

# 1401 BCD Encodings in ASCII and Tables for Addressing above 1K

The following pages have tables of:

- Pierce Primary (A chain) BCD encoding,
- Pierce Alternative (H chain) BCD encoding, and
- Traditional SimH BCD encoding.

Each table includes a Secret Decoder Ring for addressing above 1k.

Page 2 has six copies of Pierce Primary encoding; page 3 has six copies of Pierce Alternative encoding; page 4 has six copies of SimH encoding.

If you print pages 2 and 3 duplex and page 4 simplex, you can laminate the sheets and cut each one into six pieces, giving shirt-pocket size reference cards for the three encodings.

Page 5 has two copies of all three encodings, but even if cut in half each set of tables is a bit too large for a shirt-pocket reference.

Page 6 has three copies of the Pierce encodings, while page 7 has three copies of the SimH encoding, with space for one table below each. If you print pages 6 and 7 duplex and laminate the sheet, you can cut it into three shirt-pocket size reference cards with Pierce encodings one one side and SimH encodings on the other.

Notes:

Zero (0) is represented internally as C82 but punched as 0.

Record mark ( $\perp$  on 1403, | in Pierce encodings, ' in SimH encoding) is represented internally as A82 but is punched as 0-2-8 — because 0 can't simultaneously be used for A and 82.

The A bit alone (^ ) has no input punch on 1401 without a free RPQ (which number I've forgotten). With the RPQ or on 1410 it's 2-8. It might punch as 0.

— Van Snyder  
23 March 2010

**Pierce Primary (A chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	_	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Primary (A chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	_	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	_	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	_	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	_	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	_	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Alternative (H chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

### Traditional SimH BCD Encoding

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
						Core Digit Bits								1	2	3	4	5	6	7		
		none	A	B	AB	0	1	2	3	4	5	6	7	8	8	8	8	8	8			
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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						Core Digit Bits								1	2	3	4	5	6	7		
		none	A	B	AB	0	1	2	3	4	5	6	7	8	8	8	8	8	8			
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
						Core Digit Bits								1	2	3	4	5	6	7		
		none	A	B	AB	0	1	2	3	4	5	6	7	8	8	8	8	8	8			
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
						Core Digit Bits								1	2	3	4	5	6	7		
		none	A	B	AB	0	1	2	3	4	5	6	7	8	8	8	8	8	8			
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

### Traditional SimH BCD Encoding

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
						Core Digit Bits								1	2	3	4	5	6	7		
		none	A	B	AB	0	1	2	3	4	5	6	7	8	8	8	8	8	8			
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

### Traditional SimH BCD Encoding

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
						Core Digit Bits								1	2	3	4	5	6	7		
		none	A	B	AB	0	1	2	3	4	5	6	7	8	8	8	8	8	8			
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

**Pierce Primary (A chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Alternative (H chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Traditional SimH BCD Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Alternative (H chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Traditional SimH BCD Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8		
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

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		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8		
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Primary (A chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8		
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Alternative (H chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8		
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Primary (A chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8		
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	%	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

**Pierce Alternative (H chain) Encoding**

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits							1	2	3	4	5	6	7			
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8		
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	=	'	:	>	{		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z		,	(	~	\	"	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	+	A	B	C	D	E	F	G	H	I	?	.	)	[	<	}	

### Traditional SimH BCD Encoding

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

**Notes:**

Zero (0) is represented internally as C82 but punched as 0.

Record mark (⊕ on 1403, | in Pierce encodings, ' in SimH encoding) is represented internally as A82 but is punched as 0-2-8 — because 0 can't simultaneously be used for A and 82.

The A bit alone (^) has no input punch on 1401 without a free RPQ (which number I've forgotten). With the RPQ or on 1410 it's 2-8. It might punch as 0.

### Traditional SimH BCD Encoding

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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### Traditional SimH BCD Encoding

Card Zone Row	Core Units Zone	Core Hundreds Zone				1	2	3	4	5	6	7	8	9	0	Card Row Punch						
		none	A	B	AB	Core Digit Bits								1	2	3	4	5	6	7		
						0	1	2	3	4	5	6	7	8	8	8	8	8	8	8	8	
none	none	0	1	2	3	1	2	3	4	5	6	7	8	9	0	#	@	:	>	(		
0	A	4	5	6	7	^	/	S	T	U	V	W	X	Y	Z	'	,	%	=	\	+	
11	B	8	9	10	11	-	J	K	L	M	N	O	P	Q	R	!	\$	*	]	;	-	
12	AB	12	13	14	15	&	A	B	C	D	E	F	G	H	I	?	.	)	[	<	"	

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