SCANTEAM® 8310

MICR Check Reader

Programming

Manual

UIC

SCANTEAM 8310/PM Series Programming Manual

USE THIS PAGE

As a general overview of the programming manual. The programming manual consists of two basic components as shown below.

SAMPLE MENU PAGE

BAR CODE CHART

MENU PAGE

- Each menu page represents one section of the programming manual. Use individual menu pages in combination with the bar code chart on the back page foldout, or MICR encoded programming checks, to program the check reader.

- **ENTER –** Each menu page has its own unique ENTER bar code; scan this bar code or feed through the equivalent programming check to activate desired menu page.

- **DEFAULT –** Most menu pages have a DEFAULT bar code/MICR encoded check which allows the user to independently default menu pages to asterisked (*) values without affecting, in any way, the rest of the programming menu. Default values can be easily selected from the desired menu pages by reading the bar code or MICR encoded check sequence ENTER, DEFAULT, EXIT. Individual defaults for a specific selection can be made by reading ENTER, ROMAN NUMERAL, DEFAULT, EXIT.

- **EXIT –** To move from one menu page to another, read the EXIT bar code or programming check. The EXIT bar code or programming check must be read to end programming selection on each menu page before beginning to program on a different menu page.

- **SELECTIONS/VARIABLES –** Lists all of the options available on each menu page. Following each option are symbols in shaded areas. These symbols correspond to both the bar codes on the adjoining bar code chart and to the MICR encoded programming checks.

- **NOTES –** are provided to call out any unusual situations and/or refer you to necessary information or examples elsewhere in the menu or manual.

MENU PAGE FACING (Not Shown)

- The page facing the menu is often used to supplement or clarify the material presented on the front of each menu page. The information and examples found here are specific to the individual menu page and contain, in some cases, charts and diagrams that must be used in order to determine the correct programming sequence.

BAR CODE DATA CHART/MICR ENCODED PROGRAMMING CHECKS

- The bar codes and MICR encoded programming checks are assigned to a ROMAN NUMERAL, DIGIT, LETTER or YES/NO symbol. These bar codes and checks correspond to the symbols in shaded areas on the menu pages and are read in various combinations to enter programming sequences to the check reader. Bar codes and programming checks are meaningless unless an ENTER bar code/programming check from one of the menu pages is first read. When an ENTER bar code/programming check is read, the bar code chart/programming checks become specific to that menu page and remain so until the EXIT bar code/programming check is read or another menu page is selected.

ESCAPE

- Scan the ESCAPE bar code or feed through the ESCAPE programming check to cancel the current programming sequence. All other parameters will remain as they were.

PROGRAMMING INSTRUCTIONS

Getting Started

The SCANTEAM 8310 can be programmed using several methods. You may use MICR (Magnetic Ink Character Recognition) encoded programming checks, or you can use a decoded output SCANTEAM RS-232 bar code reader such as a laser scanner or a wand.

The Programming Instructions walk you through the steps for programming the SCANTEAM 8310 using Plug-n-Play and single programming checks (beginning on page 3) and using SCANTEAM RS-232 bar code readers (page 5).

If you have multiple SCANTEAM 831 0s, you can program one 8310, then download the programming to the other 831 0s. This method is called "cloning" and is described on page 6.

Note: *Select the Software Download button. When prompted, enter the user name: **pumpkin** and the password: **pie.** New firmware may be loaded into a SCANTEAM 8310 through UIC's PC-based software tool caled "Quick*Load~." (SCANTEAM 8310 software version 3.0 and higher can only use Quick*Load version 2.50 and higher.) Quick*Load may also be used to transfer parameters from one SCANTEAM 8310 to another. Please refer to your Quick*Load User's Guide for complete directions on using Quick*Load with your 8310.*

Regardless of the method you use to program your SCANTEAM 8310, you will need the following items:

> SCANTEAM 8310 Check Reader
>
> Power Source (PS120/9V wall transformer if the SCANTEAM 8310 is *not* powered by the host)

Note: *Please refer to page 7 for a listing of UIC part numbers for products mentioned in these instructions.*

If you are going to program your SCANTEAM 8310 using programming checks, you will need one or both of the following items:

> SCANTEAM 8310 Plug~n~Play checks.
>
> SCANTEAM 8310 Programming Checks.

If you are going to program your SCANTEAM 8310 using a decoded output SCANTEAM RS-232 bar code reader, you will need the following items:

> Any UIC RS-232 bar code reader (i.e., wand or laser scanner) which is terminated in a DB-9 female type host connector and includes an external power (EP) connector.
>
> 8310 Bar Code Programming Adapter cable which converts a DB-9 connector to a DB-15 connector.
>
> Power pack for the bar code reader. (If a UIC #6180/B-25Q5N wand is used, the power pack is not required.)
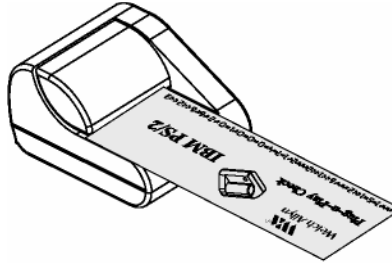
If you are going to clone the firmware (including any programmed parameters) from one SCANTEAM 8310 to another 8310, you will need the following items:

> Cloning cable and Clone Check. (The Clone Check is included in the packet of 8300/PC-2 programming checks.)

PROGRAMMING INSTRUCTIONS
Continued

Using Plug~n~Play Checks

Plug-n-Play checks are the large blue checks which note the Terminal ID and programming parameters on the check face.

If you use one of the following interfaces, you can use a Plug-n-Play check to program the Terminal ID and parameters required to communicate with your interface:

> IBM PS/2
> IBM PC, XT
> IBM PC, AT or Compatibles
> RS-232
> Wand Emulation Code 3 of 9
> Wand Emulation Code 128

Note: *If your interface is not listed above, you must use the single programming checks to program the Terminal ID and al other parameters (see page 4). You cannot use a Plug-n-Play check.*

To add more detailed programming, you must use the single programming checks or a SCANTEAM RS-232 bar code reader.

Note to CMC–7 users: *If the SCANTEAM 8310 has been programmed to decode only CMC–7 characters, you must first set it to decode the E–13B characters on the Plug-n-Play Check. To do so, feed through the "CMC-7 Conversion" check from the 8300/PC-2 programming check packet. The SCANTEAM 8310 temporarily decodes E–13B characters until the Plug-n-Play check has been read, then the SCANTEAM 8310 reverts to decoding only CMC-7 characters.*

Note: *If you are using a SCANTEAM 8310 which has already been programmed for one interface and you wish to re-program it for a different interface, you must first clear al existing parameters. To clear a l parameters, feed through the **Master Default** check from the 8310/PC-1 Plug-n-Play check packet. After the parameters have been cleared, you may program the new interface using the following steps.*

1. If you are programming the SCANTEAM 8310 using a Plug-n-Play check, select the check which lists your interface (e.g., IBM PS/2).

2. Feed the Plug-n-Play check into the check reader.

2 beeps followed by 2 low tone beeps means the programming was successful.
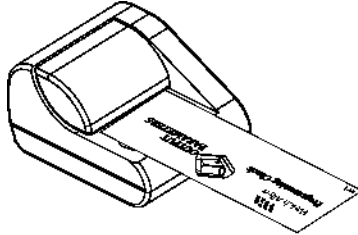
3. Turn the power to the check reader off and then back on.

PROGRAMMING INSTRUCTIONS

Continued

Using Single Programming Checks

The single programming checks (from the 8300/PC-2 programming check packet) are used in conjunction with the programming pages which follow these instructions. The single programming checks take the place of scanning bar codes with an RS-232 bar code reader, described on page 5.

Programming Example

The following is an example of programming the 8310 to output a Carriage Return suffix using programming checks.

Note to CMC–7 users: *If the SCANTEAM 8310 has been programmed to decode only CMC–7 characters, you must first set it to decode the E–13B characters on the Programming Checks. To do so, feed through the "CMC-7 Conversion" check. The SCANTEAM 8310 temporarily decodes E–13B characters until the End Programming check has been read, then the SCANTEAM 8310 reverts to decoding only CMC-7 characters.*

1. Turn to page 17 and review the Output Parameters programming table.

Note that every option in the Programming Manual begins with an "Enter" bar code. Page 17 shows the Output Parameters Enter bar code. The programming check with the option name (e.g., Output Parameters Enter) is your "Enter" code.

To program a carriage return suffix, you must use the ENTER, XI, 7, 4, 0, D, F, F, and EXIT checks.

2. Have available the programming checks for OUTPUT PARAMETERS ENTER, XI, 7, 4, 0, D, F, Exit, and End Programming.

3. Feed the OUTPUT PARAMETERS ENTER check into the check reader.

After you hear 2 beeps and the LED displays a solid light, the SCANTEAM 8310 is ready to accept the variables for your output parameters.

4. Feed through the XI, 7, 4, 0, and D checks.

Note: *Each time a variable check is fed through, you should hear a single beep from the reader. If an error occurs during programming, you wil not get an error beep sequence (2 beeps) until the End of Programming check has been read.*

5. Feed the F check through two times.

6. Feed through the Exit check.

7. Feed through the End Programming check.

A single beep followed by 2 low tone beeps means the programming was successful.

If you hear 2 beeps after feeding through the End Programming check, a programming error has occurred. Begin the programming again, starting with the Output Parameters check.

8. Turn the power to the check reader off and then back on.

Using the method just described, program the parameters necessary for your SCANTEAM 8310. Begin at page 9 if you need to program the Terminal ID, or at page 12 if you programmed your Terminal ID with a Plug-n-Play check.

Programming the SCANTEAM 8310 Using a SCANTEAM RS-232 Bar Code Reader

Setting Up a SCANTEAM 6180 Wand
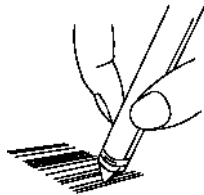
If you are using a SCANTEAM 6180 wand to program the check reader, you will need the bar code programming adapter cable and the SCANTEAM 6180 Programming Manual. (The cable automatically sets the baud rate and parity of the SCANTEAM 8310 to 9600, E, 7, 1.) The Code ID prefix and the Carriage Return suffix for the 6180 wand must be removed before using the wand to program the 8310 check reader.

Note: *If you are using any other SCANTEAM wand, skip this procedure and go to the programming example below.*

Using the following steps, remove the Code ID prefix and the Carriage Return suffix.

1. With the power off, connect the programming cable to the SCANTEAM 8310.

2. Connect the 6180 wand to the programming cable and power up the SCANTEAM 8310.

   During the programming sequence, the wand will emit single beeps. If at any time during programming the 6180 wand detects an error, you will hear 3 beeps. To correct, simply begin scanning the variable bar codes once more in proper sequence.

3. Scan the Enter bar code in the Input/Output Parameters Format section.

4. Scan the Default bar code.

5. Scan the III and IV bar codes from the fold-out page in the back cover.

6. Scan the Exit bar code.

7. Turn the power to the check reader off and then back on.

Two low tone beeps from the wand means the programming was successful, and the Code ID prefix and the Carriage Return suffix for the wand have been removed.

Using a SCANTEAM Wand to Program the 8310 Check Reader
Programming Example

The following is an example of using a SCANTEAM wand to program the SCANTEAM 8310 to output a Carriage Return suffix for E-1 3B symbology only. (To program a Carriage Return suffix for *all* symbologies, please see Example #2 on page 14.)

1. Turn to page 17.

2. Scan the Enter code.

   After you hear 2 beeps and the LED displays a solid light, the SCANTEAM 8310 is ready to accept the variables for your output parameters.

3. Open the fold-out page in the back cover. Scan the bar codes for XI, 7, 4, 0(yes), then D.

PROGRAMMING INSTRUCTIONS
Continued

During the programming sequence, the wand will emit single beeps. If at any time during programming the SCANTEAM wand detects an error, you will hear 3 beeps. To correct, simply begin scanning the variable bar codes once more in proper sequence.

4.   Scan the F bar code two times.

5.   Scan the Exit bar code.

6.   Turn the power to the check reader off and then back on.

Two low tone beeps from the wand means the programming was successful, and a carriage return suffix has been added to the 8310 output parameters.

Using the method just described, program the parameters necessary for your SCANTEAM 8310 using the SCANTEAM wand.

Using Other SCANTEAM RS-232 Bar Code Readers

Any other SCANTEAM RS-232 bar code reader used to program the SCANTEAM 8310 must be defaulted to RS-232 protocol. It also must use an external power (EP) cable and an EP power pack, dedicated to supplying power only to the scanner. You must also use the 8310 bar code programming adapter cable to convert the DB-9 connector to a DB-1 5 connector.

Once these requirements have been met, you may follow the Programming Example on page 5. The beep sequence for correct scans and errors is the same as for a SCANTEAM wand.

Cloning Instructions

The SCANTEAM 8310 check reader includes a cloning capability which provides a way to download the memory contents from a "source" 8310 to any additional ("destination") SCANTEAM 831 0s.

1.   Program the SCANTEAM 8310 source reader using any programming method.

2.   Connect the cloning cable (part number 42205383–01) to the 15 pin port on the 8310 source reader.

3.   Power up the 8310 source reader.

4.   Plug the other end of the cloning cable into the 8310 destination reader.

The power will be carried through the cable to power up the destination SCANTEAM 8310 automatically.

Note to CMC–7 users: If the SCANTEAM 8310 has been programmed to decode only CMC–7 characters, you must first set it to decode the E–13B characters on the Clone Check. To do so, feed through the "CMC-7 Conversion" check. The SCANTEAM 8310 temporarily decodes E–13B characters until the Clone Check has been read, then the SCANTEAM 8310 reverts to decoding only CMC-7 characters.

5.   Feed the **Clone Check** through the 8310 source reader.

The 8310 source reader will emit a single beep. The source 8310 sends (512) 64 byte blocks of information followed by a block check character. This takes approximately 15 seconds. After 15 seconds, you will hear 3 beeps from the 8310 source and a single beep from the 8310 destination reader. This indicates the programming was received by the 8310 destination reader. Disconnect the cable from the 8310 destination reader which is now ready for operation.

Note: ROM and RAM tests are performed in the destination reader. If the destination 8310 fails the ROM and/or RAM tests, you wil hear three beeps (five if both tests fail).

PROGRAMMING INSTRUCTIONS
Continued

If you have additional SCANTEAM 8310 check readers to clone, you do not have to disconnect the 8310 source. Simply connect an 8310 destination reader to the cloning cable and run the Clone Check through the 8310 source reader. This method may be used to copy memory from the source reader to each destination reader.

UIC Part Numbers

Item	UIC Part #
SCANTEAM 8310 Plug-n-Play Checks	8310/PC-1
SCANTEAM 8310 Programming Checks	8300/PC-2
8310 Bar Code Programming Adapter Cable, DB9 to DB15	42205384-01
8310 to 8310 Cloning Cable, DB-15M to DB-15M	42205383-01
SCANTEAM 6180 Power Pack (not necessary if using a 6180/B-25Q5N wand)	PS5/C
Quick*Load User's Guide	QL/UG
SCANTEAM 6180 Programming Manual	6180/PM
8300 & 8310 Bootstrap Download Adapter Cable, DB–1 5M to DB–1 5F	42205385–01
6180 Wand Scanner	61 80/B-25Q5N

TERMINAL
SELECTION

TERMINAL SELECTION

Use the bar codes on the following page to program the SCANTEAM 8310 to work with your terminal.

8310

selections		variables	scan
IBM		PS/2, 25, 30, 55SX, 70	02
		AT, PS/2 30–286, 50, 55SX, 60, 70, 80	03
	102 key	3151, 3161, 3162, 3163, 3191, 3192, 3196, 3197, 3471, 3472, 3476, 3477, 3482, 3486, 3488	06
	122 key	3179–1, 3191, 3192, 3471, 3472, 3194	07
		3196, 3197, 3476, 3477, 3482, 3486, 3488	08
		3180	24
HARRIS		H180, H191	09
NCR		7052 Wedge	48
RS–232 (PC COMM PORT)			50
TELEX	122 key	078, 078A, 79, 80, 191, 196, 1191, 1192, 1471, 1472, 1476, 1477, 1482, 1483	46
WAND EMULATION		Code 3 of 9 Output	61
WAND EMULATION		Code 128 Output	64

scan

TERMINAL
SELECTION
ENTER

scan

EXIT
END PROGRAMMING

OUTPUT
PARAMETERS

BEEPER VOLUME/TONE

This selection allows you to set the beeper volume. The following settings may be used:

High:	0190
Medium:	00F0
Low:	0080
Off:	0000

KEYBOARD STYLE 8310

If you are using one of the terminals listed below, you may program an alternate keyboard style. For example, if you have an NCR 7052 terminal with a 56 key keyboard, you would program the Keyboard Style as "B."

Terminal	Style A	Style B	Style C	Style D
IBM PC/AT	AT	CAPS LOCK	AUTO CAPS	
IBM PS2 (50–80)	NORM	CAPS LOCK		
IBM 3180 (122 Key)	T/W	D/E		
NCR 7052	34 Key	56 Key	122 Key Caps On	122 Key Caps Off

NOTE FOR IBM PC/AT

Style A – used when you normally have the CAPS LOCK key off. The character is sent as it is read. For example, an uppercase character is sent as a shifted character and a lowercase character is sent as an unshifted character.

Style B – used when you normally have the CAPS LOCK key on. The character is sent as the opposite of how it is read. For example, an uppercase character is sent as an unshifted character and a lowercase character is sent as a shifted character.

Style C – does not assume the CAPS LOCK key is in any particular state. The software tracks and reflects if CAPS LOCK is on or off. This selection can only be used with systems that have an LED that notes the CAPS LOCK status. Consequently, an uppercase or lowercase character may be sent shifted or unshifted depending upon the status of the CAPS LOCK key.

NUMBER KEY LAYOUT

You can program the type of numeric keypad layout for your keyboard.

Telephone Keypad:

1	2	3
4	5	6
7	8	9

Calculator Keypad:

7	8	9
4	5	6
1	2	3

Main Keyboard: 1 2 3 4 5 6 7 8 9

OUTPUT
PARAMETERS

scan

OUTPUT
PARAMETERS
ENTER

selections	scan	variables	scan
BEEPER VOLUME/TONE	I		0000–FFFF *(1919)
KEYBOARD STYLE	II	Style A	A*
		Style B	B
		Style C	C
		Style D	D
KEYBOARD LAYOUT	III	Telephone Keypad	A*
		Calculator Keypad	B
		Main Keyboard	C

scan

DEFAULT

* Designates default selections.

scan

EXIT
END PROGRAMMING

11

OUTPUT
PARAMETERS

INTERCHARACTER, INTERFUNCTION, AND INTERMESSAGE DELAYS

Some terminals drop information (characters) if data comes through too quickly. Intercharacter, interfunction, and intermessage delays slow the transmission of data, which increases data integrity.

Intercharacter Delay:

An intercharacter delay is a delay of up to 9999 milliseconds (in multiples of 5) which is placed between the transmission of each character of scanned data.

Scanned Data

1	2	3	4	5

Intercharacter Delay
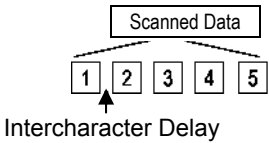
Interfunction Delay:

An interfunction delay is a delay of up to 9999 milliseconds (in multiples of 5) which is placed between the transmission of each segment of the message string.

Prefix	Scanned Data	Suffix

Interfunction Delays
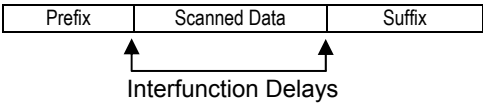
Intermessage Delay:

An intermessage delay is a delay of up to 9999 milliseconds (in multiples of 5) which is placed between each data transmission.

1st Data Transmission   **2nd Data Transmission**

Intermessage Delay

scan

**OUTPUT
PARAMETERS
ENTER**

selections	scan	variables	scan
INTERCHARACTER DELAY	**VII**	x5ms	*0000–9999
INTERFUNCTION DELAY	**VIII**	x5ms	*0000–9999
INTERMESSAGE DELAY	**IX**	x5ms	*0000–9999

* Designates default selections.

scan

DEFAULT

scan

**EXIT
END PROGRAMMING**

OUTPUT

PARAMETERS continued

PREFIX/SUFFIX

Prefixes and suffixes are characters added by the 8310 to MICR and bar code data. Prefixes and suffixes are assigned to specific symbologies. Use the Symbology Chart (on page 15) to program the symbology for for which you're adding the prefix/suffix. Use the HEX–ASCII (on page 15) to find the ASCII value to be used for programming a particular prefix or suffix.

Note for MICR Data Only:

To place the MICR error/status as a prefix/suffix, program an "EC" in place of a value from the HEX–ASCII table on page 15.

EXAMPLE: 1) To program a carriage return suffix for U PC–A symbology only, scan:

> **OUTPUT PARAMETERS ENTER, XI, 7, 4, 0, D, F, F, EXIT, END PROGRAMMING**

Where: OUTPUT PARAMETERS ENTER enters the programming mode XI
> enters suffix programming
> 74 selects E13–B symbology (see Symbology Chart on page 15.) 0D designates Carriage Return (see Hex–ASCII chart, on page 15.) FF terminates suffix programming
> EXIT, END PROGRAMMING leaves the programming mode.

EXAMPLE: 2) To program a carriage return suffix for ALL symbologies, scan:
> **OUTPUT PARAMETERS ENTER, XI, 9, 9, 0, D, F, F, EXIT, END PROGRAMMING**

Where: OUTPUT PARAMETERS ENTER enters the programming mode XI
> enters suffix programming
> 99 selects ALL symbologies (see Symbology Chart on page 15.) 0D designates Carriage Return (see HEX–ASCII chart on page 15.) FF terminates suffix programming.
> EXIT, END PROGRAMMING leaves the programming mode.

EXAMPLE: 3) To program the MICR error/status code prefix for E13–B symbology only, scan:
> **OUTPUT PARAMETERS ENTER, X, 7, 4, E, C, F, F, EXIT, END PROGRAMMING**

Where: OUTPUT PARAMETERS ENTER enters the programming mode X
> enters prefix programming
> 74 selects E13–B symbology (see page 15, Symbology Chart) EC designates MICR error/status code (MICR ERROR/STATUS Codes parameter must be programmed to single or double character in order to get any MICR error/status code output.)
> FF terminates prefix programming.
> EXIT, END PROGRAMMING leaves the programming mode

OUTPUT
PARAMETERS
continued

8310 Series Information and Examples

SYMBOLOGY CHART

SYMBOLOGY	Primary	CODE ID
HOST PORT	71	q
E13–B	74	t
Universal	99	
MSR TRACK 1	78	x
MSR TRACK 2	79	y
MSR TRACK 3	7A	z
AAMVA TRACK 1	58	X
AAMVA TRACK 2	59	Y
AAMVA TRACK 3	5A	Z
California TRACK 1	55	U
California TRACK 2	56	V
California TRACK 3	57	W
Start/End MSR Data	FD	

HEX – ASCII CHART

NUL	00	DLE	10	SP	20	0	30	@	40	P	50	'	60	p	70
SOH	01	DC1	11	!	21	1	31	A	41	Q	51	a	61	q	71
STX	02	DC2	12	"	22	2	32	B	42	R	52	b	62	r	72
ETX	03	DC3	13	#	23	3	33	C	43	S	53	c	63	s	73
EOT	04	DC4	14	$	24	4	34	D	44	T	54	d	64	t	74
ENQ	05	NAK	15	%	25	5	35	E	45	U	55	e	65	u	75
ACK	06	SYN	16	&	26	6	36	F	46	V	56	f	66	v	76
BEL	07	ETB	17	'	27	7	37	G	47	W	57	g	67	w	77
BS	08	CAN	18	(	28	8	38	H	48	X	58	h	68	x	78
HT	09	EM	19	)	29	9	39	I	49	Y	59	i	69	y	79
LF	0A	SUB	1A	*	2A	:	3A	J	4A	Z	5A	j	6A	z	7A
VT	0B	ESC	1B	+	2B	;	3B	K	4B	[	5B	k	6B	{	7B
FF	0C	FS	1C	,	2C	<	3C	L	4C	\	5C	l	6C			7C
CR	0D	GS	1D	–	2D	=	3D	M	4D	]	5D	m	6D	}	7D
SO	0E	RS	1E	.	2E	>	3E	N	4E	^	5E	n	6E	~	7E
SI	0F	US	1F	/	2F	?	3F	O	4F	_	5F	o	6F	DEL	7F

OUTPUT

PARAMETERS continued

OUTPUT MODES

Buffer Scans: If programmed as "Yes," the 8310 holds data in a buffer. This allows you to send a second check while transmitting data from the first check to the terminal.

Driver's License ID MSR: This selection allows the 8310 to try and decode the MSR tracks as a AAMVA Driver's License or a California Driver's License. Track 3 of a driver's license will not decode without this parameter turned on.

Code ID Transmit: This selection allows you to send characters that identify each symbology. The ID characters for each symbology are shown on the Symbology Chart on page 15.

RS232 Delay: This selection allows the 8310 to delay up to 9999 milliseconds between the transmission of each character of scanned data when outputting RS232 data. The amount of delay will be based on the value programmed for the intercharacter delay.

Ignore Error in Amount Field: If programmed with a "Yes," when the 8310 is unable to read an amount field post-processed on a check, the reader will ignore the amount field, but capture all other MICR fields. If programmed with a "No," the reader will reject all fields if it cannot read the amount field.

Track 1 Preferred: This will program the 8310 to read only track 1 of a magnetic stripe under normal operation. If track 1 cannot be read, the 8310 will then read track 2. (This feature can be used only if the 8310 is programmed to read both tracks 1 and 2. See MSR Track Selection on page 26.)

Magnetic Sniffer: The sniffer detects magnetic interference that could affect check reader operation. If magnetic interference is detected, the beeper emits a special tone and the LED blinks quickly.

Retry Exception Table Parse Error: This selection tries to decode a check that was in the exception table but failed to parse. It sends this check through the standard MICR parsing algorithm.

COUNTRY CODE

You can select between USA, Spanish, and Latin American keyboards when the terminal ID is 03.

```
[scan]
||| ||| ||| ||| |||
OUTPUT
PARAMETERS
ENTER
```

selections	scan	variables	scan	scan
PREFIX	X	Symbology or 99 Universal (ALL)	(See Chart Pg. 12)	
		Prefix(es) (2,3,4,5)	*00–7F	FF
SUFFIX	XI	Symbology or 99 Universal (ALL)	(See Chart Pg. 12)	
		Suffix(es) (2,3,4,5)	*00–7F	FF
OUTPUT MODES	XII	Buffer Scans	A	Yes/No*
		Drivers License ID MSR	B	Yes/No*
		Code ID Transmit	C	Yes/No*
		RS232 Delay	D	Yes/No*
		Track 1 Preferred	E	Yes/No*
		Magnetic Sniffer	H	Yes/No*
		Ignore Error in Amount Field	I	Yes/No*
		Retry exception table parse error	J	*Yes/No
COUNTRY CODE	XIV	USA	00*	
		Spain	01	
		Mexico	02	
WAND EMULATION Transmission Rate (inches per second)	XV	10	A	
		25	B*	
		40	C	
		80	D	
		120	E	
		150	F	
		200	G	
WAND EMULATION	XVI	Black Hi	A*	
		Black Lo	B	

```
[scan]
||| ||| ||| |||
DEFAULT
```

```
[scan]
||| ||| ||| |||
EXIT
END PROGRAMMING
```

Notes:
(1) * Designates DEFAULT selections.
(2) Scan FF to terminate a prefix or suffix.
(3) To clear a prefix or suffix of a particular symbology, scan the symbology and FF.
(4) Default clears all prefixes and suffixes of all symbologies.
(5) To program Code ID, scan the ASCII representation of Code ID on the Symbology and HEX ASCII charts on page 15.

OUTPUT

PARAMETERS continued

OUTPUT MODES

MICR ERROR/STATUS CODES

Use this option to output either a single or double character when there is a MICR Error/Status code to report. This selection also allows you to dump out any MICR data read on an error condition.

Note: For Error Conditions

When the MICR code on the check is in error and a triple beep occurs, the error code will only be output when this selection is set to single or double character.

Note: For Status Conditions

When the MICR code on the check is not in error but does have some other status condition to report (i.e., serial number in range 151 –300), this status code will only be output when this selection is set to single or double character **AND** the placement of the status code is set by either a prefix/suffix or data formatter command.

Note: For Placement and programmable MICR Error/Status Codes

All MICR error/status code values can be programmed – see the MICR Data Formatter (page 31) to do this. To place the error/status code at the beginning or end of a MICR output string, use EC as the ASCII value when programming in a prefix/suffix. To place the error/status code in the middle of a MICR output string, use the EC Data Formatter Command.

TRANSMISSION RATE CONTROLS

The Transmission Rate Controls can be used to speed up or slow down transmission when the check reader is interfacing keyboard wedge with a terminal ID 03. Use these selections to control how much delay there is between make/break sequences when wedging in keyboard data.

Interrupt Time: Use this selection to control the amount of interrupt time between characters output.

Delay time Shift/CTRL Sequence: Use this selection to control the amount of delay time between make/break codes when outputting a shifted or CTRL key character.

Delay Time Normal Sequence: Use this selection to control the amount of delay time between make/break codes when outputting a normal data key character.

scan

OUTPUT
PARAMETERS
ENTER

selections	scan	variables	scan	scan
MICR ERROR/STATUS CODES	XVII	None	A*	
		Single Character	B	
		Double Character	C	
		Dump data on Error	D	Yes/No*
TRANSMISSION RATE CONTROLS	XIX	Interrupt Time	A	01–05 (x1ms) (*05)
		Delay Time Shift/CTRL Sequence	B	01–10 (x1ms) (*10)
		Delay Time Normal Sequence	C	01–10 (x1ms) (*05)

scan

DEFAULT

Notes:
(1) * Designates DEFAULT selections.

scan

EXIT
END PROGRAMMING

MAIN PORT CONFIGURATION
Output

BAUD RATE
The baud rate is programmable from 300 bits per second to 38,400 bits per second.

PARITY
Parity provides a means of checking data bit patterns for validity. The parity should be programmed to match the parity of the terminal being used. If the parity is not set correctly, the resulting data may be incorrect.

DATA BITS
The data bits selection must match the requirements of the terminal being used.

PROTOCOL
A set of rules governing the exchange of data between communications devices. See Appendix A of the **SCANTEAM 8300 Technical Manual** for complete descriptions of supported protocols.

END OF RECORD
Marks the end of an incoming data record from the Main Port. Use the HEX ASCII chart on page 15 to find the alpha–numeric codes used for programming a particular End of Record. The 8310 does not send End of Record characters to the terminal.

MAIN PORT CTS CHECK
If programmed on (Yes), the 8310 will not transmit data until the CTS input is positive.

scan

MAIN PORT
CONFIGURATION
ENTER

scan

DEFAULT

selections	scan	variables	scan
MAIN PORT CONFIGURATION	I	PC COM PORT	D*
MAIN PORT BAUD RATE	II	300	A
		600	B
		1200	C
		2400	D
		4800	E
		9600	F*
		19200	G
		38400	H
MAIN PORT PARITY	III	None	A
		Mark	B
		Space	C
		Odd	D
		Even	E*
MAIN PORT DATA BITS	IV	Seven	A*
		Eight	B
		1 Stop Bit	C*
		2 Stop Bits	D
MAIN PORT PROTOCOL	V	End of Record	A
		60 mS Timeout	B*
		TRANZ 330 Protocol	C
		ZON JR Protocol	D
MAIN PORT END OF RECORD	VI	0D–7F	0D*
MAIN PORT CTS CHECK	VII		Yes/No*

scan

EXIT
END PROGRAMMING

* Designates default selections.

Notes:

The space below may be used for notes. ...

Note: For function code mapping, refer to page 38.

COMMAND ACTION

F1	Send all characters followed by "XX" key or function code, starting from current cursor position. ** Syntax = F1XX where XX = HEX ASCII character or function code 00–FE HEX
F2	Send "NN" characters followed by "XX" key or function code, starting from current cursor position, leaving cursor pointing to character "NN" + 1. ** Syntax = F2NNXX NN = No. of Characters 00–99 DEC. where XX = HEX ASCII character or function code 00–FE HEX
F3	Send up to but not including "SS" character, (** Search and Send**) Starting from current cursor position, leaving cursor pointing to "SS" Char. followed by "XX" key or function code. ** Syntax = F3SSXX SS = HEX ASCII Character 00–FE HEX. where XX = HEX ASCII character 00–FE HEX.
F4	Send "XX" character "NN" times, (***INSERT***) Leaving cursor in current cursor position. ** Syntax = F4XXNN where XX = HEX ASCII character 00–FE HEX NN = No. of characters 00–99 DEC.
F5	Move cursor ahead "NN" characters from current cursor position. ** Syntax = F5NN NN = No. of characters 00–99 DEC.
F6	Move cursor back "NN" characters from current cursor position. ** Syntax = F6NN NN = No. of characters 00–99 DEC.
F7	Move cursor to the beginning of the data string. ** Syntax = F7
F8	Searching ahead for "XX" character from current cursor position, leaving cursor pointing to "XX" char. ** Syntax = F8XX where XX = HEX ASCII character 00-FE.
F9	Searching back for "XX" character from current cursor position, leaving cursor pointing to "XX" char. ** Syntax = F9XX where XX = HEX ASCII character 00-FE.
FA	Leading zero suppress on Suppress leading zeroes from current cursor position until 1st non–zero character, leaving cursor pointing to first non-zero character. ** Syntax = FA
FB	Suppress "XX" character(s) up to 4 starting from current cursor position until suppress disable command "FC" or end of format. ** Syntax = FBXXFB, FBXXXXFB, FBXXXXXXFB where XX = HEX ASCII character 00–FE.
FC	Disable suppress filter and clear all suppressed characters. ** Syntax = FC
FD	DCA mode ON/OFF (Toggle) Convert characters to DCA starting from current cursor position until next "FD" command or end of format. ** Syntax = FD
FE	Compare character in current cursor position to the character "XX." If characters are equal, increment cursor. If characters are not equal, no format match. ** Syntax = FEXX where XX = HEX ASCII Character 00 –FE
E7	Replace up to 5 characters with 5 different characters. **Syntax = E7XXRRXXRRXXRRXXRRXXRRE7 Where XX = character to be replaced RR = replacement character XX and RR = HEX ACSII character 00–FE
E8	Find last (rightmost) occurrence of character and replace with RR, leaving the cursor pointing to RR. **Syntax = E8XXRR
E9	Replace up to 4 characters with RR. **Syntax = E9XXXXXXXXE9RR where XX = HEX ASCII Character 00–FE
EA	Clear – Replace Table.

DATA FORMATTER COMMANDS

Note: For function code mapping, refer to page 38.

COMMAND ACTION

EC	Sends 1 or 2 character MICR error/status code. This feature lets you designate where the MICR error/status code should be placed in the data string. The setting of output parameters – MICR error/status codes will determine whether 1 or 2 characters will be output. **Syntax = EC
EE	Leading space suppress on. Suppress leading spaces from current cursor position until first non–space character, leaving cursor pointing to first non-space character. ** Syntax = EE
EF	Delay function. **Syntax = EFXXXX where XXXX = 0000–FFFF x 5ms delay.

DATA FORMATTER

scan

DATA FORMATTER ENTER

selections	scan	variables			scan
FORMAT REQUIRED?	**I**				Yes/No*

scan	scan	scan	scan	scan	scan
	Terminal Type (2)	Code ID	Length	Editor Command Sequences	End Format
II	(*)	( )	(*)	(	) (FF)

* You may use Universal Number of 99.

scan

DEFAULT

Notes:

(1) * Designates default selections.
(2) For terminal selection, see page 9.

scan

**EXIT
END PROGRAMMING**

DATA FORMATTER

COMMANDS
continued

MSR DATA

Start/Stop Character Transmit: Start/Stop characters identify the leading and trailing ends of the MSR data. You may either transmit, or not transmit Start/Stop characters.

LRC Character Transmit: This setting will enable or disable the transmission of a check digit for mag stripe data.

Start and End of MSR Data: Use these selections to program the start/stop characters you wish to use for MSR data. The start and end of MSR data is assigned a special symbology of "FD."

MSR TRACK SELECTION
Use this selection if you wish to enable or disable tracks 1, 2, and/or 3.

MSR PRE–EDITED DATA FORMATS
These selections allow you to program the 8310 to transmit magnetic stripe data in a variety of formats which can include the account number, date, customer name, and any of the key code variables.

Note: *Choosing a pre-edited MSR Data Format results in default selections for MSR Data (III). Therefore, Start/Stop Character Transmit and LRC Character Transmit will default to Yes.*

KEY CODE ASSIGNMENT
Key Codes are variables used to represent values in MSR data formats. Use this selection to assign values to the key codes.

Note: Assignable delimiter or function codes al default to "0D."

DELETE TERMINAL/CODE SPECIFIC

Use this selection to delete any formats which are specific to certain terminal and code ID combinations.

DATA FORMATTER

scan

**DATA
FORMATTER
ENTER**

scan

DEFAULT

selections	scan	variables	scan	scan
MSR DATA	III	Start/Stop Char. Transmit	A	*Yes/No
		LRC Char. Transmit	B	*Yes/No
		Start of MSR Data	C	00–7F
		End of MSR Data	D	00–7F
MSR TRACK SELECTION	IV	Track 1 Enable	A	*Yes/No
		Track 2 Enable	B	*Yes/No
		Track 3 Enable	C	*Yes/No
MSR TRACK 2 PRE–EDITED DATA FORMATS	V	Clear Pre–edited Data Format	A	
		Acct # + Key–Code 1	B	
		Acct # + Key–Code 1 + YYMM + Key–Code 2	C	
		Acct # + Key–Code 1 + MMYY + Key–Code 2	D	
MSR TRACK 1 PRE–EDITED DATA FORMATS	VI	Clear Pre–edited Data Format	A	
		Acct # + Key–Code 1 + YYMM + Key–Code 2 + Name + Key–Code 3	B	
		Acct # + Key–Code 1 + MMYY + Key–Code 2 + Name + Key–Code 3	C	
KEY–CODE 1–4 ASSIGNMENT	VII	Key–Code 1 (E0H)	A	00–FE *0D
		Key–Code 2 (E1H)	B	00–FE *0D
		Key–Code 3 (E2H)	C	00–FE *0D
		Key–Code 4 (E3H)	D	00–FE *0D
DELETE TERMINAL/CODE SPECIFIC	XIX		Terminal Type (*)	Code ID (*)
DELETE ALL FORMATS	XX	Are You Sure?		Yes/No

* Designates default selections.

Formatting MICR Output Example

Scenario: You have the following data on a check:

⑆021300381⑆   324⑈036091⑈ 4973

You have set the MICR Data Formatter output format to 02, which is
<TRANSIT#>T<ACCOUNT#>A<CHECK SERIAL #>

The output you would like is:
021300381   <CR>
324036091   <CR>
4973

Solution: Go to page 25 (Data Formatter).

Step 1. Scan **ENTER.**

Step 2. Scan **XX,** then **Yes** to clear previous formats (this choice is from
page 27).

Step 3. Scan **II** to enter Data Formatting parameters
Scan **99** for universal terminal type
Scan **74** for MICR symbology
Scan **99** for variable length

Step 4. Scan your format parameters (scan each character in order):
FB 20 64 FB F3 54 0D F5 01 F3 41 0D F5 01 F1 0D FF

Why:	
FB 20 64 FB	FB suppresses characters, and you want to suppress spaces and dashes.
F3 54 0D	Sends everything up to a T (hex 54), followed by a <CR> (hex 0D).
F5 01	Moves the cursor past the T.
F3 41 0D	Sends everything up to an A (hex 41), followed by a <CR> (hex 0D).
F5 01	Moves the cursor past the A.
F1 0D	Sends the rest of the code, followed by a <CR> (hex 0D).
FF	Termination character for end of format.

Step 5. Scan **EXIT END PROGRAMMING.**

MICR DATA FORMATTER

MINIMUM AND MAXIMUM MICR SIGNAL LEVEL

These selections allow you to set the range for acceptable MICR signals.

SELECT MICR OUTPUT FORMAT

Use the following selections with the programming choices on page 35 to program a custom MICR Data Format.

MICR Field Name	MICR ID #
Entire MICR Line	00
Auxiliary On Us	01
External Processing Code (EPC)	02
Routing	03
ONUS	04
Amount	05
Check #	06
Account #	07
Process Control Code	08

MICR Field Length	Selection
Zero (Field Disabled)	00
Fixed Length	XX (where XX is the HEX ASCII Representation 00–7F)
Variable Length	99

MICR Field Fill	Selection
Any character	XX (where XX is the HEX ASCII Representation 00–7F)
Note: MICR field length must be programmed for fixed length when using Field Fill.	

MICR Field Justify	Selection
Left Justify	00
Right Justify	01

Note: MICR field length must be programmed for fixed length when using Field Justify.

MICR PROGRAMMING CHECKS - EQUIVALENTS TO BAR CODES

Roman Numerals		Roman Numerals		Letters		Digits		Others	
I	t1	XI	o1	A	a1	0 (YES)	d0	ESCAPE	tt0
II	t2	XII	o2	B	a2	1 (NO)	d1	DEFAULT	tt1
III	t3	XIII	o3	C	a3	2	d2	EXIT	tt2
IV	t4	XIV	o4	D	a4	3	d3	END PROG	tt3
V	t5	XV	o5	E	a5	4	d4		
VI	t6	XVI	o6	F	a6	5	d5		
VII	t7	XVII	o7	G	a7	6	d6		
VIII	t8	XVIII	o8	H	a8	7	d7		
IX	t9	XIX	o9	I	a9	8	d8		
X	t0	XX	o0	J	a0	9	d9		

where: t = (transit symbol)   a = d = (amount symbol)

o = (On Us symbol)   (dash symbol)

MICR DATA FORMATTER
continued

MICR Data Example #1 Custom Format
Scenario: Output a known check format where 0001 is the check number.
Check Data: t123456789t987–654321 o–0001
Desired custom output: <transit #>T<check #>S<account #>A
Solution: Scan the following series:
MICR DATA FORMATTER ENTER

IV	01	(custom format)
V	03 FB 74 FB F1 54 FF	(format routing buffer)
V	07 F1 41 FF	(format account # buffer)
V	06 F1 53 FF	(format check # buffer)
VI	03 99 00 00 FF	(routing buffer variable length)
VI	07 99 00 00 FF	(account # buffer variable length)
VI	06 99 00 00 FF	(check # buffer variable length)
VII	03 06 07 FF	(order of buffer output)

EXIT
END PROGRAMMING

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MICR DATA FORMATTER

scan

MICR DATA
FORMATTER
ENTER

scan

DEFAULT

selections	scan	variables	scan
MICR DECODING	I	Auto Discrimination	A
		E13-B Only	B*
		CMC-7 Only	C
MINIMUM MICR SIGNAL LEVEL	II		*$00-$FE
MAXIMUM MICR SIGNAL LEVEL	III		$00-$FE*
SELECT MICR OUTPUT FORMAT **Note:** ASCII characters transmitted in place of E13-B symbols: t = Transit symbol o = On Us symbol a = amount symbol d = dash symbol	IV	<ENTIRE MICR LINE UN–EDITED (RAW MICR)> NO EXCEPTIONS • Includes spaces and symbols • Field format rules not verified	00*
		Custom Format (See V, VI, VII)	01
		<TRANSIT #>T<ACCOUNT #>A <CHECK SERIAL #> • Account #: no space, dash, or On Us	02
		<TRANSIT #>T<14 DIGIT ACCOUNT #>A<6 DIGIT CHECK SERIAL #> • Account #: No spaces or dashes, zero filled, right justified • Check #: zero filled, right justified	03
		<TRANSIT #>T<ACCOUNT #>A <CHECK SERIAL #> • Account #: includes spaces and dashes, but no On Us.	04
		<ENTIRE MICR LINE UN–EDITED (RAW MICR)> • Includes spaces and symbols • Field format rules verified	98
		<ENTIRE MICR LINE UN–EDITED (RAW MICR)> • Includes spaces and symbols • Field format rules not verified • A question mark (?) will be sent for unreadable characters	99 Test Mode

* Denotes default selections

scan

EXIT
END PROGRAMMING

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MICR DATA FORMATTER
continued

MICR Data Example #2 Exception Table Parsing
Scenario: Output a check with exception table entry where 0001 is the check number.
Check Data: t123456789t987–654321 o2220001
Desired output: <transit #>T<account #>A<check #>

Solution: Scan the following series:

MICR DATA FORMATTER ENTER
IX   1 2 3 4 5 6 7 8 F2 14 5A F2 04 5A F1 00 FF EXIT
END PROGRAMMING

MICR Data Example #3 Custom Format plus Data Formatter
Scenario: Output only the account number from a check, followed by a carriage return.

Solution: Scan the following series:
MICR DATA FORMATTER ENTER
IV   02   (Transit t, Account a)
EXIT
END PROGRAMMING

DATA FORMATTER ENTER
II   99   (terminal)
                74   (code ID – MICR)
                99   (variable length) F3 41
                F8 54 F5 01   0D FF
EXIT
END PROGRAMMING

MICR DATA FORMATTER
continued

MICR DATA FORMATTER ENTER

DEFAULT

selections	scan	variables			scan
CUSTOM MICR FORMAT FIELD EDIT	V	scan Field ID	scan Editor Command Sequence	scan $FF	None*
CUSTOM MICR FORMAT FIELD ATTRIBUTE(S)	VI	scan Field ID	scan Field Length (HEX Value)	scan Field Fill	None*
		scan Field Justify	scan $FF		
CUSTOM MICR FORMAT FIELD OUTPUT ORDER	VII	scan Order of Output 00–08		scan $FF	None*
ACTIVATE EXCEPTION TABLE PARSING	VIII				*Yes/No
EXCEPTION TABLE PARSING (2,3)	IX	scan Transit Number	scan Editor Command Sequence	scan $FF	None*

(1) * Designates DEFAULT selections.

(2) Exception table parsing is activated in the event that the canned format or custom MICR format does not correctly parse a particular Bank's On Us field.

(3) Refer to MICR example #2 on page 32. Exception Table Parsing will be invoked only on those checks where the routing (transit) numbers match the transit number in the format.

EXIT
END PROGRAMMING

33

MICR DATA FORMATTER
continued

MICR ERROR/STATUS CODES

Use the MICR ERROR/STATUS codes to control the values for all possible MICR error/status codes.

Each character must be from the HEX–ASCII table. For example, to program No MICR to a value of "XY":

MICR DATA FORMATTER ENTER, XI, B, 58, 59, EXIT

When the OUTPUT PARAMETERS MICR ERROR/STATUS CODE is programmed to single character, only the second character for that particular error/status code will be output. In the above example, only "Y" will be output.

MICR DATA FORMATTER
continued

selections	scan	variables			scan
DELETE SPECIFIC EXCEPTION TABLE	IX	scan Transit Number	scan D0	scan $FF	None*
DELETE ALL EXCEPTION TABLE PARSING ENTRIES	X	Are you sure?			Yes/No
MICR ERROR/STATUS CODES	XI	No Errors (Good Read)	A		00–7F (00)*
		No MICR	B		00–7F (01)*
		Low Signal	C		00–7F (02)*
		Serial # not present	D		00–7F (03)*
		Invalid ABA #	E		00–7F (04)*
		Parser Error	F		00–7F (05)*
		Acct. # Error	G		00–7F (06)*
		Canadian Check	H		00–7F (07)*
		Mexican Check	I		00–7F (08)*
		Bad Data	J		00–7F (09)*
		SN Range 1–150	XV		00–7F (10)*
		SN Range 151–300	XVI		00–7F (11)*
		SN Range 301–500	XVII		00–7F (12)*
		Business Check	XVIII		00–7F (13)*
		Old U. S.	XIX		00–7F (14)*
		Traveler's Check	XX		00–7F (15)*

scan

MICR DATA FORMATTER ENTER

scan

DEFAULT

(1) * Designates DEFAULT selections.

scan

EXIT
END PROGRAMMING

35

STATUS CHECK

The Formats selection, choice C, lists the existing formats entered using the Data Formatter Programming page. Each format will be followed by a CR (carriage return) as listed.

USE THIS PAGE
- To output the current programming status of menu pages to either the terminal or the auxiliary port.

selections	scan	variables	scan
TO TERMINAL	I	Formats	C
		Software Revision	D

scan

STATUS
CHECK
ENTER

scan

EXIT
END PROGRAMMING

KEYBOARD LAYOUTS

NCR 7052/32–Key and 56–Key
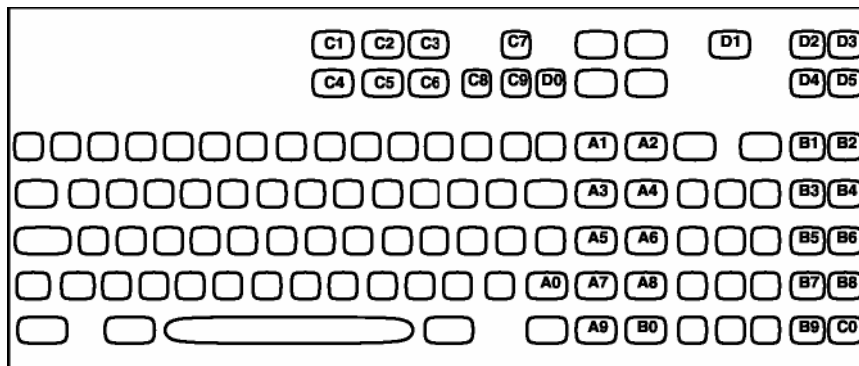
NCR 7052 122 Keyboard

The FO delimiter translates to the following:

NCR 7052, 32/56 key layout	ENTER KEY = B6
NCR 7052, 122 Big Ticket	ENTER KEY = B9

USER'S
NOTES

BAR CODE CHART

USE THIS PAGE

- In combination with the adjoining menu pages to program the 8310.
- The bar codes on this page correspond to symbols in shaded areas on adjoining menu pages. SCAN these bar codes in the sequence indicated on menu page to program desired selections and variables.

ROMAN NUMERALS
LETTERS
DIGITS OTHERS

ROMAN NUMERALS		LETTERS	DIGITS	OTHERS
I	XI	A	0 (YES)	ESCAPE
II	XII	B	1 (NO)	DEFAULT
III	XIII	C	2	EXIT
IV	XIV	D	3	
V	XV	E	4	
VI	XVI	F	5	
VII	XVII	G	6	
VIII	XVIII	H	7	
IX	XIX	I		
X	XX	J		

USER'S
NOTES

UIC

8310/PM   Rev D