IBM 4610 SureMark Fiscal Printer
Greece - Model KH5 - Fuel Station
Programming Guide Supplement
Version 2D 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.

Version	Date	Change Description
v2D 01	Jun 29, 2004	• Audit Port (Electronic Data Collection): replace in fourth daily entry record ″record type = constant D″ by ″record type = constant G″. • This version of Programming Guide Supplement corresponds to microcode EC level 2D.
v2C 01	Jun 25, 2004	• Audible Indication: was added. • Lifetime Accumulators: – Lif_VAT_A, Lif_VAT_B, Lif_VAT_C and Lif_VAT_E were removed. – Lif_VAT_R_A, Lif_VAT_R_B, Lif_VAT_R_C and Lif_VAT_R_E were created. – Lif_VAT_W_A, Lif_VAT_W_B, Lif_VAT_W_C and Lif_VAT_W_E were created. – Lif_Net_E was changed from 5 to 4 bytes. • Fiscal Memory: – fiscal memory map was changed. – daily entry table was changed. • Commands: – x13 cmd. (Close Sale Period) new calculations were added. – xDA cmd. (Electronic Read Fiscal Memory Tables) response for daily entry table was changed. – xDB cmd. (Electronic Read Accumulators and Counters) — retail lifetime accumulators - VAT totals by category were added. — wholesale lifetime accumulators - VAT totals by category were added. • Printouts: – closure report was changed. – fiscal memory report extended was changed. – fiscal memory report summary was changed. – fiscal memory report short was changed. • Audit Port (Electronic Data Collection) – first daily entry record (record type A) was changed. – fourth daily entry record (record type D) was added. • This version of Programming Guide Supplement corresponds to microcode EC level 2C.
v2B 01	Jun 2, 2004	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 2B.
v2A 01	May 27, 2004	• Msg. MA0: was changed. • 03 cmd. (Comment Line in CR Station): out of any document, the msg. 39 will be printed at the start of the printout and every six comment lines. • This version of Programming Guide Supplement corresponds to microcode EC level 2A.
v29 01	May 20, 2004	• Status Report Line Table: – byte 7 - bit 2: was changed to reserved. – byte 8 - bits 5 & 0: the description was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 29.
v28 01	May 13, 2004	• Fiscal Printer/Fiscal Base Disconnection: when a reconnection occurs, the J4/CE jumper procedure must be executed. • This version of Programming Guide Supplement corresponds to microcode EC level 28.
v27 01	Apr 27, 2004	• 07 cmd. (Cancel Transaction): was removed. • D3 cmd. (Negative/Positive Item Sale): was removed. • D9 cmd. (Uplift/Discount/Coupon on Subtotal): was removed. • Fiscal Printer/Fiscal Base Disconnection: was added. • Msg. 102 (CE Interventions): was added in Closure Report, X-Report, Fiscal Memory Report and Power-On Reports. • This version of Programming Guide Supplement corresponds to microcode EC level 27.
v26 01	Mar 2, 2004	• Cut Paper: after reprint the last fiscal voucher issued the paper is cut (in normal and off-line mode). • Cut Paper: after print the return code report the paper is cut only if the last fiscal voucher issued was printed previously (in off-line mode). • This version of Programming Guide Supplement corresponds to microcode EC level 26.

Version	Date	Change Description
v25 02	Feb 25, 2004	• Fiscal Memory Map: was changed. • VAT Rate Table: change number of entries from 224 to 50. • Fuel Type Table: was changed. • Daily Entry Table: was changed. • 23 cmd. (Set/Enable Fuel Type Table): was changed. • 0B cmd. (Fuel Types Report): was added. • D2 cmd. (Item Sale): was changed. • DA cmd. (Electronic Read Fiscal Memory Tables): command format, daily entry table response and fuel type table response were changed. • DB cmd. (Electronic Read Accumulators and Counters): command format, retail daily response, wholesale daily response, retail lifetime response, wholesale lifetime response and miscellaneous response were changed. • Msg. 183: was changed. • Msg. 185, 186, 187, 188, 189: were added. • Complete Fuel Types Report: was added. • Enable Fuel Types Report: was added. • X-Report printout: was changed. • Closure Report printout: was changed. • Fiscal Memory Report printouts: were changed. • Notify Report (Closure Report with total sale = 0): msg. 39 was added. • Notify Report (24 hours): msg. 39 was added. • Notify Report (48 hours): msg. 39 was added. • USB - Stand by Connected/Disconnected Report: msg. 39 was added. • Audit Port (Audit Command - Fuel Type by Id Number): was changed. • Audit Port (Audit Command - Fuel Type by Date): was removed. • Audit Port (Electronic Date Collection - Fuel Type Record): was changed. • Audit Port (Electronic Data Collection - First Daily Entry Record): was changed. • Audit Port (Errors by Data - Fiscal Memory Report by Date): FD (Fuel Type by Date): was removed. • Audit Port (Errors by Data - Fiscal Memory Report by Number): FD (Fuel Type by Number): was changed. • RC 116: was added. • RC 138: was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 25.
v24 01	Feb 18, 2004	• Reprint Last Fiscal Voucher: only the last ″legal″ fiscal voucher issued can be reprinted. • Msg′s 176 and 177: were replaced by msg. 39. • Fiscal Memory Reports: msg′s 128, 151 and 152 where added in ″TOTALS FOR PRINTING PERIOD″ section. • This version of Programming Guide Supplement corresponds to microcode EC level 24.
v23 01	Jan 30, 2004	• Msg′s 176, 177, 178, 179, 180, 181, 182, 183, 184, MA5, MA6, 0A5 and 0A6: were added. • Msg 35, 148, 149, 153 and 154: were changed. • Length of the lifetime accumulators ″Quantity of Liters for Fuel Type″: were changed from 4 to 5 bytes. • Daily Accumulators: were added. • 16 cmd. (Set Date and Time): was changed. • D4 cmd. (Subtotal/Total Transaction): new calculations were added. • DA cmd. (Electronic Read Fiscal Memory Tables): daily entry table response was changed. • DB cmd. (Electronic Read Accumulators and Counters): response for daily accumulators was changed. • PLD during Fiscal Voucher: rules were added. • Fiscal Memory Map: was changed. • Daily Entry Table: was changed. • Fiscal Voucher printout: was changed. • Last Fiscal Voucher Issued printout: was changed. • X-Report: was changed. • Closure Report: was changed. • Notify Report (Closure Report with total sale = 0): was added. • Fiscal Memory Reports: were changed. • Off-Line Reports: Reprint Last Closure Issued was added. • Off-Line Reports: Reprint Last Revenue Receipt Issued was added. • USB - Stand by Connected/Disconnected Report: msg′s 176 and 177 were added. • Notify Report (24 hours): was added. • Notify Report (48 hours): was added. • Audit Port (Electronic Data Collection - Second Daily Entry Record): was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 23.

Version	Date	Change Description
v22 01	Dec 3, 2003	• Msg's 104, 167, 170, 171, 172, 173, 174 and 175: were added. • Msg 112, 136, 137: were changed. • New Fuel Type Report: was added. • X-Report, Closure Report and Fiscal Memory Reports: 112 msg. was replaced by 104 msg. • X-Report: total quantities by fuel type (daily accumulators) were added. • Closure Report: total quantities by fuel type (daily and lifetime accumulators) were added. • This version of Programming Guide Supplement corresponds to microcode EC level 22.
v21 01	Nov 12, 2003	• This version of Programming Guide Supplement corresponds to microcode EC level 21.

Table 1. Change Summary

A comment form is provided at the end of the document for your suggestions on the document content and format.

Contents

1.0 Scope

This document covers the programming interface and functional characteristics of the IBM 4610 SureMark Fiscal Printer - Model KH5 for Greece.

2.0 Definition of Abbreviations and Terminology

2.1 Abbreviations

The following abbreviations are used in this document.

- FP: Fiscal Printer
- FB: Fiscal Base
- FU: Fiscal Unit
- FM: Fiscal Memory
- TRM: Training Mode
- FIM: Fiscal Mode
- SP: Sale Period
- ST: Sale Transaction
- FV: Fiscal Voucher
- CR: Customer Receipt
- DI: Document Insert
- RAM: Ramdom Access Memory
- PLD: Power Line Disturbance
- POR: Power-On Reset
- POS: Point of Sale
- IPL: Initial Program Loaded
- EPROM: Electrically Programable Read only Memory

2.2 Definition of Terminology

The English terminology may be different than you would expect.
Please study these definitions:

Customer Receipt is the left side print thermal station that prints from rolls of paper.
This station prints the slip of paper that verifies that a sales transaction occurred.

Sales Period is a group of sales transactions over a given amount of time, usually measured daily.

Sales Transaction is a process of recording item sales and arriving at the amount to be paid by or to a customer.
The receiving of payment for merchandise or services is also included in a transaction.

Fiscal Voucher is the slip of paper that verifies that a sales transaction occurred.
Is printed in the CR station of the printer.

Rectify is an option on certain sales transaction commands used to modify or undo a previous operation.

Tendering is the process of concluding a sales transaction and accounting for the methods of payment.

J4/CE Jumper is a procedure performed by service representatives that clears the battery-backed RAM.

3.0 Fiscal Hardware Technical Specification

3.1 IBM 4610 SureMark Fiscal Printer

The fiscal microcode was tested in the following POS systems:

- IBM SurePOS 300
- IBM SurePOS 500
- IBM SurePOS 600

3.1.1 Features

The FP features are:

- Customer Receipt Station (CR) - thermal printing
- User Defined Character Sets
- USB Communication Interface
- Barcode Generation
- Barcode Printing Capability
- Paper Cutter

3.1.2 Models

MODEL	INTERFACE	POWER	STATIONS	
			SJ	DI
KH5	USB	Brick	No	No

3.1.3 Characters Per Inch

- Thermal Printing
  - 15 CPI => 44 characters/line
  - 12 CPI => 34 characters/line

3.2 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 FP 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 FP 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.

3.2.1 Fiscal Processing

The FP 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 FP 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.

3.3 Printer and Fiscal Unit Status

3.3.1 For KH5 Model (USB)

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

The following figure shows the content of the status.

BYTE	BIT	CONTENT
0		PRINTER UNIT STATUS
	0 (LSB)	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		PRINTER UNIT STATUS
	0 (LSB)	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.
	1	DOCUMENT PRESENT UNDER THE FRONT SENSOR Set to 0 when a document is under the front document sensor.
	2	DOCUMENT PRESENT UNDER THE TOP SENSOR Set to 0 when a document is under the top document sensor.
	3	RESERVED (Always = '1').
	4	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.
	5	OPEN THROAT POSITION Set to 1 when the print head is in the open throat position.
	6	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 1. Printer and Fiscal Unit Status - KH5 Model - Part 1 of 3

Printer and Fiscal Unit Status - KH5 Model 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 2. Printer and Fiscal Unit Status - KH5 Model - Part 2 of 3

Printer and Fiscal Unit Status - KH5 Models continued...

BYTE	BIT	CONTENT
7		FISCAL UNIT STATUS (reserved for future use).
8		FISCAL UNIT STATUS
	0	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 FU 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 FU 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) 05 = KH5 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 cheched 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 FU return code is 43 hex. (67_{10}), it means that
no error is indicated on this status message.

Figure 3. Printer and Fiscal Unit Status - KH5 Model - Part 3 of 3

The FU return codes are defined in 18.0, " FISCAL UNIT RETURN CODES" on page 191.

3.3.2 Version/Country Code Definitions

- Country Name = Greece
- Country Version (hardware model) = 05 (4610 SureMark USB (Protocol USB, Cable USB))
- Model = KH5
- Country Code = 03
- Fiscal Microcode EC Level = 2D

4.0 Command Set

In this section it is given a summary of the FU command set.
See 17.2, “00 - SYSTEM COMMANDS” on page 98 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
       D4 - Subtotal/Total Transaction
       D5 - Payment
       06 - End Transaction

CLOSE SALE PERIOD:

       13 - Close Sale Period

REPORTS:

       0B - Fuel Types Report
       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
       1B - Serialize Fiscal Memory
       20 - Set VAT Rate Table
       21 - Verify VAT Rate Table
       23 - Set/Enable Fuel Type Table
       D7 - Set Header
```

Figure 4. 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 Station
EC - Line Feed
EE - Cut Customer Receipt Paper

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:

0A - Reprint Last Fiscal Voucher Issued
C6 - Set/Get Emphasized Printing Mode
C8 - Set Barcode Parameters
C9 - Print Barcode
CA - Download and Print Graphics
CD - Cash Drawer Management
88 - Withdraw/Deposit Money

SYSTEM:

00 - System Commands

Figure 5. Command Set Summary - Part 2 of 2

4.1 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
- D5 - Payment

Only exception to the above process is the recovery from error occurred during close sale period (13 cmd.), fiscal memory report (15 cmd.) and end transaction (06 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. FM already updated: The SP is closed as if error did not occur.
  2. FM 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.
- 06 - End Transaction
  Only end transaction is accepted.

5.0 J4/CE Jumper

5.1 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 FM to RAM.

5.2 Procedure

The activate J4/CE jumper procedure consists in:

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

The deactivate J4/CE jumper procedure consists in:

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

5.3 Calculations while the J4/CE jumper is active

- Recover the following counters from 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

5.4 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 FM 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 FU status.

6.0 Full J4/CE Jumper

6.1 Description

This procedure consists in perform 5 consecutive IPL's (Power OFF/ON) with J4/CE jumper active.

- When this procedure is performed, the following actions are executed by the fiscal microcode:
  - The date and time stamp for the first item issued in the sale period (stored in RAM memory) is cleared.
    (This date and time is used to force a close sale period after 24 hours).
  - All internal variables stored in RAM memory are cleared.
  - The last fiscal voucher stored in RAM memory is cleared.
  - The last closure report stored in RAM memory is cleared.
- When the procedure is finished:
  - The ″ALL RAM CLEARED″ (157 msg.) is printed in the power-on reports.

6.2 Procedure

The full J4/CE jumper procedure consists in:

- Turn OFF the FP
- Put the J4/CE jumper in ON (ACTIVE) position
- Turn ON/OFF the FP (First IPL)
- Turn ON/OFF the FP (Second IPL)
- Turn ON/OFF the FP (Third IPL)
- Turn ON/OFF the FP (Fourth IPL)
- Turn ON/OFF the FP (Fifth IPL)
- Put the J4/CE jumper in OFF (STORED) position
- Turn ON the FP

6.3 Calculations while the Full J4/CE jumper procedure

- Recover the following counters from fiscal memory tables:

  Lif_N_Clos

  Lif_N_Ract

- Operate on the following counters as shown below and they are incremented during full J4/CE jumper procedure:

  $Lif\_N\_Ract = Lif\_N\_Ract + 1$

  $Day\_N\_Ract = Day\_N\_Ract + 1$

6.4 Rules

- Only authorized service personnel can do the full J4/CE jumper procedure.
- The RAM pattern is initialized after all the other initialization has been completed.
- This process can take a long time if the FM is almost full or full.

7.0 Power Line Disturbance (PLD)

When a PLD occurs the FU 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 the fiscal voucher, close sale period (13 cmd.) or fiscal memory report (15 cmd.).

- Fiscal Voucher (before the end transaction phase)

  1. The fiscal voucher lines printed are discarded.
  2. Reprint the fiscal voucher up to the point where it was when the power was lost.

- 13 - Close Sale Period
  On IPL completion, after PLD, the closure function is completed in one of the following two ways:

  1. FM already updated: The SP is closed as if PLD did not occur.
  2. FM 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.

8.0 Initialization Sequence

The initialization sequence for Greece is:

1. ***RAM CLEAR***
   - Turn OFF the FP
   - **Put J4/CE jumper in ON position (ACTIVE)**
   - Turn ON the FP (wait for the power-on report to be printed)
   - Turn OFF the FP
   - **Put J4/CE jumper in OFF position (STORED)**
   - Turn ON the FP

2. ***SERIALIZE FISCAL MEMORY***
   - Execute --> Serialize Fiscal Memory = 1B66 1B00

3. ***SET DATE AND TIME***
   - Execute --> Set Date and Time = 1B66 1600

4. ***FISCAL MODE***
   - Execute --> Set Fiscal Mode = 1B66 1800

5. ***RESET FISCAL PRINTER***

   (Issue only for USB microcode version)
   - Turn OFF the FP
   - Turn ON the FP

6. ***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

7. ***STORE HEADER IN FISCAL MEMORY***
   - Execute --> Set Header = 1B66 D700

8. ***SET VAT RATE TABLE AND VERIFY VAT RATE TABLE***

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

9. ***SET/ENABLE FUEL TYPE TABLE***
   - Execute --> Set/Enable Fuel Type Table = 1B66 2301
   - Execute --> Set/Enable Fuel Type Table = 1B66 2300

8.1 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 FM.

8.2 Set Date And Time

This procedure is used to update the FU internal hardware TOD.

8.3 Set Fiscal Mode

This procedure is used to set the FIM in FM.
Once this procedure has been executed the FU will operate in accordance with the country fiscal law.

8.4 Fiscal Parameter Configuration

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

8.5 Set Header

This procedure is used to load the header into RAM.

8.6 Set VAT Rate Table

This procedure is used to load a VAT rate table.
Up to 50 entries in VAT rate table are available for the FU lifetime.

8.7 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 FU.

8.8 Set/Enable Fuel Type Table

This procedure is used to set the fuel type table and to enable until seven differents fuel types.
Up to 200 entries in fuel type table are available to set for the FU lifetime.

9.0 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 - Set VAT Rate Table

9.1 FDTS - Rules

- The FDTS set is stored in RAM.
- 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 TRM, FDTS always keep the following date and time and never is updated by any command.
  Date: 01/01/1990
  Time: 00:00

9.2 FDTS - Operation Mode Flow

The following procedure is apply in FIM only.

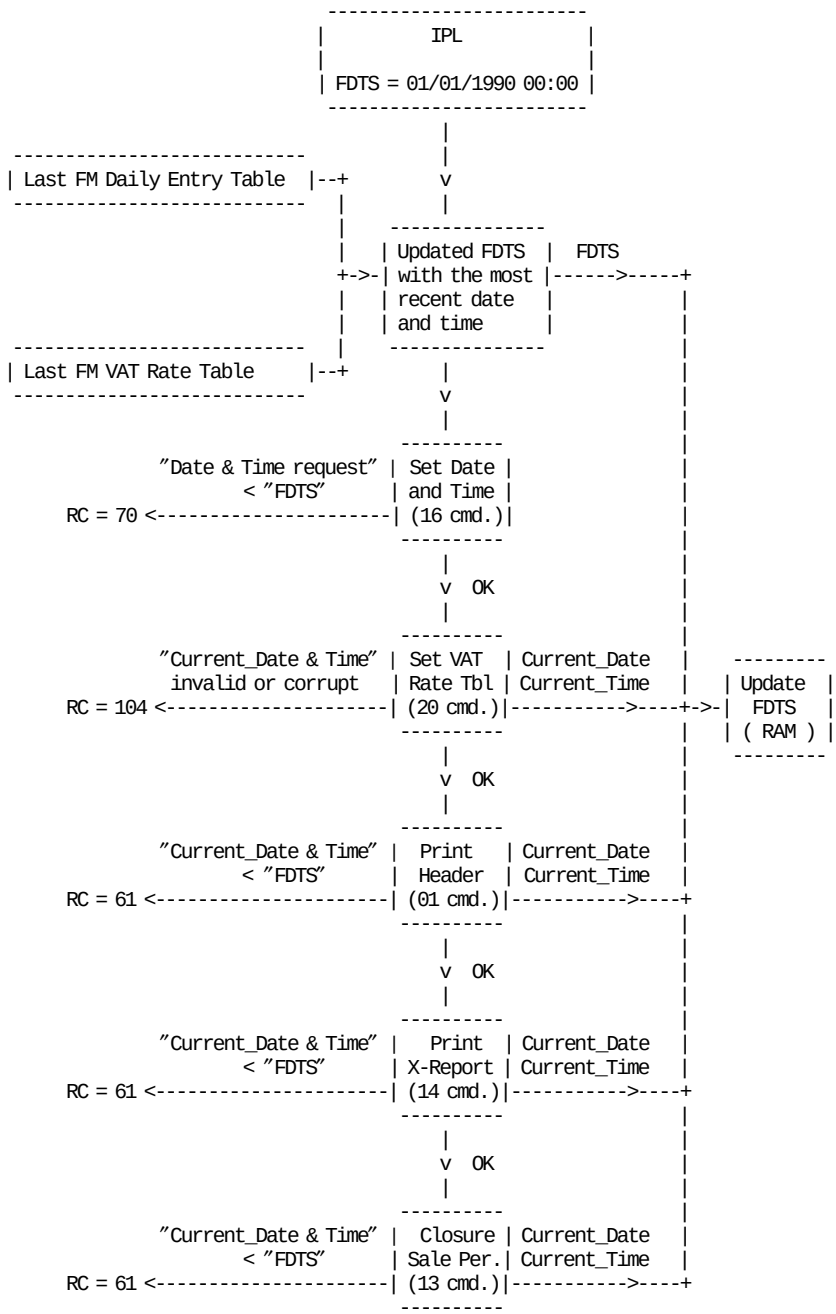
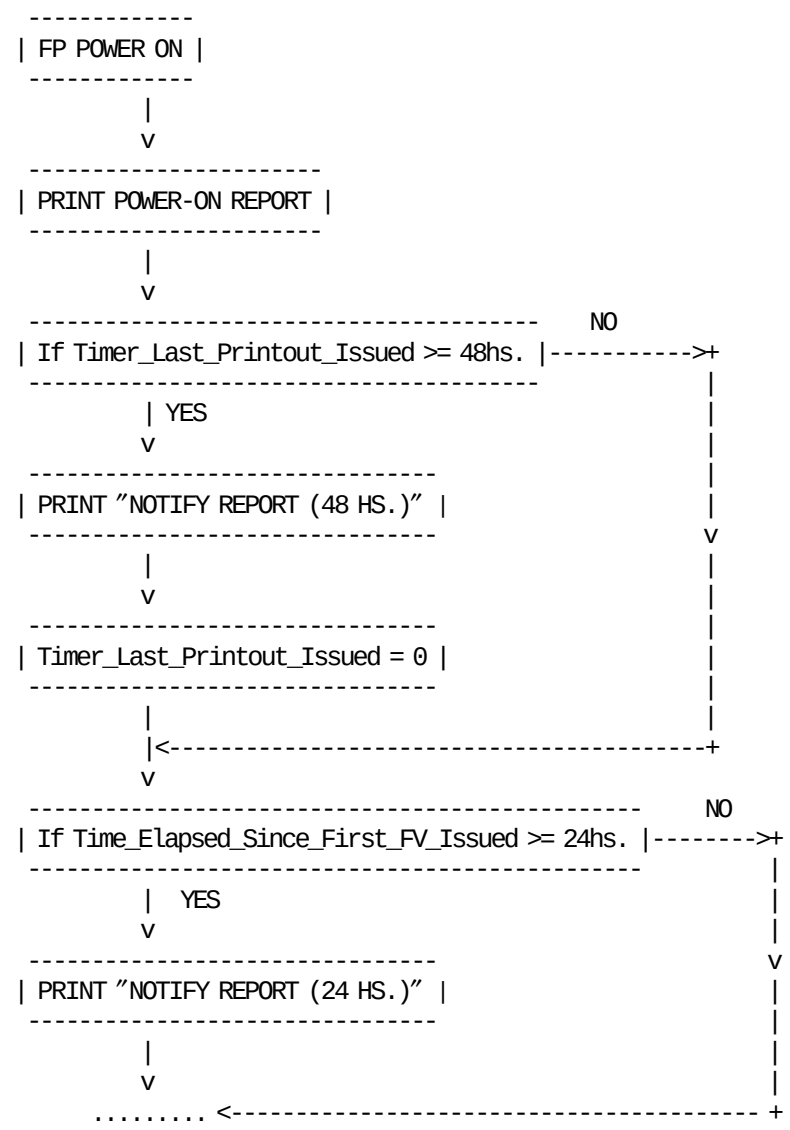


Figure 6. FDTS - Operation Mode Flow.

10.0 Notify Report (24 and 48 hs.)

- In the fiscal microcode, the Time_Elapsed_Since_First_FV_Issued counts the time elapsed since the first fiscal voucher of the sale period was issued. If at power on, 24 hs. have passed, the Notify Report (24 hs.) is printed.
  When the close sale period (13 cmd.) is executed, the Time_Elapsed_Since_First_FV_Issued is reset 0 and stopped. It begins to count again when the first fiscal voucher of the new sale period is issued.
- The Timer_Last_Printout_Issued counts the time elapsed since the last printout was issued. If at power on, 48 hs. have passed, the Notify Report (48 hs.) is printed.
  When any of the following reports is printed, the Timer_Last_Printout_Issued is reset 0.
  - Fiscal Voucher
  - Reprint Last Fiscal Voucher Issued
  - X-Report
  - Closure Report
  - Closure Report Cancelled after PLD
  - Last Closure Report Issued
  - Extended Fiscal Memory Report
  - Summary Fiscal Memory Report
  - Short Fiscal Memory Report
  - Fiscal Memory Report Cancelled after PLD
  - Notify Report (48 hs)

10.1 Notify Report (24 and 48 hs.) Procedure



11.0 Audible Indication

A relevant audible indication (beep) will sound in the following cases:

- When the paper out occurs during the Closure Report.
- Inmediatly after that the following reports were printed
  - Notify Report (24 hs)
  - Notify Report (48 hs)
  - Closure Report Cancelled (after PLD)
  - Stand by Connected/Disconnected Report (because the POS/Fiscal Base disconnection occurred).
- When the fiscal microcode detects:
  - an unrecoverable error occurred reading the FM identification/status area (RC 83)
  - an unrecoverable error occurs when writing to FM (RC 101)
  - the FM was disconnected (RC 109)
  - EPROM serialized but pattern not found (RC 178)
  - a problem with the RAM patterns (RC 189)

Note: the beep will sound during 5 seconds (250 milliseconds beep ON, then 250 milliseconds beep OFF).

12.0 Off-Line Mode

Off-Line mode 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 buttons sequences are closure report (13′00′ and 13′01′ cmd.), fiscal memory report (15 cmd.) and Reprint Last Fiscal Voucher Issued (0A cmd.).

Off-Line mode functionality is allowed regardless of the disconnection and connection state of the FU.

12.1 Off-Line Mode - Rules

- When the FP is connected, off-line mode is 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 FP is disconnected, the fiscal voucher must be end before entering the off-line reports menu.
- When the FP is disconnected, the activation sequence will 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.
- If a PLD or paper out occurs when a report is been printing, the off-line mode is disabled and report is cancelled.

12.2 Off-Line Mode Flow

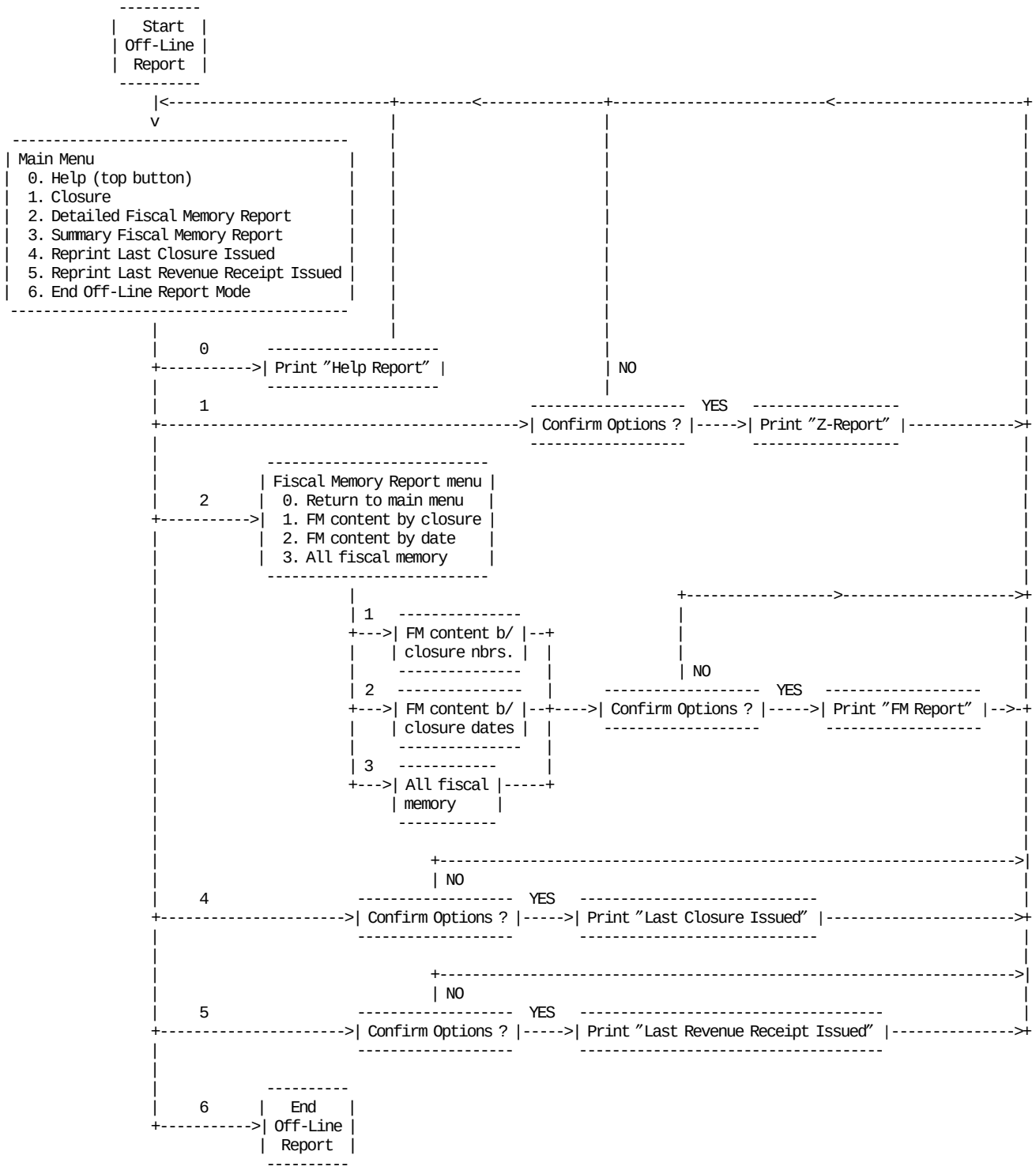


Figure 7. Off-Line Mode Flow

12.3 Off-Line Mode Operation

- **Start Off-Line Mode**

USER ACTION
PRESS BUTTON DI
Press and hold the button for at least 3 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**
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. Reprint Last Closure Issued	4 times	then.. 1 time
5. Reprint Last Revenue Receipt Issued	5 times	then.. 1 time
6. End Offline Reports Mode	6 times	then.. 1 time

Table 3. Main Menu

- **Closure**

OPTIONS	USER ACTION	
DESCRIPTION	**PRESS BUTTON DI**	**PRESS BUTTON CR**
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**
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

Table 5. Fiscal Memory Reports menu

- **FM content between closure numbers**

OPTIONS	USER ACTION	
DESCRIPTION	**PRESS BUTTON DI**	**PRESS BUTTON CR**
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)		1 time
Confirm Option (Cancel)	1 time	

Table 6. FM content between closure numbers

- **FM content between closure dates**

OPTIONS	USER ACTION	
DESCRIPTION	**PRESS BUTTON DI**	**PRESS BUTTON CR**
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
Cancel	1 time	

Table 7. FM content between closure dates

- **All Fiscal Memory Report**

OPTIONS	USER ACTION	
DESCRIPTION	PRESS BUTTON DI	PRESS BUTTON CR
Confirm		1 time
Cancel	1 time	

Table 8. All Fiscal Memory Report

- **Reprint Last Closure Issued**

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

Table 9. Reprint Last Closure Issued

- **Reprint Last Revenue Receipt Issued**

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

Table 10. Reprint Last Revenue Receipt Issued

13.0 Counters and Accumulators

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

13.1 Transaction Accumulators

The following accumulators are used during a ST:

	RANGE Min	Max	
Tra_Total (Transaction Total)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Net_Total (Transaction Net Total)	0	42,949,672.95	(4 bytes)
Tra_VAT_Total (Transaction VAT Total)	0	42,949,672.95	(4 bytes)
Tra_Tot_A (Transaction Gross Total for VAT Category A)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Tot_B (Transaction Gross Total for VAT Category B)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Tot_C (Transaction Gross Total for VAT Category C)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Tot_D (Transaction Gross Total for VAT Category D)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Tot_E (Transaction Gross Total for VAT Category E)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Net_A (Transaction Net Total for VAT Category A)	0	42,949,672.95	(4 bytes)
Tra_Net_B (Transaction Net Total for VAT Category B)	0	42,949,672.95	(4 bytes)
Tra_Net_C (Transaction Net Total for VAT Category C)	0	42,949,672.95	(4 bytes)
Tra_Net_D (Transaction Net Total for VAT Category D)	0	42,949,672.95	(4 bytes)
Tra_Net_E (Transaction Net Total for VAT Category E)	0	42,949,672.95	(4 bytes)
Tra_Amt_Due (Transaction Amount Due)	-21,474,836.48	21,474,836.47	(4 bytes)
Tra_Chg_Due (Transaction Change Due)	-21,474,836.48	21,474,836.47	(4 bytes)

(Continued in the next page)

Figure 8. Transaction Accumulators - Part 1 of 2.

	RANGE Min	Max	
Tra_Ltr_Qty_FT01 (Transaction Quantity of Liters for RAM FT id number enabled 01)	0	42,949,672.95	(4 bytes)
Tra_Ltr_Qty_FT02 (Transaction Quantity of Liters for RAM FT id number enabled 02)	0	42,949,672.95	(4 bytes)
Tra_Ltr_Qty_FT03 (Transaction Quantity of Liters for RAM FT id number enabled 03)	0	42,949,672.95	(4 bytes)
Tra_Ltr_Qty_FT04 (Transaction Quantity of Liters for RAM FT id number enabled 04)	0	42,949,672.95	(4 bytes)
Tra_Ltr_Qty_FT05 (Transaction Quantity of Liters for RAM FT id number enabled 05)	0	42,949,672.95	(4 bytes)
Tra_Ltr_Qty_FT06 (Transaction Quantity of Liters for RAM FT id number enabled 06)	0	42,949,672.95	(4 bytes)
Tra_Ltr_Qty_FT07 (Transaction Quantity of Liters for RAM FT id number enabled 07)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT01 (Transaction Gross Total for RAM FT id number enabled 01)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT02 (Transaction Gross Total for RAM FT id number enabled 02)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT03 (Transaction Gross Total for RAM FT id number enabled 03)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT04 (Transaction Gross Total for RAM FT id number enabled 04)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT05 (Transaction Gross Total for RAM FT id number enabled 05)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT06 (Transaction Gross Total for RAM FT id number enabled 06)	0	42,949,672.95	(4 bytes)
Tra_Gross_Tot_FT07 (Transaction Gross Total for RAM FT id number enabled 07)	0	42,949,672.95	(4 bytes)

(Continued in the next page)

Figure 9. Transaction Accumulators - Part 2 of 2.

13.2 Daily Counters

The following counters are used during a SP:

		RANGE Min	Max
Day_N_Slip	(Daily Number of Slips)	0	65,535
Day_N_Vouc	(Daily Number of Fiscal Vouchers)	0	65,535
Day_N_Ract	(Daily Number of Repair Actions Table entries)	0	1,000 (2 bytes)
Day_N_Head	(Daily Number of Header Table entries)	0	30
Day_N_VAT	(Daily Number of VAT Rate Table entries)	0	50
Day_N_POS_FB_Dcx	(Daily Number of POS/FB Disconnections Table entries)	0	999
Day_N_FP_FB_Dcx	(Number of FP/FB Disconnections Table entries)	0	200

Figure 10. Daily Counters.

13.3 Daily Accumulators

The following accumulators are used during a SP:

	RANGE Min	Max	
Day_Total (Daily Total)	0	42,949,672.95	(4 bytes)
Day_Net_Total (Daily Net Total)	0	42,949,672.95	(4 bytes)
Day_Net_ABDC (Daily Net Total for VAT Category A, B, C, D)	0	42,949,672.95	(4 bytes)
Day_Net_E (Daily Net Total for VAT Category E)	0	42,949,672.95	(4 bytes)
Day_Tot_R_A (Daily Gross Total for VAT Category A - Retail)	0	42,949,672.95	(4 bytes)
Day_Tot_R_B (Daily Gross Total for VAT Category B - Retail)	0	42,949,672.95	(4 bytes)
Day_Tot_R_C (Daily Gross Total for VAT Category C - Retail)	0	42,949,672.95	(4 bytes)
Day_Tot_R_D (Daily Gross Total for VAT Category D - Retail)	0	42,949,672.95	(4 bytes)
Day_Tot_R_E (Daily Gross Total for VAT Category E - Retail)	0	42,949,672.95	(4 bytes)
Day_Tot_W_A (Daily Gross Total for VAT Category A - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Tot_W_B (Daily Gross Total for VAT Category B - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Tot_W_C (Daily Gross Total for VAT Category C - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Tot_W_D (Daily Gross Total for VAT Category D - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Tot_W_E (Daily Gross Total for VAT Category E - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_R_A (Daily Net Total for VAT Category A - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_R_B (Daily Net Total for VAT Category B - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_R_C (Daily Net Total for VAT Category C - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_R_D (Daily Net Total for VAT Category D - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_R_E (Daily Net Total for VAT Category E - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_R_ABCD (Daily Net Total for VAT Category A, B, C, D - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_W_A (Daily Net Total for VAT Category A - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_W_B (Daily Net Total for VAT Category B - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_W_C (Daily Net Total for VAT Category C - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_W_D (Daily Net Total for VAT Category D - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_W_E (Daily Net Total for VAT Category E - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_W_ABCD (Daily Net Total for VAT Category A, B, C, D - Wholesale)	0	42,949,672.95	(4 bytes)

(Continued in the next page)

Figure 11. Daily Accumulators - Part 1 of 5.

Daily Accumulators continued...

	RANGE Min	Max	
Day_VAT_R_A (Daily VAT Total for Category A - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_R_B (Daily VAT Total for Category B - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_R_C (Daily VAT Total for Category C - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_R_D (Daily VAT Total for Category D - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_R_E (Daily VAT Total for Category E - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_R_E (Daily VAT Total for Category E - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_R_Total (Daily VAT Total - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_W_A (Daily VAT Total for Category A - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_W_B (Daily VAT Total for Category B - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_W_C (Daily VAT Total for Category C - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_W_D (Daily VAT Total for Category D - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_W_E (Daily VAT Total for Category E - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_W_E (Daily VAT Total for Category E - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_W_Total (Daily VAT Total - Wholesale)	0	42,949,672.95	(4 bytes)

(Continued in the next page)

Figure 12. Daily Accumulators - Part 2 of 5.

Daily Accumulators continued...

	RANGE Min	Max	
Day_Ltr_Qty_R_FT01 (Daily Quantity of Liters for RAM FT id nb.enab. 01 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_R_FT02 (Daily Quantity of Liters for RAM FT id nb.enab. 02 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_R_FT03 (Daily Quantity of Liters for RAM FT id nb.enab. 03 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_R_FT04 (Daily Quantity of Liters for RAM FT id nb.enab. 04 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_R_FT05 (Daily Quantity of Liters for RAM FT id nb.enab. 05 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_R_FT06 (Daily Quantity of Liters for RAM FT id nb.enab. 06 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_R_FT07 (Daily Quantity of Liters for RAM FT id nb.enab. 07 - Retail)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT01 (Daily Quantity of Liters for RAM FT id nb.enab. 01 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT02 (Daily Quantity of Liters for RAM FT id nb.enab. 02 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT03 (Daily Quantity of Liters for RAM FT id nb.enab. 03 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT04 (Daily Quantity of Liters for RAM FT id nb.enab. 04 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT05 (Daily Quantity of Liters for RAM FT id nb.enab. 05 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT06 (Daily Quantity of Liters for RAM FT id nb.enab. 06 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Ltr_Qty_W_FT07 (Daily Quantity of Liters for RAM FT id nb.enab. 07 - Wholesale)	0	4,294,967.295	(4 bytes)
Day_Gross_Tot_R_FT01 (Daily Gross Total for RAM FT id nb. enabled 01 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_R_FT02 (Daily Gross Total for RAM FT id nb. enabled 02 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_R_FT03 (Daily Gross Total for RAM FT id nb. enabled 03 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_R_FT04 (Daily Gross Total for RAM FT id nb. enabled 04 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_R_FT05 (Daily Gross Total for RAM FT id nb. enabled 05 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_R_FT06 (Daily Gross Total for RAM FT id nb. enabled 06 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_R_FT07 (Daily Gross Total for RAM FT id nb. enabled 07 - Retail)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT01 (Daily Gross Total for RAM FT id nb. enabled 01 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT02 (Daily Gross Total for RAM FT id nb. enabled 02 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT03 (Daily Gross Total for RAM FT id nb. enabled 03 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT04 (Daily Gross Total for RAM FT id nb. enabled 04 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT05 (Daily Gross Total for RAM FT id nb. enabled 05 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT06 (Daily Gross Total for RAM FT id nb. enabled 06 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Gross_Tot_W_FT07 (Daily Gross Total for RAM FT id nb. enabled 07 - Wholesale)	0	42,949,672.95	(4 bytes)

(Continued in the next page)

Figure 13. Daily Accumulators - Part 3 of 5.

Daily Accumulators continued...

	RANGE Min	Max	
Day_VAT_Tot_R_FT01 (Daily VAT Total for RAM FT id nb. enabled 01 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_R_FT02 (Daily VAT Total for RAM FT id nb. enabled 02 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_R_FT03 (Daily VAT Total for RAM FT id nb. enabled 03 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_R_FT04 (Daily VAT Total for RAM FT id nb. enabled 04 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_R_FT05 (Daily VAT Total for RAM FT id nb. enabled 05 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_R_FT06 (Daily VAT Total for RAM FT id nb. enabled 06 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_R_FT07 (Daily VAT Total for RAM FT id nb. enabled 07 - Retail)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT01 (Daily VAT Total for RAM FT id nb. enabled 01 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT02 (Daily VAT Total for RAM FT id nb. enabled 02 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT03 (Daily VAT Total for RAM FT id nb. enabled 03 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT04 (Daily VAT Total for RAM FT id nb. enabled 04 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT05 (Daily VAT Total for RAM FT id nb. enabled 05 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT06 (Daily VAT Total for RAM FT id nb. enabled 06 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_VAT_Tot_W_FT07 (Daily VAT Total for RAM FT id nb. enabled 07 - Wholesale)	0	42,949,672.95	(4 bytes)

(Continued in the next page)

Figure 14. Daily Accumulators - Part 4 of 5.

Daily Accumulators continued...

	RANGE Min	Max	
Day_Net_Tot_R_FT01 (Daily Net Total for RAM FT id nb. enabled 01 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_R_FT02 (Daily Net Total for RAM FT id nb. enabled 02 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_R_FT03 (Daily Net Total for RAM FT id nb. enabled 03 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_R_FT04 (Daily Net Total for RAM FT id nb. enabled 04 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_R_FT05 (Daily Net Total for RAM FT id nb. enabled 05 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_R_FT06 (Daily Net Total for RAM FT id nb. enabled 06 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_R_FT07 (Daily Net Total for RAM FT id nb. enabled 07 - Retail)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT01 (Daily Net Total for RAM FT id nb. enabled 01 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT02 (Daily Net Total for RAM FT id nb. enabled 02 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT03 (Daily Net Total for RAM FT id nb. enabled 03 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT04 (Daily Net Total for RAM FT id nb. enabled 04 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT05 (Daily Net Total for RAM FT id nb. enabled 05 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT06 (Daily Net Total for RAM FT id nb. enabled 06 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Net_Tot_W_FT07 (Daily Net Total for RAM FT id nb. enabled 07 - Wholesale)	0	42,949,672.95	(4 bytes)
Day_Withdraw_Total (Daily Withdraw Total)	0	42,949,672.95	(4 bytes)
Day_Deposit_Total (Daily Deposit Total)	0	42,949,672.95	(4 bytes)

Figure 15. Daily Accumulators - Part 5 of 5.

13.4 Lifetime Counters

The following counters are used during a lifetime of the fiscal printer:

		RANGE Min	Max	
Lif_N_Clos	(Closure Number)	0	1,800	
Lif_N_Vouc	(Number of Fiscal Vouchers)	0	4,294,967,295	(4 bytes)
Lif_N_Vouc_R	(Number of Fiscal Vouchers - Retail)	0	4,294,967,295	(4 bytes)
Lif_N_Vouc_W	(Number of Fiscal Vouchers - Wholesale)	0	4,294,967,295	(4 bytes)
Lif_N_Slip	(Number of Slips)	0	4,294,967,295	(4 bytes)
Lif_N_Head	(Number of Header Table entries)	0	30	
Lif_N_Ract	(Number of Repair Actions)	0	1.000	(2 bytes)
Lif_N_VAT	(Number of VAT Rate Table entries)	0	50	
Lif_N_POS_FB_Dcx	(Number of POS/FB Disconnections Table entries)	0	999	
Lif_N_FP_FB_Dcx	(Number of FP/FB Disconnections Table entries)	0	200	

Figure 16. Lifetime Counters.

13.5 Lifetime Accumulators

The following accumulators are used during a lifetime of the fiscal printer:

	RANGE Min	Max	
Lif_Net_ABCD (Lifetime Net Total for VAT Category A, B, C, D)	0	2,814,749,767,106.55	(6 bytes)
Lif_Net_E (Lifetime Net Total for VAT Category E)	0	42,949,672.95	(4 bytes)
Lif_VAT_R_A (Lifetime VAT Total for VAT Category A - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_R_B (Lifetime VAT Total for VAT Category B - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_R_C (Lifetime VAT Total for VAT Category C - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_R_D (Lifetime VAT Total for VAT Category D - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_R_E (Lifetime VAT Total for VAT Category E - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_W_A (Lifetime VAT Total for VAT Category A - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_W_B (Lifetime VAT Total for VAT Category B - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_W_C (Lifetime VAT Total for VAT Category C - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_W_D (Lifetime VAT Total for VAT Category D - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_VAT_W_E (Lifetime VAT Total for VAT Category E - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT01 (Lifetime Quantity of Liters for RAM FTid nb.enab.01 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT02 (Lifetime Quantity of Liters for RAM FTid nb.enab.02 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT03 (Lifetime Quantity of Liters for RAM FTid nb.enab.03 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT04 (Lifetime Quantity of Liters for RAM FTid nb.enab.04 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT05 (Lifetime Quantity of Liters for RAM FTid nb.enab.05 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT06 (Lifetime Quantity of Liters for RAM FTid nb.enab.06 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_R_FT07 (Lifetime Quantity of Liters for RAM FTid nb.enab.07 - Retail)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT01 (Lifetime Quantity of Liters for RAM FTid nb.enab.01 - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT02 (Lifetime Quantity of Liters for RAM FTid nb.enab.02 - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT03 (Lifetime Quantity of Liters for RAM FTid nb.enab.03 - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT04 (Lifetime Quantity of Liters for RAM FTid nb.enab.04 - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT05 (Lifetime Quantity of Liters for RAM FTid nb.enab.05 - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT06 (Lifetime Quantity of Liters for RAM FTid nb.enab.06 - Wholesale)	0	1,099,511,627.775	(5 bytes)
Lif_Ltr_Qty_W_FT07 (Lifetime Quantity of Liters for RAM FTid nb.enab.07 - Wholesale)	0	1,099,511,627.775	(5 bytes)

(Continued in the next page)

Figure 17. Lifetime Accumulators - Part 1 of 2.

Lifetime Accumulators continued...

	RANGE Min	Max	
Lif_Gross_Tot_R_FT01 (Lifetime Gross Total for RAM FT id nb.enabled 01 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_R_FT02 (Lifetime Gross Total for RAM FT id nb.enabled 02 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_R_FT03 (Lifetime Gross Total for RAM FT id nb.enabled 03 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_R_FT04 (Lifetime Gross Total for RAM FT id nb.enabled 04 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_R_FT05 (Lifetime Gross Total for RAM FT id nb.enabled 05 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_R_FT06 (Lifetime Gross Total for RAM FT id nb.enabled 06 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_R_FT07 (Lifetime Gross Total for RAM FT id nb.enabled 07 - Retail)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT01 (Lifetime Gross Total for RAM FT id nb.enabled 01 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT02 (Lifetime Gross Total for RAM FT id nb.enabled 02 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT03 (Lifetime Gross Total for RAM FT id nb.enabled 03 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT04 (Lifetime Gross Total for RAM FT id nb.enabled 04 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT05 (Lifetime Gross Total for RAM FT id nb.enabled 05 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT06 (Lifetime Gross Total for RAM FT id nb.enabled 06 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)
Lif_Gross_Tot_W_FT07 (Lifetime Gross Total for RAM FT id nb.enabled 07 - Wholesale)	0	2.814.749.767.106,55	(6 bytes)

Figure 18. Lifetime Accumulators - Part 2 of 2.

14.0 Fiscal Unit

14.1 Fiscal Unit States

In this section are defined the FU 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 SP procedure at least one of the following commands have been executed:

  D2 - Item Sale

  14 - Print X-Report

  15 - Fiscal Memory Report

  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 - Set VAT Rate Table

  23 - Set/Enable Fuel Type Table

  1B - Serialize Fiscal Memory

  D7 - Set Header

- ***SALE TRANSACTION IN PROGRESS***

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

  D2 - Item Sale

  This state is ended by:

  06 - End Transaction

  The following commands are not accepted while in this state:

  01 - Print Header

  03 - Comment Line in CR Station

  0A - Reprint Last Fiscal Voucher Issued

  0B - Fuel Type Report

  13 - Close Sale Period

  14 - Print X-Report

  15 - Fiscal Memory Report

  16 - Set Date and Time

  18 - Set Fiscal Mode

  1B - Serialize Fiscal Memory

20 - Set VAT Rate Table

21 - Verify VAT Rate Table

23 - Set/Enable Fuel Type Table

88 - Withdraw/Deposit Money

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:

0B - Fuel Type Report

01 - Print Header

13 - Close Sale Period

14 - Print X-Report

15 - Fiscal Memory Report

16 - Set Date and Time

18 - Set Fiscal Mode

20 - Set VAT Rate Table

23 - Set/Enable Fuel Type Table

88 - Withdraw/Deposit Money

D7 - Set Header

14.2 Operational Modes

The FU can operate in two different modes depending on FIM setting.

1. Training Mode

   Fiscal rules are not applied and FM is not used.

2. Fiscal Mode

   Fiscal rules are applied and FM is used.

14.2.1 Training Mode

The following rules apply to training mode operation in the FU:

- After serialization and before fiscalization the FU is in TRM state.
- In this mode the FU allows regular operations without writing in FM.
- TRM is disabled when the FU has been fiscalized.
- The accumulators and counters are not stored in RAM neither in FM.
- 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 FM.
- The set VAT rate table (20 cmd.) can be issued but not write in FM.
- The verify VAT rate table (20 cmd.) can be issued but not write in FM.
- The set/enable fuel type table (23 cmd.) can be issued but not write in FM.
- After J4/CE jumper procedure, the D7ii and D700 cmds. must be set.
- During TRM the following documents are allowed:
  - Fiscal Voucher
  - X-Report
  - Closure Report
  - Non-Fiscal Report
  - Fuel Type Reports
  - Off-Line Reports
  - Header Report
  - Withdraw/Deposit Report
- During TRM the following documents are not allowed:
  - Fiscal Memory Report

14.2.2 Fiscal Unit Rules

The following rules are applicable when FIM is set:

1. Each time the RAM is cleared using the J4/CE jumper, the repair action counter residing in FM is increased by 1 and the FU current time is recorded for later printing on close sale period report.
2. FM 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 - Set VAT Rate Table
- 21 - Verify VAT Rate Table
- 23 - Set/Enable Fuel Type Table
- DD - Start Non-Fiscal Report

If FM 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.

3. The FV's produced are identified by consecutive numbers. Number 1 is assigned to the first FV produced after close sale period report.
4. Any command that would print a character string with the serial number in CR station is not accepted. In this case, serial number means: the year of manufacturing (2 digits) and the actual serial number (6 digits) all together.
5. While J4/CE jumper is in ON (ACTIVE) position only the following commands are allowed:
   - 00 - System Commands
   - 16 - Set Date and Time
   - F1 - Report IPL Completion Status
   - 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
6. Upon IPL completion the FU 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
   b. The following command is executed successfully, before a ST is started:
      - 20 - Set VAT Rate Table
      - 21 - Verify VAT Rate Table
      - 23 - Set/Enable Fuel Type Table

14.3 Fiscal Operations

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

14.3.1 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.

14.3.2 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 D5 cmd., the description length is 20 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 12 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'D500'ABCDEFGHIJKL0000001000'
```

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'D500'x'0E'ABCDEx'14'FGHIJ0000001000'
```

Notice that 'K' and 'L' where removed, so the description is still 12 bytes length. The description field is a fixed length field, and can't be sent a different number of bytes than 12 for it.

14.3.3 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.

14.3.4 Automatic Customer Receipt Slip Cut

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

- In Normal Mode:
  - Fiscal Voucher
  - Reprint Last Fiscal Voucher Issued
  - Closure Report
  - Fiscal Memory Report
  - X-Report
  - Non-fiscal Report on CR
  - Withdraw/Deposit Money Report
  - Slip produced by set date and time (16 cmd.)
  - IPL messages (when not within ST nor within non-fiscal report on CR)
- In Off-Line Mode:
  - Reprint Last Fiscal Voucher Issued
  - Return Code Report (only if the last fiscal voucher issued was printed previously)
  - Closure Report (Copy)

14.3.5 Sale Transaction

The FV is generated during a ST procedure.
The following diagram shows the command sequence to perform a FV:

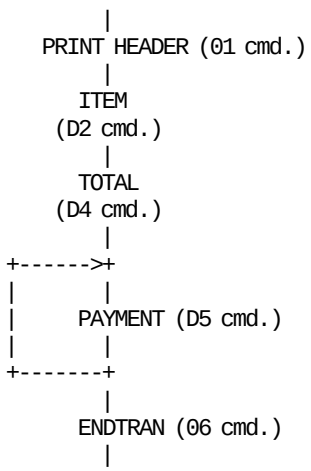


Figure 19. Sale Transaction Flow.

14.3.5.1 Print Header

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

14.3.5.2 Item Sale

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

14.3.5.3 Transaction Total

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

14.3.5.4 Payment

This procedure is used to control the payment phase.

14.3.5.5 End Transaction

This procedure is used to end the ST (FV).

14.3.5.6 Sale Transaction Rules

A ST (FV) is processed according to the following rules:

- Only one (1) item sale is allowed.
- Amount field in command string of item can be blank. This allows the processing of items with description longer than the number of characters allowed in one line.
- A minus sign is printed for 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.
- The transaction total (Tra_Total) must be greater 0.
- Payment phase is mandatory.
- End transaction command is executed only if the total paid amount is not less than the transaction total amount.
- PLD during a sale transaction
  When a PLD ocurrs while a sale transaction is in progress (before end transaction phase):
  - The fiscal voucher is cancelled
  - Reprint the fiscal voucher up to the point where it was when the power was lost.

14.4 Fiscal Printer Unit

14.4.1 Normal Printing

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

14.4.2 Line Feed

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

14.4.3 Home

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

14.4.4 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.

14.4.5 Print DI Adjustment Data Patterns

This command is for RAS, for DI station adjustment.

14.5 Fiscal Unit Utilities

14.5.1 Read Fiscal Memory

This command is used to request the FU to report the FM content. The totals and counters related to each SP are read from the FM and sent over the serial communication link.

14.5.2 Read Accumulators and Counters

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

14.5.3 Report Microcode EC

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

14.5.4 Report Printer EC

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

14.5.5 Report Current Status

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

14.5.6 Report IPL Completion Status

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

14.5.7 Run Online Diagnostics

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

14.5.8 Perform Fiscal Unit Power-On Reset

This command is used to request the FU to perform a software POR.

14.5.9 Perform Printer Power-On Reset

This command is used to request the FU to perform a printer software POR.

14.5.10 Dump Fiscal RAM and Fiscal Memory

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

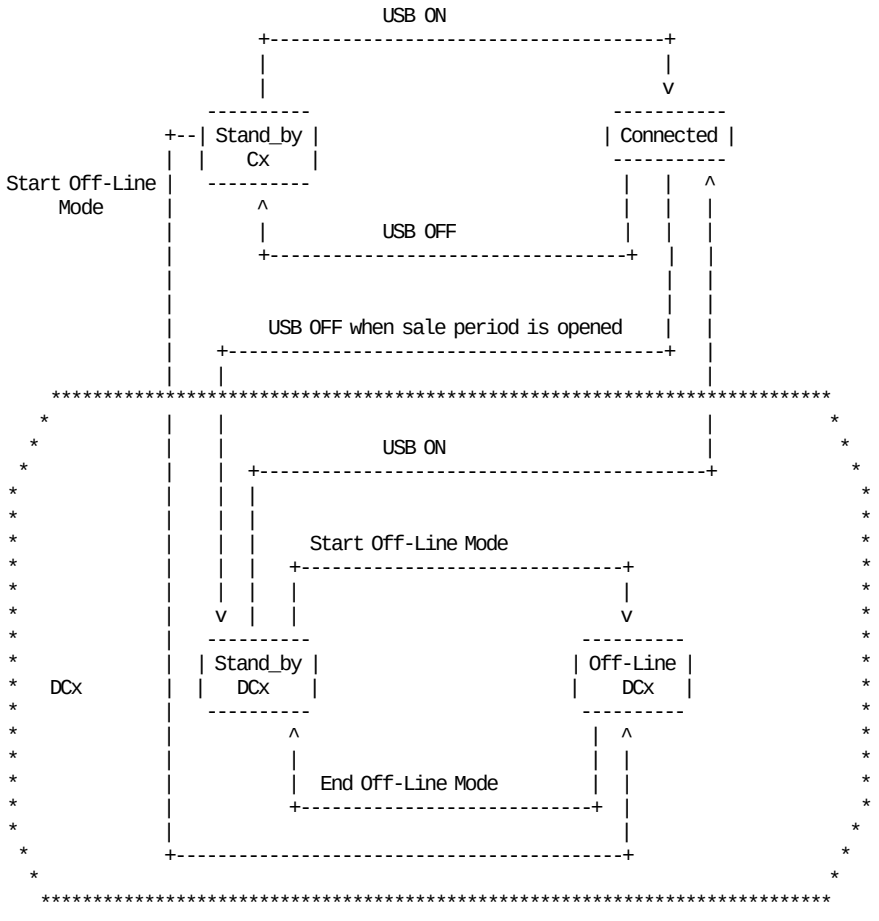
15.0 POS/FB and FP/FB Disconnection

15.1 4610 SureMark USB - POS/FB Disconnection

This chapter describes the microcode behaviour when the conection/disconection occurs between the POS and the fiscal base.

15.1.1 Procedure

- Flow



USB ON = connect the USB cable while POS and FP are powered.

USB OFF = disconnect the USB cable while POS and FP are powered.

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

Figure 20. 4610 USB - POS/FB Disconnection Procedure - Flow

- States
  - In every state, the FP is powered.
  - Connected State: The POS is powered and the USB cable is connected. In this state the normal FP operations are performed.

- Stand_by Cx (Stand by Connected State): The POS is turn OFF or the USB cable is disconnected and the last state was ″Connected State″. In this state the FP is waiting for the user to do something (connecting again the USB cable or turning ON the POS or entering in ″Disconnected State″).
- DCx (Disconnected State): The POS is turn OFF or the USB cable is disconnected. This is the main state for the POS/FB disconnection to indicate that when the FP goes into this state the USB POS/FB disconnection is counted (the POS/FB disconnection is stored in FM and the ″POS/FB 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 FP is waiting for the user to do something (connecting again the USB cable or turning ON the POS or Start Off-Line Mode).
  — Off-Line Disconnected State″ (Off-line DCx): In this state the ″Off-Line Mode″ operations are performed.

Note: Every time that the POS is turn OFF when the FP is powered and the SP is open, the FP goes into ″Disconnected State″.

The details of the state operations are described below:

15.1.2 Stand_by Cx (Stand by Connected State)

15.1.2.1 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 FP is reset and the fiscal microcode will check the 5V line to detect if POS is connected to the printer or not.	
A) If 5V line is not present, the FP 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: • Print the ″Stand by Connected/Disconnected Report″ for a maximum of ten times.	D) If the printer ends the ″Stand by Connected state″, then: • Don′t print or stop the printing of the ″Stand by Connected/Disconnected Report″.

15.1.2.2 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 POS or connect USB cable (5V line is present).	1) Start ″Off-Line Mode″ (press DI button).
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″.

15.1.3 Connected (Connected State)

15.1.3.1 Start Connected State

NORMAL CASE	ALTERNATIVE
1) Turn ON the printer with Power Brick and turn ON the POS or connect the USB cable (5V line is present).	
2) The fiscal microcode will check the 5V line to detect if 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.

15.1.3.2 End Connected State

When 5V line is not present.

NORMAL CASE	ALTERNATIVE
1) USB cable is disconnected or 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 SP is closed, the printer is in ″Stand by Connected State″.	A) If 5V line is not present and the SP is opened, the printer is in ″Stand by Disconnected State″.

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

15.1.4.1 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 Mode″ (press DI button).	
A) The ″Off-Line Disconnected State″ has been recognized because the Off-Line Mode buttons are pressed.	
B) Store the ″POS/FB Disconnected″ in FM.	B) If previous state is ″Stand by Disconnected State″, don′t store ″POS/FB Disconnection″ in FM.
C) Print the ″POS/FB Disconnection Report″.	C) If previous state is ″Stand by Disconnected State″, don′t print the ″POS/FB Disconnected Report″ for ″Disconnected State″.
	D) If FV or a non-fiscal report is in progress: the FV 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 • Mode Enable Report • Main Menu Report	

15.1.4.2 End Disconnected State

When end ″Off-Line Mode″.

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

15.1.5 Stand_by DCx (Stand by Disconnected State)

15.1.5.1 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 SP is opened or end of ″Off-Line Disconnected State″.
2) The FP is reset and the fiscal microcode will check the 5V line to detect if POS is connected to the printer or not.	
A) If 5V line is not present, the FP 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 SP is opened, then store ″POS/FB Disconnection″ in FM.
	D) If previous state is ″Connected State″ and the SP is opened, print the ″POS/FB 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: • Print the ″Stand by Connected/Disconnected Report″ for a maximum of ten times.	F) If the printer ends the ″Stand by Disconnected state″, then: • Don′t print or stop the ″Stand by Connected/Disconnected Report″.

15.1.5.2 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 POS or connect USB cable (5V line is present).	1) Start ″Off-Line Mode″ (press DI button).
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″.

15.1.6 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.

15.1.7 POS/FB 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 FUs is sufficient to operate one or more FP′s 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.

15.1.8 POS/FB Disconnection Table Full

- When the ″POS/FB Disconnection Table″ is full, the flag FDCXFUL is set YES and the error code 169 is returned.
- When the ″POS/FB Disconnection Table″ is full, the following operations will be not allowed:
  - Fiscal Voucher
  - Non-Fiscal Report
  - Normal Lines
  - Comment Lines
  - Barcodes
  - Graphics

15.1.9 POS/FB Disconnection Calculations

- When a POS/FB disconnection occurs, the following counters are incremented:

  $Lif\_N\_POS\_FB\_Dcx = Lif\_N\_POS\_FB\_Dcx + 1$
  $Day\_N\_POS\_FB\_Dcx = Day\_N\_POS\_FB\_Dcx + 1$

15.2 4610 SureMark USB - FP/FB Disconnection/Reconnection

This chapter describes the microcode behaviour when the disconection/reconnection occurs between the fiscal printer and fiscal base.

15.2.1 FP/FB Disconnection Calculations

- When a FP/FB disconnection occurs, the following counters are incremented:

  $Lif\_N\_FP\_FB\_Dcx = Lif\_N\_FP\_FB\_Dcx + 1$
  $Day\_N\_FP\_FB\_Dcx = Day\_N\_FP\_FB\_Dcx + 1$

15.2.2 FP/FB Reconnection Notes

- After the FP/FB are reconnected, the J4/CE jumper procedure is required.

15.2.3 FP/FB Disconnection Table Full

- When the ″FP/FB Disconnection Table″ is full, the flag FBPDFUL is set YES and the error code 175 is returned.
- When the ″FP/FB Disconnection Table″ is full, the following operations will be not allowed:
  - Fiscal Voucher
  - Non-Fiscal Report
  - Normal Lines
  - Comment Lines
  - Barcodes
  - Graphics

16.0 Audit Port

16.1 Serial Communication Protocol

The FP have a serial communication port for electronic data collection.
The communication is performed with ″packet″ transmissions.

16.1.1 Packets Type

16.1.1.1 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.

16.1.1.2 Block Packets

The block packets are multi-byte packets used for meaningful data trasmission between FP and DDC. See the format packet in 16.1.4, “Transmission Block Format” on page 81.
The types are:

- Data Fiscal Record (DFR): This record is used by the 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 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 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′.

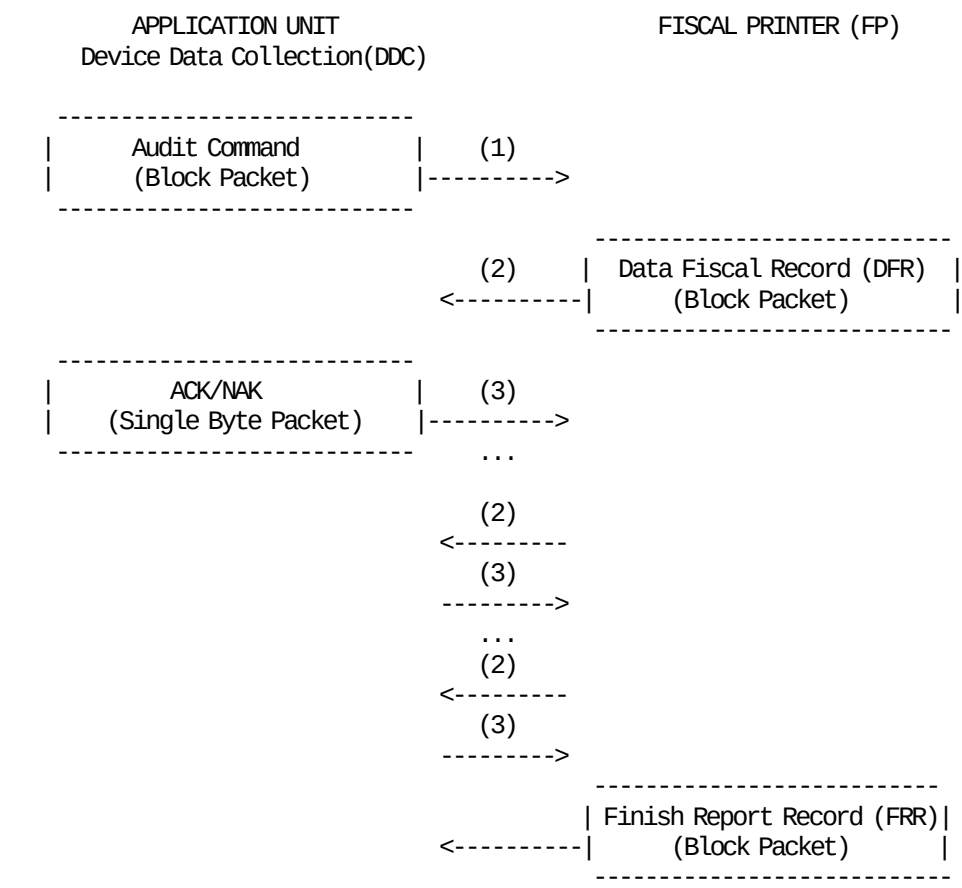
16.1.2 Packets Transmission

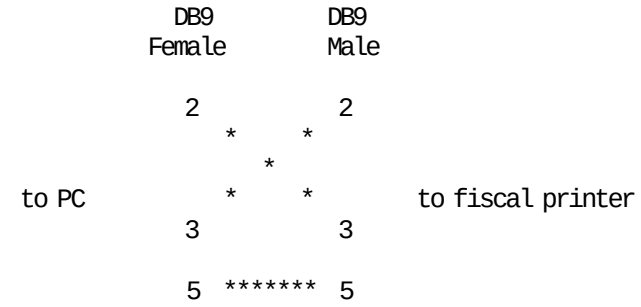
16.1.2.1 Description

The information transfer will be initiated for a Device Data Collection (DDC) sending an audit command (Block Packet) to the FP.
The FP will respond with a Data Fiscal Record (DFR) (Block Packet). Each time that the 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 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 FP.
After receiving the ACK (Single Byte Packet) response corresponding to the last DFR (Block Packet) transmited, the FP will send a Finish Report Record (FRR) (Block Packet).

16.1.2.2 Flow





16.1.3 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 lenght
- 1 start bit
- 1 stop bit
- parity none
- 9600 bauds transmission speed

16.1.4 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).

16.2 Audit Command

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 the specific command requested.

DESCRIPTION	COMMAND	RANGE	FORMAT
ZN (Closures by Number)	ZN00nnnn00nnnn	nnnn = 0001..9999	decimal
ZD (Closures by Date)	ZDYYMMDDYYMMDD	yymmdd = 900101..891231	
VN (Vats by Number)	VN000nnn000nnn	nnn = 001..999	decimal
VD (Vats by Date)	VDYYMMDDYYMMDD	yymmdd = 900101..891231	
WN (Wording by Number)	WN0000nn0000nn	nn = 01..99	decimal
WD (Wording by Date)	WDYYMMDDYYMMDD	yymmdd = 900101..891231	
FN (Fuel Type by Number)	FN000nnn000nnn	nn = 001..200	decimal
RB (Raw Binary)	RB0hhhhh0hhhhh	hhhhh = 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.

16.3 Electronic Data Collection

When the DDC send a audit command (block packet), the 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
- Fuel Type Record
- Daily Entry Record
- Fiscal Memory Dump Record
- Error Record

16.3.1 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) : WNYYMMDDYYMMDD

FIELD NBR.	FROM	TO	SIZE (BYTES)	DATA	TYPE	ACCUMULATOR/ 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

16.3.2 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 NBR.	FROM	TO	SIZE (BYTES)	DATA	TYPE	ACCUMULATOR/ 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

16.3.3 Fuel Type Record

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

- FN (Fuel Type by Number): WN000nnn000nnn

FIELD NBR.	FROM	TO	SIZE (BYTES)	DATA	TYPE	ACCUMULATOR/ COUNTER
1	1	1	1	Record Type	ASCII	Constant "F"
2	2	4	3	Fuel Type Id Number	ASCII	
3	5	5	1	Fuel Type VAT Category	ASCII	FM_FT_VAT_Categ
4	6	25	20	Fuel Type Description	ASCII	FM_FT_Desc

When a error occurs, a error record is returned instead of the corresponding fuel type record.

16.3.4 Daily Entry Record

For the following audit command, four daily entry records are returned for each daily entry table entry of the requested period:

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

First Daily Entry Record

FIELD NBR.	FROM	TO	SIZE (BYT)	DATA	TYPE	ACCUMULATOR/ COUNTER
1	1	1	1	Record Type	ASCII	Constant "A"
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 - Retail	ASCII	FM_DE_N_Vouc_R
7	41	50	10	Fiscal Voucher Number - Wholesale	ASCII	FM_DE_N_Vouc_W
8	51	70	20	Net Sales - Categ. A+B+C+D format: a.aaa.aaa.aaa.aaa,aa	ASCII	FM_DE_Net_ABCD
9	71	83	13	Net Sales - Categ. E format: aa.aaa.aaa,aa	ASCII	FM_DE_Net_E
10	84	87	4	Number of Repair Actions	ASCII	FM_DE_N_Ract
11	88	90	3	Number of VAT's Rates Changed	ASCII	FM_DE_N_VAT
12	91	92	2	Number of Headers Changed	ASCII	FM_DE_N_Head
13	93	95	3	Number of POS/FB Disconnections	ASCII	FM_DE_N_POS_FB_Dcx
14	96	98	3	Number of FP/FB Disconnections	ASCII	FM_DE_N_FP_FB_Dcx
15	99	101	3	First Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_1
16	102	104	3	Second Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_2
17	105	107	3	Third Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_3
18	108	110	3	Fourth Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_4
19	111	113	3	Fiveth Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_5
20	114	116	3	Sixth Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_6
21	117	119	3	Seventh Fuel Type Id Nbr Enabled	ASCII	FM_DE_FT_Enabled_7

Second Daily Entry Record

FIELD NBR.	FROM	TO	SIZE (BYT)	DATA	TYPE	ACCUMULATOR/ COUNTER
1	1	1	1	Record Type	ASCII	Constant "B"
2	2	18	17	Qty. Liters Fuel Type 1 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT01
3	19	35	17	Qty. Liters Fuel Type 2 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT02
4	36	52	17	Qty. Liters Fuel Type 3 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT03
5	53	69	17	Qty. Liters Fuel Type 4 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT04
6	70	86	17	Qty. Liters Fuel Type 5 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT05
7	87	103	17	Qty. Liters Fuel Type 6 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT06
8	104	120	17	Qty. Liters Fuel Type 7 Retail format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_R_FT07
9	121	137	17	Qty. Liters Fuel Type 1 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT01
10	138	154	17	Qty. Liters Fuel Type 2 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT02
11	155	171	17	Qty. Liters Fuel Type 3 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT03
12	172	188	17	Qty. Liters Fuel Type 4 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT04
13	189	205	17	Qty. Liters Fuel Type 5 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT05
14	206	222	17	Qty. Liters Fuel Type 6 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT06
15	223	239	17	Qty. Liters Fuel Type 7 Wholesale format: a.aaa.aaa.aaa,aaa	ASCII	FM_DE_Ltr_Qty_W_FT07

Third Daily Entry Record

FIELD NBR.	FROM	TO	SIZE (BYT)	DATA	TYPE	ACCUMULATOR/ COUNTER
1	1	1	1	Record Type	ASCII	Constant "C"
28	2	17	16	Gross Rev. Fuel Type 1 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT01
29	18	33	16	Gross Rev. Fuel Type 2 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT02
30	34	49	16	Gross Rev. Fuel Type 3 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT03
31	50	65	16	Gross Rev. Fuel Type 4 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT04
32	66	81	16	Gross Rev. Fuel Type 5 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT05
33	82	97	16	Gross Rev. Fuel Type 6 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT06
34	98	113	16	Gross Rev. Fuel Type 7 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_R_FT07
35	114	129	16	Gross Rev. Fuel Type 1 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT01
36	130	145	16	Gross Rev. Fuel Type 2 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT02
37	146	161	16	Gross Rev. Fuel Type 3 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT03
38	162	177	16	Gross Rev. Fuel Type 4 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT04
39	178	193	16	Gross Rev. Fuel Type 5 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT05
40	194	209	16	Gross Rev. Fuel Type 6 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT06
41	210	225	16	Gross Rev. Fuel Type 7 Retail format: aaaaaaaaaaaaa,aa	ASCII	FM_DE_Gross_Tot_W_FT07

Fourth Daily Entry Record

	FIELD NBR.	FROM	TO	SIZE (BYT)	DATA	TYPE	ACCUMULATOR/ COUNTER
D	1	1	1	1	Record Type	ASCII	Constant "G"
	2	2	19	17	VAT Total - Categ. A - Retail format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_R_A
	3	20	36	17	VAT Total - Categ. B - Retail format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_R_B
	4	37	53	17	VAT Total - Categ. C - Retail format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_R_C
	5	54	70	17	VAT Total - Categ. D - Retail format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_R_D
	6	71	87	17	VAT Total - Categ. E - Retail format: aa.aaa.aaa.aaa,aa	ASCII	always = 0
	7	88	104	17	VAT Total - Categ. A - Wholesale format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_W_A
	8	104	121	17	VAT Total - Categ. B - Wholesale format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_W_B
	9	122	138	17	VAT Total - Categ. C - Wholesale format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_W_C
	10	139	155	17	VAT Total - Categ. D - Wholesale format: aa.aaa.aaa.aaa,aa	ASCII	FM_DE_VAT_W_D
	11	156	172	17	VAT Total - Categ. E - Wholesale format: aa.aaa.aaa.aaa,aa	ASCII	always = 0

16.3.5 Fiscal Memory Dump Record

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

- RB (Raw Binary): RB0hhhhh0hhhhh

FIELD NBR.	FROM	TO	SIZE (BYTES)	DATA	TYPE	OBSERVATION
1	1	1	1	Record Type	ASCII	Constant 'D'
2	2	6	5	Dumped Address (format: hhhhh)	ASCII	hhhhh = hexadecimal represent.
3	7	9	3	Block Size (format: nnn)	ASCII	001 =< nnn <= 120 decimal representation
4	10	(n*2)+9	(n*2)	Bytes in Hexadecimal (format: hhhh...hhhh)	ASCII	hh..hh = 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 FM contains A5, the DB command will return '41 35'.

16.4 Errors

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

16.4.1 Error Record

FIELD NBR.	FROM	TO	SIZE (BYTES)	DATA	OBSERVATIONS
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

16.4.2 Invalid Commmands

INVALID COMMAND	ERROR RECORD
JN000001123456	'E 000 065 000'
ZH000001123456	'E 000 066 000'

16.4.3 Errors by Flags

FLAGS	ERROR RECORD
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'
FEPROMC (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'
FOPENCR (CR Non-Fiscal Report in Prog.....) = YES	'E 000 184 000'

16.4.4 Errors by Data

16.4.4.1 Fiscal Memory Report by Date

The following audit command errors are described below:

- WD (Wording by Date): WDYYMMDDYYMMDD
- 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/VAT Rate/Closure Date stored = 020101 (s:01/01/2002)
- Last Header/VAT 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 (first < a < s)	'900101' (first)	'011020' (a)	'E 000 067 090'
Data Not Found (e < c < last)	'020320' (c)	'891231' (last)	'E 000 067 090'

16.4.4.2 Fiscal Memory Report by Number

The following Audit command errors are described below:

- WN (Wording by Number): WN0000nn0000nn
- VN (Vats by Number): VN000nnn000nnn
- FN (Fuel Type by Number): FN000nnn000nnn
- ZN (Closures by Number): ZN00nnnn00nnnn

Example (Closure by Number):

- Valid Range = 000001-009999 (s-lastv)
- Last Closure Number stored = 000010 (e)
- Last Closure Number available = 001800 (lastc)

Note: The Wording/Vats/Fuel Type 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 (nn not equal 00)	'nn0001'	'009999'	'E 000 096 000'
Invalid Parameter (nn not equal 00)	'000001'	'nn9999'	'E 000 096 000'
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 (e < b < lastc)	'000015' (b)	'001800' (lastc)	'E 000 067 090'
Data Not Found (e < b < lastv)	'000015' (b)	'009999' (lastv)	'E 000 067 090'
Data Not Found (e < lastc < c < lastc)	'004000' (c)	'009999' (lastv)	'E 000 067 090'

16.4.4.3 Fiscal Memory Dump by Address

The following Audit command errors are described below:

- RB (Raw Binary): RB0hhhhh0hhhhh

Example:

- Valid Range = 000000-0FFFFF (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 (nn not equal 00)	'n00001'	'0FFFFF'	'E 000 103 000'
Invalid Data (nn not equal 00)	'000001'	'n99999'	'E 000 103 000'
Invalid Period	'0FFFFF'	'000001'	'E 000 095 000'
Data Not Found (b < e < lastv)	'000015'	'0FFFFF' (lastv)	'E 000 095 000'
Data Not Found (e < c < lastv)	'08FFFF' (c)	'0FFFFF' (lastv)	'E 000 095 000'

16.4.5 Errors by Information

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

17.0 System Commands

See 17.2, “00 - SYSTEM COMMANDS” on page 98.

17.1 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 FU 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 FU. The format of the FU status is described in 3.3, “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.

17.2 00 - SYSTEM COMMANDS

17.2.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0	00 - System Commands	hex	1
1	Options	hex	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
  FU test is performed and then the FU status is sent over the serial communication link.
- Report Current Status
  The FU current status is sent over the serial communication link.
- Fiscal Unit Power-On Reset
  The microcode performs a FU software POR.
- Report Microcode EC Level
  The FU status containing the microcode EC level in byte 8 (the usual FU 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.

17.3 01 - PRINT HEADER

This command is used to print the header lines.

17.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		01 - Print Header	hex	1
3		Sale Types 00 = Retail 01 = Wholesale	hex	1
4-7		Operator Number	ASCII	4
8-10		Terminal Number	ASCII	3

17.3.2 Command Example

```
Byte  0        2      3      4       8
     +---------+-------+-------+--------+-------+
     | x'1B66' | x'01' | x'00' | 'oooo' | 'ttt' |
     +---------+-------+-------+--------+-------+
         |         |       |      |        |
         |         |       |      |         --------> Terminal Number
         |         |       |       ----------------> Operator Number
         |         |        ------------------------> Type Fuel Sale
         |          -------------------------------->Print Header
          ----------------------------------------->Escape Sequence
```

17.3.3 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 station
  ************************************
        lANuAsMENH HMEPOMHNIA/vPA
           ZHTHsTE EpIsKEYH
  ************************************
}
```

17.3.4 Print Header Rules

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

17.4 03 - COMMENT LINE IN CR STATION

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

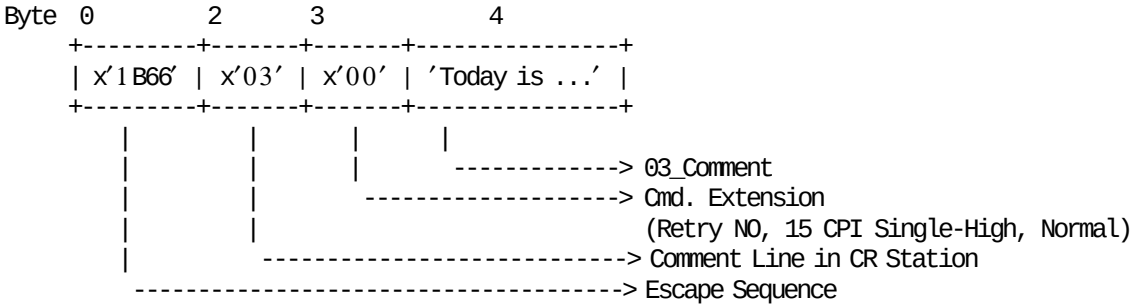
17.4.1 Command Format

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		03_Comment	ASCII	30	(Note 1)

Notes:

1. The 03_Comment line is printed as follows:
   30 characters for 15 CPI.
   22 characters for 12 CPI.

17.4.2 Command Example



17.4.3 Comment Line in CR Station Rules

- 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 03_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 03_Comment line can be printed:
  - Outside any document
    - The ″pAPANOMH ApOdEIjH dIvKETAI ApO TON NOMO″ (39 msg.) will be printed before the first comment line.
    - The ″pAPANOMH ApOdEIjH dIvKETAI ApO TON NOMO″ (39 msg.) will be printed every six comment lines.
  - 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.

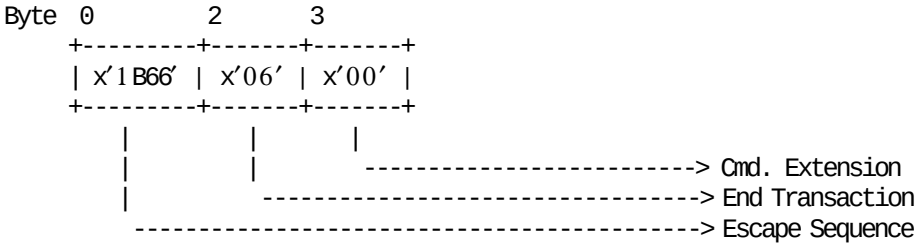
17.5 06 - END TRANSACTION

This command is used to end the ST.

17.5.1 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')		

17.5.2 Command Example



17.5.3 End Transaction Calculations

Day_N_Slip = *Day_N_Slip* + 1
Day_N_Vouc = *Day_N_Vouc* + 1

- **If Type Fuel Sale = Retail**

  Day_N_Vouc_R = *Day_N_Vouc_R* + 1

- **If Type Fuel Sale = Wholesale**

  Day_N_Vouc_W = *Day_N_Vouc_W* + 1

- **If Type Fuel Sale = Retail**

  Day_Total_R = *Day_Total_R* + *Tra_Total*

  Day_Tot_R_A = *Day_Tot_R_A* + *Tra_Tot_A*
  Day_Tot_R_B = *Day_Tot_R_B* + *Tra_Tot_B*
  Day_Tot_R_C = *Day_Tot_R_C* + *Tra_Tot_C*
  Day_Tot_R_D = *Day_Tot_R_D* + *Tra_Tot_D*
  Day_Tot_R_E = *Day_Tot_R_E* + *Tra_Tot_E*

  *Day_Ltr_Qty_R_FT*01 = *Day_Ltr_Qty_R_FT*01 + *Tra_Ltr_Qty_FT*01
  *Day_Ltr_Qty_R_FT*02 = *Day_Ltr_Qty_R_FT*02 + *Tra_Ltr_Qty_FT*02
  *Day_Ltr_Qty_R_FT*03 = *Day_Ltr_Qty_R_FT*03 + *Tra_Ltr_Qty_FT*03
  *Day_Ltr_Qty_R_FT*04 = *Day_Ltr_Qty_R_FT*04 + *Tra_Ltr_Qty_FT*04
  *Day_Ltr_Qty_R_FT*05 = *Day_Ltr_Qty_R_FT*05 + *Tra_Ltr_Qty_FT*05
  *Day_Ltr_Qty_R_FT*06 = *Day_Ltr_Qty_R_FT*06 + *Tra_Ltr_Qty_FT*06

$Day\_Ltr\_Qty\_R\_FT07 = Day\_Ltr\_Qty\_R\_FT07 + Tra\_Ltr\_Qty\_FT07$

$Day\_Gross\_Tot\_R\_FT01 = Day\_Gross\_Tot\_R\_FT01 + Tra\_Gross\_Tot\_FT01$
$Day\_Gross\_Tot\_R\_FT02 = Day\_Gross\_Tot\_R\_FT02 + Tra\_Gross\_Tot\_FT02$
$Day\_Gross\_Tot\_R\_FT03 = Day\_Gross\_Tot\_R\_FT03 + Tra\_Gross\_Tot\_FT03$
$Day\_Gross\_Tot\_R\_FT04 = Day\_Gross\_Tot\_R\_FT04 + Tra\_Gross\_Tot\_FT04$
$Day\_Gross\_Tot\_R\_FT05 = Day\_Gross\_Tot\_R\_FT05 + Tra\_Gross\_Tot\_FT05$
$Day\_Gross\_Tot\_R\_FT06 = Day\_Gross\_Tot\_R\_FT06 + Tra\_Gross\_Tot\_FT06$
$Day\_Gross\_Tot\_R\_FT07 = Day\_Gross\_Tot\_R\_FT07 + Tra\_Gross\_Tot\_FT07$

- **If Type Fuel Type = Wholesale**

$Day\_Total\_W = Day\_Total\_W + Tra\_Total$

$Day\_Tot\_W\_A = Day\_Tot\_W\_A + Tra\_Tot\_A$
$Day\_Tot\_W\_B = Day\_Tot\_W\_B + Tra\_Tot\_B$
$Day\_Tot\_W\_C = Day\_Tot\_W\_C + Tra\_Tot\_C$
$Day\_Tot\_W\_D = Day\_Tot\_W\_D + Tra\_Tot\_D$
$Day\_Tot\_W\_E = Day\_Tot\_W\_E + Tra\_Tot\_E$

$Day\_Ltr\_Qty\_W\_FT01 = Day\_Ltr\_Qty\_W\_FT01 + Tra\_Ltr\_Qty\_FT01$
$Day\_Ltr\_Qty\_W\_FT02 = Day\_Ltr\_Qty\_W\_FT02 + Tra\_Ltr\_Qty\_FT02$
$Day\_Ltr\_Qty\_W\_FT03 = Day\_Ltr\_Qty\_W\_FT03 + Tra\_Ltr\_Qty\_FT03$
$Day\_Ltr\_Qty\_W\_FT04 = Day\_Ltr\_Qty\_W\_FT04 + Tra\_Ltr\_Qty\_FT04$
$Day\_Ltr\_Qty\_W\_FT05 = Day\_Ltr\_Qty\_W\_FT05 + Tra\_Ltr\_Qty\_FT05$
$Day\_Ltr\_Qty\_W\_FT06 = Day\_Ltr\_Qty\_W\_FT06 + Tra\_Ltr\_Qty\_FT06$
$Day\_Ltr\_Qty\_W\_FT07 = Day\_Ltr\_Qty\_W\_FT07 + Tra\_Ltr\_Qty\_FT07$

$Day\_Gross\_Tot\_W\_FT01 = Day\_Gross\_Tot\_W\_FT01 + Tra\_Gross\_Tot\_FT01$
$Day\_Gross\_Tot\_W\_FT02 = Day\_Gross\_Tot\_W\_FT02 + Tra\_Gross\_Tot\_FT02$
$Day\_Gross\_Tot\_W\_FT03 = Day\_Gross\_Tot\_W\_FT03 + Tra\_Gross\_Tot\_FT03$
$Day\_Gross\_Tot\_W\_FT04 = Day\_Gross\_Tot\_W\_FT04 + Tra\_Gross\_Tot\_FT04$
$Day\_Gross\_Tot\_W\_FT05 = Day\_Gross\_Tot\_W\_FT05 + Tra\_Gross\_Tot\_FT05$
$Day\_Gross\_Tot\_W\_FT06 = Day\_Gross\_Tot\_W\_FT06 + Tra\_Gross\_Tot\_FT06$
$Day\_Gross\_Tot\_W\_FT07 = Day\_Gross\_Tot\_W\_FT07 + Tra\_Gross\_Tot\_FT07$

- **Clearing Transaction Accumulators**

$Tra\_Total = 0$

$Tra\_Net\_Total = 0$

$Tra\_VAT\_Total = 0$

$Tra\_Tot\_A = 0$
$Tra\_Tot\_B = 0$
$Tra\_Tot\_C = 0$
$Tra\_Tot\_D = 0$
$Tra\_Tot\_E = 0$

$Tra\_Net\_A = 0$
$Tra\_Net\_B = 0$
$Tra\_Net\_C = 0$
$Tra\_Net\_D = 0$
$Tra\_Net\_E = 0$

$Tra\_Ltr\_Qty\_FT01 = 0$
$Tra\_Ltr\_Qty\_FT02 = 0$
$Tra\_Ltr\_Qty\_FT03 = 0$
$Tra\_Ltr\_Qty\_FT04 = 0$
$Tra\_Ltr\_Qty\_FT05 = 0$

*Tra_Ltr_Qty_FT*06 = 0
*Tra_Ltr_Qty_FT*07 = 0

*Tra_Gross_Tot_FT*01 = 0
*Tra_Gross_Tot_FT*02 = 0
*Tra_Gross_Tot_FT*03 = 0
*Tra_Gross_Tot_FT*04 = 0
*Tra_Gross_Tot_FT*05 = 0
*Tra_Gross_Tot_FT*06 = 0
*Tra_Gross_Tot_FT*07 = 0

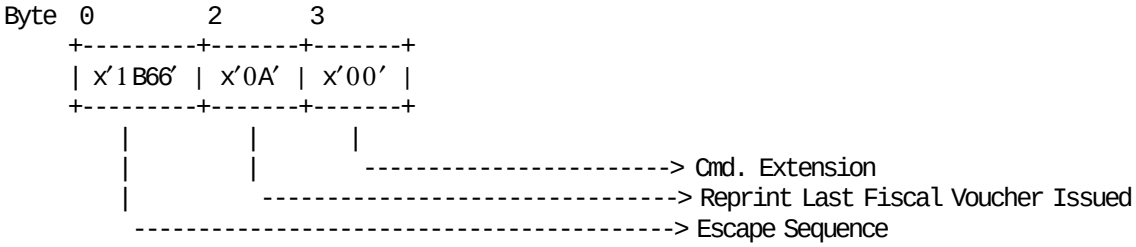
17.6 0A - REPRINT LAST FISCAL VOUCHER ISSUED

This command is used to reprint the last fiscal voucher issued.

17.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		0A - Reprint Last Fiscal Voucher Issued	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

17.6.2 Command Example



17.6.3 Reprint Last Fiscal Voucher Issued Rules

- This cmd. must be issued inside a sale period and outside of the sale transaction.
- Only the fiscal vouchers issued in the current sale period will be stored in RAM memory to be reprinted more later.
- The re-printing of the last fiscal voucher issued is available until a new fiscal voucher is issued.
- If no fiscal vouchers were issued in the current sale period, the error code 63 will be returned.

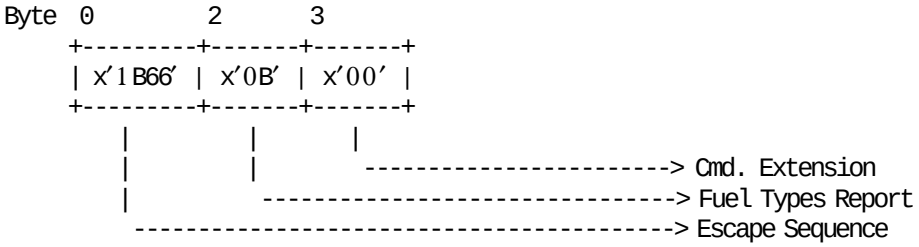
17.7 0B - FUEL TYPES REPORT

This command is used to print the all fuel types set in fuel type table (FM) and the enabled fuel types (RAM).

17.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		0B - Fuel Types Report	hex	1
3		Cmd. Extension 00 = Complete Fuel Types Report 01 = Enable Fuel Types Report	hex	1

17.7.2 Command Example



17.7.3 Fuel Type Report Calculations

$Day\_N\_Slip = Day\_N\_Slip + 1$

17.8 13 - CLOSE SALE PERIOD

This command is used to close the SP, update the FM (when FIM is set) and issued the closure report. Up to 1800 FM entries are available for the FU lifetime.

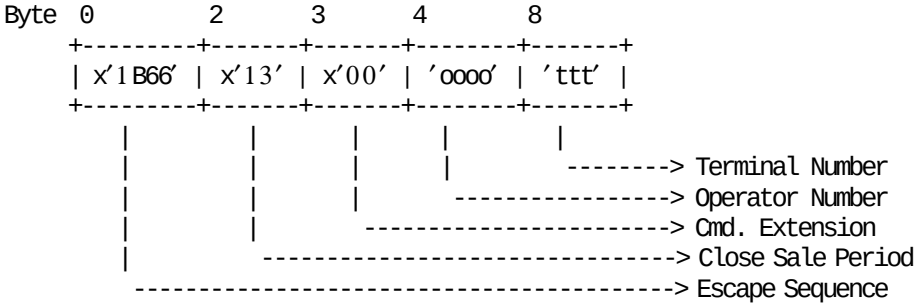
17.8.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		13 - Close Sale Period	hex	1	
3		Cmd. Extension	hex	1	
		00 = Original			
		01 = Copy			(Note 1)
4-7		Operator Number	ASCII	4	
8-10		Terminal Number	ASCII	3	

Notes:

1. When this option is selected, the counters and accumulators are not affected.

17.8.2 Command Example



17.8.3 Close Sale Period Calculations

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

- **Update Daily Counters:**

  $Day\_N\_Slip = Day\_N\_Slip + 1$

- **Update Lifetime Counters:**

  $Lif\_N\_Slip = Lif\_N\_Slip + Day\_N\_Slip$
  $Lif\_N\_Clos = Lif\_N\_Clos + 1$

  $Lif\_N\_Vouc = Lif\_N\_Vouc + Day\_N\_Vouc$
  $Lif\_N\_Vouc\_R = Lif\_N\_Vouc\_R + Day\_N\_Vouc\_R$
  $Lif\_N\_Vouc\_W = Lif\_N\_Vouc\_W + Day\_N\_Vouc\_W$

- **Update Daily Accumulators:**

$$Day\_Net\_R\_A = TRUNC(\frac{Day\_Tot\_R\_A}{1 + Rate\_A} + 0.005)$$

$$Day\_Net\_R\_B = TRUNC(\frac{Day\_Tot\_R\_B}{1 + Rate\_B} + 0.005)$$

$$Day\_Net\_R\_C = TRUNC(\frac{Day\_Tot\_R\_C}{1 + Rate\_C} + 0.005)$$

$$Day\_Net\_R\_D = TRUNC(\frac{Day\_Tot\_R\_D}{1 + Rate\_D} + 0.005)$$

$$Day\_Net\_R\_E = TRUNC(\frac{Day\_Tot\_R\_E}{1 + Rate\_E} + 0.005)$$

$$Day\_Net\_R\_ABDC = Day\_Net\_R\_A + Day\_Net\_R\_B + Day\_Net\_R\_C + Day\_Net\_R\_D$$
$$Day\_Net\_R\_Total = Day\_Net\_R\_A + Day\_Net\_R\_B + Day\_Net\_R\_C + Day\_Net\_R\_D + Day\_Net\_R\_E$$

$$Day\_VAT\_R\_A = Day\_Tot\_R\_A - Day\_Net\_R\_A$$
$$Day\_VAT\_R\_B = Day\_Tot\_R\_B - Day\_Net\_R\_B$$
$$Day\_VAT\_R\_C = Day\_Tot\_R\_C - Day\_Net\_R\_C$$
$$Day\_VAT\_R\_D = Day\_Tot\_R\_D - Day\_Net\_R\_D$$
$$Day\_VAT\_R\_E = Day\_Tot\_R\_E - Day\_Net\_R\_E$$

$$Day\_VAT\_R\_Total = Day\_VAT\_R\_A + Day\_VAT\_R\_B + Day\_VAT\_R\_C + Day\_VAT\_R\_D + Day\_VAT\_R\_E$$

$$Day\_Net\_W\_A = TRUNC(\frac{Day\_Tot\_W\_A}{1 + Rate\_A} + 0.005)$$

$$Day\_Net\_W\_B = TRUNC(\frac{Day\_Tot\_W\_B}{1 + Rate\_B} + 0.005)$$

$$Day\_Net\_W\_C = TRUNC(\frac{Day\_Tot\_W\_C}{1 + Rate\_C} + 0.005)$$

$$Day\_Net\_W\_D = TRUNC(\frac{Day\_Tot\_W\_D}{1 + Rate\_D} + 0.005)$$

$$Day\_Net\_W\_E = TRUNC(\frac{Day\_Tot\_W\_E}{1 + Rate\_E} + 0.005)$$

$$Day\_Net\_W\_ABDC = Day\_Net\_W\_A + Day\_Net\_W\_B + Day\_Net\_W\_C + Day\_Net\_W\_D$$
$$Day\_Net\_W\_Total = Day\_Net\_W\_A + Day\_Net\_W\_B + Day\_Net\_W\_C + Day\_Net\_W\_D + Day\_Net\_W\_E$$

$$Day\_VAT\_W\_A = Day\_Tot\_W\_A - Day\_Net\_W\_A$$
$$Day\_VAT\_W\_B = Day\_Tot\_W\_B - Day\_Net\_W\_B$$
$$Day\_VAT\_W\_C = Day\_Tot\_W\_C - Day\_Net\_W\_C$$
$$Day\_VAT\_W\_D = Day\_Tot\_W\_D - Day\_Net\_W\_D$$
$$Day\_VAT\_W\_E = Day\_Tot\_W\_E - Day\_Net\_W\_E$$

$$Day\_VAT\_W\_Total = Day\_VAT\_W\_A + Day\_VAT\_W\_B + Day\_VAT\_W\_C + Day\_VAT\_W\_D + Day\_VAT\_W\_E$$

$$Day\_Total = Day\_Total\_R + Day\_Total\_W$$
$$Day\_Net\_Total = Day\_Net\_R\_Total + Day\_Net\_W\_Total$$
$$Day\_Net\_ABDC = Day\_Net\_R\_ABCD + Day\_Net\_W\_ABCD$$
$$Day\_Net\_E = Day\_Net\_R\_E + Day\_Net\_W\_E$$

$$Day\_VAT\_Total = Day\_VAT\_R\_Total + Day\_VAT\_W\_Total$$

$$Day\_VAT\_Tot\_R\_FT01 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT01 \times VATRatecorrespondingforFuelType1}{100 + VATRatecorrespondingforFuelType1} + 0.005)$$

$$Day\_VAT\_Tot\_R\_FT02 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT02 \times VATRatecorrespondingforFuelType2}{100 + VATRatecorrespondingforFuelType2} + 0.005)$$

$$Day\_VAT\_Tot\_R\_FT03 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT03 \times VATRatecorrespondingforFuelType3}{100 + VATRatecorrespondingforFuelType3} + 0.005)$$

$$Day\_VAT\_Tot\_R\_FT04 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT04 \times VATRatecorrespondingforFuelType4}{100 + VATRatecorrespondingforFuelType4} + 0.005)$$

$$Day\_VAT\_Tot\_R\_FT05 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT05 \times VATRatecorrespondingforFuelType5}{100 + VATRatecorrespondingforFuelType5} + 0.005)$$

$$Day\_VAT\_Tot\_R\_FT06 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT06 \times VATRatecorrespondingforFuelType6}{100 + VATRatecorrespondingforFuelType6} + 0.005)$$

$$Day\_VAT\_Tot\_R\_FT07 = TRUNC(\frac{Day\_Gross\_Tot\_R\_FT07 \times VATRatecorrespondingforFuelType7}{100 + VATRatecorrespondingforFuelType7} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT01 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT01 \times VATRatecorrespondingforFuelType1}{100 + VATRatecorrespondingforFuelType1} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT02 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT02 \times VATRatecorrespondingforFuelType2}{100 + VATRatecorrespondingforFuelType2} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT03 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT03 \times VATRatecorrespondingforFuelType3}{100 + VATRatecorrespondingforFuelType3} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT04 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT04 \times VATRatecorrespondingforFuelType4}{100 + VATRatecorrespondingforFuelType4} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT05 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT05 \times VATRatecorrespondingforFuelType5}{100 + VATRatecorrespondingforFuelType5} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT06 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT06 \times VATRatecorrespondingforFuelType6}{100 + VATRatecorrespondingforFuelType6} + 0.005)$$

$$Day\_VAT\_Tot\_W\_FT07 = TRUNC(\frac{Day\_Gross\_Tot\_W\_FT07 \times VATRatecorrespondingforFuelType7}{100 + VATRatecorrespondingforFuelType7} + 0.005)$$

$$Day\_Net\_Tot\_R\_FT01 = Day\_Gross\_Tot\_R\_FT01 - Day\_VAT\_Tot\_R\_FT01$$
$$Day\_Net\_Tot\_R\_FT02 = Day\_Gross\_Tot\_R\_FT02 - Day\_VAT\_Tot\_R\_FT02$$
$$Day\_Net\_Tot\_R\_FT03 = Day\_Gross\_Tot\_R\_FT03 - Day\_VAT\_Tot\_R\_FT03$$
$$Day\_Net\_Tot\_R\_FT04 = Day\_Gross\_Tot\_R\_FT04 - Day\_VAT\_Tot\_R\_FT04$$
$$Day\_Net\_Tot\_R\_FT05 = Day\_Gross\_Tot\_R\_FT05 - Day\_VAT\_Tot\_R\_FT05$$
$$Day\_Net\_Tot\_R\_FT06 = Day\_Gross\_Tot\_R\_FT06 - Day\_VAT\_Tot\_R\_FT06$$
$$Day\_Net\_Tot\_R\_FT07 = Day\_Gross\_Tot\_R\_FT07 - Day\_VAT\_Tot\_R\_FT07$$

$$Day\_Net\_Tot\_W\_FT01 = Day\_Gross\_Tot\_W\_FT01 - Day\_VAT\_Tot\_W\_FT01$$
$$Day\_Net\_Tot\_W\_FT02 = Day\_Gross\_Tot\_W\_FT02 - Day\_VAT\_Tot\_W\_FT02$$
$$Day\_Net\_Tot\_W\_FT03 = Day\_Gross\_Tot\_W\_FT03 - Day\_VAT\_Tot\_W\_FT03$$
$$Day\_Net\_Tot\_W\_FT04 = Day\_Gross\_Tot\_W\_FT04 - Day\_VAT\_Tot\_W\_FT04$$
$$Day\_Net\_Tot\_W\_FT05 = Day\_Gross\_Tot\_W\_FT05 - Day\_VAT\_Tot\_W\_FT05$$
$$Day\_Net\_Tot\_W\_FT06 = Day\_Gross\_Tot\_W\_FT06 - Day\_VAT\_Tot\_W\_FT06$$
$$Day\_Net\_Tot\_W\_FT07 = Day\_Gross\_Tot\_W\_FT07 - Day\_VAT\_Tot\_W\_FT07$$

- **Update Lifetime Accumulators:**

  $Lif\_Net\_ABCD = Lif\_Net\_ABCD + Day\_Net\_R\_ABCD + Day\_Net\_W\_ABCD$
  $Lif\_Net\_E = Lif\_Net\_E + Day\_Net\_R\_E + Day\_Net\_W\_E$

  $Lif\_VAT\_R\_A = Lif\_VAT\_R\_A + Day\_VAT\_R\_A$
  $Lif\_VAT\_R\_B = Lif\_VAT\_R\_B + Day\_VAT\_R\_B$
  $Lif\_VAT\_R\_C = Lif\_VAT\_R\_C + Day\_VAT\_R\_C$
  $Lif\_VAT\_R\_D = Lif\_VAT\_R\_D + Day\_VAT\_R\_D$
  $Lif\_VAT\_R\_E = Lif\_VAT\_R\_E + Day\_VAT\_R\_E$

  $Lif\_VAT\_W\_A = Lif\_VAT\_W\_A + Day\_VAT\_W\_A$
  $Lif\_VAT\_W\_B = Lif\_VAT\_W\_B + Day\_VAT\_W\_B$
  $Lif\_VAT\_W\_C = Lif\_VAT\_W\_C + Day\_VAT\_W\_C$
  $Lif\_VAT\_W\_D = Lif\_VAT\_W\_D + Day\_VAT\_W\_D$
  $Lif\_VAT\_W\_E = Lif\_VAT\_W\_E + Day\_VAT\_W\_E$

  $Lif\_Ltr\_Qty\_R\_FT01 = Lif\_Ltr\_Qty\_R\_FT01 + Day\_Ltr\_Qty\_R\_FT01$
  $Lif\_Ltr\_Qty\_R\_FT02 = Lif\_Ltr\_Qty\_R\_FT02 + Day\_Ltr\_Qty\_R\_FT02$
  $Lif\_Ltr\_Qty\_R\_FT03 = Lif\_Ltr\_Qty\_R\_FT03 + Day\_Ltr\_Qty\_R\_FT03$
  $Lif\_Ltr\_Qty\_R\_FT04 = Lif\_Ltr\_Qty\_R\_FT04 + Day\_Ltr\_Qty\_R\_FT04$
  $Lif\_Ltr\_Qty\_R\_FT05 = Lif\_Ltr\_Qty\_R\_FT05 + Day\_Ltr\_Qty\_R\_FT05$
  $Lif\_Ltr\_Qty\_R\_FT06 = Lif\_Ltr\_Qty\_R\_FT06 + Day\_Ltr\_Qty\_R\_FT06$

  $Lif\_Ltr\_Qty\_R\_FT07 = Lif\_Ltr\_Qty\_R\_FT07 + Day\_Ltr\_Qty\_R\_FT07$
  $Lif\_Ltr\_Qty\_W\_FT01 = Lif\_Ltr\_Qty\_W\_FT01 + Day\_Ltr\_Qty\_W\_FT01$
  $Lif\_Ltr\_Qty\_W\_FT02 = Lif\_Ltr\_Qty\_W\_FT02 + Day\_Ltr\_Qty\_W\_FT02$
  $Lif\_Ltr\_Qty\_W\_FT03 = Lif\_Ltr\_Qty\_W\_FT03 + Day\_Ltr\_Qty\_W\_FT03$
  $Lif\_Ltr\_Qty\_W\_FT04 = Lif\_Ltr\_Qty\_W\_FT04 + Day\_Ltr\_Qty\_W\_FT04$
  $Lif\_Ltr\_Qty\_W\_FT05 = Lif\_Ltr\_Qty\_W\_FT05 + Day\_Ltr\_Qty\_W\_FT05$
  $Lif\_Ltr\_Qty\_W\_FT06 = Lif\_Ltr\_Qty\_W\_FT06 + Day\_Ltr\_Qty\_W\_FT06$
  $Lif\_Ltr\_Qty\_W\_FT07 = Lif\_Ltr\_Qty\_W\_FT07 + Day\_Ltr\_Qty\_W\_FT07$

  $Lif\_Gross\_Tot\_W\_FT01 = Lif\_Gross\_Tot\_W\_FT01 + Day\_Gross\_Tot\_FT01$
  $Lif\_Gross\_Tot\_W\_FT02 = Lif\_Gross\_Tot\_W\_FT02 + Day\_Gross\_Tot\_FT02$
  $Lif\_Gross\_Tot\_W\_FT03 = Lif\_Gross\_Tot\_W\_FT03 + Day\_Gross\_Tot\_FT03$
  $Lif\_Gross\_Tot\_W\_FT04 = Lif\_Gross\_Tot\_W\_FT04 + Day\_Gross\_Tot\_FT04$
  $Lif\_Gross\_Tot\_W\_FT05 = Lif\_Gross\_Tot\_W\_FT05 + Day\_Gross\_Tot\_FT05$
  $Lif\_Gross\_Tot\_W\_FT06 = Lif\_Gross\_Tot\_W\_FT06 + Day\_Gross\_Tot\_FT06$
  $Lif\_Gross\_Tot\_W\_FT07 = Lif\_Gross\_Tot\_W\_FT07 + Day\_Gross\_Tot\_FT07$

  $Lif\_Gross\_Tot\_R\_FT01 = Lif\_Gross\_Tot\_R\_FT01 + Day\_Gross\_Tot\_FT01$
  $Lif\_Gross\_Tot\_R\_FT02 = Lif\_Gross\_Tot\_R\_FT02 + Day\_Gross\_Tot\_FT02$
  $Lif\_Gross\_Tot\_R\_FT03 = Lif\_Gross\_Tot\_R\_FT03 + Day\_Gross\_Tot\_FT03$
  $Lif\_Gross\_Tot\_R\_FT04 = Lif\_Gross\_Tot\_R\_FT04 + Day\_Gross\_Tot\_FT04$
  $Lif\_Gross\_Tot\_R\_FT05 = Lif\_Gross\_Tot\_R\_FT05 + Day\_Gross\_Tot\_FT05$
  $Lif\_Gross\_Tot\_R\_FT06 = Lif\_Gross\_Tot\_R\_FT06 + Day\_Gross\_Tot\_FT06$
  $Lif\_Gross\_Tot\_R\_FT07 = Lif\_Gross\_Tot\_R\_FT07 + Day\_Gross\_Tot\_FT07$

- **The following operations are performed after writing the FM:**
  - **Clearing Daily Counters**

    $Day\_N\_Slip = 0$
    $Day\_N\_Vouc = 0$
    $Day\_N\_Vouc\_R = 0$
    $Day\_N\_Vouc\_W = 0$

    $Day\_N\_Ract = 0$

    $Day\_N\_Head = 0$

$Day\_N\_VAT = 0$

$Day\_N\_POS\_FB\_Dcx = 0$

$Day\_N\_FP\_FB\_Dcx = 0$

– **Clearing Daily Accumulators**

$Day\_Total\_R = 0$
$Day\_Total\_W = 0$

$Day\_Tot\_R\_A = 0$
$Day\_Tot\_R\_B = 0$
$Day\_Tot\_R\_C = 0$
$Day\_Tot\_R\_D = 0$
$Day\_Tot\_R\_E = 0$

$Day\_Tot\_W\_A = 0$
$Day\_Tot\_W\_B = 0$
$Day\_Tot\_W\_C = 0$
$Day\_Tot\_W\_D = 0$
$Day\_Tot\_W\_E = 0$

$Day\_Net\_R\_Total = 0$

$Day\_Net\_R\_A = 0$
$Day\_Net\_R\_B = 0$
$Day\_Net\_R\_C = 0$
$Day\_Net\_R\_D = 0$
$Day\_Net\_R\_E = 0$

$Day\_Net\_W\_Total = 0$

$Day\_Net\_W\_A = 0$
$Day\_Net\_W\_B = 0$
$Day\_Net\_W\_C = 0$
$Day\_Net\_W\_D = 0$
$Day\_Net\_W\_E = 0$

$Day\_VAT\_R\_Total = 0$

$Day\_VAT\_R\_A = 0$
$Day\_VAT\_R\_B = 0$
$Day\_VAT\_R\_C = 0$
$Day\_VAT\_R\_D = 0$
$Day\_VAT\_R\_E = 0$

$Day\_VAT\_W\_Total = 0$

$Day\_VAT\_W\_A = 0$
$Day\_VAT\_W\_B = 0$
$Day\_VAT\_W\_C = 0$
$Day\_VAT\_W\_D = 0$
$Day\_VAT\_W\_E = 0$

$Day\_Ltr\_Qty\_R\_FT01 = 0$
$Day\_Ltr\_Qty\_R\_FT02 = 0$
$Day\_Ltr\_Qty\_R\_FT03 = 0$
$Day\_Ltr\_Qty\_R\_FT04 = 0$
$Day\_Ltr\_Qty\_R\_FT05 = 0$
$Day\_Ltr\_Qty\_R\_FT06 = 0$
$Day\_Ltr\_Qty\_R\_FT07 = 0$

$Day\_Ltr\_Qty\_W\_FT01 = 0$
$Day\_Ltr\_Qty\_W\_FT02 = 0$
$Day\_Ltr\_Qty\_W\_FT03 = 0$
$Day\_Ltr\_Qty\_W\_FT04 = 0$
$Day\_Ltr\_Qty\_W\_FT05 = 0$
$Day\_Ltr\_Qty\_W\_FT06 = 0$
$Day\_Ltr\_Qty\_W\_FT07 = 0$

$Day\_Gross\_Tot\_R\_FT01 = 0$
$Day\_Gross\_Tot\_R\_FT02 = 0$
$Day\_Gross\_Tot\_R\_FT03 = 0$
$Day\_Gross\_Tot\_R\_FT04 = 0$
$Day\_Gross\_Tot\_R\_FT05 = 0$
$Day\_Gross\_Tot\_R\_FT06 = 0$
$Day\_Gross\_Tot\_R\_FT07 = 0$

$Day\_Gross\_Tot\_W\_FT01 = 0$
$Day\_Gross\_Tot\_W\_FT02 = 0$
$Day\_Gross\_Tot\_W\_FT03 = 0$
$Day\_Gross\_Tot\_W\_FT04 = 0$
$Day\_Gross\_Tot\_W\_FT05 = 0$
$Day\_Gross\_Tot\_W\_FT06 = 0$
$Day\_Gross\_Tot\_W\_FT07 = 0$

$Day\_VAT\_Tot\_R\_FT01 = 0$
$Day\_VAT\_Tot\_R\_FT02 = 0$
$Day\_VAT\_Tot\_R\_FT03 = 0$
$Day\_VAT\_Tot\_R\_FT04 = 0$
$Day\_VAT\_Tot\_R\_FT05 = 0$
$Day\_VAT\_Tot\_R\_FT06 = 0$
$Day\_VAT\_Tot\_R\_FT07 = 0$

$Day\_VAT\_Tot\_W\_FT01 = 0$
$Day\_VAT\_Tot\_W\_FT02 = 0$
$Day\_VAT\_Tot\_W\_FT03 = 0$
$Day\_VAT\_Tot\_W\_FT04 = 0$
$Day\_VAT\_Tot\_W\_FT05 = 0$
$Day\_VAT\_Tot\_W\_FT06 = 0$
$Day\_VAT\_Tot\_W\_FT07 = 0$

$Day\_Net\_Tot\_R\_FT01 = 0$
$Day\_Net\_Tot\_R\_FT02 = 0$
$Day\_Net\_Tot\_R\_FT03 = 0$
$Day\_Net\_Tot\_R\_FT04 = 0$
$Day\_Net\_Tot\_R\_FT05 = 0$
$Day\_Net\_Tot\_R\_FT06 = 0$
$Day\_Net\_Tot\_R\_FT07 = 0$

$Day\_Net\_Tot\_W\_FT01 = 0$
$Day\_Net\_Tot\_W\_FT02 = 0$
$Day\_Net\_Tot\_W\_FT03 = 0$
$Day\_Net\_Tot\_W\_FT04 = 0$
$Day\_Net\_Tot\_W\_FT05 = 0$
$Day\_Net\_Tot\_W\_FT06 = 0$
$Day\_Net\_Tot\_W\_FT07 = 0$

$Day\_Withdraw\_Total = 0$
$Day\_Deposit\_Total = 0$

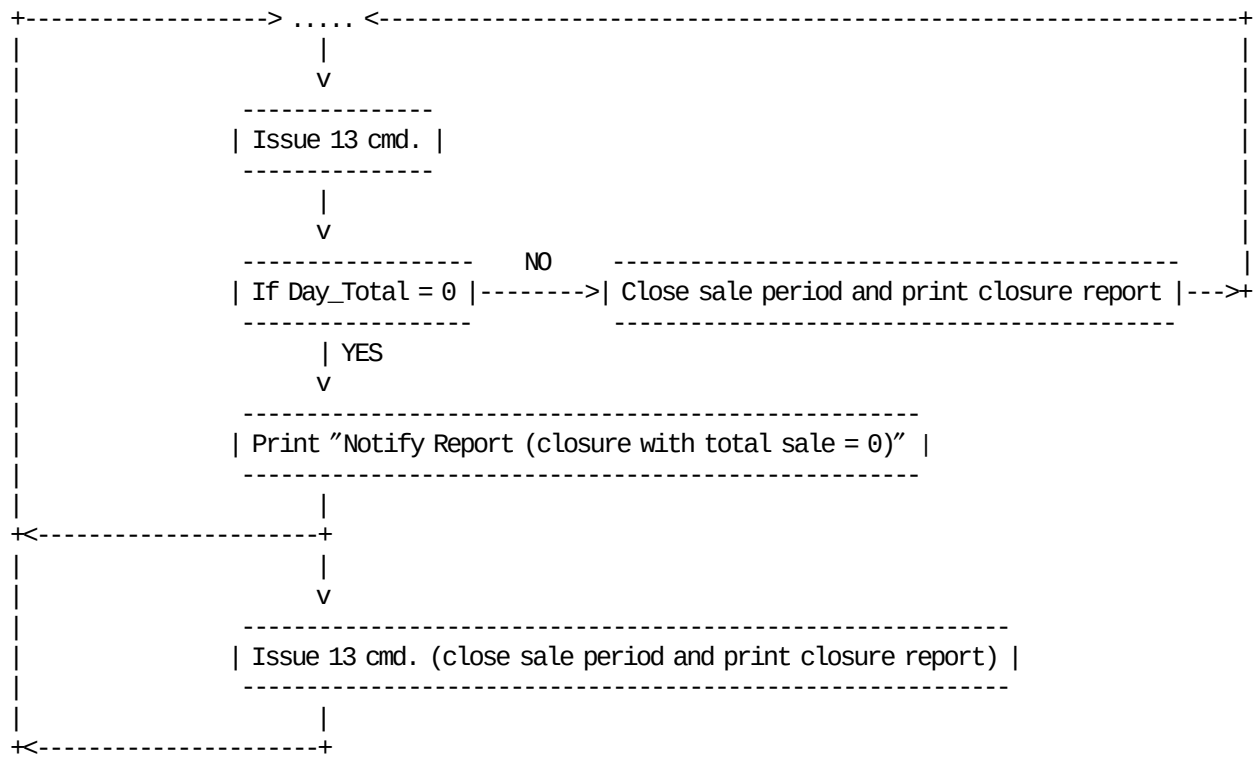
– **Update FDTS:**

```
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 station
  ************************************
        lANuAsMENH HMEPOMHNIA/vPA
            ZHTHsTE EpIsKEYH
  ************************************
}
```

17.8.4 Close Sale Period (Z-Report) Rules

- The closure date and time can not be previous to the FDTS, otherwise this command is not issued.
- If 24 hs. elapsed since the issueing of the first fiscal voucher of the sale period, it will not be allowed to start a new fiscal voucher (01 cmd.). In this case, a close sale period (13 cmd.) must be issued, otherwise the error code 127 will be returned.
- It is allowed to close a sale period with amounts in ″0″ (no sale transaction where issued during the sale period). The ″Notify Report (closure with total sale = 0)″ will be printed to inform this state.
- After issue the closure report and before to print the first fiscal voucher of the new sale period is allowed to reprint the closure report recently issued. If there is not a closure report to reprint, the error code 63 will be returned.

17.8.5 Notify Report Procedure



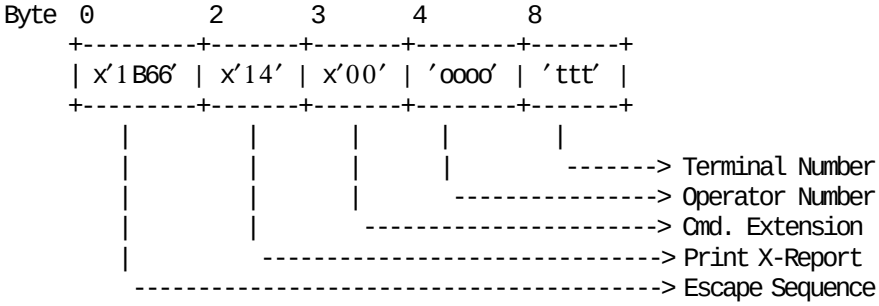
17.9 14 - PRINT X-REPORT

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

17.9.1 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

17.9.2 Command Example



17.9.3 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 FM 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 station
  ************************************
        lANuAsMENH HMEPOMHNIA/vPA
            ZHTHsTE EpIsKEYH
  ************************************
}
```

17.9.4 Print X-Report Rules

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

17.10 15 - FISCAL MEMORY REPORT

This command is used to print the FM content on CR station.

17.10.1 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	

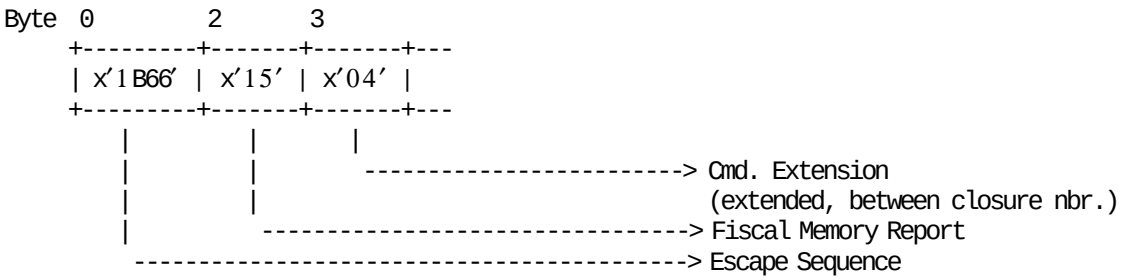
Notes:

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')

17.10.2 Command Example



17.10.3 Fiscal Memory Report Calculations

$Day\_N\_Slip = Day\_N\_Slip + 1$

17.11 16 - SET DATE AND TIME

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

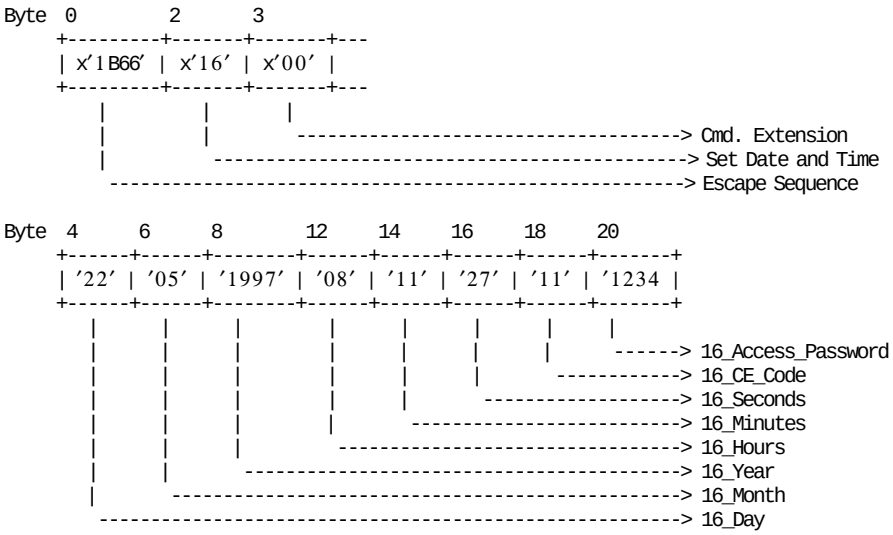
17.11.1 Command Format

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		16_Day (dd)	ASCII	2	(Note 1)
6-7		16_Month (mm)	ASCII	2	(Note 2)
8-11		16_Year (yyyy)	ASCII	4	(Note 3)
12-13		16_Hours (hh)	ASCII	2	(Note 4)
14-15		16_Minutes (mm)	ASCII	2	(Note 5)
16-17		16_Seconds (ss)	ASCII	2	(Note 5)
18-19		16_CE_Code	ASCII	2	(Note 6)
20-23		16_Access_Password	ASCII	4	(Note 7)

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.
6. Values from '00' to '99' are allowed.
7. Values from '00' to '9999' are allowed.

17.11.2 Command Example



17.11.3 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 errror 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 cannot be previous to FDTS.
  - The date and time can be set unlimited times.

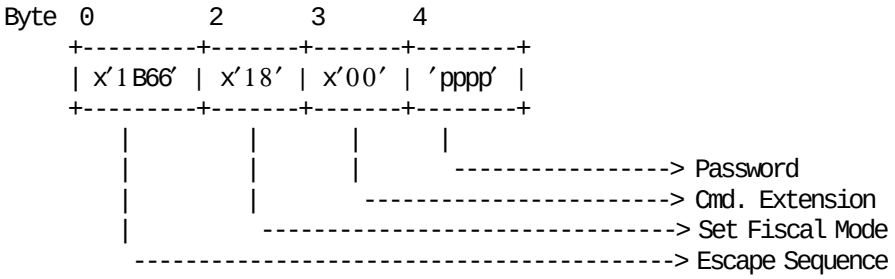
17.12 18 - SET FISCAL MODE

This command is used to set the FU to FIM. In this mode the information is write in FM.

17.12.1 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

17.12.2 Command Example



17.13 88 - WITHDRAW/DEPOSIT MONEY

This command is used to withdraw and deposit money in the cash drawer.

17.13.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		88 - Withdraw/Deposit Money	hex	1	
3		Type Operation 00 = Withdraw 01 = Deposit	hex	1	
4-9		88_Amount	ASCII	6	(Note 1)

Notes:

1. Fixed point with 2 decimal digits. Maximum allowed 999999.

17.13.2 Command Example

```
Byte  0        2      3      4
     +---------+-------+-------+----------+
     | x'1B66' | x'88' | x'00' | '001000' |
     +---------+-------+-------+----------+
         |         |       |      |
         |         |       |       -----------------> 88.Amount
         |         |       -------------------------> Cmd. Extension
         |         --------------------------------> Withdraw/Deposit Money
          ----------------------------------------> Escape Sequence
```

17.13.3 Whithdraw/Deposit Money Calculations

$Day\_N\_Slip = Day\_N\_Slip + 1$

```
If Byte 3 = 00 (Withdraw)
{
  Day_Withdraw_Total = Day_Withdraw_Total + 88_Amount
}

If Byte 3 = 01 (Deposit)
{
  Day_Deposit_Total = Day_Deposit_Total + 88_Amount
}
```

17.14 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 FM.

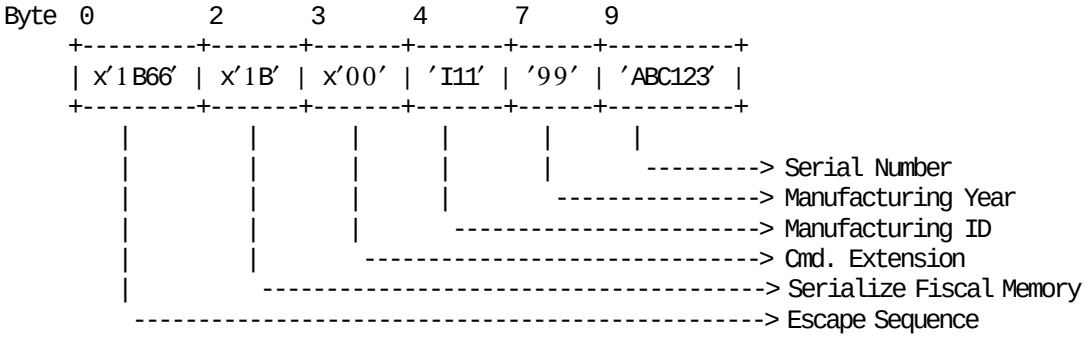
17.14.1 Command Format

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 '99' and 'A' to 'Z' and blank characters are allowed.

17.14.2 Command Example



17.14.3 Serialize Fiscal Memory Rules

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

17.15 20 - SET VAT RATE TABLE

This command is used to load the VAT rate table into FM.

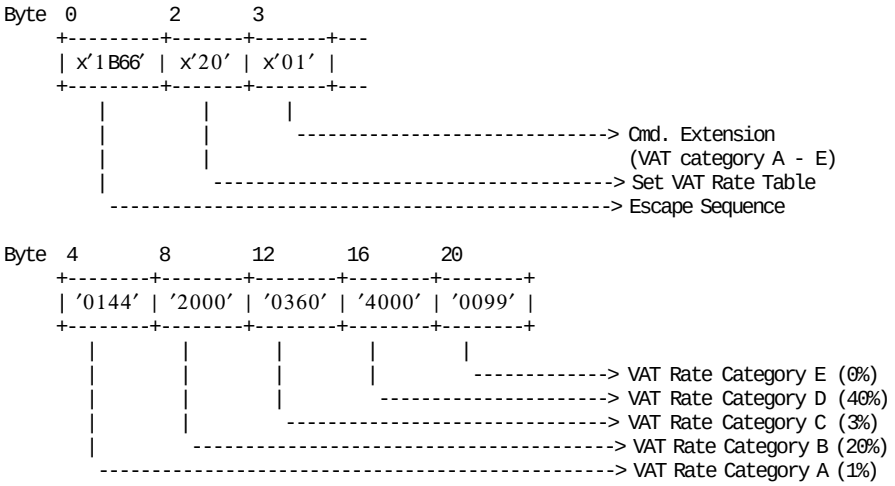
17.15.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		20 - Set 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:

1. 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'.
2. VAT rate field can range from '0100' to '9999'.
   Only the VAT rate integer part is printed on slips.
3. VAT rate field can range from '0000' to '0099'.
   '0' is printed on slips.

17.15.2 Command Example



17.15.3 Set 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
}
```

17.15.4 Set VAT Rate Table Rules

- This command can be executed out of the SP only.
- First J4/CE jumper ON/OFF after the fiscalization:
  This cmd. is ′mandatory′ before the the start of SP.
- 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 FM.
  - This cmd. is optional when the VAT rate table has been stored in FM.
  - When this cmd. is issued:
    - If the new entry is different at the lastest entry stored in VAT rate table in RAM, it is stored in VAT rate table in FM 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 table in RAM, it is not stored in VAT rate table in FM and the RAM_FDTS_Date and RAM_FDTS_Time are not set.
- The VAT rate table can be changed up to 50 times during the life of the FP.
- 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 FM.
- 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 must be equal at the lastest entry stored in VAT rate table in FM.
- When new entry is stored in VAT rate table in FM, 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.

17.15.5 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 in 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.

- Set VAT Rate Table (20 cmd.) is issued and FDTS is updated in RAM 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 FP will be useless until the current date ≥ 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..

17.16 21 - VERIFY VAT RATE TABLE

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

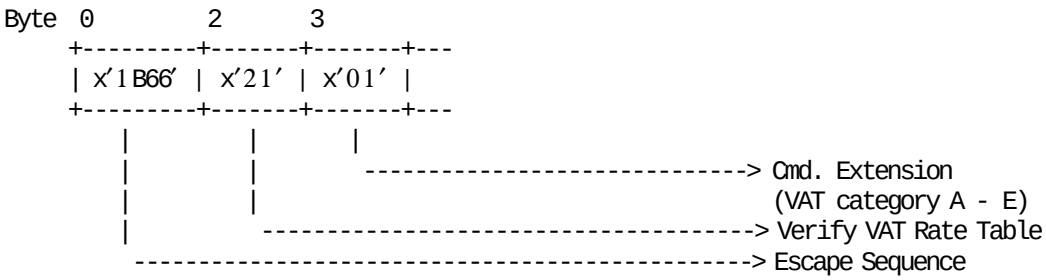
17.16.1 Command Format

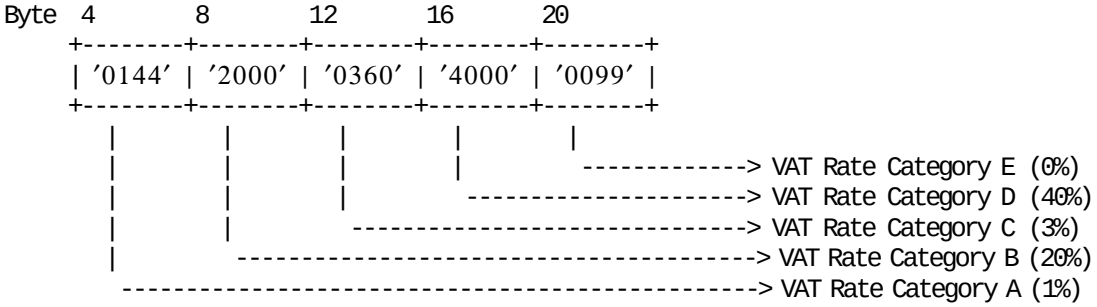
BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		21 - Verify VAT Rate Table	hex	1	
3		Cmd. Extension	hex	1	
	7-0	Reserved (always = '0x00')			
4-7		VAT Rate Category A (eedd)	ASCII	4	(Note 1, 2)
8-11		VAT Rate Category B (eedd)	ASCII	4	(Note 1, 2)
12-15		VAT Rate Category C (eedd)	ASCII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

1. 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'.
2. VAT rate field can range from '0100' to '9999'.
   Only the VAT rate integer part is printed on slips.
3. VAT rate field can range from '0000' to '0099'.
   '0' is printed on slips.

17.16.2 Command Example





17.16.3 Verify VAT Rate Table Rules

- This cmd. is 'mandatory' after each 20 cmd. (Set 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.

17.17 23 - SET/ENABLE FUEL TYPE TABLE

This command is used to set the fuel type table in fiscal memory and to enable until seven fuel types in RAM memory.

17.17.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		23 - Set/Enable Fuel Type Table	hex	1	
3		Cmd. Extension 00 = Enable Fuel Types 01 = Set Entry in Table (FM)	hex	1	
		If Cmd. Extension = 00 (Enable Fuel Types (RAM))			
4-6		23_First_Fuel_Type_Id_Number	ASCII	3	(Note 1)
7-9		23_Second_Fuel_Type_Id_Number	ASCII	3	(Note 1)
10-12		23_Third_Fuel_Type_Id_Number	ASCII	3	(Note 1)
13-15		23_Fourth_Fuel_Type_Id_Number	ASCII	3	(Note 1)
16-18		23_Fiveth_Fuel_Type_Id_Number	ASCII	3	(Note 1)
19-21		23_Sixth_Fuel_Type_Id_Number	ASCII	3	(Note 1)
22-24		23_Seventh_Fuel_Type_Id_Number	ASCII	3	(Note 1)
		If Cmd. Extension = 01 (Set Entry in Table (FM))			
4		23_VAT_Category	ASCII	1	(Note 2)
5-24		23_FT_Description	ASCII	20	

Notes:

1. In FIM: range allowed from "000" to "200".
   In TRM: range allowed from "000" to "007".
   "000" = not fuel type id number selected.

2. Specified one of the following: 1, 2, 3, 4, 5 or A, B, C, D, E.

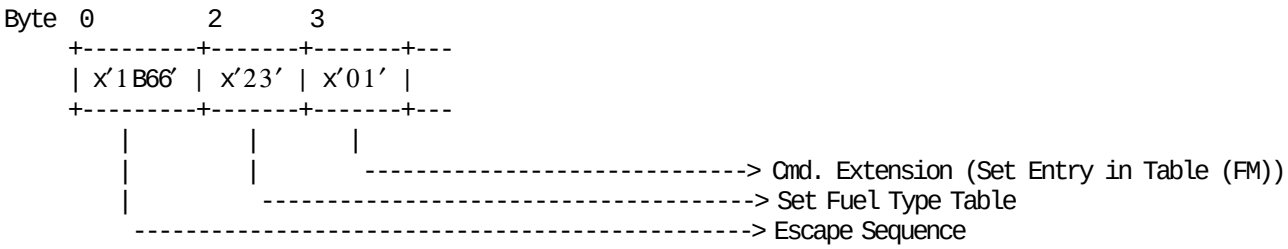
Response to Set/Enable Fuel Type Table will be formatted as follow:

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-14		Fiscal Unit Status	hex	15	
15		Fuel Type Id Number	hex	1	(Note 1)

Notes:

1. For Cmd. Extension = 01 (Set Entry in Table)
   If the 23_VAT_Category and 23_FT_Description are equal to any previously entry set in the table (in FM), the Fuel Type Id Number corresponding to the previously entry set in table will be returned.
   If the 23_VAT_Category and 23_FT_Description are not iqual to any previously set in the table, the new entry will be set in table and the corresponding Fuel Type Id Number will be returned.

17.17.2 Command Example



17.17.3 Set/Enable Fuel Type Table Calculations

17.17.4 Set/Enable Fuel Type Table Rules

- This command must be executed out of the SP.
- First J4/CE Jumper ON/OFF after the fiscalization:
  - After the first J4/CE jumper ON/OFF procedure the commands x2301/x2300 are ″mandatory″ before the start of SP.
- Next J4/CE Jumper ON/OFF after the fiscalization:
  - After the J4/CE jumper ON/OFF procedure the fuel types are restored from the Fuel Type Table in FM.
- After the J4/CE jumper ON/OFF procedure the command x2300 is ″mandatory″.
- For x2301 - If the new entry is different than any entry existent in FM, then this entry is set in the Fuel Type Table (in FM).
  Different means:
  - The 23_VAT_Category or 23_FT_Description in at least one character has changed.
- A maximum of 200 entries can be set in the Fuel Type Table, before it becomes full.
- When the ″Fuel Type Table″ is full, the new entry must be equal at one entry stored in Fuel Type Table (in FM), otherwise the error code 117 is returned.
- Is mandatory to enable at least one fuel type id number, otherwise the error code 138 will be returned.

17.18 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.

17.18.1 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)

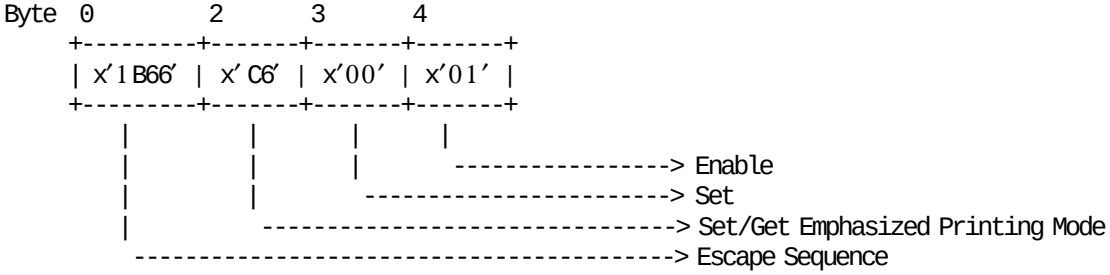
Response to the Cmd. Extension 01 will be formatted as follows:

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

Notes:

1. Value can be:
   Disable = x00
   Enable = x01

17.18.2 Command Example



17.18.3 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 FV′s, non-fiscal reports, SP, etc.)

17.19 C8 - SET BARCODE PARAMETERS

This command is used to set the barcode parameters.

17.19.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		C8 - Set Barcode Parameters	hex	1
3		Cmd. Extension 00 = Size 01 = Station	hex	1
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 0 = CR 1 = CR	hex	1

Notes:

1. Ranges supported for horizontal magnification of the line width are:
   - Minimum = 2
   - Maximum = 4
2. Ranges supported for dot height of the barcode are:
   - For CR station:
     - Minimum = 001
     - Maximum = 255

17.19.2 Set Barcode Parameters Rules

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

17.20 C9 - PRINT BARCODE

This command is used to print barcode.

17.20.1 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.

17.20.2 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:
  - **Inside a SP**
    - Inside of FP′s
    - Inside of non-fiscal reports
    - Outside of any document
  - **Outside a SP**
    - Inside of non-fiscal reports
    - Outside of any document

17.21 CA - DOWNLOAD AND PRINT GRAPHICS

This command is used to download and print graphics.

17.21.1 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)
   heigth = 25 (25*8 = 200 pixels)
3. The FP 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 USB	CONTENT	TYPE	LENGTH
0-14	Fiscal Unit Status	hex	15
15	CA - Record Identification	hex	1
16	Return Code 43 = Good Completion 74 = Invalid Sequence 75 = Invalid Size 76 = Invalid Graphic Number 77 = Graphic with same number already in printer flash	hex	1

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

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

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

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

17.21.2 Print Graphic Example.

In order to understand the graphic data format used for the FP 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) & heigth = 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 21. Print Graphic Example.

17.21.3 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.

17.21.4 CD - CASH DRAWER MANAGEMENT

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

17.21.4.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		CD - Cash Drawer Management	hex	1
3		Cmd. Extension 00 = Open Cash Drawer 01 = Get Cash Drawer Status	hex	1
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 miliseconds.
   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 00 = Open 01 = Close	hex	1

17.22 D2 - ITEM SALE

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

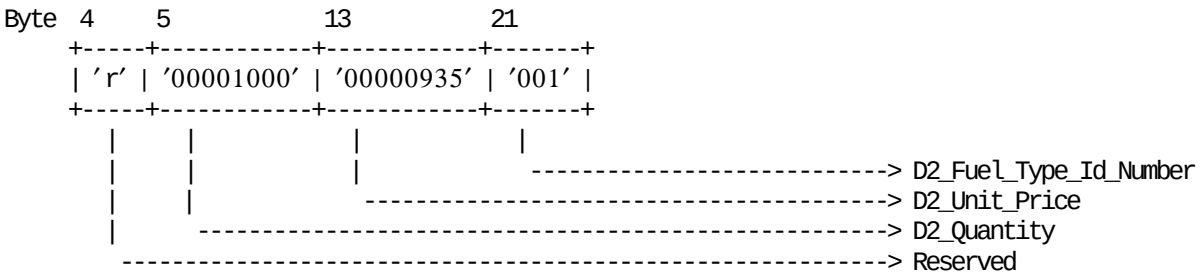
17.22.1 Command Format

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		Reserved (always = '0')	hex	1	
5-12		D2_Quantity	ASCII	8	(Note 1)
13-20		D2_Unit_Price	ASCII	8	(Note 1)
21-23		D2_Fuel_Type_Id_Number	ASCII	3	(Note 2)

Notes:

1. Fixed point with 3 decimal digits. Maximum allowed 99999999.
2. Range allowed from 001 to 200.

17.22.2 Command Example



17.22.3 Item Sale Calculations

$D2\_Amount = D2\_Quantity \times D2\_Unit\_Price$

$Tra\_Total = Tra\_Total + D2\_Amount$

$Tra\_Tot\_A = Tra\_Tot\_A + D2\_Amount$ (If VAT category of the D2_Fuel_Type_Id_Number is A)
$Tra\_Tot\_B = Tra\_Tot\_B + D2\_Amount$ (If VAT category of the D2_Fuel_Type_Id_Number is B)
$Tra\_Tot\_C = Tra\_Tot\_C + D2\_Amount$ (If VAT category of the D2_Fuel_Type_Id_Number is C)
$Tra\_Tot\_D = Tra\_Tot\_D + D2\_Amount$ (If VAT category of the D2_Fuel_Type_Id_Number is D)
$Tra\_Tot\_E = Tra\_Tot\_E + D2\_Amount$ (If VAT category of the D2_Fuel_Type_Id_Number is E)

$Tra\_Ltr\_Qty\_FT01 = Tra\_Ltr\_Qty\_FT01 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_1)
$Tra\_Ltr\_Qty\_FT02 = Tra\_Ltr\_Qty\_FT02 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_2)
$Tra\_Ltr\_Qty\_FT03 = Tra\_Ltr\_Qty\_FT03 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_3)
$Tra\_Ltr\_Qty\_FT04 = Tra\_Ltr\_Qty\_FT04 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_4)
$Tra\_Ltr\_Qty\_FT05 = Tra\_Ltr\_Qty\_FT05 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_5)
$Tra\_Ltr\_Qty\_FT06 = Tra\_Ltr\_Qty\_FT06 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_6)
$Tra\_Ltr\_Qty\_FT07 = Tra\_Ltr\_Qty\_FT07 + D2\_Quantity$ (For RAM_FT_Id_Number_Enabled_7)

$Tra\_Gross\_Tot\_FT01 = Tra\_Gross\_Tot\_FT01 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_1)
$Tra\_Gross\_Tot\_FT02 = Tra\_Gross\_Tot\_FT02 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_2)
$Tra\_Gross\_Tot\_FT03 = Tra\_Gross\_Tot\_FT03 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_3)
$Tra\_Gross\_Tot\_FT04 = Tra\_Gross\_Tot\_FT04 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_4)
$Tra\_Gross\_Tot\_FT05 = Tra\_Gross\_Tot\_FT05 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_5)
$Tra\_Gross\_Tot\_FT06 = Tra\_Gross\_Tot\_FT06 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_6)
$Tra\_Gross\_Tot\_FT07 = Tra\_Gross\_Tot\_FT07 + D2\_Amount$ (For RAM_FT_Id_Number_Enabled_7)

17.22.4 Item Sale Rules

- Only one item by fiscal voucher is allowed.
- Are not allowed item with D2_Amount = 0. In this case, error code 103 will be returned.
- IF D2_Fuel_Type_Id_Number is not enabled, the error code 116 will be returned.

17.23 D4 - SUBTOTAL/TOTAL TRANSACTION

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

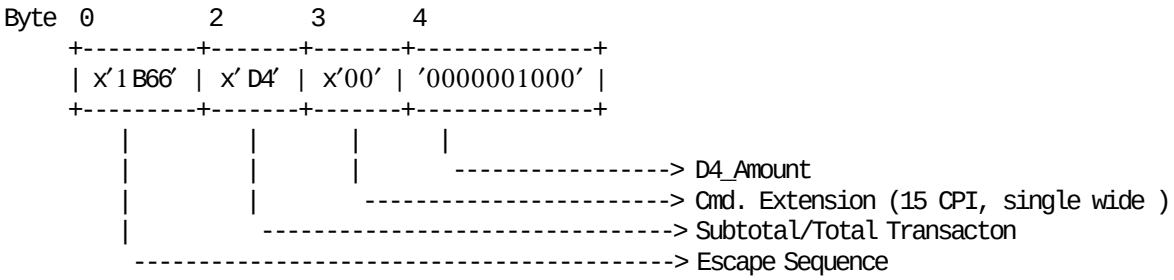
17.23.1 Command Format

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		D4_Amount	ASCII	10	(Note 2)

Notes:

1. The number of CPI and emphasized apply to both the description and the D4_Amount.
   Double wide apply to D4_Amount only.
   Print mode is also applied to predefined msg. 35 (FISCAL TOTAL).
2. Fixed point with 2 decimal digitals.

17.23.2 Command Example



17.23.3 Subtotal/Total Transaction Calculations

$Tra\_Amt\_Due = D4\_Amount$

$$Tra\_Net\_A = TRUNC(\frac{Tra\_Tot\_A}{1 + Rate\_A} + 0.005)$$

$$Tra\_Net\_B = TRUNC(\frac{Tra\_Tot\_B}{1 + Rate\_B} + 0.005)$$

$$Tra\_Net\_C = TRUNC(\frac{Tra\_Tot\_C}{1 + Rate\_C} + 0.005)$$

$$Tra\_Net\_D = TRUNC(\frac{Tra\_Tot\_D}{1 + Rate\_D} + 0.005)$$

$$Tra\_Net\_E = TRUNC(\frac{Tra\_Tot\_E}{1 + Rate\_E} + 0.005)$$

$$Tra\_Net\_Total = Tra\_Net\_A + Tra\_Net\_B + Tra\_Net\_C + Tra\_Net\_D + Tra\_Net\_E$$

$$Tra\_VAT\_Total = Tra\_Total - Tra\_Net\_Total$$

17.23.4 Subtotal/Total Transaction Rules

- The transaction total (Tra_Total) can be greater or equal to zero (only equal zero if quantity of liters is zero).
- The quantity of liters sold (Tra_Ltr_Qty_FT01 ... Tra_Ltr_Qty_FT07) must be greater or equal to zero (only equal zero if Tra_Total is zero).

17.24 D5 - PAYMENT

This command is used to apply the paid amount.

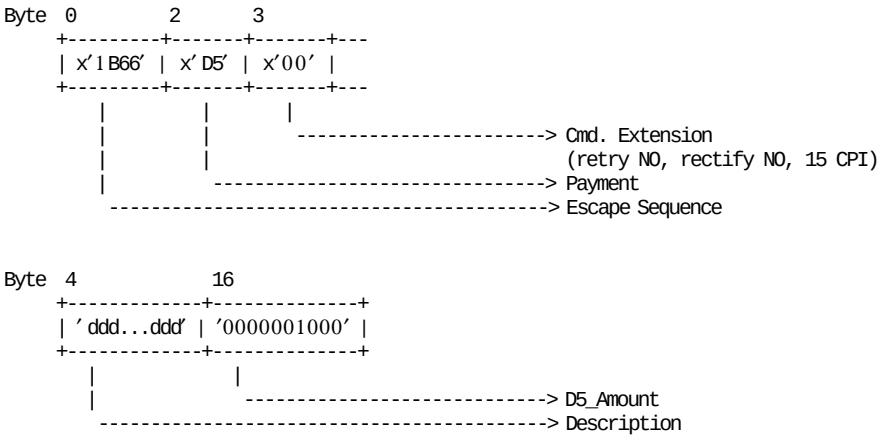
17.24.1 Command Format

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 000 = 15 CPI 001 = 12 CPI 010 = Reserved 011 = Reserved 100 = 15 CPI Emphasized 101 = 12 CPI Emphasized 110 = Reserved 111 = Reserved			(Note 1)
	2-0	Reserved			
4-15		Description	ASCII	12	
16-25		D5_Amount	ASCII	10	

Notes:

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

17.24.2 Command Example



17.24.3 Payment Calculations

- **For Rectify = NO**

  $Tra\_Chg\_Due = Tra\_Amt\_Due - D5\_Amount$

- **For Rectify = YES**

  $Tra\_Chg\_Due = Tra\_Amt\_Due + D5\_Amount$

17.25 D7 - SET HEADER

This command is used to load the store header into RAM and FM.

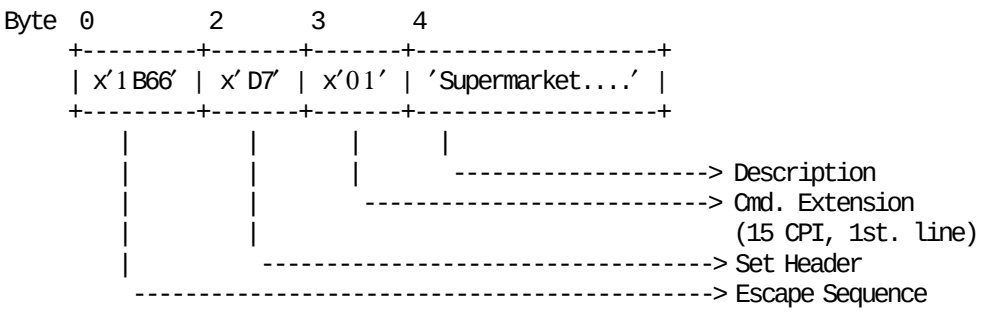
17.25.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D7 - Set Header	hex	1
3		Cmd. Extension	hex	1
		If Set Header in FM		
	7-0	00 = Store in FM		
		If Set Header in RAM		
	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		
4-41		D7_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.

17.25.2 Command Example



17.25.3 Set Header Calculations

Day_N_Head = *Day_N_Head* + 1
Lif_N_Head = *Lif_N_Head* + 1

17.25.4 Set Header Rules

- This command can be executed out of the SP.
- The header set is cancelled when RAM is cleared by installation of the J4/CE jumper.
- If the new entry set in RAM is different than the last entry stored in FM, then this new entry is stored in FM.
  ″Different″ means:
  - The text in at least one line has changed.
  - The print mode in at least one line has changed, even if the text has not changed.
- When new entry is stored in header table, these data are printed in the header report.
- When no new entry in header table, the last entry is printed in the header report.
- A maximum of 30 entries can be entered in the Header Table, before it becomes full.
- When the Header Table is full, the new entry set in RAM must be equal at the last entry stored in FM (Header Table).
- To store a new entry in FM (Header Table), the new entry in RAM memory can′t be blank.
- First J4/CE Jumper ON/OFF after the fiscalization:
  - After the first J4/CE jumper ON/OFF procedure the commands xD7ii/xD700 are ′mandatory′ before the start of SP.
- Next J4/CE Jumper ON/OFF after the fiscalization:
  - After the J4/CE jumper ON/OFF procedure the header lines are restored from the latest entry of the Header Table in FM.
  - After the J4/CE jumper ON/OFF procedure the commands xD7 are ′optional′.

17.26 DA - ELECTRONIC READ FISCAL MEMORY TABLES

This command is used to request the FU to report the FM content.

17.26.1 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	
	7-5	Reserved (always = '0')			
	4-1	Tables			
		0000 = Daily Entry Table - First Part			
		1000 = Daily Entry Table - Second Part			(Note 1)
		0001 = VAT Rate Table			
		0100 = Header Table			
		0101 = Repair Action Table			
		0110 = POS/FB Disconnection Table			
		0111 = Fuel Type Table			
		1001 = PF/FB Disconnection Table			
	0	Read Block			
		0 = Start			(Note 2)
		1 = Next			(Note 2, 3 on page 150)
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 4 on page 150)
		If Fuel Typer Table specify:			
8-10		Fuel Type Id Number	ASCII	3	(Note 4 on page 150)

Notes:

1. If Daily Entry Table - Second Part is specified, then byte 3 bit 0 (Read Block) and bytes 8-11 (Closure Number) are ignored. This option returns the second part of the last "First Part" requested.
2. For Daily Entry Table (byte 3, bit 3-1 = 0000):
   - The read start block will show the first part of the first entry stored in the table or will show the first part of the closure number selected in byte 8-11.
   - The read next block will show the first part of the next consecutive entries stored in the table.

   For Daily Entry Table (byte 3, bit 3-1 = 1000):
   - The read start block and next start block are ignored.

   For VAT Rate Table (byte 3, bit 3-1 = 0001):
   - 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 = 0100):

- 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 = 0101):

- 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 POS/FB Disconnection Table (byte 3, bit 3-1 = 0110):

- 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 Fuel Type Table (byte 3, bit 3-1 = 0111):

- The read start block will show the entry corresponding to id number indicated in Fuel Type Id Number field (bytes 8-10).
- The read next block will show the next consecutive entries stored in the table.

For FP/FB Disconnection Table (byte 3, bit 3-1 = 1001):

- 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.

3. If read next block option is specified, then bytes 8-11 are ignored, but are still required.
4. Range allowed from 1 to 200.

Response for Read Daily Entry Table (First Part) will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 60 = Invalid Character in Command Bytes 8-11 64 = Error on Reading Fiscal Memory	hex	1	
31-32	Reserved	hex	2	
33-36	Closure Number	ASCII	4	FM_DE_N_Clos
37-44	Closure Date (dd/mm/yy)	ASCII	8	FM_DE_Date
45-48	Number of Slips	hex	4	FM_DE_N_Slip
49-54	Net Sales - Categ. A + B + C + D	hex	6	FM_DE_Net_ABCD
55-58	Net Sales - Category E	hex	4	FM_DE_Net_E
59-63	VAT Total - Category A - Retail	hex	5	FM_DE_VAT_R_A
64-68	VAT Total - Category B - Retail	hex	5	FM_DE_VAT_R_B
69-73	VAT Total - Category C - Retail	hex	5	FM_DE_VAT_R_C
74-78	VAT Total - Category D - Retail	hex	5	FM_DE_VAT_R_D
79-82	Number of Fiscal Vouchers - Retail	hex	4	FM_DE_N_Vouc_R
83-87	Qty. of Liters of Fuel Type 1 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT01
88-92	Qty. of Liters of Fuel Type 2 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT02
93-97	Qty. of Liters of Fuel Type 3 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT03
98-102	Qty. of Liters of Fuel Type 4 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT04
103-107	Qty. of Liters of Fuel Type 5 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT05
108-112	Qty. of Liters of Fuel Type 6 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT06
113-117	Qty. of Liters of Fuel Type 7 - Retail	hex	5	FM_DE_Ltr_Qty_R_FT07
118-123	Gross Revenue of Fuel Type 1 - Retail	hex	6	FM_DE_Gross_Tot_R_FT01
124-129	Gross Revenue of Fuel Type 2 - Retail	hex	6	FM_DE_Gross_Tot_R_FT02
130-135	Gross Revenue of Fuel Type 3 - Retail	hex	6	FM_DE_Gross_Tot_R_FT03
136-141	Gross Revenue of Fuel Type 4 - Retail	hex	6	FM_DE_Gross_Tot_R_FT04
142-147	Gross Revenue of Fuel Type 5 - Retail	hex	6	FM_DE_Gross_Tot_R_FT05
148-153	Gross Revenue of Fuel Type 6 - Retail	hex	6	FM_DE_Gross_Tot_R_FT06
154-159	Gross Revenue of Fuel Type 7 - Retail	hex	6	FM_DE_Gross_Tot_R_FT07

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

Response for Read Daily Entry Table (Second Part) will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 60 = Invalid Character in Command Bytes 8-11 64 = Error on Reading Fiscal Memory	hex	1	
31-32	Reserved	hex	2	
33-36	Closure Number	ASCII	4	FM_DE_N_Clos
37-44	Closure Date (dd/mm/yy)	ASCII	8	FM_DE_Date
45-49	VAT Total - Category A - Wholesale	hex	5	FM_DE_VAT_W_A
50-54	VAT Total - Category B - Wholesale	hex	5	FM_DE_VAT_W_B
55-59	VAT Total - Category C - Wholesale	hex	5	FM_DE_VAT_W_C
60-64	VAT Total - Category D - Wholesale	hex	5	FM_DE_VAT_W_D
65-68	Number of Fiscal Vouchers - Wholesale	hex	4	FM_DE_N_Vouc_W
69-73	Qty. of Liters of Fuel Type 1 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT01
74-78	Qty. of Liters of Fuel Type 2 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT02
79-83	Qty. of Liters of Fuel Type 3 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT03
84-88	Qty. of Liters of Fuel Type 4 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT04
89-93	Qty. of Liters of Fuel Type 5 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT05
94-98	Qty. of Liters of Fuel Type 6 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT06
99-103	Qty. of Liters of Fuel Type 7 - Wholesale	hex	5	FM_DE_Ltr_Qty_W_FT07
104-109	Gross Revenue of Fuel Type 1 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT01
110-115	Gross Revenue of Fuel Type 2 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT02
116-121	Gross Revenue of Fuel Type 3 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT03
122-127	Gross Revenue of Fuel Type 4 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT04
128-133	Gross Revenue of Fuel Type 5 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT05
134-139	Gross Revenue of Fuel Type 6 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT06
140-145	Gross Revenue of Fuel Type 7 - Wholesale	hex	6	FM_DE_Gross_Tot_W_FT07
146-147	Number of Repair Actions	hex	2	FM_DE_N_Ract
148-149	Number of POS/FB Disconnections	hex	2	FM_DE_N_POS_FB_Dcx
150	Number of Header's Changed	hex	1	FM_DE_N_Head
151	Number of Previous Header's Changed	hex	1	FM_DE_N_PHead
152	Number of VAT's Rates Changed	hex	1	FM_DE_N_VAT
153	Number of Previous VAT's Rates Changed	hex	1	FM_DE_N_PVAT
154	Number of FP/FB Disconnections	hex	1	FM_DE_N_FP_FB_Dcx
155	First Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_1
156	Second Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_2
157	Third Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_3
158	Fourth Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_4
159	Fiveth Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_5
160	Sixth Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_6
161	Seventh Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Enabled_7

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 USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
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	
31-32	Reserved	hex	2	
33-36	Number of First Applicable Closure	ASCII	4	FM_TR_N_Clos
37-44	Date (dd/mm/yy)	ASCII	8	FM_TR_Date
45-46	VAT Rate (A) (x 100)	hex	2	FM_TR_Rate_A
47-48	VAT Rate (B) (x 100)	hex	2	FM_TR_Rate_B
49-50	VAT Rate (C) (x 100)	hex	2	FM_TR_Rate_C
51-52	VAT Rate (D) (x 100)	hex	2	FM_TR_Rate_D
53-54	VAT Rate (E) (x 100)	hex	2	FM_TR_Rate_E
55-56	Reserved	hex	2	

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

Response for Header Table (start) will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
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	
31-32	Reserved	hex	2	
33-36	Number of Closure	ASCII	4	FM_HE_N_Clos
37-44	Date (dd/mm/yy)	ASCII	8	FM_HE_Date
45-82	Header Description 1	ASCII	38	FM_HE_Desc1
83-88	Reserved	hex	6	
89-126	Header Description 2	ASCII	38	FM_HE_Desc2
127-132	Reserved	hex	6	
133-170	Header Description 3	ASCII	38	FM_HE_Desc3
171-176	Reserved	hex	6	

Response for Header Table (next) will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1	
31-32	Reserved	hex	2	
33-36	Number of Closure	ASCII	4	FM_HE_N_Clos
37-44	Date (dd/mm/yy)	ASCII	8	FM_HE_Date
45-82	Header Description 4	ASCII	38	FM_HE_Desc4
83-88	Reserved	hex	6	
89-126	Header Description 5	ASCII	38	FM_HE_Desc5
127-132	Reserved	hex	6	
133-170	Header Description 6	ASCII	38	FM_HE_Desc6
171-176	Reserved	hex	6	

Response for Repair Action Table will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1	
31	Reserved	hex	1	
32-35	Number of Closure	ASCII	4	FM_RA_N_Clos
36-43	Date (dd/mm/yy)	ASCII	8	FM_RA_Date
44-48	Time (hh:mm)	ASCII	5	FM_RA_Time
49-50	Number of Repair Action	hex	2	

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

Response for POS/FB Disconnection Table will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1	
31-32	Number of POS/FB Disconnections	hex	2	
33-36	Number of Closure	ASCII	4	FM_POS_FB_N_Clos
37-44	Date (dd/mm/yy)	ASCII	8	FM_POS_FB_Date
45-49	Time (hh:mm)	ASCII	5	FM_POS_FB_Time

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

Response for Fuel Type Table will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 60 = Invalid Character in Command Bytes 8-10 64 = Error on Reading Fiscal Memory	hex	1	
31	Fuel Type Id Number	hex	1	
32-48	Reserved	ASCII	17	
49	VAT Category	hex	1	FM_FT_VAT_Categ
50-69	Fuel Type Description	ASCII	20	FM_FT_Desc

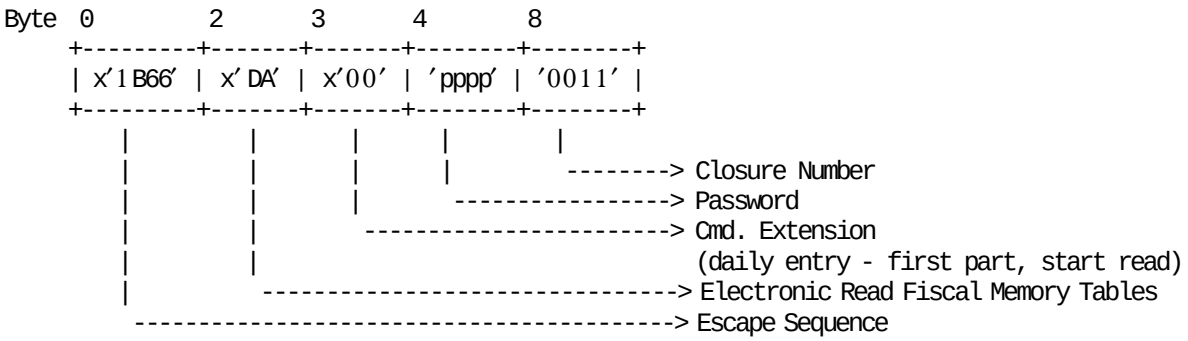
Note: If return code indicates an error, then fuel type table data are meaningless.

Response for FP/FB Disconnection Table will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	VARIABLE
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
30	Return Code 43 = Good Completion 5A = Register Not Found 64 = Error on Reading Fiscal Memory	hex	1	
31	Number of FP/FB Disconnections	hex	1	
32-39	Date (dd/mm/yy)	ASCII	8	FM_FP_FB_Date
40-43	Number of Closure	ASCII	8	FM_FP_FB_N_Clos

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

17.26.2 Command Example



17.27 DB - ELECTRONIC READ ACCUMULATORS AND COUNTERS

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

17.27.1 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')			
4		Auxiliary Cmd. Extension	hex	1	
	7-3	Reserved (always = '0')			
	2	Sale Types			
		0 = Retail			
		1 = Wholesale			
	1-0	Counters and Accumulators Types			
		00 = Transaction			(Note 1)
		01 = Daily			
		10 = Lifetime			
		11 = Miscellaneous			(Note 1)
5-7		Fuel Type Id Number (iii)	ASCII	3	(Note 2, 3)

Note 1: The byte 4 - bit 2 is ignored, and the transaction counters and accumulators shown correspond to the type of sale selected for the current voucher.

Note 2: Range allowed: from 000 to 200.

Note 3: To read the sum totals for all fuel types, use '000' as the ASCII data string.

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

BYTE USB	BIT	CONTENT	TYPE	LENGTH
0-14		Fiscal Unit Status	hex	15
15		DB - Record Identification	hex	1
16-29		Request Date and Time (dd/mm/yy hh:mm)	ASCII	14
30		Return Code 43 = Good Completion	hex	1
31		FISCAL UNIT STATE 00 = No Procedure in Progress 01 = Sale Transaction in Progress 02 = Non-Fiscal Report in CR in Progress	hex	1
32		SALE TRANSACTION STEP	hex	1
	7	1 = Header Printed		
	6	1 = Item Sold		
	5	1 = Total Requested		
	4	1 = Payment in Progress		
	3	1 = End Transaction in Progress		
	2	Reserved		
	1	Type Fuel Sale 0 = Retail 1 = Wholesale		
	0	Reserved		
33		FISCAL UNIT MODE	hex	1
	7	1 = Fiscal Mode Set		
	6	Reserved		
	5	1 = Sale Period in Progress		
	4-0	Reserved		
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	1 = Fuel Type Table Set		
35-36		Reserved	hex	2

(Continued in the next page)

Electronic Read Accumulators and Counters continued...

Response to (byte 4/bit 1-0 = 00 (Transaction)) is formatted as follow:

BYTE USB	BIT	CONTENT	TYPE	LENGTH	VARIABLE	
		TRANSACTION ACCUMULATORS				
37-40		Total	hex	4	Tra_Total	
41-44		Total for VAT Category A	hex	4	Tra_Tot_A	
45-48		Total for VAT Category B	hex	4	Tra_Tot_B	
49-52		Total for VAT Category C	hex	4	Tra_Tot_C	
53-56		Total for VAT Category D	hex	4	Tra_Tot_D	
57-60		Total for VAT Category E	hex	4	Tra_Tot_E	
61-64		Quantity of Liters for Fuel Type nn	hex	4	Tra_Ltr_Qty_FTnn	(Note 1)
65-68		Total Gross Revenue for Fuel Type nn	hex	4	Tra_Gross_Tot_FTnn	(Note 1)
69-72		VAT Total for Fuel Type nn	hex	4	W_Tra_VAT_Tot_FTnn	(Note 1)
73-112		Reserved	hex	40		
113-116		Amount Due - Change Due	hex	4		(Note 2)

Notes:

1. nn corresponds to the accumulator used for the select fuel type id number.
2. > 0 = Amount due; < 0 = Change due.

(Continued in the next page)

Electronic Read Accumulators and Counters continued...

Response to (byte 4/bit 2 = 0 (Retail)) and
(byte 4/bit 1-0 = 01 (Daily)) is formatted as follow:

BYTE USB	BIT	CONTENT	TYPE	LENGTH	VARIABLE
		DAILY ACCUMULATORS			
37-40		Total	hex	4	Day_Total_R
41-44		Total for VAT Category A	hex	4	Day_Tot_R_A
45-48		Total for VAT Category B	hex	4	Day_Tot_R_B
49-52		Total for VAT Category C	hex	4	Day_Tot_R_C
53-56		Total for VAT Category D	hex	4	Day_Tot_R_D
57-60		Total for VAT Category E	hex	4	Day_Tot_R_E
61-64		Quantity of Liters for Fuel Type nn	hex	4	Day_Ltr_Qty_R_FTnn (Note 1)
65-68		Total Gross Revenue for Fuel Type nn	hex	4	Day_Gross_Tot_R_FTnn (Note 1)
69-72		VAT Total for Fuel Type nn	hex	4	W_Day_VAT_Tot_R_FTnn (Note 1)
73-116		Reserved	hex	44	
117-120		Withdraw Total	hex	4	Day_Withdraw_Total
121-124		Deposit Total	hex	4	Day_Deposit_Total
125-132		Reserved	hex	8	
		DAILY COUNTERS			
133-150		Reserved	hex	18	
151-152		Number of Slips	hex	2	Day_N_Slip
153-154		Number of Fiscal Vouchers	hex	2	Day_N_Vouc
155-156		Number of Fiscal Vouchers - Retail	hex	2	Day_N_Vouc_R
157-158		Number of Repair Actions	hex	2	Day_N_Ract
159-160		Number of VAT Rates Changed	hex	2	Day_N_VAT
161-162		Number of Headers Changed	hex	2	Day_N_Head
163-164		Number of POS/FB Disconnections	hex	2	Day_N_POS_FB_Dcx
165		Number of FP/FB Disconnections	hex	1	Day_N_FP_FB_Dcx

Notes:

1. nn corresponds to the accumulator used for the select fuel type id number.

(Continued in the next page)

Electronic Read Accumulators and Counters continued...

Response to (byte 4/bit 2 = 1 (Wholesale)) and
(byte 4/bit 1-0 = 01 (Daily)) is formatted as follow:

BYTE USB	BIT	CONTENT	TYPE	LENGTH	VARIABLE
		DAILY ACCUMULATORS			
37-40		Total	hex	4	Day_Total_W
41-44		Total for VAT Category A	hex	4	Day_Tot_W_A
45-48		Total for VAT Category B	hex	4	Day_Tot_W_B
49-52		Total for VAT Category C	hex	4	Day_Tot_W_C
53-56		Total for VAT Category D	hex	4	Day_Tot_W_D
57-60		Total for VAT Category E	hex	4	Day_Tot_W_E
61-64		Quantity of Liters for Fuel Type nn	hex	4	Day_Ltr_Qty_W_FTnn (Note 1)
65-68		Total Gross Revenue for Fuel Type nn	hex	4	Day_Gross_Tot_W_FTnn (Note 1)
69-72		VAT Total for Fuel Type nn	hex	4	W_Day_VAT_Tot_W_FTnn (Note 1)
73-116		Reserved	hex	44	
117-120		Withdraw Total	hex	4	Day_Withdraw_Total
121-124		Deposit Total	hex	4	Day_Deposit_Total
125-132		Reserved	hex	8	
		DAILY COUNTERS			
133-150		Reserved	hex	18	
151-152		Number of Slips	hex	2	Day_N_Slip
153-154		Number of Fiscal Vouchers	hex	2	Day_N_Vouc
155-156		Number of Fiscal Vouchers - Wholesale	hex	2	Day_N_Vouc_W
157-158		Number of Repair Actions	hex	2	Day_N_Ract
159-160		Number of VAT Rates Changed	hex	2	Day_N_VAT
161-162		Number of Headers Changed	hex	2	Day_N_Head
163-164		Number of POS/FB Disconnections	hex	2	Day_N_POS_FB_Dcx
165		Number of FP/FB Disconnections	hex	1	Day_N_FP_FB_Dcx

Notes:

1. nn corresponds to the accumulator used for the select fuel type id number.

(Continued in the next page)

Electronic Read Accumulators and Counters continued...

Response to (byte 4/bit 2 = 0 (Retail)) and
(byte 4/bit 1-0 = 10 (Lifetime)) is formatted as follow:

BYTE USB	BIT	CONTENT	TYPE	LENGTH	VARIABLE
		LIFETIME ACCUMULATORS			
37-41		VAT Total for Category A	hex	5	Lif_VAT_R_A
42-46		VAT Total for Category B	hex	5	Lif_VAT_R_B
47-51		VAT Total for Category C	hex	5	Lif_VAT_R_C
52-56		VAT Total for Category D	hex	5	Lif_VAT_R_D
57-72		Reseved	hex	16	
73-78		Quantity of Liters for Fuel Type nn	hex	6	Lif_Ltr_Qty_R_FTnn (Note 1)
79-84		Total Gross Revenue for Fuel Type nn	hex	6	Lif_Gross_Tot_R_FTnn (Note 1)
85-132		Reserved	hex	48	
		LIFETIME COUNTERS			
133-136		Number of Slips	hex	4	Lif_N_Slip
137-140		Number of Fiscal Vouchers	hex	4	Lif_N_Vouc
141-144		Number of Fiscal Vouchers	hex	4	Lif_N_Vouc_R
145-146		Number of Daily Closures	hex	2	Lif_N_Clos
147-148		Number of Repair Actions	hex	2	Lif_N_Ract
149-150		Number of POS/FB Disconnections	hex	2	Lif_N_POS_FB_Dcx
151		Number of VAT Rates Changed	hex	1	Lif_N_VAT
152		Number of Headers Changed	hex	1	Lif_N_Head
153		Number of FP/FB Disconnections	hex	1	Lif_N_FP_FB_Dcx

Notes:

1. nn corresponds to the accumulator used for the select fuel type id number.

(Continued in the next page)

Electronic Read Accumulators and Counters continued...

Response to (byte 4/bit 2 = 1 (Wholesale)) and
(byte 4/bit 1-0 = 10 (Lifetime)) is formatted as follow:

BYTE USB	BIT	CONTENT	TYPE	LENGTH	VARIABLE
		LIFETIME ACCUMULATORS			
37-41		VAT Total for Category A	hex	5	Lif_VAT_W_A
42-46		VAT Total for Category B	hex	5	Lif_VAT_W_B
47-51		VAT Total for Category C	hex	5	Lif_VAT_W_C
52-56		VAT Total for Category D	hex	5	Lif_VAT_W_D
57-72		Reseved	hex	16	
73-78		Quantity of Liters for Fuel Type nn	hex	6	Lif_Ltr_Qty_W_FTnn (Note 1)
79-84		Total Gross Revenue for Fuel Type nn	hex	6	Lif_Gross_Tot_W_FTnn (Note 1)
85-132		Reserved	hex	48	
		LIFETIME COUNTERS			
133-136		Number of Slips	hex	4	Lif_N_Slip
137-140		Number of Fiscal Vouchers	hex	4	Lif_N_Vouc
141-144		Number of Fiscal Vouchers	hex	4	Lif_N_Vouc_W
145-146		Number of Daily Closures	hex	2	Lif_N_Clos
147-148		Number of Repair Actions	hex	2	Lif_N_Ract
149-150		Number of POS/FB Disconnections	hex	2	Lif_N_POS_FB_Dcx
151		Number of VAT Rates Changed	hex	1	Lif_N_VAT
152		Number of Headers Changed	hex	1	Lif_N_Head
153		Number of FP/FB Disconnections	hex	1	Lif_N_FP_FB_Dcx

Notes:

1. nn corresponds to the accumulator used for the select fuel type id number.

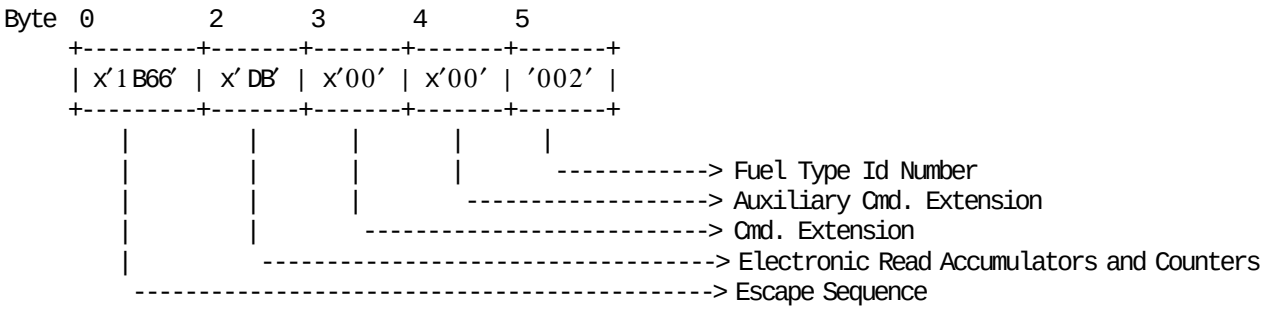
(Continued in the next page)

Electronic Read Accumulators and Counters continued...

Response to (byte 4/bit 1-0 = 11 (Miscellaneous)) is formatted as follow:

BYTE USB	BIT	CONTENT	TYPE	LENGTH	VARIABLE
		CURRENT VAT RATES			
37-38		Current VAT Rate for Category A (x 100)	hex	2	Rate_A
38-40		Current VAT Rate for Category B (x 100)	hex	2	Rate_B
41-42		Current VAT Rate for Category C (x 100)	hex	2	Rate_C
43-44		Current VAT Rate for Category D (x 100)	hex	2	Rate_D
45-46		Current VAT Rate for Category E (x 100)	hex	2	Rate_E
		FISCAL MEMORY			
47-49		Manufacturing ID	ASCII	3	FM_SN_MF_ID
50-51		Manufacturing Year	ASCII	2	FM_SN_MF_YEAR
52-57		Fiscal Memory Serial Number	ASCII	6	FM_SN_SERNUM
58-59		Available Empty Closure Entries	hex	2	
60-61		Available Empty VAT Table Entries	hex	2	
62-63		Available Empty Header Table Entries	hex	2	
64		Available Empty Fuel Type Table Entries	hex	1	
65-70		Reserved	hex	6	
		RAM MEMORY			
71		First Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_1
72		First Fuel Type Enabled - VAT Category	hex	1	
73-92		First Fuel Type Enabled - Description	ASCII	20	
93		Second Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_2
94		Second Fuel Type Enabled - VAT Category	hex	1	
95-114		Second Fuel Type Enabled - Description	ASCII	20	
115		Third Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_3
116		Third Fuel Type Enabled - VAT Category	hex	1	
117-136		Third Fuel Type Enabled - Description	ASCII	20	
137		Fourth Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_4
138		Fourth Fuel Type Enabled - VAT Category	hex	1	
139-158		Fourth Fuel Type Enabled - Description	ASCII	20	
159		Fiveth Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_5
160		Fiveth Fuel Type Enabled - VAT Category	hex	1	
161-180		Fiveth Fuel Type Enabled - Description	ASCII	20	
181		Sixth Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_6
182		Sixth Fuel Type Enabled - VAT Category	hex	1	
183-202		Sixth Fuel Type Enabled - Description	ASCII	20	
203		Seventh Fuel Type Enabled - Id Number	hex	1	RAM_FT_Id_Number_Enabled_7
204		Seventh Fuel Type Enabled - VAT Category	hex	1	
205-224		Seventh Fuel Type Enabled - Description	ASCII	20	

17.27.2 Command Example



17.27.3 Electronic Read Accumulators and Counters Calculations

$$W\_Tra\_VAT\_Tot\_FTnn = TRUNC(\frac{Tra\_Gross\_Tot\_FTnn \times VATRatecorrespondingforFuelTypenn}{100 + VATRatecorrespondingforFuelTypenn} + 0.005)$$

$$W\_Day\_VAT\_Tot\_R\_FTnn = TRUNC(\frac{Day\_Gross\_Tot\_R\_FTnn \times VATRatecorrespondingforFuelTypenn}{100 + VATRatecorrespondingforFuelTypenn} + 0.005)$$

$$W\_Day\_VAT\_Tot\_W\_FTnn = TRUNC(\frac{Day\_Gross\_Tot\_W\_FTnn \times VATRatecorrespondingforFuelTypenn}{100 + VATRatecorrespondingforFuelTypenn} + 0.005)$$

17.28 DC - READ FDTS

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

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

17.29 DD - START NON-FISCAL REPORT

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

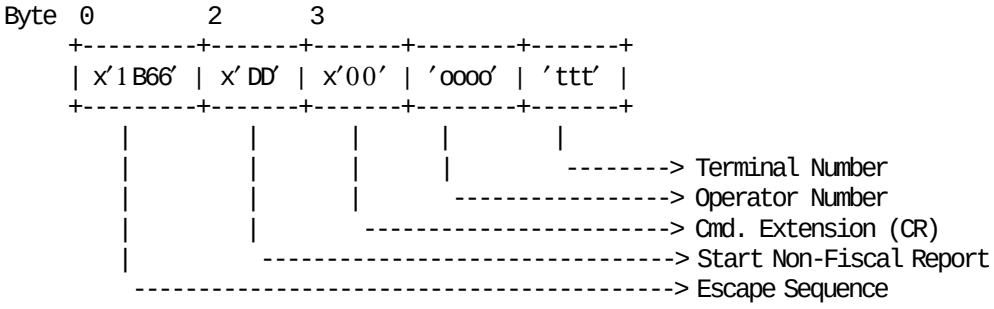
17.29.1 Command Format

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 = CR			
		10 = Reserved			
		11 = Reserved			
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.

17.29.2 Command Example



17.29.3 Start Non-Fiscal Report Rules

- The execution of the Start Application-Originated Report command sets the FU into the Non-Fiscal Report in Progress.
- This report can be printed in CR station.
- 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.

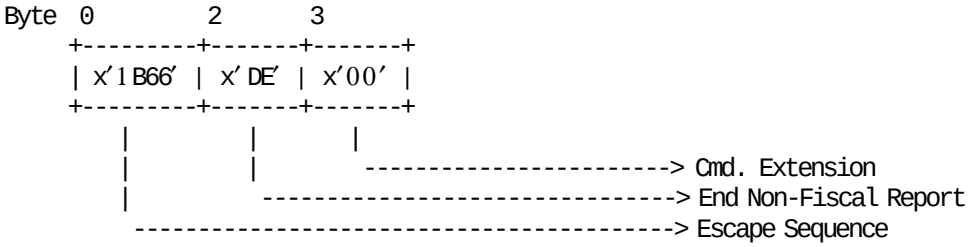
17.30 DE - END NON-FISCAL REPORT

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

17.30.1 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')		

17.30.2 Command Example



17.30.3 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.

17.31 E7 - DIAGNOSTIC AND ALIGNMENT UTILITIES

This command is used to diagnostics and alignmets.

17.31.1 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 ....

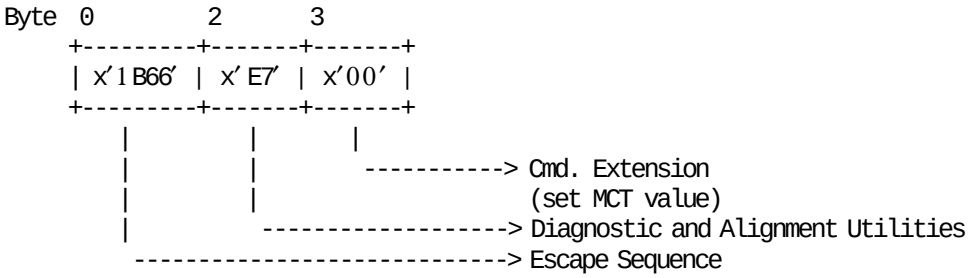
BYTE	BIT	CONTENT	TYPE	LENGTH
If Cmd. Extension = 00 or 01 specify				
4	4	MCT Number	hex	1
5	5	MCT Value - High Order Byte	hex	1
6	6	MCT Value - Low Order Byte	hex	1
If Cmd. Extension = 03 or 0B specify				
4	4	MCT Number 1	hex	1
5	5	MCT Value 1 - High Order Byte	hex	1
6	6	MCT Value 1 - Low Order Byte	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 USB	CONTENT	TYPE	LENGTH
0-14	Fiscal Unit Status	hex	15
15	MCT Value - High Order Byte	hex	1
16	MCT Value - Low Order Byte	hex	14

17.31.2 Command Example



17.31.3 Diagnostic and Alignment Utilities Rules

- The printed documents are fixed format and cannot be modified by the users.

17.32 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).

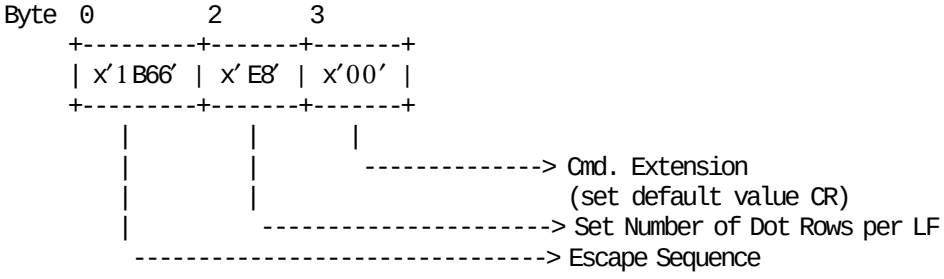
17.32.1 Command Format

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	
	7-1	Reserved (always = '0')			
	0	CR Station			(Note 1, 2)
		0 = Set Default Value			
		1 = Set Alternate Value			

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 CR station (original and replica).

17.32.2 Command Example



17.32.3 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.

17.33 E9 - PRINTER NATIVE COMMANDS

This command is used to execute the printer native commands.

17.33.1 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')		

17.34 EA - NORMAL PRINTING LINE IN CR STATION

This command is used to print lines in CR station.

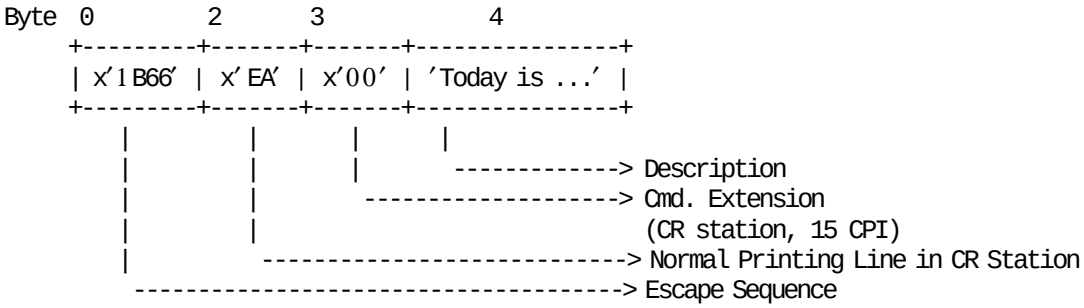
17.34.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		EA - Normal Printing Line in CR Station	hex	1	
3		Cmd. Extension	hex	1	
	7	Reserved (always = '0')			
	6	Station 0 = CR 1 = CR			
	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.

17.34.2 Command Example



17.34.3 Normal Printing Line in CR 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 station.
    - The ″ILLEGAL RECEIPT″ (msg. 92) is inserted every three (3) normal printing lines.
  - Inside of 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 station is inserted every 3 normal printing lines.

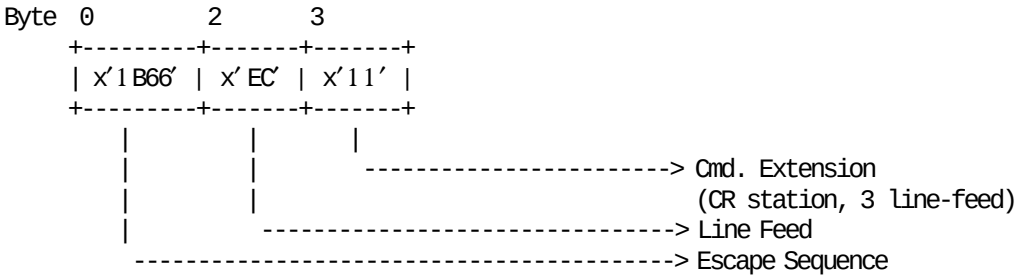
17.35 EC - LINE FEED

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

17.35.1 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 = CR		
		10 = Reserved		
		11 = Reserved		
	3-0	Number of Line-Feed (min 0, max 15)		

17.35.2 Command Example



17.35.3 Line Feed Rules

There are not rules for this command.

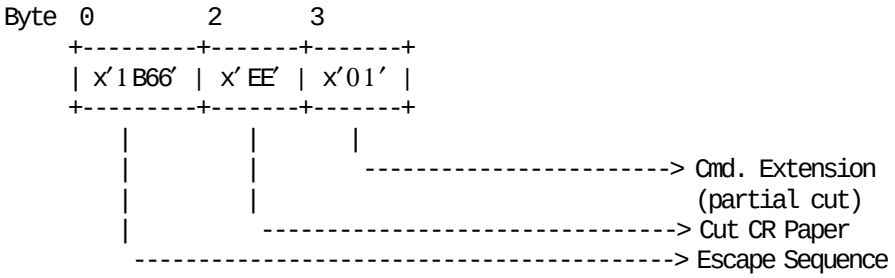
17.36 EE - CUT CUSTOMER RECEIPT PAPER

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

17.36.1 Command Format

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

17.36.2 Command Example



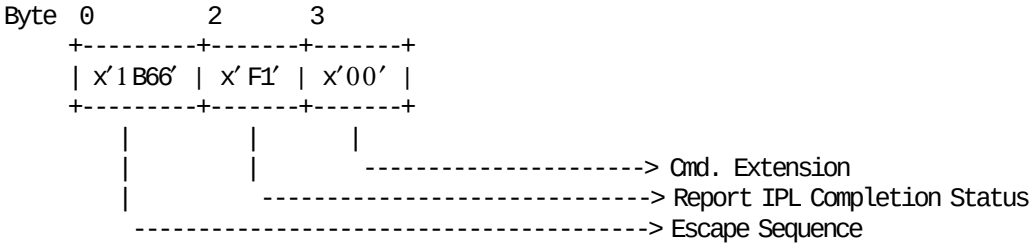
17.37 F1 - REPORT IPL COMPLETION STATUS

This command requests the FU to communicate the power-on completion status.

17.37.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command prefix	hex	2
2		F1 - Report IPL Completion Status	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

17.37.2 Command Example



17.38 F7 - COMMAND BUFFER MANAGEMENT

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

17.38.1 Command Format

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

Response for Command Buffer Management will be formatted as follows:

BYTE USB	CONTENT	TYPE	LENGTH	
0-14	Fiscal Unit Status	hex	15	
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 USB	CONTENT	TYPE	LENGTH	
15	Type	hex	1	(Note 1)
16	Command Data Length	hex	1	(Note 2)
17	Additional Data Length	hex	1	(Note 3 on page 182)
18	Command	hex	1	
	Command Extension	hex	n0	
	Command Data	hex	n1	
	Additional Data	hex	n2	(Note 4 on page 182)
	Fiscal Untit Status Executed Command	hex	n3	(Note 5 on page 182)

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 Additonal Information Response.
   If the Additional Data of the Executed Command length is greater than the remaining bytes (n2) of the Additonal Information Response the Additional is truncated.
5. Fiscal Unit Status Executed Command (buffering command) length is n3
   where:
   - USB = 15 bytes

17.38.1.1 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														

17.38.1.2 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.

17.39 F8 - REPORT PRINTER EC

This command is used to retrieve the printer EC.

17.39.1 Command Format

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

Response to the Fiscal Unit:

BYTE USB	CONTENT	TYPE	LENGTH
0-14	Fiscal Unit Status	hex	15

Response to the Fiscal Device Information:

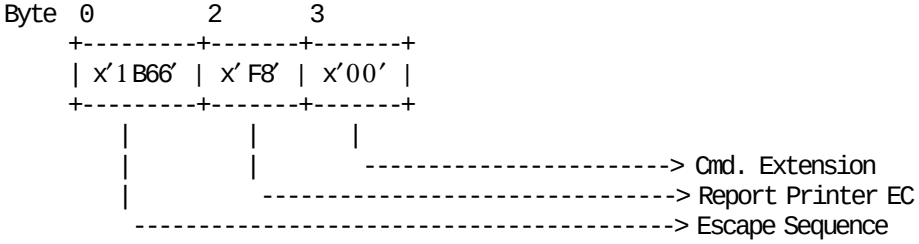
BYTE USB	BIT	CONTENT	TYPE	LENGTH
0-7		PRINTER STATUS	hex	8
8		FISCAL STATUS & DEVICE INFO	hex	1
	7-1	Fiscal Status		
	0	(For RS-485) Fiscal/Printer Device Info 0 = Fiscal Device Info is NOT contained in this message 1 = Fiscal or Printer Device Info IS contained in this message		
	0	(For USB) Reserved		
		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
13		FISCAL RETURN CODE	hex	1
14		FISCAL RETURN CODE	hex	1
15		DEVICE TYPE 0x31 = Fiscal Printer	hex	1
16		DEVICE ID 0x00 = fiscal 2 stations thermal/impact (K --> Jacare) 0x01 - 0xFF = Reserved	hex	1
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		
18		RESERVED (always '0x00')	hex	1
19		FISCAL EC LEVEL	hex	1

(Continued in the next page)

Response to the Printer Device Information:

BYTE USB	BIT	CONTENT	TYPE	LENGTH
0-7		PRINTER STATUS	hex	8
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		
		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
13		FISCAL RETURN CODE	hex	1
14		FISCAL RETURN CODE	hex	1
15-19		DEVICE INFO BYTES (exactly as received from the printer microcode - See SureMark User Guide Extended Address Command)	hex	5

17.39.2 Command Example



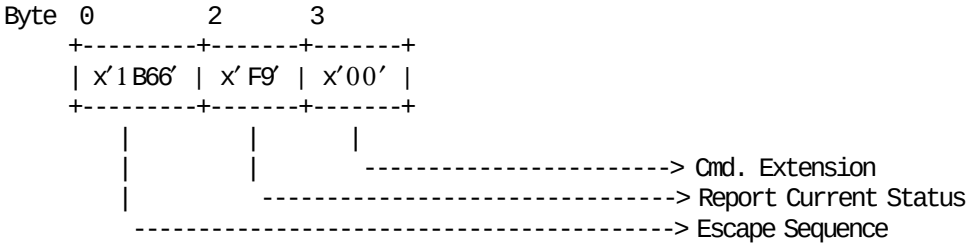
17.40 F9 - REPORT CURRENT STATUS

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

17.40.1 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')		

17.40.2 Command Example



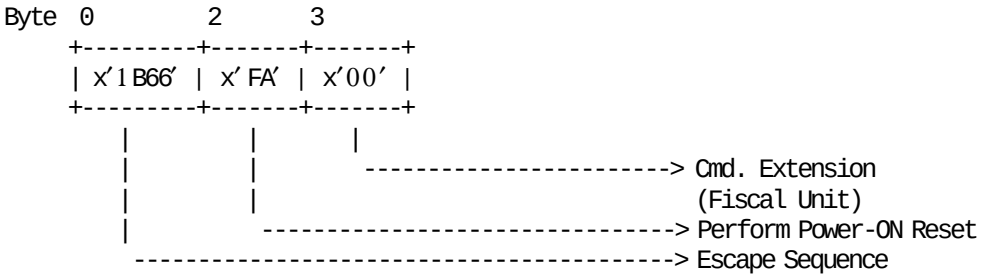
17.41 FA - PERFORM POWER-ON RESET

This command is used to reset the FU and FP.

17.41.1 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		

17.41.2 Command Example



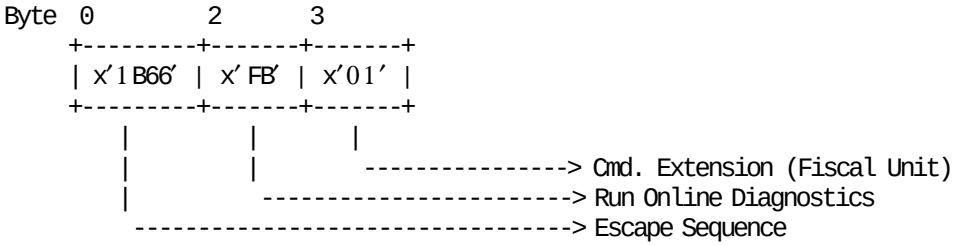
17.42 FB - RUN ONLINE DIAGNOSTICS

This command is used to run the print diagnostics.

17.42.1 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		

17.42.2 Command Example



17.43 FC - REPORT MICROCODE EC LEVEL

This command is used to retrieve the fiscal code EC level in the return code.

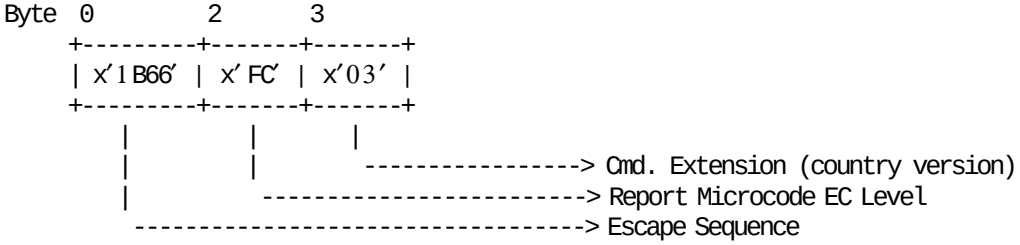
17.43.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		FC - Report Microcode EC Level	hex	1	
3		Cmd. Extension	hex	1	
		00 (00) = Fiscal Microcode EC Level			
		01 (01) = Fiscal Microcode Internal EC Level			
		10 (02) = Country Code			(Note 1)
		11 (03) = Country Version (Hardware Model)			(Note 2)

Notes:

1. Country Code = 03.
2.
   - KH5 Model - USB communication interface
     Country Version = 05

17.43.2 Command Example



17.44 FF - DUMP FISCAL RAM AND FISCAL MEMORY

This command is used to print the content of the fiscal RAM and FM in hexadecimal format.

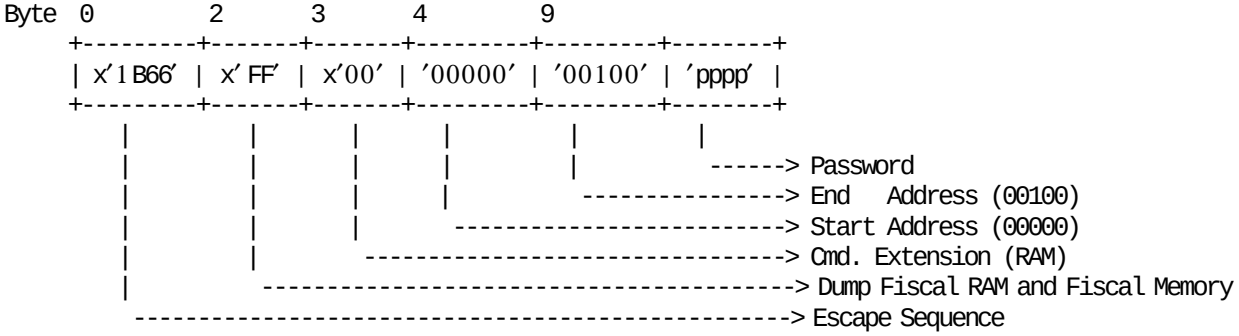
17.44.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		FF - Dump Fiscal RAM and Fiscal Memory	hex	1	
3		Cmd. Extension	hex	1	
	7-5	Reserved (always = '0')			
	4	Type Report 0 = Printed 1 = Electronic			
	3-1	Reserved (always = '0')			
	0	Type 0 = RAM 1 = EPROM			
4-8		Start Address	ASCII	5	(Note 1, 2)
9-13		End Address	ASCII	5	(Note 1, 2)
14-17		Password	ASCII	4	

Notes:

1. The RAM address range is X'00000' - X'0FFFF'
2. The FM address range is X'00000' - X'3FFFF'

17.44.2 Command Example



18.0 FISCAL UNIT RETURN CODES

The following descriptions define the meaning of FU return codes reported in byte 8 of FU 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 FV.

---

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: Make the total greater than the minimum allowed value.

---

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 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 FM. The request is not processed.

User Response: Correct the computation procedure of the total, and then close the transaction.

---

025 => DOS/WINDOWS 80900125 => 4690 OS

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

User Response: Issue a new request without using the FM 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.

---

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.

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 FM 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 is not valid. The request is not processed.

User Response: Correct the application program.

---

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.

---

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 SP: 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, 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, 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.

---

063 => DOS/WINDOWS 8090063F => 4690 OS

Explanation: There is not document stored in RAM memory to print. The request is not processed.

User Response: Correct the application program.

---

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 FU 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 FU 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.

---

070 => DOS/WINDOWS 80900646 => 4690 OS

Explanation: The date and time set with 16 cmd. is previous to the FDTS stored in RAM. 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 in CR station. 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.

---

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 station 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 FM 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 is full. All fiscal requests are rejected except the FM 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 FM. 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.

---

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 FP at the next failure occurrence.

---

100 => DOS/WINDOWS 80900329 => 4690 OS

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

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

---

103 => DOS/WINDOWS 80900421 => 4690 OS

Explanation: The data is not valid. The requested data or number is out of range, or two differents VAT rates have the same value. 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 set 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, 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.

---

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 an the 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: FM is not connected. The FU 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 FP 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.

---

116 => DOS/WINDOWS 80900702 => 4690 OS

Explanation: The fuel type id number selected is not set or not enabled. The request is not processed.

User Response: Correct the fuel type id number by ones set and enabled and then issue the command again.

117 => DOS/WINDOWS 80900703 => 4690 OS

Explanation: The fuel type table in FM is full. The request is not processed.

User Response: The fiscal base unit must be replaced to set new fuel types.

---

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).

---

127 = DOS/WINDOWS 8090067F => 4690 OS

Explanation: 24 hs. has elapsed since the first FV of the SP was issued. Is not allowed to start a new FV. The request is not processed.

User Response: Issue a Close Sale Period (13 cmd.) and then start a FV.

128 => DOS/WINDOWS 80900320 => 4690 OS

Explanation: FM 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 FIM state. The requested command cannot be executed.

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

---

134 => DOS/WINDOWS 80900325 => 4690 OS

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

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

---

135 => DOS/WINDOWS 80900220 => 4690 OS

Explanation: The issued command is not valid out of the SP. The request is not processed.

User Response: Correct the application program sequence.

---

136 => DOS/WINDOWS 80900221 => 4690 OS

Explanation: A FV related command was issued while a FV was not in progress. The request is not processed.

User Response: Correct the application program sequence.

---

138 => DOS/WINDOWS 80900223 => 4690 OS

Explanation: The fuel type table was not set or no any fuel type was enabled. The request is not processed.

User Response: Correct the application program sequence.

---

140 => DOS/WINDOWS 80900225 => 4690 OS

Explanation: A FV related command was issued before printing of the FV 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 (D7 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: FM 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 FIM. 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 FV was issued while a FV was in progress or was intented to issue more than one item. The request is not processed.

User Response: Issue the command again when the FV is completed or close the transaction.
If this error was encountered during the online printer diagnostic test, it indicates that the test cannot be completed because a ST 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 POS/FB disconnection table is full. The request is not processed.

User Response: Exchange the fiscal base at the next POS/FB disconnection occurence.

---

172 => DOS/WINDOWS 80900235 => 4690 OS

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

User Response: Check the application program.

---

173 => DOS/WINDOWS 80900236 => 4690 OS

Explanation: Only payment and end 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.

---

175 => DOS/WINDOWS 80900238 => 4690 OS

Explanation: The FP/FB disconnection table is full. The request is not processed.

User Response: Exchange the fiscal base at the next FP/FB disconnection occurrence.

---

176 => DOS/WINDOWS 80900239 => 4690 OS

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

User Response: Continue issued end transaction command.

---

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.
If this error was encountered during the online printer diagnostic test, it indicates that the test cannot be completed because a ST 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.

---

202 => DOS/WINDOWS 80900527 => 4690 OS

FOR 4610 SUREMARK KH5 (without DI station)

Explanation: Invalid command. The request is not processed.

User Response: Correct the application program.

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.

---

208 => DOS/WINDOWS 809006D0 => 4690 OS

Explanation: Printer Error. The request is not processed.

User Response: Service the printer.

---

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.

18.1 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 18.0, “ FISCAL UNIT RETURN CODES” on page 191.

Table 11 (Page 1 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900100	000
80900108	008
80900116	016
80900124	024
80900125	025
80900126	026
80900127	064
80900140	096
80900201	065
80900202	066
80900203	055
80900210	076
80900213	080
80900220	135
80900221	136
80900223	138
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
80900306	082
80900307	083
80900312	089
80900314	091
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

Table 11 (Page 1 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900421	103
80900422	104
80900425	095
80900521	194
80900522	203
80900524	192
80900525	206
80900526	205
80900527	202
80900527	214
80900528	201
80900627	039
80900628	040
80900629	041
8090062A	042
8090062B	043
8090062C	044
80900636	054
8090063A	058
8090063B	059
8090063C	060
8090063D	061
8090063F	063
80900643	067
80900646	070
80900651	081
80900657	087
8090065A	090
80900670	112
80900677	119
80900678	120
80900679	121
8090067B	123
8090067C	124
8090067D	125
8090067E	126
8090067F	127
80900691	145
80900692	146
8090069E	158
809006B2	178
809006B3	179
809006B6	182
809006B8	184
809006D0	208
809006D1	209
809006D2	210
809006EB	235
8090070D	200
80900702	116

Table 11 (Page 2 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900703	117
80900711	204

19.0 Comments

WDIS Document Control Procedures

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