

**IBM 4610 SureMark Fiscal Printer
Greece - Models GR3/GR5/GB3/GB5
Programming Guide Supplement
Version 1E 01**

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Summary of Changes

Changes resulting in document revisions will be summarized in this table in reverse chronological sequence. Revision codes - alpha characters - will be used to highlight text changed in new document versions.

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Version	Date	Change Description
v1E 01	Jul 18, 2003	<ul style="list-style-type: none"> EA cmd. (Normal Printing Line in CR/SJ Station): <ul style="list-style-type: none"> Not allowed inside fiscal voucher. FHDRPRT flag was added. Fiscal Voucher Cancelled by excess of normal printing: were eliminated. 03 cmd. (Comment Line in CR Station): rules inside fiscal voucher were changed. RC 69: was changed. RC 176: was added. This version of Programming Guide Supplement corresponds to microcode EC level 1E.
v1D 01	Jul 4, 2003	<ul style="list-style-type: none"> USB - Stand by Connected/Disconnected Report: note 2 was changed. 4610 SureMark USB - Printer Disconnection: start off-line disconnected state was changed. This version of Programming Guide Supplement corresponds to microcode EC level 1D.
v1C 01	Jun 30, 2003	<ul style="list-style-type: none"> USB - Stand by Connected/Disconnected Report: was changed. 133 msg.: was added. This version of Programming Guide Supplement corresponds to microcode EC level 1C.
v1B 01	May 14, 2003	<ul style="list-style-type: none"> Power-On Reports: were changed. This version of Programming Guide Supplement corresponds to microcode EC level 1B.
v1A 01	May 7, 2003	<ul style="list-style-type: none"> There are not changes in the spec for this version. This version of Programming Guide Supplement corresponds to microcode EC level 1A.
v19 01	May 5, 2003	<ul style="list-style-type: none"> Fiscal Voucher: msg's 35, 58 and 66 will be printed in normal mode. This version of Programming Guide Supplement corresponds to microcode EC level 19.
v18 01	Apr 11, 2003	<ul style="list-style-type: none"> C6 cmd. (Set/Get Emphasized Printing Mode): was added. EA cmd. (Normal Printing Line in CR/SJ Station): new rule was added. D7 cmd. (Set Header): any rules were changed. 4610 SureMark USB - Printer Disconnection <ul style="list-style-type: none"> Start Stand_by Cx (Start Stand by Connected State): was changed. End Stand_by Cx (End Stand by Connected State): was changed. Start Stand_by Cx (Start Stand by Disconnected State): was changed. End Stand_by Cx (End Stand by Disconnected State): was changed. 4610 SureMark USB - Stand by Connected/Disconnected Report: was added. 4610 SureMark USB - Printer Disconnection Report: was changed. This version of Programming Guide Supplement corresponds to microcode EC level 18.
v17 01	Feb 14, 2003	<ul style="list-style-type: none"> DB cmd. (Electronic Read Accumulators and Counters): byte 28 (for RS-485) and byte 34 (for USB): were added. F7 cmd. (Command Buffer Management): was added. This version of Programming Guide Supplement corresponds to microcode EC level 17.
v16 01	Feb 10, 2003	<ul style="list-style-type: none"> Initialization Sequence: RAM CLEAR procedure was changed in the spec. C4 cmd. (Fiscal Parameter Configuration): new rules were added. 1A cmd. (Set Display Address): new rules and display connection checking were added. 1A cmd. (Set Display Address) - states changed by successful execution: FDISPLY state was eliminated. 59 msg.: was added. 4610 SureMark USB - Printer Disconnection: was changed. Status Report Line Table - byte 5: was changed. This version of Programming Guide Supplement corresponds to microcode EC level 16.
v15 01	Nov 6, 2002	<ul style="list-style-type: none"> There are not changes in the spec for this version. This version of Programming Guide Supplement corresponds to microcode EC level 15.
v14 01	Oct 31, 2002	<ul style="list-style-type: none"> Msg's 41, 71 and MA4: were added. Msg's 76, MA2 and MA3: were changed. 15 cmd. (Fiscal Memory Report): summary fiscal memory report was added. Summary Fiscal Memory Report: was added. Off-Line Report - Main Menu Report: was changed. This version of Programming Guide Supplement corresponds to microcode EC level 14.
v13 01	Oct 11, 2002	<ul style="list-style-type: none"> There are not changes in the spec for this version. This version of Programming Guide Supplement corresponds to microcode EC level 13.

Version	Date	Change Description
v12 01	Oct 2, 2002	<ul style="list-style-type: none"> There are not changes in the spec for this version. This version of Programming Guide Supplement corresponds to microcode EC level 12.
v11 01	Ago 28, 2002	<ul style="list-style-type: none"> CD cmd. (Cash Drawer Management): was added. 4610 SureMark USB - Printer Disconnection: was added. Unknown, Connected and Disconnected Reports: were added. Status Report Line Table: byte 5 was changed. This version of Programming Guide Supplement corresponds to microcode EC level 11.
v10 01	Jul 19, 2002	<ul style="list-style-type: none"> 16 cmd. (Set Date and Time): rules were changed. RC 53: was eliminated. RC 54: was changed. This version of Programming Guide Supplement corresponds to microcode EC level 10.
v0F 02	Jun 26, 2002	<ul style="list-style-type: none"> Day_N_Dcx and Lif_N_Dcx counters (Number of Printer Disconnections Table entries): maximum value was changed from 200 to 999. Fiscal Memory: printer disconnection table size was changed. Fiscal Memory: serial number table size was changed. DA cmd. (Read Fiscal Memory Tables) - Response Read Daily Entry Table: was changed. 1B cmd. (Serialize Fiscal Memory): manufacturing id field size was changed. Msg. 92: was changed. This version of Programming Guide Supplement corresponds to microcode EC level 0F.
v0E 01	May 23, 2002	<ul style="list-style-type: none"> There are not changes in the spec for this version. This version of Programming Guide Supplement corresponds to microcode EC level 0E.
v0D 01	May 20, 2002	<ul style="list-style-type: none"> Msg's 127 and 128: were changed. This version of Programming Guide Supplement corresponds to microcode EC level 0D.
v0C 01	May 15, 2002	<ul style="list-style-type: none"> Only six (6) comments lines can be printed in any place of the fiscal voucher. 03 cmd. (Comments Line in CR Station): the strings "PEsTA" (Change Due) and "ApOdEIjH" (Receipt) or strings containing '%' symbol as the last non-blank character are not allowed. RC's 80 and 94: were added. Msg's 127 and 128: were changed. This version of Programming Guide Supplement corresponds to microcode EC level 0C.
v09 01	Apr 12, 2002	<ul style="list-style-type: none"> Msg's 78 & 79: were changed. X-Report and Z-Report Printouts: Day_Net_ABCD and Day_Net_E accumulators printings were added. X-Report and Z-Report Printouts: Day_Net_Total accumulator printings was eliminated. This version of Programming Guide Supplement corresponds to microcode EC level 09.
v08 01	Mar 13, 2002	<ul style="list-style-type: none"> There are not changes in the spec for this version. This version of Programming Guide Supplement corresponds to microcode EC level 08.
v07 02	Feb 18, 2002	<ul style="list-style-type: none"> HA23 msg.: KOYMP1 was changed to MOYMP1. RC 62: was added. This version of Programming Guide Supplement corresponds to microcode EC level 07.
v06 03	Feb 11, 2002	<ul style="list-style-type: none"> Msg's 130 and 131: were added. Extended and Short Fiscal Memory Report: closure time, closure start & end hex address and from & to closure number were added. This version of Programming Guide Supplement corresponds to microcode EC level 06.
v05 02	Jan 31, 2002	<ul style="list-style-type: none"> RC 26: was changed. Msg's 132 and HA23: were created. Msg's OA0, OA1, MA0, MA3, HA01, HA09: were changed. Closure Report: msg's 119, 128, 120 and 121 were added. Print X-Report: msg's 120 and 121 were added. Extended Fiscal Memory Report: msg's 120 and 121 were added. Short Fiscal Memory Report: msg's 120 and 121 were added. Off-Line Reports: all lines are replicated in SJ station exactly as printed in CR station. Off-Line Reports (Help Report): msg. HA23 was added. Off-Line Reports (Help Report): after the report is printed, the paper is cut. Off-Line Reports (Confirm Option): after the report is printed, the paper is cut. Power-On Reports (Serialized, Fiscalized and Active): msg. 132 was added. Power-On Reports (Serialized, Fiscalized and Active): in disconnection mode, after the report is printed, the paper is cut. 14 cmd. (Print X-Report): the FDTS is set and check when this cmd. is issued. This version of Programming Guide Supplement corresponds to microcode EC level 05.
v05 01	Jan 2, 2002	<ul style="list-style-type: none"> Msg's 111 and 127: were changed. This version of Programming Guide Supplement corresponds to microcode EC level 05.

Version	Date	Change Description
v04 03	Dec 19, 2001	<ul style="list-style-type: none"> • 4610 SureMark USB - Printer and Fiscal Unit Status: byte 10 was changed. • Audit Port - Fiscal Memory Dump Record: was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 04.
v03 02	Nov 30, 2001	<ul style="list-style-type: none"> • D2 cmd. (Item Sale): was changed. • D3 cmd. (Negative/Positive Item Sale): was changed. • DA cmd. (Read Fiscal Memory Tables) - Response to the Read Fiscal Memory Tables command for Read Daily Entry: was changed. • DB cmd. (Read Accumulators and Counters): Day_N_Vouc was added. • Day_N_Vouc and Lif_N_Vouc accumulators: were added. • Msg's 127, 128 and 129: was added. • Msg. 67: was changed. • Closure Report and X-Report printouts: were changed. • Extended Fiscal Memory Report printout: was changed. • Power-on Report (Serialized, Fiscalized and Active): was changed. • Status Report Line Table: was changed. • Daily Entry Table: was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 03.
v02 03	Nov 14, 2001	<ul style="list-style-type: none"> • DA cmd. (Read Fiscal Memory Tables): in VAT rate and header table, return code 60 was added. • This version of Programming Guide Supplement corresponds to microcode EC level 02.
v02 01	Oct 09, 2001	<ul style="list-style-type: none"> • Off-Line Report: was added. • 4610 SureMark RS-485 - Printer Disconnection: was added. • Header Report: was added. • Status Report Line: was added. • Fiscal Voucher: was changed. • Closure Report: was changed. • Print X-Report: was changed. • Fiscal Memory Report (extended and short): were changed. • Fiscal Memory Map: was changed. • Serial Number Table: was changed. • Daily Entry Table: was changed. • VAT Rate Table: was changed. • Repair Action Table: was changed. • Header Table: was added. • Printer Disconnection Table: was added. • Predefined Messages: were added. • D7 cmd. (Set Header): was changed. • DA cmd. (Read Fiscal Memory Tables): was changed. • DB cmd. (Read Accumulators and Counters): was changed. • 09 cmd. (Set Last GRD Date): was eliminated. • RC 169: was added. • RC's 43 and 144: were changed. • RC 111: was eliminated. • Msg's 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126: were added. • Msg's 37 and 61: were changed. • Msg's 68, 102, 103 and 111: were eliminated. • This version of Programming Guide Supplement corresponds to microcode EC level 02.

Version	Date	Change Description
v01 01	Oct 02, 2001	<ul style="list-style-type: none"> • C8 cmd. (Set Barcode Parameters): was added. • C9 cmd. (Print Barcode): was added. • CA cmd. (Download and Print Graphics): was added. • DD cmd. (Start Non-Fiscal Report): was changed. • E7 cmd. (Diagnostic and Alignment Utilities): was changed. • E8 cmd. (Set Number of Dot Rows per LF): was changed. • EB cmd. (Normal Printing Line in DI Station): was changed. • EC cmd. (Line Feed): was changed. • EE cmd. (Cut Paper): was changed. • EF cmd. (Document Eject): was changed. • F4 cmd. (Head Position & Open/Close Throat): was changed. • F8 cmd. (Report Printer EC): was changed. • FC cmd. (Report Microcode EC level): was changed. • RC's 45, 46, 193, 213, 225, 226 and 237: were eliminated. • RC's 105, 106, 119, 123, 124, 126, 204, 208, 209, 210 and 235: were added. • RC's 200, 203, 206 and 214: were changed. • FOPNDIP (DI Non-Fiscal Report in Progress - Portrait) flag: was added. • FOPNDIL (DI Non-Fiscal Report in Progress - Landscape) flag: was added. • Non-Fiscal Reports in DI station printouts: were changed. • Fiscal Memory Map: was changed. • Serial Number Table: was changed. • Special Greek Characters: were changed. • This version of Programming Guide Supplement corresponds to microcode EC level 01.

Table 1. Change Summary

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1.0 Scope

This document covers the programming interface and functional characteristics of the IBM 4610 SureMark Fiscal Printer - Models GR3/GR5/GB3/GB5 for Greece.

2.0 Fiscal Hardware Technical Specification

2.1 IBM 4610 SureMark Fiscal Printer

2.1.1 Features

The printer features are:

- Customer Receipt Station (CR) - thermal printing
- Summary Journal Station (SJ) - thermal printing
- Document Insert Station (DI) - impact printing (GR3 and GB3 models only)
- User defined character sets
- RS-485 communication interfaces (GR3 and GR5 models only)
- USB communication interfaces (GB3 and GB5 models only)
- Barcode printing capability (all stations)
- Paper Cutter (CR station only)
- Bar code generation (CR and SJ stations only)

2.1.2 Models

```
* ===== *
* MODEL * INTERFACE * POWER * STATIONS *
*      *          *         * SJ * DI *
* ---- * - - - - - * - - - - * - - * - - *
* GR3 * RS-485 * Terminal * Yes * Yes *
* GR5 * RS-485 * Terminal * Yes * No *
* GB3 * USB * Brick * Yes * Yes *
* GB5 * USB * Brick * Yes * No *
* ===== *
```

Where:

in MODEL, G = fiscal 3 stations thermal/impact

2.1.3 Characters Per Inch

- Thermal Printing (CR and SJ stations)
 - 15 CPI => 44 characters/line
 - 12 CPI => 34 characters/line
- Impact Printing (DI station)
 - 15 CPI => 47 characters/line
 - 12 CPI => 37 characters/line

2.2 Fiscal Security Characteristics of the 4610 SureMark Fiscal Printer

The IBM POS fiscal solution is based on the concept of a 'fiscal printer'. Because of the restrictions in most countries relative to the definition of a 'fiscal machine', a distributed POS must have the fiscal electronics sealed in the printer. The printer becomes the 'fiscal machine' in a distributed POS.

This solution prevents fraud by ensuring absolutely that what is printed is recorded in the fiscal electronics. In this case the only fiscal dependency remaining on the POS terminal that the printer is attached to is the ability to sense connection of the POS displays.

Our system provides that capability by having all the POS I/O wired in parallel which allows the fiscal printer to monitor the serial I/O responses to polls from the configured displays. If a display is disconnected or stops operating, the fiscal printer will inhibit further printing until the display resumes operation.

2.2.1 Fiscal Processing

The IBM fiscal printer has a special electronics board sealed in the fiscal base which intercepts the data from the POS terminal and processes it before sending it to the printer to be printed. This ensures that nothing is printed that does not completely comply with the fiscal law requirements and that all data is captured in the fiscal printer non-volatile memory.

The fiscal processor logic board has 64K bytes of static RAM and a time of day clock module both backed up by a 10 year lithium battery.

A fixed pattern in the memory is checked each time the printer is powered on as an alternative to having a battery voltage sensor.

For 4610 fiscal printer with RS-485 communication interface, the DS80C320 microprocessor is used to process the data and perform arithmetic.

For 4610 fiscal printer with USB communication interface, the DS80C390 microprocessor is used to process the data and perform arithmetic.

All fiscal data is calculated by the fiscal processor board and any totals sent from the POS terminal are verified before printing is allowed. The microprocessor has special internal circuitry which detects power down situations with enough warning to save all fiscal data in the battery backed up memory.

2.3 Printer and Fiscal Unit Status

2.3.1 4610 SureMark G RS-485 - Printer and Fiscal Unit Status

The fiscal unit response to the application program is contained in the fiscal unit status, which is 9 bytes long (6 bytes for the printer status and 3 bytes for fiscal unit status).

For compatibility reasons, the printer status bytes received from the 4610 are mapped in the closest possible way to the model 3 status bytes.

The "MAPPED FROM" column shows from which byte/bit of the 4610 status bytes was the returned taken form.

The following figure shows the content of the fiscal unit status.

BYTE	BIT	CONTENT	MAPPED FROM	
			BYTE	BIT
0		PRINTER UNIT STATUS		
	0 (LSB)	COMMAND COMPLETE Set to 1 when the command is complete.		n/a
	1	LEFT HOME POSITION Set to 1 when the print head is in the left home position.	1	2
	2	RESERVED (always = '0')		n/a
	3	MICR PRESENT Set to 1 when the micr is present.		n/a
	4	RESERVED (always = '0')		n/a
	5	HOME ERROR	3	1
	6	DOCUMENT ERROR The document not inserted after document station was selected and the wait timed out.	3	2
	7 (MSB)	COMMAND REJECT		

(continued on next page)

Figure 1. 4610 SureMark G RS-485 - Printer and Fiscal Unit Status - Part 1 of 3

4610 SureMark G RS-485 - Printer and Fiscal Unit Status continued...

BYTE	BIT	CONTENT	MAPPED FROM	
1	0 (LSB)	PRINTER UNIT STATUS	1	6
		CASH RECEIPT PRINT ERROR Paper cover is open or the CR station is out of paper.		
	1	RESERVED (always = '0')	n/a	
	2	PRINTER KEY PRESSED Set to 1 when a printer key operation is in progress.	7	4
	3	EC LEVEL Set to 1 when responding to an EC level request.	5	1
	4	SJ COVER OPEN Set to 1 when the cover on the SJ station is open.	5	6
	5	DOCUMENT READY Set to 0 when the DI station is ready for printing. This occurs when both document sensors are made and the document has been fed to the first print position.	2	0
2	0 (LSB)	PRINTER UNIT STATUS	1	2
		LEFT HOME POSITION Set to 1 when the print head is in the left home position.		
	1	DOCUMENT ERROR The document not inserted after DI station was selected and the wait timed out.	3	2
	2	DOCUMENT PRESENT UNDER THE TOP SENSOR Set to 0 when a document is under the top document sensor.	2	2
	3	RESERVED (always = '0')	n/a	
	4	FLASH EPROM LOAD ERROR OR MCT LOAD ERROR	3	3
	5	RIBBON COVER OPEN Set to 1 when the ribbon cover is open.	1	5
7 (MSB)	6	RESERVED (always = '0')	n/a	
	SJ STATION PAPER FAULT Set to 1 when the paper is not present.	5	7	
3	PRINTER UNIT STATUS Contains the printer EC level with all status messages.	4		
4	RESERVED (always = '00')	n/a		
5	PRINTER UNIT STATUS Contains the current line count the printer is on.	6		

(continued on next page)

Figure 2. 4610 SureMark G RS-485 - Printer and Fiscal Unit Status - Part 2 of 3

4610 SureMark G RS-485 - Printer and Fiscal Unit Status continued..

BYTE	BIT	CONTENT	
6		FISCAL UNIT STATUS	(Note 1)
	0 (LSB)	RESERVED (always = '0')	
	1	IPL STATUS When set, it indicates that status byte 8 contains the IPL completion status; and bit 4 of byte 6 is set as it was at IPL time.	
	2	IPL IN PROGRESS Set to indicate that the fiscal unit is performing the IPL sequence.	
	3	MICROCODE EC When set it indicates that status byte 8 contains the microcode EC.	
	4	PLD This bit is set at IPL time to indicate that a command was in execution during PLD and that all modifications caused by the suspended command have been deleted.	
	5	ASYNCHRONOUS STATUS When set it indicates that the fiscal unit is executing an internal command (e.g. POR sequence) or it received an asynchronous status from the printer.	
	6	INTERMEDIATE STATUS When set it indicates that execution of a command is still in progress.	
	7 (MSB)	FISCAL UNIT BUSY Set to 1 when a command is received while a previous command is still in execution.	
7		ADDITIONAL DATA/COUNTRY VERSION/COUNTRY CODE - x43 (67)	
	7 (MSB)	ADDITIONAL DATA	(Note 2)
	6-5	COUNTRY VERSION (hardware model) 4610 SureMark G RS-485 = x10 (02)	
	4-0	COUNTRY CODE Greece = x00011 (03)	
8		FISCAL UNIT RETURN CODE	(Note 3)
9-n		ADDITIONAL DATA (if byte 7 bit 7 is on)	

Note : Bit 7 is the most significant bit and bit 0 is the least significant bit.

Note 1: When fiscal unit status byte 5 is 00 then command is complete.

Note 2: Where additional data follows the nine fiscal status bytes.

Note 3: When fiscal unit return code is 43 hex. (67_{10}), it means that no error is indicated on this status message.

Figure 3. 4610 SureMark G RS-485 - Printer and Fiscal Unit Status - Part 3 of 3

The fiscal unit return codes are defined in chapter 14.0, " FISCAL UNIT RETURN CODES" on page 179.

2.3.2 4610 SureMark G RS-485 - Version/Country Code Definitions

- Country Name = Greece
- Country Version (hardware model) = 02 (4610 SureMark G (Protocol SIO, Cable RS-485))
- Models = GR3 and GR5
- Country Code = 03
- Country Version + Country Code:
 - Hexadecimal = 43
 - Decimal = 67
- Fiscal Microcode EC Level = 1E

2.3.3 4610 SureMark G USB - Printer and Fiscal Unit Status (Protocol USB - Cable USB)

The fiscal unit response to the application program is contained in the fiscal unit status, which is 15 bytes long (8 bytes for the fiscal printer status and 7 bytes for fiscal unit status).

The following figure shows the content of the fiscal status.

BYTE	BIT	CONTENT
0	0 (LSB)	PRINTER UNIT STATUS
		COMMAND LOADED
		For USB buffered commands.
		Set to 1 when the command is received into the print buffer.
		Note: this is not when the line is actually printed.
		COMMAND COMPLETE
		For USB immediate command and flash storage commands.
		Set to 1 when the command is complete.
1		CASH RECEIPT RIGHT HOME POSITION
		Set to 1 when the print head is in the cash receipt right home position.
2		LEFT HOME POSITION
		Set to 1 when the print head is in the left home position.
3		DOCUMENT RIGHT HOME POSITION
		Set to 1 when the print head is in the document right home position.
4		RESERVED (Always = '0')
5		RIBBON COVER OPEN
		Set to 1 when the ribbon cover is open.
6		CASH RECEIPT PRINT ERROR
		Paper cover is open or the CR station is out of paper.
7 (MSB)		COMMAND REJECT
1	0 (LSB)	PRINTER UNIT STATUS
		DOCUMENT READY
		Set to 0 when the DI station is ready for printing. This occurs when both document sensors are made and the document has been fed to the first print position.
		DOCUMENT PRESENT UNDER THE FRONT SENSOR
		Set to 0 when a document is under the front document sensor.
		DOCUMENT PRESENT UNDER THE TOP SENSOR
		Set to 0 when a document is under the top document sensor.
		RESERVED (Always = '1')
		PRINT BUFFER HELD
		Set to a 1 when the print buffer is being held. Cleared when buffer released. The printer may be held due to a hold buffer command or one of the following printer errors:
		- Ribbon cover open with commands to be printed in DI station.
		- CR print error with commands to CR station.
		OPEN THROAT POSITION
		Set to 1 when the print head is in the open throat position.
		BUFFER EMPTY
Set when there is no longer any print data or commands in the buffer.		
7 (MSB)		BUFFER FULL
		Set when only 512 bytes remain in the buffer. Cleared when 3k bytes are free (RS-485 only).

Figure 4. 4610 SureMark G USB - Printer and Fiscal Unit Status - Part 1 of 3

4610 SureMark USB - Printer and Fiscal Unit Status continued...

BYTE	BIT	CONTENT
2		PRINTER UNIT STATUS
	0 (LSB)	MEMORY SECTOR IS FULL
	1	HOME ERROR
	2	DOCUMENT ERROR The document not inserted after document station was selected and the wait timed out.
	3	FLASH EPROM LOAD ERROR OR MCT LOAD ERROR
	4	RESERVED (Always = '0')
	5	USER FLASH STORAGE SECTOR IS FULL
	6	FIRMWARE ERROR CRC on the firmware failed. The printer is running out of the boot sector. ONLY system commands and firmware commands will be accepted.
7 (MSB)	FISCAL BIT Set to show a line completed printing.	
3	PRINTER UNIT STATUS Contains the printer EC level with all status messages.	
4		PRINTER UNIT STATUS
	0 (LSB)	PRINTER ID REQUEST/EXTENDED ADDRESS CMD Set to 1 when responding to a printer ID request.
	1	EC LEVEL Set to 1 when responding to an EC level request.
	2	MICR READ Set to 1 when responding to a MICR read command.
	3	MCT READ Set to 1 when responding to a MCT read command.
	4	USER FLASH READ Set to 1 when responding to a user flash read command.
	5	Reserved (Always = '1').
	6	SJ COVER OPEN Set to 1 when the cover on the SJ station is open.
7	SJ STATION PAPER FAULT Set to 1 when the paper is not present.	
5	PRINTER UNIT STATUS Contains the current line count the printer is on.	
6		PRINTER UNIT STATUS
	0 (LSB)	JOURNAL STATUS SELECTION (Note 1) 1 = Selected 0 = Not Selected
	1	
	2	PDF417 BAR CODE GENERATION PROBLEM Set to 1 when there is a problem creating a pdf417 bar code image.
	3	CASH DRAWER STATUS Set to 1 when cash draw is opened.
	4	PRINTER KEY PRESSED Set to 1 when a printer key operation is in progress.
	5	RESERVED (Always = '1')
	6	STATION SELECTED Set when the DI station is selected. Clear when CR station is selected.
7 (MSB)	DOCUMENT FEED ERROR Set when there is an error after a Flip Check or a MICR command is executed.	

Figure 5. 4610 SureMark G USB - Printer and Fiscal Unit Status - Part 2 of 3

4610 SureMark G USB - Printer and Fiscal Unit Status continued...

BYTE	BIT	CONTENT
7		FISCAL UNIT STATUS (reserved for future use).
8	0	FISCAL UNIT STATUS Fiscal/Printer Device Info 0 = Fiscal Device Info is NOT contained in this message 1 = Fiscal or Printer Device Info IS contained in this message
	1	IPL STATUS When set, it indicates that status byte 13 contains the IPL completion status; and bit 4 of byte 8 is set as it was at IPL time.
	2	IPL IN PROGRESS Set to indicate that the fiscal unit is performing the IPL sequence.
	3	MICROCODE EC When set it indicates that status byte 13 contains the microcode EC.
	4	PLD This bit is set at IPL time to indicate that a command was in execution during PLD and that all modifications caused by the suspended command have been deleted.
	5	ASYNCHRONOUS STATUS When set it indicates that the fiscal unit is executing an internal command (e.g. POR sequence) or it received an asynchronous status from the printer).
	6	INTERMEDIATE STATUS When set it indicates that execution of a command is still in progress.
	7	FISCAL UNIT BUSY Set to 1 when a command is received while a previous command is still in execution.
9		PRINTER UNIT STATUS
	0-5	RESERVED (Always = '0')
	6	Host attempted to send a new command without reading the feature report for the previous command.
	7	ADDITIONAL DATA AND COUNTRY VERSION (= 1 when any data is available; otherwise = 0)
10		COUNTRY CODE 03 = Greece
11		COUNTRY VERSION (hardware model)
12		FISCAL MICROCODE EC LEVEL
13		FISCAL UNIT RETURN CODE (Note 3)
14		FISCAL UNIT RETURN CODE (reserved for future use)
15-n		ADDITIONAL DATA (if byte 12 bit 7 is ON)

Note : Bit 7 is the most significant bit and bit 0 is the least significant bit.

Note 1: In order to remain compatible with existing 4610 printer status definitions,
when reading the status bytes to determine which station is selected, the
journal station selected status bit and CR/DI station selected status bit
must be checked in the following sequence:

- 1 - Check byte 6, bit 0 first
 - If it is '1' then the journal station is selected
 - If it is '0' then the journal station is not selected and status byte 7,
bit 6 must be checked to determine which station is selected.
If status byte 6, bit 6 is a '0' then the CR station is selected.
If status byte 6, bit 6 is a '1' then the DI station is selected.

Note 2: Where additional data follows the sixteen fiscal status bytes.

Note 3: When fiscal unit return code is 43 hex. (67₁₀), it means that
no error is indicated on this status message.

Figure 6. 4610 SureMark USB - Printer and Fiscal Unit Status - Part 3 of 3

The fiscal unit return codes are defined in 14.0, "FISCAL UNIT RETURN CODES" on page 179.

2.3.4 4610 SureMark G USB - Version/Country Code Definitions

- Country Name = Greece
- Country Version (hardware model) = 04 (4610 SureMark G (Protocol USB, Cable USB))
- Models = GB3 and GB5
- Country Code = 03
- Fiscal Microcode EC Level = 1E

3.0 Command Set

In this section it is given a summary of the fiscal unit command set.
See 13.2, "00 - SYSTEM COMMANDS" on page 88 for the command structure.
The code preceding the command name represents the hexadecimal value of command byte 0.

SALE TRANSACTION:

- 01 - Print Header
- 03 - Comment Line in CR Station
- D2 - Item Sale
- D3 - Negative/Positive Item Sale:
 - Negative Item Sale:
 - Returns
 - Voids
 - Discounts
 - Positive Item Sale:
 - Uplifts
- D4 - Subtotal/Total Transaction
- D9 - Discount/Uplift on Subtotal
- D5 - Payment
- 06 - End Transaction
- 07 - Cancel Transaction

CLOSE SALE PERIOD:

- 13 - Close Sale Period

REPORTS:

- 14 - Print X-Report
- 15 - Fiscal Memory Report
- DD - Start Non-Fiscal Report
- DE - End Non-Fiscal Report

INITIALIZATION:

- 16 - Set Date and Time
- 18 - Set Fiscal Mode
- 1A - Set Display Address
- 1B - Serialize Fiscal Memory
- 20 - Load VAT Rate Table
- 21 - Verify VAT Rate Table
- C4 - Fiscal Parameter Configuration
- D7 - Set Header

Figure 7. Command Set Summary - Part 1 of 2

PRINTER:

E7 - Diagnostic and Alignment Utilities
E8 - Set Number of Dot Rows per Linefeed
E9 - Printer Native Commands
EA - Normal Printing Line in CR/SJ Station
EB - Normal Printing Line in DI Station
EC - Line Feed
ED - Ready Document (Top/Bottom Registration)
EE - Cut Customer Receipt
EF - Document Eject (Forward/Reverse Feed)
F4 - Head Position & Open/Close Throat

UTILITIES:

DA - Electronic Read Fiscal Memory Tables
DB - Electronic Read Accumulators and Counters
DC - Read FDTS
F1 - Report IPL Completion Status
F7 - Command Buffer Management
F8 - Report Printer EC
F9 - Report Current Status
FA - Perform Power-ON Reset
FB - Run Online Diagnostics
FC - Report Microcode EC level
FF - Dump Fiscal RAM and Fiscal Memory

MISCELLANEOUS:

C6 - Set/Get Emphasized Printing Mode
C8 - Set Barcode Parameters
C9 - Print Barcode
CA - Download and Print Graphics
CD - Cash Drawer Management

SYSTEM:

00 - Fiscal Unit Power-ON Reset
00 - Report Current Status
00 - Fiscal Unit Test
00 - Report Microcode EC level

Figure 8. Command Set Summary - Part 2 of 2

3.1 Error Conditions

Errors encountered during command execution are processed as follows:

- Command processing is suspended.
- Internal accumulators and counters are restored to their original value (the value they had before the command in error was received).
- An error is included in the final status sent over the communication link. The error type indicates the cause of the abnormal termination.
- The application program can resend the same command again or any other command that is valid for the procedure that is in progress.

To warn the operator that the same line could be printed more than once for the same item, a three characters overlay string ("###") is provided by microcode on the first 3 character positions of the line.

This overlay operation is activated by the application program by setting the retry bit in the repeated command.

The retry bit has effect only for the following commands.

- D2 - Item Sale
- D3 - Negative/Positive Item Sale
- D5 - Payment
- D9 - Discount/Uplift on Subtotal

Only exception to the above process is the recovery from error occurred during close sale period (13 cmd.), fiscal memory report (15 cmd.), end transaction (06 cmd.) and cancel transaction (07 cmd.) processing.

- 13 - Close Sale Period On receipt of any command, after error, the closure function is completed in one of the following two ways:
 1. Fiscal memory already updated: The sale period is closed as if error did not occur.
 2. Fiscal memory not yet updated: The daily data are restored as they were before issue the close sale period (13 cmd.) and the customer slip is voided.
- 15 - Fiscal Memory Report On receipt of first command, after error, the report is terminated and the slip is voided.
- End Transaction Only end transaction (06 cmd.) or cancel transaction (07 cmd.) are accepted.
- Cancel Transaction. Only cancel transaction (07 cmd.) is accepted.

4.0 J4/CE Jumper

4.1 Description

The RAM is cleared and all totals are reset when the J4/CE jumper is activated. Available information, such as the serial number, is loaded from the fiscal memory (EPROM) to the RAM.

4.2 Procedure

The activate J4/CE jumper procedure consists in:

- Turn OFF the fiscal printer
- Put the J4/CE jumper in ON (ACTIVE) position
- Turn ON the fiscal printer

The deactivate J4/CE jumper procedure consists in:

- Turn OFF the fiscal printer
 - Put the J4/CE jumper in OFF (STORED) position
 - Turn ON the fiscal printer
-

4.3 Calculations while the J4/CE jumper is active

- Recover the following counters from the fiscal memory tables

Lif_N_Clos

Lif_N_Ract

- Operate on the following counters as shown below and they are incremented on every IPL with J4/CE jumper in ON (ACTIVE) position.

$Lif_N_Ract = Lif_N_Ract + 1$

$Day_N_Ract = Day_N_Ract + 1$

4.4 Rules

- Only authorized service personnel can move the J4/CE jumper.
- The RAM pattern is initialized after all the other initialization has been completed.
- This process can take a long time if the fiscal memory is almost full or full.
- When the J4/CE jumper procedure has been completed, a power-on report will be printed to inform the operator the fiscal unit status.

5.0 Power Line Disturbance (PLD)

When a PLD occurs the fiscal unit goes in a power-off state.

When power is restored the microcode checks if command execution was in progress when PLD occurred. If no command was in progress a normal IPL is performed. If command was in progress then internal accumulators and counters are restored to their original value (the value they had before the execution of the interrupted command).

A bit (PLD bit) is included in the IPL status sent over the communication link.

The PLD bit indicates to the application program that the last command sent was not executed because of PLD.

The IPL routines guarantee that accumulators and counters are restored to their original values, but no actions can be performed on totally or partially printed lines.

Only exception to the above process is the recovery from PLD occurred during close sale period (13 cmd.) or fiscal memory report (15 cmd.).

- 13 - Close Sale Period

On IPL completion, after PLD, the closure function is completed in one of the following two ways:

1. Fiscal memory already updated: The sale period is closed as if PLD did not occur.
2. Fiscal memory not yet updated: The daily data are restored as they were before to issue the close sale period (13 cmd.) and the customer slip is voided.

- 15 - Fiscal Memory Report

On IPL completion, after PLD, the report is terminated and the slip is voided.

6.0 Initialization Sequence

The initialization sequence for Greece is:

1. *RAM CLEAR*

- Turn OFF the fiscal printer
- **Put J4/CE jumper in ON position (ACTIVE)**
- Turn ON the fiscal printer (wait for the power-on report to be printed)
- Turn OFF the fiscal printer
- **Put J4/CE jumper in OFF position (STORED)**
- Turn ON the fiscal printer

2. *SERIALIZE FISCAL MEMORY*

- Execute --> Serialize Fiscal Memory = 1B66 1B00

3. *SET DATE AND TIME*

- Execute --> Set Date = 1B66 1600

4. *FISCAL MODE*

- Execute --> Set Fiscal Mode = 1B66 1800

5. *FISCAL PARAMETER CONFIGURATION*

(Optional)

- Execute --> Display Sensing Definition = 1B66 C402

6. *SET DISPLAY ADDRESS*

- Execute --> Set Display = 1B66 1A00

7. *RESET FISCAL PRINTER*

(Issue only for USB microcode version)

- Turn OFF the fiscal printer
- Turn ON the fiscal printer

8. *SET HEADER IN RAM*

(Minimum = 1, Maximum = 6)

- Execute --> Set Header Line 1 = 1B66 D701
- Execute --> Set Header Line 2 = 1B66 D702
- Execute --> Set Header Line 3 = 1B66 D703
- Execute --> Set Header Line 4 = 1B66 D704

- Execute --> Set Header Line 5 = 1B66 D705
- Execute --> Set Header Line 6 = 1B66 D706

9. *STORE HEADER IN FISCAL MEMORY*

- Execute --> Set Header = 1B66 D700

10. *LOAD VAT RATE TABLE AND VERIFY VAT RATE TABLE*

- Execute --> Load VAT Rate Table = 1B66 2000
- Execute --> Verify VAT Rate Table = 1B66 2100

6.1 **Serialize Fiscal Memory**

This procedure is used at the end of the manufacturing process to store the manufacturing id, manufacturing year and serial number in fiscal memory.

6.2 **Set Date And Time**

This procedure is used to update the fiscal unit internal hardware TOD.

6.3 **Set Fiscal Mode**

This procedure is used to set the fiscal mode in fiscal memory.

Once this procedure has been executed the fiscal unit will operate in accordance with the country fiscal law.

6.4 **Fiscal Parameter Configuration**

This procedure is used to configure the number of displays to be sensed during the printer operation.

6.5 **Set Display Address**

This procedure is used to set the address of the two displays that must be monitored for connection by the fiscal unit.

6.6 **Set Header**

This procedure is used to load the header into RAM.

6.7 **Load VAT Rate Table**

This procedure is used to load a new VAT rate table.

Up to 224 fiscal memory VAT rate table entries are available for the fiscal unit life time.

6.8 Verify VAT Rate Table

This procedure is used to verify that the VAT rate table being used by the application program is the same that is used by the fiscal unit.

7.0 FDTS (Fiscal Date/Time Stamp)

The FDTS is composed by a date (RAM_FDTS_Date) and time (RAM_FDTS_Time).

The FDTS is set and check when any of the following commands are executed or the condition holds:

- 01 - Print Header
- 13 - Close Sale Period
- 14 - Print X-Report
- 20 - Load VAT Rate Table

7.1 FDTS - Rules

- The FDTS set is stored in RAM memory.
- When the J4/CE jumper procedure has been completed, the FDTS take a greater value either (last FM_DE_Date and Last FM_DE_Time) and (FM_TR_Date and FM_TR_Time).
- At training mode, FDTS always keep the following date and time and never is updated by any command.
 - Date: 01/01/1990
 - Time: 00:00

7.2 FDTS - Operation Mode Flow

The following procedure is apply in fiscal mode only.

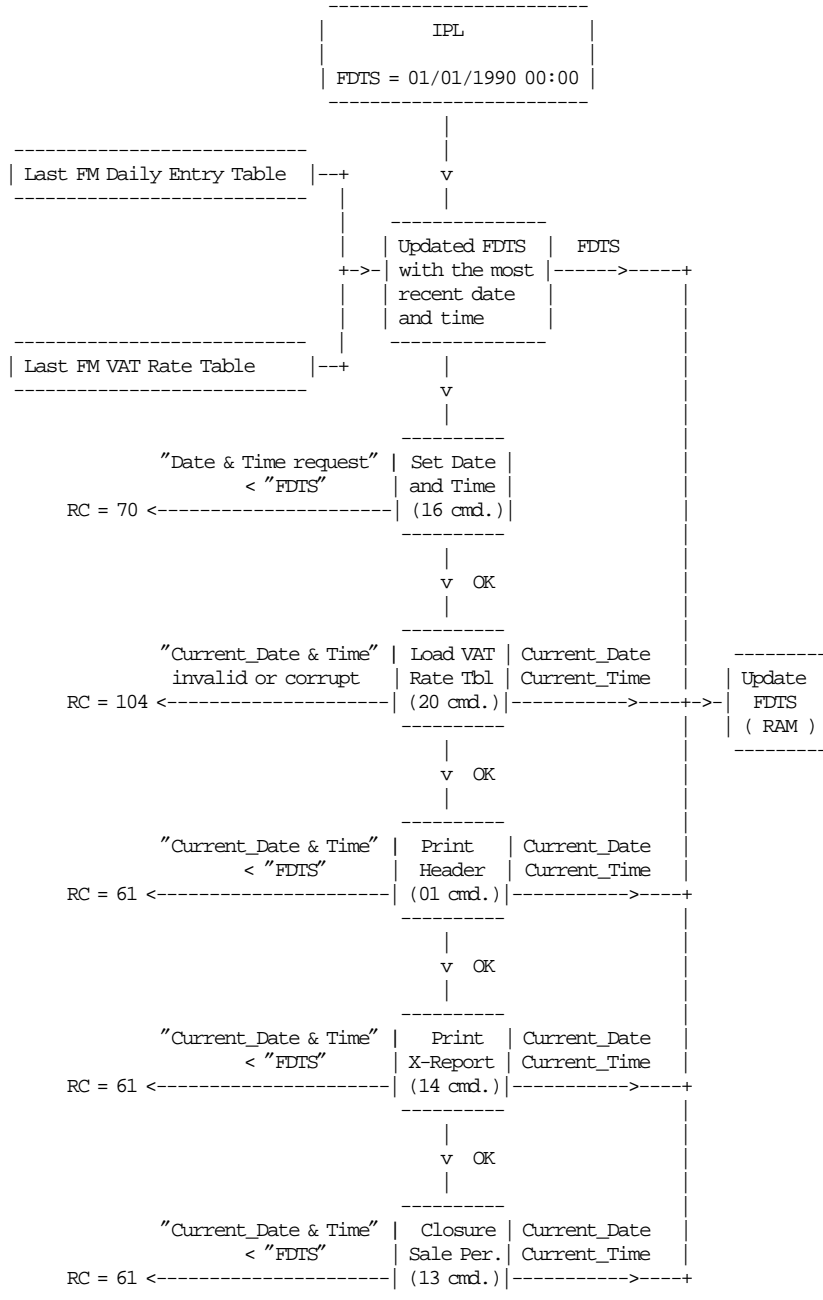


Figure 9. FDTS - Operation Mode Flow.

8.0 Off-Line Report

Off-Line report is a functionality that allows the user to execute some fiscal commands thru printer's buttons.

The activation sequence will print a menu from which fiscal commands can be selected.

Fiscal commands available with button sequences are closure report (13 cmd.) and fiscal memory report (15 cmd.).

Off-Line report functionality is allowed regardless of the disconnection and connection state of the fiscal unit.

8.1 Off-Line Report - Rules

- When the fiscal printer is connected off-line reports are not allowed if a voucher or a non-fiscal report is in progress, and the activation sequence will have no other effect than producing a printer reset.
- When the fiscal printer is disconnected, the activation sequence will cancel a voucher in progress or end a non-fiscal report in progress before entering the off-line reports menu.
- Requested commands will be executed according to current system flags.
- Return codes will be printed after the execution of the requested command.

8.2 Off-Line Report Flow

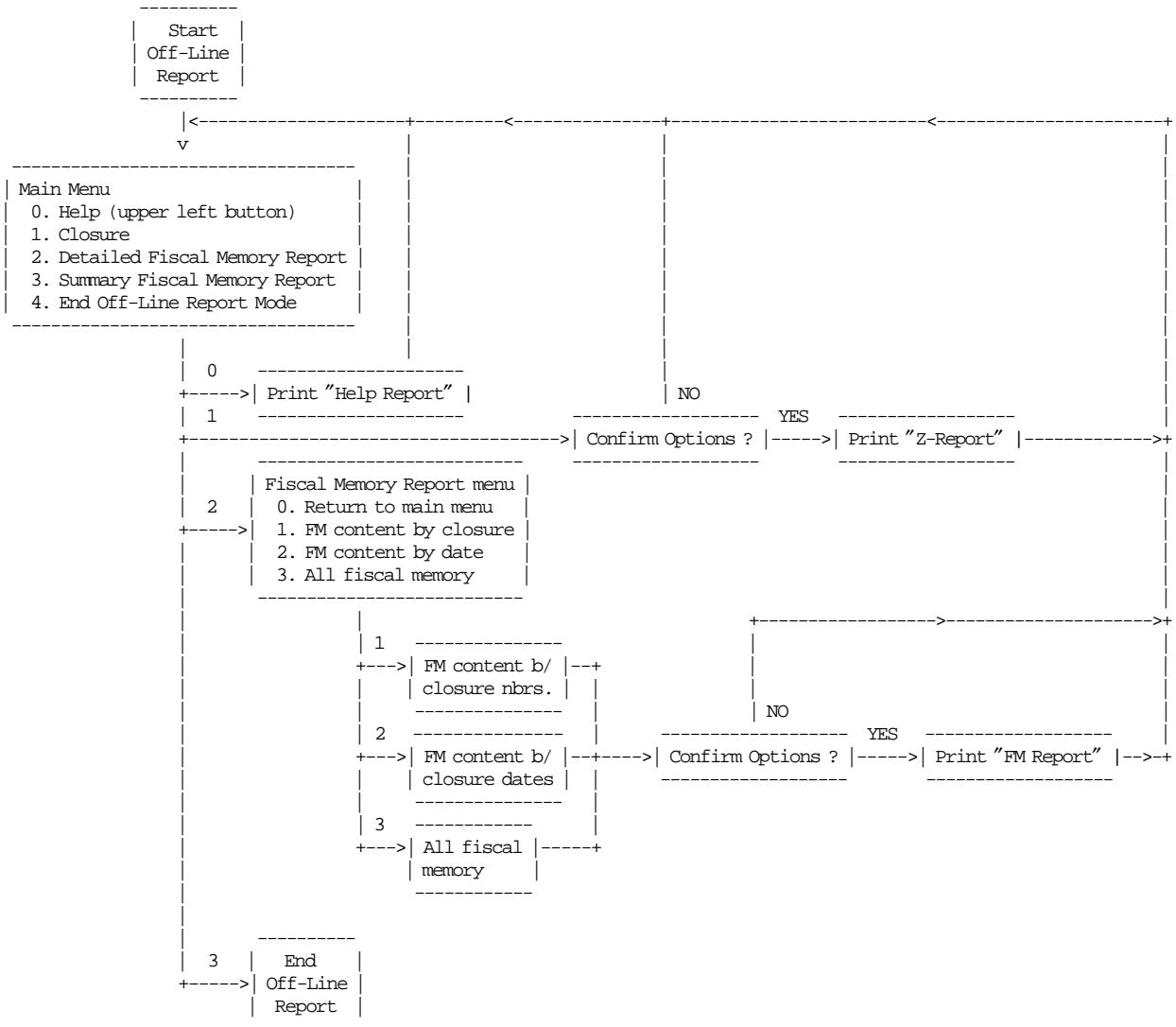


Figure 10. Off-Line Report Flow

8.3 Off-Line Report Operation

- **Start Off-Line Mode**

USER ACTION
PRESS BUTTON DI & BUTTON SJ
Press and hold both buttons for at least 5 seconds until DI button LED starts flashing.

Table 2. Start Off-Line Mode

- **Main Menu**

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
0. Help		1 time	
1. Closure	1 time	then.. 1 time	
2. Detailed Fiscal Memory Reports	2 times	then.. 1 time	
3. Summary Fiscal Memory Reports	3 times	then.. 1 time	
4. End Offline Reports Mode	4 times	then.. 1 time	
Cancel			Once at any time

Table 3. Main Menu

- **Closure**

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
Confirm		1 time	
Cancel			Once at any time

Table 4. Closure

- **Fiscal Memory Reports menu**

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
0. Return to main menu		1 time	
1. FM content b/ closure numbers	1 time	then.. 1 time	
2. FM content b/ closure dates	2 times	then.. 1 time	
3. All fiscal memory	3 times	then.. 1 time	
Cancel			Once at any time

Table 5. Fiscal Memory Reports menu

• FM content between closure numbers

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
First Closure Nbr. - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
First Closure Nbr. - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
First Closure Nbr. - 3rd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
First Closure Nbr. - 4th. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Nbr. - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Nbr. - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Nbr. - 3rd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Nbr. - 4th. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Confirm Option (Accept)	N times	then.. 1 time	
Confirm Option (Cancel)	N times		then.. 1 time
Cancel			Once at any time

Table 6. FM content between closure numbers

• FM content between closure dates

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
First Closure Day - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 3 times for digit 3 Press 4 times for digit 0	then.. 1 time	
First Closure Day - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
First Closure Month - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 2 times for digit 0	then.. 1 time	
First Closure Month - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
First Closure Year - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
First Closure Year - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Day - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 3 times for digit 3 Press 4 times for digit 0	then.. 1 time	
Last Closure Day - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 2 times for digit 0	then.. 1 time	
Last Closure Month - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Month - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Year - 1st. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Last Closure Year - 2nd. digit	Press 0 time for digit 0 Press 1 time for digit 1 Press 9 times for digit 9 Press 10 times for digit 0	then.. 1 time	
Confirm		1 time	

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
Cancel			Once at any time

Table 7. FM content between closure dates

- **All Fiscal Memory Report**

OPTIONS	USER ACTION		
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR	PRESS BUTTON SJ
Confirm		1 time	
Cancel			Once at any time

Table 8. All Fiscal Memory Report

9.0 Printer Disconnection

9.1 4610 SureMark RS-485 - Printer Disconnection

9.1.1 Start and End Procedure

- Start "Printer Disconnection Mode"
 1. Power-OFF POS (during homologation testing this might NOT be done).
 2. Disconnect printer from POS (Cable 7 is disconnected). .Connect printer to 'Power Brick'.
 3. Power-ON printer with 'Power Brick'.
 4. At power-on, during the microcode initialization sequence, the fiscal microcode will check the 24v line to detect Power Supply is connected to the printer or not.
 - The disconnection has been recognized because the 'Power Brick' is connected.
 - Start "Stand Alone" mode (No more commands are attended from the POS until the end "Stand Alone" mode).
 - A new disconnection is counted (See 9.5, "Printer Disconnection Calculations" on page 54).
 - A new entry is stored in printer disconnection table (See 9.5, "Printer Disconnection Calculations" on page 54).
 - The printer disconnection msg's are printed in "Power-ON Report" (Serialized, Fiscalized and Active)".
- End "Printer Disconnection Mode"
 1. Power-OFF printer.
 2. Disconnect 'Power Brick'.
 3. Connect to POS (Cable 7 is connected).
 4. Power-ON POS (if it was OFF. During homologation testing the POS might have remained ON).
 5. At power-on, during the microcode initialization sequence, the fiscal microcode will check the 24v line to detect Power Supply is connected to the printer or not.
 - The connection has been recognized because the 'Power Brick' is not connected.
 - End "Stand Alone" mode (Resume "normal" operation).
 - The printer connection msg's are printed in "Power-ON Report" (Serialized, Fiscalized and Active)".

9.1.2 Printer Disconnection Mode Operation

- IPL: When multiple IPL's occurs while the printer is in "Printer Disconnection Mode":
 - With J4/CE jumper in OFF (STORED) position:
 - No a new disconnection is counted.
 - No new entry is stored in printer disconnection table.
 - The printer connection msg's are printed in "Power-ON Report" (Serialized, Fiscalized and Active)".
 - With J4/CE jumper in ON (ACTIVE) position:
 - A new disconnection is counted (See 9.5, "Printer Disconnection Calculations" on page 54).
 - A new entry is stored in printer disconnection table (See 9.5, "Printer Disconnection Calculations" on page 54).
 - The printer disconnection msg's are printed in "Power-ON Report" (Serialized, Fiscalized and Active)".

- Closure Report and Fiscal Memory Report: While disconnected, the microcode must be able to print the following reports thru the "Off-Line Report" (Buttons Menu) and the message "THE FISCAL PRINTER IS DISCONNECTED" will be printed.
 - Closure Report.
 - Fiscal Memory Report (by closure date or number ranges).

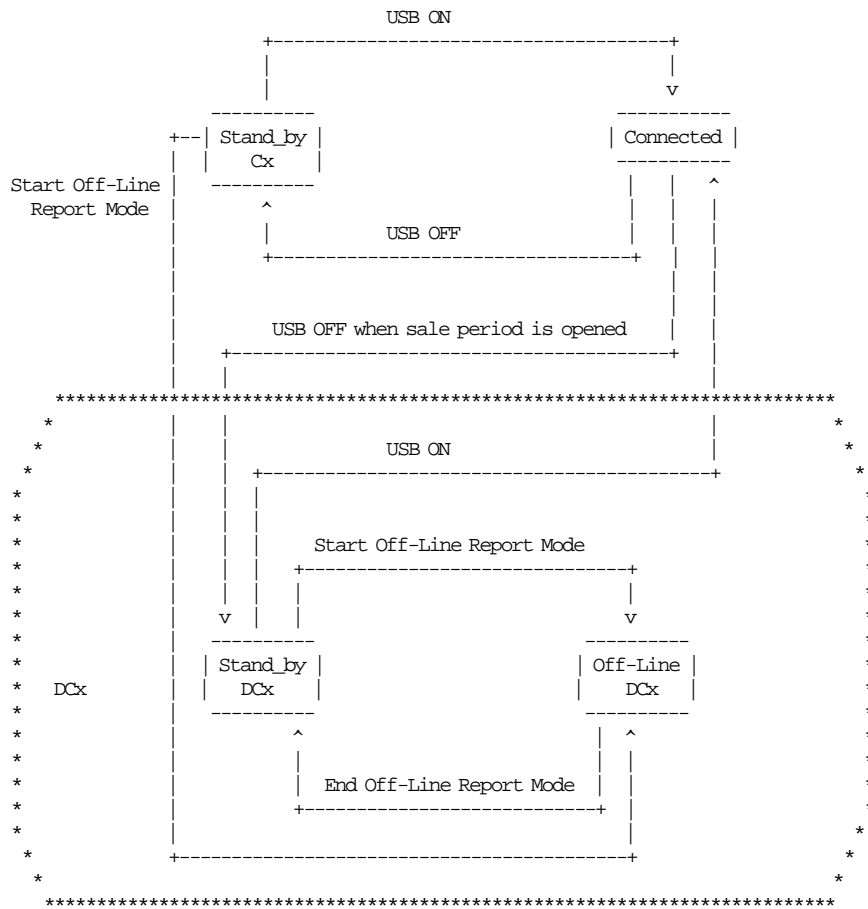
9.1.3 Printer Disconnection Notes

- If the fiscal printer is disconnected during a fiscal voucher/non-fiscal report in progress:
 - Start "Stand Alone" mode
 - A new disconnection is counted (See 9.5, "Printer Disconnection Calculations" on page 54).
 - A new entry is stored in printer disconnection table (See 9.5, "Printer Disconnection Calculations" on page 54).
 - The fiscal disconnection msg's are printed in "Power-ON Report" (Serialized, Fiscalized and Active)".
 - If "Off-Line Report" (Buttons Menu) is used, the fiscal voucher/non-fiscal report will be closed (cancel voucher/end non-fiscal report).

9.2 4610 SureMark USB - Printer Disconnection

9.2.1 Procedure

- Flow



USB ON = connect the USB cable while fiscal printer and POS/PC are powered

USB OFF = disconnect the USB cable while fiscal printer and POS/PC are powered

When "USB ON"/"USB OFF" occurs, the Power-On Report for the associated state is printed

Figure 11. 4610 USB - Printer Disconnection Procedure - Flow

- States
 - In every state, the fiscal printer is powered.
 - Connected State: The POS/PC is powered and the USB cable is connected. In this state the normal fiscal printer operations are performed.
 - Stand_by Cx (Stand by Connected State): The POS/PC is turn OFF or the USB cable is disconnected and the last state was "Connected State". In this state the fiscal printer is waiting for the user to do something (connecting again the USB cable or turning ON the PC/POS or entering in "Disconnected State").
 - DCx (Disconnected State): The POS/PC is turn OFF or the USB cable is disconnected. This is the main state for the printer disconnection to indicate that when the fiscal printer goes into this state the USB printer disconnection is counted (the printer disconnection is stored in fiscal memory and

the "Printer Disconnection Report" is printed) and when it leaves this state the reconnection is printed. This state is divided in the following ones:

- Stand_by DCx (Stand by Disconnected State): In this state the fiscal printer is waiting for the user to do something (connecting again the USB cable or turning ON the PC/POS or Start Off-Line Report Mode).
- Off-Line Disconnected State" (Off-line DCx): In this state the "Off-Line Report Mode" operations are performed.

Note: Every time that the POS/PC is turn OFF when the fiscal printer is powered and the sale period is open, the fiscal printer goes into "Disconnected State".

The details of the state operations are described below:

9.2.2 Stand_by Cx (Stand by Connected State)

9.2.2.1 Start Stand_by Cx (Start Stand by Connected State)

NORMAL CASE	ALTERNATIVE
1) Turn ON the printer with Power Brick and last state is "Stand by Connected/ Connected"	1) End of "Connected State".
2) The fiscal printer is reset and the fiscal microcode will check the 5V line to detect if PC/POS is connected to the printer or not.	
A) If 5V line is not present, the fiscal printer is in "Stand by Connected State" waiting for the user to do something (to go to "Connected" or "Disconnected" State).	A) If 5V line is present, the printer is in "Connected State".
B) Print the "Stand by Connected/Disconnected Report".	
The Status Report Line (byte 5 - bit 5 and 1) will be Ann0nBnn0n .	
D) If the printer remains in "Stand by Connected state", then: <ul style="list-style-type: none"> • Print the "Stand by Connected/Disconnected Report" for a maximum of ten times. 	D) If the printer ends the "Stand by Connected state", then: <ul style="list-style-type: none"> • Don't print or stop the printing of the "Stand by Connected/Disconnected Report".

9.2.2.2 End Stand_by Cx (End Stand by Connected State)

When start "Connected State" or "Off-Line Disconnected State".

NORMAL CASE	ALTERNATIVE
1) Turn ON the PC/POS or connect USB cable (5V line is present).	1) Start "Off-Line Report Mode" (press DI/SJ buttons).
A) Stop the printing of the "Stand by Connected/Disconnected Report".	A) Stop the printing of the "Stand by Connected/Disconnected Report".
B) The printer is in "Connected State".	B) The printer is in "Off-Line Disconnected State".

9.2.3 Connected (Connected State)

9.2.3.1 Start Connected State

NORMAL CASE	ALTERNATIVE
1) Turn ON the printer with Power Brick and turn ON the PC/POS or connect the USB cable (5V line is present).	
2) The fiscal microcode will check the 5V line to detect if PC/POS is connected to the printer or not. Note: at this moment the printer is in "Stand by Connected/Disconnected State" but no "Power-On Report" is printed yet.	
A) If 5V line is present, the printer is in "Connected State".	
B) Print the "Power-On Report" for "Connected State".	
The Status Report Line (byte 5 - bit 5 and 1) will be: Ann1nBnn0n.	If previous state is "Stand by Disconnected State", the Fiscal Printer Reconnection message line is printed.

9.2.3.2 End Connected State

When 5V line is not present.

NORMAL CASE	ALTERNATIVE
1) USB cable is disconnected or PC/POS turned OFF.	
2) The microcode is reset.	2) If a command is in progress, the 5V line is not sensed until this command execution is finished. After that the reset is performed.
A) If 5V line is not present and the sale period is closed, the printer is in "Stand by Connected State".	A) If 5V line is not present and the sale period is opened, the printer is in "Stand by Disconnected State".

9.2.4 Off-Line DCx (Off-Line Disconnected State)

9.2.4.1 Start Off-Line Disconnected State

NORMAL CASE	ALTERNATIVE
1) The printer is in "Stand by Connected/Disconnected State" waiting for the user to do something (with power thru Power Brick and 5V line not present).	
2) Start "Off-Line Report Mode" (press DI/SJ buttons).	
A) The "Off-Line Disconnected State" has been recognized because the Off-Line Mode buttons are pressed.	
B) Store the "Printer Disconnected" in fiscal memory.	B) If previous state is "Stand by Disconnected State", don't store "Printer Disconnection" in fiscal memory.
C) Print the "Printer Disconnection Report".	C) If previous state is "Stand by Disconnected State", don't print the "Printer Disconnected Report" for "Disconnected State".
	D) If fiscal voucher or a non-fiscal report is in progress: the fiscal voucher or the non-fiscal report will be closed (Cancel Voucher or End Non-Fiscal Report).
E) Print the "Stand by Connected/Disconnection Report" for a maximum of ten times.	E) If previous state is "Stand by Disconnected State", don't print the "Stand by Connected/Disconnected Report".
F) Print the "Off-Line Mode" Reports <ul style="list-style-type: none"> • Mode Enable Report • Main Menu Report 	

9.2.4.2 End Disconnected State

When end "Off-Line Report Mode".

NORMAL CASE	ALTERNATIVE
1) End "Off-Line Report Mode".	
2) The printer is in "unknown state".	

9.2.5 Stand_by DCx (Stand by Disconnected State)

9.2.5.1 Start Stand_by DCx (Start Stand by Disconnected State)

NORMAL CASE	ALTERNATIVE
1) Turn ON the printer with Power Brick and last state is "Stand by Disconnected/ Off-Line Disconnected".	1) End of "Connected State" when the sale period is opened or end of "Off-Line Disconnected State".
2) The fiscal printer is reset and the fiscal microcode will check the 5V line to detect if PC/POS is connected to the printer or not.	
A) If 5V line is not present, the fiscal printer is in "Stand by Disconnected State" waiting for the user to do something (to go to "Connected State" or "Disconnected State").	A) If 5V line is present, the printer is in "Connected State".
B) Print the "Stand by Connected/Disconnected Report".	
	C) If previous state is "Connected State" and the sale period is opened, then store "Printer Disconnection" in fiscal memory.
	D) If previous state is "Connected State" and the sale period is opened, print the "Printer Disconnection Report".
E) Print the Power-On Report" for "Stand by Disconnected State".	
The Status Report Line (byte 5 - bit 5 and 1) will be Ann0nBnn1n .	
F) If the printer remains in "Stand by Disconnected state", then: <ul style="list-style-type: none"> Print the "Stand by Connected/Disconnected Report" for a maximum of ten times. 	F) If the printer ends the "Stand by Disconnected state", then: <ul style="list-style-type: none"> Don't print or stop the "Stand by Connected/Disconnected Report".

9.2.5.2 End Stand_by DCx (End Stand by Disconnected State)

When start "Connected State" or "Off-Line Disconnected State".

NORMAL CASE	ALTERNATIVE
1) Turn ON the PC/POS or connect USB cable (5V line is present).	1) Start "Off-Line Report Mode" (press DI/SJ buttons).
A) Stop the printing of the "Stand by Connected/Disconnected Report".	A) Stop the printing of the "Stand by Connected/Disconnected Report".
B) The printer is in "Connected State".	B) The printer is in "Off-Line Disconnected State".

9.2.6 Notes

- After jumper ON operation the printer is in "Stand by connected state", as if it was coming from connected state.
- The 5V line is sense several times per second. In "Connected State" the sense is outside the commands, so, if a command is in progress the 5V line is not sense until this command execution is finished.

9.3 Printer Disconnection Notes

- When end "Stand Alone" mode is done, resume "normal" operation without the need for J4/CE jumpering.
- A display is NOT a requirement. Data may be printed instead of displayed.
- A keyboard is not a requirement.
- Only one power brick as fiscal units is sufficient to operate one or more fiscal printers in stand-alone mode.
- If a power supply is connected at any other time after power-on, while the printer is working connected to the cable 7, this will be ignored by the fiscal microcode and the printer will continue to work normally in "standard" fiscal mode. The 24v line won't be checked outside the power-on initialization.

IMPORTANT: There is not display connection checking when printer is in "Stand by Connected/Disconnection" and "Disconnected" states.

9.4 Printer Disconnection Table Full

When the "Printer Disconnection Table" is full, the following operations will be not allowed:

- Fiscal Voucher
- Non-Fiscal Report
- Normal Lines
- Comment Lines
- Barcodes
- Graphics
- Ready Document
- Document Eject

9.5 Printer Disconnection Calculations

- When printer disconnection occurs, the following counters are incremented:

$$Lif_N_Dcx = Lif_N_Dcx + 1$$

$$Day_N_Dcx = Day_N_Dcx + 1$$

10.0 Audit Port

10.1 Serial Communication Protocol

The fiscal printer have a serial communication port for electronic data collection. The communication is performed with "packet" transmissions.

10.1.1 Packets Type

10.1.1.1 Single Byte Packets

The single byte packets are 1 byte long packets used for communication flow control. The types are:

- ACK (Acknowledge, hexadecimal 6), means that the "packet" was received with the correct data. The sending of this packet is "bidirectional". The fiscal printer(FP)/Device Data Collection(DDC) can send this package. After the ACK, FP/DDC will transmit the following "packet".
- NAK (Negative Acknowledge, hexadecimal 15), means that the "packet" was received with the incorrect data or the data was not received. If the DDC send this package, then the FP will retransmit the last "packet".
If the FP send this package, then the DDC must retransmit the last "packet".
- ENQ (ENQuiry, hexadecimal 05): This "packet" is the Test Link Command (TLC). Anytime, the DDC can send a unique character ASCIIENQ and the FP will response with an ACK character. This will allow to verify the link communication integrity and restore it in case of a temporary break.

10.1.1.2 Block Packets

The block packets are multi-byte packets used for meaningful data trasmission between FP and DDC. See the format packet in 10.1.4, "Transmission Block Format" on page 57.

The types are:

- Data Fiscal Record (DFR): This record is used by the fiscal printer (FP) to send fiscal data to DDC. The first byte of this record specify the record type: Header, TAX Rate, Daily Total, Fiscal Memory Dump or Error.
- Audit Commands: This record is used for the DDC to request fiscal data from the fiscal printer (FP). It is transmitted at the begining of the communication. The data field have a fixed lenght of fourteen (14) bytes and its content will depend on he specific command requested.
- Finish Report Record (FRR): This record is used for the fiscal printer (FP) to indicate the DDC the end of fiscal data transmission. The data field has fixed length of four (4) ASCII characters corresponding to the number of four (4) digits indicating the quantity DFR sent. If this number is less than 4 digits, it will be padded left with '0'.

10.1.2 Packets Transmission

10.1.2.1 Description

The information transfer will be initiated for a Device Data Collection (DDC) sending an audit command (Block Packet) to the fiscal printer (FP).

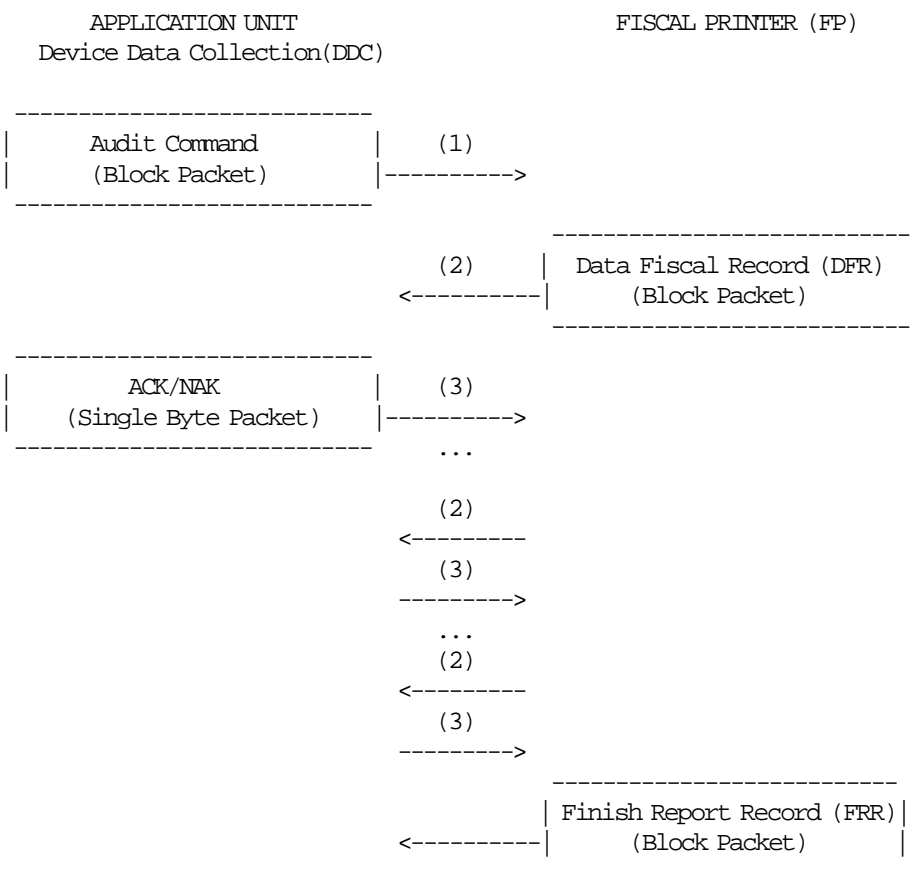
The fiscal printer (FP) will respond with a Data Fiscal Record (DFR) (Block Packet). Each time that the fiscal printer (FP) finishes to transmit a DFR, will wait a response from DDC which will be one of the following Single Byte Packets: ACK or NAK.

The fiscal printer (FP) will always wait ACK or NAK (Single Byte Packets) after transmit a DFR (Block Packet) and will not accomplish any other task (unless to answer a unexpected Test Link Command (TLC) (Single Byte Packet)).

From this condition will only come out with some external operation communication, for instance, turn ON/OFF the fiscal printer.

After receiving the ACK (Single Byte Packet) response corresponding to the last DFR (Block Packet) transmitted, the fiscal printer will send a Finish Report Record (FRR) (Block Packet).

10.1.2.2 Flow



10.1.3 Communications Parameters

The communication will be handled thru the RS-232 standard. Only the Tx/Rx signals are currently used. Ground line must be connected also.

The communications parameters will be:

- 8 bits character length
- 1 start bit
- 1 stop bit
- parity none
- 9600 bauds transmission speed

10.1.4 Transmission Block Format

The transmission block format for the block packet is shown in the following table:

```
*****
* STX * DATA * ETX * CHK *
*****

*****
* FIELD * LENGHT * DESCRIPTION *
* ***** * ***** * ***** *
* STX * 1 byte * ASCII character STX (Start of Text, hexadecimal 02). *
* * * * Indicate the record start. *
* ----- * ----- * ----- *
* DATA * variable * Set of ASCII characters with data to transmit. *
* * * * The lenght depend on the Record Type. *
* ----- * ----- * ----- *
* ETX * 1 byte * ASCII character ETX (End of Text, hexadecimal 03). *
* * * * Indicate the record end. *
* ----- * ----- * ----- *
* CHK * 1 byte * Check Byte. Will be the negative value (two's complement) *
* * * * of the modulus 2**8 sum of the data, the start and the *
* * * * end characters record. (STX + DATA + ETX). *
*****
```

10.2 Audit Command

This record is used for the DDC to request fiscal data from the fiscal printer (FP). It is transmitted at the beginning of the communication. The data field have a fixed length of fourteen (14) bytes and its content will depend on the specific command requested.

```
*****
*      DESCRIPTION      *      COMMAND      *      RANGE      *      FORMAT      *
* ***** * ***** * ***** * ***** *
* ZN (Closures by Number) * ZN00nnnn00nnnn * nnnn = 0001..9999 * decimal *
* ----- * ----- * ----- * ----- *
* ZD (Closures by Date) * ZDYMMDDYMMDD * yymmdd = 900101..891231 * *
* ----- * ----- * ----- * ----- *
* VN (Vats by Number) * VN000nnn000nnn * nnn = 001..999 * decimal *
* ----- * ----- * ----- * ----- *
* VD (Vats by Date) * VDYMMDDYMMDD * yymmdd = 900101..891231 * *
* ----- * ----- * ----- * ----- *
* WN (Wording by Number) * WN0000nn0000nn * nn = 01..99 * decimal *
* ----- * ----- * ----- * ----- *
* WD (Wording by Date) * WNYMMDDYMMDD * yymmdd = 900101..891231 * *
* ----- * ----- * ----- * ----- *
* RB (Raw Binary) * RB0hhhhh0hhhhh * hhhh = 00000..FFFFF * hexadecimal *
*****
```

- Request by Date

The field data will be the following: YYMMDDYYMMDD

Where:

- YYMMDD = ASCII character indicating the period date (YY=year, MM=month, DD=day) initial and final.
- The first YYMMDD set is initial date and second YYMMDD set is final date.

- Request Fiscal by Decimal Number

The field data will be the following: 00nnnn00nnnn

Where:

- 00nnnn = set of six (6) digits compound for ASCII characters, indicating initial number and final number of audit period. The first digits have fixed value (ASCII character 0, hexadecimal 30) while the four remaining indicate the closure number.
If the number is less than indicated digits, this field must be padded left with '0'.
- The first 00nnnn set is initial number and second 00nnnn set is final number.

- Request Fiscal by Hexadecimal Number

The field data will be the following: 0hhhhh0hhhhh

Where:

- 0hhhhh = set of six (6) digits compound for ASCII characters, indicating initial number and final number of audit period.
The first digits have fixed value (ASCII character 0, hexadecimal 30) while the four remaining indicate the closure number.
If the number is less than indicated digits, this field must be padded left with '0'.
- The first 0hhhhh set is initial number and second 0hhhhh set is final number.

10.3 Electronic Data Collection

When the DDC send a audit command (block packet), the fiscal printer (FP) responds with a data fiscal record (DFR) (block packet). This record will be one of the following record types.

- Header Record
- VAT Rate Record
- Daily Entry Record
- Fiscal Memory Dump Record
- Error Record

10.3.1 Header Record

For the following audit command, one header record is returned for each header table entry of the requested period:

- WN (Wording by Number): WN0000nn0000nn
- WD (Wording by Date) : WNYMMDDYYMMDD

```
*****
* FIELD * FROM * TO * SIZE * DATA * TYPE * ACCUMULATOR/ *
* NER. * * * (BYTES) * * * COUNTER *
* ***** * ***** * ***** * ***** * ***** * ***** *
* 1 * 1 * 1 * 1 * Record Type * ASCII * Constant 'W' *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 2 * 2 * 11 * 10 * Date (dd/mm/yyyy) * ASCII * FM_HE_Date *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 3 * 12 * 16 * 5 * Time (hh:mm) * ASCII * FM_HE_Time *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 4 * 17 * 20 * 4 * Closure Number * ASCII * FM_HE_N_Clos *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 5 * 21 * 58 * 38 * Header Descrip. 1 * ASCII * FM_HE_Desc1 *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 6 * 59 * 96 * 38 * Header Descrip. 2 * ASCII * FM_HE_Desc2 *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 7 * 97 * 134 * 38 * Header Descrip. 3 * ASCII * FM_HE_Desc3 *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 8 * 135 * 172 * 38 * Header Descrip. 4 * ASCII * FM_HE_Desc4 *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 9 * 173 * 210 * 38 * Header Descrip. 5 * ASCII * FM_HE_Desc5 *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 10 * 211 * 248 * 38 * Header Descrip. 6 * ASCII * FM_HE_Desc6 *
*****
```

10.3.2 VAT Rate Record

For the following audit command, one VAT rate record is returned for each VAT Rate table entry of the requested period:

- VN (VAT's by Number): VN000nnn000nnn
- VD (VAT's by Date) : VDYYMMDDYYMMDD

```
*****
* FIELD * FROM * TO * SIZE *          DATA          * TYPE * ACCUMULATOR/ *
*  NER.  *      *   * (BYTES) *                          *      * COUNTER          *
* ***** * ***** * ***** * ***** * ***** * ***** * ***** * ***** *
*   1 *   1 *   1 *   1 * Record Type                * ASCII * Constant 'V' *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   2 *   2 *  11 *  10 * Date (dd/mm/yyyy)          * ASCII * FM_TR_Date   *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   3 *  12 *  16 *   5 * Time (hh:mm)              * ASCII * FM_TR_Time    *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   4 *  17 *  20 *   4 * Closure Number             * ASCII * FM_TR_N_Clos *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   5 *  21 *  26 *   6 * VAT Rate Category A (rr,rr%) * ASCII * FM_TR_Rate_A *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   6 *  27 *  32 *   6 * VAT Rate Category B (rr,rr%) * ASCII * FM_TR_Rate_B *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   7 *  33 *  38 *   6 * VAT Rate Category C (rr,rr%) * ASCII * FM_TR_Rate_C *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   8 *  39 *  44 *   6 * VAT Rate Category C (rr,rr%) * ASCII * FM_TR_Rate_D *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   9 *  45 *  50 *   6 * VAT Rate Category E (rr,rr%) * ASCII * FM_TR_Rate_E *
*****
```

10.3.3 Daily Entry Record

For the following audit command, one daily entry record is returned for each daily entry table entry of the requested period:

- ZN (Closures by Number): ZN00nnnn00nnnn
- ZD (Closures by Date) : ZDYMMDDYYMMDD

```
*****
* FIELD * FROM * TO * SIZE *          DATA * TYPE * ACCUMULATOR/ *
*  NER. *      *   * (BYTES) *          *      * COUNTER      *
* ***** * ***** * ***** * ***** * ***** * ***** * ***** *
*   1 *   1 *   1 *   1 * Record Type * ASCII * Constant 'Z' *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   2 *   2 *  11 *  10 * Date (dd/mm/yyyy) * ASCII * FM_DE_Date *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   3 *  12 *  16 *   5 * Time (hh:mm) * ASCII * FM_DE_Time *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   4 *  17 *  20 *   4 * Closure Number * ASCII * FM_DE_N_Clos *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   5 *  21 *  30 *  10 * Slip Number * ASCII * FM_DE_N_Slip *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   6 *  31 *  40 *  10 * Fiscal Voucher Number * ASCII * FM_DE_N_Vouc *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   7 *  41 *  60 *  20 * Cumulative Net Sales (A+B+C+D) * ASCII * FM_DE_Net_ABDC *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   8 *  61 *  80 *  20 * Cumulative Net Sales (E) * ASCII * FM_DE_Net_E *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*   9 *  81 * 100 *  20 * Cumulative VAT Amount (A) * ASCII * FM_DE_VAT_A *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  10 * 101 * 120 *  20 * Cumulative VAT Amount (B) * ASCII * FM_DE_VAT_B *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  11 * 121 * 140 *  20 * Cumulative VAT Amount (C) * ASCII * FM_DE_VAT_C *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  12 * 141 * 160 *  20 * Cumulative VAT Amount (D) * ASCII * FM_DE_VAT_D *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  13 * 161 * 180 *  20 * Cumulative VAT Amount (E) * ASCII * FM_DE_VAT_E *
*      *   *   *   * (format: a.aaa.aaa.aaa.aaa,aa) *      *      *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  14 * 181 * 183 *   3 * Repair Action Number * ASCII * FM_DE_N_Ract *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  15 * 184 * 186 *   3 * VAT Changes Number * ASCII * FM_DE_N_VAT *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  16 * 187 * 188 *   2 * Header Changes Number * ASCII * FM_DE_N_Head *
* ----- * ----- * ----- * ----- * ----- * ----- * ----- *
*  17 * 189 * 191 *   3 * Printer Disconnections Number * ASCII * FM_DE_N_Dcx *
*****
```

10.3.4 Fiscal Memory Dump Record

For the following audit command, one record is returned for each 240 bytes of the requested period of the fiscal memory:

- RB (Raw Binary): RB0hhhhh0hhhhh

```
*****
* FIELD * FROM * TO * SIZE * DATA * TYPE * OBSERVATION *
* NBR. * * * (BYTES) * * * *
* ***** * ***** * ***** * ***** * ***** * ***** *
* 1 * 1 * 1 * 1 * Record Type * ASCII * Constant 'D' *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 2 * 2 * 6 * 5 * Dumped Address * ASCII * hhhh = *
* * * * * (format: hhhh) * * hexadecimal represent. *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 3 * 7 * 9 * 3 * Block Size * ASCII * 001 =< nnn <= 120 *
* * * * * (format: nnn) * * decimal representation *
* ---- * ---- * ---- * ---- * ---- * ---- *
* 4 * 10 * (n*2)+9 * (n*2) * Bytes in Hexadecimal * ASCII * hh. .hh = *
* * * * * (format: hhhh...hhh) * * hexadecimal represent. *
* * * * * * * * * 1 < x <= 120 *
*****
```

For every byte requested, 2 bytes are returned in the ASCII representation of the hex value for the byte. If the x00082 position in fiscal memory contains A5, the RB command will return '41 35'.

10.4 Errors

When an error occurs an error record is returned instead of the corresponding header, VAT rate, daily entry or fiscal memory dump record.

10.4.1 Error Record

```
*****
* FIELD * FROM * TO * SIZE * DATA * OBSERVATIONS *
* NBR. * * * * (BYTES) * * *
* ***** * ***** * ***** * ***** * ***** *
* 1 * 1 * 1 * 1 * Record Type * Constant 'E' *
* ---- * ---- * ---- * ---- * ----- * ----- *
* 2 * 2 * 7 * 6 * First Return Code * '000 067': Good Completion *
* * * * * * * * '000 xxx': Error Code *
* * * * * * * * (the error descriptions are *
* * * * * * * * in the Fiscal Unit Return *
* * * * * * * * Codes chapter in the *
* * * * * * * * Technical Specification) *
* ---- * ---- * ---- * ---- * ----- * ----- *
* 3 * 8 * 10 * 3 * Second Return Code * if First Return Code = '067' *
* * * * * * * * '067': Good Completion *
* * * * * * * * '090': Data Not Found *
* * * * * * * * '100': Error Reading Fiscal Memory *
*****
```

10.4.2 Invalid Commands

```
*****
* INVALID COMMAND * ERROR RECORD *
* ***** * ***** *
* JN000001123456 * 'E 000 065 000' *
* ----- * ----- *
* ZH000001123456 * 'E 000 066 000' *
*****
```

10.4.3 Errors by Flags

```
*****
*                               * ERROR RECORD *
*          FLAGS                * ***** *
* ***** *
* FMEMNIT (Fiscal Memory Serialized.....) = NO * 'E 000 128 000' *
* ----- *
* FISCFLG (Fiscal Printer Set in Fiscal Mode ..... ) = NO * 'E 000 129 000' *
* ----- *
* FIPLINP (Power-On in Progress.....) = YES * 'E 000 164 000' *
* ----- *
* FEPRMC (Fiscal Memory Connected.....) = NO * 'E 000 109 000' *
* ----- *
* FISCRDY (Fiscal Printer Ready.....) = NO * 'E 000 134 000' *
* ----- *
* FHDRPRT (Voucher Header Printed.....) = YES * 'E 000 172 000' *
* ----- *
* FENDTRA (End of Transaction Attempted.....) = YES * 'E 000 182 000' *
* ----- *
* FCANCEL (Cancel Transaction Attempted.....) = YES * 'E 000 183 000' *
* ----- *
* FOPENCR (CR Non-Fiscal Report in Prog.....) = YES * 'E 000 184 000' *
* ----- *
* FOPENSJ (SJ Non-Fiscal Report in Prog.....) = YES * 'E 000 184 000' *
* ----- *
* FOPNDIP (DI Non-Fiscal Report in Prog. - Portrait.) = YES * 'E 000 184 000' *
* ----- *
* FOPNDIL (DI Non-Fiscal Report in Prog. - Landscape) = YES * 'E 000 184 000' *
* ----- *
*****
```


10.4.4 Errors by Data

10.4.4.1 Fiscal Memory Report by Date

The following Audit command errors are described below:

- WD (Wording by Date): WNYMMDDYYMMDD
- VD (Vats by Date): VDYYMMDDYYMMDD
- ZD (Closures by Date): ZDYYMMDDYYMMDD

Example:

- Valid Range = 900101-891231 (first:01/01/1990 - last:31/12/2089)
- First Header/TAX Rate/Closure Date stored = 020101 (s:01/01/2002)
- Last Header/TAX Rate/Closure Date stored = 020311 (e:11/03/2002)

```
*****
* ERROR DESCRIPTION *      START      *      END      *      RETURN      *
* ***** * ***** * ***** * ***** *
* Invalid Number * 'xxxxxxxx' * '020101' * 'E 000 096 000' *
* ----- * ----- * ----- * ----- *
* Invalid Number * '020101' * 'xxxxxxxx' * 'E 000 096 000' *
* ----- * ----- * ----- * ----- *
* Invalid Data * '020230' (error) * '020301' * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Invalid Data * '020228' * '020230' (error) * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Invalid Period * '021103' * '020101' * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Data Not Found * '900101' (first) * '011020' (a) * 'E 000 067 090' *
* (first < a < s) * * * *
* ----- * ----- * ----- * ----- *
* Data Not Found * '020320' (c) * '891231' (last) * 'E 000 067 090' *
* (e < c < last) * * * *
*****
```

10.4.4.2 Fiscal Memory Report by Number

The following Audit command errors are described below:

- WD (Wording by Number): WN0000nn0000nn
- VD (Vats by Number): VN000nnn000nnn
- ZD (Closures by Number): ZN00nnnn00nnnn

Example (Closure by Number):

- Valid Range = 000001-009999 (s-lastv)
- Last Closure Number stored = 000010 (e)
- Last Closure Number available = 003840 (lastc)

Note: The Wording/Vats by Number commands examples are similar, but with the corresponding values.

```

*****
*   ERROR DESCRIPTION   *   START   *   END   *   RETURN   *
* ***** * ***** * ***** * ***** *
* Invalid Number       * 'xxxxxx' * '000001' * 'E 000 096 000' *
* ----- * ----- * ----- * ----- *
* Invalid Number       * '000001' * 'xxxxxx' * 'E 000 096 000' *
* ----- * ----- * ----- * ----- *
* Invalid Parameter    * 'nn0001' * '009999' * 'E 000 096 000' *
* (nn not equal 00)   *         *         *         *
* ----- * ----- * ----- * ----- *
* Invalid Parameter    * '000001' * 'nn9999' * 'E 000 096 000' *
* (nn not equal 00)   *         *         *         *
* ----- * ----- * ----- * ----- *
* Invalid Data         * '000000' (zero) * '000000' (zero) * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Invalid Data         * '000000' (zero) * '000001' * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Invalid Data         * '000001' * '000000' (zero) * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Invalid Period       * '009999' * '000001' * 'E 000 103 000' *
* ----- * ----- * ----- * ----- *
* Data Not Found       * '000015' (b) * '003840' (lastc) * 'E 000 067 090' *
* (e < b < lastc)     *         *         *         *
* ----- * ----- * ----- * ----- *
* Data Not Found       * '000015' (b) * '009999' (lastv) * 'E 000 067 090' *
* (e < b < lastv)     *         *         *         *
* ----- * ----- * ----- * ----- *
* Data Not Found       * '004000' (c) * '009999' (lastv) * 'E 000 067 090' *
* (e < lastc < c < lastc) *         *         *         *
*****

```

10.4.4.3 'Fiscal Memory Dump' by Address

The following Audit command errors are described below:

- RB (Raw Binary): RB0hhhhh0hhhhh

Example:

- Valid Range = 000000-0FFFFFF (s-lastv)
- Last Address Available = 07FFFF (e)

```
*****
* ERROR DESCRIPTION *   START *           END *           RETURN *
* ***** * ***** * ***** * ***** *
* Invalid Number * 'xxxxxx' * '000001' * 'E 000 096 000' *
* ----- * ----- * ----- * ----- *
* Invalid Number * '000001' * 'xxxxxx' * 'E 000 096 000' *
* ----- * ----- * ----- * ----- *
* Invalid Data * 'n00001' * '0FFFFFF' * 'E 000 103 000' *
* (nn not equal 00) * * * * *
* ----- * ----- * ----- * ----- *
* Invalid Data * '000001' * 'n99999' * 'E 000 103 000' *
* (nn not equal 00) * * * * *
* ----- * ----- * ----- * ----- *
* Invalid Period * '0FFFFFF' * '000001' * 'E 000 095 000' *
* ----- * ----- * ----- * ----- *
* Data Not Found * '000015' * '0FFFFFF' (lastv) * 'E 000 095 000' *
* (b < e < lastv) * * * * *
* ----- * ----- * ----- * ----- *
* Data Not Found * '08FFFF' (c) * '0FFFFFF' (lastv) * 'E 000 095 000' *
* (e < c < lastv) * * * * *
*****
```

10.4.5 Errors by Information

```
*****
* ERROR TYPE * ERROR RECORD *
* ***** * ***** *
* Reading Error * The entry of the Fiscal Memory Table is bad * 'E 000 067 100' *
*****
```

11.0 Accumulators and Counters

To describe how the microcode maintains amounts and counters printed on various reports and stored in fiscal memory it is necessary to define some internal accumulators and counters.

11.1 Transaction Accumulators

The following accumulators are used during a sale transaction:

	<u>RANGE</u>	
	<u>Min</u>	<u>Max</u>
Tra_Total (Transaction total)	-2147483648	2147483647
Tra_Tot_A (Gross amount for VAT category A)	-2147483648	2147483647
Tra_Tot_B (Gross amount for VAT category B)	-2147483648	2147483647
Tra_Tot_C (Gross amount for VAT category C)	-2147483648	2147483647
Tra_Tot_D (Gross amount for VAT category D)	-2147483648	2147483647
Tra_Tot_E (Gross amount for VAT category E)	-2147483648	2147483647
Tra_Retrn (Transaction Item Returns)	-2147483648	2147483647
Tra_Void (Transaction Item Voids)	-2147483648	2147483647
Tra_Disc (Transaction Item Discounts)	-2147483648	2147483647
Tra_Up1f (Transaction Item Uplifts)	-2147483648	2147483647
Tra_Tdsc (Transaction Discount on Subtotal)	-2147483648	2147483647
Tra_Tupl (Transaction Uplift on Subtotal)	-2147483648	2147483647
Tra_Amt_Due (Transaction Amount Due)	-2147483648	2147483647
Tra_Chg_Due (Transaction Change Due)	-2147483648	2147483647

Figure 12. Transaction Accumulators.

11.2 Transaction Counters

The following counters are used during a Sale Transaction:

	<u>RANGE</u>	
	<u>Min</u>	<u>Max</u>
Tra_N_Retn (Number of Returned Items)	0	65535
Tra_N_Void (Number of Voided Items)	0	65535
Tra_N_Disc (Number of Discounted Items)	0	65535
Tra_N_Uplf (Number of Uplifted Items)	0	65535
Tra_N_Tdsc (Number of Discounts on Subtotal)	0	65535
Tra_N_Tupl (Number of Uplifts on Subtotal)	0	65535

Figure 13. Transaction Counters.

11.3 Daily Accumulators

The following accumulators are used during a Sale Period:

	RANGE	
	Min	Max
Day_Tot_A (Gross Amount for VAT Category A)	0	4294967295
Day_Tot_B (Gross Amount for VAT Category B)	0	4294967295
Day_Tot_C (Gross Amount for VAT Category C)	0	4294967295
Day_Tot_D (Gross Amount for VAT Category D)	0	4294967295
Day_Tot_E (Gross Amount for VAT Category E)	0	4294967295
Day_VAT_A (Gross Amount for VAT Category A)	0	4294967295
Day_VAT_B (Gross Amount for VAT Category B)	0	4294967295
Day_VAT_C (Gross Amount for VAT Category C)	0	4294967295
Day_VAT_D (Gross Amount for VAT Category D)	0	4294967295
Day_VAT_E (Gross Amount for VAT Category E)	0	4294967295
Day_Net_A (Net Amount for VAT Category A)	0	4294967295
Day_Net_B (Net Amount for VAT Category B)	0	4294967295
Day_Net_C (Net Amount for VAT Category C)	0	4294967295
Day_Net_D (Net Amount for VAT Category D)	0	4294967295
Day_Net_E (Net Amount for VAT Category E)	0	4294967295
Day_Net_ABCD (Net Amount for VAT Category A, B, C, D)	0	4294967295
Day_Total (Gross Amount Total)	0	4294967295
Day_Net_Total (Net Amount Total)	0	4294967295
Day_VAT_Total (VAT Amount Total)	0	4294967295
Day_Retrn (Daily Item Returns)	-2147483648	2147483647
Day_Void (Daily Item Voids)	-2147483648	2147483647
Day_Disc (Daily Item Discounts)	-2147483648	2147483647
Day_Uplf (Daily Item Uplifts)	-2147483648	2147483647
Day_Tdisc (Daily Discount on Subtotal)	-2147483648	2147483647
Day_Tupl (Daily Uplift on Subtotal)	-2147483648	2147483647
Day_Canc (Daily Cancel Transaction)	-2147483648	2147483647

Figure 14. Daily Accumulators.

11.4 Daily Counters

The following counters are used during a sale period:

	<u>RANGE</u>	
	<u>Min</u>	<u>Max</u>
Day_N_Clos (Daily Closure Number)	0	3840
Day_N_Ract (Number of Repair Actions)	0	200
Day_N_Slip (Number of Slips)	0	65535
Day_N_Vouc (Number of Fiscal Vouchers)	0	65535
Day_N_Retrn (Number of Returned Items)	0	65535
Day_N_Void (Number of Voided Items)	0	65535
Day_N_Disc (Number of Discounted Items)	0	65535
Day_N_Uplf (Number of Uplifted Items)	0	65535
Day_N_Tdsc (Number of Discounts on Subtotal)	0	65535
Day_N_Tupl (Number of Uplifts on Subtotal)	0	65535
Day_N_Canc (Number of Transactions Cancelled)	0	65535
Day_N_Head (Number of Header Table entries)	0	30
Day_N_VAT (Number of VAT Rate Table entries)	0	224
Day_N_Dcx (Number of Printer Disconnections Table entries)	0	999

Figure 15. Daily Counters.

11.5 Lifetime Counters

	<u>RANGE</u>	
	<u>Min</u>	<u>Max</u>
Lif_N_Ract (Number of Repair Actions)	0	200
Lif_N_Clos (Closure Number)	0	3840
Lif_N_Vouc (Number of Fiscal Vouchers)	0	4294967295
Lif_N_Slip (Number of Slips)	0	4294967295
Lif_N_Head (Number of Header Table entries)	0	30
Lif_N_VAT (Number of VAT Rate Table entries)	0	224
Lif_N_Dcx (Number of Printer Disconnections Table entries)	0	999

Figure 16. Lifetime Counters.

12.0 Fiscal Unit

12.1 Fiscal Unit States

In this section are defined the fiscal unit states that are important for the comprehension of the fiscal rules.

- ***SALE PERIOD IN PROGRESS***

This state indicates that since the execution of the last close sale period procedure at least one of the following commands have been executed:

D2 - Item Sale

D3 - Negative/Positive Item Sale

This state is ended by:

13 - Close Sale Period

The following commands are not accepted while in this state:

18 - Set Fiscal Mode

16 - Set Date and Time

20 - Load VAT Rate Table

1A - Set Display Address

1B - Serialize Fiscal Memory

D7 - Set Header

- ***SALE TRANSACTION IN PROGRESS***

Sale Transaction is in progress when any one of the following commands have been executed:

D2 - Item Sale

D3 - Negative/Positive Item Sale

This state is ended by:

06 - End Transaction

07 - Cancel Transaction

The following commands are not accepted while in this state:

01 - Print Header

13 - Close Sale Period

14 - Print X-Report

15 - Fiscal Memory Report

16 - Set Date and Time

18 - Set Fiscal Mode

1A - Set Display Address

1B - Serialize Fiscal Memory

20 - Load VAT Rate Table

D7 - Set Header

DD - Start Non-Fiscal Report

DE - End Non-Fiscal Report

- ***NON-FISCAL REPORT IN PROGRESS***

Non-Fiscal report is in progress when:

DD - Start Non-Fiscal Report command has been executed

This state is ended by:

DE - End Non-Fiscal Report

The following commands are not accepted while in this state:

01 - Print Header

13 - Close Sale Period

14 - Print X-Report

15 - Fiscal Memory Report

16 - Set Date and Time

18 - Set Fiscal Mode

1A - Set Display Address

20 - Load VAT Rate Table

D7 - Set Header

12.2 Operational Modes

The fiscal unit can operate in two different modes depending on fiscal mode setting.

1. Training Mode

Fiscal rules are not applied and fiscal memory is not used.

2. Fiscal Mode

Fiscal rules are applied and fiscal memory is used.

12.2.1 Training Mode

The following rules apply to training mode operation in the fiscal unit:

- After serialization and before fiscalization the fiscal unit is in training mode state.
- In this mode the fiscal unit allows regular operations without writing in fiscal memory.
- Training mode is disabled when the fiscal unit has been fiscalized.
- The accumulators and counters are not stored in RAM neither in fiscal memory.
- The manufacturing ID, manufacturing year and serial number is not printed in any document.
- The set header (D7 cmd.) can be issued but not write in fiscal memory.
- The load TAX rate table (20 cmd.) can be issued but not write in fiscal memory.
- The verify TAX rate table (20 cmd.) can be issued but not write in fiscal memory.
- After J4/CE jumper procedure, the D7ii and D700 cmds. must be set.
- During training mode the following documents are allowed:
 - Fiscal Voucher
 - X-Report
 - Closure Report
 - Non-Fiscal Report
 - Off-Line Report
 - Header Report
- During training mode the following documents are not allowed:
 - Fiscal Memory Report

12.2.2 Fiscal Unit Rules

The following rules are applicable when fiscal mode is set:

1. Each line printed in CR station is replicated in SJ station.
2. Each time the RAM is cleared using the J4/CE jumper, the repair action counter residing in fiscal memory is increased by 1 and the fiscal unit current time is recorded for later printing on close sale period report.
3. Fiscal memory may not be disconnected. The microcode checks for it before execution of the following commands:
 - 01 - Print Header

- 06 - End Transaction
- 13 - Close Sale Period
- 15 - Fiscal Memory Report
- 20 - Load VAT Rate Table
- 21 - Verify VAT Rate Table
- DD - Start Non-Fiscal Report

If fiscal memory is not connected an error is reported to the application program. Recovery from this error requires the RAM to be cleared using the J4/CE jumper.

4. The vouchers produced are identified by consecutive numbers. Number 1 is assigned to the first voucher produced after close sale period report.
5. Any command that would print a character string with the serial number in CR or SJ stations is not accepted.
In this case, serial number means: the year of manufacturing (2 digits) and the actual serial number (6 digits) all together.
6. Before execution of any command the microcode checks that two displays are operational. The displays to be monitored are defined using "Set Display Address" command.
7. While J4/CE jumper is in ON (ACTIVE) position only the following commands are allowed:
 - 00 - System Commands
 - 16 - Set Date and Time
 - 1A - Set Display Address
 - F1 - Report IPL Completion Status
 - F4 - Head Position & Open/Close Throat
 - F7 - Command Buffer Management
 - F8 - Report Printer EC level
 - F9 - Report Current Status
 - FA - Perform Power-On Reset
 - FC - Report Microcode EC level
 - FF - Dump Fiscal RAM and Fiscal Memory
8. Upon IPL completion the fiscal unit requires that:
 - a. The following commands have been executed successfully, at least once since last J4/CE jumper procedure, before the execution of any fiscal procedure:
 - D7 - Set Header
 - 16 - Set Date and Time
 - 1A - Set Display Address
 - b. The following command is executed successfully, before a sale transaction is started:
 - 20 - Load VAT Rate Table
 - 21 - Verify VAT Rate Table

12.3 Fiscal Operations

This section gives a detailed description of fiscal procedures and their effect on fiscal memory, accumulators, counters and printed slips.

12.3.1 Printer Operations

The following print modes are supported:

- 15 CPI, single high
- 15 CPI, double high
- 12 CPI, single high
- 15 CPI, single high, emphasized
- 15 CPI, double high, emphasized
- 12 CPI, single high, emphasized

The application program controls the print mode by setting the required bits in the command extension. The selected print mode applies to all characters on the same line. It is also possible to print one or more substrings, within the same printed line, with a double wide character size.

The size of each double wide substring can range from one character up to the number of characters of the printed line.

12.3.2 Partially Emphasized Style

The 0x0E and 0x14 delimiters characters can be used to start and end the emphasized text respectively. This feature can be apply in commands that manage description field.

The commands that manage amounts have another rules.

For example in D2 and D3 cmds., the description length is 24 characters. When insert the 0x0E and 0x14 characters to start and end the emphasized text respectively, these characters are included in the description field due to an description must be 24 characters length no matter which characters are using, otherwise the error code 96 is returned due to is inserting more characters in the whole description field, shifting the amount and tax rate category to the right. Here's an example on how to solve it:

```
x' D200' ABCDEFGHIJKLMNOPQRSTUVWXYZ0000010000rA'
```

To show the first five character as emphasized, two characters will be added to the description field (0x0E and 0x14 delimiters), and must be removed two characters from the whole description field to ensure there are 24 characters length:

```
x' D200' x'0E' ABCDEx'14' FGHIJKLMNOPQRSTUVWXYZ0000010000rA'
```

Notice that 'W' and 'X' where removed, so the description is still 24 bytes length. The description field is a fixed length field, and can't be sent a different number of bytes than 24 for it.

12.3.3 Printed Amounts

The following rules apply to amounts printed on slips:

- A full stop character will be inserted every three digits from right to left, starting from the units.
- When amount and description fields overlap the amount will overlay the description.
- The amount string will always be preceded by at least one blank character.

12.3.4 Automatic Customer Receipt Slip Cut

The following slips will be automatically cut (partial cut):

- Fiscal Voucher
- Closure Report
- Fiscal Memory Report
- X-Report
- Non-fiscal Report on CR
- Slip produced by set date and time (16 cmd.)
- IPL messages (when not within sale transaction nor within non-fiscal report on customer receipt)

12.3.5 Sale Transaction

The following diagram shows the command sequence to perform a sale transaction:

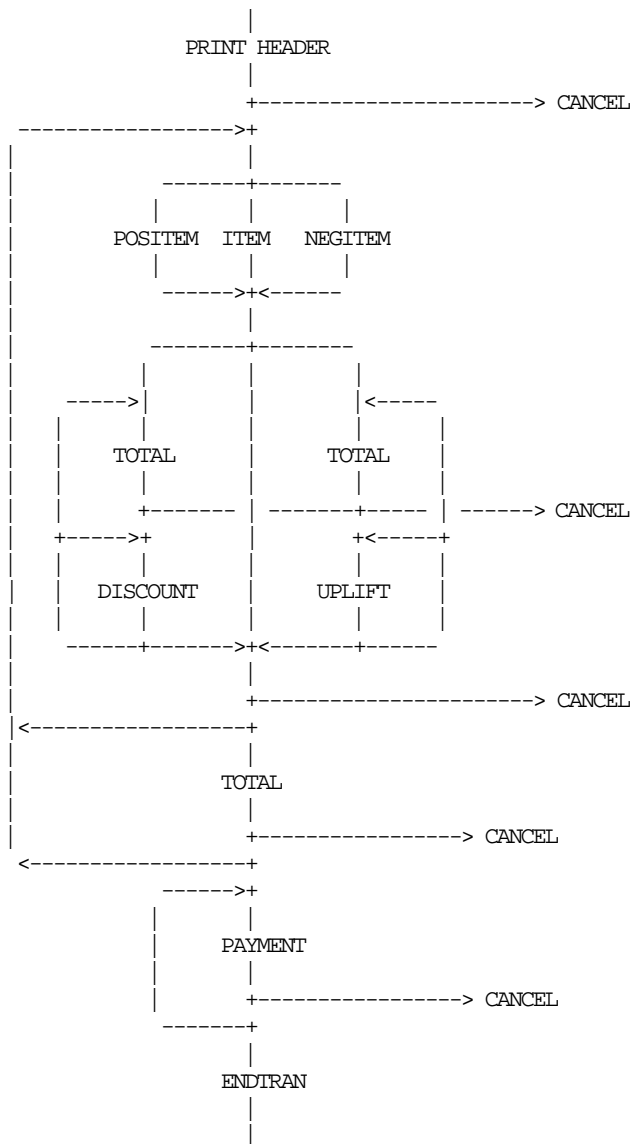


Figure 17. Sale Transaction Flow.

12.3.5.1 Print Header

This procedure is used to print the header in CR station.

12.3.5.2 Item Sale

This procedure is used to record the amount of an item and to print the line(s) containing informations related to it.

12.3.5.3 Negative Item Sale

This procedure is used to record the amount of a negative item and to print the line(s) containing informations related to it.

12.3.5.4 Positive Item Sale

This procedure is used to record the amount of a positive item and to print the line(s) containing informations related to it.

12.3.5.5 Transaction Total

This procedure is used to verify that the total amount accumulated by the fiscal unit matches the amount accumulated by the application program.

12.3.5.6 Discount on Subtotal

This procedure is used to apply discount on subtotal. The discount amount is distributed to the gross sale accumulators proportionally to their amount.

12.3.5.7 Uplift on Subtotal

This procedure is used to apply uplift on subtotal. The uplift amount is distributed to the gross sale accumulators proportionally to their amount.

12.3.5.8 Payment

This procedure is used to control the payment phase.
Document insert station can be used in the payment phase only.

12.3.5.9 End Transaction

This procedure is used to end the sale transaction.

12.3.5.10 Cancel Transaction

This procedure is used to void the sale transaction.

12.3.5.11 Sale Transaction Rules

A sale transaction is processed according to the following rules:

- Amount field in command string of item/negative item/positive item can be blank. This allows the processing of items with description longer than the number of characters allowed in one line.
Consecutive item/negative item/positive item with blank amount are not allowed.
- A minus sign is printed for negative items with rectify NO.
- A minus sign is printed for positive items with rectify YES.
- A minus sign is printed for payment with rectify YES.
- Any gross transaction total accumulators for VAT categories must NOT be negative when transaction total command is received.
- Payment phase is mandatory.

- Printing in DI station is allowed in the PAYMENT phase only.
- End transaction command is executed only if the total paid amount is not less than the transaction total amount.

12.4 Fiscal Printer Unit

12.4.1 Normal Printing

Normal printing refers to a set of commands used to request the fiscal unit to print a string of data on one of the printer stations.

12.4.2 Line Feed

Line feed refers to a set of commands used to request the fiscal unit to feed the paper for a specified number of lines on one of the printer stations.

12.4.3 Ready Document

This command is used to request the printer to advance the document in the DI station for top or bottom registration.

12.4.4 Eject Document

This command is used to request the printer to advance the document in the DI station to the end of form. Either forward feed or reverse feed can be specified.

12.4.5 Home

This command is used to request the printer to return the print head to center or left home position.

12.4.6 Set Number of Dot Rows per Linefeed

This command is used to set the number of dot rows per linefeed of each printer station to the default or alternate value.

default value = 12 (6 lines/inch), alternate value = 9 (8 lines/inch).

Dot rows per linefeed values are restored to their default values when RAM is cleared by installation of the J4/CE jumper.

12.4.7 Print DI Adjustment Data Patterns

This command is for RAS, for document insert station adjustment.

12.5 Fiscal Unit Utilities

12.5.1 Read Fiscal Memory

This command is used to request the fiscal unit to report the fiscal memory content. The totals and counters related to each sale period are read from the fiscal memory and sent over the serial communication link.

12.5.2 Read Accumulators and Counters

This command is used to request the fiscal unit to report the content of accumulators and counters.

12.5.3 Report Microcode EC

This command is used to request the fiscal unit to report the microcode EC level. Microcode EC level is returned in the fiscal unit status byte 8. (The usual fiscal unit return code byte).

12.5.4 Report Printer EC

This command is used to request the fiscal unit to report the printer EC level. Printer EC level is always returned in the fiscal unit status byte 3.

12.5.5 Report Current Status

This command is used to request the fiscal unit to report its current status.

12.5.6 Report IPL Completion Status

This command is used to request the fiscal unit to report the IPL completion status.

12.5.7 Run Online Diagnostics

This command is used to request the fiscal unit to run online tests. Completion code is returned in the fiscal unit status.

12.5.8 Perform Fiscal Unit Power-On Reset

This command is used to request the fiscal unit to perform a software power on reset.

12.5.9 Perform Printer Power-On Reset

This command is used to request the fiscal unit to perform a printer software power-on reset.

12.5.10 Dump Fiscal RAM and Fiscal Memory

This command is used to request the fiscal unit to print the fiscal RAM or the fiscal memory content. The dump can be used for problem analysis.

13.0 System Commands

See 13.2, “00 - SYSTEM COMMANDS” on page 88.

13.1 Command Set Reference

A command consists of a string of data received from the serial communication link. The minimum length of a command string is four bytes (except system commands, that are two bytes long); the maximum length depends on the command type.

The microcode checks that the length is not less than the minimum required for the command type specified in command byte 2. (Command byte 0 for system commands).

A command is composed of four parts:

1. **Command Prefix.**

It consists of two constant bytes x'1B66' (ESC f).

Command prefix is not present in system commands.

2. **Command Code.**

Command code is in command string byte 2 (command string byte 0 for system commands). It identifies the command to be executed.

Its value can range from x'00' to x'FF', but only defined command codes will be accepted. All other commands will be rejected with Invalid Command Byte 0 error code.

3. **Command Extension.**

Command extension is in command string byte 3 (command string byte 1 for system commands). It contains command options.

Reserved bits must be set to 0. Only exception is retry bit which is ignored by microcode on commands where it has not any effect.

4. **Command Data.**

Command data starts from command string byte 4 (command string byte 2 for system commands). Its content depends on the command type.

Numeric fields must be right aligned.

Non significant digits in numeric fields can be blank.

At least one fiscal unit status is sent in response to a command.

The only exception is related to system commands: no response is sent for system commands not recognized by the fiscal unit. The format of the fiscal unit status is described in 2.3, “Printer and Fiscal Unit Status” on page 19.

Note: Through this section, 7 is always the most significant bit and 0 is the least significant bit.

13.2 00 - SYSTEM COMMANDS

13.2.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0	00 - System Command	hex	1
1	10 - Fiscal Unit Test	hex	1
	20 - Report Current Status		
	40 - Fiscal Unit Power-On Reset		
	80 - Report Microcode EC Level		

System commands are processed as follows:

- Fiscal Unit Test
Fiscal unit test is performed and then the fiscal unit status is sent over the serial communication link.
- Report Current Status
The fiscal unit current status is sent over the serial communication link.
- Fiscal Unit Power-On Reset
The microcode performs a fiscal unit software power-on reset.
- Report Microcode EC Level
The fiscal unit status containing the microcode EC level in byte 8 (the usual fiscal unit return code byte) is sent over the serial communication link.

If command byte 1 is different than those defined above, no processing is performed and no response is sent.

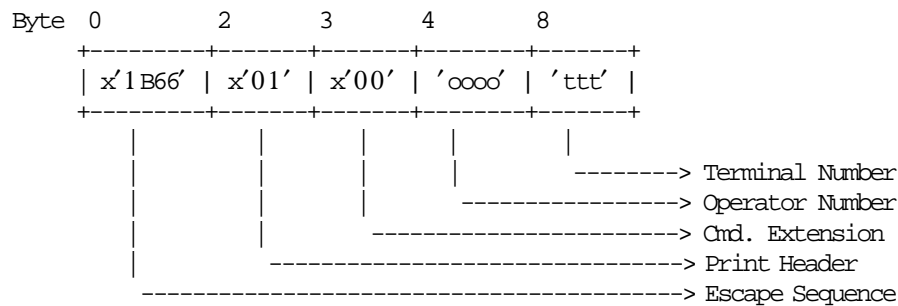
13.3 01 - PRINT HEADER

This command is used to print the header lines.

13.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		01 - Print Header	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		
4-7		Operator Number	ASCII	4
8-10		Terminal Number	ASCII	3

13.3.2 Command Example



13.3.3 Print Header Calculations

```
If (Current_Date and Current_Time) ≥ (last RAM_FDTS_Date and last RAM_FDTS_Time)
{
  RAM_FDTS_Date = Current_Date
  RAM_FDTS_Time = Current_Time
}
else
{
  Error code 61 is returned
  The following message is printed in CR & SJ stations
  *****
  LANuAsMENH HMEPOMHIA/vPA
  ZHIHsTE EpIsKEYH
  *****
}
```

13.3.4 Print Header Rules

- When this command is issued, the current date and time can not be previous to the FDTS.

13.4 03 - COMMENT LINE IN CR STATION

This command is used to print one comment line in CR station.

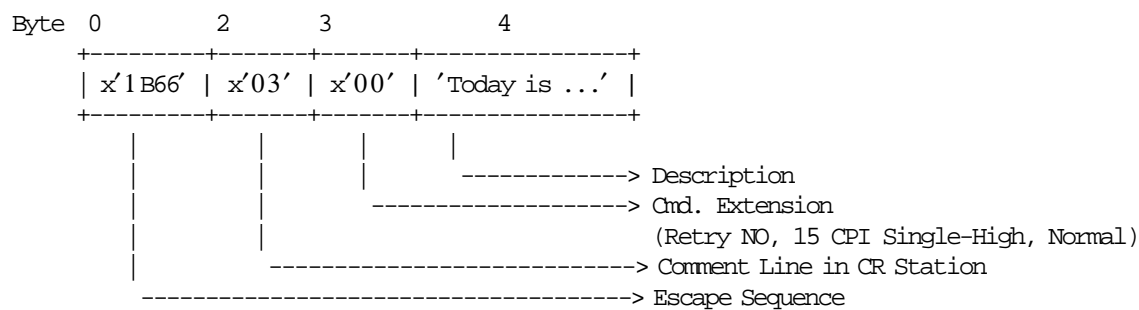
13.4.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		03 - Comment Line in CR Station	hex	1
3		Cmd. Extension	hex	1
	7	Retry		
		0 = NO		
		1 = YES		
6-3		Reserved (always = '0')		
2-0		Print Mode		
		000 = 15 CPI Single-High, Normal		
		001 = 15 CPI Single-High, Emphasized		
		010 = 15 CPI Double-High, Normal		
		011 = 15 CPI Double-High, Emphasized		
		100 = 12 CPI Single-High, Normal		
		101 = 12 CPI Single-High, Emphasized		
		110 = Reserved		
		111 = Reserved		
4-33		Comment	ASCII	30 (Note 1)

Notes:

- The comment line is printed as follows:
 30 characters for 15 CPI.
 22 characters for 12 CPI.

13.4.2 Command Example



13.4.3 Comment Line in CR Station Rules

- The comment line is printed in CR station and replicated in SJ station.
- The strings "PEsTA" (Change Due) and "ApOdEIjH" (Receipt) in upper, lower, mixed, or these words interleaved with blanks, or strings containing '%' symbol as the last non-blank character are not allowed in the comment field of this command.

This control will be performed thru validation algorithm and the following ALT-xxx chars will be filtered:

- ApOdEIjH (Receipt):
 - A : 065, 164
 - p : 198, 221
 - O : 079, 190
 - d : 167, 217
 - E : 069, 168
 - I : 073, 108 (because it looks like 'I'), 124 (looks like 'I'), 173, 255
 - j : 189, 220
 - H : 072, 170, 254

- PEsTA (Change Due):
 - P : 080, 199
 - E : 069, 168
 - s : 207, 222
 - T : 084, 208
 - A : 065, 164

- Interleaving Char:
 - (Blank): 000, 030, 032

- The comment line can be printed:

- Outside any document

Before the first comment line is printed, the microcode will insert the "ILLEGAL RECEIPT" (92 msg.).

- Inside a CR non-fiscal report

- Unlimited number of the comments lines can be printed in any place.

- Inside a SJ non-fiscal report

- Unlimited number of the comments lines can be printed in any place.

- Inside a fiscal voucher

Q — Only five (5) comment lines can be issued after payment phase and before the end or cancel transaction.

Q — The comment lines issued will be stored in RAM memory (buffered) and will be printed when the 06 cmd. (End Transaction) is issued.

Q — If the 07 cmd. (Cancel Transaction) is issued after 03 cmd. the lines will not be printed.

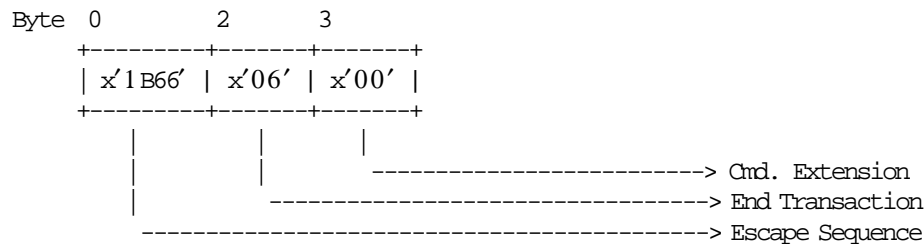
13.5 06 - END TRANSACTION

This command is used to end the sale transactions.

13.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		06 - End Transaction	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

13.5.2 Command Example



13.5.3 End Transaction Calculations

$$Day_N_Slip = Day_N_Slip + 1$$

$$Day_N_Vouc = Day_N_Vouc + 1$$

$$Day_N_Retn = Day_N_Retn + Tra_N_Retn$$

$$Day_N_Void = Day_N_Void + Tra_N_Void$$

$$Day_N_Disc = Day_N_Disc + Tra_N_Disc$$

$$Day_N_Uplf = Day_N_Uplf + Tra_N_Uplf$$

$$Day_N_Tdsc = Day_N_Tdsc + Tra_N_Tdsc$$

$$Day_N_Tupl = Day_N_Tupl + Tra_N_Tupl$$

$$Day_Tot_A = Day_Tot_A + Tra_Tot_A$$

$$Day_Tot_B = Day_Tot_B + Tra_Tot_B$$

$$Day_Tot_C = Day_Tot_C + Tra_Tot_C$$

$$Day_Tot_D = Day_Tot_D + Tra_Tot_D$$

$$Day_Tot_E = Day_Tot_E + Tra_Tot_E$$

$$Day_Total = Day_Total + Tra_Total$$

$$Day_Retn = Day_Retn + Tra_Retn$$

$$Day_Void = Day_Void + Tra_Void$$

$$Day_Disc = Day_Disc + Tra_Disc$$

$Day_Uplf = Day_Uplf + Tra_Uplf$

$Day_Tdsc = Day_Tdsc + Tra_Tdsc$

$Day_Tupl = Day_Tupl + Tra_Tupl$

Clearing Transaction Counters

$Tra_N_Retn = 0$

$Tra_N_Void = 0$

$Tra_N_Disc = 0$

$Tra_N_Uplf = 0$

$Tra_N_Tdsc = 0$

$Tra_N_Tupl = 0$

Clearing Transaction Accumulators

$Tra_Total = 0$

$Tra_Tot_A = 0$

$Tra_Tot_B = 0$

$Tra_Tot_C = 0$

$Tra_Tot_D = 0$

$Tra_Tot_E = 0$

$Tra_Retn = 0$

$Tra_Void = 0$

$Tra_Disc = 0$

$Tra_Uplf = 0$

$Tra_Tdsc = 0$

$Tra_Tupl = 0$

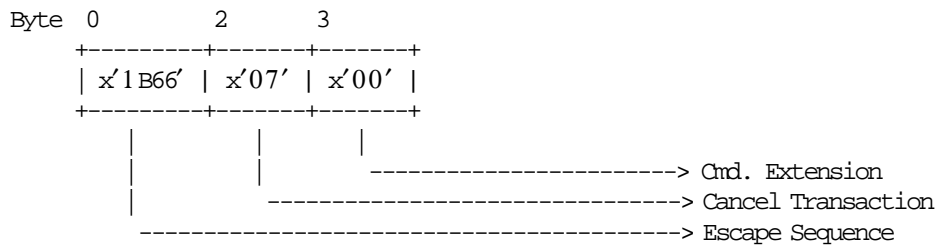
13.6 07 - CANCEL TRANSACTION

This command is used to cancel the sale transaction at any point.

13.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		07 - Cancel Transaction	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

13.6.2 Command Example



13.6.3 Cancel Transaction Calculations

$Day_N_Slip = Day_N_Slip + 1$ (only if any item sold)

$Day_N_Canc = Day_N_Canc + 1$ (only if any item sold)

$Day_Canc = Day_Canc + Tra_Total$

Clearing Transaction Counters:

$Tra_N_Retn = 0$

$Tra_N_Void = 0$

$Tra_N_Disc = 0$

$Tra_N_Uplf = 0$

$Tra_N_Tdsc = 0$

$Tra_N_Tupl = 0$

Clearing Transaction Accumulators:

$Tra_Total = 0$

$Tra_Tot_A = 0$

$Tra_Tot_B = 0$

$Tra_Tot_C = 0$

$Tra_Tot_D = 0$

Tra_Tot_E = 0

Tra_Retn = 0

Tra_Void = 0

Tra_Disc = 0

Tra_Uplf = 0

Tra_Tdsc = 0

Tra_Tupl = 0

13.6.4 Cancel Transaction Rules

- The sale transaction can be cancelled when:
 - Only header was printed
 - Any item was sold
 - Payment phase is in progress
- If the sale transaction is cancelled when the payment is in progress, all payments are automatically voided by the fiscal microcode

13.7 13 - CLOSE SALE PERIOD

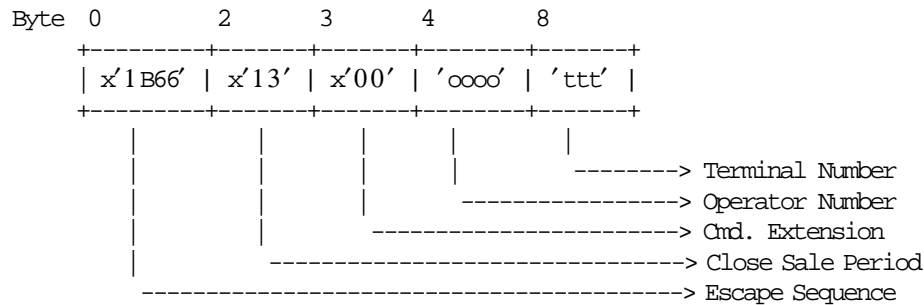
This command is used to close the sale period, update the fiscal memory (when fiscal mode is set) and issued the closure report.

Up to 3840 fiscal memory entries are available for the fiscal unit lifetime.

13.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		13 - Close Sale Period	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		
4-7		Operator Number	ASCII	4
8-10		Terminal Number	ASCII	3

13.7.2 Command Example



13.7.3 Close Sale Period Calculations

The following operations are performed before printing the report and writing the fiscal memory:

- **Update Daily Accumulators:**

$$Day_Net_A = TRUNC\left(\frac{Day_Tot_A}{1 + Rate_A} + 0.5\right)$$

$$Day_Net_B = TRUNC\left(\frac{Day_Tot_B}{1 + Rate_B} + 0.5\right)$$

$$Day_Net_C = TRUNC\left(\frac{Day_Tot_C}{1 + Rate_C} + 0.5\right)$$

$$Day_Net_D = TRUNC\left(\frac{Day_Tot_D}{1 + Rate_D} + 0.5\right)$$

$$Day_Net_E = TRUNC\left(\frac{Day_Tot_E}{1 + Rate_E} + 0.5\right)$$

$Day_Net_ABDC = Day_Net_A + Day_Net_B + Day_Net_C + Day_Net_D$
 $Day_Net_Total = Day_Net_A + Day_Net_B + Day_Net_C + Day_Net_D + Day_Net_E$

$Day_VAT_A = Day_Tot_A - Day_Net_A$
 $Day_VAT_B = Day_Tot_B - Day_Net_B$
 $Day_VAT_C = Day_Tot_C - Day_Net_C$
 $Day_VAT_D = Day_Tot_D - Day_Net_D$
 $Day_VAT_E = Day_Tot_E - Day_Net_E$

$Day_VAT_Total = Day_VAT_A + Day_VAT_B + Day_VAT_C + Day_VAT_D + Day_VAT_E$

- **Update Daily Counters:**

$Day_N_Slip = Day_N_Slip + 1$
 $Day_N_Clos = Day_N_Clos + 1$

- **Update Lifetime Counters:**

$Lif_N_Clos = Lif_N_Clos + 1$
 $Lif_N_Vouc = Lif_N_Vouc + Day_N_Vouc$
 $Lif_N_Slip = Lif_N_Slip + Day_N_Slip$

- **The following operations are performed after writing the fiscal memory:**

- **Clearing Daily Counters**

$Day_N_Clos = 0$
 $Day_N_Slip = 0$
 $Day_N_Vouc = 0$

 $Day_N_Retn = 0$
 $Day_N_Void = 0$
 $Day_N_Disc = 0$
 $Day_N_Uplf = 0$

 $Day_N_Tdsc = 0$
 $Day_N_Tupl = 0$

 $Day_N_Canc = 0$

 $Day_N_Ract = 0$

 $Day_N_Head = 0$

 $Day_N_VAT = 0$

 $Day_N_Dcx = 0$

- **Clearing Daily Accumulators**

$Day_Total = 0$
 $Day_Net_Total = 0$

 $Day_Tot_A = 0$
 $Day_Tot_B = 0$
 $Day_Tot_C = 0$
 $Day_Tot_D = 0$
 $Day_Tot_E = 0$

 $Day_Net_A = 0$
 $Day_Net_B = 0$
 $Day_Net_C = 0$
 $Day_Net_D = 0$
 $Day_Net_E = 0$

Day_Net_Total = 0

Day_Retn = 0

Day_Void = 0

Day_Disc = 0

Day_Uplf = 0

Day_Tdsc = 0

Day_Tupl = 0

Day_Canc = 0

– **Update FDTS:**

```
If (last FM_DE_Date and Last FM_DE_Time) ≥ (last RAM_FDTS_Date and last RAM_FDTS_Time)
{
  RAM_FDTS_Date = FM_NC_Date
  RAM_FDTS_Time = FM_NC_Time
}
else
{
  Error code 61 is returned
  The following message is printed in CR & SJ stations
  *****
  LANuAsMENH HMEPCMHNIA/vPA
  ZHIHsTE EpIsKEYH
  *****
}
```

13.7.4 Close Sale Period (Z-Report) Rules

- The closure date and time can not be previous to the FDTS, otherwise this command is not issued.

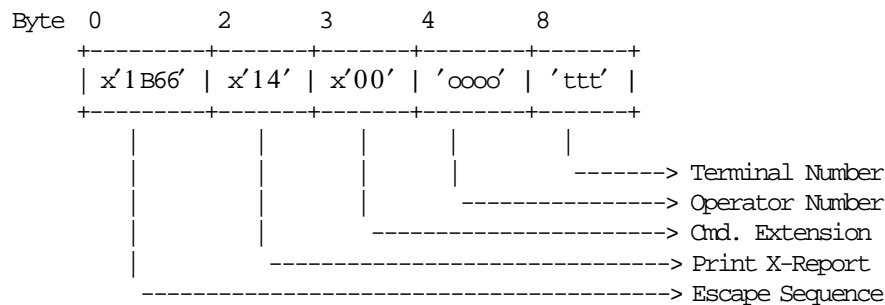
13.8 14 - PRINT X-REPORT

This command is used to print the accumulators and counters, like the closure report, without writing anything in the fiscal memory and can be executed at any time during the day.

13.8.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		14 - Print X-Report	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		
4-7		Operator Number	ASCII	4
8-10		Terminal Number	ASCII	3

13.8.2 Command Example



13.8.3 Print X-Report Calculations

The calculations done during the print x-report are the same as those done during the close sale period (13 cmd.) before the fiscal memory is written.

$$Day_N_Slip = Day_N_Slip + 1$$

The calculations done during the close sale period command (after the fiscal memory is written) are NOT done during the print x-report command.

Update FDTS:

```
If (Current_Date and Current_Time) ≥ (last RAM_FDTS_Date and last RAM_FDTS_Time)
{
  RAM_FDTS_Date = Current_Date
  RAM_FDTS_Time = Current_Time
}
else
{
  Error code 61 is returned
  The following message is printed in CR & SJ stations
  *****
  LANuAsMENH HMEPCMHNIA/vPA
  ZHIHsTE EpIsKEYH
  *****
}
```

13.8.4 Print X-Report Rules

- The current date and time can not be previous to the FDTS, otherwise this command is not issued.

13.9 15 - FISCAL MEMORY REPORT

This command is used to print the fiscal memory content on customer receipt station.

13.9.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		15 - Fiscal Memory Report	hex	1
3		Cmd. Extension	hex	1
7		Reserved (always = '0')		
6-5		Type		
		00 (0) = Extended		
		01 (1) = Summary		
		10 (2) = Short		
4-3		Reserved		
2-0		Range		
		100 (4) = Between Closure Numbers		
		010 (2) = Between Closure Dates		
		001 (1) = All Fiscal Memory		
If Range = 1 specify:				
4-19		Reserved	ASCII	16
20-23		Password	ASCII	4
24-27		Operator Number	ASCII	4
28-30		Terminal Number	ASCII	3
If Range = 2 specify:				
4-11		First Date	ASCII	8 (Note 1)
12-19		Last Date	ASCII	8 (Note 1)
20-23		Password	ASCII	4
24-27		Operator Number	ASCII	4
28-30		Terminal Number	ASCII	3
If Range = 4 specify:				
4-7		First Closure Number	ASCII	4
8-11		Last Closure Number	ASCII	4
12-19		Reserved	ASCII	8
20-23		Password	ASCII	4
24-27		Operator Number	ASCII	4
28-30		Terminal Number	ASCII	3

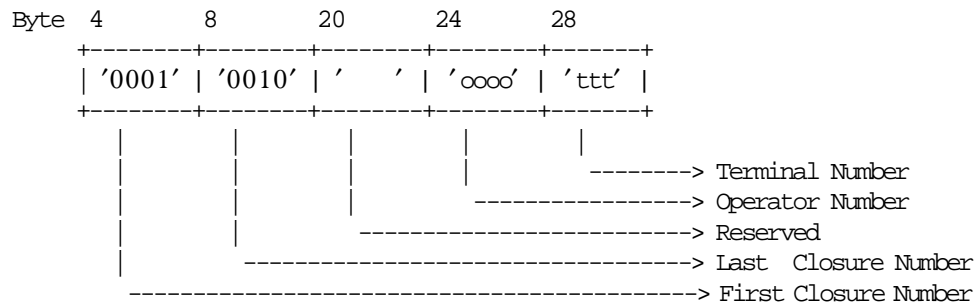
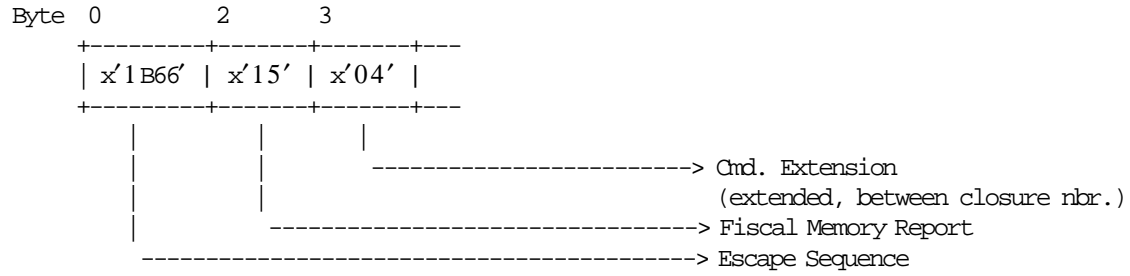
Notes:

1. Dates strings must be formatted as: ddmmyyyy

where:

- dd = day (range allowed from '01' to '31')
- mm = month (range allowed from '01' to '12')
- yyyy = year (range allowed from '1990' to '2089')

13.9.2 Command Example



13.9.3 Fiscal Memory Report Calculations

$$Day_N_Slip = Day_N_Slip + 1$$

13.10 16 - SET DATE AND TIME

This command is used to update the fiscal printer time of day clock.

13.10.1 Command Format

```
-----
```

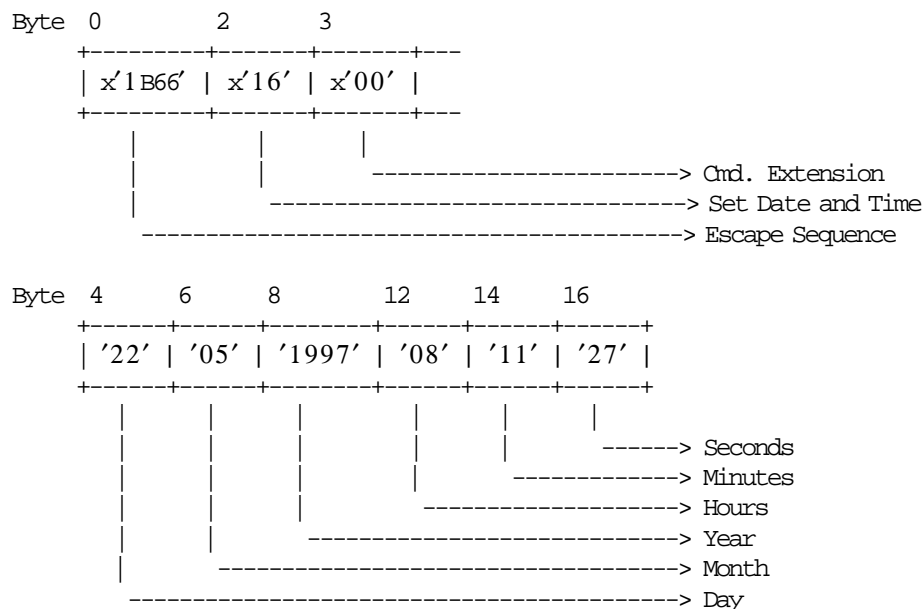
BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		16 - Set Date and Time	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-5		Day (dd)	ASCII	2 (Note 1)
6-7		Month (mm)	ASCII	2 (Note 2)
8-11		Year (yyyy)	ASCII	4 (Note 3)
12-13		Hours (hh)	ASCII	2 (Note 4)
14-15		Minutes (mm)	ASCII	2 (Note 5)
16-17		Seconds (ss)	ASCII	2 (Note 5)

```
-----
```

Notes:

1. Values from '01' to '31' are allowed according to month and leap year.
2. Values from '01' to '12' are allowed.
3. Values from '1990' to '2089' are allowed.
4. Values from '00' to '23' are allowed.
5. Values from '00' to '59' are allowed.

13.10.2 Command Example



13.10.3 Set Date and Time Rules

- With J4/CE jumper in OFF (STORED) position
 - The set date and time is free if no FDTS is set.
 - If FDTS is set, the new date and time can not be previous to FDTS.
 - If FDTS is set, the set date and time is accepted only after the J4/CE Jumper ON operation is performed. When any of the FDTS set commands are executed and the set date command is issued, the return code 54 is returned, so a jumper operation is required.
- With J4/CE jumper in ON (ACTIVE) position
 - The set date and time is free if no FDTS is set.
 - If FDTS is set, the new date and time can not be previous to FDTS.
 - The date and time can be set unlimited times.

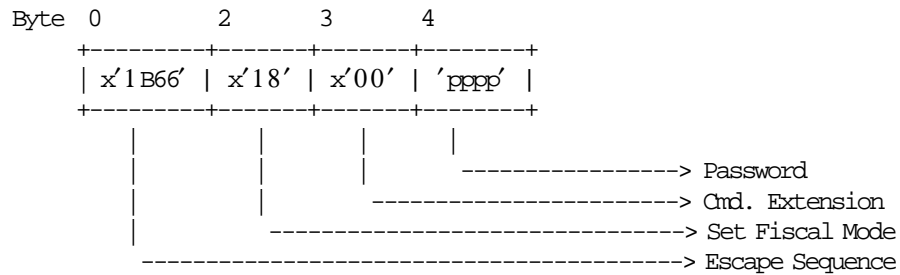
13.11 18 - SET FISCAL MODE

This command is used to set the fiscal unit to fiscal mode. In this mode the information is write in fiscal memory.

13.11.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		18 - Set Fiscal Mode	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-7		Password	ASCII	4

13.11.2 Command Example



13.12 1A - SET DISPLAY ADDRESS

This command is used to set into fiscal printer battery backed up RAM the addresses of the display(s) that have to be monitored for connection by the fiscal unit.

13.12.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		1A - Set Display Address	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-7		Password	ASCII	4
8-9		First Display Address	ASCII	2 (Note 1)
10-11		Second Display Address	ASCII	2 (Note 1, 2)

Notes:

1. Specify the ASCII representation of the hexadecimal address.
Example: for hexadecimal address x'2A' specify ASCII characters '2', 'A'.
The display addresses are the SIO addresses of the displays attached.
The valid display addresses goes from x'20' to x'27' and from x'2A' to x'2F'.
2. If C4 cmd. was issued to allow single display, specify the second address as x'0000' for single display sensing.

13.12.2 Set Display Address Rules

- Microcode default addresses are x'21', x'22'.
- Display addresses are set to their default values when RAM is cleared by installation of the J4/CE jumper and when the set fiscal mode (18 cmd.) is issued.

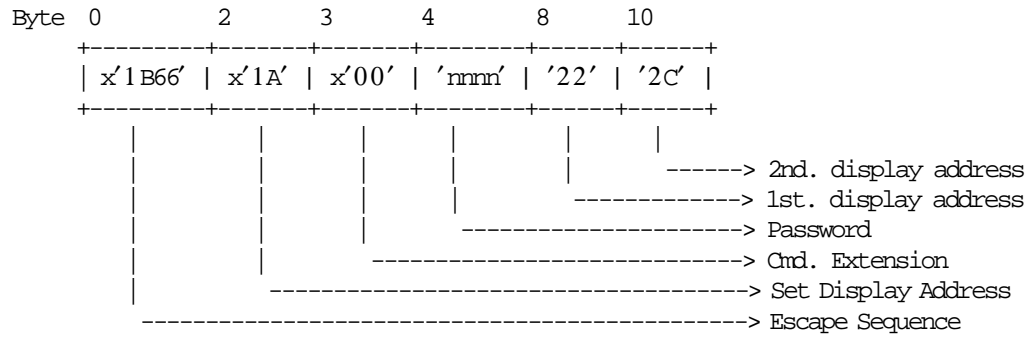
13.12.3 Display Connection Checking

The microcode continually checks for connection of the POS displays by monitoring the Serial I/O (Device Channel) connection for display polls and then checking for appropriate responses.

If the microcode detects a required display missing, the FDISPLY flag is set to NO. If the correct number of displays is connected and operational the microcode sets the FDISPLY state to YES.

IMPORTANT: There is not display connection checking when printer is in "Stand by Connected/Disconnection" and "Disconnected" states.

13.12.4 Command Example



13.13 1B - SERIALIZE FISCAL MEMORY

This command is used at the end of the manufacturing process to store the manufacturing id, manufacturing year and serial number in a fixed area of the fiscal memory.

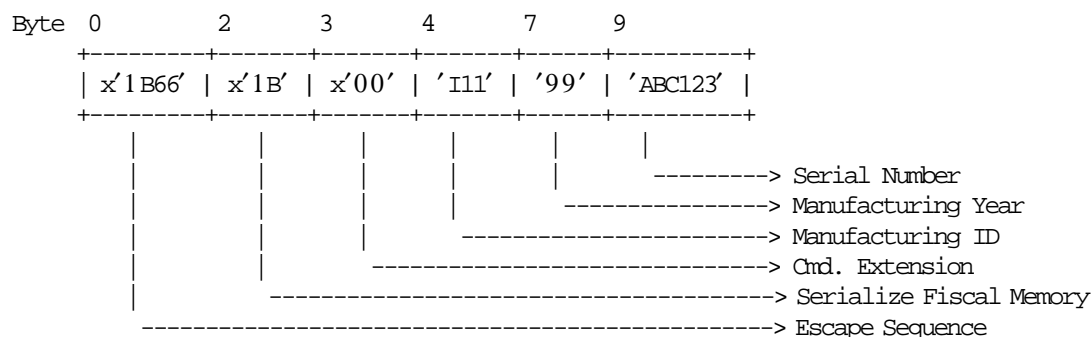
13.13.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		1B - Serialize Fiscal Memory	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		
4-6		Manufacturing_ID	ASCII	3 (Note 1)
7-8		Manufacturing_Year	ASCII	2 (Note 2)
9-14		Serial_Number	ASCII	6

Notes:

1. Assigned by Government.
2. Values from '00' to '90' are allowed.

13.13.2 Command Example



13.13.3 Serialize Fiscal Memory Rules

- This procedure can be executed only once and updates the fiscal memory.

13.14 20 - LOAD VAT RATE TABLE

This command is used to store the VAT rate table into fiscal memory.

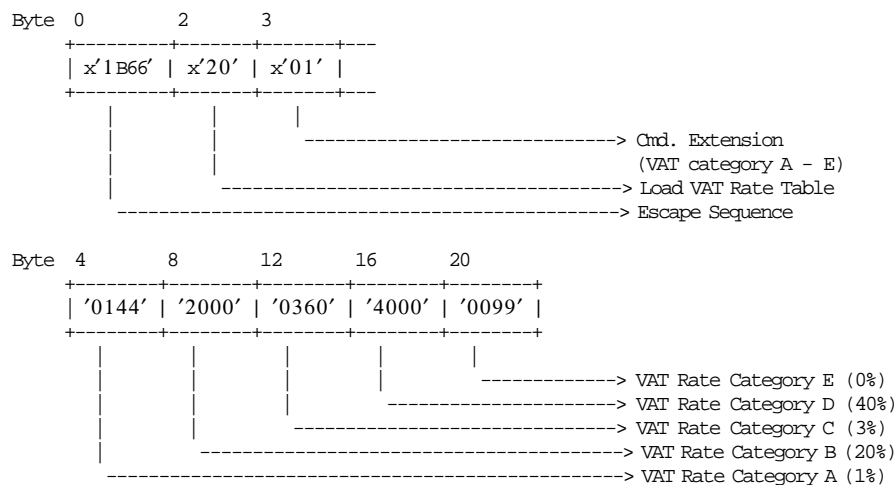
13.14.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		20 - Load VAT Rate Table	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		
4-7		VAT_Rate_Category_A (eedd)	ASCII	4 (Note 1, 2)
8-11		VAT_Rate_Category_B (eedd)	ASCII	4 (Note 1, 2)
12-15		VAT_Rate_Category_C (eedd)	ASCII	4 (Note 1, 2)
16-19		VAT_Rate_Category_D (eedd)	ASCII	4 (Note 1, 2)
20-23		VAT_Rate_Category_E (eedd)	ASCII	4 (Note 1, 3)

Notes:

- VAT rate is composed by 2 integer digits (ee) and 2 decimal digits (dd).
VAT rates decimal digits are forced to '00' by microcode.
Separator character must not be included in the VAT rate string.
For example for VAT rate 8% specify '0800'.
- VAT rate field can range from '0100' to '9999'.
Only the VAT rate integer part is printed on slips.
- VAT rate field can range from '0000' to '0099'.
'0' is printed on slips.

13.14.2 Command Example



13.14.3 Load VAT Rate Table Calculations

$Day_N_VAT = Day_N_VAT + 1$

$Lif_N_VAT = Lif_N_VAT + 1$

- **UPDATE FDTS**

```
If Current_Date and Current_Time) ≥ (last RAM_FDTS_Date and last RAM_FDTS_Time)
{
  If (New entry is stored in VAT rate table)
  {
    RAM_FDTS_Date = Current_Date
    RAM_FDTS_Time = Current_Time
  }
}
else
{
  Error code 104 is returned
}
```

13.14.4 Load VAT Rate Table Rules

- This command can be executed out of the sale period only.
- First J4/CE jumper ON/OFF after the fiscalization:
 - This cmd. is 'mandatory' before the the start of sale period.
- Next J4/CE Jumper ON/OFF after the fiscalization:
 - The VAT rate values are restored from the latest entry of the VAT rate table in fiscal memory.
 - This cmd. is optional when the VAT rate table has been stored in fiscal memory.
 - When this cmd. is issued:
 - If the new entry is different at the lastest entry stored in VAT rate table in RAM memory, it is stored in VAT rate table in fiscal memory and the RAM_FDTS_Date and RAM_FDTS_Time are set.
 - If the new entry is equal at the lastest entry stored in VAT rate rable in RAM memory, it is not stored in VAT rate table in fiscal memory and the RAM_FDTS_Date and RAM_FDTS_Time are not set.
- The VAT rate table can be changed up to 224 times during the life of the fiscal printer.
- 5 categories must be load before the VAT rate table load status is set.
- If the new entry is different at the lastest entry stored in VAT rate table, it is stored in VAT rate table in fiscal memory.
- If the new entry is equal at the lastest entry stored in VAT rate table, the RAM_FDTS_Date and RAM_FDTS_Time is not set.
- When new entry is stored in VAT rate table, the new FM_TR_Date and FM_TR_Time can not be previous to the RAM_FDTS_Date and RAM_FDTS_Time.
- When VAT rate table is full, the new entry stored in RAM memory must be equal at the lastest entry stored in VAT rate table in fiscal memory.
- When new entry is stored in VAT rate table in fiscal memory, these data are printed in the VAT coefficients report.
- When no new entry in VAT rate table, the lastest entry is printed in the VAT coefficients report.

13.14.5 VERY IMPORTANT

ATTENTION: is very important to check that the current date is correct before to issue this command because the FDTS will be updated.

One example when the current date is not correct:

- Today is: 11/09/2000 (dd/mm/yyyy).
- Set date (16 cmd.) is issued to set the current date with day = 01, month = 10 and year = 2001.
- Load VAT Rate Table (20 cmd.) is issued and FDTS is updated in RAM memory with date 01/10/2001 (dd/mm/yyyy).
- Set Date (16 cmd.) is issued again with day = 11, month = 09 and year = 2000, and then the error code 70 is returned.

In this case the fiscal printer will be useless until the current date \geq 01/10/2001 (dd/mm/yyyy).

The procedure to use when the current date is not correct is to issue the 16 cmd. to set the correct date and then to issue the 20 cmd..

13.15 21 - VERIFY VAT RATE TABLE

This command is used to compare the VAT rates loaded with 20 cmd..

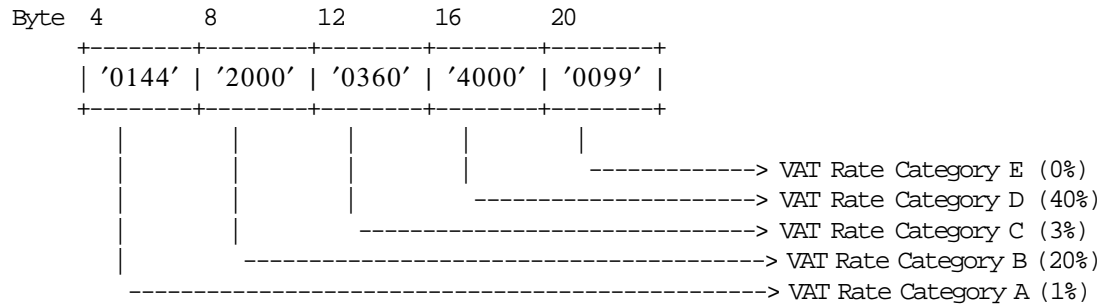
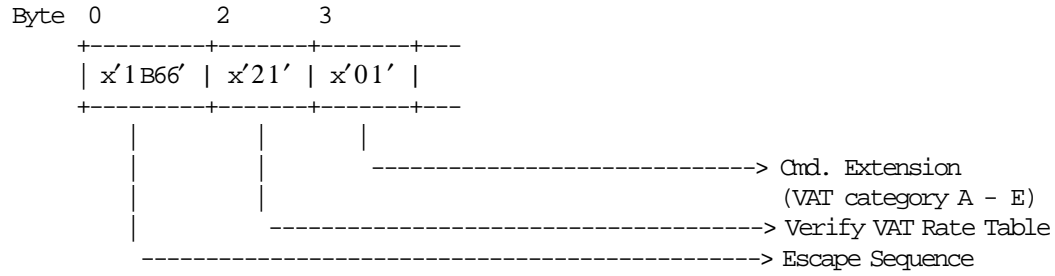
13.15.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		21 - Verify VAT Rate Table	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-7		VAT Rate Category A (eedd)	ASCII	4 (Note 1, 2)
8-11		VAT Rate Category B (eedd)	ASCII	4 (Note 1, 2)
12-15		VAT Rate Category C (eedd)	ASCII	4 (Note 1, 2)
16-19		VAT Rate Category D (eedd)	ASCII	4 (Note 1, 2)
20-23		VAT Rate Category E (eedd)	ASCII	4 (Note 1, 3)

Notes:

- VAT rate is composed by 2 integer digits (ee) and 2 decimal digits (dd).
VAT rates decimal digits are forced to '00' by microcode.
Separator character must not be included in the VAT rate string.
For example for VAT rate 8% specify '0800'.
- VAT rate field can range from '0100' to '9999'.
Only the VAT rate integer part is printed on slips.
- VAT rate field can range from '0000' to '0099'.
'0' is printed on slips.

13.15.2 Command Example



13.15.3 Verify VAT Rate Table Rules

- This cmd. is 'mandatory' after each 20 cmd. (Load VAT Rate Table) issued.
- If J4/CE jumper ON/OFF is issued and there is at least one entry on VAT rate table, the rates will be restored from the latest entry of the table and this cmd. is optional.
- This command is not mandatory after IPL procedure.

13.16 C4 - FISCAL PARAMETER CONFIGURATION

This command is used to configure the number of displays to be sensed during the printer operation. This command can be executed only once after J4/CE jumper.

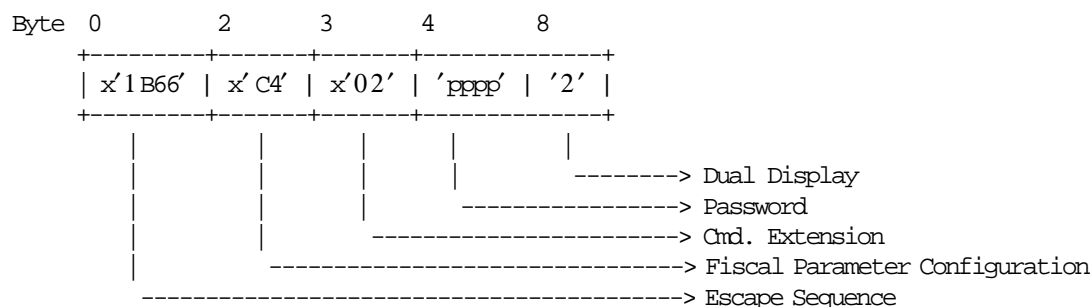
13.16.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		C4 - Fiscal Parameter Configuration	hex	1
3		Cmd. Extension	hex	1
4-7		02 = Display Sensing Definition Password	ASCII	4
If Cmd. Extension = 02				
8		Display Sensing Definition 1 = Single/Dual Display 2 = Dual Display	ASCII	1 (Note 1)

Notes:

1. This field is for cmd. extension 02, it must be executed before the set display (1A cmd.), otherwise the code will sense two displays.

13.16.2 Command Example



13.16.3 Fiscal Parameter Configuration Rules

- By default, the number of displays to be sensed is 2.
- The number of displays to be set return to their default value when RAM is cleared by installation of the J4/CE jumper and when the set fiscal mode (18 cmd.) is issued.
- This command can be issued after J4/CE jumper and after the set fiscal mode (18 cmd.) is issued.
- When RC 102 is returned:
 - Trying to execute C4 cmd. with cmd. extension 02 successfully more than once.
Explanation: If two displays were sensed, can't change to a single display sensing until a J4/CE jumper is performed.
 - If set display address (1A cmd.) is issued, the use of C402 is not allowed, not even once.

Explanation: Issuing 1A cmd. without previous C4 cmd. with cmd. extension 02 only allows two display addresses. So, this way it is assumed that two displays will be used. So, the only meaning to issue a C4 cmd. with cmd. extension 02 after a 1A cmd. is to try to sense only a display. But, because this could be performed by an application or a user with bad intentions this is not allowed.

13.17 C6 - SET/GET EMPHASIZED PRINTING MODE

This command is used to set and reset the emphasized printing mode of the predefined messages and the associated data.

13.17.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		C6 - Set/Get Emphasized Printing Mode	hex	1
3		Emphasized Printing Mode 00 = Set 01 = Get	hex	1
If Cmd. Extension = 00 specify				
4		Value	hex	1 (Note 1)

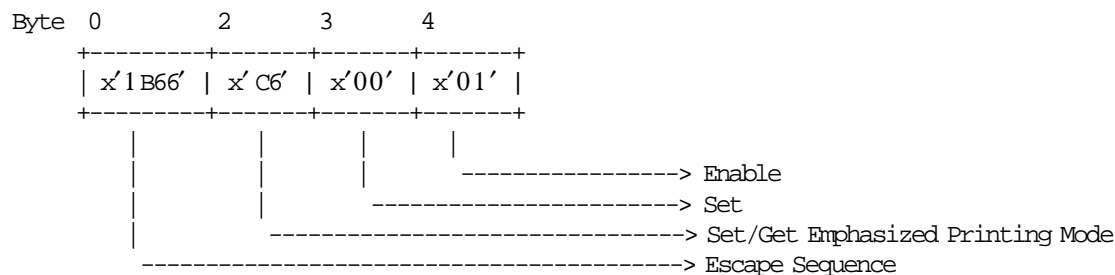
Response to the Cmd. Extension 01 will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	Emphasized Printing Mode Value 00 = Disable 01 = Enable	hex	1

Notes:

- Value can be:
Disable = x00
Enable = x01

13.17.2 Command Example



13.17.3 Set/Get Emphasized Printing Mode Rules

- If the 'Emphasized Printing Mode' is enable (x01), the predefined messages will be printed in emphasized mode.
- If the 'Emphasized Printing Mode' is disable (x00), the predefined messages will be printed in normal mode.
- The default 'Emphasized Printing Mode' value is enable (x01).
- After J4 (CE) jumper operation, the printer returns to its default 'Emphasized Printing Mode' value.
- This command can be issued everywhere after the serialization (outside/inside fiscal vouchers, non-fiscal reports, sale period, etc.)

13.18 C8 - SET BARCODE PARAMETERS

This command is used to set the barcode parameters.

13.18.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		C8 - Set Barcode Parameters	hex	1
3		Cmd. Extension	hex	1
		00 = Size Selection		
		01 = Station Selection		
If Cmd. Extension = 00 specify				
4		Barcode Width	ASCII	1 (Note 1)
5-7		Barcode Height	ASCII	3 (Note 2)
If Cmd. Extension = 01 specify				
4		Station Selection	hex	1
		0 = CR		
		1 = SJ		
		2 = DI		

Notes:

- Horizontal magnification of the line width in the barcode.
Minimum = 2
Maximum = 4
- The dot height of the barcode.
Minimum = 001
Maximum = 255

13.18.2 Set Barcode Parameters Rules

- Horizontal default magnification of the line width is 3.
- The dot height default is 162.
- Default printing is in CR station.
- After PLD or J4/CE jumper procedure, the printer returns to its default station (CR).

13.19 C9 - PRINT BARCODE

This command is used to print barcode.

13.19.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		C9 - Print Barcode	hex	1
3		Cmd. Extension	hex	1
7		Reserved (always = '0')		
6		HRI font 0 = 15 CPI 1 = 12 CPI		(Note 1)
5-4		HRI location 00 = Not printed 01 = Above the barcode 10 = Below the barcode 11 = Both above and below the barcode		(Note 2)
3-0		Barcode Type 0000 = UPC_A 0001 = UPC_E 0010 = JAN13 (EAN-13) 0011 = JAN8 (EAN-8) 0100 = CODE39 0101 = ITF 0110 = CODABAR 0111 = CODE128 1000 = CODE93 1001 = Reserved 1010 = Reserved 1011 = Reserved 1100 = Reserved 1101 = Reserved 1110 = Reserved 1111 = Reserved		
4-n		Barcode Data	ASCII	n (Note 3)

Notes:

1. The Human Readable Characters font, if it must be printed.
2. Printing Position of the Human Readable Characters.
3. Data to be encoded in the barcode. The data must be null terminated and each barcode type has it's own rules.

13.19.2 Print Barcode Rules

- In barcode types CODE39 and CODE93, if the width is ≥ 3 , the barcode might not fit in the sheet. In this case, it will be truncated.
- The barcodes can be printed:
 - **During Sale Period**
 - Inside of fiscal vouchers
 - Inside of non-fiscal reports
 - Outside of any document
 - **Outside Sale Period**
 - Inside of non-fiscal reports
 - Outside of any document

13.20 CA - DOWNLOAD AND PRINT GRAPHICS

This command is used to download and print graphics.

13.20.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		CA - Download and Print Graphics	hex	1
3		Cmd. Extension	hex	1
		00 = Reserved		
		01 = Reserved		
		02 = First Download Packet		(Note 1)
		08 = Next Packet		
		09 = Last Packet		
		0A = Cancel Graphics Transmission		
		10 = Erase Graphics Download Area		
		11 = Reserved		
		12 = Print Downloaded 200 DPI		
		If Cmd. Extension = 02 specify		
4		Width	hex	1 (Note 2)
5		Height	hex	1 (Note 2)
6		Graphic Number	hex	1 (Note 3)
7-65		First Pixels in Graphics	hex	59
		If Cmd. Extension = 08 or 09 specify		
4-65		Pixels in Graphics	hex	62
		If Cmd. Extension = 12 specify		
4		Graphic Number	hex	1 (Note 3)

Notes:

1. If the number of data bytes exceeds 61 or 62 (depending on the cmd. extension), the POS will need to send a next or last packet after the first packet.
2. The number given in this field should be multiplied by 8 in order to get the number of pixels.
Size max:
width = 72 (72*8 = 576 pixels)
height = 25 (25*8 = 200 pixels)
3. The fiscal printer can store up to 40 graphics in its internal memory so they can be printed later. The valid range is from x01 to x28.

Response to the Cmd. Extension 02 will be formatted as follows:

BYTE RS-485	BYTE USB	CONTENT	TYPE	LENGTH
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	CA - Record Identification	hex	1
10	16	Return Code	hex	1
		43 = Good Completion		
		74 = Invalid Sequence		
		75 = Invalid Size		
		76 = Invalid Graphic Number		
		77 = Graphic with same number already in printer flash		

Response to the Cmd. Extension 08 or 09 will be formatted as follows:

BYTE RS-485	BYTE USB	CONTENT	TYPE	LENGTH
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	CA - Record Identification	hex	1
10	16	Return Code	hex	1
		43 = Good Completion		
		74 = Invalid Sequence		

Response to the Cmd. Extension 12 will be formatted as follows:

BYTE RS-485	BYTE USB	CONTENT	TYPE	LENGTH
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	CA - Record Identification	hex	1
10	16	Return Code	hex	1
		43 = Good Completion		
		76 = Invalid Graphic Number		

13.20.2 Print Graphic Example.

In order to understand the graphic data format used for the fiscal printer an example will be given.

- The number of bytes per row is specified in the width field and they represent the graphic row from left to right. The leftmost pixel is the most significant bit.
- The first data bytes correspond to the upper row.
- The last data bytes correspond to the bottom row.
- A bit should be set to '1' when the corresponding pixel is black and '0' when it is white. In the example below the 'X's are black and the '.'s are white.

Example: width = 2 (16 pixels) & height = 2 (16 pixels)

Column #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DATA BYTES
Row #																	
0	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	1 2
1	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	3 4
2	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	5 6
3	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	7 8
4	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	9 10
5	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	11 12
6	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	13 14
7	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	15 16
8	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	17 18
9	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	19 20
10	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	21 22
11	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	23 24
12	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	25 26
13	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	27 28
14	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	29 30
15	.	X	.	X	.	X	.	X	.	X	.	X	.	X	.	X	31 32

Send the following packet in order to print the above graphic in 100 DPI in CR station.
The semicolons (;) are used only to separate bytes in this example.

```
x'1B;66;CA;00;02;02;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;55;55;55;55;55;55;55;55;55;55;55;55;55;55;55;55'
```

Figure 18. Print Graphic Example.

13.20.3 Download and Print Graphics Rules

- When a PLD, J4/CE jumper intervention, reset printer or cancel graphics transmission occur during the download packet, the graphics download area is corrupted. In this case, issue initialize graphics download area (CA cmd. - cmd. extension 10) and then download packet again.

13.20.4 CD - CASH DRAWER MANAGEMENT

ONLY VALID FOR 4610 USB

This command is used to open and read status of the chash drawer.

13.20.4.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - Cmd Prefix	hex	2
2	CD - Cash Drawer Management	hex	1
3	Cmd. Extension	hex	1
	00 = Open Cash Drawer		
	01 = Get Cash Drawer Status		
If Cmd. Extension = 00 specify			
4	Cash Drawer Number	hex	1 (Note 1)
5	Pulse Width ON Time	hex	1 (Note 2)
6	Pulse Width OFF Time	hex	1 (Note 2)

Notes:

1. Numbers allowed: 0 and 1.
2. The value given in this field must be multiplied by 2 in order to get the pulse width on/off in milliseconds.
Range allowed: from x00 to xFF.

Response to the Cmd. Extension 01 will be formatted as follows:

BYTE BIT	CONTENT	TYPE	LENGTH
0-14	Fiscal Unit Status	hex	15
15	Cash Drawer Status	hex	1
	00 = Open		
	01 = Close		

13.21 D2 - ITEM SALE

This command is used to record the amount of an item and to print lines containing description, amount and VAT category.

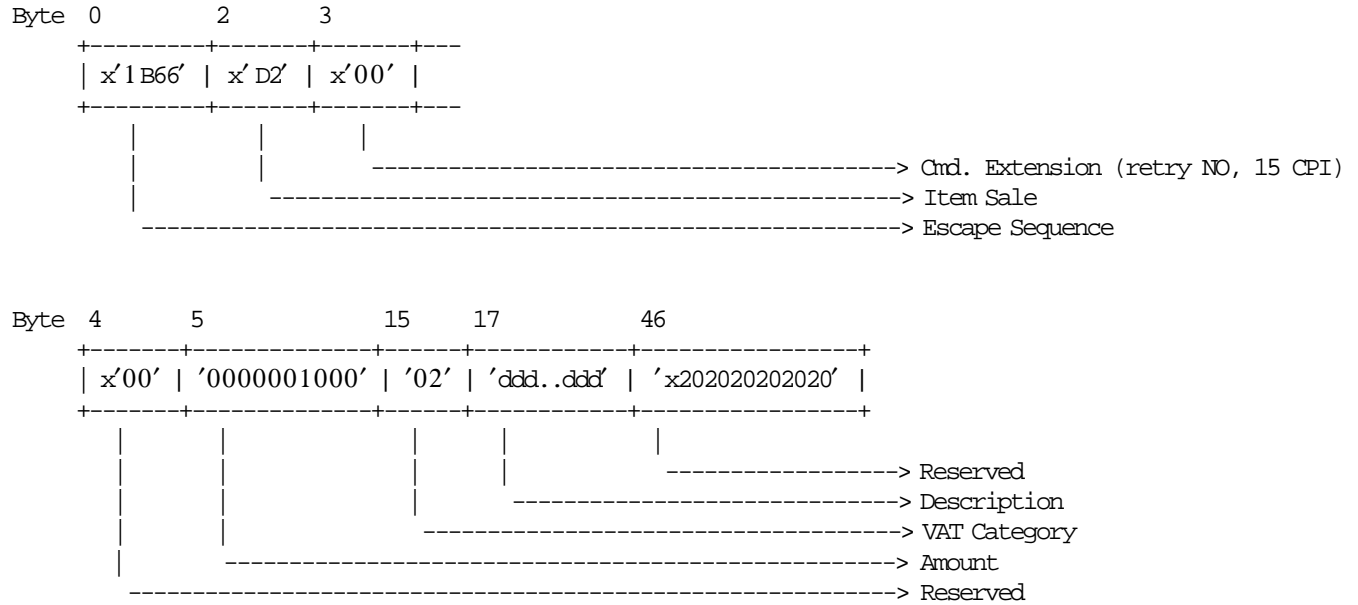
13.21.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D2 - Item Sale	hex	1
3		Cmd. Extension	hex	1
7		Retry 1 = YES 0 = NO		
6		Reserved (always = '0')		
5-3		Print Mode 000 = 15 CPI 001 = 12 CPI 010 = Reserved 011 = Reserved 100 = 15 CPI Emphasized 101 = 12 CPI Emphasized 110 = Reserved 111 = Reserved		
2-0		Reserved (always = '0')		
4-4		Reserved (always = 'x00')	hex	1 (Note 1)
5-14		Amount	ASCII	10 (Note 2, 3)
15-16		VAT Category	ASCII	2 (Note 4, 5)
17-45		Description	ASCII	29
46-51		Reserved (always = 'x20')	hex	6 (Note 6)

Notes:

1. Reserved for future use (secondary command extension)
2. Amount string can be blank.
3. If amount string is blank then the transaction counters are not affected.
4. VAT Category must be blank if amount string is blank.
5. Specify one of the following: x1, x2, x3, x4, x5 (x can be any character) OR specify one of the following: xA, xB, xC, xD, xE (x can be any character).
6. Reserved for future use (additional description)

13.21.2 Command Example



13.21.3 Item Sale Calculations

$$Tra_Total = Tra_Total + Amount$$

$$Tra_Tot_A = Tra_Tot_A + Amount \text{ (If VAT category is A)}$$

$$Tra_Tot_B = Tra_Tot_B + Amount \text{ (If VAT category is B)}$$

$$Tra_Tot_C = Tra_Tot_C + Amount \text{ (If VAT category is C)}$$

$$Tra_Tot_D = Tra_Tot_D + Amount \text{ (If VAT category is D)}$$

$$Tra_Tot_E = Tra_Tot_E + Amount \text{ (If VAT category is E)}$$

13.21.4 Item Sale Rules

- Amount field can be blank. This allows the processing of items with description longer than the number of characters allowed in one line.
Consecutive items with blank amount are not allowed.
- Any gross transaction total accumulators for VAT categories must NOT be negative when transaction total command is received.

13.22 D3 - NEGATIVE/POSITIVE ITEM SALE

This command is used to record the amount of a negative/positive item and prints lines containing description, amount and TAX category.

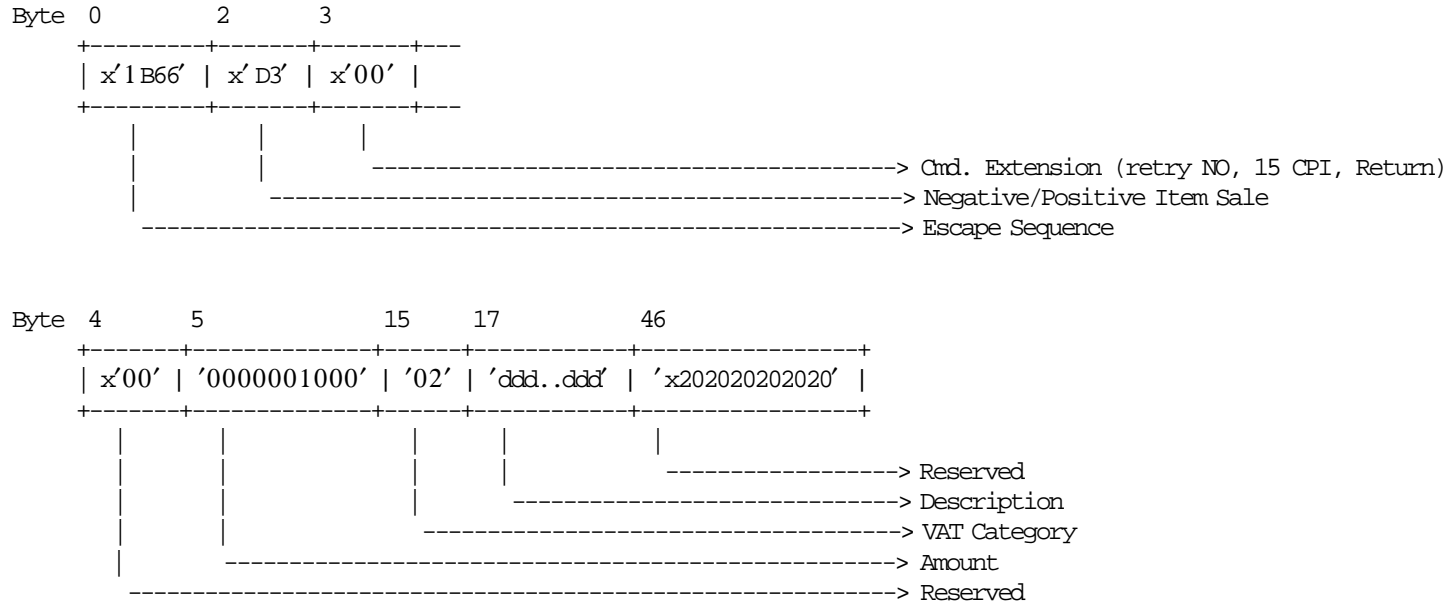
13.22.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D3 - Negative/Positive Item Sale	hex	1
3		Cmd. Extension	hex	1
7		Cmd Retry		
		0 = NO		
		1 = YES		
6		Rectify		
		0 = NO		
		1 = YES		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2-0		Negative/Positive Item Type		
		000 = RETURN		
		001 = VOID		
		010 = Reserved		
		011 = DISCOUNT		
		100 = Reserved		
		101 = Reserved		
		110 = UPLIFT		
		111 = Reserved		
4-4		Reserved (always = 'x00')	hex	1
5-14		Amount	ASCII	10 (Note 1, 2)
15-16		VAT Category	ASCII	2 (Note 3, 4)
17-45		Description	ASCII	29
46-51		Reserved (always = 'x20')	hex	6 (Note 5)

Notes:

1. Amount string can be blank.
2. If amount string is blank then the transaction counters are not affected.
3. VAT category must be blank if amount string is blank.
4. Specify one of the following: x1, x2, x3, x4, x5 (x can be any character) OR specify one of the following: xA, xB, xC, xD, xE (x can be any character).
5. Reserved for future use (additional description)

13.22.2 Command Example



13.22.3 Negative/Positive Item Sale Calculations

- For Rectify Option = NO and Negative Items:

$$Tra_Total = Tra_Total - Amount$$

$$Tra_Tot_A = Tra_Tot_A - Amount \text{ (If VAT Category is A)}$$

$$Tra_Tot_B = Tra_Tot_B - Amount \text{ (If VAT Category is B)}$$

$$Tra_Tot_C = Tra_Tot_C - Amount \text{ (If VAT Category is C)}$$

$$Tra_Tot_D = Tra_Tot_D - Amount \text{ (If VAT Category is D)}$$

$$Tra_Tot_E = Tra_Tot_E - Amount \text{ (If VAT Category is E)}$$

$$Tra_Void = Tra_Void + Amount \text{ (If Type = VOID)}$$

$$Tra_Retn = Tra_Retn + Amount \text{ (If Type = RETURN)}$$

$$Tra_Disc = Tra_Disc + Amount \text{ (If Type = DISCOUNT)}$$

$$Tra_N_Retn = Tra_N_Retn + 1 \text{ (If Type = RETURN)}$$

$$Tra_N_Void = Tra_N_Void + 1 \text{ (If Type = VOID)}$$

$$Tra_N_Disc = Tra_N_Disc + 1 \text{ (If Type = DISCOUNT)}$$

- For Rectify Option = YES and Negative Items:

$$Tra_Total = Tra_Total + Amount$$

$$Tra_Tot_A = Tra_Tot_A + Amount \text{ (If VAT Category is A)}$$

$$Tra_Tot_B = Tra_Tot_B + Amount \text{ (If VAT Category is B)}$$

$$Tra_Tot_C = Tra_Tot_C + Amount \text{ (If VAT Category is C)}$$

$$Tra_Tot_D = Tra_Tot_D + Amount \text{ (If VAT Category is D)}$$

$$Tra_Tot_E = Tra_Tot_E + Amount \text{ (If VAT Category is E)}$$

$$Tra_Void = Tra_Void - Amount \text{ (If Type = VOID)}$$

$$Tra_Retn = Tra_Retn - Amount \text{ (If Type = RETURN)}$$

$$Tra_Disc = Tra_Disc - Amount \text{ (If Type = DISCOUNT)}$$

$$Tra_N_Retn = Tra_N_Retn - 1 \text{ (If Type = RETURN)}$$

$$Tra_N_Void = Tra_N_Void - 1 \text{ (If Type = VOID)}$$

$Tra_N_Disc = Tra_N_Disc - 1$ (If Type = DISCOUNT)

- **For Rectify Option = NO and Positive Items:**

$Tra_Total = Tra_Total + Amount$

$Tra_Tot_A = Tra_Tot_A + Amount$ (If VAT Category is A)

$Tra_Tot_B = Tra_Tot_B + Amount$ (If VAT Category is B)

$Tra_Tot_C = Tra_Tot_C + Amount$ (If VAT Category is C)

$Tra_Tot_D = Tra_Tot_D + Amount$ (If VAT Category is D)

$Tra_Tot_E = Tra_Tot_E + Amount$ (If VAT Category is E)

$Tra_Uplf = Tra_Uplf + Amount$ (If Type = UPLIFT)

$Tra_N_Uplf = Tra_N_Uplf + 1$ (If Type = UPLIFT)

- **For Rectify Option = YES and Positive Items:**

$Tra_Total = Tra_Total - Amount$

$Tra_Tot_A = Tra_Tot_A - Amount$ (If VAT Category is A)

$Tra_Tot_B = Tra_Tot_B - Amount$ (If VAT Category is B)

$Tra_Tot_C = Tra_Tot_C - Amount$ (If VAT Category is C)

$Tra_Tot_D = Tra_Tot_D - Amount$ (If VAT Category is D)

$Tra_Tot_E = Tra_Tot_E - Amount$ (If VAT Category is E)

$Tra_Uplf = Tra_Uplf - Amount$ (If Type = UPLIFT)

$Tra_N_Uplf = Tra_N_Uplf - 1$ (If Type = UPLIFT)

13.22.4 Negative/Positive Item Sale Rules

- Amount field can be blank. This allows the processing of items with description longer than the number of characters allowed in one line.
Consecutive negative/positive items with blank amount are not allowed.
- Any gross transaction total accumulators for VAT categories must NOT be negative when transaction total command is received.

13.23 D4 - SUBTOTAL/TOTAL TRANSACTION

This command is used to verify that the total amount accumulated by the fiscal unit matches the amount accumulated by the application program.

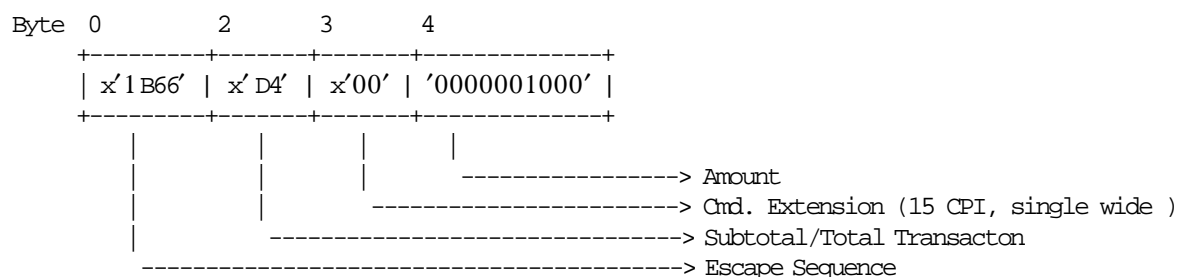
13.23.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D4 - Subtotal/Total Transaction	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-0		Print Mode		(Note 1)
		00 = 15 CPI, Single Wide		
		20 = 15 CPI, Single Wide, Emphasized		
		01 = 15 CPI, Double Wide		
		21 = 15 CPI, Double Wide, Emphasized		
		19 = 15 CPI, Double High, Double Wide		
		39 = 15 CPI, Double High, Double Wide, Emphasized		
4-13		Total_Amount	ASCII	10

Notes:

- The number of CPI and emphasized apply to both the description and the total_amount.
Double wide apply to total_amount only.
Print mode is also applied to predefined msg. 35 (FISCAL TOTAL).

13.23.2 Command Example



13.23.3 Subtotal/Total Transaction Calculations

Tra_Amt_Due = Total_Amount

13.24 D5 - PAYMENT

This command is used to apply the paid amount.

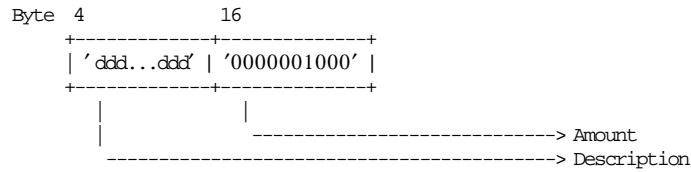
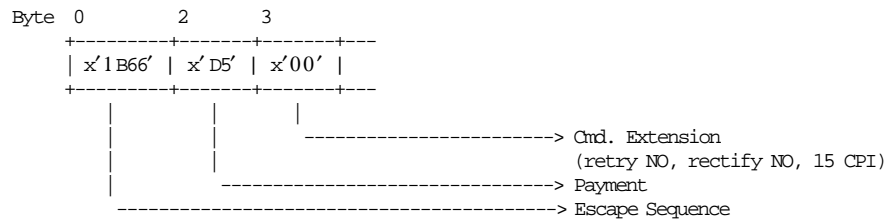
13.24.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D5 - Payment	hex	1
3		Cmd. Extension	hex	1
7		Retry		
		0 = NO		
		1 = YES		
6		Rectify		
		0 = NO		
		1 = YES		
5-3		Print Mode		(Note 1)
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2-0		Reserved		
4-15		Description	ASCII	12
16-25		Payment_Amount	ASCII	10

Notes:

1. Print mode is also applied to predefined message 34.

13.24.2 Command Example



13.24.3 Payment Calculations

- **For Rectify = NO**

$$Tra_Chg_Due = Tra_Amt_Due - Payment_Amount$$

- **For Rectify = YES**

$$Tra_Chg_Due = Tra_Amt_Due + Payment_Amount$$

13.25 D7 - SET HEADER

This command is used to load the store header into fiscal printer battery backed up RAM and Fiscal Memory.

13.25.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D7 - Set Header	hex	1
3		Cmd. Extension	hex	1
If Store Header in Fiscal Memory				
7-0	00	= Store in Fiscal Memory		
If Set Header in RAM Memory				
7-6		Reserved (always = '0')		
5-3		Print Mode		
	000	= 15 CPI		
	001	= 12 CPI		
	010	= Reserved		
	011	= 15 CPI Double-High		
	100	= 15 CPI Emphasized		
	101	= 12 CPI Emphasized		
	110	= Reserved		
	111	= 15 CPI Double-High, Emphasized		
2-0		Header Line Number		
	001	= First		
	010	= Second		
	011	= Third		
	100	= Fourth		
	101	= Fifth		
	110	= Sixth		
If Set Header in RAM Memory				
4-41		Description	ASCII	38 (Note 1, 2)

Notes:

1. If an all blank characters string is specified then the corresponding header line is not printed.
2. If all header lines are not set, not fiscal operations are allowed.

13.26 D9 - DISCOUNT/UPLIFT ON SUBTOTAL

This command is used to apply discount or uplift on subtotal.

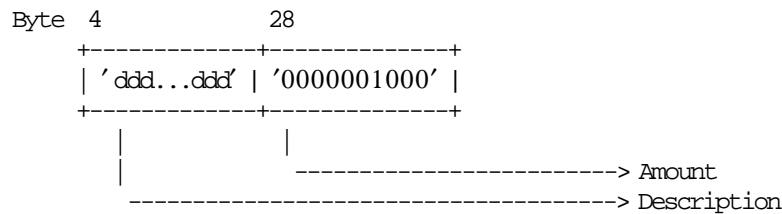
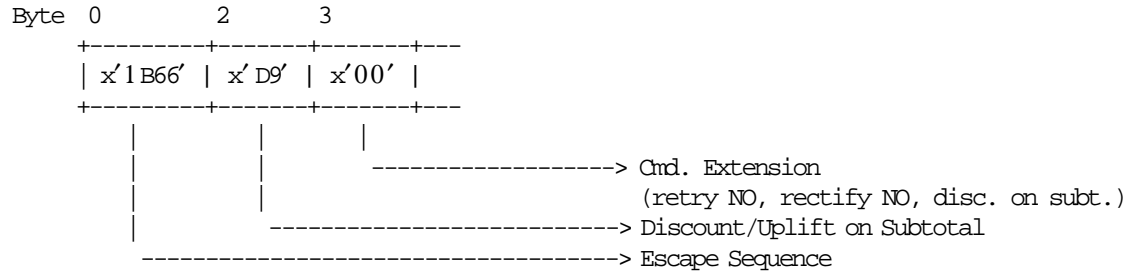
13.26.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D9 - Discount/Uplift on Subtotal	hex	1
3		Cmd. Extension	hex	1
7		Retry		
		0 = NO		
		1 = YES		
6		Rectify		
		0 = NO		
		1 = YES		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2-1		Reserved		
0		Type		
		0 = DISCOUNT ON SUBTOTAL		
		1 = UPLIFT ON SUBTOTAL		
4-27		Description	ASCII	24
28-37		Amount	ASCII	10 (Note 1)

Notes:

1. Amount string can be blank.
If amount string is blank then the transaction counters are not affected.

13.26.2 Command Example



13.26.3 Discount/Uplift on Subtotal Calculations

- **Discount on Subtotal (Rectify = NO)**

$$Tra_N_Tdsc = Tra_N_Tdsc + 1$$

$$Tra_Total = Tra_Total - Amount$$

$$Tra_Tot_A = Tra_Tot_A - (Tra_Tot_A \times Amount) / Tra_Total$$

$$Tra_Tot_B = Tra_Tot_B - (Tra_Tot_B \times Amount) / Tra_Total$$

$$Tra_Tot_C = Tra_Tot_C - (Tra_Tot_C \times Amount) / Tra_Total$$

$$Tra_Tot_D = Tra_Tot_D - (Tra_Tot_D \times Amount) / Tra_Total$$

$$Tra_Tot_E = Tra_Tot_E - (Tra_Tot_E \times Amount) / Tra_Total$$

$$Tra_Tdsc = Tra_Tdsc + Amount$$

- **Discount on Subtotal (Rectify = YES)**

$$Tra_N_Tdsc = Tra_N_Tdsc - 1$$

$$Tra_Total = Tra_Total + Amount$$

$$Tra_Tot_A = Tra_Tot_A + (Tra_Tot_A \times Amount) / Tra_Total$$

$$Tra_Tot_B = Tra_Tot_B + (Tra_Tot_B \times Amount) / Tra_Total$$

$$Tra_Tot_C = Tra_Tot_C + (Tra_Tot_C \times Amount) / Tra_Total$$

$$Tra_Tot_D = Tra_Tot_D + (Tra_Tot_D \times Amount) / Tra_Total$$

$$Tra_Tot_E = Tra_Tot_E + (Tra_Tot_E \times Amount) / Tra_Total$$

$$Tra_Tdsc = Tra_Tdsc - Amount$$

- **Uplift on Subtotal (Rectify = NO)**

$$Tra_N_Tupl = Tra_N_Tupl + 1$$

$$Tra_Total = Tra_Total + Amount$$

$$Tra_Tot_A = Tra_Tot_A + (Tra_Tot_A \times Amount) / Tra_Total$$

$$Tra_Tot_B = Tra_Tot_B + (Tra_Tot_B \times Amount) / Tra_Total$$

$$Tra_Tot_C = Tra_Tot_C + (Tra_Tot_C \times Amount) / Tra_Total$$

$Tra_Tot_D = Tra_Tot_D + (Tra_Tot_D \times Amount) / Tra_Total$

$Tra_Tot_E = Tra_Tot_E + (Tra_Tot_E \times Amount) / Tra_Total$

$Tra_Tupl = Tra_Tupl + Amount$

- **Uplift on Subtotal (Rectify = YES)**

$Tra_N_Tupl = Tra_N_Tupl - 1$

$Tra_Total = Tra_Total - Amount$

$Tra_Tot_A = Tra_Tot_A - (Tra_Tot_A \times Amount) / Tra_Total$

$Tra_Tot_B = Tra_Tot_B - (Tra_Tot_B \times Amount) / Tra_Total$

$Tra_Tot_C = Tra_Tot_C - (Tra_Tot_C \times Amount) / Tra_Total$

$Tra_Tot_D = Tra_Tot_D - (Tra_Tot_D \times Amount) / Tra_Total$

$Tra_Tot_E = Tra_Tot_E - (Tra_Tot_E \times Amount) / Tra_Total$

$Tra_Tupl = Tra_Tupl - Amount$

13.26.4 Discount/Uplift on Subtotal Rules

- The discount or uplift amount is distributed (subtracted or added) to the VAT category accumulators proportionally to their current amount.
- The amount field must be greater than 0, otherwise return code 133 is issued.
- This command is not allowed if the transaction total is zero.
This is to protect the VAT category accumulators from the proportional distribution of the discount or uplift amount, since they are all zero.
- Any gross transaction total accumulators for VAT categories must NOT be negative when transaction total command is received.

13.27 DA - ELECTRONIC READ FISCAL MEMORY TABLES

This command is used to request the fiscal unit to report the fiscal memory content.

13.27.1 Command Format

```
-----
```

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	DA - Electronic Read Fiscal Memory Tables	hex	1
3	Cmd. Extension	hex	1
7-4	Reserved (always = '0')		
3-1	Tables		
	000 = Daily Entry Table		
	001 = VAT Rate Table		
	100 = Header Table		
	101 = Repair Action Table		
	110 = Printer Disconnection Table		
0	Read Block		
	0 = Start		(Note 1)
	1 = Next		(Note 1, 2)
4-7	Password	ASCII	4
	If Daily Entry or VAT Rate Table specify:		
8-11	Closure Number	ASCII	4
	If Header Table specify:		
8-9	Header Number	ASCII	2 (Note 3)

```
-----
```

Notes:

1. For Daily Entry Table (byte 3, bit 3-1 = 000):

- The read start block will show the first entry stored in the table.
- The read next block will show the next consecutive entries stored in the table.

For VAT Rate Table (byte 3, bit 3-1 = 001):

- The read start block will show the first entry stored in the table.
- The read next block will show the next consecutive entries stored in the table.

For Header Table (byte 3, bit 3-1 = 100):

- The read start block will show the first half (header lines 1, 2 and 3) of the entry number indicate in Header Number field (bytes 8-9).
- The read next block will show the second half (header lines 4, 5 and 6) of the entry number indicate in Header Number field (bytes 8-9).

For Repair Action Table (byte 3, bit 3-1 = 101):

- The read start block will show the first entry stored in the table.
- The read next block will show the next consecutive entries stored in the table.

For Printer Disconnection Table (byte 3, bit 3-1 = 111):

- The read start block will show the first entry stored in the table.
- The read next block will show the next consecutive entries stored in the table.

2. If read next block option is specified, then bytes 8-11 are ignored, but are still required.

3. Range allowed from 1 to 30.

Response for Read Daily Entry Table will be formatted as follows:

BYTE RS-485	BYTE USB	CONTENT	TYPE	LENGTH
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DA - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion 5A = Register Not Found 60 = Invalid Character in Command Bytes 8-9 64 = Error on Reading Fiscal Memory	hex	1
25-26	31-32	Reserved	hex	2
27-30	33-36	Closure Number	ASCII	4
31-38	37-44	Closure Date (dd/mm/yy)	ASCII	8
39-42	45-48	Number of Slips	hex	4
43-48	49-54	Cumulative Net Sales (A+B+C+D)	hex	6
49-54	55-60	Cumulative Net Sales (E)	hex	6
55-60	61-66	Cumulative VAT Amount (A)	hex	6
61-66	67-72	Cumulative VAT Amount (B)	hex	6
67-72	73-78	Cumulative VAT Amount (C)	hex	6
73-78	79-84	Cumulative VAT Amount (D)	hex	6
79-84	85-90	Cumulative VAT Amount (E)	hex	6
85	91	Number of Repair Actions	hex	1
86-87	92-93	Number of Printer Disconnections	hex	2
88	94	Number of Header's Changed	hex	1
89	95	Number of Previous Header's Changed	hex	1
90	96	Number of VAT's Rates Changed	hex	1
91	97	Number of Previous VAT's Rates Changed	hex	1
92-95	98-101	Number of Fiscal Vouchers	hex	4

Note: If return code indicates an error, then daily entry table data are meaningless.

Response for Read VAT Rate Table will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DA - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion 5A = Register Not Found 60 = Invalid Character in Command Bytes 8-9 64 = Error on Reading Fiscal Memory	hex	1
25-26	31-32	Reserved	hex	2
27-30	33-36	Number of First Applicable Closure	ASCII	4
31-38	37-44	Date (dd/mm/yy)	ASCII	8
39-40	45-46	VAT Rate (A) (x 100)	hex	2
41-42	47-48	VAT Rate (B) (x 100)	hex	2
43-44	49-50	VAT Rate (C) (x 100)	hex	2
45-46	51-52	VAT Rate (D) (x 100)	hex	2
47-48	53-54	VAT Rate (E) (x 100)	hex	2
49-50	55-56	Reserved	hex	2

Note: If return code indicates an error, then VAT rate table data are meaningless.

Response for Header Table will be formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DA - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion 5A = Register Not Found 60 = Invalid Character in Command Bytes 8-9 64 = Error on Reading Fiscal Memory	hex	1
25-26	31-32	Reserved	hex	2
27-30	33-36	Number of Closure	ASCII	4
31-38	37-44	Date (dd/mm/yy)	ASCII	8
39-76	45-82	Header Description 1	ASCII	38
77-82	83-88	Reserved	hex	6
83-120	89-126	Header Description 2	ASCII	38
121-126	127-132	Reserved	hex	6
127-164	133-170	Header Description 3	ASCII	38
165-170	171-176	Reserved	hex	6

```

-----

```

Response for Header Table will be formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DA - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1
25-26	31-32	Reserved	hex	2
27-30	33-36	Number of Closure	ASCII	4
31-38	37-44	Date (dd/mm/yy)	ASCII	8
39-76	45-82	Header Description 4	ASCII	38
77-82	83-88	Reserved	hex	6
83-120	89-126	Header Description 5	ASCII	38
121-126	127-132	Reserved	hex	6
127-164	133-170	Header Description 6	ASCII	38
165-170	171-176	Reserved	hex	6

```

-----

```

Response for Repair Action Table will be formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DA - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1
25	31	Number of Repair Action	hex	1
26-29	32-35	Number of Closure	ASCII	4
30-37	36-43	Date (dd/mm/yy)	ASCII	8
38-42	44-48	Time (hh:mm)	ASCII	5

```

-----

```

Note: If return code indicates an error, then repair action table data are meaningless.

Response for Printer Disconnection Table will be formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DA - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1
25	31	Reserved	hex	1
26	32	Number of Printer Disconnection	hex	1
27-30	33-36	Number of Closure	ASCII	4
31-38	37-44	Date (dd/mm/yy)	ASCII	8
39-43	45-49	Time (hh:mm)	ASCII	5

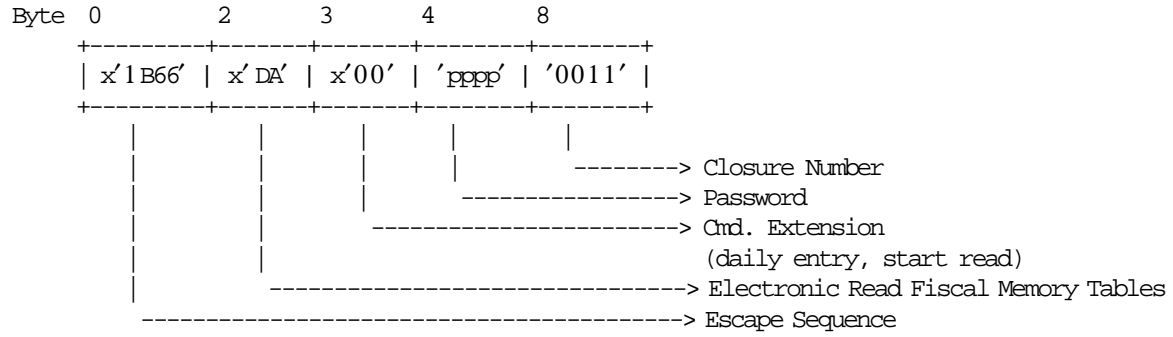
```

-----

```

Note: If return code indicates an error, then printer disconnection table data are meaningless.

13.27.2 Command Example



13.28 DB - ELECTRONIC READ ACCUMULATORS AND COUNTERS

This command is used to request the fiscal unit to report the content of transaction and daily accumulators and counters.

13.28.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		DB - Electronic Read Accumulators and Counters	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

Response to Electronic Read Accumulators and Counters will be formatted as follows:

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH
RS-485	USB				
0-8			Fiscal Unit Status	hex	9
	0-14		Fiscal Unit Status	hex	15
9	15		DB - Record Identification	hex	1
10-23	16-29		Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30		Return Code 43 = Good Completion	hex	1
25	31		FISCAL UNIT STATE 00 = No Procedure in Progress 01 = Sale Transaction in Progress 02 = Non-Fiscal Report in CR in Progress 03 = Non-Fiscal Report in SJ in Progress 04 = Non-Fiscal Report in DI Landscape in Progress 05 = Non-Fiscal Report in DI Portrait in Progress	hex	1
26	32		SALE TRANSACTION STEP	hex	1
		7	1 = Header Printed		
		6	1 = Item or Negative/Positive Item Sold		
		5	1 = Total Requested		
		4	1 = Payment in Progress		
		3	1 = End Transaction in Progress		
		2	1 = Cancel Transaction in Progress		
		1-0	Reserved		
27	33		FISCAL UNIT MODE	hex	1
		7	1 = Fiscal Mode Set		
		6	Reserved		
		5	1 = Sale Period in Progress		
		4-0	Reserved		
28	34		INITIALIZATION STATE	hex	1
		7-4	Reserved		
		3	1 = TAX Rate Table Verified		
		2	1 = Header Table Set		
		1	1 = Date and Time Set		
		0	Reserved		
29-30	35-36		Reserved	hex	2

(Continued in the next page)

Response to Electronic Read Accumulators and Counters continued...

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	USB					
TRANSACTION ACCUMULATORS						
31-34	37-40		Transaction Total	hex	4	Tra_Total
35-38	41-44		Total for VAT Rate (A)	hex	4	Tra_Total_A
39-42	45-48		Total for VAT Rate (B)	hex	4	Tra_Total_B
43-46	49-52		Total for VAT Rate (C)	hex	4	Tra_Total_C
47-50	53-56		Total for VAT Rate (D)	hex	4	Tra_Total_D
51-54	57-60		Total for VAT Rate (E)	hex	4	Tra_Total_E
55-58	61-64		Discount on Subtotal	hex	4	Tra_Tdsc
59-62	65-68		Uplift on Subtotal	hex	4	Tra_Tupl
63-66	69-72		Item Returns	hex	4	Tra_Retrn
67-70	73-76		Item Voids	hex	4	Tra_Void
71-74	77-80		Item Discounts	hex	4	Tra_Disc
75-78	81-84		Item Uplifts	hex	4	Tra_Uplf
79-82	85-88		Amount Due - Change Due	hex	4	(1)
TRANSACTION COUNTERS						
83-84	89-90		Number of Discount on Subtotal	hex	2	Tra_N_Tdsc
85-86	91-92		Number of Uplift on Subtotal	hex	2	Tra_N_Tupl
87-88	93-94		Number of Return Item	hex	2	Tra_N_Retrn
89-90	95-96		Number of Void Item	hex	2	Tra_N_Void
91-92	97-98		Number of Discount Item	hex	2	Tra_N_Disc
93-94	99-100		Number of Uplift Item	hex	2	Tra_N_Uplf

(Continued in the next page)

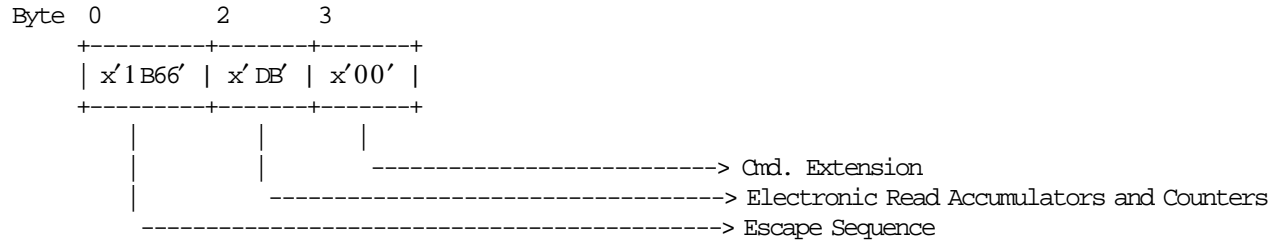
Notes:

1. > 0 = Amount due; < 0 = Change due.

Response to Electronic Read Accumulators and Counters continued...

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	USB					
DAILY ACCUMULATORS						
95-98	101-104		Total for VAT Rate (A)	hex	4	Day_Tot_A
99-102	105-108		Total for VAT Rate (B)	hex	4	Day_Tot_B
103-106	109-112		Total for VAT Rate (C)	hex	4	Day_Tot_C
107-110	113-116		Total for VAT Rate (D)	hex	4	Day_Tot_D
111-112	117-120		Total for VAT Rate (E)	hex	4	Day_Tot_E
115-116	121-124		Discount on Subtotal	hex	4	Day_Tdsc
119-122	125-128		Uplift on Subtotal	hex	4	Day_Tupl
123-126	129-132		Return Item	hex	4	Day_Retrn
127-130	133-136		Void Item	hex	4	Day_Void
131-134	137-140		Discount Item	hex	4	Day_Disc
135-138	141-144		Uplift Item	hex	4	Day_Uplf
139-142	145-148		Cancel Transaction Total	hex	4	Day_Canc
DAILY COUNTERS						
143-144	149-150		Number of Slips	hex	2	Day_N_Slip
145-146	151-152		Number of Discounts on Subtotal	hex	2	Day_N_Tdsc
147-148	153-154		Number of Uplifts on Subtotal	hex	2	Day_N_Tupl
149-150	155-156		Number of Return Items	hex	2	Day_N_Retrn
151-152	157-158		Number of Void Items	hex	2	Day_N_Void
153-154	159-160		Number of Discount Items	hex	2	Day_N_Disc
155-156	161-162		Number of Uplift Items	hex	2	Day_N_Uplf
157-158	163-164		Number of Cancel Transactions	hex	2	Day_N_Canc
159-160	165-166		Number of Daily Closures	hex	2	Day_N_Clos
161-162	167-168		Number of Repair Actions	hex	2	Day_N_Ract
163-164	169-170		Number of Printer Disconnections	hex	2	Day_N_Dcx
165-166	171-172		Number of Fiscal Vouchers	hex	2	Day_N_Vouc
167-170	173-176		Reserved	hex	4	
CURRENT VAT RATES						
171-172	177-178		Current VAT Rate (A) (x 100)	hex	2	Rate_A
173-174	179-180		Current VAT Rate (B) (x 100)	hex	2	Rate_B
175-176	181-182		Current VAT Rate (C) (x 100)	hex	2	Rate_C
177-178	183-184		Current VAT Rate (D) (x 100)	hex	2	Rate_D
179-180	185-186		Current VAT Rate (E) (x 100)	hex	2	Rate_E
FISCAL MEMORY						
181-183	187-189		Manufacturing ID	ASCII	3	FM_SN_MF_ID
184-185	190-191		Manufacturing Year	ASCII	2	FM_SN_MF_YEAR
186-191	192-197		Fiscal Unit Serial Number	ASCII	6	FM_SN_SERNUM
192-193	198-199		Available Empty Closure Entries	hex	2	
194-195	200-201		Available Empty VAT Table Entries	hex	2	
196-197	202-203		Available Empty Header Table Entries	hex	2	

13.28.2 Command Example



13.29 DC - READ FDTS

This command is used to request the fiscal unit to report the content of FDTS set.

13.29.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		DC - Read FDTS	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

Response to the Read FDTS will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DC - Record Identification	hex	1
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
24	30	Return Code 43 = Good Completion	hex	1
25-32	31-38	FDTS Date (ddmmyyyy)	ASCII	8
33	39	Reserved	ASCII	1
34-38	40-44	FDTS Time (hh:mm)	ASCII	5

13.30 DD - START NON-FISCAL REPORT

This command is used to start a non-fiscal documents.

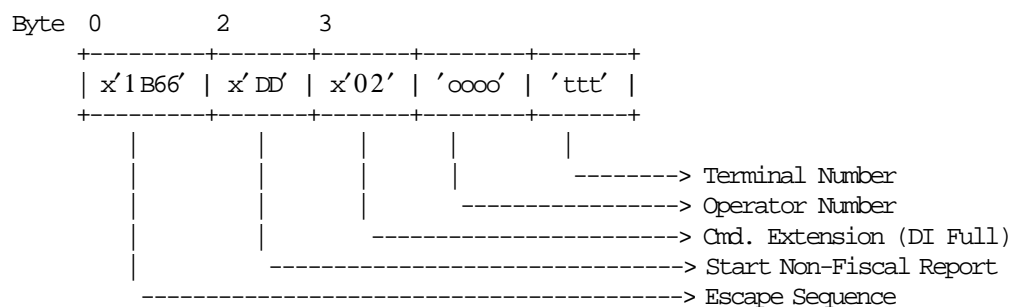
13.30.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		DD - Start Non-Fiscal Report	hex	1
3		Cmd. Extension	hex	1
7-2		Reserved (always = '0')		
1-0		Station		
		00 = CR		
		01 = SJ		
		10 = DI Landscape		
		11 = DI Portrait		
4-7		Operator Number	ASCII	4 (Note 1)
8-10		Terminal Number	ASCII	3 (Note 1)

Notes:

1. Operator number and terminal number are optional.
Blank characters are assumed if they are not provided.

13.30.2 Command Example



13.30.3 Start Non-Fiscal Report Rules

- The execution of the Start Application-Originated Report command sets the fiscal unit into the Non-Fiscal Report in Progress.
- This report can be printed in CR, SJ and DI stations.
- When this command is executed in CR station, the header lines followed by the terminal/operator number line and "ILLEGAL RECEIPT" (92 msg.) line are printed.
- When this command is executed in CR station, the terminal/operator number line and "ILLEGAL RECEIPT" (92 msg.) line are replicated to SJ station.
- When this command is executed in SJ or DI stations, the "ILLEGAL RECEIPT" (92 msg.) is printed as first line of the non-fiscal report.
- When this command is executed in SJ station, all lines are replicated in CR station.

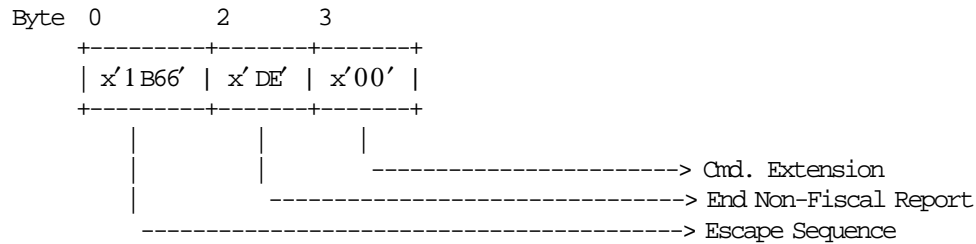
13.31 DE - END NON-FISCAL REPORT

This command is used to end a non-fiscal report.

13.31.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		DE - End Non-Fiscal Report	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

13.31.2 Command Example



13.31.3 End Non-Fiscal Report Rules

- When this command is executed in CR station, the date/time line followed by the "ILLEGAL RECEIPT" (92 msg.) line are printed.
- When this command is executed in DI or SJ stations, the "ILLEGAL RECEIPT" (92 msg.) line is printed as last line of the non-fiscal report.

13.32 E7 - DIAGNOSTIC AND ALIGNMENT UTILITIES

This command is used to diagnostics and alignmets.

13.32.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	E7 - Diagnostic and Alignment Utilities	hex	1
3	Cmd. Extension	hex	1
	00 = Set MCT Value		
	01 = DI Print Document Top Registration Pattern		
	02 = DI Print Document Bottom Registration Pattern		
	03 = DI Print Backlash Adjustment Pattern		
	04 = DI Print Reinsertion Adjustment Pattern		
	05 = CR Read MCT Value		
	06 = Reserved		
	07 = Reserved		
	08 = CR Print Test Command		
	09 = SJ Print "HIHI...HIHI" Pattern		
	0A = DI Print "HIHI...HIHI" Pattern		
	0B = DI Character Alignment		
	0C = DI MICR Read, Print Front Check, Print Back Check & CR Print MICR data		
	0D = CR Cut Paper		
	0E = DI Head Left		
	0F = DI Head Right		

(Continued in the next page)

Diagnostic and Alignment Utilities continued

BYTE BIT	CONTENT	TYPE	LENGTH

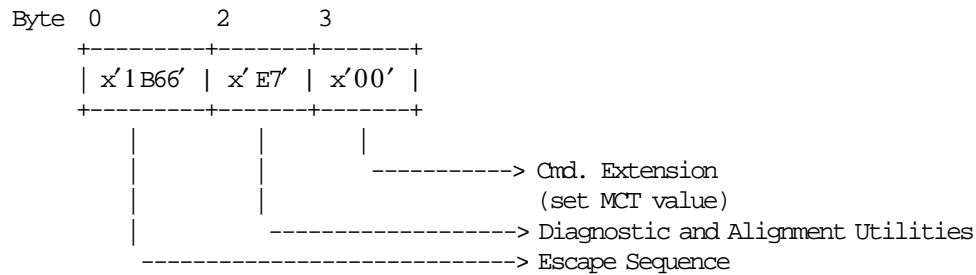
If Cmd. Extension = 00 or 01 specify			
4-4	MCT Number	hex	1
5-5	MCT Value - High Order Byte	hex	1
6-6	MCT Value - Low Order Byte	hex	1
If Cmd. Extension = 03 or 0B specify			
4-4	MCT Number 1	hex	1
5-5	MCT Value 1 - High Order Byte	hex	1
6-6	MCT Value 1 - Low Order Byte	hex	1
7-7	MCT Number 2	hex	1
8-8	MCT Value 2 - High Order Byte	hex	1
9-9	MCT Value 2 - Low Order Byte	hex	1
10-10	MCT Number 3	hex	1
11-11	MCT Value 3 - High Order Byte	hex	1
12-12	MCT Value 3 - Low Order Byte	hex	1
13-13	MCT Number 4	hex	1
14-14	MCT Value 4 - High Order Byte	hex	1
15-15	MCT Value 4 - Low Order Byte	hex	1
16-16	MCT Number 5	hex	1
17-17	MCT Value 5 - High Order Byte	hex	1
18-18	MCT Value 5 - Low Order Byte	hex	1
19-19	MCT Number 6	hex	1
20-20	MCT Value 6 - High Order Byte	hex	1
21-21	MCT Value 6 - Low Order Byte	hex	1
22-22	MCT Number 7	hex	1
23-23	MCT Value 7 - High Order Byte	hex	1
24-24	MCT Value 7 - Low Order Byte	hex	1
25-25	MCT Number 8	hex	1
26-26	MCT Value 8 - High Order Byte	hex	1
27-27	MCT Value 8 - Low Order Byte	hex	1
28-28	MCT Number 9	hex	1
29-29	MCT Value 9 - High Order Byte	hex	1
30-30	MCT Value 9 - Low Order Byte	hex	1
If Cmd. Extension = 05 specify			
4-4	MCT Number	hex	1

Diagnostic and Alignment Utilities continued

Response to CR Read MCT Value

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	MCT Value - High Order Byte	hex	1
10	16	MCT Value - Low Order Byte	hex	14

13.32.2 Command Example



13.32.3 Diagnostic and Alignment Utilities Rules

- The printed documents are fixed format and cannot be modified by the users.
- The printed documents in CR, SJ or DI stations are not replicated.

13.33 E8 - SET NUMBER OF DOT ROWS PER LINEFEED

This command is used to change the number of dot rows per line feed from 12 (default - 6 lines/inch) to 9 (alternate - 8 lines/inch).

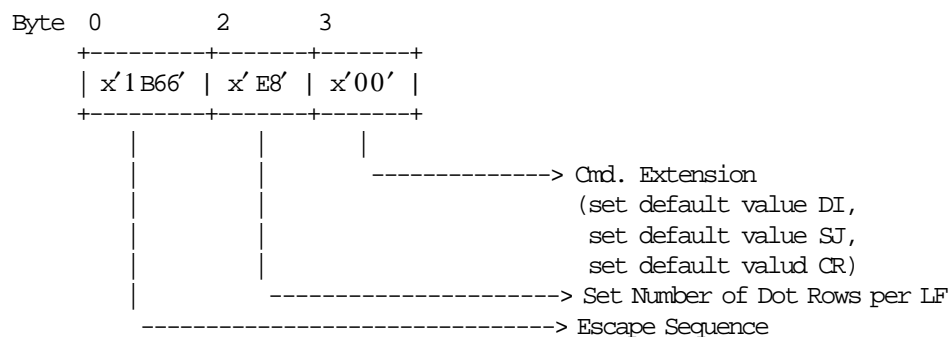
13.33.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		E8 - Set Number of Dot Rows per LF	hex	1
3		Cmd. Extension	hex	1
7-4		Reserved (always = '0')		
3		DI Station - Landscape 0 = Set Default Value 1 = Set Alternate Value		(Note 1)
2		DI Station - Portrait 0 = Set Default Value 1 = Set Alternate Value		(Note 1)
1		SJ Station 0 = Set Default Value 1 = Set Alternate Value		(Note 1, 2)
0		CR Station 0 = Set Default Value 1 = Set Alternate Value		(Note 1, 3)

Notes:

1. Alternate = 12 Dot Rows per LF (6 lines/inch).
Default = 9 Dot Rows per LF (8 lines/inch).
2. The setting will be done for the lines printed in SJ station.
3. The setting will be done for the lines printed in CR and SJ station (original and replica).

13.33.2 Command Example



13.33.3 Set Number of Dot Rows per Line Feed Rules

- The number of dot rows per line feed are restored to the default value when RAM is cleared by installing the J4/CE jumper.

13.34 E9 - PRINTER NATIVE COMMANDS

This command is used to execute the printer native commands.

13.34.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		E9 - Printer Native Commands	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

13.35 EA - NORMAL PRINTING LINE IN CR/SJ STATION

This command is used to print lines in CR or SJ stations.

13.35.1 Command Format

```
-----
```

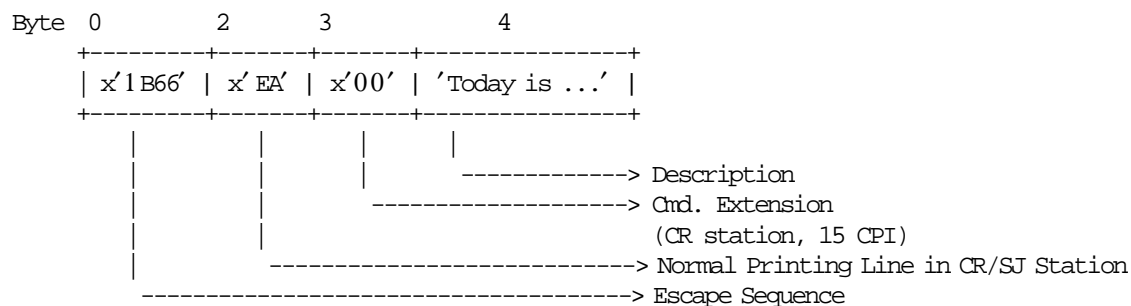
BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		EA - Normal Printing Line in CR/SJ Station	hex	1
3		Cmd. Extension	hex	1
7		Reserved (always = '0')		
6		Station		
		0 = CR		
		1 = SJ		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = 15 CPI Double-High		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = 15 CPI Double-High, Emphasized		
2-0		Number of Line-Feed (min 1, max 7)		(Note 1)
4-41		Description	ASCII	38

```
-----
```

Notes:

1. One line feed is assumed if number of line feed is 0.

13.35.2 Command Example



13.35.3 Normal Printing Line in CR/SJ Station Rules

- The normal printing line can be printed:
 - Outside any document.
 - Before the first normal printing line is printed, the microcode will insert the "ILLEGAL RECEIPT" (msg. 92) in CR or SJ station.
 - The "ILLEGAL RECEIPT" (msg. 92) is inserted every three (3) normal printing lines.
 - A normal printing line in CR or SJ station is preceded by "ILLEGAL RECEIPT" (msg. 92), if previous normal printing lines were addressed (and executed successfully) to DI station.
 - Normal printing lines in SJ station are replicated in CR station.
 - Inside a non-fiscal report.
 - Before the first normal printing line is printed, the microcode will insert the "ILLEGAL RECEIPT" (92 msg.).
 - The "ILLEGAL RECEIPT" (92 msg.) line in CR or SJ station is inserted every 3 normal printing lines.
 - The normal printing line in CR station is replicated to SJ station.
 - The normal printing line in SJ station is replicated to CR station.

13.36 EB - NORMAL PRINTING LINE IN DI STATION

This command is used to print lines in DI station.

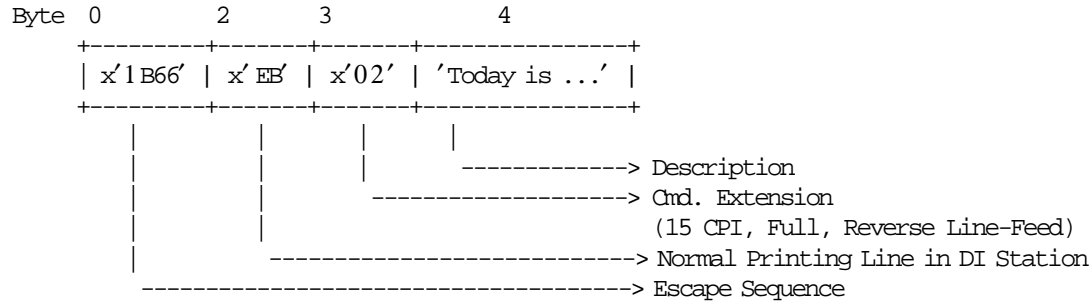
13.36.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		EB - Normal Printing Line in DI Station	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = 15 CPI Double-High		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = 15 CPI Double-High, Emphasized		
2-0		Stat. and Doc. Line-Feed Direction		
		000 = Reserved		
		001 = Reserved		
		010 = Landscape		(Note 1, 2)
		011 = Portrait - Reverse Line-Feed		
		100 = Reserved		
		101 = Landscape		(Note 1, 2)
		110 = Portrait - Forward Line-Feed		
		111 = Reserved		
4-89		Description	ASCII	86 (Note 3, 4)

Notes:

1. The emphasized option is ignored during landscape orientation print.
2. The print lines sent are from bottom-of-form to the top-of-form.
3. Description field will be truncated as follows:
 - Portrait orientation at 15 CPI to 47 characters.
 - Portrait orientation at 12 CPI to 37 characters.
 - Landscape orientation at 15 CPI to 86 characters.
 - Landscape orientation at 12 CPI to 86 characters.
4. Number of line feed is always set to 1.

13.36.2 Command Example



13.36.3 Normal Printing Line in DI Station Rules

- **Outside any document**
 - The "ILLEGAL RECEIPT" (92 msg.) is inserted every every 5 normal print lines.
 - A normal printing line is preceded by "ILLEGAL RECEIPT" (92 msg.), if previous normal printing lines were addressed (and executed successfully) to CR or SJ station.
- **Inside a non-fiscal report**
 - Before the first normal print line, the microcode will insert the "ILLEGAL RECEIPT" (92 msg.).
 - The "ILLEGAL RECEIPT" (92 msg.) is inserted every 5 normal printing lines.
- **Inside a sale transaction (fiscal voucher)**
 - Normal printing lines are allowed in the PAYMENT phase only.

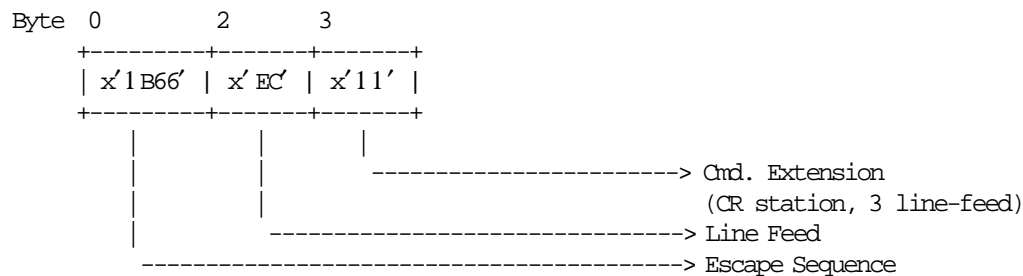
13.37 EC - LINE FEED

This command is used to feed the paper a specified number of lines on one of the printer stations.

13.37.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		EC - Line Feed	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-4		Station		
		00 = CR		
		01 = SJ		
		10 = DI Portrait - Forward		
		11 = DI Portrait - Reverse		
3-0		Number of Line-Feed (min 0, max 15)		

13.37.2 Command Example



13.37.3 Line Feed Rules

- Line Feed in DI station is processed inserting the line "ILLEGAL RECEIPT" (92 msg.) every 29 consecutive line feeds.

13.38 ED - READY DOCUMENT

This command is used to request the printer to advance the inserted document to the first print position.

13.38.1 Command Format

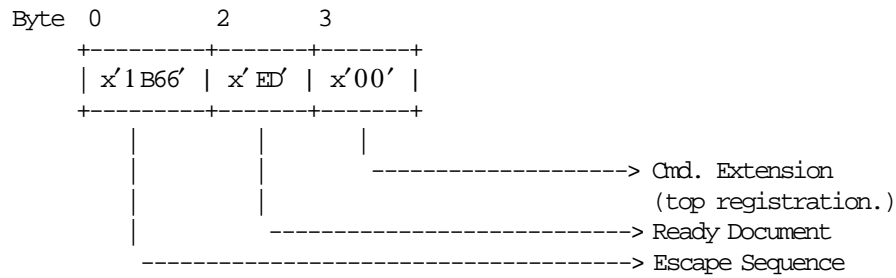
BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - command prefix	hex	2
2		ED - Ready Document	hex	1
3		Cmd. Extension	hex	1
7-1		Reserved (always = '0')		
0		Document Registration		
		0 = Top		
		1 = Bottom		

(Note 1)

Notes:

1. The bottom margin is greater than 3F bottom margin.

13.38.2 Command Example



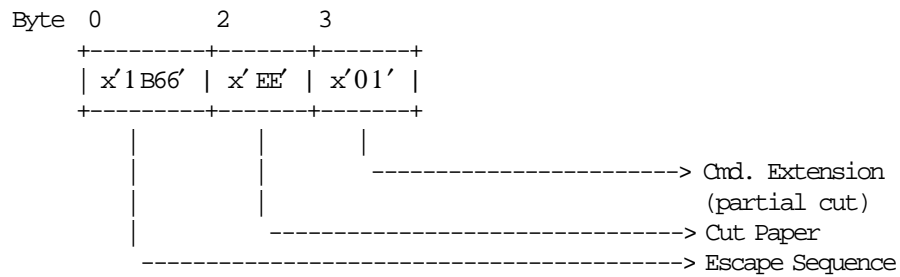
13.39 EE - CUT CUSTOMER RECEIPT

This command is used to do a partial cut of the customer receipt paper.

13.39.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - command prefix	hex	2
2		EE - Cut Paper	hex	1
3		Cmd. Extension	hex	1
	7-2	Reserved (always = '0')		
	1-0	Guillotine		
		00 = Partial Cut		
		01 = Partial Cut		

13.39.2 Command Example



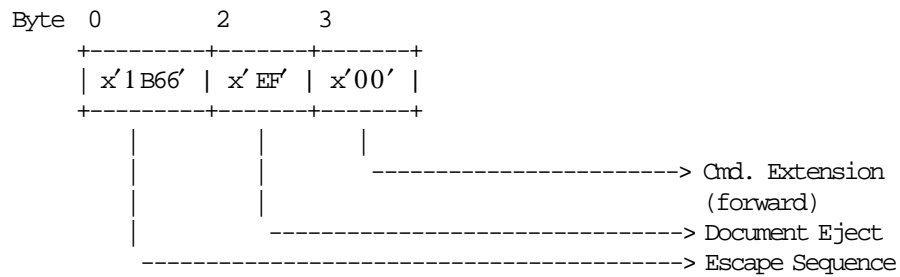
13.40 EF - DOCUMENT EJECT

This command is used to request the printer to line feed a document until EOF sensor is broken.

13.40.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - command prefix	hex	2
2		EF - Document Eject	hex	1
3		Cmd. Extension	hex	1
7-1		Reserved (always = '0')		
0		Station & Line-Feed Direction		
		0 = DI Portrait - Forward		
		1 = DI Portrait - Reverse		

13.40.2 Command Example



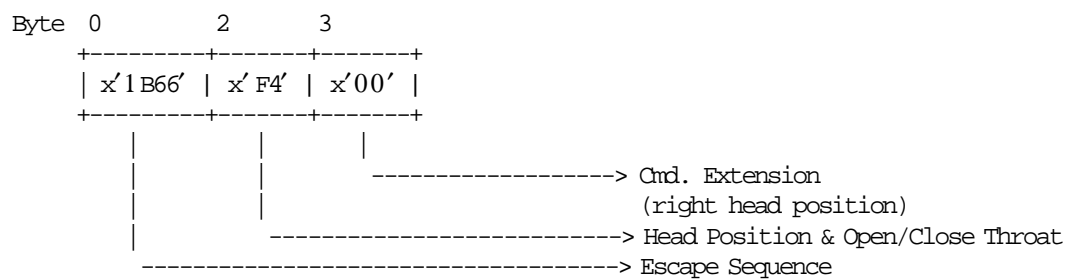
13.42 F4 - HEAD POSITION & OPEN/CLOSE THROAT

This command requests the printer to return the print head to right or left position and open or close the throat.

13.42.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		F4 - Head Position & Open/Close Throat	hex	1
3		Cmd. Extension	hex	1
7-2		Reserved (always = '0')		
1-0		Head Position & Throat		
		00 (00) = Right Head Position		
		01 (01) = Left Head Position		
		10 (02) = Open Throat		
		11 (03) = Close Throat		

13.42.2 Command Example



13.43 F7 - COMMAND BUFFER MANAGEMENT

This command is used to retrieve the last command issued of the command buffer.

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	F7 - Command Buffer Management	hex	1
3	Cmd. Extension	hex	1
	00 = Retrieve Last Command		
	01 = Retrieve Previous Command		
	02 = Clear Command Buffer		

Response for Command Buffer Management will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9-128		Additional Information	hex	120 (Note 1)
	15-128	Additional Information	hex	114 (Note 1)

Notes:

1. See response for the Additional Information.

Response for Additional Information will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
9	15	Type	hex	1 (Note 1)
10	16	Command Data Length	hex	1 (Note 2)
11	17	Additional Data Length	hex	1 (Note 3 on page 169)
12	18	Command	hex	1
		Command Extension	hex	n0
		Command Data	hex	n1
		Additional Data	hex	n2 (Note 4 on page 169)
		Fiscal Unit Status Executed Command	hex	n3 (Note 5 on page 169)

Notes:

1. Type:
 - 0xFF = command retrieved
 - 0xFE = there was a new command between F700 and F701
 - 0x00 = no commands found
2. Command Data Length = 1 byte + n0 bytes + n1 bytes

where:

- Command = 1 byte
- Command Extension = n0 bytes
- Command Data = n1 bytes

3. Additional Data Length is n2 bytes

where:

- Command Response = n2 bytes
- n2 = 129 - (Type + Command + Command Extension + Command Data + Fiscal Unit Status)

4. The Additional Data of the Executed Command is shown in the remaining bytes (n2) of the Additional Information Response.

If the Additional Data of the Executed Command length is greater than the remaining bytes (n2) of the Additional Information Response the Additional is truncated.

5. Fiscal Unit Status Executed Command (buffering command) length is n3

where:

- RS-485 = 9 bytes
- USB = 15 bytes

13.43.1.1 Example: Command Buffer Management - Additional Information Response

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
FF	10	5F	FF	11	30	35	30	30	43	30	35	30	39	30	34
39	31	36	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
FF	FF	08	4F	00	0A	20	07	28	00	00	80	02	01	0B	43
00															

13.43.1.2 Command Buffer Management Rules

- The Command Buffer size is 2 Kb (2048 bytes).
- When a command is executed, this command is stored in the Command Buffer (except the F7 cmd.).
- If the Command Buffer is full the oldest command is removed of the Command Buffer.
- If a PLD occurs during the command execution, the interrupted command is stored in the Command Buffer and the Fiscal Unit Status of the executed command is equal to zero.

13.44 F8 - REPORT PRINTER EC

This command is used to retrieve the printer EC.

13.44.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - command prefix	hex	2
2		F8 - Report Printer EC	hex	1
3		Cmd. Extension	hex	1
		00 (00) = Fiscal Unit		
		01 (01) = Fiscal Device Information		
		10 (02) = Printer Device Information		

Response to the Fiscal Unit:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	USB			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15

Response to the Fiscal Device Information:

```

-----

```

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH
RS-485	USB				
0-5			PRINTER STATUS	hex	6
	0-7		PRINTER STATUS	hex	8
6	8		FISCAL STATUS & DEVICE INFO	hex	1
	7-1		Fiscal Status		
	0		(For RS-485) Fiscal/Printer Device Info		
			0 = Fiscal Device Info is NOT contained in this message		
			1 = Fiscal or Printer Device Info IS contained in this message		
	0		(For USB) Reserved		
7			COUNTRY VERSION - COUNTRY CODE	hex	1
	9		ADDITIONAL STATUS	hex	1
	7		Device Information Response		
			0 = NO		
			1 = YES		
	6-0		Reserved		
	10		COUNTRY CODE	hex	1
	11		COUNTRY VERSION	hex	1
	12		COUNTRY EC LEVEL	hex	1
8	13		FISCAL RETURN CODE	hex	1
	14		FISCAL RETURN CODE	hex	1
9	15		DEVICE TYPE	hex	1
			0x31 = Fiscal Printer		
10	16		DEVICE ID	hex	1
			0x00 = fiscal 2 stations thermal/impact (K --> Jacare)		
			0x01 = fiscal 3 stations thermal/impact (G --> Macarena)		
			0x02 - 0xFF = Reserved		
11	17		FEATURE BYTE #1	hex	1
	7-4		Reserved (always = '0')		
	3		Reference Data Base Present		
			0 = NOT		
			1 = YES		
	2		Microcode Flash Can be Updated		
			0 = NO		
			1 = YES		
	1		Compact Flash Present		
			0 = NO		
			1 = YES		
	0		Fiscal Memory Size		
			0 = 512 KB		
			1 = 256 KB		
12	18		RESERVED (always '0x00')	hex	1
13	19		FISCAL EC LEVEL	hex	1

```

-----

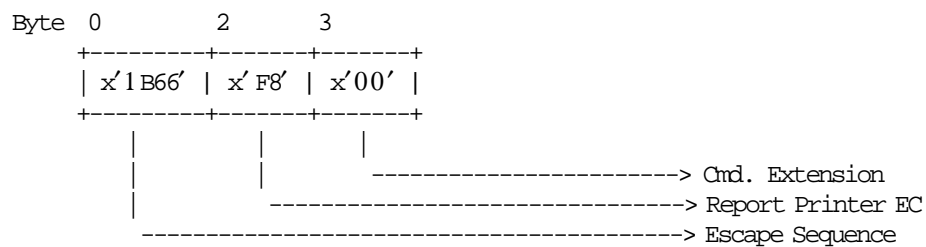
```

(Continued in the next page)

Response to the Printer Device Information:

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH
RS-485	USB				
0-5			PRINTER STATUS	hex	6
	0-7		PRINTER STATUS	hex	8
6	8		FISCAL STATUS & DEVICE INFO	hex	1
	7-1		Fiscal Status		
	0		(For RS-485) Fiscal/Printer Device Info		
			0 = Fiscal Device Info is NOT contained in this message		
			1 = Fiscal or Printer Device Info IS contained in this message		
	0		(For USB) Reserved		
7			COUNTRY VERSION - COUNTRY CODE	hex	1
	9		ADDITIONAL STATUS	hex	1
	7		Device Information Response		
			0 = NO		
			1 = YES		
	6-0		Reserved		
	10		COUNTRY CODE	hex	1
	11		COUNTRY VERSION	hex	1
	12		COUNTRY EC LEVEL	hex	1
8	13		FISCAL RETURN CODE	hex	1
	14		FISCAL RETURN CODE	hex	1
9-13	15-19		DEVICE INFO BYTES (exactly as received from the printer microcode - See SureMark User Guide Extended Address Command)	hex	5

13.44.2 Command Example



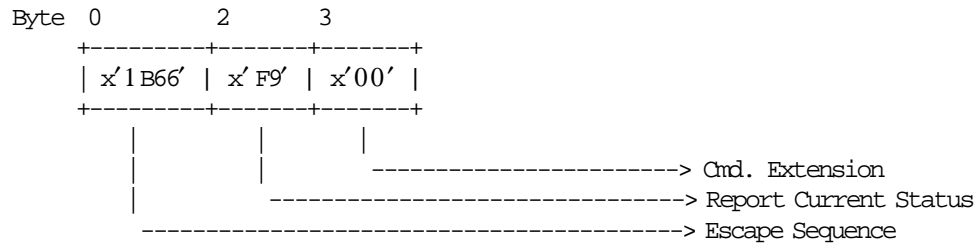
13.45 F9 - REPORT CURRENT STATUS

This command is used to requests the fiscal unit to report its current status.

13.45.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - command prefix	hex	2
2		F9 - Report Current Status	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

13.45.2 Command Example



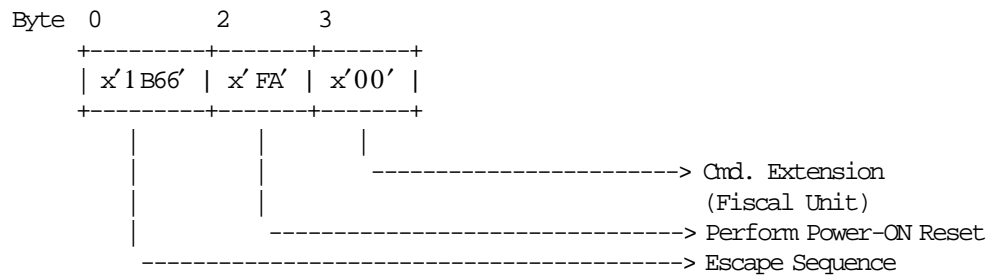
13.46 FA - PERFORM POWER-ON RESET

This command is used to reset the fiscal unit and fiscal printer.

13.46.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - command prefix	hex	2
2		FA - Perform Power-ON Reset	hex	1
3		Cmd. Extension	hex	1
7-1		Reserved (always = '0')		
0		Hardware		
		0 = Fiscal Unit		
		1 = Fiscal Printer		

13.46.2 Command Example



13.47 FB - RUN ONLINE DIAGNOSTICS

This command is used to run the print diagnostics.

13.47.1 Command format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		FB - Run Online Diagnostics	hex	1
3		Cmd. Extension	hex	1
7-2		Reserved (always = '0')		
1-0		Unit		
		01 = Fiscal Unit		
		10 = Fiscal Printer		
		11 = Both		

13.47.2 Command Example

```
Byte 0      2      3
+-----+-----+-----+
| x'1B66' | x'FB' | x'01' |
+-----+-----+-----+
          |         |         |
          |         |         |-----> Cmd. Extension (Fiscal Unit)
          |         |         |-----> Run Online Diagnostics
          |         |         |-----> Escape Sequence
```

14.0 FISCAL UNIT RETURN CODES

The following descriptions define the meaning of fiscal unit return codes reported in byte 8 of Fiscal Unit status.

000 => DOS/WINDOWS 80900100 => 4690 OS

Explanation: An overflow occurred. The transaction gross total or one of the five transaction VAT gross total exceeds the maximum allowed value (2147483647) on an Item fiscal request. The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

001 => DOS/WINDOWS 80900101 => 4690 OS

Explanation: An overflow occurred. The transaction return total exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

002 => DOS/WINDOWS 80900102 => 4690 OS

Explanation: An overflow occurred. The transaction void total exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

004 => DOS/WINDOWS 80900104 => 4690 OS

Explanation: An overflow occurred. The transaction discount total exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

006 => DOS/WINDOWS 80900106 => 4690 OS

Explanation: An overflow occurred. The transaction uplift total exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

008 => DOS/WINDOWS 80900108 => 4690 OS

Explanation: An underflow occurred. The transaction total or one of the five transaction VAT gross total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Cancel the transaction, or make the total greater than the minimum allowed value.

009 => DOS/WINDOWS 80900109 => 4690 OS

Explanation: An underflow occurred. The transaction return total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

010 => DOS/WINDOWS 80900110 => 4690 OS

Explanation: An underflow occurred. The transaction void total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

012 => DOS/WINDOWS 80900112 => 4690 OS

Explanation: An underflow occurred. The transaction discount total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

014 => DOS/WINDOWS 80900114 => 4690 OS

Explanation: An underflow occurred. The transaction uplift total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Issue a total command and an end transaction command to close the voucher.

016 => DOS/WINDOWS 80900116 => 4690 OS

Explanation: An overflow occurred. The daily gross total or one of the five daily VAT gross total exceeds the maximum allowed value (4294967295) at total request time. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

017 => DOS/WINDOWS 80900117 => 4690 OS

Explanation: An overflow occurred. The daily return total exceeded the maximum allowed value (2147483647) at end transaction time. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, then close the transaction or issue a cancel transaction command, and then issue a closure request.

018 => DOS/WINDOWS 80900118 => 4690 OS

Explanation: An overflow occurred. The daily void total exceeded the maximum allowed value (2147483647) at end transaction time. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

020 => DOS/WINDOWS 80900120 => 4690 OS

Explanation: An overflow occurred. The daily discount total exceeded the maximum allowed value (2147483647) at end transaction time. The request is not processed.

User Response: Make the total lesser than or equal to the maximum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

022 => DOS/WINDOWS 80900122 => 4690 OS

Explanation: An overflow occurred. The daily uplift total exceeded the maximum allowed value (2147483647) at end transaction time. The request is not processed.

User Response: Make the total lesser than or equal to the maximum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

024 => DOS/WINDOWS 80900124 => 4690 OS

Explanation: The user total amount is not equal to the fiscal total amount. The values associated with the total request do not reflect the totals stored in the fiscal memory. The request is not processed.

User Response: Correct the computation procedure of the total, and then close the transaction or issue a cancel transaction command.

025 => DOS/WINDOWS 80900125 => 4690 OS

Explanation: The fiscal unit serial number found in message. The request is not processed.

User Response: Issue a new request without using the fiscal unit serial number.

026 => DOS/WINDOWS 80900126 => 4690 OS

Explanation: An underflow occurred. The transaction total or one of the five transaction VAT total was negative at total time. The request is not processed.

User Response: Make the amount positive or equal to zero and then close the transaction or issue a cancel transaction command.

027 => DOS/WINDOWS 8090061B => 4690 OS

Explanation: An overflow occurred. The transaction discount on subtotal exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Make the amount less than the maximum value, and then close the transaction or issue a cancel transaction command.

028 => DOS/WINDOWS 8090061C => 4690 OS

Explanation: An overflow occurred. The transaction uplift on subtotal exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Make the amount less than the maximum value, and then close the transaction or issue a cancel transaction command.

029 => DOS/WINDOWS 80900129 => 4690 OS

Explanation: An underflow occurred. The payment total was less than the amount to be cashed. The request is not processed.

User Response: Correct the computation procedure of payment or issue a payment command to complete processing.

033 => DOS/WINDOWS 80900141 => 4690 OS

Explanation: An underflow occurred. The daily return total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

034 => DOS/WINDOWS 80900142 => 4690 OS

Explanation: An underflow occurred. The daily void total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

036 => DOS/WINDOWS 80900144 => 4690 OS

Explanation: An underflow occurred. The daily discount total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

038 => DOS/WINDOWS 80900146 => 4690 OS

Explanation: An underflow occurred. The daily uplift total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, then close the transaction or issue a cancel transaction command, and then issue a closure request.

039 => DOS/WINDOWS 80900627 => 4690 OS

Explanation: An overflow occurred (internal error). The request is not processed.

User Response: Please, report the problem indicating this return code.

040 => DOS/WINDOWS 80900628 => 4690 OS

Explanation: The VAT category field is not blank while the amount is blank in a item sale transaction. The request is not processed.

User Response: Correct the application program.

041 => DOS/WINDOWS 80900629 => 4690 OS

Explanation: The current VAT rate table is not verified. The request is not processed.

User Response: Check the application program. The program must issue a compare VAT table command before further operations can be processed.

042 => DOS/WINDOWS 8090062A => 4690 OS

Explanation: There is a VAT rate table mismatch. The request is not processed.

User Response: Correct the application VAT table and reissue the command.

043 => DOS/WINDOWS 8090062B => 4690 OS

Explanation: The VAT rate table or header table in fiscal memory is full. The request is not processed.

User Response: Call for service. The fiscal base unit must be replaced to load news VAT rates or headers.

044 => DOS/WINDOWS 8090062C => 4690 OS

Explanation: The VAT category specified in item sale transaction is not valid. The request is not processed.

User Response: Correct the application program.

048 => DOS/WINDOWS 80900630 => 4690 OS

Explanation: An overflow occurred. The daily discount on subtotal exceeded the maximum allowed value (2147483647) at end transaction time. The request is not processed.

User Response: Make the total lesser than or equal to the maximum allowed value, then close the transaction or issue a Cancel command, and then issue a Closure request.

049 => DOS/WINDOWS 80900631 => 4690 OS

Explanation: An overflow occurred. The daily uplift on subtotal exceeds maximum allowed value (2147483647). The request is not processed.

User Response: Make the total lesser than or equal to the maximum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

050 => DOS/WINDOWS 80900632 => 4690 OS

Explanation: An underflow occurred. The daily discount on subtotal is less than the minimum allowed value (-2147483647). The request is not processed.

User Response: Make the total greater than the minimum allowed value, then close the transaction or issue a cancel transaction command and then issue a closure request.

051 => DOS/WINDOWS 80900633 => 4690 OS

Explanation: An overflow occurred. The daily uplift on subtotal exceeds maximum allowed value (2147483647). The request is not processed.

User Response: Make the total lesser than or equal to the maximum allowed value, the close the transaction or issue a cancel transaction command and then issue a closure request.

052 => DOS/WINDOWS 80900634 => 4690 OS

Explanation: The uplift and discount on subtotal commands are not allowed when the transaction total is equal to zero.

User Response: Adjust the transaction total or cancel the transaction.

054 => DOS/WINDOWS 80900636 => 4690 OS

Explanation: Set date command attempted without J4/CE jumper operation since last set. The request is not processed.

User Response: J4/CE jumpering must be performed before the set date and time (16 cmd.) is issued.

055 => DOS/WINDOWS 80900203 => 4690 OS

Explanation: The fiscal request message length is less than the minimum required. The request is not processed.

User Response: Check the application program.

056 => DOS/WINDOWS 80900150 => 4690 OS

Explanation: An overflow occurred. The daily cancel total exceeded the maximum allowed value (2147483647) at cancel transaction time. The request is not processed.

User Response: Make the total lesser than or equal to the maximum allowed value, then issue a cancel transaction command and then issue a closure request.

057 => DOS/WINDOWS 80900151 => 4690 OS

Explanation: An underflow occurred. The daily cancel total is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, then issue a cancel transaction command and then issue a closure request.

058 => DOS/WINDOWS 8090063A => 4690 OS

Explanation: An overflow occurred. The amount due accumulator exceeds the maximum allowed value (2147483647). The request is not processed.

User Response: Correct the payment amount and issue the request again.

059 => DOS/WINDOWS 8090063B => 4690 OS

Explanation: An underflow occurred. The amount due accumulator is less than the minimum allowed value (-2147483648). The request is not processed.

User Response: Correct the payment amount and issue the request again.

060 => DOS/WINDOWS 8090063C => 4690 OS

Explanation: An underflow occurred (internal error). The request is not processed.

User Response: Please, report the problem indicating this return code.

061 => DOS/WINDOWS 8090063D => 4690 OS

Explanation: The current date/time is previous to the FDTS set during a close sale period or print header table corrupted.

During close sale period: when 13 cmd. is issued, the FDTS is updated with the current date/time value, but if the current date/time is previous to the FDTS stored in RAM memory, the error 061 is returned.

During print header: when the 01 cmd. is issued, the FDTS is updated with the current date/time value, but if the current date/time is previous to the FDTS stored in RAM memory, the error 061 is returned.

The request is not processed.

User Response: Reset the printer using the J4/CE jumper and reinitialize setting date/time equal or greater to the FDTS.

062 => DOS/WINDOWS 8090063E => 4690 OS

Explanation: Fiscal RAM is in error.

User Response: Service the printer.

064 => DOS/WINDOWS 80900127 => 4690 OS

Explanation: An overflow occurred. The specified value-received amount from the application program exceeds the maximum amount allowed. The request is not processed.

User Response: Retry the operation with a correct value.

065 => DOS/WINDOWS 80900201 => 4690 OS

Explanation: A request has been sent to the fiscal unit and the fiscal command byte cannot be recognized. The request is not processed.

User Response: Check the application program.

066 => DOS/WINDOWS 80900202 => 4690 OS

Explanation: A request has been sent to the fiscal unit and the fiscal command byte extension cannot be recognized. The request is not processed.

User Response: Check the application program.

067 => DOS/WINDOWS 80900643 => 4690 OS

Explanation: The command was processed successfully. No error.

User Response: No action is required.

Q 069 => DOS/WINDOWS 80900205 => 4690 OS

Q Explanation: An attempt was made to print a comment line on the CR station without the correct payment Q phase in progress.

Q User Response: Correct the application program.

070 => DOS/WINDOWS 80900646 => 4690 OS

Explanation: The date and time set with 16 cmd. is previous to the FDTS stored in RAM memory. The request is not processed.

User Response: Issue the 16 cmd. again with date and time later to the FDTS.

071 => DOS/WINDOWS 80900302 => 4690 OS

Explanation: An error occurred while printing on a customer receipt. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

073 => DOS/WINDOWS 80900303 => 4690 OS

Explanation: An error occurred while printing on an inserted document. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

076 => DOS/WINDOWS 80900210 => 4690 OS

Explanation: An attempt was made to print a line on a nonexistent print station. The request is not processed.

User Response: Check the application program.

078 => DOS/WINDOWS 80900304 => 4690 OS

Explanation: An error occurred while printing on the SJ station. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

080 => DOS/WINDOWS 80900213 => 4690 OS

Explanation: An attempt to print PEStA (Change Due) or ApOdEIjH (Receipt) or '%' as the last non-blank character has been detected. The request is not processed.

User Response: Check the application program.

081 => DOS/WINDOWS 80900651 => 4690 OS

Explanation: The print mode specified is not valid. The request is not processed.

User Response: Specify a valid print mode.

082 => DOS/WINDOWS 80900306 => 4690 OS

Explanation: A request to print in CR, SJ or DI was made without the correct non-fiscal report mode selected. The request is not processed.

User Response: Check the application program sequence.

083 => DOS/WINDOWS 80900307 => 4690 OS

Explanation: An unrecoverable error occurred reading the fiscal memory identification/status area.

User Response: Issue the command again. If the problem persists, service the printer.

086 => DOS/WINDOWS 80900401 => 4690 OS

Explanation: The password entered is not valid. The request is not processed.

User Response: Re-enter using the correct password.

Note: Only authorized service personnel can perform functions that require a password.

087 => DOS/WINDOWS 80900657 => 4690 OS

Explanation: The printer command issued is not valid. The request is not processed.

User Response: Issue a valid printer command.

089 => DOS/WINDOWS 80900312 => 4690 OS

Explanation: Daily Entry Table (stored in fiscal memory) is full. All fiscal requests are rejected except the fiscal memory report function.

User Response: Call for service. The fiscal base unit must be replaced to load news daily entries.

090 => DOS/WINDOWS 8090065A => 4690 OS

Explanation: The requested closure was not found in the fiscal memory. The request is not processed.

User Response: Specify a valid closure number or valid dates for the fiscal memory report function.

091 => DOS/WINDOWS 80900314 => 4690 OS

Explanation: An error occurred while printing the end of a start-up message.

User Response: Service the printer.

094 => DOS/WINDOWS 80900317 => 4690 OS

Explanation: The comment lines inside a fiscal voucher exceed the maximum allowed (6). The request is not processed.

User Response: Correct the application program sequence.

095 => DOS/WINDOWS 80900425 => 4690 OS

Explanation: The address or length data is not valid. The requested address range is not valid or wrong in the dump fiscal RAM and fiscal memory command. The request is not processed.

User Response: Correct the input data and reissue the command.

096 => DOS/WINDOWS 80900140 => 4690 OS

Explanation: A numeric field contains characters that are not valid. The request is not processed.

User Response: Correct the value and reissue the command.

098 => DOS/WINDOWS 80900411 => 4690 OS

Explanation: Fiscal RAM restored.

User Response: Put the J4/CE jumper in OFF (STORED) position to restore normal operation.

Note: Only authorized service personnel can move the J4/CE jumper.

099 => DOS/WINDOWS 80900318 => 4690 OS

Explanation: The maximum number of repair actions have been reached.

User Response: Exchange the fiscal printer at the next failure occurrence.

100 => DOS/WINDOWS 80900329 => 4690 OS

Explanation: An error occurred while reading from the fiscal memory. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

101 => DOS/WINDOWS 80900326 => 4690 OS

Explanation: An unrecoverable error occurred when writing to fiscal memory. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

102 => DOS/WINDOWS 80900327 => 4690 OS

Explanation: Command 'C4' attempted more than once with the same extension or 'C402' with display address already set. The request is not processed.

User Response: Reset the printer using the J4/CE jumper and reinitialize.

103 => DOS/WINDOWS 80900421 => 4690 OS

Explanation: The data is not valid. The requested data or number is out of range. The request is not processed.

User Response: Correct the input data.

104 => DOS/WINDOWS 80900422 => 4690 OS

Explanation: The current date/time is previous to the FDTS set during a load VAT rate table. When 20 cmd. is issued, the FDTS is updated with the current date/time value, but if the current date/time is previous to the FDTS stored in RAM memory, the error 104 is returned. The request is not processed.

User Response: Issue the 16 cmd. (set date and time) with date and time greater than FDTS stored in RAM memory.

105 = DOS/WINDOWS 80900361 = 4690 OS

Explanation: The barcode size is invalid OR the graphic size is invalid. The width is greater than 62 (0x3E) or the height is greater than 21 (0x15). The request is not processed.

User Response: Correct the barcode size and issue the command again OR correct the graphic size and issue the CA cmd. (cmd. extension 02) again.

106 = DOS/WINDOWS 80900363 = 4690 OS

Explanation: The barcode data must be null terminated. The request is not processed.

User Response: Correct the barcode data and issue the command again.

109 => DOS/WINDOWS 80900324 => 4690 OS

Explanation: Fiscal memory is not connected. The fiscal unit cannot restart processing.

User Response: Service the printer.

When servicing, first check to ensure the cable connections on the fiscal processor card are correct.

112 => DOS/WINDOWS 80900670 => 4690 OS

Explanation: The fiscal printer was reset.

User Response: No action is required.

113 => DOS/WINDOWS 80900341 => 4690 OS

Explanation: An unrecoverable printer error occurred after two power-on resets.

User Response: Turn the power OFF and then ON again. If the problem persists, service the printer.

114 => DOS/WINDOWS 80900363 => 4690 OS

Explanation: A printer communication error occurred.

User Response: Issue the command again. If the problem persists, service the printer.

119 = DOS/WINDOWS 80900677 = 4690 OS

Explanation: Invalid Sequence. This command can only be sent inside a download graphics command set.

User Response: Issue the FA cmd. (cmd. extension 01) and then restart the print or download sequence.

120 => DOS/WINDOWS 80900678 => 4690 OS

Explanation: A printer card time-out occurred while executing a command.

User Response: Turn the power OFF and then ON again. If the problem persists, service the printer.

121 => DOS/WINDOWS 80900679 => 4690 OS

Explanation: A printer card time-out occurred while executing a command.

User Response: Turn the power OFF and then ON again. If the problem persists, service the printer.

123 = DOS/WINDOWS 8090067B = 4690 OS

Explanation: Invalid Size. The width is greater than 72 (0x48) or height is greater than 25 (0x19).

User Response: Correct the value and issue the CA cmd. (cmd. extension 02) again.

124 = DOS/WINDOWS 8090067C = 4690 OS

Explanation: Graphic with same number already in printer flash. The user attempted to download a graphic using a number already in printer flash.

User Response: Correct the graphic number or erase all graphics from printer flash using the CA cmd. (cmd. extension 10) and then issue the CA cmd. (cmd. extension 02) again.

125 => DOS/WINDOWS 80900317 => 4690 OS

Explanation: An EPROM load error occurred on the printer logic card. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

126 = DOS/WINDOWS 8090067E => 4690 OS

Explanation: Graphic not downloaded yet.

User Response: Download graphic with CA cmd. (cmd. extension 02) before using the CA cmd. (cmd. extension 11 or 12).

128 => DOS/WINDOWS 80900320 => 4690 OS

Explanation: Fiscal memory is not yet initialized. The requested command cannot be executed.

User Response: Issue the command again. If the problem persists, service the printer.

129 => DOS/WINDOWS 80900321 => 4690 OS

Explanation: Unit is not yet in fiscal mode state. The requested command cannot be executed.

User Response: Issue the command again. If the problem persists, service the printer.

131 => DOS/WINDOWS 80900323 => 4690 OS

Explanation: A problem has been detected in a display.

No fiscal commands can be executed.

There must be two displays configured.

They must be a combination of the following:

- Alphanumeric, operator display or integrated keyboard display.
- Shopper display.

User Response: Follow the maintenance manual procedures to set the configuration correctly.

If problem persists, service the POS terminal.

134 => DOS/WINDOWS 80900325 => 4690 OS

Explanation: The fiscal unit detected an internal hardware error. The requested command cannot be executed.

User Response: Run the printer test to determine the cause of the problem.

136 => DOS/WINDOWS 80900221 => 4690 OS

Explanation: Voucher related command was issued while a voucher transaction was not in progress. The request is not processed.

User Response: Correct the application program sequence.

140 => DOS/WINDOWS 80900225 => 4690 OS

Explanation: A voucher related command was issued before printing of the voucher header. The requested command cannot be executed.

User Response: Correct the application program sequence.

141 => DOS/WINDOWS 80900226 => 4690 OS

Explanation: A payment command or end transaction command was issued before a total command. The requested command cannot be executed.

User Response: Correct the application program sequence.

142 => DOS/WINDOWS 80900227 => 4690 OS

Explanation: Transaction payment procedure not in progress. The requested command cannot be executed.

User Response: Correct the application program sequence.

144 => DOS/WINDOWS 80900229 => 4690 OS

Explanation: A print header cmd. was issued and a header had not yet been set or set header cmd. was issued and all description lines are blank. The request is not processed.

User Response: Correct the application program sequence.

145 => DOS/WINDOWS 80900691 => 4690 OS

Explanation: The command is not accepted when the J4/CE jumper is not active. The request is not processed.

User Response: Activate the J4/CE jumper and try issuing the command again.

146 => DOS/WINDOWS 80900231 => 4690

Explanation: Mismatch between RAM fiscalization flag and EPROM mark. The request is not processed.

User Response: Insert the J4/CE jumper and reinitialize the printer.

If the problem persists, service the printer.

158 => DOS/WINDOWS 8090069E => 4690 OS

Explanation: Date not yet set by application. The request is not processed.

User Response: Correct the application program sequence.

160 => DOS/WINDOWS 80900330 => 4690 OS

Explanation: Fiscal memory already serialized. The requested command cannot be executed.

User Response: No action is required.

161 => DOS/WINDOWS 80900331 => 4690 OS

Explanation: The unit is already in fiscal mode. The requested command cannot be executed.

User Response: No action is required.

164 => DOS/WINDOWS 80900350 => 4690 OS

Explanation: The IPL is in process.

User Response: No action is required.

167 => DOS/WINDOWS 80900230 => 4690 OS

Explanation: The requested command cannot be issued while a sales period is in progress. A closure request must be performed first. The request is not processed.

User Response: Issue the command again when the sales period is not in progress.

168 => DOS/WINDOWS 80900231 => 4690 OS

Explanation: A command not related to a fiscal voucher was issued while a fiscal voucher transaction was in progress. The request is not processed.

User Response: Issue the command again when the fiscal voucher is completed.

If this error was encountered during the online printer diagnostic test, it indicates that the test cannot be completed because a sale transaction is in progress.

Either have the salesperson end the transaction, or diagnose the printer problem using the offline printer test that is invoked by pressing the keys on the printer in the correct sequence.

169 => DOS/WINDOWS 80900232 => 4690 OS

Explanation: The maximum number of printer disconnections have been reached. The request is not processed.

User Response: Exchange the fiscal printer at the next printer disconnection occurrence.

172 => DOS/WINDOWS 80900235 => 4690 OS

Explanation: Only a voucher related command can be accepted after a voucher header is printed. The request is not processed.

User Response: Check the application program.

173 => DOS/WINDOWS 80900236 => 4690 OS

Explanation: Only cancel, payment, end, item, negitem, uplift and discount commands can follow a total request. The request is not processed.

User Response: Check the application program.

174 => DOS/WINDOWS 80900237 => 4690 OS

Explanation: A payment was in progress. The command that was issued cannot be executed.

User Response: Complete the Payment processing.

Q 176 => DOS/WINDOWS 80900239 => 4690 OS

Q Explanation: The payment phase is completed and printed. Cannot continue paying. The request is not processed.

Q User Response: Continue issued comment lines (optional) and/or end transaction or cancel transaction.

178 => DOS/WINDOWS 809006B2 => 4690 OS

Explanation: Fiscal EPROM is in error. EPROM serialized but pattern not found.

User Response: Issue the command again. If the problem persists, service the printer.

179 => DOS/WINDOWS 809006B3 => 4690 OS

Explanation: Fiscal RAM is in error. Return to the FB command.

User Response: Issue the command again. If the problem persists, service the printer.

182 => DOS/WINDOWS 809006B6 => 4690 OS

Explanation: An error occurred on an end transaction command. The request is not processed.

User Response: Reissue the end transaction command or issue a cancel transaction command.

If this error was encountered during the online printer diagnostic test, it indicates that the test cannot be completed because a sale transaction is in progress.

Either have the salesperson end the transaction, or diagnose the printer problem using the offline printer test that is invoked by pressing the keys on the printer in the correct sequence.

183 => DOS/WINDOWS 809006B7 => 4690 OS

Explanation: An error occurred on a cancel command. The request is not processed.

User Response: Reissue the cancel command. If this error was encountered during the online printer diagnostic test, it indicates that the test cannot be completed because a sale transaction is in progress.

Either have the salesperson end the transaction, or diagnose the printer problem using the offline printer test that is invoked by pressing the keys on the printer in the correct sequence.

184 => DOS/WINDOWS 809006B8 => 4690 OS

Explanation: The command sequence is not valid. A command was requested that is not allowed during a non-fiscal report. The request is not processed.

User Response: Check the application program sequence.

189 => DOS/WINDOWS 809006BD => 4690 OS

Explanation: Invalid value in the daily table pointer. The request is not processed.

User Response: Insert the J4/CE jumper and reinitialize the printer.

If the problem persists, service the printer.

192 => DOS/WINDOWS 80900524 => 4690 OS

Explanation: Command reject from printer logic card.

User Response: Check for device driver programming error.

194 => DOS/WINDOWS 80900521 => 4690 OS

Explanation: A print head home error occurred. The request is not processed.

User Response: Issue the command again. If the problem persists, service the printer.

200 => DOS/WINDOWS 8090070D => 4690 OS**ONLY VALID FOR 4610 USB**

Explanation: CR printer cover is open or CR out of paper occurred. The request is not processed.

User Response: Close the CR cover or ensure the CR paper is installed correctly. If the problem persists, service the printer.

201 => DOS/WINDOWS 80900528 => 4690 OS

ONLY VALID FOR 4610 RS-485

Explanation: CR, SJ or DI printer cover is open or CR out of paper occurred. The request is not processed.

User Response: Close the SJ, CR or DI cover or ensure the CR paper is installed correctly. If the problem persists, service the printer.

202 => DOS/WINDOWS 80900527 => 4690 OS

FOR 4610 SUREMARK GR3/GB4 (with DI station)

Explanation: The inserted document is not ready. The request is not processed.

User Response: Try removing the document and reinserting it. If the problem persists, service the printer.

FOR 4610 SUREMARK GR5/GB5 (without DI station)

Explanation: Invalid command. The request is not processed.

User Response: Correct the application program.

203 = DOS/WINDOWS 80900522 = 4690 OS

ONLY VALID FOR 4610 USB

Explanation: The DI printer cover is open. The request is not processed.

User Response: Close the DI printer cover.

If the cover is already closed, service the printer.

204 => DOS/WINDOWS 80900711 => 4690 OS

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

205 => DOS/WINDOWS 80900526 => 4690 OS

Explanation: A printer key is pressed. The request is not processed.

User Response: Release the pressed key.

If a key is not pressed, service the printer.

206 => DOS/WINDOWS 80900525 => 4690 OS

Explanation: SJ paper error occurred. The request is not processed.

User Response: Ensure the paper is installed correctly.

If the problem persists, service the printer.

208 => DOS/WINDOWS 809006D0 => 4690 OS

Explanation: Printer Error. The request is not processed.

User Response: Service the printer.

209 = DOS/WINDOWS 80900522 = 4690 OS

ONLY VALID FOR 4610 USB

Explanation: The SJ printer cover is open. The request is not processed.

User Response: Close the SJ printer cover.

If the cover is already closed, service the printer.

210 => DOS/WINDOWS 809006D2 => 4690 OS

Explanation: Printer DI throat is opened. The request is not processed.

User Response: Close the throat and issue the command print again.

214 => DOS/WINDOWS 80900527 => 4690 OS

Explanation: A feed paper error occurred. The request is not processed.

User Response: Ensure that the paper is inserted correctly.

235 => DOS/WINDOWS 809006EB => 4690 OS

Explanation: EPROM load error. The request is not processed.

User Response: Service the printer.

14.1 Return Code Conversion Table (4690 OS to DOS/WINDOWS)

The following table is for converting 4690 OS return codes into DOS/WINDOWS return codes. Find the DOS/WINDOWS return code under 14.0, "FISCAL UNIT RETURN CODES" on page 179.

Table 9 (Page 1 of 2). 4690 OS to DOS/WINDOWS
Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900100	000
80900101	001
80900102	002
80900104	004
80900106	006
80900108	008
80900109	009
80900110	010
80900112	012
80900114	014
80900116	016
80900117	017
80900118	018
80900120	020
80900122	022
80900124	024
80900125	025
80900126	026
80900127	064
80900129	029
80900140	096
80900141	033
80900142	034
80900144	036
80900146	038
80900150	056
80900151	057
80900201	065
80900202	066
80900203	055
80900205	069
80900210	076
80900221	136
80900225	140
80900226	141
80900227	142
80900229	144
80900230	167
80900231	168
80900232	169
80900235	172
80900236	173
80900237	174
80900238	175
80900302	071
80900303	073
80900304	078
80900213	080
80900306	082
80900307	083

Table 9 (Page 1 of 2). 4690 OS to DOS/WINDOWS
Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900312	089
80900314	091
80900317	094
80900318	099
80900320	128
80900321	129
80900323	131
80900324	109
80900325	134
80900326	101
80900327	102
80900329	100
80900330	160
80900331	161
80900332	162
80900341	113
80900350	164
80900401	086
80900411	098
80900421	103
80900422	104
80900425	095
80900521	194
80900522	203
80900524	192
80900525	206
80900526	205
80900527	202
80900527	214
80900528	201
8090061B	027
8090061C	028
80900627	039
80900628	040
80900629	041
8090062A	042
8090062B	043
8090062C	044
80900630	048
80900631	049
80900632	050
80900633	051
80900634	052
80900636	054
8090063A	058
8090063B	059
8090063C	060
8090063D	061
80900643	067
80900646	070

Table 9 (Page 2 of 2). 4690 OS to DOS/WINDOWS
Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900651	081
80900657	087
8090065A	090
80900670	112
80900677	119
80900678	120
80900679	121
8090067B	123
8090067C	124
8090067D	125
8090067E	126
80900691	145
80900692	146
8090069E	158
809006B2	178
809006B3	179
809006B6	182
809006B7	183
809006B8	184
809006D0	208
809006D1	209
809006D2	210
809006EB	235
8090070D	200
80900711	204

