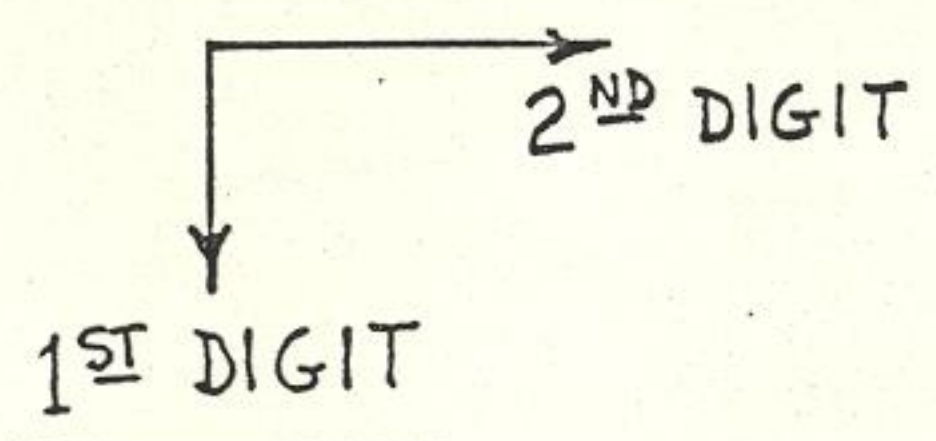


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1401 PRINTER



TAPE OCTAL CODE	CORE OCTAL CODE	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	!	NOT USED	NOT USED	NOT USED
6	6	+	A	B	C	D	E	F	G
7	7	H	I	+	.	)	NOT USED	NOT USED	NOT USED
4	4	-	J	K	L	M	N	O	P
5	5	Q	R	-	\$	*	NOT USED	NOT USED	NOT USED
2	2	BLANK SYMBOL	/	S	T	U	V	W	X
3	3	Y	Z	≠	,	(	NOT USED	NOT USED	NOT USED

7094 PRINTER

1ST DIGIT → 2ND DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	9	=	—	NOT USED	NOT USED	NOT USED
6	2	+	A	B	C	D	E	F	G
7	3	H	I	I	•	)	+ NOT USED	+ NOT USED	+ NOT USED
4	4	—	J	K	L	M	N	O	P
5	5	Q	R	R	\$	*	— NOT USED	— NOT USED	— NOT USED
2	6	BLANK SYMBOL	/	S	T	U	V	W	X
3	7	Y	Z	Z	,	(	0 NOT USED	0 NOT USED	0 NOT USED

7030 PRINTER

1ST DIGIT → 2ND DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	▽	NOT USED	NOT USED	NOT USED
6	6	+	A	B	C	D	E	F	G
7	7	H	I	+	•	)	NOT USED	NOT USED	NOT USED
4	4	—	J	K	L	M	N	O	P
5	5	Q	R	—	\$	*	NOT USED	NOT USED	NOT USED
2	2	BLANK SYMBOL	/	S	T	U	V	W	X
3	3	Y	Z	≠	,	(	NOT USED	NOT USED	NOT USED

160 A PRINTER

1ST DIGIT
2ND DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	≠	≤	'	[
6	6	+	A	B	C	D	E	F	G
7	7	H	I	<	•	)	≥	?	;
4	4	—	J	K	L	M	N	0	P
5	5	Q	R	%	\$	*	↑	↓	>
2	2	BLANK SYMBOL	/	S	T	U	V	W	X
3	3	Y	Z	]	,	(	→	≡	~

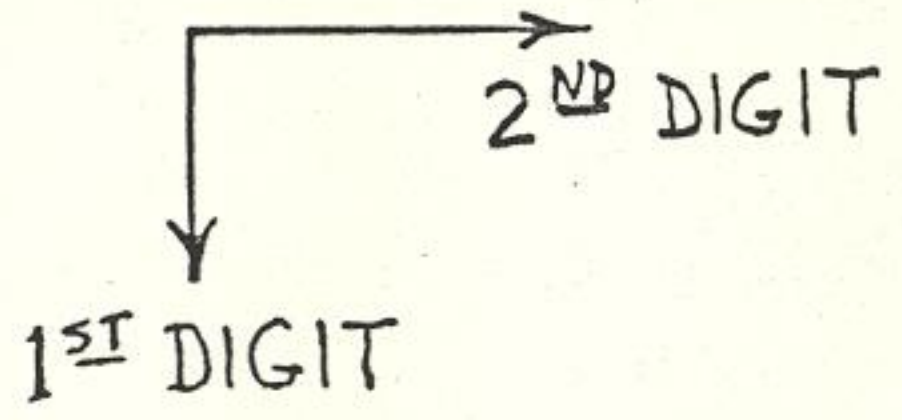
3600 PRINTER

2ND DIGIT

1ST DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	≠	≤	%	[
6	2	+	A	B	C	D	E	F	G
7	3	H	I	<	•	)	≥	¬	;
4	4	—	J	K	L	M	N	O	P
5	5	Q	R	✓	\$	*	↑	↓	>
2	6	BLANK SYMBOL	/	S	T	U	V	W	X
3	7	Y	Z	]	,	(	→	≡	^

6600 PRINTER (ASCII)



CORE OCTAL CODE	0	1	2	3	4	5	6	7
0	BLANK SYMBOL	!	"	#	\$	%	&	'
1	(	)	*	+	,	-	.	/
2	0	1	2	3	4	5	6	7
3	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G
5	H	I	J	K	L	M	N	O
6	P	Q	R	S	T	U	V	W
7	X	Y	Z	[	\	]	↑	←

6600 PRINTER

(NOT ASCII)

1ST DIGIT 2ND DIGIT

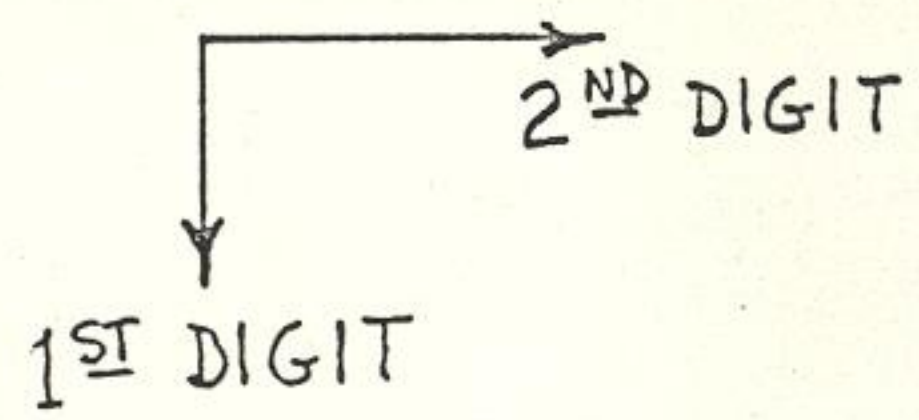
TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	:	1	2	3	4	5	6	7
1	1	8	9	0	=	≠	≤		[
6	6	+	A	B	C	D	E	F	G
7	7	H	I	<	•	)	≥	?	;
4	4	—	J	K	L	M	N	O	P
5	5	Q	R	✓	7	*	↑	↓	>
2	2	BLANK SYMBOL	/	S	T	U	V	W	X
3	3	Y	Z	]	,	(	→	≡	^

PDP-1 PRINTER

1ST DIGIT → 2ND DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	~	]	[	;
6	6	+	A	B	C	D	E	F	G
7	7	H	I	π	•	)	→	λ	Λ
4	4	—	J	K	L	M	N	θ	P
5	5	Q	R	Σ	π	*	>	η	Δ
2	2	BLANK SYMBOL	/	S	T	U	V	W	X
3	3	Y	Z	:	,	(	<	ρ	∇

PDP-6 PRINTER



TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	↑	NOT USED	NOT USED	NOT USED
6	6	+	A	B	C	D	E	F	G
7	7	H	I	+	•	)	NOT USED	NOT USED	NOT USED
4	4	—	J	K	L	M	N	O	P
5	5	Q	R	—	\$	*	NOT USED	NOT USED	NOT USED
2	2	BLANK SYMBOL	/	S	T	U	V	W	X
3	3	Y	Z	≠	,	(	NOT USED	NOT USED	NOT USED

DD-80 A

2ND DIGIT (Attached to the 7094 & 160 A)1ST DIGITUPPER CASE SET
LOWER CASE SET

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
		β	γ	NOT USED	ε	θ	υ	τ	φ
1	1	8	9	≡	=	~	]	[	▽
		χ	ψ	ω	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED
6	2	+	A	B	C	D	E	F	G
		NOT USED	a	b	c	d	e	f	g
7	3	H	I	π	•	)	→	λ	Λ
		h	i	✓	6	{	}	γ	[
4	4	—	J	K	L	M	N	O	P
		]	j	k	l	m	n	o	p
5	5	Q	R	Σ	\$	*	>	η	Δ
		q	r		\	↑	↓	←	∫
2	6	BLANK SYMBOL	/	S	T	U	V	W	X
		%	;	s	t	u	v	w	x
3	7	Y	Z	:	,	(	<	ρ	ℓ
		y	z	?	SEE NOTE M1	SEE NOTE M2	SEE NOTE M3	SEE NOTE M4	SEE NOTE M5

NOTEFive lower case positions have been
usurped for modes of operation.

DD-80 C

(Attached to the 6600)

1ST DIGIT → 2ND DIGIT

UPPER CASE SET
LOWER CASE SET

CORE OCTAL CODE	0	1	2	3	4	5	6	7
0	BLANK SYMBOL ≤	SEE NOTE	SEE NOTE	SEE NOTE	\$ ≡	% Σ	& Λ	' V
1	(ℓ	) β	* γ	+ δ	, ε	- ~	. ≥	/
2	0 Δ	1 ▽	2 λ	3 μ	4 ν	5 (	6)	7 π
3	8 ρ	9 σ	: τ	; θ	< φ	= ≠	> ψ	? ω
4	@ s	A a	B b	C c	D d	E e	F f	G g
5	H h	I i	J j	K k	L l	M m	N n	O o
6	P p	Q q	R r	S s	T t	U u	V v	W w
7	X x	Y y	Z z	[{	\ 	] }	↑ ↓	← →

NOTE

- These positions have been usurped for modes of operation.

RADIATION PRINTER

2ND DIGIT

1ST DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	~	]	[	▽
6	2	+	A	B	C	D	E	F	G
7	3	H	I	π	•	)	→	λ	Λ
4	4	—	J	K	L	M	N	O	P
5	5	Q	R	Σ	\$	*	>	η	Δ
2	6	BLANK SYMBOL	/	S	T	U	V	W	X
3	7	Y	Z	:	,	(	<	ρ	ℓ

SC-5000 PRINTER

2ND DIGIT

1ST DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	0	=	~	]	[	▽
6	2	+	A	B	C	D	E	F	G
7	3	H	I	π	•	)	→	λ	Λ
4	4	—	J	K	L	M	N	0	P
5	5	Q	R	Σ	\$	*	>	η	Δ
2	6	BLANK SYMBOL	/	S	T	U	V	W	X
3	7	Y	Z	:	,	(	<	ρ	ℓ

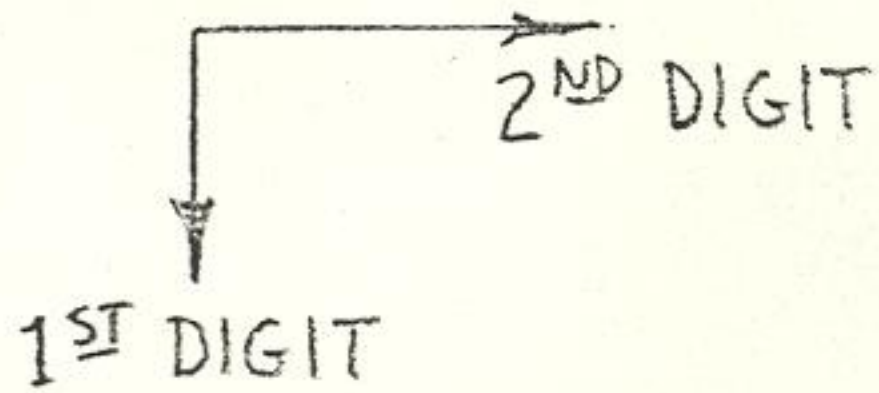
COLUMN PUNCH ON CARD VS OCTAL CODE

2ND DIGIT

 1ST DIGIT

TAPE OCTAL CODE ↓	CORE OCTAL CODE ↓	0	1	2	3	4	5	6	7
0	0	0	1	2	3	4	5	6	7
1	1	8	9	2 8	3 8	4 8	5 8	6 8	7 8
6	2	12	12 1	12 2	12 3	12 4	12 5	12 6	12 7
7	3	12 8	12 9	12 2 8	12 3 8	12 4 8	12 5 8	12 6 8	12 7 8
4	4	11	11 1	11 2	11 3	11 4	11 5	11 6	11 7
5	5	11 8	11 9	11 2 8	11 3 8	11 4 8	11 5 8	11 6 8	11 7 8
2	6	unpunched	0 1	0 2	0 3	0 4	0 5	0 6	0 7
3	7	0 8	0 9	0 2 8	0 3 8	0 4 8	0 5 8	0 6 8	0 7 8

LARC PRINTER



CORE DECIMAL CODE	0	1	2	3	4	5	6	7	8	9
0										
1							BLANK SYMBOL	—		
2	0	1	2	3	4	5	6	7	8	9
3			=	~	(	SEE NOTE	9	•		
4	▽	A	B	C	D	E	F	G	H	I
5			<							
6	)	J	K	L	M	N	O	P	Q	R
7			>	*				:		
8	+	/	S	T	U	V	W	X	Y	Z
9			Δ							

NOTE

This position usurped for
control of hardware.

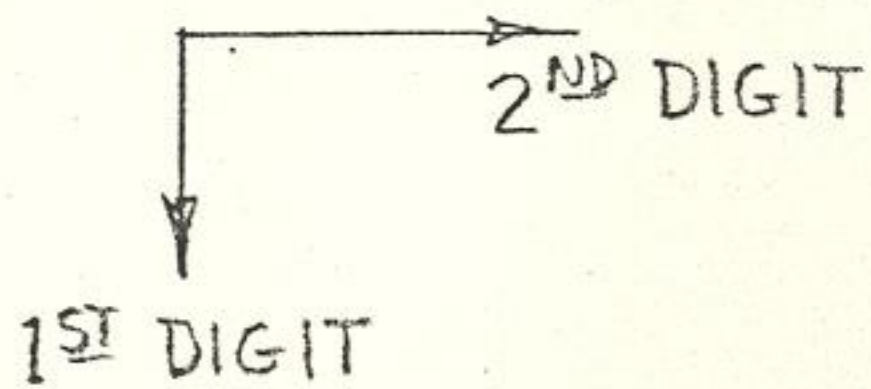
ELECTRONIC PAGE RECORDER (CRT)

CORE DECIMAL CODE	0	1	2	3	4	5	6	7	8	9
0										
1						SEE NOTE	BLANK SYMBOL	—		
2	0	1	2	3	4	5	6	7	8	9
3			=	~	(	SEE NOTE	,	.		
4	▽	A	B	C	D	E	F	G	H	I
5			<	ρ	π	∠	]	[		
6	)	J	K	L	M	N	O	P	Q	R
7			>	*	→	Σ	η	:		
8	+	/	S	T	U	V	W	X	Y	Z
9			Δ	λ	□					

NOTE

This position usurped for control of hardware.

COLUMN PUNCH ON CARD vs DECIMAL CODE



CORE DECIMAL CODE	0	1	2	3	4	5	6	7	8	9
0										
1						12 7 8	un- punched	11		
2	0	1	2	3	4	5	6	7	8	9
3			3 8	4 8	0 4 8	SEE NOTE	0 3 8	12 3 8		
4	7 8	12 1	12 2	12 3	12 4	12 5	12 6	12 7	12 8	12 9
5			0 5 8	11 4 8 4 8 8	11 4 8 3 8 8	0 7 8				
6	12 4 8	11 1	11 2	11 3	11 4	11 5	11 6	11 7	11 8	11 9
7			11 5 8	11 4 8	12 5 8			0 2 8		
8	12	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9
9			11 7 8							

NOTE

This position usurped for control of hardware.

April 1, 1965

CHARACTER SETS

A tabulation of PRINTER and CRT-FILM character
sets at LRL-Livermore.

DONALD BRAFF

Scientific Information Systems Group

ACKNOWLEDGMENTS:

Cooperation and suggestions from the following people
have gone into the preparation of this tabulation.

Alex Cecil
Judith Ford
Glenn Hage
Kenneth Hill
John Ranelletti
Edward Schoonover

DIST.CODE		DRAWING NO.		ELECTRONICS ENGINEERING DEPARTMENT LAWRENCE RADIATION LABORATORY UNIVERSITY OF CALIFORNIA LIVERMORE, CALIFORNIA		UNLESS OTHERWISE SPECIFIED: CAPACITORS 500 WVDC, RESISTORS = CARBON ___W ±5%, C>1 μμF C<1=μF, R=OHMS, L=μh, SYMBOLS - ASA					DRAWN _____ CH'D _____ APPD _____ ORIG _____ DATE _____	
FILING REFERENCE						CHANGE	APPD	DRAWN	DATE	CHANGES		
TITLE CHARACTER CORRESPONDENCE - IBM ↔ LARC												
IBM CHAR.	I.B.M. TAPE CODE (Odd Mode) C BA8421			LARC NUM. 1-DIGIT CODE (MEMORY)	LARC ALPHA 2-DIGIT CODE	EPR		OLP		CP		SC 5000
						NUM.	ALPHA	NUM.	ALPHA	UPPER CASE	LOWER CASE	
.	73	1	111011	01000	37	.	.	.	.	.	.	.
-	40	1	100000	10000	17	-	-	-	-	-	-	-
0	12	0	001010	00010	20	0	0	0	0	0	0	0
1	01	1	000001	10011	21	1	1	1	1	1	1	1
2	02	1	000010	00001	22	2	2	2	2	2	2	2
3	03	0	000011	10101	23	3	3	3	3	3	3	3
4	04	1	000100	00100	24							
5	05	0	000101	11010	25							
6	06	0	000110	01011	26							
7	07	1	000111	11001	27							
8	10	1	001000	01101	28							
9	11	0	001001	11100	29	9	9	9	9	9	9	9
A	61	1	110001	Untrans.	41							
B	62	1	110010		42		A		A		A	A
C	63	0	110011		43		B		B		B	B
D	64	1	110100		44		C		C		C	C
E	65	0	110101		45							
F	66	0	110110		46							
G	67	1	110111		47							
H	70	1	111000		48							
I	71	0	111001		49							
J	41	0	100001		61							
K	42	0	100010		62							
L	43	1	100011		63							
M	44	0	100100		64							
N	45	1	100101		65							
O	46	1	100110		66							
P	47	0	100111		67							
Q	50	0	101000		68							
R	51	1	101001		69							
S	22	0	010010		82							
T	23	1	010011		83							
U	24	0	010100		84							
V	25	1	010101		85							
W	26	1	010110		86							
X	27	0	010111		87							
Y	30	0	011000		88							
Z	31	1	011001		89							

CARD PUNCH

PDP-1 PRINTER

BLANK

01 BLANK

11 -

02 -

1 1
2 2
3 3
4 4
5 5
6 6
7 7

04 1
05 2
06 3
07 4
10 5
11 6
12 7

11-1 J
11-2 K
11-3 L
11-4 M
11-5 N
11-6 O
11-7 P

44 J
45 K
46 L
47 M
50 N
51 O
52 P

8 8
1-8 9
2-8 (?) *
3-8 =
4-8 ~
5-8 I
6-8 E
7-8 V *

13 8
14 9
61 π
15 =
16 ~
41 I
42 E
00 V

11-8 Q
11-1-8 R
11-2-8 \$
11-3-8 \$
11-4-8 *
11-5-8 >
11-6-8 g
11-7-8 Δ

53 Q
54 R
76 λ
77 β
56 *
55 >
23 g
75 Δ

12-1 A
12-2 B
12-3 C
12-4 D
12-5 E
12-6 F
12-7 G

63 +
24 A
25 B
26 C
27 D
30 E
31 F
32 G

φ φ
φ-1 /
φ-2 S
φ-3 T
φ-4 U
φ-5 V
φ-6 W
φ-7 X

03 φ
64 /
65 S
66 T
67 U
70 V
71 W
72 X

12-8 H
12-1-8 I
12-2-8 II
12-3-8 °
12-4-8)
12-5-8 →
12-6-8 I *
12-7-8 Λ

33 H
34 I
37 II
22 °
43)
57 →
60 Σ
20 Λ

φ-8 Y
φ-1-8 Z
φ-2-8 g
φ-3-8 9
φ-4-8 (
φ-5-8 <
φ-6-8 7
φ-7-8 x

73 Y
74 Z
62 g
21 9
17 (
35 <
36 ρ
40 x

	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	≡	=	~	]	[	▽	+	A	B	C
2	D	E	F	G	H	I	π	.	)	→
3	λ	^	-	J	K	L	M	N	O	P
4	Q	R	Σ	\$	*	>	h	Δ	SPACE	/
5	S	T	U	V	W	X	Y	Z	:	,
6	(	<	ρ	α	β	γ		ε	θ	↘
7	τ	φ	χ	ψ	ω					
8		a	b	c	d	e	f	g	h	i
9	v	°	{	}	'	⊂	⊃	j	k	l
10	m	n	o	p	q	r		\	↑	↓
11	←	∫	%	;	s	t	u	v	w	x
12	y	z	?	(move) M1	(type) M2	(vector) M3	(frame) M4	(print) M5		
	0	1	2	3	4	5	6	7	8	9

DECIMAL CODE FOR DD80A
CHARACTERS

	0	1	2	3	4	5	6	7
0	b	1	2	3	4	5	6	7
1	□	v	1	b	2	-	3	φ
2	0	φ	1	1	2	2	3	3
3	8	9	φ	=	!			
4	8	5	9	6	φ	7	=	8
5	8	9	9	2	8	3	=	4
6	±	/	S	T	U	V	-	W
7	b	Λ	/	9	S	•	T	;
8	12	+	12/1	A	12/2	B	12/3	C
9	Y	Y	z	±	,	(		
10	Y	E	Z	F	:	G	,	H
11	12/8	H	12/9	1	12/2	φ	12/3	•
12	-	J	K	L	M	N	O	P
13	-	α	J	] K	[L	) M	J N	K O
14	-	11/1	J	11/2	K	11/3	L	11/4
15	Q	R	-	\$	*			
16	Q	N	R	O	b	P	\$	Q
17	11/8	Q	11/9	R	11/2	φ	11/3	\$
18	+	H	B	C	D	E	F	G
19	+	Σ	A	λ	B	:	C	+
20	b	0	/	0	2	S	0	3
21	H	I	+	•	)			
22	H	V	I	W	π	X	•	Y
23	0	Y	0	9	Z	0	2	8
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
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77								
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80								
81								
82								
83								
84								
85								
86								
87								
88								
89								
90								
91								
92								
93								
94								
95								
96								
97								
98								
99								
100								

00	blank	0000
01		
02		
03		
4	\$	2102
5		
6		
7	~	0022
10	(	4022
1	)	2022
2	*	2042
3	+	4012
4	~	1102
5	-	2000
6	.	4102
7	/	1400
20	φ	1000
1	1	0400
2	2	0200
3	3	0100
4	4	0040
5	5	0020
6	6	0010
7	7	0004
30	8	0002
1	9	0001
2		
3		
4		
5		
6		
7		

90		
1	A	4400
2	B	4200
3	C	4100
4	D	4040
5	E	4020
6	F	4010
7	G	4004
50	H	4002
1	I	4001
2	J	2400
3	K	2200
4	L	2100
5	M	2040
6	N	2020
7	O	2010
60	P	2004
1	Q	2002
2	R	2001
3	S	1200
4	T	1100
5	U	1040
6	V	1020
7	W	1010
70	X	1004
1	Y	1002
2	Z	1001
3		
4		
5		
6	Λ	0202
77		

[illegible]

U.C.R.R.L. MULTI PURPOSE CARD

[illegible]