

CENTRONICS

einfach besser

TECHNISCHE

SCHULUNG

MODEL 780 PRINTER

CENTRONICS

data computer GmbH

Lyoner Straße 44-48
6000 Frankfurt am Main 71
Telefon (0611) *666 1021
Telex 04 13224 cdcgf d

Table 3-1a USASCII Code

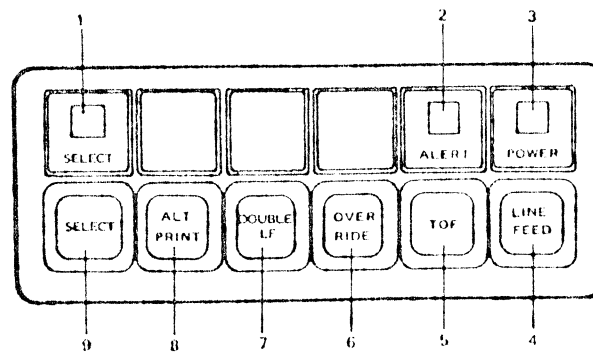
b7 b6 b5 Bits					Column							
b4	b3	b2	b1	Row	000	001	010	011	100	101	110	111
↓	↓	↓	↓		0	1	2	3	4	5	6	7
0	0	0	0	0	NUL	DLE	Space	0	@	P	↓	P
0	0	0	1	1	SOH	DC1	!	1	A	Q	a	q
0	0	1	0	2	STX	DC2	"	2	E	R	b	r
0	0	1	1	3	ETX	DC3	#	3	C	S	c	s
0	1	0	0	4	EOT	DC4	\$	4	D	T	d	t
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	u
0	1	1	0	6	ACK	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 (A)	LF	SUB	*	:	J	Z	j	z
1	0	1	1	11 (B)	VT	ESC	+	;	K	[	k	{
1	1	0	0	12 (C)	FF	FS	,	<	L	\	l	
1	1	0	1	13 (D)	CR	GS	-	=	M	]	m	}
1	1	1	0	14 (E)	SO	RS	.	>	N	↑	n	→
1	1	1	1	15 (F)	SI	US	/	?	O	←	o	DEL

Strobe	STROBE	ME4-6	-	500USEC	R77
Delay Strobe	DLYSTB	ME4-10	-	500USEC	R80
Line Feed	SLF	ME18-5	-	10MSEC	R118
Double Line Feed	DBLF	ME18-5	-	40MSEC	R119

Karl-Heinz Fischer

Technische Schulung

OPERATORS PANEL



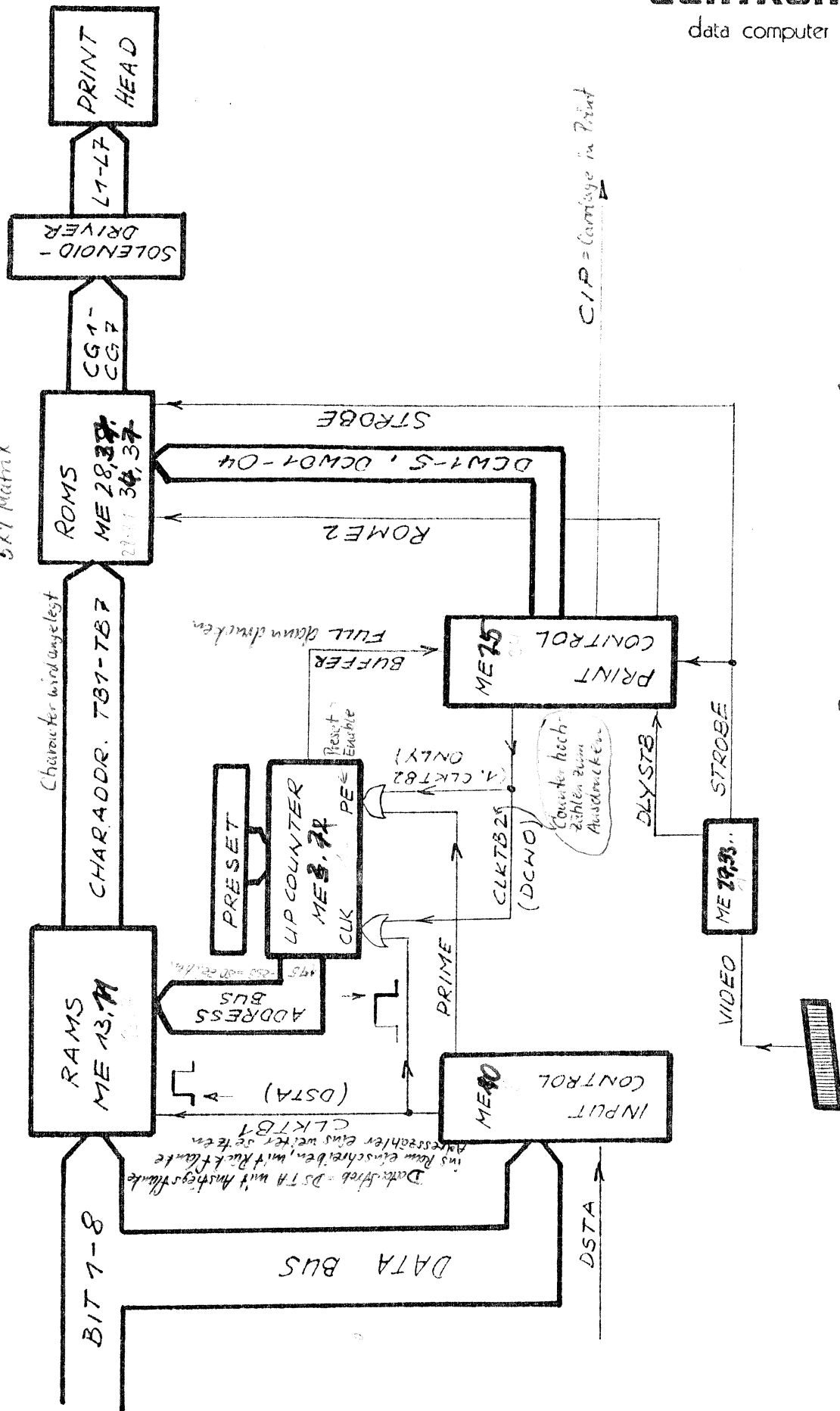
CONTROLS AND INDICATORS, OPERATORS PANEL

INDEX NO.	CONTROL/INDICATOR	FUNCTION
1	SELECT LAMP	When lit, indicates printer is selected.
2	ALERT LAMP	When lit, indicates paper empty.
3	POWER LAMP	When lit, indicates power is applied.
4	LINE FEED SWITCH	When depressed, causes paper to advance one line.
5	TOF SWITCH (OPTIONAL)	When depressed, causes paper to advance to top of next form as governed by optional Vertical Format Unit (VFU).
6	OVERRIDE SWITCH	When depressed and held after ALERT lamp lights, overrides internal paper out switch and allows last form to be printed.
7	DOUBLE LF (OPTIONAL)	When depressed, depressing LINE FEED switch or reception of line feed command, causes paper to advance two lines.
8	ALT PRINT (OPTIONAL MODEL 700 ONLY)	Permits selection of either of two character densities.
9	SELECT SWITCH	When depressed, selects or deselects printer as indicated by SELECT lamp. If printer is deselected while line of data is being received, printer does not deselect until line of data is printed.

End of
Print
Switch

1 Character drucken
mit DCW 1-5
(7 Nachstellen)
5x7 Matrix

80 Zeichen



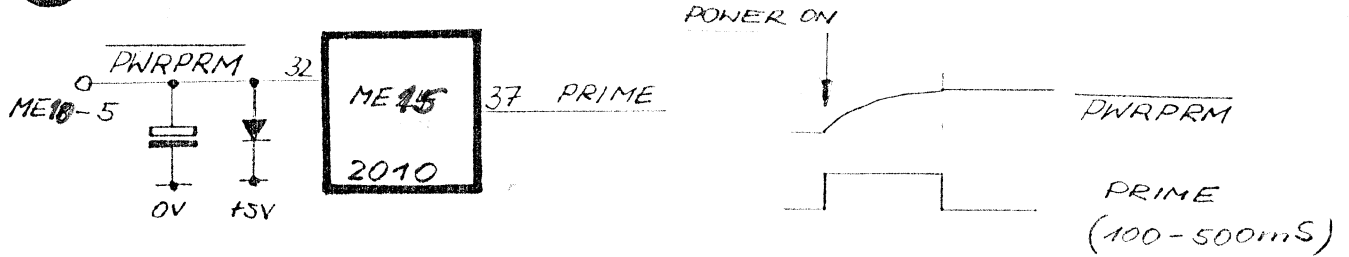
BLOCK DIAGRAM T80

PRIME¹

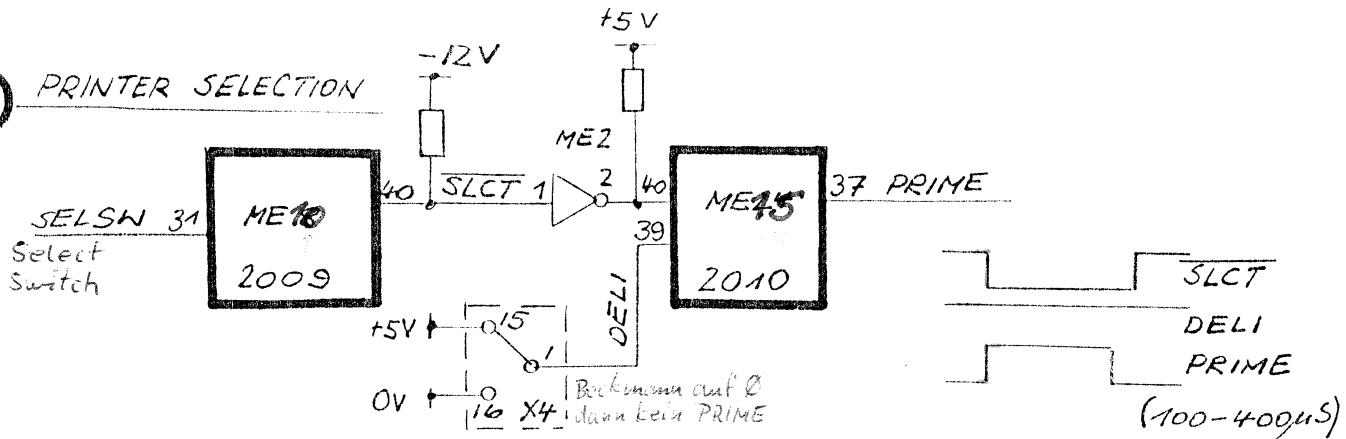
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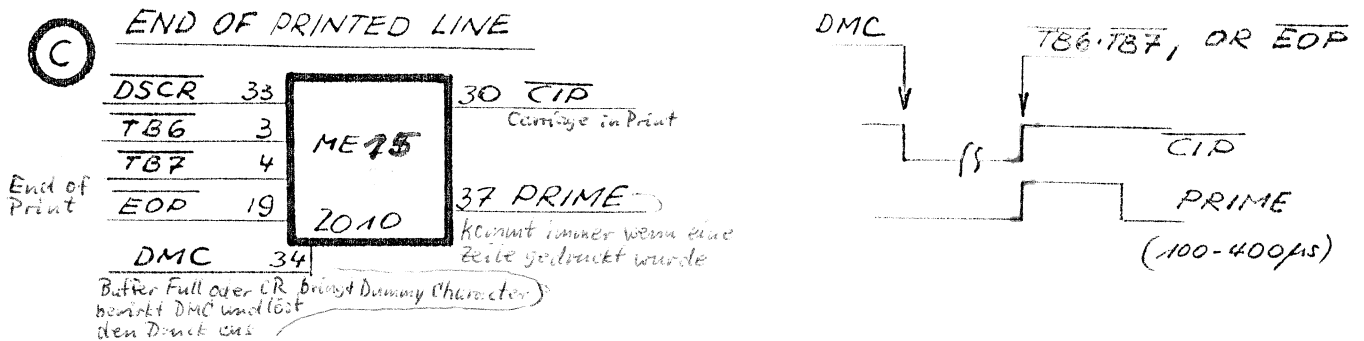
(A) POWER TURN ON



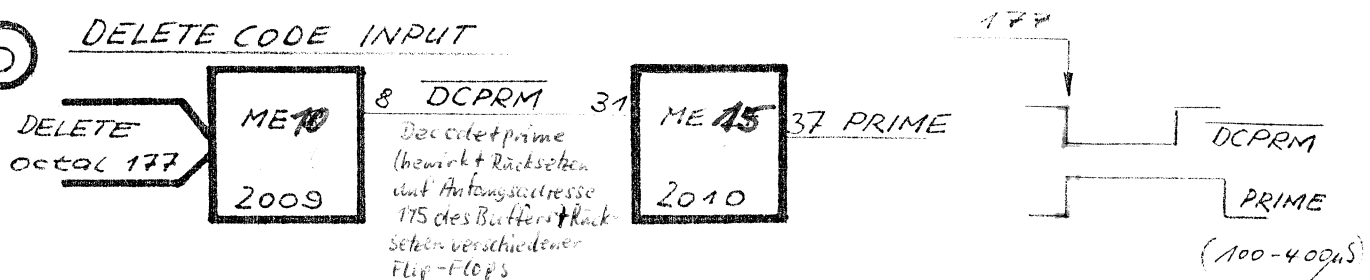
(B) PRINTER SELECTION



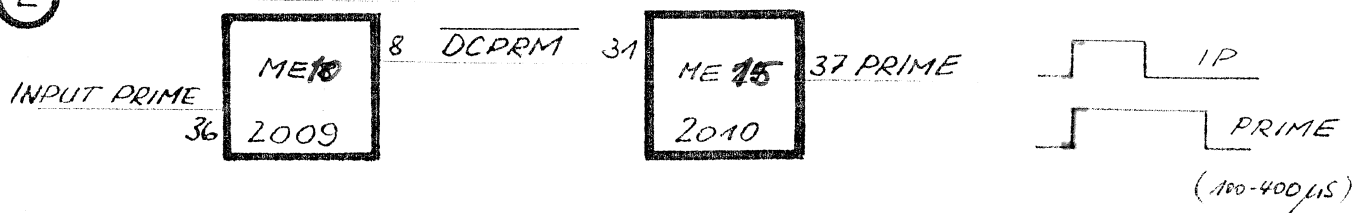
(C) END OF PRINTED LINE



(D) DELETE CODE INPUT



(E) INPUT PRIME

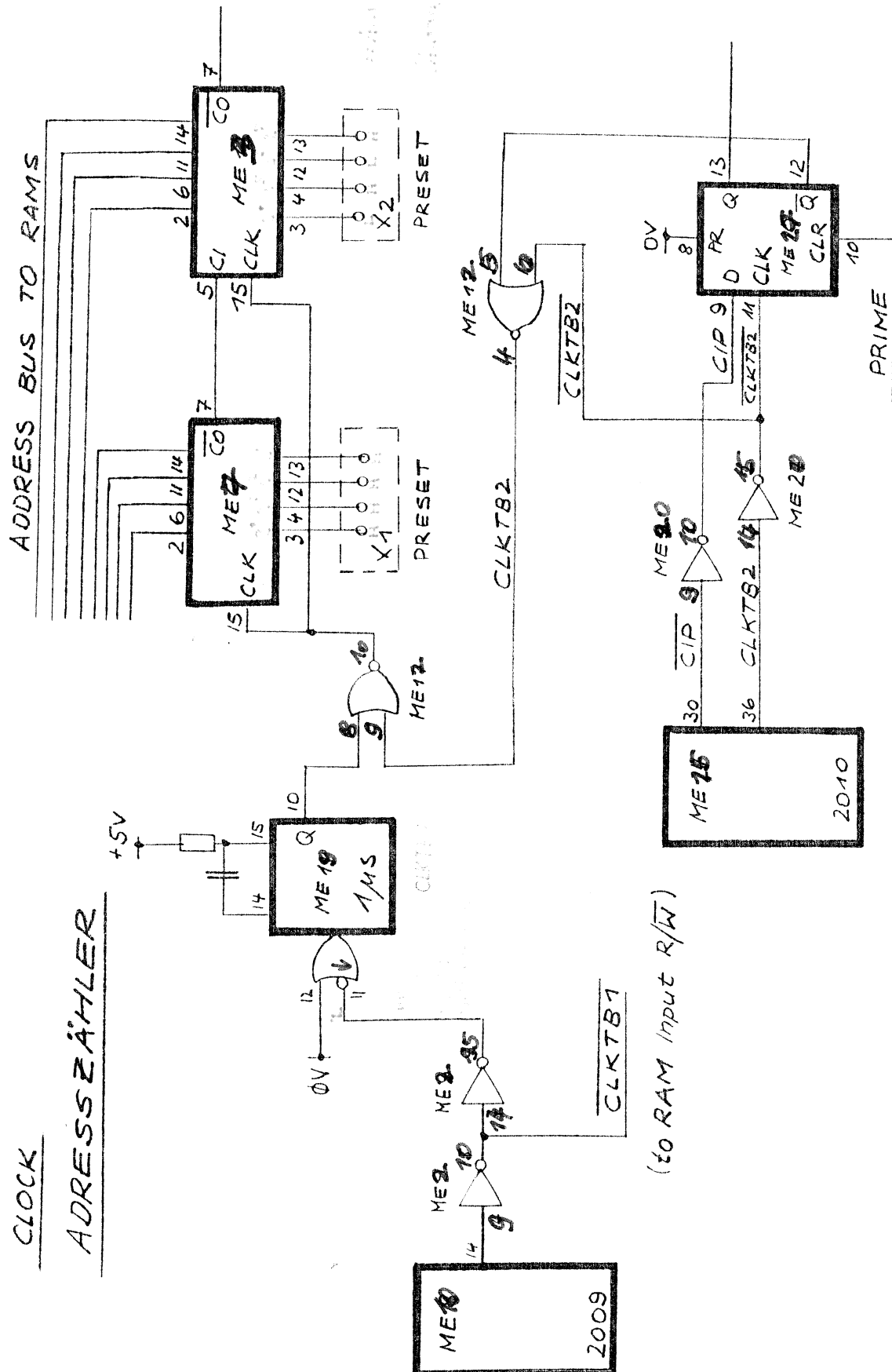


PRIME RESETS PRINTER LOGIC IN ME 15, 10, 27, AND
PRESET ADDRESS-COUNTER

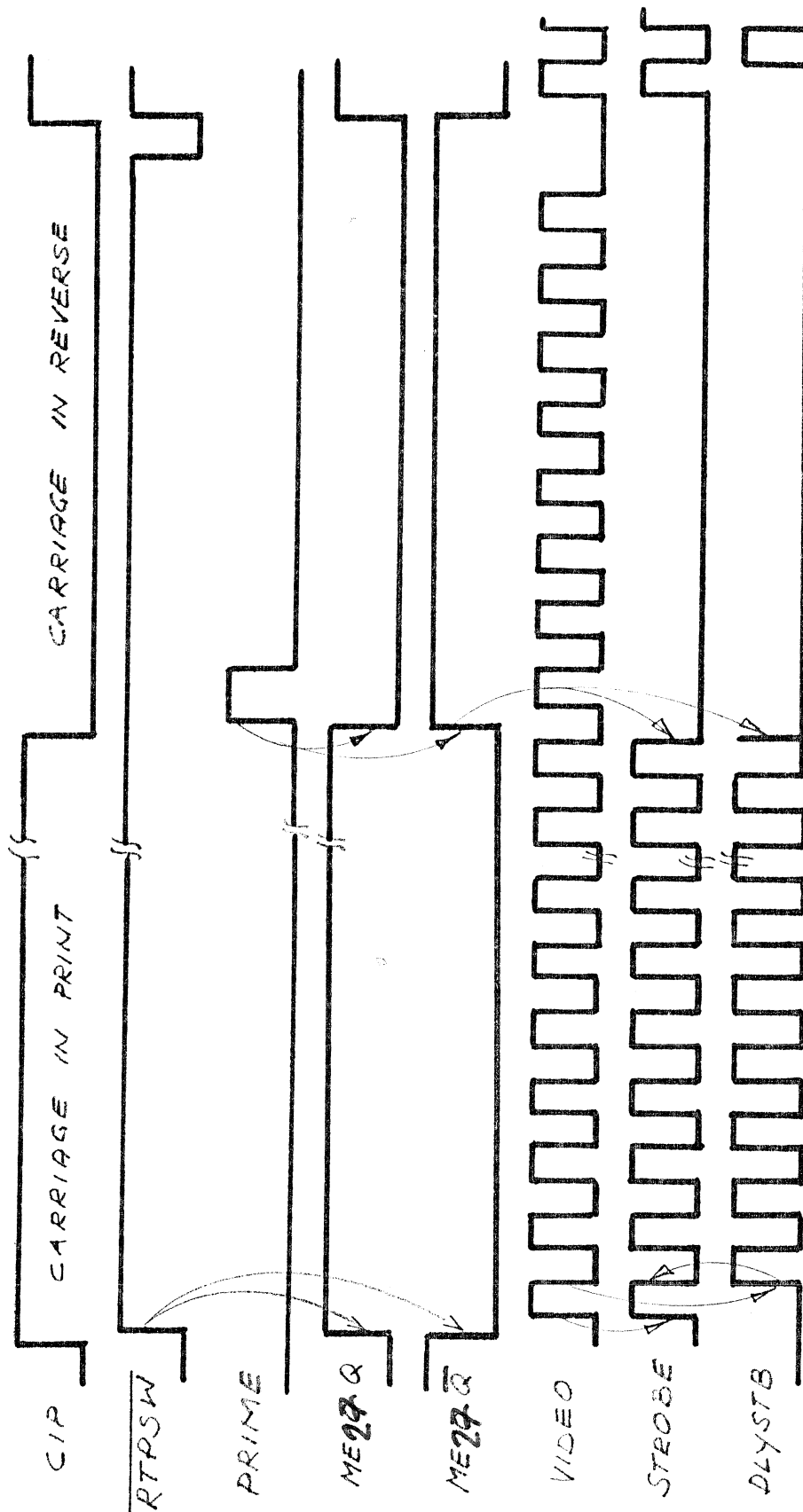


PRESET/CLOCK

ADRESSZÄHLER

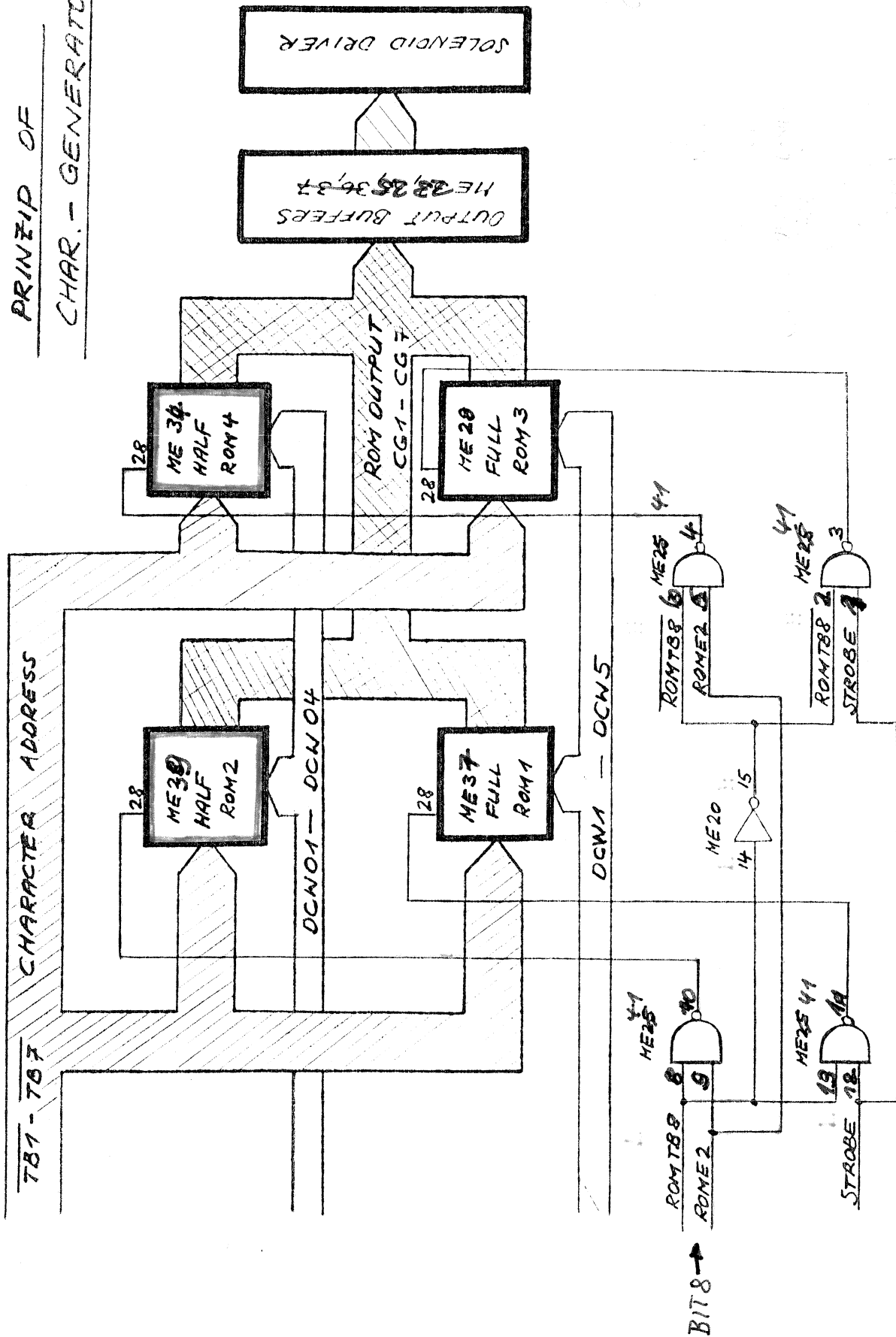


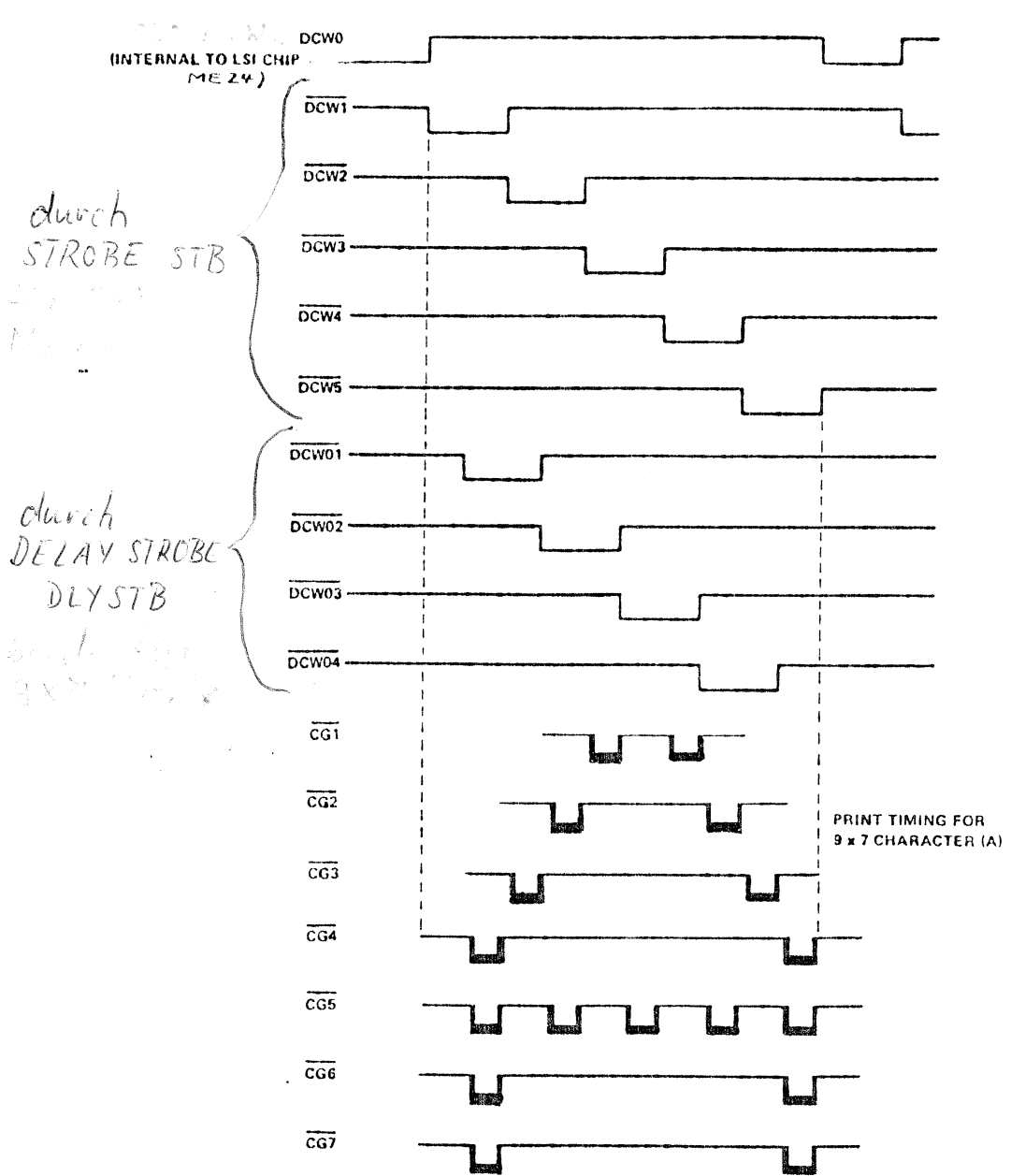
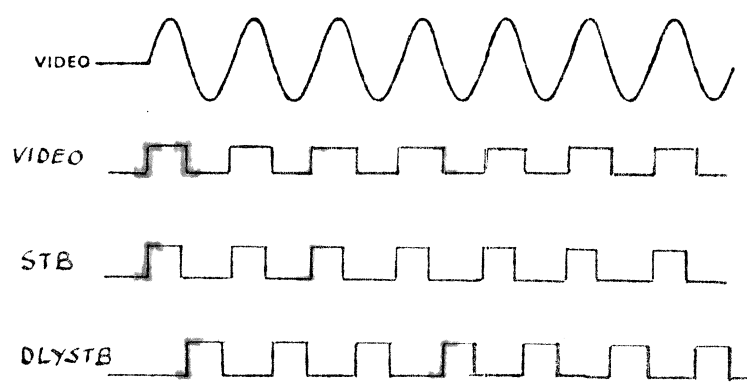




STROBE / DLYSTB DURING PRINTING

PRINZIP OF
CHAR.- GENERATOR

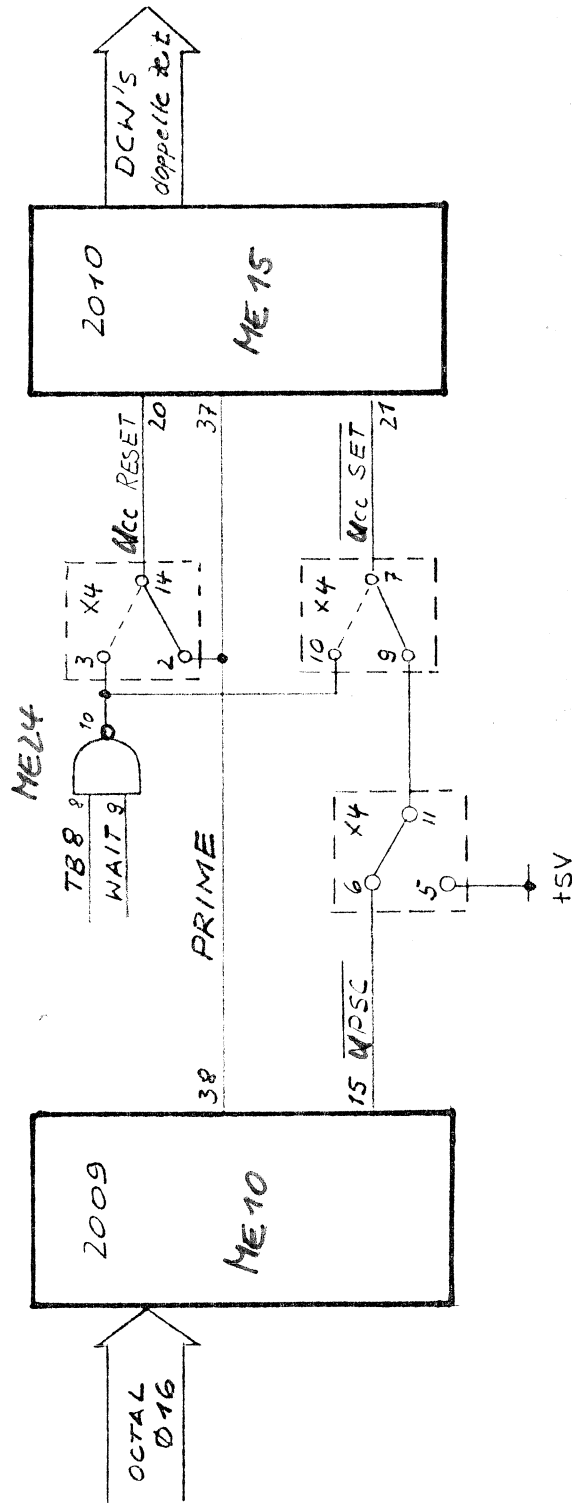




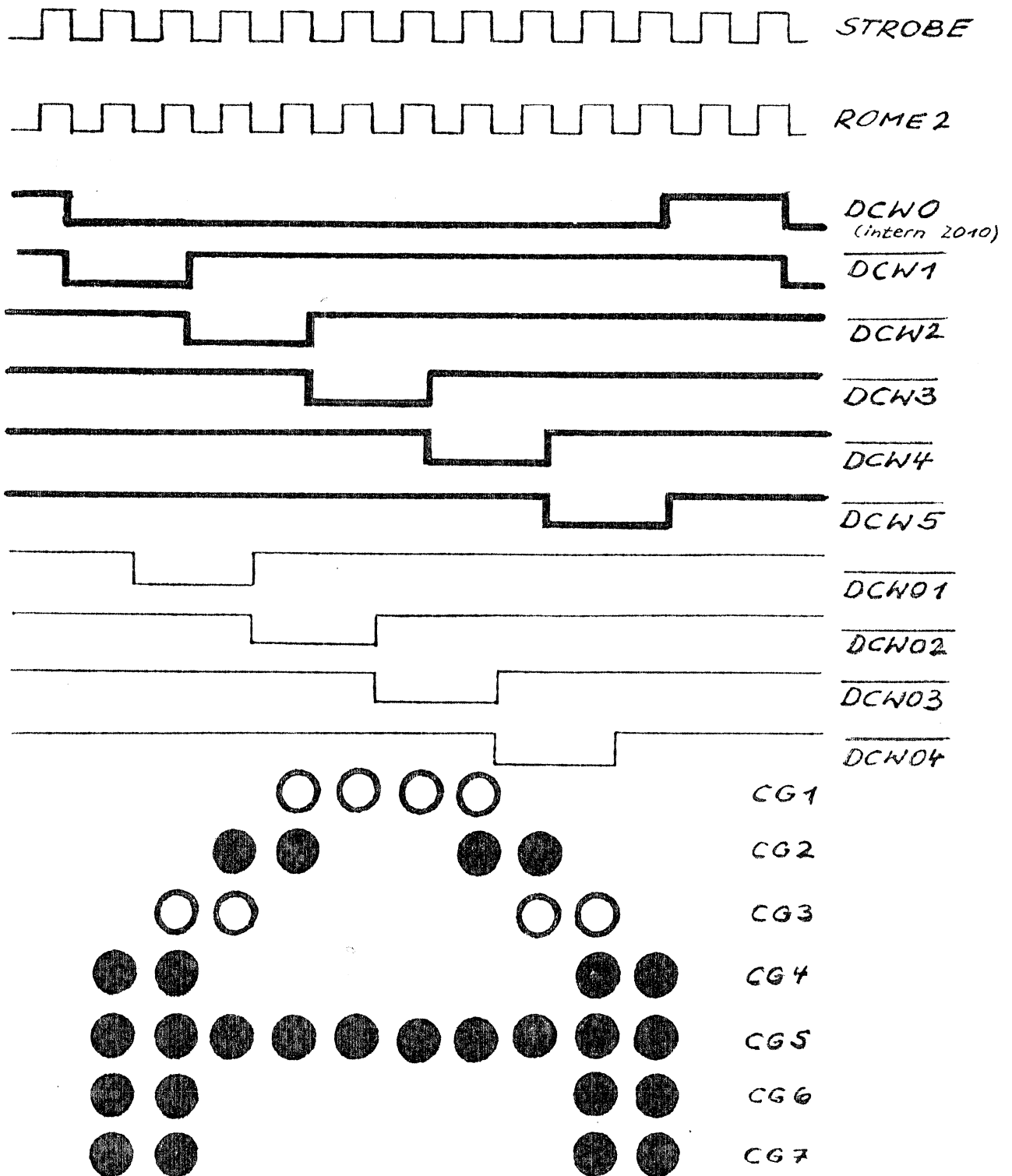
CHARACTER TIMING

BREITTSCHRIFT (ELONGATED)

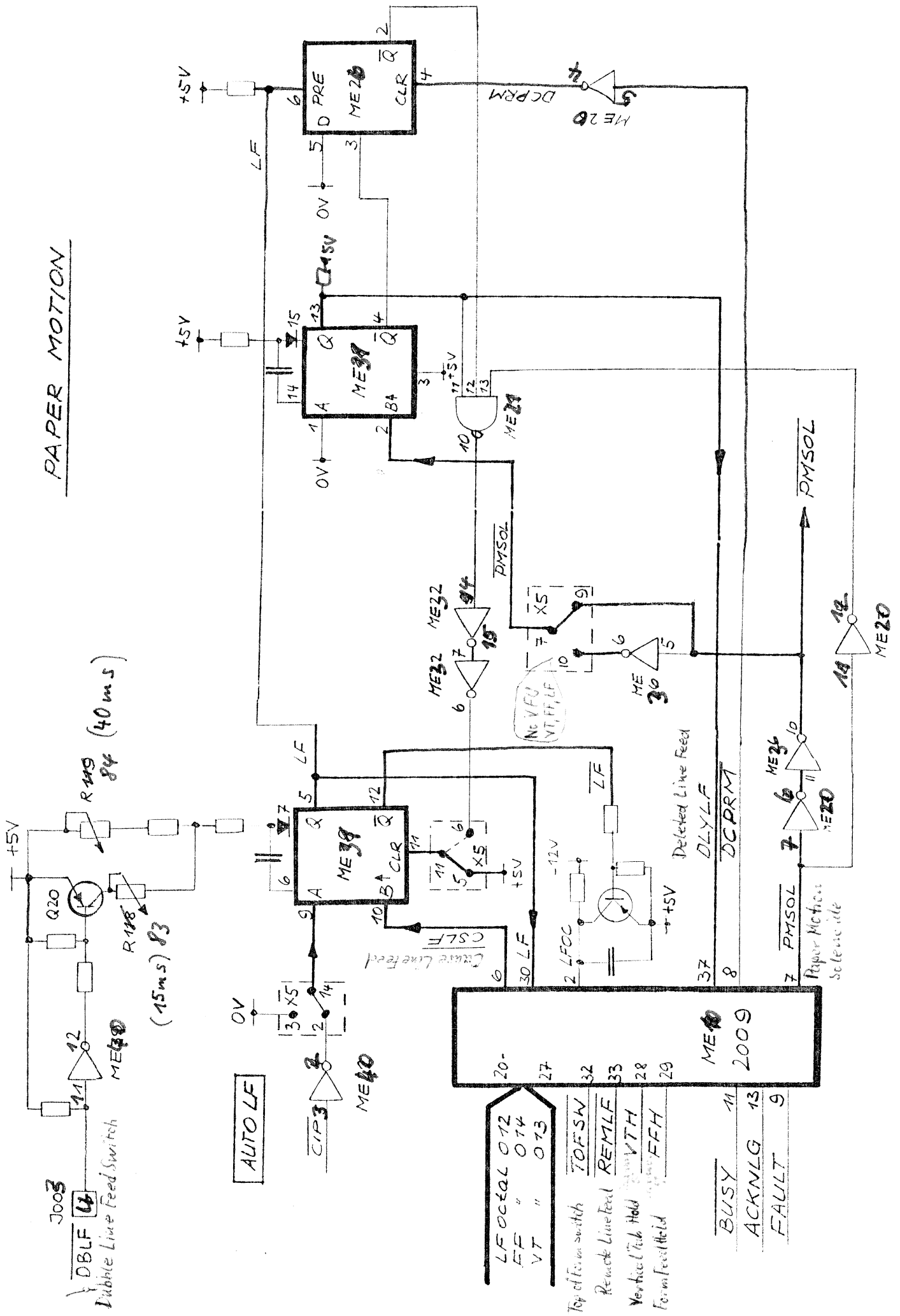
(WAIT)



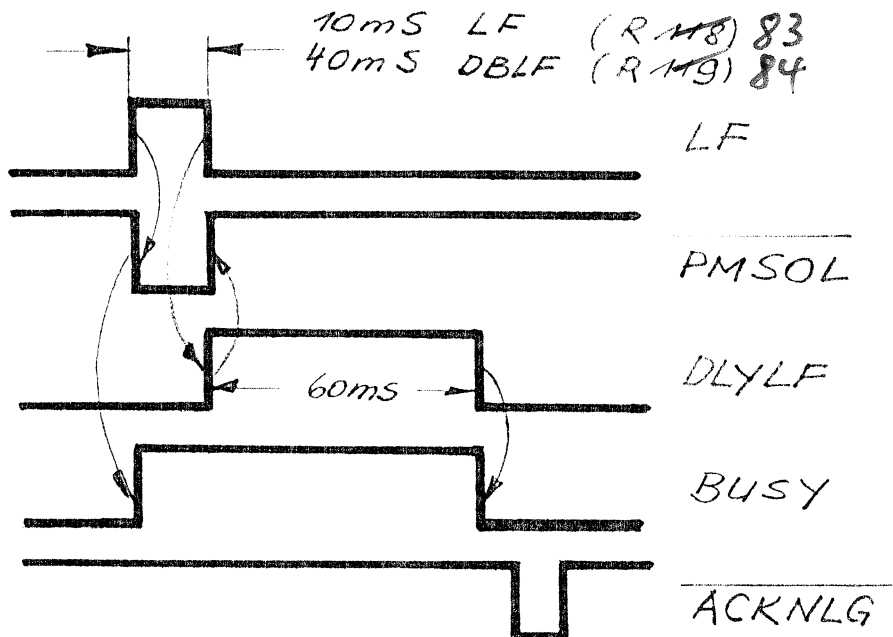
ELONGATED CHARACTER TIMMING (9 × 7)



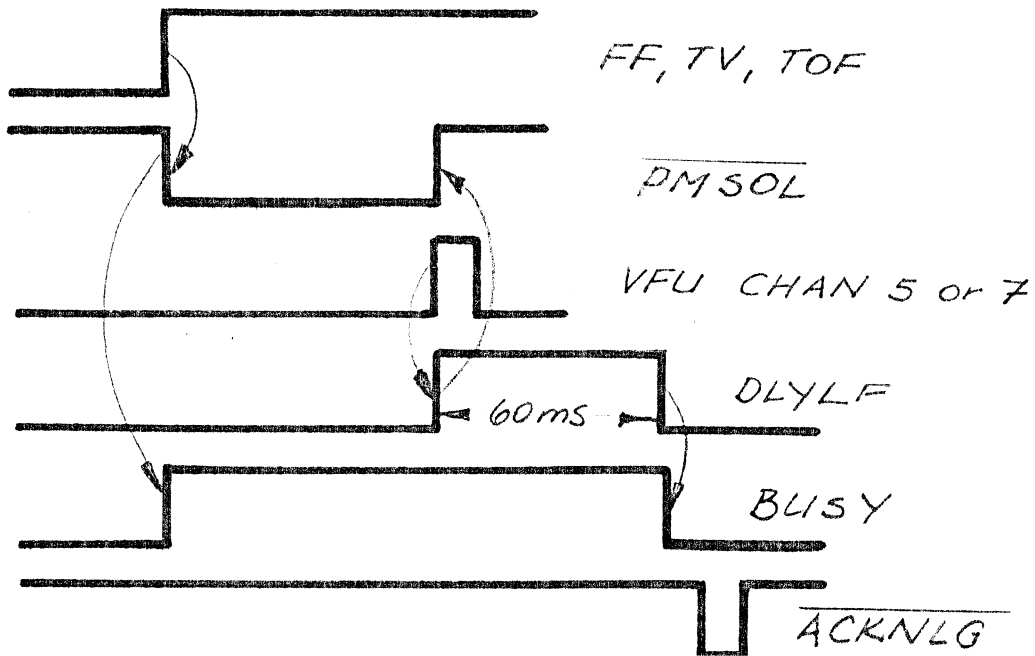
PAPER MOTION



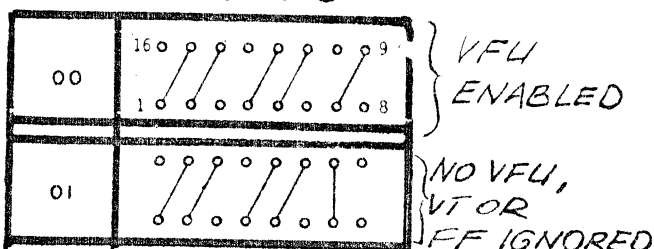
LINE FEED, DOUBLE LINE FEED



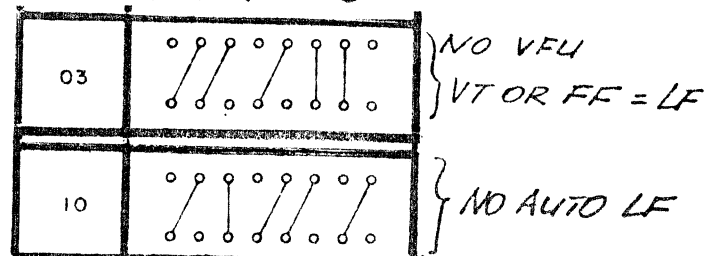
FORM FEED, VERTICAL TAP, TOP OF FORM

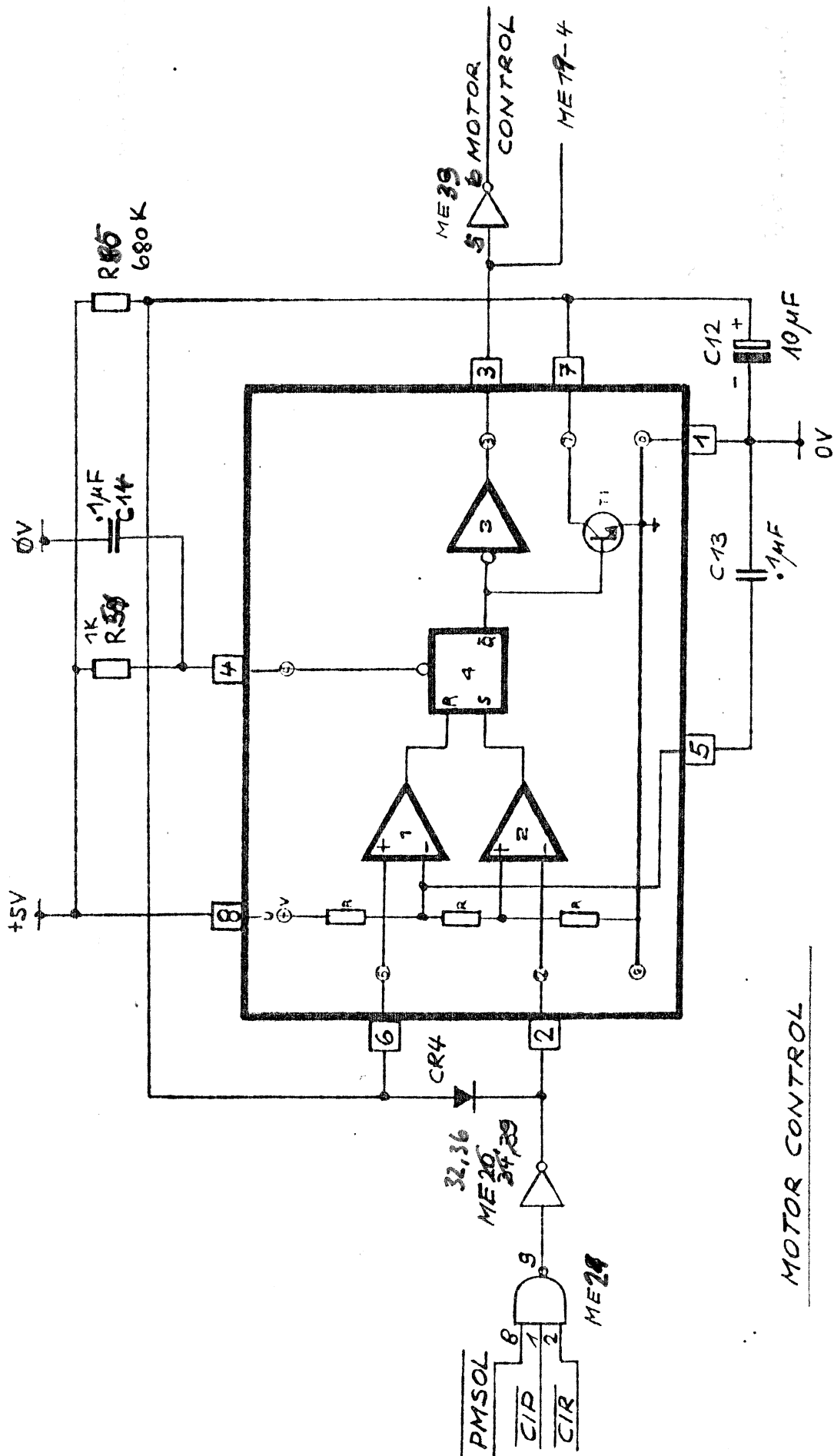


JUMPER X5

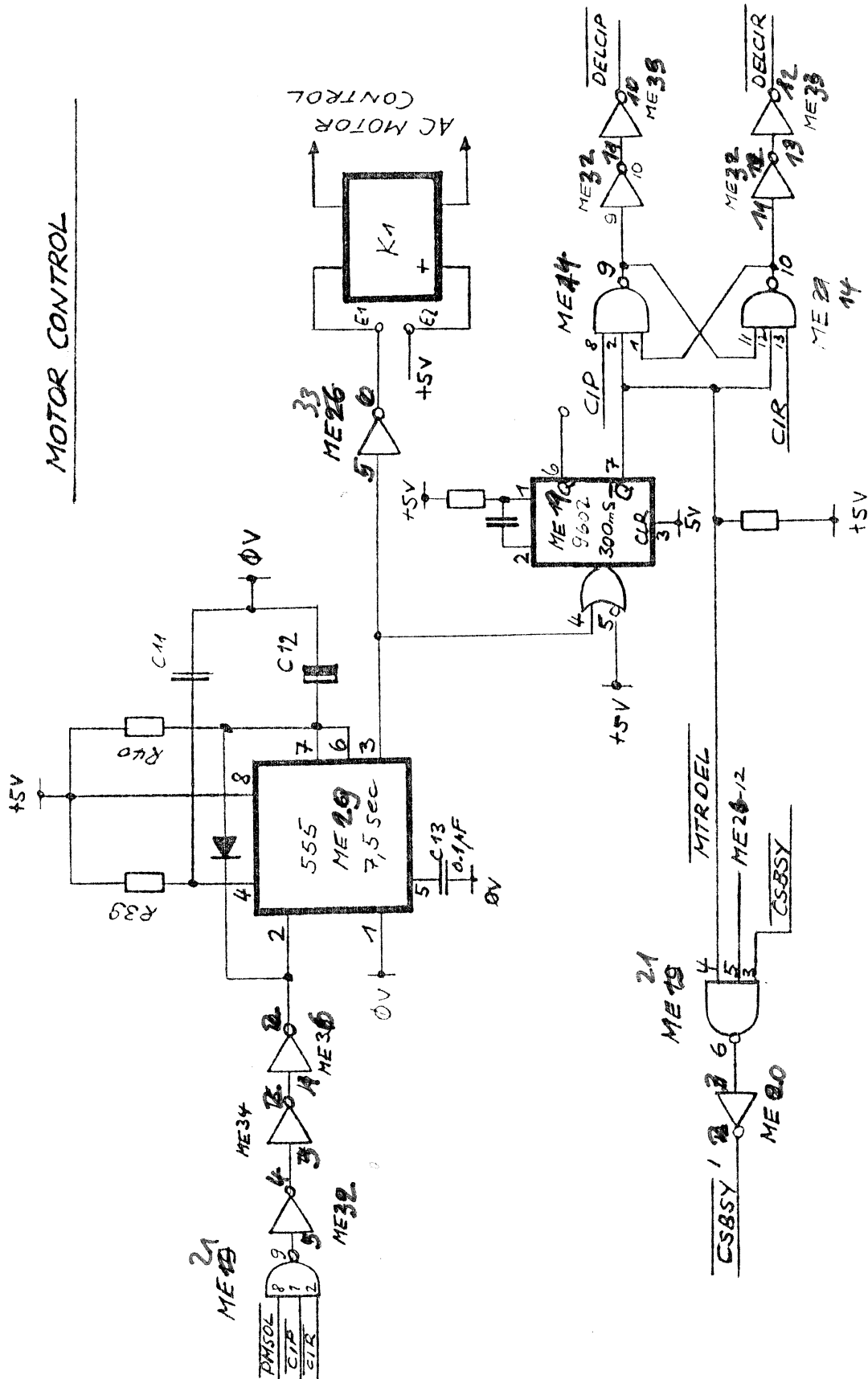


JUMPER X5





MOTOR CONTROL



stpoint	Signalname	Description
1	<u>DSTA</u>	A 1,0 usec pulse to clock data from the input device to the printer logic
2	Busy	Printer busy status line indicating to the input device that printer is not ready to receive data. Busy goes high during any of the following conditions: A, LSI input ME 10 -10 goes low <u>CSBSY</u> B, LSI input ME 10 -5 <u>PWRPRM</u> goes low or ME 10 -38 Prime goes high. C, Paper movement operation (<u>PMSOL</u>) D, LSI output ME 10 -8 <u>DCPRM</u> goes low E, LSI output ME 10 -9 <u>FAULT</u> goes high F, LSI input ME 10 -37 <u>DLYLF</u> " "
	<u>ACK</u>	Acknowledge A 2,5 to 5,0 usec pulse used to indicate the completion of the input of a character or the end of a functional operation. This pulse is generated after: A, the trailing edge of data strobe <u>DSTA</u> input when the printer is not busy or B, after the trailing edge of a <u>busy</u> signal.
4	<u>FAULT</u>	<u>FAULT</u> indication. This output goes high under any of the following conditions: A, Printer is deselected when a deselct code octal 023 is received on data lines. B, Printer is deselected by operation of Select switch on the control panel. This action generates signal <u>SELSW</u> . The trailing edge of <u>SELSW</u> generates a <u>FAULT</u> indication. C, LSI input ME 10 -34 <u>PE</u> goes low, indicating printer is out of paper. D, A paper time out condition exists (internal to ME 10) E, <u>LD</u> input ME 10 -35 goes low, indicating no video signal during print cycle.
5	SLCT	Select status line to interface connector.
6	PRIME	A 100-400 usec pulse used to prime or reset the printer electronics. Prime goes high for 100-500 usec during power prime <u>PWRPRM</u> (capacitor C9 on ME 15 -32 charge to a positiv threshold level) 100-400 usec during following conditions. A, <u>DCPRM</u> input ME 15 -31 goes low B, <u>SLCT</u> input ME 15 -40 " high and the delete Inhibit (<u>DELINH</u>) option is used. (x4,15-1) C, <u>CIP</u> output ME 15 -30 goes high.
7	CIR	Carriage in revesve signal used to drive the print head in reverse. CIR goes high when <u>EOPSW</u> is actuated or by CR.

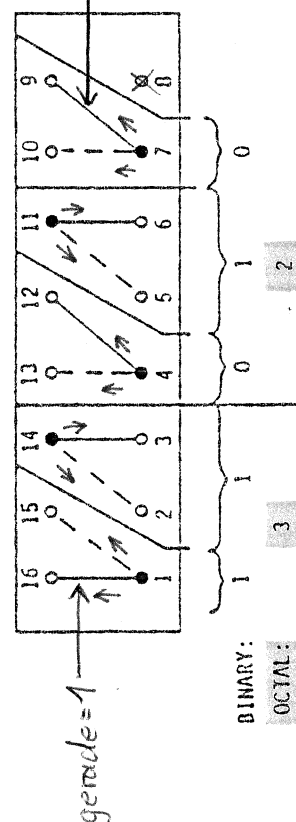
stpoint	Signalname	Description
8	RTPSW	Ready to print switch. is actuated when the carriage is over left limit switch (low) on the printer.
9	DLYLF	Delay line feet - A 60-90 msec pulse following any paper movement command. Goes high on trailing edge of PMSOL. Allows settle-outtime for the form-feed mechan. parts.
10	CLR to DLYSTB	Output ME 27 -2 used to clear ME 30 -10 DLYSTB.
11	MTRDEL	A 300 msec motor delay signal, the MTRDLY signal performs two functions: A, <u>delays</u> the activation of the forward clutch <u>DELCIP</u> for 300 ms. This allows the main drive motor to reach operating speed. B, appears of ME 24 -4, generating a <u>CSBSY</u> signal that keeps the printer busy for 300 msec.
12	Motor control	The Motor control Timer ME 19 initiates a 7,5 sec delay, following each print or paper movement command. If another print or paper movement command is not received during this time, a solid state switch deactivates and removes power from main drive motor.
13	CIP	Carriage in print - signal used to drive the print head forward. Signal goes high when all of the following conditions exist: A, <u>prime</u> low B, <u>EOPSW</u> not actuated, high C, No <u>control</u> control character at memory output. (TB 6 or TB 7 input ME 15 -3 or 4 high) D, Left limit switch actuated RTPSW low. E, Detection of a full line of data or carriage return code. DMC input goes high.
14	CLKTB1	Clock shift pulse used when to clock input data into RAM's. It is generated by data strobe signal DSTA.
15	CLKTB1 from ME 21 - 15	A one-Shot output trigger from CLKTB1 pulse. Used to advance up-counter ME 7 and ME 3 to the next count and RAM address. The following character received by the printer is written into RAM memory at that address.
16	Up-Counter pre-set	This signal is used to preset the up-counter to the startaddress which is used for the RAM-memory. The up-counters are presetted at a beginning of a Data Coad Cycle and at the beginning of a print cycle.

Point	Signalname	Description
17	<u>CLKTB2</u>	This pulse is generated during character printing to clock the up-counter ME 7 and ME 3 , updating the RAM address for the next character. Each <u>strobe</u> pulse occurring during Strobe counter interval DCW0 (internal to LST ME 24) generates a CLKTB 2 pulse. This causes the up-counter to update the RAM address for the next character.
18	PMSOL	Any paper movement command (i.e. LF, FF or VT) causes a high PMSOL, used to activate the paper movement solenoid. This cause paper to advance in the printer. PMSOL remains high until one of the following conditions occurs: A, paper time out condition exist B, Power prime (<u>PRWPRW</u>) condition exist C, During a form Feed operation, a hole in channel 7 on VFU paper tape is detected. D, During a vertical TAP operation a hole in channel 5 on VFU paper tape is detected.
19	DMC	Indicates a full line of data or a CR has been received. Goes to ME 45 -34 and is used to activate signal CIP.
20	SELSW	Select switch signal from operator panel.
21	<u>PE SW</u>	Signal indicating a paper empty condition.
22	CH 5	Signal indicating a hole in channel 5 on VFU paper tape.
23	CH 7	Signal indicating a hole in channel 7 on VFU paper tape.
24	<u>TOFSW</u>	Signal from TOP of Form switch on operator panel.
25	<u>REMLF</u>	Signal from LF switch on operator panel
26	<u>RTPSW</u>	Input from the left limit switch on the printer. This signal is low when the carriage is not over the switch.

JUMPER PLATFORM CONFIGURATIONS

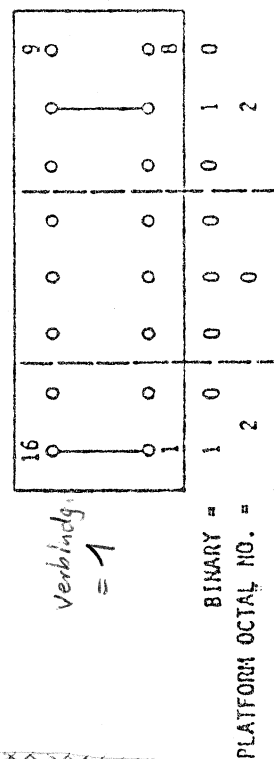
JUMPER PLATFORM TYPE 63080164

OCTAL NO.	PLATFORM CONFIGURATION	OCTAL NO.	PLATFORM CONFIGURATION	OCTAL NO.	PLATFORM CONFIGURATION
00		13		26	
01		14		27	
02		15		30	
03		16		31	
04		17		32	
05		20		33	
06		21		34	
07		22		35	
10		23		36	
11		24		37	
12		25			



JUMPER PLATFORM TYPE 63080163

SUB DATE	PLATFORM		PLATFORM CONFIGURATION
	21 OCTAL NO.	22 OCTAL NO.	
9600	060	-	
4800	230	-	
2400	314	-	
1800	042	-	
1200	346	-	
1080	156	-	
900	013	-	
300	-	054	
180	-	026	
110	-	161	



CHARACTER GENERATOR CODES

CHAR. SET 62000112 - 6XXX	ROM 27-XXX	MATRIX	NOMENCLATURE	NO. OF CHAR.
001	001	5 x 7	Standard ASCII	64
002	006	5 x 7	Modified ASCII	64
003	007	5 x 7	System	64
004	010	5 x 7	German	64
005	018	5 x 7	British ASCII	64
006	019	5 x 7	Modified ASCII	64
007	024	5 x 7	Sweden	64
008	025	5 x 7	Spain	64
009	028/029	5 x 7	Katakana	96
010	030/031	5 x 7	British	96
011	064	5 x 7	Hebrew	64
014	074/075	5 x 7	Swedish/Finnish	96
015	115	5 x 7	Jugoslavia	64
016	101	5 x 7	US/UK	64
017	102	5 x 7	Danish/German	64
018	105	5 x 7	English/Swedish	96
019	118/119	5 x 7	APL	64
023	106	5 x 7	Icelandic	64
024	123	5 x 7	Modified ASCII	64
025	130	5 x 7	Cyrillic (Russian)	64
028	148	5 x 7	Swedish	64
029	159	5 x 7	ASCII/Mod 0	64
030	154	5 x 7	Special Scientific	64
031	158/001	5 x 7	Autocon, Special	128
201	002/003	9 x 7	Standard ASCII	64
202	011/012	9 x 7	Swedish/Finnish	64
203	016/017	9 x 7	Norwegian/Danish	64
204	037/038	9 x 7	Time Bar	64
205	013/002	9 x 7	British ASCII	64
206	065/066	9 x 7	Modified Swedish/Finnish	64
207	070/071	9 x 7	Cyrillic (Russian)	64
209	014/015	9 x 7	EBCDIC	64
211	022/023	9 x 7	Hebrew	64
212	026/027	9 x 7	Scania	64
213	032/033	9 x 7	Danish/Norwegian	64
214	039/040	9 x 7	Katakana (1-64)	64
215	041/042	9 x 7	Katakana (65-128)	64
218	052/053	9 x 7	U.K.	64
219	068/069	9 x 7	U.S.A.	64
220	056/057	9 x 7	Denmark/Norway	64
221	058/059	9 x 7	Sweden/Finland	64
222	060/061	9 x 7	Spain	64
223	062/063	9 x 7	Portugal/Brazil	64
224	054/055	9 x 7	German	64
226	076/077	9 x 7	Arabic	64
228	072/073	9 x 7	Plus and Minus ASCII	64
229	091/092	9 x 7	United Kingdom	64
230	097/098	9 x 7	German ASCII	64
231	093/094	9 x 7	Arabic	64
232	107/108	9 x 7	Modified ASCII (Delta/Degree)	64
233	085/086/087/088	9 x 7	Modified French	96
234	099/100	9 x 7	French/Italian/American	64
236	124/125	9 x 7	German	64
237	131/132	9 x 7	French	64
238	135/136	9 x 7	England	64
239	139/140	9 x 7	Yugoslavia	64
240	113/114	9 x 7	Special German	64
241	149/069	9 x 7	Modified USASCII	64
242	149/155	9 x 7	Modified USASCII	64
243	150/151	9 x 7	ASCII and symbols	96
244	156/157	9 x 7	ASCII Segment	64
400	039/040/041/042	9 x 7	Katakana (128 Char.)	128
401	052/053/109/110	9 x 7	International and Mod ASCII	96
402	068/069/109/110	9 x 7	USA and modified ASCII	96
403	001/031	5 x 7	Std. ASCII and British	96
404	124/125/126/127	9 x 7	German Upper/Lower	96
405	013/003/146/147	9 x 7	British ASCII and Greek	96
406	131/132/133/134	9 x 7	French Upper/Lower	96
407	135/136/137/138	9 x 7	England Upper/Lower	96
408	139/140/141/142	9 x 7	Yugoslavia Upper/Lower	96
409	002/003	9 x 7	British ASCII and	128
	064	5 x 7	Hebrew	
410	003/013/020/021	9 x 7	British ASCII and Upper/Lower	96
411	024/045/046/067	5 x 7	Sweden and .21.3 Segments	
412	043/044/068/069	9 x 7	USA - Mod Upper Lower	96
413	002/003/146/147	9 x 7	CDCC plus Greek	128
414	016/017/020/021	9 x 7	Nor/Danish plus U/L	96
512	001/045/046/067	5 x 7	Std. Plus .27.3 Char. Segment	
513	001/050/051	5 x 7	Std. Plus Geometric Segment	
520	001/051/111/112	5 x 7	Std. ASCII and Mod. Segmented	
521	001/051/116/117	5 x 7	Std. ASCII and Geometric bar Code	
522	001/120/121/122	5 x 7	Std. ASCII and Special Segment	
526	001/143	5 x 7	Std. ASCII and Building Blocks	96
527	001/045/144/145	5 x 7	Special Segment	
707	020/070/071	9 x 7	Std. ASCII and Cyrillic	96
708	002/003/008/009	9 x 7	Std. ASCII and Export	96
710	002/003/020/021	9 x 7	Std. ASCII and Upper/Lower	96
711	002/003/022/023	9 x 7	Std. ASCII and Hebrew	128
716	002/003/043/044	9 x 7	Std. ASCII and Mod. Upper/Lower	96
717	002/003/048/049	9 x 7	Std. ASCII and Scientific	96
725	002/003/082/083	9 x 7	Std. ASCII and Cyrillic	96
727	002/003/004/005	9 x 7	Std. ASCII and Upper/Lower Publ.	96
735	002/003/095/096	9 x 7	Std. ASCII and French	96
900	103/104	7 x 7	7 x 7 ASCII	64