

TurboWedge™



Manual #: 02CO429

Installation and Operations Manual

Part Number: **02CO429**
Printed: **12/99**
Revision Level: **TW1 = 1.06, TW2 = 1.05**

Copyright by COMPSEE, INC.

Warning

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notes

This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

QUICK START

The following Quick Start Installation procedure will handle 95% of the keyboard wedge installation. If your cabling and hook-up do not conform to the instructions below, please consult the Programming Manual.

INSTALLATION

1. **TURN OFF POWER TO THE TERMINAL TO WHICH THE READER WILL BE CONNECTED.**
2. Locate the "Y" interface cable. Plug the 15 pin male "D" connector of the "Y" interface cable to the 15 pin female "D" connector located on the back panel of the unit.
3. Disconnect the keyboard cable from the keyboard port and plug it into the short leg of the "Y" cable.
4. Plug the long leg of the "Y" cable into the terminal's keyboard port.
5. Plug in the scanning device.
6. If an external power supply is required, Plug it into the receptacle located on the back of the unit. Then plug the power supply into a power source.
7. Turn on the power to the terminal.
8. **PROGRAM FOR TERMINAL TYPE**
IMPORTANT: If this is a first time installation, it is NECESSARY to program the unit for use with the connected terminal. Proceed as follows:
 - Using the TERMINAL TYPE programming menu (back of manual), scan the **ENTER** bar code symbol.
 - Scan the two (2) digits on the BAR CODE CHART which corresponds to the two (2) digit code listed for the specific terminal.
 - Scan the **EXIT** bar code symbol.
9. Scan the following bar code to verify communications to the terminal.



10. PROGRAMMING FOR ADDITIONAL PARAMETERS

Use the remaining programming sheets, i.e. GENERAL I, GENERAL II, SERIAL I, SERIAL II, SCANNER PORT, INDUSTRIAL CODES, RETAIL CODES, EDIT and KEYBOARD REMAP to complete the programming.

EXAMPLE: Return Key After Each Bar Code

- Scanner Port Menu
Scan: Enter
Scan: Postamble
- Bar Code Chart
Scan: 0D
- Scanner Port Menu
Scan: Exit

NOTE: Each sheet has default parameters associated with it which are indicated by asterisks "*" on the programming menus.

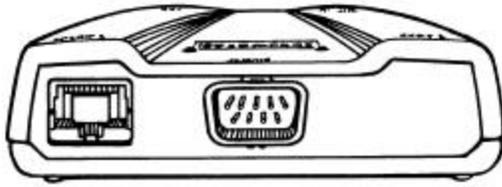
To assign these DEFAULT parameters,

- scan the ENTER symbol
- scan the DEFAULT symbol
- scan the EXIT symbol

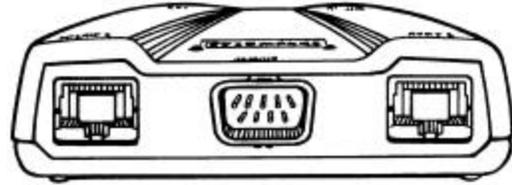
If Default parameters are not desired,

- scan the ENTER symbol
- scan the desired parameter
- scan the letter/digit combination listed on the programming sheet
- scan EXIT

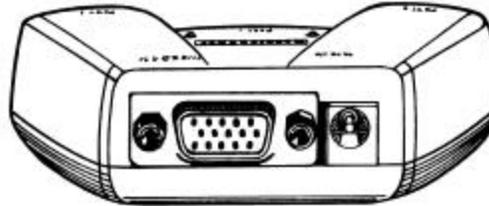
After the EXIT symbol is scanned, the program information is stored in non-volatile memory and will not have to be programmed again unless changes are desired.



TurboWedge 1 – Front View

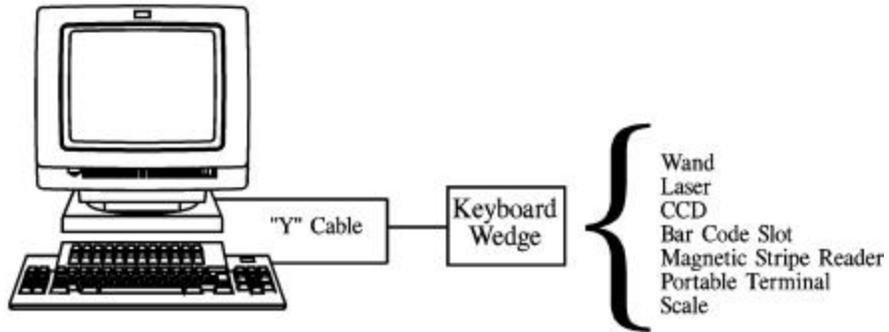


TurboWedge 2 – Front View



TurboWedge 1 & 2 – Rear

KEYBOARD WEDGE INTERFACE



RS 232 DUAL PORT INTERFACE

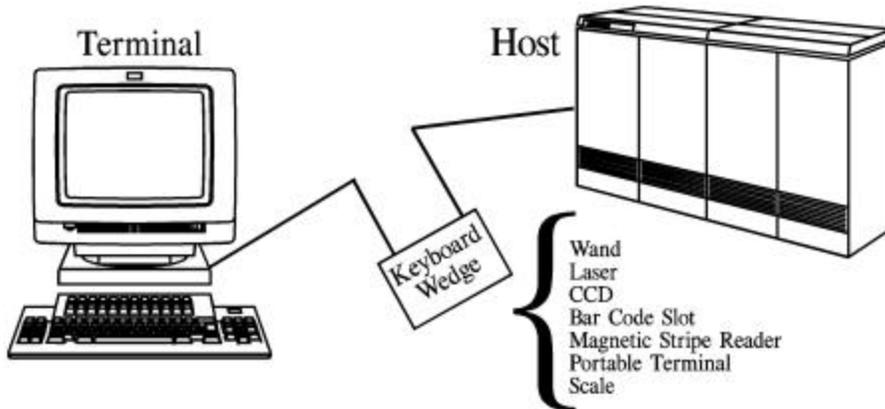


Table of Contents

I.	Introduction	
	Output Options	8
	Keyboard Wedge	8
	RS 232	8
	Input Options	9
	Bar Code	9
	Magnetic Stripe	9
	RS 232	9
	Standard Specifications	9
	Dimensions	9
	Enclosure	10
	Power Supply Options	10
	Output	10
	Current Draw	10
	DC Voltage	10
	Environmental	10
	Electrical	10
	Electrostatic Discharge	10
	EMC Regulations	10
	Scanning Speed	10
II.	Installing the Reader - Keyboard Wedge	
	Installation	11
	Connecting the Scanning Device	11
	Connecting an RS 232 Device	11
	Connecting a Magnetic Stripe Reader	11
	Terminal Power Up Sequence	11
	Programming For Terminal Type	12
	Programming Additional Parameters	12
III.	Installing the Reader - Dual Port RS 232	
	Installation	13
	Connecting the Scanning Device	13
	Connecting an RS 232 Device	13
	Connecting a Magnetic Stripe Reader	13
	Connecting a Power Supply	13
	Terminal Power Up Sequence	13
	Programming For Serial Communications	14
	Programming Additional Parameters	14
IV.	Methods of Programming	
	Default All	15
	Program Lock	15
	Bar Code Menus	16
	Bar Code Batch	18
	Serial Batch	21
	Cloning	22
	WinCape	23
	Symbology Validation	24
	On-Screen	25

V.	General Program Selections	
	Interface Selection - Keyboard Wedge	32
	Interface Selection - Serial Output	32
	Beeper Volume	32
	Input Inhibit	33
	Keyboard Type	33
	Intercharacter Delay	33
	Interfunction Delay	33
	Numeric Keypad	33
	Magnetic Track	34
	Buffering	34
	Scale Solicit Record	34
	Switches	
	Output Edited Records Only	35
	MSR Reverse	35
	Turbo Mode - HP, Wyse, PC/AT	35
	IBM PC/AT without Keyboard	35
	Laser with Marker Beam	36
	Laser with AutoSense	36
	Set Pause Time	36
VI.	Scanner Port Selections	
	Preamble & Postamble	37
	Laser Redundancy	38
	Function Codes	38
	Code Identification	38
	AutoScan	38
	Multi Scan	38
VII.	Serial Input/Output Selections	
	Preamble & Postamble	39
	Record Terminator	39
	Function Codes	39
	Baud Rate	40
	Parity	40
	Word Length	40
	Stop Bits	41
	Dual/Single Serial Flow Control	41
	Serial Input Protocol	41
VIII.	Bar Code Selections	
	Codabar	42
	Code 3 of 9	42
	Interleaved 2 of 5	42
	Industrial 2 of 5	42
	Code 11	42
	Code 93	42
	Code 128	43
	Plessey	43
	UPC	43
	EAN	43

IX.	Edit Programming	44
X.	Keyboard Remapping	
	Single Character Replacement	61
	Swap Two Keys	62
	Swap Two ASCII Characters	63
	Multiple Key Function Code	63
XI.	Status Check	
	General/Serial/Scanner	67
	Bar Code Configuration	68
	Edit Status	69
	Keyboard Remap Configuration	70
Appendices		
	Interfaces	71
	Beep Sequences	73
	Key Code Charts	74
	Keyboard Function Records	79
	RS 232 Auxiliary Port Specifications	81
	RS 232 Data Transfer Definitions	83
	Input Inhibit Considerations	90
	Service and Repair	95
	Limited Warranty Terms	96
Figure Listing		
	Keyboard Interface - Wedge	7
	RS 232 Interface - Dual Port	7
	Front Panel - TurboWedge 1 & 2	9
	Front Panel - TurboWedge 1 & 2	9
	IBM 3180 - 1/2 Input Inhibit Installation	73
	IBM 3179-2 Input Inhibit Installation	74
	IBM 3196 Input Inhibit Installation	75
	IBM 3481/3486 Input Inhibit Installation	76

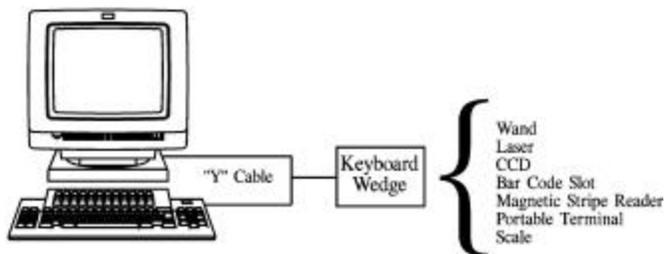
I. INTRODUCTION

The decode/interface units are designed to be used with terminals provided by most of the major terminals manufacturers.

- **Output Options**

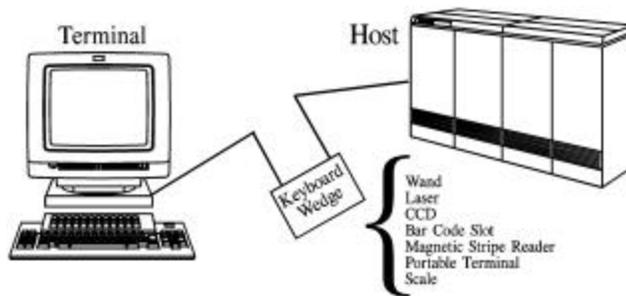
Interfacing to the terminals can be either through the keyboard cabling or the RS 232 interface line to the host.

Keyboard Interface: The unit plugs in easily between the keyboard and the terminal. Data passed through the unit appears to the terminal as if it had been keyed in by an operator.



RS 232 Serial Interface: If the terminal communicates to its host via RS 232 cabling and communications, the unit can be interfaced between the terminal and the host on the RS 232 cable. In most cases, data is passed through the unit to the host which in turn echoes the data to the terminal.

The RS 232 Input port (Port 2 on Models 1 & 2) can also be used as an output port to send ASCII data on a single RS 232 line.



Both the keyboard and the in-line serial interfaces make it unnecessary by the user to implement any hardware or software changes in order to operate the bar code reader.

- **Input Options**

- **Bar Code Input**

- Port 1: Models 1 and 2 Wand or Laser Emulation
 - Port 2: Model 2 Wand Emulation

For bar code reading, a variety of input devices can be ordered that include light pens, slot readers, moving beam or fixed beam readers. With these devices, the unit is able to scan low, medium, and high density bar codes. The ability to autodiscriminate between most popular bar code symbologies is standard.

Code 3 of 9	Codabar
Interleaved 2 of 5	Industrial 2 of 5
UPC/EAN	Code 128
Code 93	Code 11
Plessey	

- **Magnetic Stripe Input**

- Port 2: Model 1 Tracks 1, 2 or 3*
 Single or Dual Track

** Model 1 Exceptions - Will not Support Track 3 on:*
Dec Terminals
Terminals Monitoring Input Inhibit

- Port 3: Model 2 Tracks 1, 2 & 3
 Single, Dual or Triple Track

- **RS 232 Input:**

- Port 2: Models 1 & 2
 ASCII data from an external reader, a scale or a portable terminal can be transmitted through the RS 232 Input Port.

Simple user programming guarantees that data passing through the unit will appear to the software as if it had been keyed in by the operator.

The use of preamble/postamble, embedded keyboard function codes or keyboard function records allows for the operation of the terminal without manual entry from the keyboard.

Changing code parameters or disabling certain codes is accomplished by either using the bar code programming menu found in the back of the manual or through one of the other optional programming methods described in Section 4. The units non-volatile memory stores the user program selections.

- **Standard Specifications**

- **Dimensions**

- Length 3.65 inches (9.3 cm)
 - Width 3.75 inches (9.5 cm)
 - Height 1.10 inches (2.8 cm)
 - Weight 3.5 oz (99.2 g)
 - Approximate weight without cable

Enclosure

- KJB flame retardant

Power Supply Options

- +5V to +14V supplied from the terminal or optional 9V power supply which may be required in some cases

Output

- +5VDC \pm 10% to attached input device

Current Draw

- 70 mA typical

DC Voltage

- Power source shall meet the equipment requirements for reinforced insulation according to EN 60 950:1988 (SELV)

Stromversorgung

- 70 ma at 5 V
- Gleichspannung soannungsquelle muss den Isolationvorschriften EN 60 950/1988 entsprechen

Environmental

- Operating Temperature:
+32° F to +122° F
0°C to 50°C
- Storage Temperature:
-77°F to 140°F
-25°C to +60°C
- Relative Humidity:
0% to 95% non-condensing

Electrical

- Keyboard Wedge Interface - Power is normally consumed from the terminal. No auxiliary power supply is required. Exceptions are noted in Appendix A.
- RS 232 Interface - The auxiliary power supply is required.

Electrostatic Discharge

- 15 KV to any external surface

EMC Regulations

- FCC and CE

Scanning Speed

- Scans at 3 to 45 inches per second on standard density bar codes. Its speed range varies with code choice and density.

II. INSTALLING THE READER - KEYBOARD WEDGE

Installation of the reader should be completed by a person familiar with installing and connecting computer systems and cabling.



TurboWedge 1



TurboWedge 2

1) INSTALLATION

- a) TURN OFF POWER TO THE TERMINAL TO WHICH THE READER WILL BE CONNECTED.
- b) Locate the "Y" interface cable and verify that it is the correct cable for the terminal being used.
- c) Plug the cable into the back end of the unit.
- d) Unplug the keyboard from the terminal and re-plug the keyboard into the leg (short leg) of the "Y" cable that mates with it.
- e) Plug the remaining leg (long leg) of the "Y" cable into the terminal where the keyboard was connected.
- f) Arrange the fully connected unit so that all cables run fully and smoothly.

2) CONNECTING THE SCANNING DEVICE

Plug the scanning device into Port 1 (the 9 pin "D" connector) on the FRONT panel.

3) CONNECTING AN RS 232 DEVICE

If an auxiliary RS 232 input device is to be used, plug the 10 pin modular connector of the cable (specified at the time of order) into Port 2 of Models 1 or 2. The port is a 10 pin modular receptacle located on the FRONT panel of the unit. Connect the other end of the RS 232 cable into the output port of the RS 232 input device.

4) CONNECTING A MAGNETIC STRIPE READER

If a Magnetic Stripe Reader is to be used, plug the 10 pin modular connector of the magnetic stripe reader (specified at the time of order) into Port 2 of Model 1 and Port 3 of Model 2. Both ports are 10 pin modular receptacle located on the FRONT panel of the unit.

NOTE:

Any changes or additions desired for the Magnetic Stripe output must be programmed via the EDIT Parameters.

5) TERMINAL POWER UP SEQUENCE

Turn ON the power to the terminal. After approximately 1 seconds the unit will beep twice. This delay is intentional and occurs so that the terminal - keyboard power on reset routines have time to complete.

6) PROGRAMMING FOR TERMINAL TYPE

IMPORTANT: If this is a first time installation, it is NECESSARY to program the unit for use with the connected terminal.

- Using the TERMINAL TYPE programming menu, scan the ENTER bar code symbol.
- Scan the two (2) digits on the BAR CODE CHART which correspond to the two (2) digit code listed for the specific terminal.
- Scan the EXIT bar code symbol.

NOTE:

After the EXIT symbol has been scanned, the terminal type information is stored in non-volatile memory and will not have to be programmed again unless the unit is to be connected to another terminal.

7) PROGRAMMING FOR ADDITIONAL PARAMETERS

Use the remaining programming sheets, i.e. GENERAL I, GENERAL II, SERIAL I, SERIAL II, SCANNER PORT, INDUSTRIAL CODES, RETAIL CODES, KEYBOARD REMAPPING and EDIT to complete the programming.

DEFAULT: Each sheet has default parameters associated with it which are indicated by asterisks "*" on the programming menus.

To assign these DEFAULT parameters,

1. scan the ENTER symbol
2. scan the DEFAULT symbol
3. scan the EXIT symbol

If Default parameters are not desired,

1. scan the ENTER symbol
2. scan the desired parameter
3. scan the letter/digit combination listed on the programming sheet
4. scan EXIT

After the EXIT symbol is scanned, the program information is stored in non-volatile memory and will not have to be programmed again unless changes are desired.

INSTALLATION IS NOW COMPLETE

The above instructions are for programming the unit using the provided bar code menus. Other programming methods are defined in Section 4.

III. INSTALLING THE READER - DUAL/SINGLE PORT RS 232

Installation of the reader should be completed by a person familiar with installing and connecting computer systems and cabling.



TurboWedge 1



TurboWedge 2

1. INSTALLATION

- a) TURN OFF POWER TO THE TERMINAL TO WHICH THE READER WILL BE CONNECTED.
 - b) Plug the cable housing into the back end of the unit.
 - c) Unplug the host interface line from the terminal. Connect this line into the leg of the "Y" cable that mates with it. (Dual Port)
 - d) Plug the remaining leg of the "Y" cable into the terminal where the host cable was connected.
- Arrange the fully connected unit so that all cables run fully and smoothly.

2. CONNECTING THE SCANNING DEVICE

Plug the scanning device into Port 1 (the 9 pin "D" connector) on the FRONT panel.

3. CONNECTING AN RS 232 DEVICE

If an auxiliary RS 232 input device is to be used, plug the 10 pin modular connector of the cable (specified at the time of order) into Port 2 of Models 1 & 2. The port is a 10 pin modular receptacle located on the FRONT panel of the unit.

Connect the other end of the RS 232 cable into the output port of the RS 232 input device.

4. CONNECTING A MAGNETIC STRIPE READER

If a Magnetic Stripe Reader is to be used, plug the 10 pin modular connector of the magnetic stripe reader (specified at the time of order) into Port 2 of Model 1 and Port 3 of Model 2. Both ports are 10 pin modular receptacle located on the FRONT panel of the unit.

NOTE: Any changes or additions desired for the Magnetic Stripe output must be programmed via the EDIT Parameters.

5. CONNECTING THE POWER SUPPLY & TERMINAL POWER UP SEQUENCE

Plug the external power supply into the receptacle located on the back of the unit. Then plug the power supply into a power source.

After approximately 1 seconds the unit will beep twice. This delay is intentional and occurs so that the terminal - keyboard power on reset routines have time to complete.

Turn ON the power to the terminal.

6. PROGRAMMING FOR SERIAL COMMUNICATIONS

IMPORTANT: If this is a first time installation, it is NECESSARY to program the unit for use with the connected terminal.

- Using the TERMINAL TYPE programming menu, scan the ENTER bar code symbol. Scan the 32 on the BAR CODE CHART which corresponds to the to the selection for Dual Port RS 232 communications. (31 = Single Port)
- Scan the EXIT bar code symbol.

NOTE: After the EXIT symbol has been scanned, the terminal type information is stored in non-volatile memory and will not have to be programmed again unless the unit is to be connected to another terminal.

SERIAL II MENU PAGE

Program the following parameters to match the setting for Terminal to Host Communications.

- Stop Bits Baud Rate
- Parity
- Word Length
- Dual / Single RS 232 Flow Control

7. PROGRAMMING FOR ADDITIONAL PARAMETERS

Use the remaining programming sheets, i.e. GENERAL I, GENERAL II, SERIAL I, SERIAL II, SCANNER PORT, INDUSTRIAL CODES, RETAIL CODES, KEYBOARD REMAPPING and EDIT to complete the programming.

DEFAULT: Each sheet has default parameters associated with it which are indicated by asterisks "*" on the programming menus.

To assign these DEFAULT parameters,

4. scan the ENTER symbol
5. scan the DEFAULT symbol
6. scan the EXIT symbol

If Default parameters are not desired,

5. scan the ENTER symbol
6. scan the desired parameter
7. scan the letter/digit combination listed on the programming sheet
8. scan EXIT

After the EXIT symbol is scanned, the program information is stored in non-volatile memory and will not have to be programmed again unless changes are desired.

INSTALLATION IS NOW COMPLETE

The above instructions are for programming the unit using the provided bar code menus. Other programming methods are defined in Section 4.

IV. METHODS OF PROGRAMMING

The unit is pre-programmed with standard default parameters that allow you to use it without programming. For customization, the various programming methods allow for changing any of the parameters. Once the parameter is selected, it is stored in non-volatile memory, and will not change unless the unit is reprogrammed.

IMPORTANT: If this is a first time installation, it is NECESSARY to program the unit for use with the connected terminal.

DEFAULT ALL - Reference Program Mode Menu in the back of the manual.

To default the unit, the "Default All Parameters" bar code must be read. This will issue a High-Low beep. Approximately 1 second after this two (2) High beeps will be issued signaling that the unit is now reset to factory defaults. Once Defaulted, the Terminal ID will be set to "01" and all parameters on all of the programming menus, including the edit menu, will reset to their factory setting.

PROGRAM LOCK - Reference Program Mode Menu in the back of the manual.

Once you have programmed and tested a unit and verified that the data input and output is correct, you can lock out all future programming by enabling the Program Lock Mode. This parameter is a toggle type sequence. To Enable:

1. Scan the Program Lock label on the Program Mode Menu in the back of the manual.
2. Using the Bar Code Menus scan a three (3) digit numeric code by individually scanning single digit bar codes using the Bar Code for Menus (digits column) in the back of the manual.
Example: 479
3. Scan the Program Lock label on the Program Mode Menu in the back of the manual.

The unit is now locked from further programming. To unlock, follow the same sequence using the same code.

CAUTION

**Once the program is locked, the lock code used can unlock it. However, if the lock code is unknown, the only way to unlock it is to send it in for service.
Contact Compsee Customer Support for details.**

PROGRAMMING METHODS

There are 7 different ways in which to program the units. These are:

1. Bar Code Menu
2. Bar Code Batch
3. Serial Batch
4. Cloning
5. WinCape
6. Symbology Validation
7. On-Screen

1. BAR CODE MENU

This programming method makes use of a menu of individual bar codes. You will find the menus in the back of each manual. These menu pages, when used in conjunction with a bar code scanner allow you to program the unit by choosing a parameter and set a variable selection for the parameter.

The Bar Code Menus provided with each unit consist of the following pages:

- A. Terminal Selection Menu
- B. General I Menu
- C. General II Menu
- D. Scanner Port Menu
- E. Serial I Menu
- F. Serial II Menu – Aux Port
- G. Serial II Menu - Host Port
- H. Codes - Industrial Menu
- I. Codes - Retail Menu
- J. Keyboard Remap
- K. Edit Menu
- L. Status Check Menu
- M. Parameter Selection Menu Bar Code

The following beep sequences should be noted when programming the unit.

- 1 HIGH, 1 LOW** = Good Programming Read
2 HIGH = Exit Programming - Good Read
1 HIGH, 2 LOW = Programming Error -
Out of Sequence Programming Label

Example 1: Select Terminal Type
(DEC VT 320 = Terminal Type 15)

1. Using the TERMINAL TYPE programming menu, scan the ENTER bar code symbol.
2. Using the Bar Code Chart, scan a 1, then a 5 under the digits column.
3. Scan the EXIT bar code symbol.

Example 2: Select a Scanner Postamble
“ABC” followed by the TAB key.
(Codes 41,42,43,09)

1. Using the SCANNER PORT programming menu, scan the ENTER bar code symbol.
2. Scan the Postamble bar code
3. Using the Bar Code Chart, scan a 4,1,4,2,4,3,0,9 using both the alpha and digits columns.
4. Scan the EXIT bar code symbol.

DEFAULT SELECTIONS

1) *ALL SELECTIONS*

To default back to the factory set parameters scan the DEFAULT ALL symbol on the Status Programming Menu. After the bar code is scanned, a high-low beep sequence will be emitted from the unit

Note: DEFAULT ALL will delete all edits and remapping sequences that have been programmed.

2) *PER MENU PAGE*

To default to the factory set parameters by menu page, scan:

Enter - for the page parameters you wish to default

Default

Exit

2. BAR CODE BATCH

This programming method combines multiple selections into one or more bar codes.

Bar Code Batch strings are made up of Code 39 Full ASCII bar codes. The unit requires Code 39 Full ASCII enabled.

As an example, instead of scanning 11 bar codes to select the following Postamble, only one bar code would be scanned

Example 1: *Bar Code Menu Method:*

Select a Scanner Postamble
“ABC” followed by the TAB key
(Codes 41,42,43,09)

1. Using the SCANNER PORT programming menu, scan the ENTER bar code symbol.
2. Scan the Postamble bar code
3. Using the Bar Code Chart, scan a 4,1,4,2,4,3,0,9 using both the alpha and digits columns.
4. Scan the EXIT bar code symbol.

Example 1: *Bar Code Batch Method:*

Select a Scanner Postamble
“ABC” followed by the TAB key
(Codes 41,42,43,09)

1. Scan the following Code 3 of 9 bar code



PROGRAM CODES

Program codes are defined on the bar code menu page where each selection is assigned an alphanumeric code.

- The first digit of each code represents the menu page.

A = Terminal Selection	F = Serial II Aux Port Selections
B = General I Selections	G = Serial II Host Port Selections
C = General II Selections	H = Code Selections - Industrial
D = Scanner Port Selections	I = Code Selections - Retail
E = Serial I Selections	J = Edit Selections
- The second digit of each code represents a particular parameter on the page.

Examples:

B1 =	General I Selections
	Beeper Volume
H1 =	Code Selections - Industrial
	Codabar
D6 =	Scanner Port
	AutoScan

Note: An alpha followed by a numeric zero denotes the factory default for that entire assigned menu selections.
(e.g. C0 = Default General II Selections).

- The following alpha or numeric digits represent the selection from the bar code menu chart.

Examples:

B15 = General I Selections
 Beeper Volume
 Setting 5
 H1A06 = Code Selections - Industrial
 Codabar
 Minimum Length 06
 D608 = Scanner Port
 AutoScan
 Detect rate of 08 (800 milliseconds)
 C20 = General II Selections
 Buffering, Off

Note: The “ON/OFF” variable would be represented with numeric “1/0”
 1 = ON
 0 = OFF

START / STOP AND SELECTION SEPARATORS

Start String = -- (2 Dashes)
 End String = -- (2 Dashes)
 Selection Separators = - (1 Dash)

Note: Parameters from any given menu page, in any given order are allowed in a batch string.

BATCH STRINGS

Long batch strings may be broken into smaller strings as
 (e.g. “-- First String --”, “-- Second String --”, “--Third String --”).

Note the following when creating multiple strings. Breaks in a batch string must be on menu selection boundaries, such as after the end of a variable selection and before the next menu selection.

Edit batch strings must be programmed in the order of the variables, and in the case of a broken string, the strings must be entered in sequential order.

Edit batch strings, or broken Edit batch strings that do not contain all necessary variables, will be terminated, without parameter changes, when the batch programming mode is terminated.

ENTERING BATCH MODE PROGRAMMING

Batch Mode Programming is entered whenever a Bar Code Batch string is received by the unit and terminated when a non-Batch Mode record is received.

EXAMPLES

- Program Terminal ID to 01



- Program Beeper Volume to 3
- Keyboard Type to Secondary (Caps Lock On)



- Program Terminal ID to 01
- Scanner Postamble to 0D



- Edit:
Code 39 five digit bar code, match and remove first digit and add "CR":
Input = A1234
Output = 1234 "CR"

Note: Prior to the first Edit the "J0" sequence must be received by the unit. After the last Edit entered add the "JC" sequence.

The batch string could be broken into three strings as follows:



Test Code = A1234



3. SERIAL BATCH

This programming involves creating an ASCII file containing the programming parameters and then transmitting the ASCII file to the unit via the RS 232 input port (Port 2).

A cable is required that would run from the host device to the RS 232 input port (Port 2) of the unit. Contact Compsee Customer Service for the correct cable configuration.

The units serial port setting must match the host's settings (e.g. Baud Rate, Parity, Start & Stop Bits).

The ASCII file created takes on the same attributes as the Bar Code Batch Programming.

START / STOP AND SELECTION SEPARATORS

Start String =	--	(2 Dashes)
End String =	--	(2 Dashes)
Selection Separators =	-	(1 Dash)

Note: Parameters from any given menu page, in any given order are allowed in a batch string.

EXAMPLES

- Select a Scanner Postamble of "ABC" followed by the TAB key (Codes 41,42,43,09)
--D241424309--
- Program Terminal ID to 01
- Program Beeper Volume to 3
- Program Keyboard Type to secondary
--A101-B13-B3B--

- Program Terminal ID to 15
- Program Scanner Postamble to 0D
- Edit Code 39 five digit bar code, match and remove first digit, and add "CR"
Input = A1234
Output = 1234 "CR"

Note: Prior to the first Edit the "J0" sequence must be received by the unit. After the last Edit entered add the "JC" sequence.

--A115-D20D-J0-J101-J21-J3B-J405-J502-J601-J7411-J604-J70D-J800-JB02-JC--

4. CLONING

NOTE: Reference Program Mode Menu in the back of the manual.

Cloning is a programming method that copies the setup from one unit to another. Once you have programmed and tested one unit and verified that the data input and output is correct, you can use that unit as the “master” to program the other unit in with the identical program.

Cloning is achieved by transmitting the program from the master to the attached unit via cable # 02TC016 from Port 2 of the master to Port 2 of the unit to be cloned.

CLONING A UNIT

- 1: Power up both the master and receiving unit. Power can be supplied from a keyboard interface or from an external power supply.
- 2: Connect the master and receiving unit. Plug Cable # 02TC016 into Port 2 of both units.

Cable # 02TC016 - Pin Outs

MASTER Unit		RECEIVING Unit
RXD	1 -----	3 TXD
TXD	3 ----->	1 RXD
CTS	5 -----	10 RTS
GROUND	7 -----	7 GROUND
RTS	10 <-----	5 CTS

3. **RECEIVING Unit** - Scan the **CLONE IN** label
(Program Mode Menu)
4. **MASTER Unit** - Scan the **CLONE OUT** label
(Program Mode Menu)
5. The Master Unit will transmit to the Receiving Unit the same parameters that it was programmed for.
6. Disconnect the Aux Port Cable from the Receiving Unit.
7. Recycle power on the Receiving Unit to initialize the transmitted parameters.

5. WinCape

NOTE: Reference Program Mode Menu in the back of the manual.

WinCape is a copyright software program by Compsee, Inc. Download Wincap from Compsee's Electronic Response and Information Center (ERIC) at www.compsee.com.

It is a means by which the user can configure the parameters for the unit using an IBM PC or compatible and the WinCape software.

REQUIREMENTS-

- IBM PC or Compatible
- Windows (3.X and above)
- WinCape Software
- TurboWedge
- Bar Code Scanner connected to Port 1
- RS 232 Cable – 02TC014 - Comm Port 1 or 2 is user specified
- Power Supply - The TurboWedge can be interfaced to a terminal and be receiving power from the keyboard connection.

WinCape should be used in conjunction with the TurboWedge Manual. The program screens merely follow the printed menu pages from the manual, allowing the operator to select the desired parameter and make the variable selections using function keys. When all parameters needed have been selected, the set-up can be downloaded to the TurboWedge and/or saved to a file on the PC.

Another utilization of WinCape allows for the uploading to the PC the parameters from a previously configured TurboWedge. The configuration can then be saved for future use.

After the user has completed the setup configuration on the PC, the TurboWedge needs to be connected to the Serial Port of the PC and to a power source.

Prior to communicating with the TurboWedge, scan the "Enable WinCape Programming" label located on the Program Mode Menu Page. This action temporarily sets up the serial port parameters so that the TurboWedge can communicate with the PC.

Once the download is complete and power to the TurboWedge has been recycled, the set-up for the serial port will be set to the configuration that was downloaded to it.

At the beginning of the download the TurboWedge will issue a High-Low beep sequence. Upon successful load, a High-High beep sequence will be issued.

6. SYMBOLGY VALIDATION

NOTE: Reference Program Mode Menu in the back of the manual.

Symbology Validation is the simplest programming method. In effect, you “teach” the unit to accept only the bar code or codes that the particular workstation can input.

1. Scan Enter Symbology Validation
2. Scan a bar code representing the minimum length of the particular code that can be read.
3. Scan a bar code representing the maximum length of the particular code that can be read.
4. Scan Exit Symbology Validation

EXAMPLE

At a particular workstation the operator should only be reading data represented by the following three bar code. The unit should be programmed in the following manner using Symbology Validation.

Code 128 - 6 Digits

Code 128 - 14 Digits

Code 3 of 9 - 8 Digits

- 1) Scan Enter Symbology Validation
- 2) Scan a 6 digit Code 128 bar code
(Minimum Length)
- 3) Scan a 14 digit Code 128 bar code
(Maximum Length)
- 4) Scan the 8 digit Code 3 of 9 bar code
(Maximum Length)
- 5) Scan Exit Symbology Validation

7. ON-SCREEN

The On Screen Programming Method (OSPM) lets you display the program parameters on your screen. You can select the parameters using the host terminal keyboard and make the setting changes that are required.

SET-UP

Prior to entering On Screen Programming Mode (OSPM), the host terminal must be prepared to display data without affecting the application program. Best results are obtained by entering a word processor such as "NotePad". This allows the user to review data that may roll off the screen during the programming session.

1. There are three methods that can be used to enter the On Screen Programming Mode.
 - Using a Bar Code Scanner attached to Port 1 of the unit:
Scan the On Screen Programming Mode bar code found on the Programming Mode page in the menu section of the manual (Page M).
 - Using a Serial Input Device attached to Port 2 of the unit.
Transmit the following sequence of characters. C\$\$\$-8C
 - Using a Magnetic Stripe Card Reader attached to Port 2 of Model 1 or Port 3 of Model 2.
Swipe a card that has been encoded with C\$\$\$-8C.

2. Upon entering OSPM, the Turbo wedge will produce a Hi-Lo beep sequence. The following menu will appear on the host terminal screen:

```
MAIN MENU
1-TERMINAL
2-GENERAL
3-SCANNER
4-SERIAL
5-CODES
6-EDIT
7-STATUS
8-MISC
9-EXIT
SELECT GROUP __
```

3. At the SELECT GROUP prompt, key in the numeric digit followed by <ENTER> for the desired menu.
A corresponding sub menu will then be displayed.

At the SELECT PARAMETER prompt, key in the desired response from the displayed range of variables. Follow the desired variable by <ENTER>.

Some variables may require more than one entry. The appropriate prompt for these selections is provided.

Some selections, such as "Codes" can have more than one variable changed at the prompt. All changes to the variables should be keyed at the prompt prior to <ENTER>.

NOTES

- Both upper and lower case key entries are accepted.
- The <Esc> key will always return the user to the main menu.

BEEP SEQUENCES

- **Hi beep** = Emitted after each key response. Denoting that the key was accepted.
- **Hi/Lo beep** = the number of key entries expected was exceeded, backspace will remove such entries.
- **Hi/Hi beep**: denotes that the parameter selection is valid and is entered into non volatile memory. This will occur after completing a parameter sequence
- **Hi/Lo/Lo beep**: denotes that the sequence was not valid and must be reentered.

EXAMPLE

General I: Beeper Volume 5
General II: Mag Track 1&2
Scanner Port: Postamble 0D
Codes Ind.: Code 3of 9 min length 10
 max length 10
 ck digit on
Code 11 off
Edit: Input: 00A231Z507
 Output: AZ<TAB>231507<ENTER>

For the following example all user operations will be in bold type. All On Screen Programming screen displays will be in normal type. After each key entry sequence a Hi/Hi beep should emit from the unit.

Action: **Power up the TurboWedge**
Action: **Advance to an input screen**

Key: <OSPM><Enter>

Screen: MAIN MENU
 1-TERMINAL
 2-GENERAL
 3-SCANNER
 4-SERIAL
 5-CODES
 6-EDIT
 7-STATUS
 8-MISC
 9-EXIT
 SELECT GROUP

Key: **2<Enter>**

Screen: GENERAL I GENERAL II
 B0-DFLT C0-DFLT
 B1-BEEP C1-MAG
 B2-IIH CK C2-BUFF
 B3-KB TYP C3-SOL RCD
 B4-ICH DLY C4-SWCHS
 B5-IFC DLY
 B6-FRN KBD
 B7-NUM PAD
 SELECT PARAM

Key: **B1<Enter>**

Screen: ENTER 0-7

Key: **5<Enter>**

Screen: GENERAL I GENERAL II
 B0-DFLT C0-DFLT
 B1-BEEP C1-MAG
 B2-IIH CK C2-BUFF
 B3-KB TYP C3-SOL RCD
 B4-ICH DLY C4-SWCHS
 B5-IFC DLY
 B6-FRN KBD
 B7-NUM PAD
 SELECT PARAM
Key: C1<Enter>

Screen: ENTER
 0=AUX
 1=TK1
 2=TK2
 3=TK3
 4=TK1&2
 5=TK1&3
 6=TK2&3
 7=TK1&2&3
 8=ANY TK
Key: 4<Enter>

Screen: GENERAL I GENERAL II
 B0-DFLT C0-DFLT
 B1-BEEP C1-MAG
 B2-IIH CK C2-BUFF
 B3-KB TYP C3-SOL RCD
 B4-ICH DLY C4-SWCHS
 B5-IFC DLY
 B6-FRN KBD
 B7-NUM PAD
 SELECT PARAM
Key: <Esc>

Screen: MAIN MENU
 1-TERMINAL
 2-GENERAL
 3-SCANNER
 4-SERIAL
 5-CODES
 6-EDIT
 7-STATUS
 8-MISC
 9-EXIT
 SELECT GROUP
Key: 3<Enter>

Screen: SCANNER
 D0-DFLT
 D1-PREAM
 D2-POSTAM
 D3-LSR RDN
 D4-FUN CDS
 D5-CODE ID
 D6-ATOSCN
 D7-MULSCN
 SELECT PARAM
Key: D2<Enter>

Screen: ENTER 00-FE (16 MAX)
Key: **0D<Enter>**

Screen: SCANNER
D0-DFLT
D1-PREAM
D2-POSTAM
D3-LSR RDN
D4-FUN CDS
D5-CODE ID
D6-ATOSCN
D7-MULSCN
SELECT PARAM

Key: <Esc>

Screen: MAIN MENU
1-TERMINAL
2-GENERAL
3-SCANNER
4-SERIAL
5-CODES
6-EDIT
7-STATUS
8-MISC
9-EXIT
SELECT GROUP

Key: **5<Enter>**

Screen:

CODE IND	CODE RET
H0-DFLT	10-DFLT
H1-CODABAR	11-UPC
H2-3OF9	12-EAN
H3-I 2OF5	
H4-2OF5	
H5-CODE 11	
H6-CODE 93	
H7-CODE128	
H8-MSI PLESSEY	
SELECT PARAM	

Key: **H2<Enter>**

Screen: ENTER
1/0 ON/OFF
A 00-64=MIN LEN
B 00-64=MAX LEN
C 1/0=S/S XMIT
D 1/0=FULL ASCII
E 1/0=CK DIGIT
F 1/0=CK DIGIT XMIT
G 1/0=APPEND

Key: **A10B10E1<Enter>**

Screen:	CODE IND H0-DFLT H1-CODABAR H2-3OF9 H3-I 2OF5 H4-2OF5 H5-CODE 11 H6-CODE 93 H7-CODE128 H8-MSI PLESSEY SELECT PARAM	CODE RET I0-DFLT I1-UPC I2-EAN
Key:	H5<Enter>	
Screen:	ENTER 1/0 ON/OFF A 00-64=MIN LEN B 00-64=MAX LEN C=1 CK DIGIT D=2 CK DIGIT	
Key:	0<Enter>	
Screen:	CODE IND H0-DFLT H1-CODABAR H2-3OF9 H3-I 2OF5 H4-2OF5 H5-CODE 11 H6-CODE 93 H7-CODE128 H8-MSI PLESSEY SELECT PARAM	CODE RET I0-DFLT I1-UPC I2-EAN
Key:	<Esc>	
Screen:	MAIN MENU 1-TERMINAL 2-GENERAL 3-SCANNER 4-SERIAL 5-CODES 6-EDIT 7-STATUS 8-MISC 9-EXIT SELECT GROUP	
Key:	6<Enter>	
Screen:	ENTER 01-15 EDIT NUM; 00 EXIT	
Key:	01<Enter>	
Screen:	ENTER 1=SCANNER 2=AUX 3=MAG 4=ALL	
Key:	1<Enter>	

Screen: ENTER
 A=CODABAR B=CODE 3OF9
 C=UPC-A D=EAN
 E=I 2OF5 F=2OF5
 G=ALL/AUX/MAG H=CODE 11
 I=CODE 93 J=CODE 128
 2=PLESSEY
Key: B<Enter>

Screen: ENTER 00-64=INPUT RCD LENTGH
Key: 10<Enter>

Screen: ENTER 01-31=FLDS IN INPUT RCD
Key: 05<Enter>

Screen: ENTER 00-64=INPUT FLD LENGTH
Key: 02<Enter>

Screen: ENTER 00-7E=ASCII FUN CODE 1=MATCH
Key: 00<Enter>

Screen: ENTER 00-64=INPUT FLD LENGTH
Key: 01<Enter>

Screen: ENTER 00-7E=ASCII FUN CODE 1=MATCH
Key: 411<Enter>

Screen: ENTER 00-64=INPUT FLD LENGTH
Key: 03<Enter>

Screen: ENTER 00-7E=ASCII FUN CODE 1=MATCH
Key: 00<Enter>

Screen: ENTER 00-64=INPUT FLD LENGTH
Key: 01<Enter>

Screen: ENTER 00-7E=ASCII FUN CODE 1=MATCH
Key: 5A1<Enter>

Screen: ENTER 00-64=INPUT FLD LENGTH
Key: 03<Enter>

Screen: ENTER 00-7E=ASCII FUN CODE 1=MATCH
Key: 0D<Enter>

Screen: ENTER 00-15=ADDED FLDS
Key: 01<Enter>

Screen: ENTER 01-15=ADDED FLD LENGTH
Key: 01<Enter>

Screen: ENTER 00-7E=ADDED FLD DATA
Key: 0B<Enter>

Screen: ENTER 01-46=OUTPUT SEQUENCE
Key: 0204060305<Enter>

Screen: EDIT GOOD
MAIN MENU
1-TERMINAL
2-GENERAL
3-SCANNER
4-SERIAL
5-CODES
6-EDIT
7-STATUS
8-MISC
9-EXIT
SELECT GROUP

Key: 9<Enter>

V. GENERAL PROGRAM SELECTIONS

1. TERMINAL SELECTIONS

a) INTERFACE SELECTION - KEYBOARD WEDGE

Menu Page = **Terminal Selection - Page A**

This parameter programs the unit for the terminal it is attached via the keyboard.

Sequence of operation for programming the terminal selection

- a) Scan "ENTER TERMINAL SELECTION"
- b) Scan the two (2) digit number corresponding to the terminal desired.
- c) Example: For an IBM 3180-1 Terminal, Scan a "0" then a "5" on the Bar Code Menu Page.
- d) Scan "EXIT TERMINAL SELECTION"

b) INTERFACE SELECTION - SERIAL OUTPUT

Menu Page = **Terminal Selection**

This parameter programs the unit for RS 232 serial communications.

- External Power Supply Required
- Set Communication Parameters using the Serial I and II Menu Pages.
- **Single Port RS 232 - Data Output = Port 2 (Models 1 or 2)**
 - a) Scan "ENTER TERMINAL SELECTION"
 - b) Single Port RS 232 ID = 31
 - c) Scan "3" then a "1" on the Bar Code Menu Page.
 - d) Scan "EXIT TERMINAL SELECTION"
- **Dual Port RS 232**
 - a) Scan "ENTER TERMINAL SELECTION"
 - b) Dual Port RS 232 ID = 32
 - c) Scan "3" then a "2" on the Bar Code Menu Page.
 - d) Scan "EXIT TERMINAL SELECTION"

2. GENERAL I MENU

Menu Page = **General I - Page B**

This menu page is used to program various functions that apply to all input through the unit.

The DEFAULT Selections for the General Menu are indicated on the menu by an asterisk "*"

BEEPER VOLUME =	7
INPUT INHIBIT CHECK =	OFF
KEYBOARD TYPE =	PRIMARY
INTERCHARACTER DELAY =	00 (NONE)
INTERFUNCTION DELAY =	00 (NONE)
NUMERIC KEYPAD =	OFF

- **Beeper Volume**

The unit will emit a beep after each successful read. This beep can range in volume from 0 (OFF) to 7 (HIGH). The default is 7 (HIGH).

- **Input Inhibit Check**

In most terminal environments, the terminal is often “inhibited” from sending data to the host CPU. This happens after a screen or page of data is sent to the host CPU by the operator activating the “XMIT”, “REC ADV”, or “ENTER” key. Further input from the keyboard is ignored by the terminal as long as input is inhibited by the host.

Reference Appendix A for terminals which allow monitoring of the Input Inhibit line.

Reference Appendix G for terminals that require the installation of leads inside the terminal to monitor input inhibit.

Reference Appendix F for further usage of Input Inhibit during data transmission

- **Keyboard Type**

Most terminals supported by the unit can have one of two styles of keyboards attached to it. Through programming you can change from one type to another.

The types of keyboards are often referred to as:

- ◆ Typewriter versus Data Entry
- ◆ 122 Keys versus 102 Keys
- ◆ No Caps Lock versus Caps Lock

NOTE: Caps Lock on Versus Caps Lock Off

Output of alpha data to the terminal is affected by the ON or OFF state of the CAPS LOCK key.

Under default , the unit assumes that CAPS LOCK is OFF and sends the "SHIFT" key prior to the output of alpha data. The alpha data then appears as upper case characters.

However, if the terminal program functions with CAPS LOCK ON, the addition of the "SHIFT" key sends the data to the terminal as lower case alpha characters. If this is the case, the Keyboard Type should be set to Secondary.

- **Intercharacter Delay**

This parameter is used to establish an intercharacter delay time of 10 to 990 milliseconds. The delay will appear after each character is transferred to the terminal screen.

This delay parameter should be specified if you find that the terminal cannot keep up with the speed at which the unit is sending data to the screen, or if the host program is inserting multiple keyboard functions into the data being entered.

- **Interfunction Delay**

This parameter is used to establish an interfunction delay time of 10 to 990 milliseconds. The delay will appear after each keyboard function is transferred to the terminal screen.

This delay parameter should be specified if you find that the terminal cannot keep up with the speed at which the unit is sending data to the screen, or if the host program is inserting multiple keyboard functions into the data being entered.

- **Numeric Keypad**

Under normal conditions, the number keys at the top of the keyboard are emulated by the keyboard wedge when entering numeric data.

In the event that an application calls for the depression of the numeric keys on the right-hand keypad, this parameter should be turned on. Once on, numeric data transmitted from the wedge will emulate the depression of these keys.

3. GENERAL II MENU

Menu Page = **General II - Page C**

The second General Menu is also used to program various functions that apply to input through the unit.

The DEFAULT Selections for the General Menu are indicated on the menu by an asterisk "**"

MAGNETIC TRACK	= TRACK 2
BUFFERING	= ON
SCALE SOLICIT RECORD	= NONE
SWITCHES	
1) Output Edited Records Only	= OFF
2) Mag Stripe Reverse	= OFF
3) ----	= OFF
4) Turbo Mode - HP, Wyse, PC/AT	= OFF
5) ----	= OFF
6) IBM PC/AT without Keyboard	= OFF
7) Laser with Marker Beam	= OFF
8) Laser with Auto Sense	= OFF
SET PAUSE TIME	= NONE

- **Magnetic Track**

This parameter is used to establish which track or tracks are to be read from the attached magnetic stripe reader.

Magnetic Stripe Ports

TurboWedge 1 = Port 2

TurboWedge 2 = Port 3

The options are:

1 = Track 1	5 = Dual Track 2 & 3
2 = Track 2	6 = Dual Track 1 & 3
3 = Track 3	7 = Triple Track 1,2 & 3
4 = Dual Track 1 & 2	8 = Any Valid Track

NOTE:

“0” = TurboWedge 1, Port 2, RS 232 Input

Since Port 2 of the TurboWedge 1 can also be configured for RS 232 Input. If an RS 232 Input device is attached to Port 2, this parameter should be set to “0”.

- **Buffering**

If the buffer is ON (Default), and the attached terminal is not ready to accept data, the unit will buffer up to 32 entries.

If the buffer is OFF, the unit will not accept another entry until the record previously read has been transmitted to the attached terminal and the buffer has been cleared.

- **Scale Solicit Record**

Typical usage for this parameter is when for an application requires a scale to be attached to the RS 232 auxiliary port. Most scales require that a record be sent to it prior to initiating the response from the scale.

This parameter is used to set the ASCII character or characters that will be transmitted. The defined character(s) will be held in the units buffer under the Hex 05 Function Code - Referred to as SOLA (Solicit). Whenever the Hex 05 Function Code is programmed into the output record (preamble, postamble, output edit) the solicit record in the buffer will be sent out to the attached scale. Once received, the scale will respond by transmitting the data string containing the weight information back to the wedge.

A maximum of four (4) ASCII characters can be programmed.
The default value for this parameter is "NONE".

Example:

The scale requires a "P" followed by a "Carriage Return" sent to it prior to it transmitting the weight data out the RS 232 Port.

Program the unit for a Scale Solicit Record of 50, 0D. Whenever the SOLA Function Code (Hex 05) (Postamble or Singular Function Code) is inserted in the data string, the record (Hex 500D) will be transmitted out the RS 232 port to the scale, causing the scale to respond with the transmission of the weight data back to the wedge.

- **Selector Switch 1: Output Edited Records Only**

This parameter is used to establish what input records will be transmitted to the terminal.

If this parameter is ON, only the records that have been defined and edited via the EDIT Program Parameters will be passed through to the terminal. See Section IX for instructions on Edit programming.

If this parameter is OFF (Default), all input will be passed through to the terminal. This includes both edited and non-edited records.

- **Selector Switch 2 : MSR Reverse**

If this parameter is on, a magnetic stripe card can be passed through the reader in either direction.

If this parameter is off, a magnetic stripe card can only be passed through the reader in a forward direction.

- **Selector Switch 3: NOT ACTIVE**

- **Selector Switch 4: Turbo Mode - HP, Wyse, PC/AT**

The application software running on an HP, Wyse or PC/AT terminal can have an effect on the data that is transmitted from the wedge. Based on the applications response time, it is possible for keyboard data to be eliminated during the transmission.

Therefore under the normal HP, Wyse and PC/AT set-up, this is taken into account. The transmission rate from the unit is such that data will not be lost.

If the rate of transmission appears to be too slow, turn on the Turbo Mode Switch. This will increase the speed of transmission. This mode should be tested with the application prior to its use in a production environment.

If this parameter is off, data transmission will remain at the factory setting.

If this parameter is on, the data transmission speed will be increased.

- **Selector Switch 5: NOT ACTIVE**

- **Selector Switch 6: IBM PC/AT without keyboard**

If the unit is attached to an IBM PC/AT without a keyboard, this parameter should be set to ON.

During the power up sequence, the terminal checks for the presense of a keyboard. If the keyboard is not present, the TurboWedge will send back the required "keyboard present" signal to the terminal.

If OFF, a keyboard must be attached to avoid the error condition that is emitted by the terminal when it checks for the presence of a keyboard during the start-up sequence.

- **Selector Switch 7: Laser with Marker Beam**

If the Marker Beam option is installed on the attached laser input device, Switch 7 should be turned on. When ON, the unit will delay the start of decode to allow time for the marker beam.

- **Selector Switch 8: Laser with Auto Sense**

If the Auto Sense option is installed on the attached laser input device, Switch 8 should be turned on.

- **Set PAUSE TIME**

Description:

Allows the user to set ASCII Location 15 for PAUSE of 0 to 10 seconds.

When ASCII Location 15 is inserted into the output data record it will cause the unit to pause the programmed amount of time.

Typical Use:

Used when function codes such as "ENTER", "REC ADV", or "XMIT" are inserted into the output record. These key functions normally cause a screen change during the output of data.

If these functions are embedded within the output of a record via a programmed edit, there is a possibility of data loss if the host systems response time is slower then the units transmission speed.

If a "PAUSE" is inserted after the function, the unit will hold the remainder of data to be output in buffer and continue transmission at the end of the pause.

Menu Implementation:

1. Scan - ENTER GENERAL II Selections
2. Scan - SET PAUSE TIME
3. Scan - The two (2) digits (00 - 99) to represent the length of time for the pause.
4. Scan - EXIT GENERAL II Selections

NOTE: The number scanned will be multiplied by 100 milliseconds.

10 = 1000 milliseconds or 1 second, 80 = 8000 milliseconds or 8 seconds

Example:

1. Scan - ENTER GENERAL II Selections
2. Scan - SET PAUSE TIME
3. Scan - 20 (20 = 2 Seconds)
4. Scan - EXIT GENERAL II Selections
5. Scan - ENTER SCANNER PORT Selections
6. Scan - POSTAMBLE
7. Scan - 0D 15 (NEW LINE & PAUSE)
8. Scan - EXIT SCANNER PORT Selections

If a series of bar codes are read, the unit will output after each bar code the NEW LINE Key and then pause for 2 seconds before sending the next bar code read.

VI. SCANNER PORT MENU

Menu Page = **Scanner Port - Page D**

This menu page is used to program various functions that apply to input through the Scanner Port.

The DEFAULT Selections for the Scanner Port Menu are: Indicated on the menu by an asterisk "*"

PREAMBLE = NONE
POSTAMBLE = NONE
LASER REDUNDANCY = OFF
FUNCTION CODES = OFF
CODE IDENTIFICATION = OFF
AUTOSCAN = OFF
MULTI SCAN = OFF

- **Preamble & Postamble**

The user may specify a Preamble and/or Postamble (maximum of 16 characters each) to precede or follow each code scanned.

Preamble	Scanned Data	Postamble
----------	--------------	-----------

NOTE: Embedding the "ENTER", "REC ADV", or "XMIT" keys within the data being transmitted will result in either a portion of, or all of the data following these key functions not be transmitted to the screen.

To prevent loss of data, only use the "ENTER", "REC ADV", or "XMIT" keys as the last character of the Postamble or program in an adequate "Pause" after the function to allow for a new screen to appear.

When programming for a Preamble and/or a Postamble, the Hex representation for each character desired must be entered. Refer to either the Key Code Chart in Appendix C.

NOTE: Any programmed Preamble & Postamble will not be included in the output for a record that has been edited. If a Preamble or Postamble is required on an edited record, it must be included in the edit.

- **Laser Redundancy**

When enabled, the unit will require two (2) identical reads of a bar code to be decoded prior to accepting the bar code input and signaling for the light source to be turned off on the input device.

- **Function Codes**

If Keyboard Function Codes (i.e., Field Forward, Xmit, etc.) are embedded within the bar codes that are being read, this feature must be turned ON.

See Appendix C for a listing of the keyboard functions and the programmed codes associated with each function.

- **Code Identification**

This parameter programs the unit to precede the transmission of each bar code read with a character that identifies the type of symbology the code was printed in.

The symbologies and their identifiers are as follows:

CODABAR	= a	CODE 3 OF 9	= b	UPC-A	= c
EAN	= d	I 2 OF 5	= e	2 OF 5	= f
CODE 128	= j	CODE 11	= h	CODE 93	= I
PLESSEY	= g				

- **AutoScan**

When turned On, the attached laser input device is automatically enabled and will “blink” and attempt to detect a bar code. When the laser detects a bar code it will activate fully and attempt to decode it.

After a successful read, the laser will be turned off. The time between the off and on stages of the laser is programmed by the user and variable between 100 milliseconds and 9.9 seconds.

If during an attempted read a bar code is not present, the laser will turn off.

- **Multi Scan**

When turned On, the attached laser input device, when triggered, will be activated and stay on as long as bar codes are being decoded.

The laser will turn off when either the trigger is released or a successful decode has not occurred within a period of approximately 3 seconds.

Programming options for Multi Scan include:

- ◆ Time between reads 00 - 99 (x10 milliseconds)
- ◆ Allowing for the identical bar codes to be read On/Off

VII. SERIAL INPUT/OUTPUT SELECTIONS

Menu Pages - Serial I & Serial II - Pages E, F & G

The Serial I and II menu pages are used to program various functions that pertain to either serial input or output through the RS 232 Auxiliary Port or Dual/Single Port RS 232 Output.

I. SERIAL I SELECTIONS

The DEFAULT Selections for the Serial I Menu are: (indicated by an asterisk on the menu)

PREAMBLE = NONE
POSTAMBLE = NONE
RECORD TERMINATOR = "0D"
FUNCTION CODES = OFF

• **Preamble & Postamble (RS 232 Input)**

Through programming, the user may specify a Preamble and/or Postamble (maximum of 16 characters each) to precede or follow all data being transmitted that was received from the RS 232 auxiliary input port (Port 2 - Models 1 & 2).

Preamble	RS 232 Input Data	Postamble
----------	----------------------	-----------

NOTE: Embedding the "ENTER", "REC ADV", or "XMIT" keys within the data being transmitted will result in either a portion of, or all of the data following the these key functions not be transmitted to the screen.

To prevent loss of data, only use the "ENTER", "REC ADV", or "XMIT" keys as the last character of the Postamble or program in an adequate "Pause" after the function to allow for a new screen to appear.

When programming for a Preamble and/or a Postamble, the Hex representation for each character desired must be entered. Refer to either the Key Code Chart in Appendix C.

NOTE: Any programmed Preamble & Postamble will not be included in the output for a record that has been edited. If a Preamble or Postamble is required on an edited record, it must be included in the edit.

• **Record Terminator (RS 232 Input)**

Each data record that the unit receives from the RS 232 auxiliary input port (Port 2, Models 1 & 2) is held in a buffer until a Record Terminator is received.

Once received, the unit will discard the Record Terminator, process the data received and then transmit the data.

One character must be programmed as the Record Terminator. Any of the ASCII characters may be used as a Record Terminator. *The Record Terminator will NOT appear on the screen.* The only function of the Record Terminator is for usage by the unit to signal the end of a data record.

When programming for a Record Terminator, the Hex representation for each character desired must be entered. Refer to the Key Code Chart in Appendix C.

If the last character of the data does not match the Record Terminator specified, no data will be sent to the screen.

• **Function Codes (RS 232 Input)**

If Keyboard Function Codes (i.e., TAB, ENTER, etc.) are embedded within the data being received from the RS 232 Port (Port 2 - Models 1 & 2) and are to be transmitted as keyboard functions, this feature must be turned ON.

If OFF, keyboard function characters received by the unit will be ignored.

2. SERIAL II SELECTIONS

Note the presence of both the Enter Aux Port Selection and Enter Host Port Selections.

Enter Aux Port Selections

TurboWedge 1 - Use for all Serial II Selections

TurboWedge 2 - Use for data input through Input Port 2

Enter Host Port Selections

TurboWedge 1 - Not a valid entry

TurboWedge 2 - Use for data output selections (Interface connection)

The DEFAULT Selections for the Serial II Menu are indicated by an asterisk on the menu.

BAUD RATE	= 9600
PARITY	= EVEN
WORD LENGTH	= 7 BITS
STOP BITS	= 1 STOP BIT
DUAL/SINGLE PORT FLOW CONTROL	= NONE
SERIAL INPUT PROTOCOL	= RECORD

- **Baud Rate (RS 232 Input or Output)**

Program the Baud Rate for serial transmission compatibility with the external device connected to the RS 232 Input Port or to the host system if data output is RS 232 Single or Dual Port. If the Baud Rate compatibility is not achieved, a series of beeps will be emitted.

Selections include:

300 =	A	4800 =	E	57600 =	I (TurboWedge 2 only)
600 =	B	9600 =	F	115700 =	J (TurboWedge 2 only)
1200 =	C	19200 =	G		
2400 =	D	38400 =	H		

- **Parity (RS 232 Input or Output)**

Program Parity Checking for serial transmission compatibility with the external device connected to the RS 232 Input Port or to the host system if data output is RS 232 Single or Dual Port. If Parity compatibility is not achieved, a series of beeps will be emitted.

Selections include:

MARK =	A	SPACE =	B
EVEN =	C	ODD =	D
NONE =	E		

- **Word Length (RS 232 Input or Output)**

Program Word Length for serial transmission compatibility with the external device connected to the RS 232 Input Port or to the host system if data output is RS 232 Single or Dual Port. If Word Length compatibility is not achieved, a series of beeps will be emitted.

Word Length can be set to either 7 or 8 bits.

- **Stop Bits (RS 232 Input or Output)**
Program Stop Bits for serial transmission compatibility with the external device connected to the RS 232 Input Port or to the host system if data output is RS 232 Single or Dual Port. If Stop Bit compatibility is not achieved, a series of beeps will be emitted . Stop Bits can be set to either one or two.

- **Dual/Single RS 232 Flow Control (RS232 Dual or Single Port Output)**
This menu selection is used to configure the flow control for data communication between the unit and its host.

The menu choices for Protocol include:
 - NONE** - Often referred to as "Ready Mode". When enabled, data input to the unit will be immediately transmitted.

 - XON / XOFF** - When enabled, the command "DC1" from the host to the terminal will initiate communication; the command "DC3" will stop data transmissions.

 - RTS / CTS** - When enabled, the RTS / CTS signal lines will control the transmission of data between the host and the terminal.

- **RS 232 Input Protocol (RS 232 Input)**
If multiple data records are being sent through the unit (Port 2) to the screen from an external portable reader/computer, a Data Transfer Protocol must be set. If a Data Transfer Protocol is not set, the unit will only receive data on a record-to-record basis.

A detailed explanation of each Protocol can be found in Appendix F.

Through programming you can change the Protocol to one of the following:

RECORD	= A	SOLICIT / XON	= B
BURST	= C	ACK/NAK	= D
Xmodem CRC	= E		

VIII. BAR CODE SELECTIONS

Menu Pages - Code Selection Industrial & Retail - Pages H & I

These menu pages are used to enable or disable the various bar code symbologies that the unit is able to decode. They are also used to set the different variables within each code symbology.

Upon DEFAULT, the unit is able to auto-discriminate between all codes. The DEFAULT variables for each code are indicated by an asterisk on the menu.

To change any of the variables, you must:

- 1) Enter Industrial/Retail Code Selections
- 2) Scan the symbology you wish to change
- 3) Scan the Alpha for the variable you wish to change
- 4) Scan the selection within the variable.
- 5) Either select another variable, select another symbology or Exit Code Selections.

- **Codabar**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	00
MAXIMUM LENGTH	00 -> 64	64
START/STOP XMIT	ON or OFF	OFF
CONCATENATE ON or OFF	OFF	

- **Code 3 of 9**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	00
MAXIMUM LENGTH	00 -> 64	64
START/STOP XMIT	ON or OFF	OFF
FULL ASCII	ON or OFF	ON
CHECK DIGIT	ON or OFF	OFF
CHECK DIGIT XMIT	ON or OFF	OFF
APPEND	ON or OFF	OFF

- **Interleaved 2 of 5**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	04
MAXIMUM LENGTH	00 -> 64	64
6 and 14 ONLY	ON or OFF	OFF
CHECK DIGIT	ON or OFF	OFF
CHECK DIGIT XMIT	ON or OFF	OFF

NOTE: Interleaved 2 of 5 symbology requires that the code read be an even number of digits.

- **Industrial 2 of 5**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	00
MAXIMUM LENGTH	00 -> 64	64

- **Code 11**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	04
MAXIMUM LENGTH	00 -> 64	64
ONE CHECK DIGIT	ON	
TWO CHECK DIGITS	ON	ON

- **Code 93**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	00
MAXIMUM LENGTH	00 -> 64	64

- **Code 128**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	ON
MINIMUM LENGTH	00 -> 64	00
MAXIMUM LENGTH	00 -> 64	64

- **Plessey**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
ENABLE	ON or OFF	OFF
MINIMUM LENGTH	00 -> 64	04
MAXIMUM LENGTH	00 -> 64	64

- **UPC**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
UPC A	ON or OFF	ON
UPC E	ON or OFF	ON
2 DIGIT SUPPLEMENT	ON or OFF	ON
5 DIGIT SUPPLEMENT	ON or OFF	ON
CHECK DIGIT XMIT	ON or OFF	ON
NUMBER SYS XMIT	ON or OFF	ON
ZERO SUPPRESS ON or OFF	ON	

- **EAN**

<u>Variables</u>	<u>Selections</u>	<u>Default</u>
EAN.JAN 8	ON or OFF	ON
EAN/JAN 13	ON or OFF	ON
2 DIGIT SUPPLEMENT	ON or OFF	ON
5 DIGIT SUPPLEMENT	ON or OFF	ON
CHECK DIGIT XMIT	ON or OFF	ON
NUMBER SYS XMIT	ON or OFF	ON
ZERO SUPPRESS ON or OFF	ON	

IX. EDIT PROGRAMMING

CUSTOMER APPLICATIONS PROGRAMMABLE EDIT (CAPE)

It is **strongly advised** that **Section 9** be read in its entirety and that a Worksheet be filled out **BEFORE** you attempt to program any of the CAPE features.

The Customer Applications Programmable Edit, referred to as CAPE, is a means by which the user can qualify the raw data record passing through the unit and then define the output format of the data record.

The menu programmable features allow the user the following flexibility.

- **DATA QUALIFICATION:**

1) Specify which port the data record can be received from.

Scanner
Auxiliary RS 232
Magnetic Stripe

2) Specify which symbology the data record must be represented by.

Code 3 of 9	Code 11
Codabar	Code 93
I 2 of 5	Plessey
2 of 5	UPC
Code 128	EAN

All = Any symbology, RS 232 or Mag Stripe

3) Specify the length of the data record.

Actual length
Variable Length

4) Specify by position in the data record a match to a specific ASCII character.

Example:

Position 3 of the record must be a "T" and
position 5 of the record must be a "7".

Qualification Example:

A 6 digit Code 3 of 9 bar code with a "5" as the second digit.

Qualify = Scanner Port
 Code 3 of 9
 Six digits
 "5" = second position

Only a record passing all four qualifications will pass the edit.

- **OUTPUT FORMAT OPTIONS**

- 1) **Add** data and/or Function Codes to the record
 - Preambles
 - Postambles
 - Insert Within Output Record
- 2) **Delete** data from the record.
 - Examples:
 - Do not output field identifiers
 - For Mag Stripe input, only output the Account Number and Expiration Date.
- 3) **Rearrange** data from the input record to match the output format.
- 4) **Repeat** data found in the input record. Output the same data more than once.
- 5) **Define two output formats** for one input record.
 - The second of the two output formats is activated by reading a "Switch Label".

Output Format Example:

- 1) Delete and Add

Input = 123T456
Output = 123<TAB>456<ENTER>

- 2) Add, Delete and Rearrange

Input = ;5928394920033=92059032490834?
Output= 9999<TAB>5928394920033<ENTER>0592<ENTER>

EDIT WORKSHEET

DATA INPUT: _____

DATA OUTPUT: _____

EDIT NUMBER: _____ OF _____

Secondary Switch: _____

Deactivate Switch: _____

Secondary Output Record: _____

PORT = _____ **CODE** _____

SYMBOLGY = _____ **CODE** _____

INPUT RECORD LENGTH _____

NUMBER OF INPUT FIELDS _____

#	LENGTH	FUNCTION CODE	MATCH

NUMBER OF ADDITIONAL FIELDS: _____

#	LENGTH	DATA (Minimum of 15)

OUTPUT SEQUENCE: _____

PROGRAMMING EXAMPLE # 1

Use of **Match** Code & **Added** Function Codes

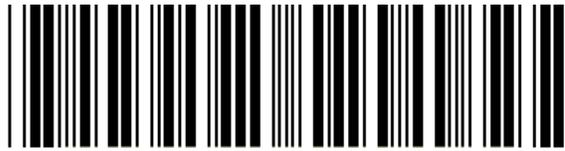
INPUT RECORD: N1234567

OUTPUT RECORD: 1234<Field Forward>567<Enter>

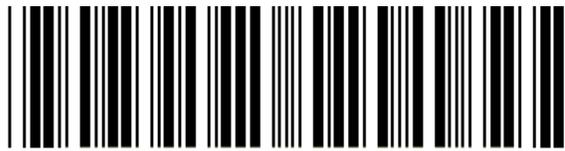
ENTER EDIT PROGRAMMING

Edit Number	01
Port	1 (Scanner)
Symbology	B (3 of 9)
Input Length	08
# of Fields	03
Field 1	
Length	01 (N)
Function. Code	4E (N = Hex 4E)
Match Code	0N (Field = N)
Field 2	
Input Field Length	04 (1234)
Function Code	0B (Tab)
Field 3	
Input Field Length	03 (567)
Function Code	0D (Enter)
Added Fields	00
Added Field Length	Ignore
Added Field Data	Ignore
Output Sequence	02, 03

EXIT EDIT PROGRAMMING



N 1 2 3 4 5 6 7



V 1 2 3 4 5 6 7

- NO CHANGE IN OUTPUT
- MUST BEGIN WITH "N" FOR VALID EDIT

PROGRAMMING EXAMPLE # 2

Added Data & Rearrange Fields

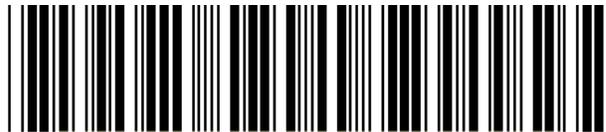
INPUT RECORD: 1234567890

OUTPUT RECORD: 67890-BAR<ENTER>12345-CODE<ENTER>

ENTER EDIT PROGRAMMING

Edit Number **01**
Port: **I** (Scanner)
Symbology **B** (CODE 3 OF 9)
Input Record Length **10**
Fields In Input Record **02**
Field 1
 Input Field Length **05** (12345)
 Function Code **00** (Null)
Field 2
 Input Field Length **05** (67890)
 Function Code **00** (Null)
Added Fields **02**
 Field 3
 Added Field Length **05**
 Added Field Data **2D, 42, 41, 52, 0D**
 (- B A R)
 Field 4:
 Added Field Length **06**
 Added Field Data **2D, 43, 4F, 44, 45, 0D**
 (- C O D E)
Output Sequence **02, 03, 01, 04**

EXIT EDIT PROGRAMMING



1 2 3 4 5 6 7 8 9 0



9 2 9 2 8 8 3 8 4

- NO CHANGE IN OUTPUT
- MUST BE 10 DIGITS FOR EDIT

- **METHOD OF PROGRAMMING**

The CAPE features are programmed by first filling out the WorkSheet that is contained in the manual and then programming in the parameters via the Edit Parameter Menu.

The programming sequence involves steps in which you qualify the data as to what it is and how it was generated, then specify how it is to be divided into fields. After the input record definition, additional fields are defined and then the output sequence of all the fields.

- **TERMINOLOGY**

INPUT RECORD = Raw data received from a port.
FIELD = A division of the Input Record.
ADDITIONAL FIELD = Data not present in the Input Record, but to be present in the Output Record.
OUTPUT RECORD = Data to be sent to the terminal.
FUNCTION CODES = Keyboard depressions that cause a function to occur rather than data.
Example: Data equals key entry of a, 1, T, B, 7, +, #, etc., where a function code equals key entry of TAB, CTRL, ENTER, F1, Up Arrow, etc.

- **PORTS**

SCANNER PORT = Input from the bar code port on the wedge. Accepts a digital signal from bar code scanning input devices.

AUXILIARY PORT = RS 232 input from a device (scale, portable terminal, etc.) attached to the auxiliary port on the wedge. Accepts ASCII data from RS 232 output devices attached to it.

MAGNETIC PORT = Input from a Magnetic Stripe Reader attached to the auxiliary port on the wedge.

- **SEQUENCE OF PROGRAMMING**

1) Scan ENTER EDIT PROGRAMMING

2) Specify Edit Number.

- a) A "01" Edit must always be specified.
- b) The "01" edit must always be the first edit.
- c) Maximum number of edits that can be defined are 99, or until all of the memory allocated for edit programming has been used.(Model 1 = 1024kb, Model 2 = 2048kb)

3) DATA QUALIFIER: Specify Input Port

The first data qualifier is the port from which the input record will be received. Options include; Scanner, Auxiliary, Magnetic or ALL. If you do not care where the data was entered from, specify ALL.

4) DATA QUALIFIER: Specify Symbology

The Second data qualifier is the symbology that the record must be represented by.

If you know that the data can only be one specific code symbology, specify that symbology. If it does not matter what symbology the data is represented by, then indicate "ALL".

5) DATA QUALIFIER: Specify Input Record Length

The third data qualifier is the length of the input record (number of characters).

If length is not a qualifier, specify "00". The variable field length will be determined by the end of the input record or by the specifying a match code as the following field. The variable field will contain the data up to, but not including the match code field.

6) Specify Fields in the Input Record

The Input Record can be divided into multiple fields. Specify the total number of fields that will be defined.

7) Specify Input Field Length

Starting with the left most (high order) position of the input record, indicate the length of the field.

If the field is to be matched against a specific code, it should be defined as a Match Code. To do so, define a length of "01", specify in the Function Code Parameter the Hex Code to match and then scan "ON" to specify it as a Match Code.

8) Specify Function Code

A single (1) Function Code must be specified to follow a field. A Function Code may be any of the ASCII characters.

Example, a Function Code may be the character "A" or the digit "6" or a keyboard function such as "Field Forward".

If no Function Code is desired, specify "00". All Function Codes are defined using Key Codes. Reference Appendix C, Key Code Chart for a listing.

NOTE: MATCH CODE

If the field being defined is to be used as a Match Code Qualifier, the Function Code definition becomes the Key Code for the character to be matched.

9) OPTIONAL ENTRY: Specify Match Code

Any or all characters within an Input Record may be matched individually against a predetermined character.

If matching is NOT desired IGNORE this entry.

If matching is desired

- a) Input Field Length = 01
- b) Function Code = Hex Code to Match to
- c) Match Code = ON

REPEAT ITEMS 7 - 9 UNTIL ALL FIELDS FOR THE INPUT RECORD HAVE BEEN DEFINED.

10) Specify Number of Additional Fields

Fields may be added to the Output Record as desired. Indicate how many fields you wish to add. If NO Added Fields are desired scan in 00 and IGNORE 11 & 12.

11) Specify Additional Field Length

Specify the length (number of digits) that will be added in this field definition. Ignore this entry if there are NO Additional Fields.

12) Specify the Field to be Added

Using the ASCII Code Chart, indicate in Hexadecimal each character of the field to be added.

Example: BAR CODE = 8 digits
 42 41 52 20 43 4F 44 45
 B A R Space C O D E

The number of characters entered MUST equal the Added Field Length given in Item 11. The maximum number of characters per field is 15. Ignore this entry if there are NO Additional Fields.

REPEAT ITEMS 11 AND 12 UNTIL ALL ADDITIONAL FIELDS ARE DEFINED.

13) Specify Output Record Sequence

Indicate the order in which the fields should be output. If a field is NOT to be included in the output record, do not include it in the sequence. Field Numbering: Input Fields start at 01. Added Fields start with the number immediately following the last Input Field.

Example: 6 Input Fields + 4 Added Fields

For Output Sequencing, the Input Fields are numbered 01 - 06 and the Added Fields are numbered 07 - 10.

14) Scan EXIT EDIT PROGRAMMING

REPEAT STEPS 1 - 14 FOR ALL INPUT RECORDS REQUIRING AN EDIT.

NOTE: For each Edit, you must first Enter Edit Programming and then Exit Edit Programming after each Edit is defined.

• **PROGRAMMING CONSIDERATIONS - GENERAL**

1. It is strongly advised that prior to attempting any CAPE programming that Section 9 be read in its entirety and that a worksheet be filled out.
2. Maximum number of Input Records that can be edited = 99, or until all memory allocated for edit programming is used.
3. A beep sequence of 4 Highs and 4 Lows indicates that you have exceeded the memory space available
4. Maximum number of Fields divisions per Input Record = 31.
5. Maximum Input Record Length = 32. The exception to this would be input from a Magnetic Stripe Reader.
6. Default = No Edits.
7. Must always scan in "ENTER" before each Input Record Edit.
8. Must always have a "01" Edit designated. Must always be the first edit entered.
9. Must always answer all options on the parameter menu in sequential order.
10. Must enter a two (2) digit code where defined.
Example: Input Length of 3 = 0 and 3, not just 3.

- **PROGRAMMING CONSIDERATIONS - "IF" CONDITIONS**

1. Match Code is only programmed when needed.
If Match Code = ON
Then "Input Field Length" = 01
Then "Function Code" = Hex Code to Match to
2. If NO Additional Fields are desired
Then "Additional Fields" = 00 (must be entered)
Then "Additional Field Length" & "Additional Field Data" parameters do not have to be entered.
3. If a Input Record is edited
Then any Preambles and Postambles "WILL NOT" apply to the Input Record.
4. If a Function code is not desired
Then "Function Code" = 00 (Null)
5. If any & all input is to be accepted
Example:
The unit is programmed to read only Code 128 from the Scanner Port, but varying lengths of Code 128 can be entered.
Then "Input Record Length" = 00 (any length record)
Then "Fields in Input Record" = 01
Then "Input Field Length" = 00
6. If a Primary and Secondary output is being defined for an Input Record
Then the Switch In Label must be the first edit "01".
The Deactivate Switch Label must be the second edit "02".
The Deactivate Switch Label is only used when you have entered Secondary output mode and then want to return to Primary output mode without reading a label designated for Secondary output.

- **DEFAULT SETTINGS**

To set default, scan the following sequence:

- 1) Enter Edit Selections
- 2) Default Edit Selections
- 3) Exit Edit Selections

This sets the unit to "NO EDITS". If record edits have been programmed they will be deleted.

- **TURNING ON & OFF EDITS**

Once the unit is programmed for a series of edits, those edits can be turned On and Off by scanning the following sequence. If the edits are turned off, they will remain in memory until they are turned back on or the unit is defaulted.

To Turn OFF - Scan the following

- 1) Enter Edit Selections
- 2) OFF
- 3) Exit Edit Selections

To Turn On - Scan the following

- 1) Enter Edit Selections
- 2) ON
- 3) Exit Edit Selections

- **TURNING ON & OFF INDIVIDUAL EDITS**

Once the unit is programmed for a series of edits, individual edits can be turned On and Off by scanning the following sequence. If an edit is turned off, it will remain in memory until it is turned back on or the unit is defaulted.

Example = Turn Off or On Edit # 03

To Turn OFF Edit 03 - Scan the following

- 1) Enter Edit Selections
- 2) 03
- 3) D

To Turn back ON Edit 03 - Scan the following

- 1) Enter Edit Selections
- 2) 03
- 3) E

- **ADDING AN EDIT**

Additional edits may be added at any time. New edit records must be given an Edit Number not already in use.

Example: If Edit Numbers 01, 05 and 07 have already been defined, you could define a new edit with an Edit Number of 02, or 03, or 08, or 10, etc., as long as the original Edit Numbers are not used.

- **REDEFINING AN EDIT**

Once an edit is already in memory, it can be redefined. It must be remembered that whatever edit number you start redefining on, all subsequent edits, no matter what the order of entry, must be reentered. The Edits are stored by order of entry, not in numerical sequence (Exception, the first edit entered must be 01).

- **ERROR RECOVERY**

If you know you have made an error in the entry of an edit you can:

- 1) Scan "Exit Edit Selections" and then reenter the edit from the beginning.
- 2) If you exit a programming procedure before all options have been answered, that edit number will not be saved.
- 3) Scan "OFF" until you get to a known correct entry. However, if you continue to scan "OFF" until you hear a series of beeps (1 High and 2 Low), you have reached the "Enter Edit Selections" bar code. If you reach this point, you must:
 - Scan "Exit Edit Selections"
 - Scan "Enter Edit Selections"
 - Scan "ON"
 - Scan "Exit Edit Selections"Restart your initial edit programming.

- **MAGNETIC INPUT CONSIDERATIONS**

Since Input Records from magnetic media can vary in length, special consideration must be given to it.

EXACT RECORD LENGTH

If the Record Length from the magnetic media is known (Example: Employee Badge), then the edit programming does not change.

NOTE: All Sentinels and Field Separators must be taken into account in the editing process.

VARIABLE RECORD LENGTH

If the Record Length from the magnetic media is variable (Example: Credit Cards), then the edit programming must allow for it. Program "Input Record Length" = 00 for known variable input. The unit will use the input data from the left most position that has not been edited up until the next Field Separator or Stop Sentinel or Match Code.

Mag Stripe Input - Recognizing Sentinels & Separators

When "G" is programmed for the Symbology, the unit will use the Start/Stop Sentinels and the Field Separators to define fields. The unit assumes that the Field Separators and the Stop Sentinel (that are standard in mag stripe data) are the stopping point for a variable length field.

Note that the Sentinels and Separators are still input as data that should be accounted for in the edit programming by indicating an Input Field Length of 01.

Mag Stripe Input - Recognize End Sentinels Only

When "E" is programmed for the Symbology, only the End Sentinel will be used to terminate the variable field length.

Note that the Sentinels and Separators are still input as data that should be accounted for in the edit programming by indicating an Input Field Length of 01. A match character may also be defined.

If you are programming more than one magnetic input record, either have one of the records programmed for a variable input length, or use a Match Code Edit to distinguish between the tracks.

If an area of the input data is known to be fixed in length, it can be specified as such.

Example: The Expiration Date can be either a four digit field or two fields of two digits in length.

CARD OUTPUT SEQUENCE

<u>Track(s)</u>	<u>Output Sequence</u>
1	1
2	2
3	3
1 & 2	2, 1
1 & 3	3, 1
2 & 3	3, 2
1, 2 & 3	3, 2, 1

CREDIT CARD INPUT

TRACK 1

<u>Definition</u>	<u>Data</u>	<u>Input Field Length</u>
Start Sentinel	%	01
Format Code	B	01
Primary Account No	Numeric	00 (Variable)
Field Separator	^	01
Name	Alpha/Numeric	00 (Variable)
Field Separator	^	01
Expiration Date	YYMM	04
Additional Data	Numeric	00 (Variable)
Stop Sentinel	?	01

TRACK 2:

<u>Definition</u>	<u>Data</u>	<u>Input Field Length</u>
Start Sentinel	;	01
Primary Account No	Numeric	00 (Variable)
Field Separator	=	01
Expiration Date	YYMM	04
Additional Data	Numeric	00 (Variable)
Stop Sentinel	?	01

TRACK 3:

<u>Definition</u>	<u>Data</u>	<u>Input Field Length</u>
Start Sentinel	;	01
Primary Account No	Numeric	00 (Variable)
Field Separator	=	01
Use, Security & Additional Data	Numeric	00 (Variable)
Stop Sentinel	?	01

PROGRAMMING EXAMPLE # 3

Magnetic Stripe Input From Credit Card (Track Two)

INPUT RECORD = ;1234567890123456=890810100000?

OUTPUT RECORD = 1234567890123456<ENTER>0889<ENTER>

ENTER EDIT PROGRAMMING

Edit Number	01
Port	3 (Magnetic)
Symbology	G (All)
Input Record Length	00 (Variable)
Fields In Input Record	07
Field 1:	
Input Field Length	01 (;)
Function Code	00 (Null)
Field 2:	
Input Field Length	00 (Variable)
Function Code	0D (Enter)
Field 3:	
Input Field Length	01 (=)
Function Code	00 (Null)
Field 4:	
Input Field Length	02 (89)
Function Code	0D (ENTER)
Field 5:	
Input Field Length	02 (08)
Function Code	00 (Null)
Field 6:	
Input Field Length	00 (Variable)
Function Code	00 (Null)
Field 7:	
Input Field Length	01 (?)
Function Code	00 (Null)
Added Fields:	00
Added Field Length	Ignore
Added Field Data Ignore	
Output Sequence	02, 05, 04

EXIT EDIT PROGRAMMING

PROGRAMMING EXAMPLE # 4

Primary and Secondary Output Formats: A Primary and Secondary Output Format actually defines two output formats for one input record. The second of the two output formats is activated by reading a "Switch Label".

SWITCH LABEL:

When programming for Primary and Secondary Output Records you must define a label that when read will activate the switching. The Switch label **MUST** be defined as EDIT "01". After indicating Edit #01, Scan "ON" to indicate that the Switch label is being defined. Then, use the Match Code identifiers to indicate the characters in the label that will be used for switching. Once switched, the unit will output the secondary record format on the next input record and then automatically switch back to primary output.

Only one Switch Label may be designated. Do not specify an output sequence for this record edit.

DEACTIVATE SWITCH LABEL:

When programming for Primary and Secondary Output Records you must define a label that when read will deactivate the switching. The deactivate or void switch would be used to return to primary output. After indicating Edit #02, Scan "ON" to indicate that the Deactivate Switch label is being defined. Then, use the Match Code identifiers to indicate the characters in the label that will be used for switching. Only one Deactivate Switch Label may be designated. Do not specify an output sequence for this record edit.

SECONDARY EDIT DEFINITIONS:

When a Secondary Edit is defined for a record, Scan "ON" immediately following the Edit Number of the Secondary Record. This indicates that when a Switch Label is read that the unit will search for a Secondary Output based on the Input Record qualifiers.

SEQUENCE OF PROGRAMMING

- Notes:** "01" edit must always be the first edit.
- "01" Edit must indicate the Switch In Label
- "02" Edit must indicate the Deactivate Switch Label.

INPUT RECORD: 129392844668374500001295

PRIMARY OUTPUT RECORD: 1293<TAB>92844<TAB>6683745<TAB>00001295<ENTER>

SECONDARY OUTPUT RECORD: 1293<TAB>92844<TAB>6683745<TAB>

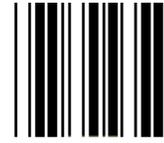
SWITCH IN LABEL = X
DEACTIVATE SWITCH LABEL = A

ENTER EDIT PROGRAMMING BEFORE EACH EDIT

Edit Number:	01	02	03	04
Switch Label:	ON	ON		ON
Port:	I	I	I	I
Symbology:	B	B	B	B
Input Record Length:	01	01	24	24
Fields In Input Record:	01	01	04	04
F 1:				
Input Field Length:	01	01	04	04
Function Code:	58 (X)	41 (A)	0B	0B
Match Code:	ON	ON		
F 2:				
Input Field Length			05	05
Function Code:		0B	0B	
F 3:				
Input Field Length:			07	07
Function Code:		0B	0B	
F 4:				
Input Field Length:			08	08
Function Code:		0D	0D	
Added Fields:	00	00	00	00
Field Length:	Ignore	Ignore	Ignore	Ignore
Field Data:	Ignore	Ignore	Ignore	Ignore
Output Sequence:	EDIT 01 =	IGNORE		
	EDIT 02 =	IGNORE		
	EDIT 03 =	01, 02, 03, 04		
	EDIT 04 =	01, 02, 03		

EXIT EDIT PROGRAMMING AFTER EACH EDIT

SWITCH IN LABEL

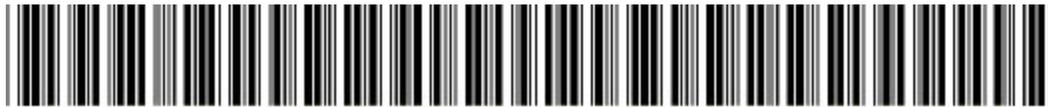


X

DEACTIVATE SWITCH



A



123488001902487500001295



923344563567387700019950

X. KEYBOARD REMAPPING

NOTE: Keyboard Remapping Selections are only operational with the TurboWedge 2

At default state, the unit will output the key codes associated with the following characters:

A - Z Upper Case, a - z Lower Case

0 - 9

Special Characters: ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ { | } grave overscore DEL Space

These characters take up key code positions 20 through 7F. Reference Appendix C for a listing of the key code assignments.

Codes representing Function Key depressions are preassigned. These include "ENTER", "TAB", "NEW LINE", "F1", etc. Reference Appendix C for a listing of the key code assignments.

Keyboard remapping allows for the unit to be set-up by the user to emulate all keystrokes required for a particular application.

NOTE: Keyboard Remapping as described in this section only effects data input from the unit. Manual keyboard entry remains the same.

- **BASIC FUNCTIONS**

- 1) Single Character Replacement
- 2) Swap Two Keys using the keyboard
- 3) Swap Two ASCII Characters
- 4) Multiple Key Function Record
- 5) Default Settings

1. SINGLE CHARACTER REPLACEMENT

Description:

Allows the user to put a desired key at any ASCII location.

Shifted or unshifted keys can be used. However, shifted keys cannot be placed into key code positions 16 - 1F. These positions are reserved for multiple key functions. Unshifted keys can be placed into 16 - 1F as long as there is not a multiple key string already recorded there. See Multiple Key Function Record, Page 10 - 5.

Typical Use: Key Code 04 = Function Key 22

Menu Implementation:

1. Scan - ENTER KEYMAP SELECTION
2. Scan - SINGLE CHARACTER REPLACEMENT
3. Scan - The two (2) digit ASCII Location (01 - FE)
4 High Beeps will signal that the unit is ready for a keystroke
4. Depress the desired key on the keyboard.
1 High, 1 Low Beep will signal a good read
5. For more entries, start at step 3 and repeat the process.
6. If finished, Scan - EXIT KEYMAP SELECTIONS.

EXAMPLE: Hex 30 (normally a "0")
Output as a "-"

1. Scan - ENTER KEYMAP SELECTION
2. Scan - SINGLE CHARACTER REPLACEMENT
3. Scan - 30
4. Depress -
5. Scan - EXIT KEYMAP SELECTIONS.



NOTE: Manual depression of the "0" will still output "0".

2. SWAP TWO KEYS FROM THE KEYBOARD

Description:

Allows the user via key depressions to change one key output to another. Shifted or unshifted keys can be used.

Key positions to be depressed must already be in the keycode table. If not, use Single Character Replacement for the swap.

Typical Use = Foreign Keyboard:

Q = A, A = Q, T = Z, Z = T

Menu Implementation:

1. Scan - ENTER KEYMAP SELECTION
2. Scan - SWAP TWO KEYS
4 High Beeps will signal that the unit is ready for a keystroke
3. Depress the desired first key on the keyboard.
1 High, 1 Low Beep will signal a good read
4. Depress the desired second key on the keyboard.
1 High, 1 Low Beep will signal a good read
5. For more entries, start at step 2 and repeat the process.
6. If finished, Scan - EXIT KEYMAP SELECTIONS.

EXAMPLE: 5 = X

1. Scan - ENTER KEYMAP SELECTION
2. Scan - SWAP TWO KEYS
3. Depress - 5
4. Depress - Shift X
5. Scan - EXIT KEYMAP SELECTIONS.



NOTE: Manual depression of the "5" will still output "5" and manual depression of the "X" will still output "X".

3. SWAP TWO ASCII CHARACTERS

Description:

Allows the user to change one key output to another using only the programming menu.

ASCII locations must be known (01-FE). This function will not search the internal table for the key, so there is no problem with not finding the key as in previous functions.

Menu Implementation:

1. Scan - ENTER KEYMAP SELECTION
2. Scan - SWAP TWO ASCII CHARACTERS
3. Scan - The two (2) digit ASCII Location (01 - FE) of the first key.
4. Scan - The two (2) digit ASCII Location (01 - FE) of the second key.
5. For more entries, start at step 3 and repeat the process.
6. If finished, Scan - EXIT KEYMAP SELECTIONS.

EXAMPLE: HEX 31 = HEX 24 (1 = \$)

1. Scan - ENTER KEYMAP SELECTION
2. Scan - SWAP TWO ASCII CHARACTERS
3. Scan - 31
4. Scan - 24
5. Scan - EXIT KEYMAP SELECTIONS



NOTE: Manual depression of the "1" will still output "1" and manual depression of the "\$" will still output "\$".

4. MULTIPLE KEY FUNCTION RECORDS

Description:

Allows the user to record a sequence of keys, consecutive or simultaneously, at a specific key code Location (16 - 1F).

Limited to ASCII Locations 16 - 1F

10 Strings consisting of approximately 80 to 250 keys depending on the terminal in use.
Can be retrieved by :

- Scanning the appropriate Keyboard Function Record
- Programmed as a Preamble or Postamble
- Inserted when programmed into a CAPE Edit
- Enabled in a bar code

Menu Implementation:

1. Scan - ENTER KEYMAP SELECTION
2. Scan - MULTIPLE KEY FUNCTION RECORD
3. Scan - The two (2) digit ASCII Location (16 - 1F)
4 High Beeps will signal that the unit is ready for a keystroke
4. Type - The keys in the desired order.
Type slowly and firmly depress each key.
5. Scan - DISPLAY
Shows how the key sequence was recorded
If OK, Scan - STORE
If NOT CORRECT, Scan - REDO and return to # 3
6. For more entries, start at step 3 and repeat the process.
7. If finished, Scan - EXIT KEYMAP SELECTIONS.

EXAMPLE: Hex 17 = TEST<TAB>1<ENTER>

1. Scan - ENTER KEYMAP SELECTION
2. Scan - MULTIPLE KEY FUNCTION RECORD
3. Scan - 17
4. Key In - TEST<TAB>1<ENTER>
5. Scan - DISPLAY
If the display repeats what was keyed in step 4, Scan - **STORE**
If Not, Scan - **REDO** and return to step 3
6. Scan - EXIT KEYMAP SELECTIONS
7. Scan - ENTER SCANNER PORT SELECTIONS
8. Scan - POSTAMBLE
9. Scan - 17
10. Scan - EXIT SCANNER PORT SELECTIONS

Each bar code read will output to the screen the bar code followed by "TEST<TAB>1<ENTER>
or

In Appendix D, Scan the #23 bar code. This will also output to the screen "TEST<TAB>1<ENTER>.
or

Program using a CAPE Edit to insert the Hex Code 17 into the middle of the bar code output.

Input = 01234 (5 Digit - Code 39)
Output = 012TEST<TAB>1<ENTER>34<ENTER>

Edit = 01 Edit 01
1 Scanner Port
B Code 3 of 9
05 Input Length = 05
02 # of Fields = 02
03 Field 1 = 3 Digits
17 Add Hex 17 After Field 1
02 Field 2 = 2digits
0D Add <Enter> after field
00 No Added Fields
01 02 Output Sequence = 01, 02

TYPICAL EXAMPLE: Consecutive & Simultaneous Key Strokes

Hex 1F = <ALT T>002<Field Forward>
Hex 17 = <ESC \><ENTER>

NOTE:

If you are not able to program simple multiple key remaps the problem could be in the beeper timing.

On certain Keyboards, the beep that follows a key depression interferes with the timing of the key depression. In order to avoid this, turn the key depression beep off.

1. Scan - ENTER KEYMAP SELECTION
2. Scan - OFF
3. Scan - EXIT KEYMAP SELECTIONS

5. DEFAULT SETTINGS

DEFAULT = Normal ASCII Output.
Reference Appendix C for key code locations

DEFAULT TO NORMAL KEYBOARD OUTPUT

1. Scan - ENTER KEYMAP SELECTIONS
2. Scan - DEFAULT
3. Scan - EXIT KEYMAP SELECTIONS

DEFAULT INDIVIDUAL ASCII LOCATIONS

1. Scan - ENTER KEYMAP SELECTIONS
2. Scan - DEFAULT
3. Scan - 2 Digit ASCII Location
4. Scan - EXIT KEYMAP SELECTIONS or another 2 Digit ASCII Location

XI. STATUS CHECK

This menu page allows the user to display the Status of the parameter selections that have been programmed into the unit.

Status Display Notes:

1. When displaying the Status to the terminal, the operator should start with a clear screen, as the data displayed will take up most of the screen.
2. The scanning of an EXIT symbol is not required, however, an EXIT symbol is on the page in the event you ENTER the Status Check and then decide to Exit without displaying any of the parameters.

The user may choose to transmit the status to either the terminal it is attached to, or transmit the data via the RS 232 Port to an external RS 232 device such as a printer.

The user may choose to display:

- The configuration for General/Auxiliary/Scanner which includes the following menu pages.
General I Serial I Scanner Port
General II Serial II
- The configuration for Bar Code Selections which include the following menu pages.
Industrial Codes Retail Codes
- The configuration for any programmed CAPE Edits.
- The Keyboard Remap configuration - TurboWedge 2 only.

STATUS DISPLAYS WITH DEFAULT SET

1. GENERAL I & II, SERIAL I, II, SCANNER

SCAN:

- ENTER STATUS CHECK
- TO TERMINAL
- A

DISPLAY:

TURBO 2 - XXX TERMINAL ID..01
(Model & Firmware Revision Level)

**** GENERAL I ****

BEEPER VOLUME.. 7
INPUT INHIBIT CHECK.. DISABLED
KYBD TYPE.. A
INTER CHAR DELAY.. 00
INTER FUNCTION DELAY.. 00
KYBD COUNTRY...US
KEYPAD NUMERICS...DISABLED

**** GENERAL II ****

PORT 2.. MSR TRACK 2
BUFFERS.. ENABLED
SOLICIT REC..
SWITCH.. 00000000
PAUSE...00

**** SCANNER ****

PREAMBLE...
POSTAMBLE.. CR
BEAM REDUNDANCY.. DISABLED
KFC.. DISABLED
AUTOSCAN.. DISABLED

CODE ID.. DISABLED
MULTISCAN.. DISABLED

**** SERIAL I ****

PREAMBLE...
POSTAMBLE..
RECORD TERMINATOR.. CR
KFC.. DISABLED

KFC...DISABLED

**** SERIAL II ****

AUX	HOST
BAUD RATE.. 9600	9600
PARITY.. EVEN	EVEN
DATA BITS.. 7	7
STOP BITS.. 1	1
HANDSHAKE.. NONE	NONE
PROTOCOL.. NONE	NONE

2. BAR CODE CONFIGURATION

SCAN:

- ENTER STATUS CHECK
- TO TERMINAL
- B

DISPLAY:

TURBO X - XXX (Model & Firmware Revision Level)

CODABAR

MIN LGH 00

MAX LGH 64

CODE 39 FULL ASCII

MIN LGH 00

MAX LGH 64

I 2-OF-5

MIN LGH 04

MAX LGH 64

ID 2-OF-5

MIN LGH 04

MAX LGH 64

CODE 128

MIN LGH 00

MAX LGH 64

CODE 11 TWO CK DGT

MIN LGH 00

MAX LGH 64

CODE 93

MIN LGH 00

MAX LGH 64

UPC-A UPC-E 2 SUP 5 SUP CHK OUT NUM SYS

EAN-8 EAN-13 2 SUP 5 SUP

3. STATUS DISPLAYS WITH 2 SAMPLE EDITS

SCAN:

- ENTER EDIT STATUS CHECK
- TO TERMINAL

DISPLAY:

The first edit will display.

For subsequent Edits, Repeat the above procedure.

```
EDIT 01
TURBO XXX.XX (Model & Firmware Revision Level)
EEROM CAP EDIT
EDIT .. 01
PORT .. SCANNER
SYMBOLGY .. CODE 39
INPUT LENGTH 08
INPUT FLDS.. 03
      LENGTH FC
      (FLD 01) 01 4E MATCH
      (FLD 02) 04 0B
      (FLD 03) 03 01
ADDED FLDS.. 00
OUTPUT SEQ.. 02 03
-- MORE --
```

```
EDIT 02
TURBO XXX.XX (Model & Firmware Revision Level)
EEROM CAP EDIT
EDIT .. 02
PORT .. MAGNETICS
SYMBOLGY .. ALL AUX MAGNETICS
INPUT LENGTH 00 VARIABLE
INPUT FLDS.. 07
      LENGTH FC
      (FLD 01) 01 00
      (FLD 02) 00 01
      (FLD 03) 01 00
      (FLD 04) 02 01
      (FLD 05) 02 00
      (FLD 06) 00 00
      (FLD 07) 01 00
ADDED FLDS.. 00
OUTPUT SEQ.. 02 05 04
** END EDITS **
```

4. KEYBOARD REMAP CONFIGURATION

**** TurboWedge 2 ONLY**

SCAN:

- ENTER STATUS CHECK
- TO TERMINAL
- C

DISPLAY:

TURBO 2 - XXX.XX (Model & Firmware Revision Level)

TERMINAL ID...XX

**** KEYBOARD REMAPPING ****

NO REMAPPING EXISTS

EXAMPLE: STATUS DISPLAYS WITH REMAP

TURBO 2 - XXX.XX (Model & Firmware Revision Level)

TERMINAL ID...XX

**** KEYBOARD REMAPPING ****

REMAPPING EXISTS FOR ID..XX

**** SINGLE CHARACTER REPLACEMENT ****

DEFAULT: & s w P S W !

REMAPPED: p W S 7 w s P

**** MULTIPLE KEY FUNCTION RECORDS ****

16 ^L^B

17 TEST<TAB>ONE

18 ---

19 ---

1A ---

1B ---

1C ---

1D ---

1E ---

1F ---

TOTAL BYTES AVAILABLE = 1572 OF 1610

Appendix A: INTERFACES

Terminal Manufacturer	Terminal Type	Model	Cable Number	ID	Keyboard Primary - Secondary Comments
APPLE	Macintosh	1 / 2	02TC005	29	/CAPLK CAPLK
CLI	5476/5488v	1 / 2	02TC001	64	CLI 122 Cherry /CAPLK CAPLK PWR with TW2
CLI	ET 2000, 5476/5488v	1 / 2	02TC002	01 01 08	CLI 122 south touch 101 102 122 Key - IBM Style PWR with TW2
CLI	ET 3000w	1 / 2	02TC002	01	CLI 122 or 101/104 Kybd PWR with TW2
DEC	2XX,3XX,4XX	1 / 2	02TC011	15	T/W
DECISION DATA	386	1 / 2	02TC001	08	/CAPLK CAPLK
	387C	1 / 2	02TC001	08	/CAPLK CAPLK
	3496	2	02TC002	39	T/W
	3497	2	02TC002	09	T/W
	3596/97 - 83K	2	02TC006	62	/SHLK SHLK PWR with Laser
	3596/97 - 102K	2	02TC006	63	/CAPLK CAPLK PWR with Laser
	3596/97 - 122K	2	02TC006	60	/CAPLK CAPLK PWR with Laser
	3596 with 3776 Keyboard	2	02TC006	64	/CAPLK CAPLK PWR with Laser
	3761/3791	2	02TC010	10	T/W
	3776/3777 IS 386	1 / 2	02TC006	36	/CAPLK CAPLK
	3781	2	02TC002	04	T/W D/E
HEWLETT PACKARD	700-43/60/92/96	2	02TC006	61	/CAPLK CAPLK Power Required
	2392A	2	02TC006	42	/CAPLK CAPLK
	HIL	2	02TC013	65	/CAPLK CAPLK
	VECTRA	1 / 2	02TC000	01	/CAPLK CAPLK
IBM	PC XT & Clones	1 / 2	02TC001	00	/CAPLK CAPLK
	PC AT & Clones	1 / 2	02TC001	01	/CAPLK CAPLK
	PS/2 & Clones	1 / 2	02TC000	01 24	/CAPLK CAPLK
	3151	1 / 2	02TC008	22	102 Power with Laser
	3161/3163	1 / 2	02TC004	02	102

Terminal Manufacturer	Terminal Type	Model	Cable Number	ID	Keyboard Primary - Secondary Comments
IBM	3179-1	1 / 2	02TC004	03	T/W D/E Input Inhibit
	3179-2	1 / 2	02TC004	04	T/W Input Inhibit (5128)
	3180-1	1 / 2	02TC004	05	122 102 Input Inhibit (5128)
	3180-2	1 / 2	02TC004	06	T/W D/E Input Inhibit (5128)
	3191/92	1 / 2	02TC004	07	122 102
	3196	1 / 2	02TC004	08	122 102 Input Inhibit (5128)
	3197	1 / 2	02TC004	25	122 102
	3471/3472	1 / 2	02TC008	03	T/W D/E
	3476/3478	1 / 2	02TC008	08	122 102
	3477	1 / 2	02TC008	08	122 102 Inter Char. Delay=03
	3481	1 / 2	02TC008	08	122 102
	3481	1 / 2	02TC009	34	122 102 Input Inhibit (5128)
	3486/3487	1 / 2	02TC008	08	122 102 Inter Char. Delay = 02
	3486/3487	1 / 2	02TC009	08	122 102 Inter Char. Delay = 02 Input Inhibit (5128)
MEMOREX	1196/1475	1 / 2	02TC001	08	T/W
	2192	1 / 2	02TC001	30	T/W D/E
TELEX	191	1 / 2	02TC001	07	T/W D/E
	78X - 80X	1 / 2	02TC001	02	T/W D/E Input Inhibit
	1192	1 / 2	02TC001	03	T/W 122 D/E 122
	1196/1476	1 / 2	02TC001	08	T/W D/E
	1197	1 / 2	02TC001	25	T/W D/E
WYSE	30	2	02TC012	54	/CAPLK CAPLK Power Required
	ANSI -105 Keyboard	2	02TC012	51	/CAPLK CAPLK Power Required
	ASCII Keyboard	2	02TC012	52	/CAPLK CAPLK Power Required
	PC Enhanced -102 Keyboard	2	02TC012	53	/CAPLK CAPLK Power Required
	ANSI Enhanced -108 Keyboard	2	02TC012	56	/CAPLK CAPLK Power Required

RS 232 CABLE CONFIGURATIONS

Cable Order #	Connector Type	Terminal Connector	Output	DTE / DCE
02TC017	DB 9	Male	Single	DTE
02TC018	DB 9	Female	Single	DTE
02TC019	DB 25	Male	Single	DTE
02TC020	DB 25	Female	Single	DTE
02TC021	DB 9	Male	Single	DCE
02TC022	DB 9	Female	Single	DCE
02TC023	DB 25	Male	Single	DCE
02TC024	DB 25	Female	Single	DCE
02TC025	DB 9	Male	Dual	DTE
02TC026	DB 9	Female	Dual	DTE
02TC027	DB 25	Male	Dual	DTE
02TC028	DB 25	Female	Dual	DTE
02TC029	DB 9	Male	Dual	DCE
02TC030	DB 9	Female	Dual	DCE
02TC031	DB 25	Male	Dual	DCE
02TC032	DB 25	Female	Dual	DCE

RS 232 CABLE NOTES:

- For Correct Cable Configuration, Send to Compsee Customer Support the terminal to host interface requirements and pin-outs.
- Power Supply Required when interfacing via the RS 232 Communications Line.
- DCE or DTE refers to equipment that the Compsee cable is being connected with.

Appendix B: BEEP SEQUENCES

After each successful read the unit will emit an audible tone. The volume of the tone emitted can be programmed within a range of 0 (OFF) to 7 (HIGH).

However, during any of the Programming Modes, the beeper will always return to a HIGH (7) volume to insure that the operator is aware of any problem that may occur.

Below is a list of beeper sequences and their meaning.

<u>BEEP SEQUENCE</u>	<u>MEANING</u>
2 HIGH	Power- Up Initialization
1 HIGH	Good Read (Data Entry Mode)
2 LOW, or More	Bad Read (or Buffers Full)
1 HIGH, 1 LOW	Good Read in Programming
1 HIGH, 2 LOW	Record Out Of Sequence in Program Mode
4 HIGH, 4 LOW	Memory allocated for Edits has been exceeded

Appendix C: KEY CODE CHARTS

When programming the unit to emulate data entry into an existing application, it is often necessary to insert additional digits, characters or function keys (Enter, Tab, ALT C, etc.)

The following key codes are used when programming preambles, postambles, edits or scale solicits. The program can call for the transmission of specific keys either one at a time, or in sequence. They are also used in an Edit sequence to define the character or character to match against.

Key Code Table Information:

- **Definition**

Gives the definition for the key either as a character or as a keyboard function.

- **Program Code**

A two digit code used to define the character in the programming sequence.

Example: 41 = A

09 = Tab or Field Forward

2B = + (Plus)

C8 = PF9, CMD 9 or F9

NOTE: Certain keys have to be turned on and off (ALT, CTRL, Shift). When using these keys in a program, they will call for the user to depress and hold the key during the transmission of another key or keys. When the sequence of characters is complete, all characters are released.

Example: To program in the ALT D sequence you would program the following: 02, 44, 06

This represents Alt On = 02, D = 44, Alt Off = 06

- **Code 3 of 9**

The character or sequence of characters that are needed if the key depression is to be embedded in a Code 3 of 9 Bar Code.

Example: Bar Code Input - 12345\$I

Output to Terminal - 12345<Tab>

Bar Code Input - 00/J9384+C\$M

Output to Terminal - 00*9384c<CR>

NOTES:

- 1) The Keyboard Function Code menu selection for the scanner port must be turned on.
- 2) If the Keyboard Function Code selection is OFF, and Code 3 of 9 Full ASCII is ON -
 - the 2 digit character sequences representing function codes will be ignored.
 - the 2 digit character sequences representing characters will be transmitted correctly

Example: Bar Code Input - 12345\$I67/J890

Output to Terminal - 1234567*890

The \$I representing the Tab key was ignored.

- 3) If the Keyboard Function Code selection is OFF, and Code 3 of 9 Full ASCII is OFF -
All characters will be transmitted individually.

Example: Bar Code Input - 12345\$I67/J890

Output to Terminal - 12345\$I67/J890

IMPORTANT:

Do not embed within a data record those keyboard functions that will cause a system inhibit condition before the remainder of the record is sent to the terminal. Loss of data will result.

Definition	Prog. Code	Code 3 of 9	Definition		Prog. Code	Code 3 of 9
Reserved	00	%U	Sp	space	20	SP
Caps Lock	01	\$A	!	exclam	21	/A
Left ALT - ON	02	\$B	“	quote	22	/B
Left CRTL-ON	03	\$C	#	number	23	/C
Left SHIFT - ON	04	\$D	\$	dollar	24	/D
Solicit - Aux Port	05	\$E	%	percent	25	/E
Left ALT - OFF	06	\$F	&	amprsnd	26	/F
Left CRTL-OFF	07	\$G	´	acute	27	/G
Left SHIFT - OFF	08	\$H	(	op paren	28	/H
Tab/Fld +/Fld For	09	\$I	)	cl paren	29	/I
LF/New Line	0A	\$J	*	asterisk	2A	/J
Home	0B	\$K	+	plus	2B	/K
End	0C	\$L	,	comma	2C	/L
Enter/Xmit/Send	0D	\$M	-	minus	2D	-
Page Up	0E	\$N	.	period	2E	.
Page Dn	0F	\$O	/	slash	2F	/O
Delete	10	\$P	0	0	30	0
Insert	11	\$Q	1	1	31	1
Print Screen	12	\$R	2	2	32	2
Scroll Lock	13	\$S	3	3	33	3
	14	\$T	4	4	34	4
Pause	15	\$U	5	5	35	5
Sys. Req	16	\$V	6	6	36	6
Break	17	\$W	7	7	37	7
Backspace	18	\$Y	8	8	38	8
	19	\$Z	9	9	39	9
	1A	\$Z	:	colon	3A	/Z
ESC	1B	%A	;	semicln	3B	%F
Up Arrow	1C	%B	<	ls than	3C	%G
Down Arrow	1D	%C	=	equal	3D	%H
Right Arrow	1E	%D	>	gt than	3E	%I
Left Arrow	1F	%E	?	questn	3F	%J

Definition		Prog. Code	Code 3 of 9	Definition		Prog. Code	Code 3 of 9
@	at sign	40	%V	'	grave	60	%W
A	Up case	41	A	a	Lw case	61	+A
B	Up case	42	B	b	Lw case	62	+B
C	Up case	43	C	c	Lw case	63	+C
D	Up case	44	D	d	Lw case	64	+D
E	Up case	45	E	e	Lw case	65	+E
F	Up case	46	F	f	Lw case	66	+F
G	Up case	47	G	g	Lw case	67	+G
H	Up case	48	H	h	Lw case	68	+H
I	Up case	49	I	I	Lw case	69	+I
J	Up case	4A	J	j	Lw case	6A	+J
K	Up case	4B	K	k	Lw case	6B	+K
L	Up case	4C	L	l	Lw case	6C	+L
M	Up case	4D	M	m	Lw case	6D	+M
N	Up case	4E	N	n	Lw case	6E	+N
O	Up case	4F	O	o	Lw case	6F	+O
P	Up case	50	P	p	Lw case	70	+P
Q	Up case	51	Q	q	Lw case	71	+Q
R	Up case	52	R	r	Lw case	72	+R
S	Up case	53	S	s	Lw case	73	+S
T	Up case	54	T	t	Lw case	74	+T
U	Up case	55	U	u	Lw case	75	+U
V	Up case	56	V	v	Lw case	76	+V
W	Up case	57	W	w	Lw case	77	+W
X	Up case	58	X	x	Lw case	78	+X
Y	Up case	59	Y	y	Lw case	79	+Y
Z	Up case	5A	Z	z	Lw case	7A	+Z
[	op brkt	5B	%K	{	op brace	7B	%P
\	lft slash	5C	%L	|	vert rule	7C	%Q
]	cl brkt	5D	%M	}	cl brace	7D	%R
^	circumfx	5E	%N	~	overscore	7E	%S
_	und line	5F	%O		del	7F	

Definition		Prog. Code	Code 3 of 9	Definition		Prog. Code	Code 3 of 9
NUMERIC KEYPAD				NUMERIC KEYPAD			
.	Period	80	%U\$U	0	zero	A0	%U SP
/	Slash	81	%U\$A	1	one	A1	%U/A
*	Asterick	82	%U\$B	2	two	A2	%U/B
-	Minus	83	%U\$C	3	three	A3	%U/C
+	Plus	84	%U\$D	4	four	A4	%U/D
Enter		85	%U\$E	5	five	A5	%U/E
Num Lock		86	%U\$F	6	six	A6	%U/F
EXTENDED FUNCTION KEYS				7	seven	A7	%U/G
Right ALT - ON		87	%U\$G	8	eight	A8	%U/H
Right CTRL - ON		88	%U\$H	9	nine	A9	%U/I
Right SHIFT - ON		89	%U\$I	EXTENDED FUNCTION KEYS			
Right ALT - OFF		8A	%U\$J			AA	%U/J
Right CTRL - OFF		8B	%U\$K			AB	%U/K
Right SHIFT - OFF		8C	%U\$L			AC	%U/L
		8D	%U\$M			AD	%U/M
		8E	%U\$N			AE	%U/N
		8F	%U\$O			AF	%U/O
		90	%U\$P			B0	%U/P
		91	%U\$Q			B1	%U/Q
		92	%U\$R			B2	%U/R
		93	%U\$S			B3	%U/S
		94	%U\$T			B4	%U/T
		95	%U\$U			B5	%U/U
		96	%U\$V			B6	%U/V
		97	%U\$W			B7	%U/W
		98	%U\$X			B8	%U/X
		99	%U\$Y			B9	%U/Y
		9A	%U\$Z			BA	%U/Z
		9B	%U%A			BB	%U%F
		9C	%U%B			BC	%U%G
		9D	%U%B			BD	%U%H
		9E	%U%D			BE	%U%I
		9F	%U%E			BF	%U%J

Definition	Prog. Code	Code 3 of 9	Definition	Prog. Code	Code 3 of 9
EXTENDED FUNCTION KEYS			EXTENDED FUNCTION KEYS		
PF/CMD/F - 1	C0	%U%V		E0	%U%W
PF/CMD/F - 2	C1	%U A		E1	%U+A
PF/CMD/F - 3	C2	%U B		E2	%U+B
PF/CMD/F - 4	C3	%U C		E3	%U+C
PF/CMD/F - 5	C4	%U D		E4	%U+D
PF/CMD/F - 6	C5	%U E		E5	%U+E
PF/CMD/F - 7	C6	%U F		E6	%U+F
PF/CMD/F - 8	C7	%U G		E7	%U+G
PF/CMD/F - 9	C8	%U H		E8	%U+H
PF/CMD/F - 10	C9	%U I		E9	%U+I
PF/CMD/F - 11	CA	%U J		EA	%U+J
PF/CMD/F - 12	CB	%U K		EB	%U+K
	CC	%U L		EC	%U+L
	CD	%U M		ED	%U+M
	CE	%U N		EE	%U+N
	CF	%U O		EF	%U+O
	D0	%U P		F0	%U+P
	D1	%U Q		F1	%U+Q
	D2	%U R		F2	%U+R
	D3	%U S		F3	%U+S
	D4	%U T		F4	%U+T
	D5	%U U		F5	%U+U
	D6	%U V		F6	%U+V
	D7	%U W		F7	%U+W
	D8	%U X		F8	%U+X
	D9	%U Y		F9	%U+Y
	DA	%U Z		FA	%U+Z
	DB	%U%K		FB	%U%P
	DC	%U%L		FC	%U%Q
	DD	%U%M		FD	%U%R
	DE	%U%N		FE	%U%S
	DF	%U%O	RESERVED FOR EOR		

Appendix D: KEYBOARD FUNCTION RECORDS

Keyboard Function Records are used to manipulate the cursor on the display and to cause the terminal to enter modes of operation that ordinarily require a keystroke.

Keyboard Function Record are defined as three-byte (ASCII characters) records that when scanned will emulate the keyboard function to the terminal. To use the Keyboard Functions Records, extended code 3 of 9 must be enabled.

Bar Code	Description	Bar Code	Description
 # 0 1	#01 Caps Lock	 # 0 9	#09 Tab/Field + Field Forward
 # 0 2	#02 Left ALT – ON	 # 1 0	#10 Line Feed New Line
 # 0 3	#03 Left CRTL – ON	 # 1 1	#11 Home
 # 0 4	#04 Left Shift – ON	 # 1 2	#12 End
 # 0 5	#05 Solicit – Aux Port	 # 1 3	#13 Enter/Xmit Send
 # 0 6	#06 Left ALT – OFF	 # 1 4	#14 Page UP
 # 0 7	#07 Left CRTL – OFF	 # 1 5	#15 Page DOWN
 # 0 8	#08 Left Shift – OFF	 # 1 6	#16 Delete

Bar Code	Description	Bar Code	Description
 # 1 7	#17 Insert	 # 2 5	#25
 # 1 8	#18 Print Screen	 # 2 6	#26
 # 1 9	#19 Scroll Lock	 # 2 7	#27 ESC
 # 2 0	#20 Pause	 # 2 8	#28 Up Arrow
 # 2 1	#21	 # 2 9	#29 Down Arrow
 # 2 2	#22 Sys Rq	 # 3 0	#30 Right Arrow
 # 2 3	#23 Break	 # 3 1	#31 Left Arrow
 # 2 4	#24 Backspace		

**APPENDIX E: RS 232 AUXILIARY PORT
- TECHNICAL SPECIFICATIONS**

This appendix provides information for connecting devices to the RS 232 Auxiliary Port (INPUT 2) of the unit.

The port receptacle will receive an AMP - [RJ] plug: Defined as a 10 position, 10 contact connector.

The RS 232 Auxiliary Port can support ASCII, Asynchronous, Serial communications.

RS 232 features include:

- 7 or 8 Data Bits
- 1 or 2 Stop Bits
- Even, Odd, Space, Mark or No Parity
- Baud Rate -
- 300, 600, 1200, 2400, 4800, 9600, 19.2, 38.4 57.6*, 115.2* * = TurboWedge 2 only
- CTS/RTS Hardware Handshake
- Xon/Xoff Software Handshake
- Xmodem Handshake

The RS 232 Auxiliary Port provides an external serial interface with the following communications port (pin out) definitions:

1 = RXD receive data line	Input	
3 = TXD transmit data line		Output
5 = CTS clear to send line	Output	
6 = +5VDC output		Output
7 = GND ground line		
10= RTS request to send line	Input	

NOTES - Model 1 Only:

1. If the unit is programmed to output RS 232 (Dual or Single Port), this port will not accept RS 232 serial input. Use Model 2.
2. If the unit is interfaced to a DEC 2XX, 3XX or 4XX terminal -
 - Input protocol for the RS 232 data transmission cannot be set to RTS/CTS Hardware Handshaking. Protocol should be set to use software flow control (Xon/Xoff).
 - Magnetic Stripe Reading of all three tracks is disabled.
3. If the unit is monitoring Input Inhibit -
 - The input protocol for the RS 232 data transmission cannot be set to RTS/CTS Hardware Handshaking. Protocol should be set to use software flow control (Xon/Xoff).
 - Magnetic Stripe Reading of all three tracks is disabled.

The RS 232 Auxiliary Port is programmed with the following capabilities and constraints.

- A data record (label) can start with any ASCII data.
- A data record can include any data in the ASCII character set 00h thru FFh. The unit will delete characters not included in this character set from the incoming data record.
- A data record must end with a Record Terminator.
NOTE: The record terminator selected will **NOT** be transmitted to the terminal. Its only function is to signal the end of a record.
- A data record (label) can contain or consist of one or more keyboard record function codes. Keyboard function codes can be embedded in any position within the data record.
- If Keyboard Functions are being sent to the terminal, the parameter "Functions Codes" for the Serial Port must be enabled.
- A Preamble or Postamble may be attached to the record being uploaded.
- An edit can be programmed for the RS 232 input record to both validate and reformat the data prior to output transmission. See Appendix C for further information about key codes.
- Record length can not exceed 64 characters.

Appendix F: RS 232 INPUT - DATA TRANSFER DEFINITIONS

The protocol selections are designed to accommodate two basic forms of data transfer - Record and Automatic/Operator Controlled Upload.

- **DATA TRANSFER METHOD = RECORD**

The first data transfer method is termed Record Protocol. This protocol is used when scales or other readers are connected to the auxiliary port. These devices send data in a record format. The data is buffered by the unit until the End of Record is received. Once received, the data record will be transmitted to the terminal.

If Input Inhibit is NOT being checked, the operator must take responsibility for pacing the input to make sure that the terminal is available for data entry. This is true for all protocol options.

See Appendix A: "Interfaces" for terminals that support Input Inhibit, and Appendix G: "Input Inhibit Considerations" for the installation of the Input Inhibit cable when necessary .

1. **TRANSFER METHOD = RECORD
PROTOCOL = READY**

Terminals Supported: ALL
Maximum Record Size: 64
Record Terminator: Programmed (00H-7FH)

NOTE:

The Record Terminator is only used to signal the end of data. Data will not be transmitted to the screen until the Record Terminator is received. The Record Terminator itself will not be transmitted to the screen. If Keyboard Functions are being sent to the terminal, the parameter "Function Codes" for the Serial Port must be enabled.

A Preamble, Postamble or an Edit can be programmed for the RS 232 input record to both validate and reformat the data prior to output transmission.

2. **TRANSFER METHOD = AUTOMATIC/OPERATOR
CONTROLLED UPLOAD**

The second type of data transfer is covered by the remaining protocols (Solicit, Burst, ACK/NAK, and XModem CRC) These are used for uploading data from portable devices.

For a automatic upload Input Inhibit MUST be checked and the portable must be able to recognize a DC1 for Xon/Xoff, ACK for ACK/NAK or NAK for Xmodem CRC. Another possibility is if the portable can be controlled by the CTS line.

If Input Inhibit is NOT being checked, each block of data must be transmitted by an Operator Controlled Operation on the portable.

For further information on Input Inhibit, reference Appendix A: "Interfaces" and Appendix G: "Input Inhibit Considerations".

The Serial Port Preamble and Postamble are used to aid in the control of the data being uploaded.

Preamble:

If defined a Start of Block Character **MUST** be sent before any data buffering will take place. The character defined will be expected for each block.

Postamble:

Three positions can be defined.

Position 1: Record Postamble

If defined, the character will be appended to the end of each record. An entry of "00" (Zero, Zero) will Null any position.

Position 2: End of Block Character

Default = "ETX" (03h)

Position 3: Determines whether the **transmit command** will be issued at the end of a block.

Default = "Y" (59)

**3. TRANSFER METHOD = AUTOMATIC UPLOAD
PROTOCOL = XON/XOFF**

Terminals Supported: Only those that support Input Inhibit checking. Check Appendix A: "Interfaces".

The connecting unit must be able to respond to a "DC1" (i.e. XON).

Device controlled block size. Data records must be sent in a fixed record count, separated by a end of record character. The blocking factor cannot exceed the limitation of the terminal screen it is being sent to (Maximum characters per block = 1500).

Each block of data must be terminated by a End-of-Text (ETX = 03h) character.

To signal the transmission of the last block of data from the device, the last block of data is terminated by End-Of-Transmission (EOT), End-Of-Text (ETX). Or, a block of data can be sent containing just the End-Of-Transmission (EOT) character.

After the first block of data is received the unit will solicit the subsequent blocks by sending a DC1 (11h) to the device. The device must wait for the DC1 before sending any subsequent blocks.

Upon receiving the End-Of-Text (ETX) the unit will automatically transmit the block to the terminal, "Screen", and issue "ENTER" to transmit to the host CPU before it solicits the next block of data.

If Keyboard Functions are being sent to the terminal, the parameter Functions Codes for the Serial Port must be enabled.

See Page F-2 for Postamble and Preamble definitions.

Sequence of Events For Portable Device Automatic Upload to a Terminal

Portable

Wedge

Operator sends 1 st block of data (ETX) or Portable responds to DC1	◀ Sends DC1 until data is received
Device Sends Block 2 (ETX)	▶ Sends Block 1 to the terminal ◀ Sends DC1 until data is received
Device Sends Block n (ETX) or (ETX)	▶ Sends Block 2 to the Terminal ◀ Sends DC1 until data is received
Device sends (EOT) or nothing if (EOT) Device Was sent with Block n	▶ Sends Block n to the Terminal ◀ Sends DC1 ▶ Ends communication with the Portable by audible alerts to the operator of upload completion.

4. **TRANSFER METHOD = OPERATOR CONTROLLED UPLOAD PROTOCOL = SOLICIT**

Terminals Supported: ALL

During the transmission of data to the terminal the operator will monitor the terminal for input inhibit restriction. By doing so, no data should be lost.

All blocks of data sent must be initiated by the operator. Therefore, the connecting unit must be able to respond to an operator command entered on it.

Device controlled block size. Data records must be sent in a fixed record count, separated by an end-of-record character. The blocking factor cannot exceed the limitation of the defined terminal screen.

Each block of data must be terminated by a End-Of-Text (ETX = 03h) character.

To signal the transmission of the last block of data from the device, the last block of data is terminated by End-Of-Transmission (EOT), End-Of-Text. Or, a block of data can be sent containing just the End-Of-Transmission (EOT) character.

Upon receiving the Record Terminator the unit will automatically transmit the block to the terminal "Screen", and issue "ENTER" to transmit to the host CPU before it solicits the next block of data.

If Keyboard Functions are being sent to the terminal, the parameter Functions Codes for the Auxiliary Port must be enabled.

See Page F-2 for Postamble and Preamble definitions.

Sequence of Events for Portable Device Using Operator Controlled Upload to a Terminal

Portable

Wedge

<p>Portable Ignores DC1 Operator Sends 1st Block of Data (ETX)</p> <p>Portable Ignores DC1 Operator Sends Block 2 (ETX)</p> <p>Portable Ignores DC1 Operator Sends Block n (ETX) or (EOT ETX)</p> <p>Portable Ignores DC1 Operator Sends (EOT) or nothing if (EOT) was sent with Block n</p>	<p>◀</p> <p>▶</p> <p>◀</p> <p>▶</p> <p>◀</p> <p>▶</p> <p>◀</p> <p>▶</p>	<p>Sends DC1 until data is received</p> <p>Sends Block 1 to the terminal Sends DC1 until data is received</p> <p>Sends Block 2 to the Terminal Sends DC1 until data is received</p> <p>Sends Block n to the Terminal Sends DC1 Ends communications with the Portable Device by audible alerts to the</p>
--	---	--

operator of upload completion.

5. **TRANSFER METHOD = AUTOMATIC UPLOAD PROTOCOL = BURST**

Terminals Supported: Only those that support Input Inhibit checking. Check Appendix A: "Interfaces". During the transmission of data to the terminal the unit will monitor the terminal for input inhibit restriction. By doing so, no data will be lost in the event that the terminal is inhibited.

The connecting unit must be able to respond to a "DC1" and "DC3" (i.e. XON, XOFF), and to the raising and lowering of the "Clear To Send" (CTS) line.

The wedge controls the size of the block being sent to the terminal. Once 1500 characters have been received the wedge will issue a XOFF and drop CTS. The first block of data sent must be initiated by the operator. After the first block of data is received the wedge will control the flow of subsequent blocks. Upon receiving the 1500 characters the wedge will:

- 1) issue an XOFF and drop CTS
- 2) automatically transmit the block of data to the terminal "Screen"
- 3) automatically transmit to the host CPU
- 4) Raise Clear-To-Send (CTS)
- 5) Issue an XON for the next burst of data

The last block of data is terminated by End-Of-Transmission (EOT).

If Keyboard Functions are being sent to the terminal, the parameter Functions Codes for the Auxiliary Port must be enabled.

See Page F-2 for Postamble and Preamble definitions.

NOTE:

It is recommended that when sending data in this mode, that an Intercharacter Delay be set in the portable device to insure that the device does not "miss" any XOFF instructions before sending any data. This will help to prevent any loss of data on a character-to-character transmit basis.

**6. TRANSFER METHOD = RECORD
PROTOCOL = ACK/NAK**

When programmed for ACK/NAK protocol, the unit will receive data in two transfer modes. One will be Single Records, the other a block type mode consisting of multiple records. The controlling parameters will be the Auxiliary Port Preamble and Postamble selections.

Preamble: Defines the Start of Block Character.
No data will be buffered until the Preamble is received. Default (not defined) = NO Start of Block Character will be expected.

Postamble: Three positions for controlling data.
1 = A Postamble to be appended to the end of each record.
2 = Character that defines the end of block. If not assigned a value, Record Mode is active (each record represents a block).
3 = Enter the character "Y" (Yes) or "N" (No) to indicate if the Enter/Transmit command is to be sent at the end of each block.

With the Record Mode active, the unit receives data in single records. A record may contain up to 1500 bytes, including the Record terminator. After receipt, the record will be transmitted to the terminal, and an ACK (06h) will be sent to the connected device. The device is now allowed to send another record. If any character of the record is incorrectly received, a NAK (15) will be sent to the connected device.

The use of the Second Postamble Character, activates ACK Block Mode. Whereby, an ACK (06h) is sent to the connected device after each record is received. The records are buffered until the defined postamble code is received. This code is NOT ACKed. The records stored will be transmitted to the terminal and an "Enter" will be issued at the end of block. An ACK will then be sent to the connected device. The device can then begin another transfer.

The standard programming rules are in effect for all other parameters.

Sequence of Events for Portable Device Upload Using Record Mode - ACK/NAK Protocol

TERMINAL	WEDGE	RS 232 CONNECTED DEVICE
		◀ 1st Rec. (EOR) device initiates transmission
	◀ □ Receives and buffers record. Sends Rec. to Terminal. If 1 st character of Postamble is defined, it is transmitted.	
transmit	Sends ACK (06h) *	▶ After receiving ACK, the device may next record (if any) ◀ Device sends nth Rec. (EOR) (if any)

* If a record is received incorrectly, NAK (15h) will be sent.

Loop back to Step 2.

This sequence is repeated until all records are sent from connected device.

Sequence of Events for Portable Device Upload Using Block Mode ACK/NAK Protocol

TERMINAL	WEDGE	RS 232 CONNECTED DEVICE
transmission		◀ 1st Rec. (EOR) device initiates
	Receives and buffers record. Sends ACK (06h) [<i>NAK sent for incorrect record</i>]	▶ ACK is received. ◀ Device transmits next record. ◀ Device sends nth Rec. (EOR)
	Repeat ACK (06h) for each record until the End of Block (EOB) character is received.	
	Receives Record and/or (EOB)	◀ Device sends Record, (EOR), (EOB) or (EOB) by itself
◀ □	All stored records are transmitted to the terminal, at the end of the block a "Enter" command will be sent to the terminal. (See Postamble).	
	Sends ACK to the device to signal it to begin transmitting again.	▶

Loop back to Step 4

7. **TRANSFER METHOD = RECORD
 PROTOCOL = XMODEM CRC**

Terminals Supported: ALL

During the transmission of data to the terminal the operator will monitor the terminal for input inhibit restriction. By doing so, no data should be lost.

All blocks of data sent must be initiated by the operator. Therefore, the connecting unit must be able to respond to an operator command entered on it.

Device controlled block size: Data records must be sent in a fixed record count, separated by an end-of-record character. The blocking factor cannot exceed the limitation of the defined terminal screen.

The Xmodem data frame consists of 133 bytes:

- **SOH** - the start of the header character (0x01). This indicates that a new block of data is being transmitted.
- **Block Number** - a one byte binary number starting at 1, containing the block number. The number wraps at 0xFF to zero. The block number is used to synchronize the data transfer.
- **0xFF- Block Number** - the ones complement of the above number. This is used to validate the block number.
- **Byte CRC** - the frame integrity check - a 2 byte variant. The high order byte of the CRC is transmitted before the low byte.

The connecting unit must be able to respond to a "C" (43h) and ACK, NAK.

To signal the transmission of the last block of data from the device, the last block of data is terminated by End-Of-Transmission (EOT).

Sequence of Events for Portable Device Using Operator Controlled Upload to a Terminal

<u>Portable</u>	<u>Wedge</u>
Portable Ignores DC1	◀ C (43h)
Operator initiates the transmission of the 1st Block of Data SOH,0x01,0xFE,<128 bytes>, CRCHI,CRCLO	◀ C (43h) ▶ Sends Block 1 to the terminal
SOH,0x01,0xFE,<128 bytes>, CRCHI,CRCLO	◀ Sends ACK (06h)
SOH,0x01,0xFD,<128 bytes>, CRCHI,CRCLO	◀ Sends ACK (06h)
EOT	◀ Sends ACK (06h) ▶ ◀ Sends ACK (06h)

Appendix G: INPUT INHIBIT CONSIDERATIONS

The following pages describe the operation of the unit relevant to each terminal type supporting "Input-Inhibit", which when monitored will prevent the loss of data from the unit to the terminal and in turn to the host CPU. In most terminal environments, the terminal is often "inhibited" from sending data to the host CPU. This can happen just after a screen, or "page" of data is sent to the host CPU by the operator activating the "XMIT", "REC ADV", or "ENTER" key at the keyboard. Further input from the keyboard is ignored by the terminal, as long as input is inhibited by the host CPU. The Input-Inhibited condition is usually indicated to the operator by a visual indicator on the terminal screen.

Because the unit emulates the operator's action of sending data to the host CPU and in turn cause an input-inhibited condition, this condition must be monitored by some means other than a visual indicator. Described on the following pages are some operator "rules" and hardware installation procedures required for each terminal supported.

Input-inhibited monitoring is accomplished only if the unit has been programmed to do so. Refer to the "GENERAL I" programming menu for programming Input Inhibit.

Unless the terminal type is specified in this appendix, the unit will **NOT** monitor Input Inhibit regardless of how the parameter is set.

DECISION DATA: 3761, 3791

The unit will monitor Input Inhibit if the unit has been programmed for this parameter to be ON and the ENTER command is issued.

IBM : 3179-1

After power, the Input Inhibit parameter must be selected. Also, the keyboard clicker "on/off" key can not be used by the operator.

However, if Input Inhibit is not being monitored, this clicker key is available to the operator.

IBM: 3180-1, 3180-2

If Input Inhibited is to be monitored, the Intercharacter Delay parameter must be set to 02 and a jumper cable must be installed inside the terminal. The following sequence describes the installation.

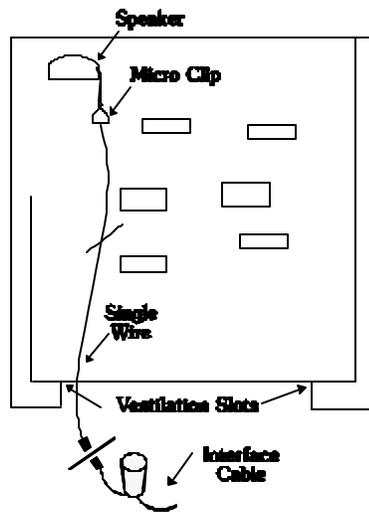
1. Remove the logic element from the IBM 3180. Move the lever on the lower-left, rear corner of the terminal to the "OPEN" position. Push the two locking bars at the right side of the logic element forward. Hold the logic element and swing the right side out. Remove the two left latches from the display element.
2. View the logic element with the PC board face up. Attach the spring clip end of the single wire cable (ordered with the standard interface cable) to the right terminal of the speaker.
3. Thread the unattached end of the single wire cable through one of the slots at the bottom of the logic element, making certain that the cable will not interfere with the reinstallation of the logic element.
4. Install the logic element on the display element.

5. Connect the single wire receptacle, from the bottom of the element, to the single wire plug from the terminal end of the interface cable ordered with the unit.

NOTE:

You must disconnect the single wire cable at the plug and receptacle junction if the unit is removed from the IBM 3180 terminal, but need not remove it from the logic element.

6. The operator must turn the keyboard clicker on and the clicker volume to a medium to high level (refer to the IBM 3180 users manual "set-up" procedures).
7. The hardware installation to monitor Input-Inhibit is now complete.



IBM 3180: Input Inhibit Installation

IBM: 3179-2

If Input Inhibited is to be monitored, a jumper cable must be installed inside the terminal. The following sequence describes the installation.

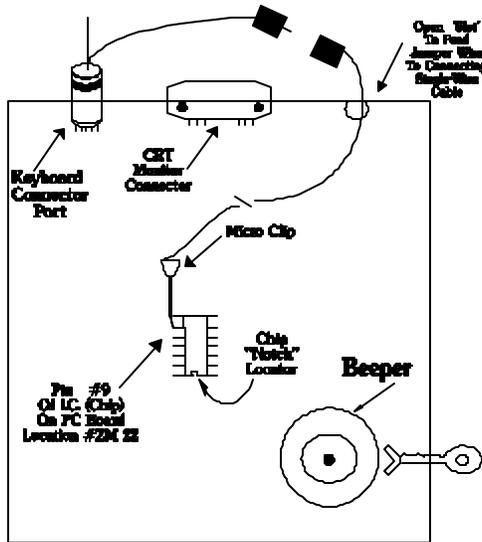
1. Remove the logic element from the IBM 3179-2. Refer to the IBM 3179 Model 2 Problem Solving Guide, Steps 1 through 7 of "Logic Element Removal" procedures.
2. Open the logic element by removing the hex head screw from the bottom center of the logic element case. Next push in the tabs at the front of the case and lift the top from the logic element case.
3. View the logic element with the PC board face up. Attach the "spring clip" end of the single wire cable (ordered with the standard interface cable) to pin 9 on the chip at board location ZM22. Pin 9 is the sixth pin from the top (notched end) of the chip on the right side.
4. Thread the unattached end of the single wire cable through the hole at the back of the logic element, next to the monitor connector, making certain that the cable will not interfere with the reinstallation of the logic element.
5. Install the logic element on the display element.

6. Connect the single wire receptacle, from the back of the logic element, to the single wire plug, from the terminal end of the interface cable, ordered with the unit.

NOTE:

You must disconnect the single wire cable at the plug and receptacle junction if the unit is removed from the IBM 3179-2 terminal, but need not remove it from the logic element.

7. The operator must turn the keyboard clicker on and the clicker volume should be set to a mid to hi level. Refer to the IBM 3179-2 users manual "set-up" procedures.
8. The hardware installation to monitor Input-Inhibit is now complete.



IBM 3179-2: Input Inhibit Installation

IBM: 3196

If input inhibited is to be monitored, a jumper cable must be installed inside the terminal. The following sequence describes the installation.

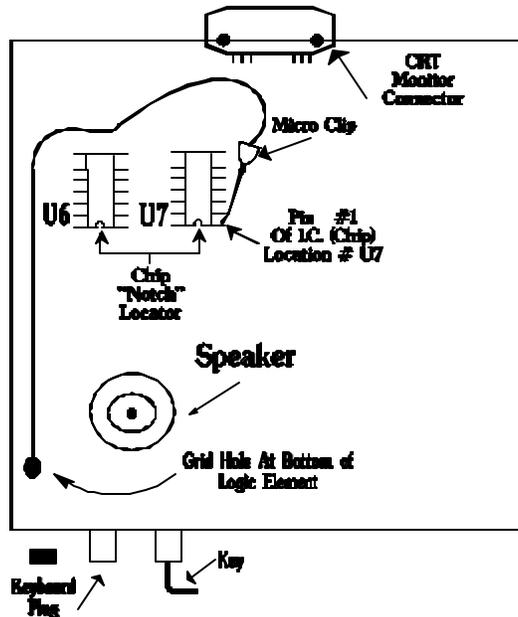
1. Remove the logic element from the IBM 3196. Refer to IBM 3196 Display Problem Solving Guide, "logic Element Removal" section.
2. Open the logic element by pressing a flathead screw driver in the 4 slots at the corners on the bottom of the logic element.
3. View the logic element with the PC Board face-up and the front of the logic element facing you. Attach the spring clip end of the single wire cable (ordered with the standard interface cable) to pin 1 on the clip at board location U-7. Pin 1 is the first pin from the notched end of the chip on the right side.
4. Thread the unattached end of the single wire cable through one of the grid holes at the bottom of the logic element near the front of the unit, making certain that the cable will not interfere with the installation of the logic element.

5. Place the logic element cover back on and install the display on the logic element by following the "logic element replacement" procedures on the IBM 3196 Display Station Problem Solving Guide.
6. Connect the single wire receptacles from the front of the logic element to the single wire plug, from the terminal end of the interface cable, ordered with the unit.

NOTE:

You must disconnect the single wire cable at the plug and receptacle junction if the unit is removed from the IBM 3196 terminal, but need not remove it from the logic element.

7. The operator must turn on the keyboard clicker and set the clicker volume at levels 2, 3, or 5. To determine the clicker volume level, refer to IBM 3196 manual on clicker volume set-up. We refer to no clicker volume as level 0. Each time you press the F5 key to increase volume, it is increased by 1. The highest clicker volume would be level 5.
8. The hardware installation to monitor input-inhibit is now complete.



IBM 3196: Input Inhibit Installation

IBM: 3481, 3486

If Input Inhibited is to be monitored, a jumper cable must be installed inside the terminal.

After this cable is installed, Input Inhibit can be monitored only if the unit is programmed for this function.

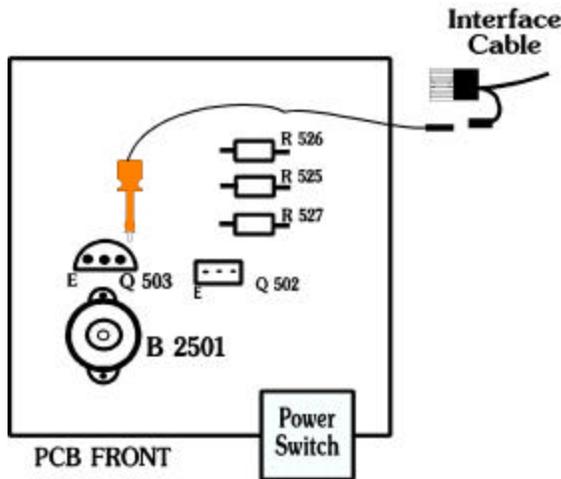
The following sequence describes the installation.

1. Insure that the IBM 3481/3486 terminal is powered off and the AC power is disconnected.
2. Extract the monitor from the cabinet by removing the 2 torque type screws from the bottom of the unit. Insert a long, flat instrument (ideally with a point) int the 2 small slots on the top-back of the cabinet. Using a slight amount of pressure, pry the internal catches downward and pull back on the cabinet.

3. After reviewing the following drawing, locate Transistor Q503 on the PC Board. Attach the single wire cable (ordered with the standard interface cable) spring clip end to the base leg of this transistor. (the leg opposite the one labeled on the PC board with an "E"). Reference Drawing.
4. Thread the single wire cable between the PC Board and the plastic shield located along the right hand side of the PC Board.
5. Re-Install the cabinet and thread the single wire cable through one of the air vents on the side of the cabinet.
6. Attach the single wire receptacle to the wire plug protruding from the interface cable (8 pin plug) that attaches to the terminal.
7. Complete the installation of the reader by programming the following:

3481 & 3486	Input Inhibit = ON
3486 Only	Intercharacter Delay = 02
8. The IBM 3481/3486 must be configured with the following parameters set using the ON-Line Set-up.

Clicker = OFF (3481)	ON (3486)
Volume =	1-4 (3481 & 3486)
1. The hardware installation to monitor Input-Inhibit is now complete.



IBM 3481 & 3486: Input Inhibit Installation

Appendix H: SERVICE AND REPAIR

COMPSEE provides service for its bar code products via a Service Center located at its manufacturing facilities in Mt. Gilead, North Carolina, USA.

The TurboWedge carries a lifetime warranty. The specific warranty language is contained in the Appendix I of this manual.

Factory service is also available on a time and material basis for products that do not qualify for the Life Time warranty. If you use this mode of service you will be advised of a not-to-exceed price for repair when you request a Return Material Authorization (RMA) for the product.

Products may be returned for repair by requesting a Return Material Authorization (RMA) from Compsee Customer Service.

1-321-724-4321 or 1-800-628-3888

When calling Compsee Customer Service you should be prepared with the following information.

- Model Number
- Serial Number
- Accurate Description of the Problem
- Company Name (Being Sent From)
- When and How it is being Sent)
- Return to Address
- Contact Name and Telephone Number

This information is necessary for us to complete an RMA for the product. **We cannot accept materials that are returned without an RMA number.** This number will insure that the problem described is corrected and the unit is repaired and returned in a timely fashion.

Normal Repair time is 10 days from receipt of equipment.

The user pays for the shipping of the equipment to Compsee. Compsee will pay for return shipping in the same manner that the equipment was shipped to Compsee.

Appendix I: LIFETIME WARRANTY TERMS

Compsee, Inc. (**COMPSEE**) warrants that its products will be free of defects in workmanship and material for the lifetime of the product when subject to normal use and service. The Lifetime warranty is extended to the original end-user owner of the equipment. This warranty does not cover any **COMPSEE** equipment which is

- (i) improperly installed or used
- (ii) damaged by accident or neglect, including failure to follow the proper maintenance, service and cleaning schedule
- (iii) damaged as a result of
 - (A) modification or alteration by the purchaser
 - (B) excessive voltage or current supplied to or drawn from the interface connections
 - (C) operation under conditions beyond the specified operating parameters
 - (D) repair or service of the equipment by anyone other than **COMPSEE** or its authorized representatives.

In the event of failure of equipment covered by this warranty, **COMPSEE** will repair such equipment returned (at customer expense) to its factory at Mt. Gilead, North Carolina, USA, provided that inspection by **COMPSEE** or a **COMPSEE** Authorized Independent Service Facility determines to its satisfaction that the equipment was defective due to defects in materials or workmanship. **COMPSEE** may, at its option, replace the equipment or subassembly in lieu of repair. Defective equipment returned will be repaired or replaced without charge, except for return shipping to **COMPSEE**, unless the failure was caused by misuse, neglect, accident, abnormal operating conditions, improper modification or alteration of the equipment, or repair or service of the equipment by anyone other than **COMPSEE** or its authorized representatives, in which case the repairs will be billed at the material and labor rates prevailing at the time of repair. In such case, a not-to-exceed repair estimate will be submitted before work is started, if requested.

No products will be accepted by **COMPSEE** or its Authorized Service Facilities without a Return Materials Authorization, which may be obtained by contacting the factory. In the event that the defective product cannot be repaired or replaced within a reasonable period of time **COMPSEE**'s sole obligation under this warranty shall be to refund the price paid, less tax and transportation.

LIMITATIONS

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME STATE, PROVINCES, OR COUNTRIES DO NOT ALLOW DISCLAIMERS OR LIMITATIONS OF IMPLIED WARRANTIES, SO THE ABOVE DISCLAIMER AND LIMITATION MAY NOT COMPLETELY APPLY TO YOU.

COMPSEE'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCTS. ANY PROVISION HEREIN TO THE CONTRARY NOTWITHSTANDING, COMPSEE SHALL NOT BE LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, AND IN NO EVENT SHALL ANY LIABILITY OF COMPSEE ARISING IN CONNECTION WITH ANY PRODUCTS SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO COMPSEE FOR THE PRODUCTS. SUCH LIMITATIONS IN LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN COMPSEE MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES OR DAMAGES. SOME STATES ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

COMPSEE SHALL NOT BE HELD RESPONSIBLE OR LIABLE IN ANY WAY FOR THE FAILURE TO SELL OR DELIVER ANY PRODUCTS HEREUNDER DURING A PERIOD IN WHICH SUCH SALE AND DELIVERY ARE PREVENTED OR HINDERED BY ANY CAUSE BEYOND COMPSEE'S REASONABLE CONTROL.

COMPSEE IS NOT RESPONSIBLE FOR DAMAGE TO THE PRODUCT OR EQUIPMENT INCURRED DURING THE SHIPMENT. ANY CLAIMS FOR SHIPPING DAMAGE SHOULD BE MADE DIRECTLY TO THE CARRIER.

NO COMPSEE AGENT, EMPLOYEE, OR REPRESENTATIVE HAS THE AUTHORITY TO MAKE OR IMPLY ANY REPRESENTATION, PROMISE OR AGREEMENT WHICH IN ANY WAY VARIES THE TERMS OF THIS LIMITED WARRANTY.

All of the provisions of this Limited Warranty are separate and severable, which means that if any provision is held valid and unenforceable, such determination shall not affect the validity or enforceability of the other provisions hereof.

This Limited Warranty gives the purchaser specific legal rights and the purchaser may also have other rights which vary from state-to-state, province-to-province, or country-to-country.