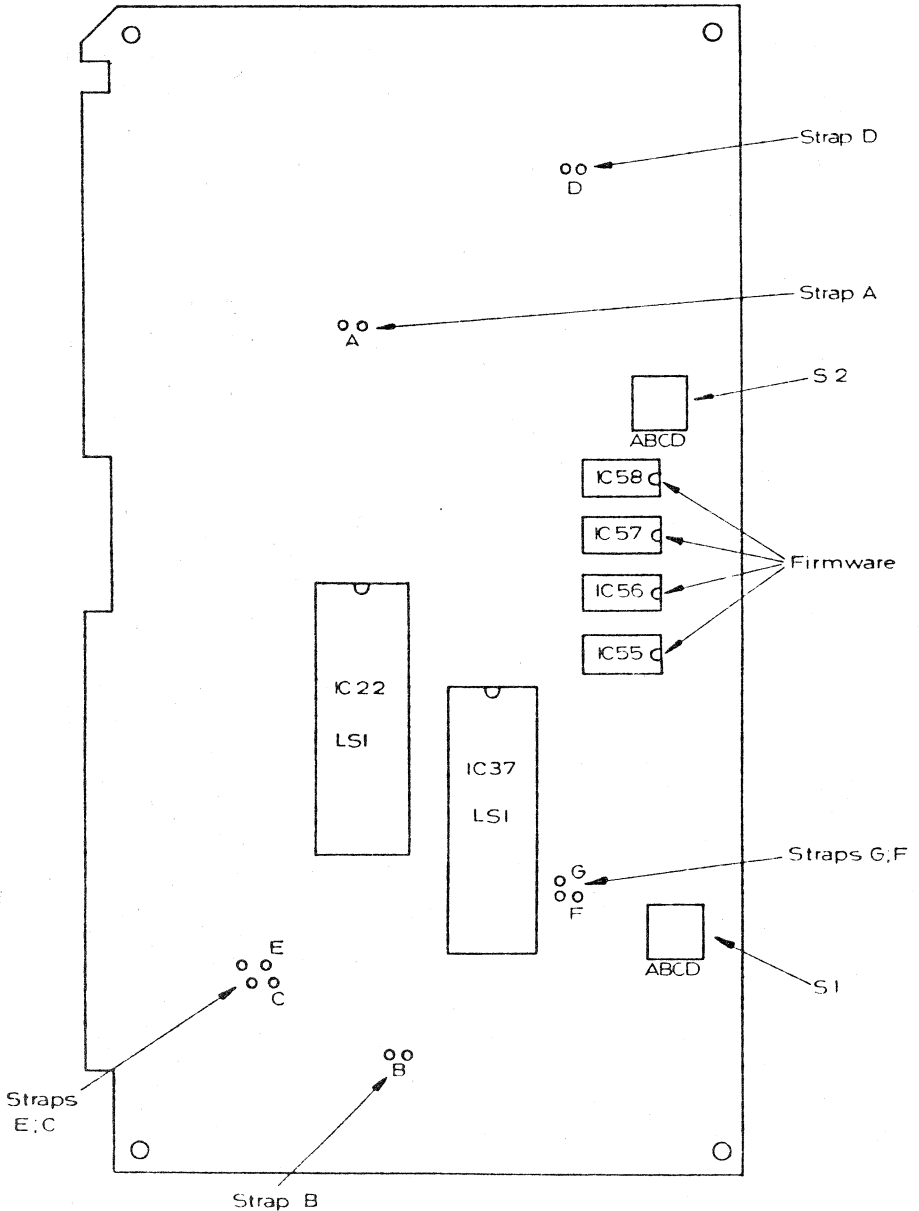
Note 1: Lower Case can be transmitted or received without display option. S2 D ON transmits LC with standard keyboard. OFF disables transmit of LC with standard keyboard. Always OFF for data entry keyboard.

Note 2: Display ROMs must be installed on Timing Board (2302) to display lower case.

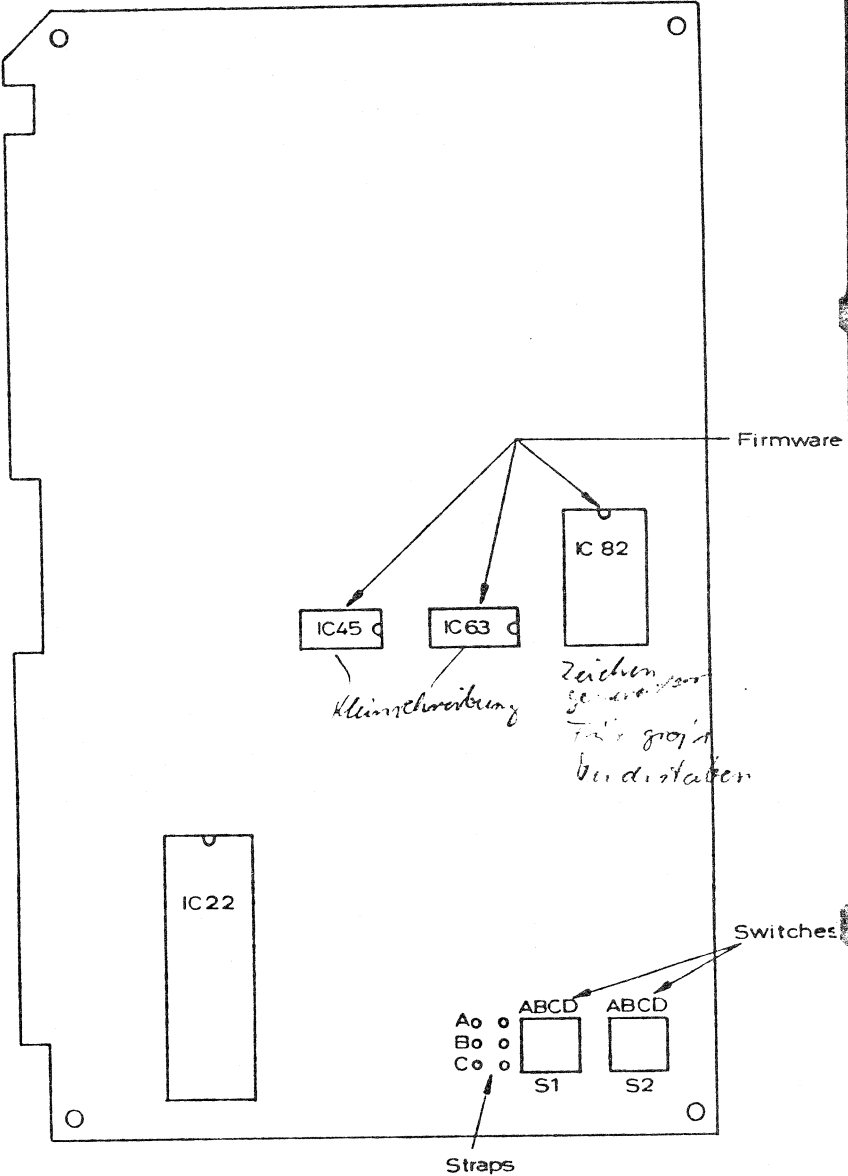
Note 3: Demo ROM must be installed. F. E. switch in, depress Test Request key to display demo format.



1.2.2 Buffer Cursor PCB 2594



1.2.3 Timing PCB 2302



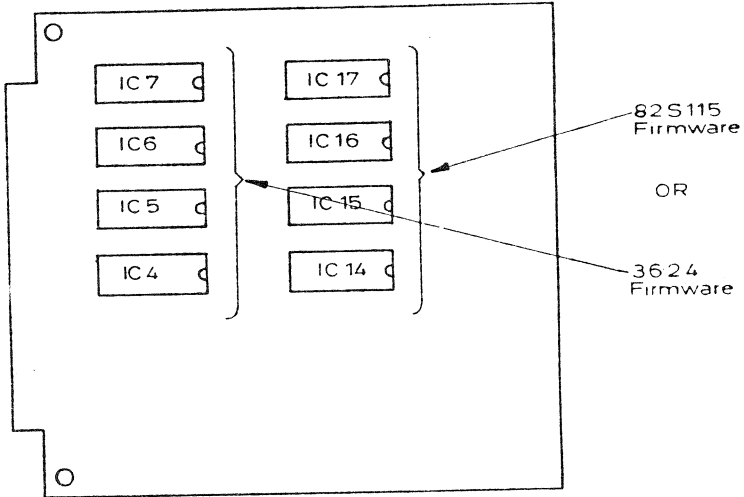




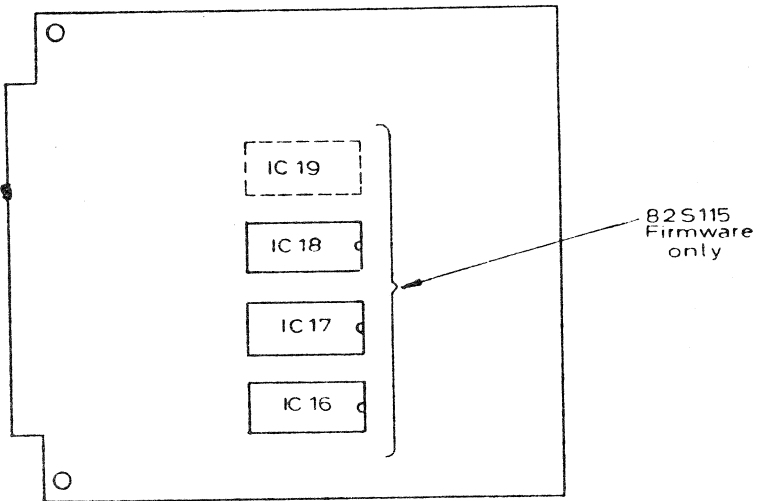


1.2.7 RAM/ROM PCB 1820

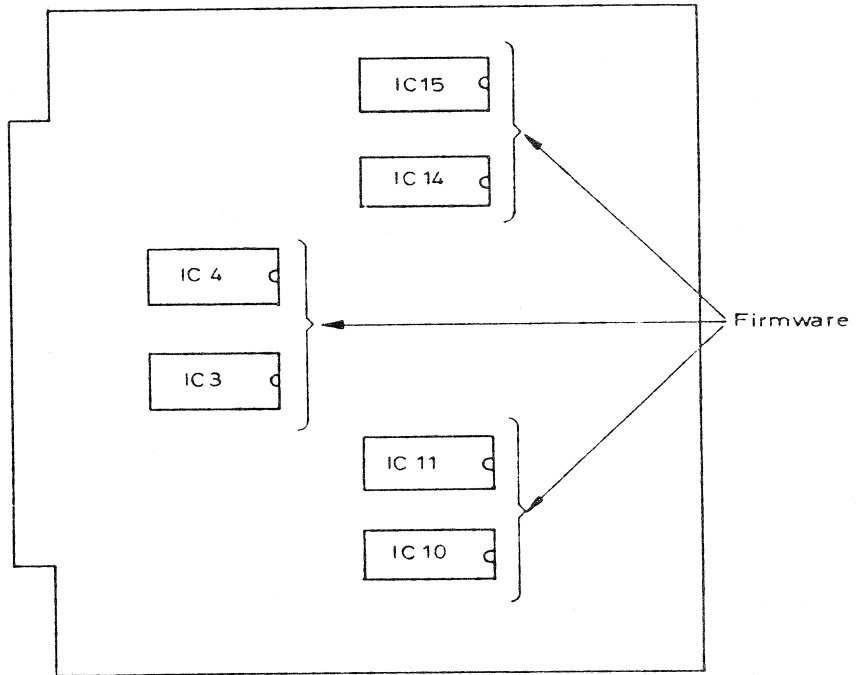
1.2.7.1 With 82S115 or 3624 Firmware. (Etch Rev C)



1.2.7.2 With 82S115 Firmware only. (Etch Rev B)



1.2.8 RAM/ROM PCB 2307



### 1.3 Board Location

J6	LIGHT PEN/BADGE READER PCB 2171, 2241		J12
J5		RAM/ROM PCB 1801, 1819, 1820 or 2307 1801 and 1819 should no longer be used	J11
J4-J10	COM INTERFACE PCB	2303	
J3-J9	CPU/DMA PCB	2301	
J2-J8	TIMING PCB	2302	
J1-J7	BUFFER CURSOR PCB	2304 3112 2356 3181 2594	

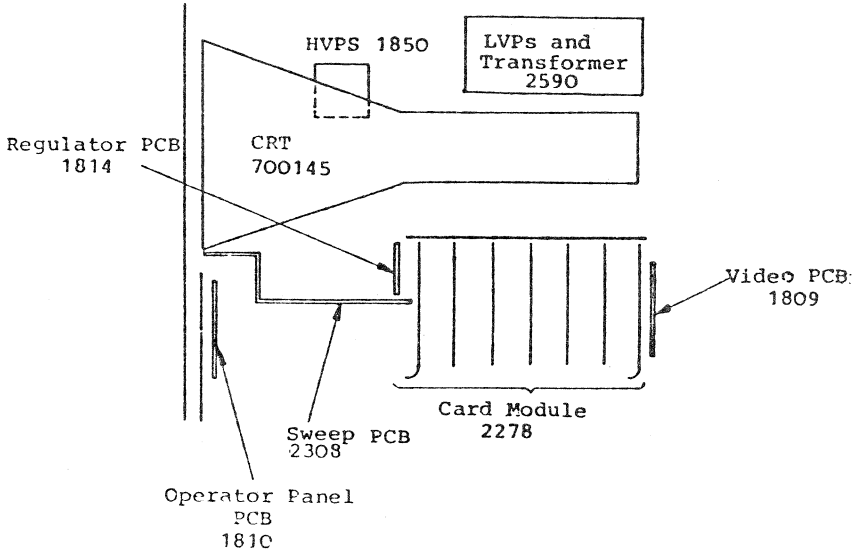
#### Note Concerning Buffer Cursor Boards

The following Buffer Cursor Boards may be used for the following options or features:

- 2304 all display units except German Typewriter (GER TW)
- 2594 all display units with neither Light Pen nor Badge Reader.
- 3112 for German Typewriter (GER TW) only.
- 2356 for US Typewriter (US TW) Operator Console only
- 3181 for German Typewriter (GER TW) Operator Console only.

1.3 Board Location (continued)

Top view



2. STANDARD VERSIONS

2.1 Keyboards

The older keyboards consisted of wire contact switches. The frame of the keyboard was metal. The newer keyboards consist of Hall effect switches. The frame may be metal or plastic.

The keyswitches are mounted on a PCB. The possible combinations are illustrated in Table 2-1.

The Courier numbers 1721 P1 to 1721 P4 are the wire contact keyswitches.

The Courier numbers 2479 P1, P3, P5 are the Hall effect keyswitches.

Keyboard Type	Courier Number	Function/Option	PCB Keyboard + Keytops		PCB Keybd.	Keypop set	Switch (Quantity)				Cover Base			
			Keytops				Wire-contact + Shaft	Hall-effect		Metal		Plastic		
			5119 G..	5010 G..	2349 G..	5010 G..	1721 P1	1721 P2	1721 P3	1721 P4	2479 P1	2479 P3	2633 P2	2634 P2
KB 53 A1	5003 G1	GER TW	5116 G..	5006 G..	5008 A..	3	4	4	4	4	4	4		
54	2	TW+10	5041 G..			3+7	4	4	4	4	4	4		
55	3	DE	5005 G..			4	4	4	4	4	4	4		
64	4	TW+ADD	5006 G..			3+13	4	4	4	4	4	4		
KB 60 A1	5040 G1	US TW				10	4	4	4	4	4	4		
61	2	TW+10				10+12	4	4	4	4	4	4		
62	3	DE				11	4	4	4	4	4	4		
66							4	4	4	4	4	4		
KB 50 A1	5002 G1	UK TW				1	4	4	4	4	4	4		
51	2	TW+10				1+7	4	4	4	4	4	4		
52	3	DE				1+13	4	4	4	4	4	4		
63	4	TW+ADD					4	4	4	4	4	4		

Table 2-1 Keyboards

Keyboard Type	Courier Number	Function/Option	PCB Keyboard + Keytops	PCB Keybd.	Keypop set	Switch (Quantity)			Cover Base		
						Wire-contact + Shaft	Hall-effect	□ Shaft	Metal	Plastic	
KB 53 K1 54 55 64 67	5112 G1	GER TW TW+10 DE TW+ADD DE MOD	5119 G... 5116 G... 5117 G... 5041 G... 5005 G... 5006 G...	2349 G..	5010 G..	1721 P1	2479 P1	2479 P3	1511 P3	2633 P2	
						1721 P2	2479 P3	1513 P3	2634 P2		
						1721 P3	2479 P5				
						1721 P4					
KB 60 K1 61 62 66 70	5114 G1	US TW TW+10 DE TW+ADD DE MOD	1 2 3 4 9	2 4 3 5 10	30 30+32 31 30+33 37	81	81	X	X		
						96	96	X	X		
						68	68	X	X		
						94	94	X	X		
						70	70	X	X		
KB 50 K1 51 52 63	5111 G1	UK TW TW+10 DE TW+ADD	1 2 3 4	2 4 3 5	21 21+27 22 23+33	81	81	X	X		
						96	96	X	X		
						68	68	X	X		
						94	94	X	X		

Table 2-1 Keyboards (continued)

Table 2-1 Keyboards (continued)

Keyboard Type	Courier Number	Function/Option	PCB Keyboard + Keytops	PCB Keybd.	Keypop set	Switch (Quantity)			Cover Base		
						Wire-contact + Shaft	Hall-effect	Shaft	Metal	Plastic	
KB 53 H1	110190 G1	GER TW+10 DE TW+ADD DE MOD	5119 G. 5116 G. 5117 G. 5041 G. 5005 G. 5006 G.	5008 A. 2 4 3 5 10	5010 G. 23 23+27 24 23+33 34	1721 P1	2479 P1	2479 P3	2479 P5	1511 P3	2633 P2
						1721 P2	81	96	1	2	X X X X X
						1721 P3	96	68	1	2	X X X X X
						1721 P4	94	1	2	2	X X X X X
						1721 P5	70	1	2	2	X X X X X
KB 60 H1	110192 G1	US TW TW+10 DE TW+ADD DE MOD	1 2 3 4 9	2 4 3 5 10	30 30+32 31 30+33 37	81	96	1	2	X X X X X	2634 P2
						96	68	1	2	X X X X X	
						94	94	1	2	X X X X X	
						70	70	1	2	X X X X X	
						81	81	1	2	X X X X X	
KB 50 H1	110189 G1	UK TW TW+10 DE TW+ADD	1 2 3 4	2 4 3 5	21 21+27 22 23+33	81	96	1	2	X X X X X	
						96	68	1	2	X X X X X	
						94	94	1	2	X X X X X	
						70	70	1	2	X X X X X	



2.2 Power Supplies

Transformer	LVPS	Power Supply
ITT Courier No. 5064 P1 North No. 6111070 SEL Sach-Nr. 57059 00246	ITT Courier No. 2510 G5 North No. SR 7823 SEL Sach-Nr. 57059 01141	ITT Courier No. 3275 G6 SEL Sach-Nr. 57059 01147
	ITT Courier No. 2528 P3 North No. 6313228 SEL Sach-Nr. 57059 01145	ITT Courier No. 3275 G7 SEL Sach-Nr. 57059 01148
ITT Courier No. 2365 G4 North No. 6313120 SEL Sach-Nr. 57059 00245	ITT Courier No. 2590 G9 North No. 6313228 SEL Sach-Nr. 57059 01150	ITT Courier No. 2590 G10 SEL Sach-Nr. 57059 01098
	ITT Courier No. 2528 P3 North No. 6313228 SEL Sach-Nr. 57059 01151	ITT Courier No. 2590 G11 SEL Sach-Nr. 57059 01154
ITT Courier No. 5033P1-1 North No. 6114970 SEL Sach-Nr. 57059 00301	ITT Courier No. 2365 G1 North No. 6312884 SEL Sach-Nr. 57059 00152	ITT Courier No. 2590 G7 SEL Sach-Nr. 57059 01096
	ITT Courier No. 2510 G2 North No. 6312884 SEL Sach-Nr. 57059 01143	ITT Courier No. 3275 G5 SEL Sach-Nr. 57059 01146

Table 2-2

LVPS with Transformer

2.2 Power Supplies (continued)

Transformer	LVPS	Power Supply
ITT Courier No. 5033PI-2 Data Power No. 15A 0062 oder 11T 0027 SEL Sach-Nr. 57059 00299	ITT Courier No. 2365 G5 Data Power No. 15A 0062 = SEL Sach-Nr. 57059 00196	ITT Courier No. 2590 G8 = SEL Sach-Nr. 57059 01097
ITT Courier No. 2528 P4 Data Power NO. 15A 0062 A SEL Sach-Nr. 57059 01149	ITT Courier No. 2528 P4 Data Power NO. 15A 0062 A SEL Sach-Nr. 57059 01149 =	ITT Courier No. 2590 G12 SEL Sach-Nr. 57059 01152

Table 2-2 (continued)  
 LVPS with Transformer



### 3. Options

The components which must be changed, removed, or installed in order to enable the option are indicated.

Options	Components affected
Audible Alarm	Part No. 1816 A1
Keylock	Mod kit 57059 11130 for 1530 Maintenance panel in 1975 models Mod kit 57059 01199 for 2515 Maintenance panel
Return key generates code X'5C' (RPQ 19)	Timing 2302 RAM/ROM 1801 1820
X'6A' Key generates code X'6A' without lower case option (RPQ 4)	Buffer cursor 3112 all valid versions of these boards Timing 2302 with firmware for GER keyboards
Operator console	Only wit standard typewriter keyboard (TW) Buffer cursor 3181 for GER TW with X'6A' option " " 2356 for US TW
Typewriter keyboard with adding machine block with O, OO and OOO (TW+ADD) (RPQ1) (TW+10/A)	Keyboard 110190-004 5112 G4 Buffer cursor 2594 3112 2304 Timing 2302 RAM/ROM 1801 1819 1820 2307
Special Data Entry Keyboard (DE MOD) (RPQ 5)	Keyboard 5125 110190-009 5112 G9 Buffer cursor 2304 2594 Timing 2302
Lower case	Timing 2302
Light pen	Light Pen PCB 2171 or Light Pen/Badge Reader PCB 2241 RAM/ROM 1801 1819 1820 2307

Table 3-1 Options

ED	1	
Options		Components affected
Badge Reader		Badge Reader/Light Pen PCB 2241 RAM/ROM 1801 1819 1820 2307
480 Characters 960 Characters		RAM/ROM 1801 1819 1820 2307 Timing 2302 see also Section 5: Adjustments
Tab to colon return special		RAM/ROM 1820
Badge resets cursor		RAM/ROM 1819 1820 2307

Table 3-1 Options (continued)

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4. Power Distribution  
4.1 Power Distribution Table

VOLTS REG/UNREG FUSE	6,3 (AC) F7	+5	-5 (REG) F5	-9 F5	+12 (REG) F2	-12 (REG) F3	+16 F2	-16 F3	+24 F4	+29 F4	+100 F6
CRT	X										
OP PNL		X									
MAINT PNL		X									
REG. PCB	X		X	X	X	X	X	X	X	X	X
KEYBOARD		X		X		X					
HVPS									X		
SWEEP PCB		X		X			X	X		X	
VIDEO PCB	X										X
LOGIC BDS											
BUFFER CURSOR PCB		X				X					
CPU/DMA PCB		X	X	X		X					
TIMING PCB		X				X					
COM INT PCB		X			X						
RAM/ROM PCB		X			X	X					

#### 4.2 Voltage Check Points

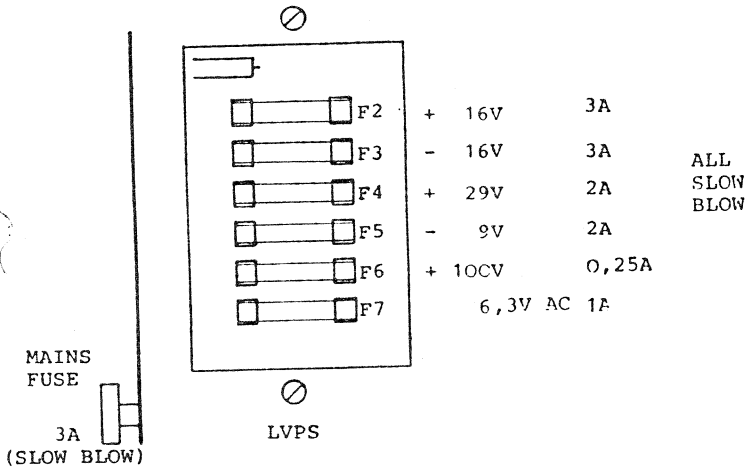
Voltage may be checked at the following points:

<u>Voltage</u>	<u>Check at</u>
6,3(AC)	Pin 14 & 15 of video board (J18)
+ 5	Pin 1 of any logic board
- 5	Pin 12 of J2 (Timing)
- 9	Fuse 5
+ 12	Pin 5 of J4 (Com Int)
- 12	Pin 11 of J4 (Com Int)
+ 16	Fuse 2
- 16	Fuse 3
+ 24	Pin 2 of J2 (regulator board)
+ 29	Fuse 4
+100	Fuse 6

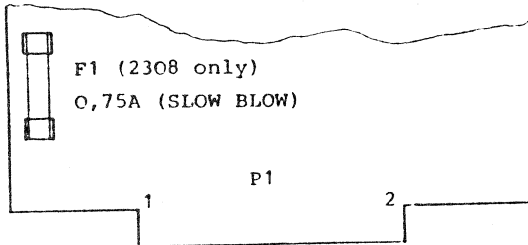


### 4.3 Straps and fuses

#### 4.3.1 Fuses on Low Voltage Power Supply (LVPS)

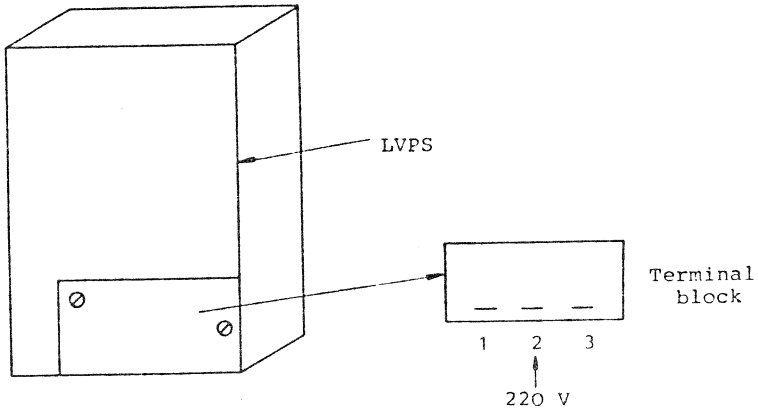


#### 4.3.2 Fuse on Sweep Board

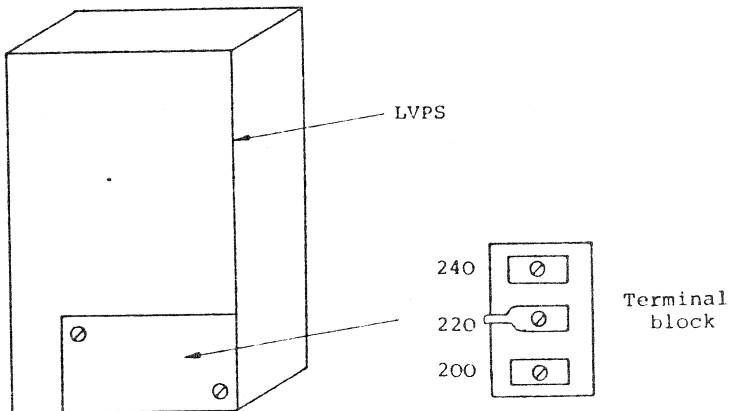




4.3.3.2 North 2590 G7 (with transformer 5033 P1-1)



4.3.3.3 North 2590 G9, 2590 G10, 2590 G11  
(with transformer 5064 P1)





#### 5.1.4 Orthogonal correction

Orthogonal correction is adjusted to remove any slant of character right or left and to eliminate bulging or dipping of display.

Figure 5-1 shows examples of a display requiring adjustment.

Final adjustment will place the display square on all sides.

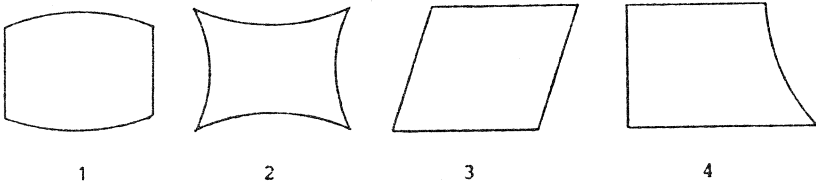


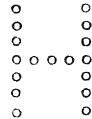
Figure 5-1: Examples of Display requiring Adjustment

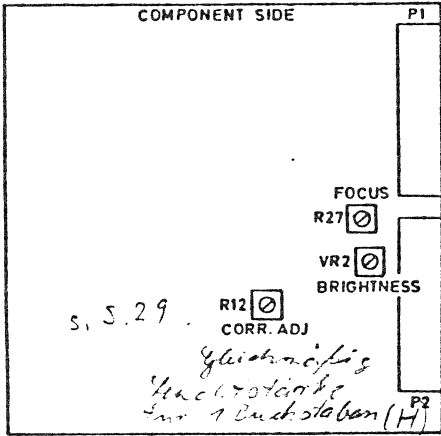
#### 5.2 Video Adjustment

There are three adjustments to be made on the video board: focus, BX (CORR. ADJ ) correction and brightness. The steps are as follow:

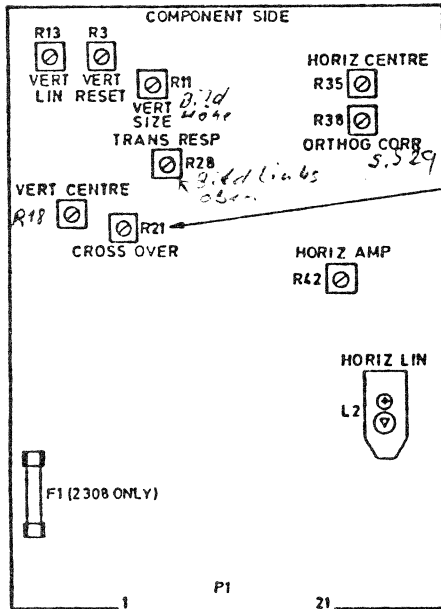
- (1) Focus is adjusted for best overall focus for outer edges and the centre of the display. Adjust for best clarity of characters in all positions.
- (2) BX correction is adjusted to give even intensity of lines and dots of individual characters. The character H is recommended for display during this adjustment.
- (3) Brightness is adjusted to provide optimum brightness and focus with the mainenance panel brightness control fully on.

Reduce brightness until characters  
are just visible.  
Adjust BX until the intensities of the  
vertical and horizontal lines are equal.





VIDEO BOARD ASSEMBLY 1809



SWEEP BOARD ASSEMBLY 2308

Caution

Do not adjust without oscilloscope. Screw of potentiometer should be sealed with alkytol.

See ITT 3280 VISUAL DISPLAYSYSTEM SERVICE MANUAL, ITT 3287 Display Station Section 3.2

Figure 5-2: Video and Sweep Adjustment Locations



6. DIAGNOSTICS AND TESTS (Continued)

CHAR	MODIFIER	BIT CONFIGURATION	CHAR	MODIFIER	BIT CONFIGURATION
		0 to 7	*	UNDERLINE	00001010
SP	UNDERLINE	00000000	*	SINGLE DASH	10101010
SP	SINGLE DASH	10100000	*	DOUBLE DASH	10001010
SP	DOUBLE DASH	10000000	+	NONE	00101011
SP	NONE	00100000	+	UNDERLINE	00001011
U	NONE	00100001	+	SINGLE DASH	10101011
U	UNDERLINE	00000001	+	DOUBLE DASH	10001011
U	SINGLE DASH	10100001	,	NONE	00101100
U	DOUBLE DASH	10000001	,	UNDERLINE	00001100
"	NONE	00100010	,	SINGLE DASH	10101100
"	UNDERLINE	00000010	,	DOUBLE DASH	10001100
"	SINGLE DASH	10100010	-	NONE	00101101
"	DOUBLE DASH	10000010	-	UNDERLINE	00001101
À	NONE	00100011	-	SINGLE DASH	10101101
À	UNDERLINE	00000011	-	DOUBLE DASH	10001101
À	SINGLE DASH	10100011	.	NONE	00101110
À	DOUBLE DASH	10000011	.	UNDERLINE	00001110
U	NONE	00100100	.	SINGLE DASH	10101110
U	UNDERLINE	00000100	.	DOUBLE DASH	10001110
U	SINGLE DASH	10100100	/	NONE	00101111
U	DOUBLE DASH	10000100	/	UNDERLINE	00001111
%	NONE	00100101	/	SINGLE DASH	10101111
%	UNDERLINE	00000101	/	DOUBLE DASH	10001111
%	SINGLE DASH	10100101	⊖	NONE	00110000
%	DOUBLE DASH	10000101	⊖	UNDERLINE	00010000
&	NONE	00100110	⊖	SINGLE DASH	10110000
&	UNDERLINE	00000110	⊖	DOUBLE DASH	10010000
&	SINGLE DASH	10100110	1	NONE	00110001
&	DOUBLE DASH	10000110	1	UNDERLINE	00010001
.	NONE	00100111	1	SINGLE DASH	10110001
.	UNDERLINE	00000111	1	DOUBLE DASH	10010001
.	SINGLE DASH	10100111	2	NONE	00110010
.	DOUBLE DASH	10000111	2	UNDERLINE	00010010
(	NONE	00101000	2	SINGLE DASH	10110010
(	UNDERLINE	00001000	2	DOUBLE DASH	10010010
(	SINGLE DASH	10101000	3	NONE	00110011
(	DOUBLE DASH	10001000	3	UNDERLINE	00010011
)	NONE	00101001	3	SINGLE DASH	10110011
)	UNDERLINE	00001001	3	DOUBLE DASH	10010011
)	SINGLE DASH	10101001	4	NONE	00110100
)	DOUBLE DASH	10001001	4	UNDERLINE	00010100
.	NONE	00101010	4	SINGLE DASH	10110100
.			4	DOUBLE DASH	10010100

Table 6-1: Reveal Mode Chart



Table 6-1: Reveal Mode Chart (Continued)

CHAR	MODIFIER	BIT CONFIGURATION	CHAR	MODIFIER	BIT CONFIGURATION
5	NONE	00110101	?	DOUBLE DASH	10011111
5	UNDERLINE	00010101	0	NONE	01000000
5	SINGLE DASH	10110101	0	UNDERLINE	01100000
5	DOUBLE DASH	10010101	0	SINGLE DASH	11000000
6	NONE	00110110	0	DOUBLE DASH	11100000
6	UNDERLINE	00010110	A	NONE	01000001
6	SINGLE DASH	10110110	A	UNDERLINE	01100001
6	DOUBLE DASH	10010110	A	SINGLE DASH	11000001
7	NONE	00110111	A	DOUBLE DASH	11100001
7	UNDERLINE	00010111	B	NONE	01000010
7	SINGLE DASH	10110111	B	UNDERLINE	01100010
7	DOUBLE DASH	10010111	B	SINGLE DASH	11000010
8	NONE	00111000	B	DOUBLE DASH	11100010
8	UNDERLINE	00011000	C	NONE	01000011
8	SINGLE DASH	10111000	C	UNDERLINE	01100011
8	DOUBLE DASH	10011000	C	SINGLE DASH	11000011
9	NONE	00111001	C	DOUBLE DASH	11100011
9	UNDERLINE	00011001	D	NONE	01000100
9	SINGLE DASH	10111001	D	UNDERLINE	01100100
9	DOUBLE DASH	10011001	D	SINGLE DASH	11000100
:	NONE	00111010	D	DOUBLE DASH	11100100
:	UNDERLINE	00011010	E	NONE	01000101
:	SINGLE DASH	10111010	E	UNDERLINE	01100101
:	DOUBLE DASH	10011010	E	SINGLE DASH	11000101
:	NONE	00111011	E	DOUBLE DASH	11100101
:	UNDERLINE	00011011	F	NONE	01000110
:	SINGLE DASH	10111011	F	UNDERLINE	01100110
:	DOUBLE DASH	10011011	F	SINGLE DASH	11000110
<	NONE	00111100	F	DOUBLE DASH	11100110
<	UNDERLINE	00011100	G	NONE	01000111
<	SINGLE DASH	10111100	G	UNDERLINE	01100111
<	DOUBLE DASH	10011100	G	SINGLE DASH	11000111
=	NONE	00111101	G	DOUBLE DASH	11100111
=	UNDERLINE	00011101	H	NONE	01001000
=	SINGLE DASH	10111101	H	UNDERLINE	01101000
=	DOUBLE DASH	10011101	H	SINGLE DASH	11001000
>	NONE	00111110	H	DOUBLE DASH	11101000
>	UNDERLINE	00011110	I	NONE	01001001
>	SINGLE DASH	10111110	I	UNDERLINE	01101001
>	DOUBLE DASH	10011110	I	SINGLE DASH	11001001
?	NONE	00111111	I	DOUBLE DASH	11101001
?	UNDERLINE	00011111	J	NONE	01001010
?	SINGLE DASH	10111111	J	UNDERLINE	01101010

Table 6-1: Reveal Mode Chart (Continued)

CHAR	MODIFIER	BIT CONFIGURATION	CHAR	MODIFIER	BIT CONFIGURATION
J	SINGLE DASH	11001010	U	UNDERLINE	01110101
J	DOUBLE DASH	11101010	U	SINGLE DASH	11010101
K	NONE	01001011	U	DOUBLE DASH	11110101
K	UNDERLINE	01101011	V	NONE	01010110
K	SINGLE DASH	11001011	V	UNDERLINE	01110110
K	DOUBLE DASH	11101011	V	SINGLE DASH	11010110
L	NONE	01001100	V	DOUBLE DASH	11110110
L	UNDERLINE	01101100	W	NONE	01010111
L	SINGLE DASH	11001100	W	UNDERLINE	01110111
L	DOUBLE DASH	11101100	W	SINGLE DASH	11010111
M	NONE	01001101	W	DOUBLE DASH	11110111
M	UNDERLINE	01101101	X	NONE	01011000
M	SINGLE DASH	11001101	X	UNDERLINE	01111000
M	DOUBLE DASH	11101101	X	SINGLE DASH	11011000
N	NONE	01001110	X	DOUBLE DASH	11111000
N	UNDERLINE	01101110	Y	NONE	01011001
N	SINGLE DASH	11001110	Y	UNDERLINE	01111001
N	DOUBLE DASH	11101110	Y	SINGLE DASH	11011001
O	NONE	01001111	Y	DOUBLE DASH	11111001
O	UNDERLINE	01101111	Z	NONE	01011010
O	SINGLE DASH	11001111	Z	UNDERLINE	01111010
O	DOUBLE DASH	11101111	Z	SINGLE DASH	11011010
P	NONE	01010000	Z	DOUBLE DASH	11111010
P	UNDERLINE	01110000	ö	NONE	01011011
P	SINGLE DASH	11010000	ö	UNDERLINE	01111011
P	DOUBLE DASH	11110000	ö	SINGLE DASH	11011011
Q	NONE	01010001	ö	DOUBLE DASH	11111011
Q	UNDERLINE	01110001	®	NONE	01011100
Q	SINGLE DASH	11010001	®	UNDERLINE	01111100
Q	DOUBLE DASH	11110001	®	SINGLE DASH	11011100
R	NONE	01010010	®	DOUBLE DASH	11111100
R	UNDERLINE	01110010		NONE	01011101
R	SINGLE DASH	11010010		UNDERLINE	01111101
R	DOUBLE DASH	11110010		SINGLE DASH	11011101
S	NONE	01010011		DOUBLE DASH	11111101
S	UNDERLINE	01110011	—	NONE	01011110
S	SINGLE DASH	11010011	—	UNDERLINE	01111110
S	DOUBLE DASH	11110011	—	SINGLE DASH	11011110
T	NONE	01010100	—	DOUBLE DASH	11111110
T	UNDERLINE	01110100	-	NONE	01011111
T	SINGLE DASH	11010100	-	UNDERLINE	01111111
T	DOUBLE DASH	11110100	-	SINGLE DASH	11011111
U	NONE	01010101	-	DOUBLE DASH	11111111

6. DIAGNOSTICS AND TESTS (continued)

Table 6 - 2

Attribute Character Bit Definition

Bit Assignments

X	X	U/P	A/N	D/S	LP/BL	O	MDT
0	1	2	3	4	5	6	7

Bit Position	Description
0 and 1	Not used
2	0-Unprotected 1-Protected (1)
3	0-Alphameric 1-Numeric (2)
4 and 5	00-Display/non-detectable 01-Display/detectable/blink (3) } (4) 10-Intense/detectable 11-Non-display/non-print/non detectable
6	0-Reserved
7	Modified Data Tag (MDT) 0-Field not modified 1-Field Modified (can be set by program)

Notes:

- (1) Combined with bit 3 = 1 makes auto skip field.
- (2) Automatic upshift of data entry keyboard.
- (3) Blinks when switch in terminal set.
- (4) Detectable IF
  - a) The attribute character is preceded by 3 spaces or zeroes OR is the first character in the line  
AND
  - b) The attribute character is followed by a designator character.

6. DIAGNOSTICS AND TESTS (continued)

Character in Table 6 - 1	Character displayed on US terminals
ü	!
Å	#
Û	\$
ö	@
ø	¢

Table 6 - 3

7. TECH NOTES SEL

7.1 Notes for Installing Light Pen

The Light Pen Option Kit without firmware has the SEL Nr. 57059 00347

The kit contains following:

Qty	Name	SEL-Nr.	CTS No.	Item
1	{ Light Pen or Lichtstift	57059 01136 57059 11250	2440 G1	①
1	Halter	38855 40017		②
1	LP/BR PCB	57059 00328	2241 G1	③
1	{ RAM ROM PCB RAM ROM PCB	57059 00461 57059 00705	1820 2307	④
2	Bushing	70098 34820	0726 P2	⑤
1	Screw	70098 34821	H 01 P 06 C 06	⑥
2	Nut, Keps 6-32	70098 34822	H 16 P 06 C	⑦
1	Screw	70098 34823	99901 P 06 C 08	⑧
1	Cable Clamp	70098 34824	2362 P3	⑨
1	Lockwasher	70098 34825	99925 P 06 C	⑩

The necessary firmware for the Option Interface PCB must be ordered separately. The SEL-Nr. for the firmware set must be obtained from the Firmware Guide (PCB-Ubersichtsblätter). The old Option Interface PCB is to be sent to PWP/RULA for re use.

*Rem/Pan Board on 31. 1. 1981.*

## 7.1 Notes for Installing Light Pen (continued)

### INSTALLATION STEPS (Refer to Figure 7-1)

1. Remove 2 screws and plate, route cable from Light Pen (Item 2) through opening in rear of base, install bushing (Item 5) on cable and into removed plate, and replace plate.
2. Secure cable to inside of terminal using items 7, 8, 9, 10 as shown (Caution must be used to insure that the Cable Clamp is centered over stripped area of cable jacket).
3. Place Badge Reader / Light Pen Interface Board A2241A1 (Item 3) into proper position.
4. Plug cable end into J3 of Badge Reader / Light Pen Board (Pin '1' at bottom).

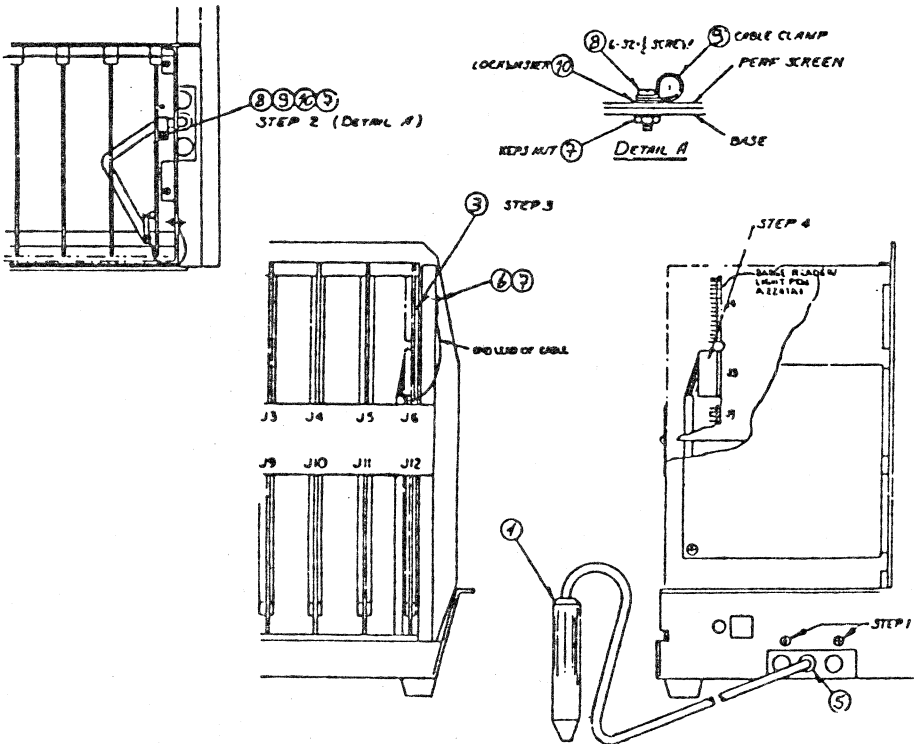


Figure 7-1

