IBM 4610 SureMark Fiscal Printer
Turkey - Fuel Station - Model GD5
Programming Guide Supplement
Version 1B 01

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All versions	Erkut Erdemir - Turkey Marketing

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Review Record.	***Martinez TEAM CONNECTION (family FISCAL), Component TU90***.	***Heading in document***.	***GA + 2 years***.
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Summary of Changes

Changes resulting in document revisions will be summarized in this table in reverse chronological sequence. Revision numbers and letters will highlight the text changed in new document versions.

Version	Date	Change Description
v1B 01	Nov 8, 2004	• Commands: – xA1 cmd. (On-Line Sale Header): format and states were changed. – xA2 cmd. (On-Line Sale Item): rules and states were changed. – xA7 cmd. (On-Line Sale Cancel): calculation restrictions were removed. – xAF cmd. (Off-Line Sale Cancel): was added. – xDB cmd. (Electronic Read Counters and Accumulators): was changed. • Return Codes: – 152 and 153: were added. – 182 and 183: were changed. • This version of Programming Guide Supplement corresponds to microcode EC level 1B.
v1A 01	Sep 15, 2004	• Commands: – xA1 cmd. (On-Line Sale Header): new rule was added. – xA2 cmd. (On-Line Sale Item): new rule was added. – xAC cmd. (Off-Line Sale Start): Day_N_OFF_Sale_Events and Lif_N_OFF_Sale_Events counters were removed. – xAE cmd. (Off-Line Sale End): Day_N_OFF_Sale_Events and Lif_N_OFF_Sale_Events counters were added. • This version of Programming Guide Supplement corresponds to microcode EC level 1A.
v16 01	Jul 15, 2004	• x20 cmd. (Set VAT Rate Table): was changed. • xDA cmd. (Electronic Read Fiscal Memory Tables): – cmd. format was changed. – response for daily entry table was changed. – response for extended daily entry table was added. – response for off-line events table was added. – response for VAT rates table was added. • Fiscal Memory: – fiscal memory map was changed. – daily entry table was changed. – extended daily entry table was changed. – off-line events table was added. – VAT rates table was added. • RC′s 006, 030: were added. • This version of Programming Guide Supplement corresponds to microcode EC level 16.

Version	Date	Change Description
v15 01	Jun 1, 2004	• Commands: – 13 cmd. (Close Sale Period): calculations were changed. – 19 cmd. (Currency Management): set new Lira was removed. – A1 cmd. (On-Line Sale Header): — cmd. extension was changed. — flags were added. – A2 cmd. (On-Line Sale Item): calculations were changed. – A6 cmd. (On-Line Sale End): — calculations were added. — flags were added. – A7 cmd. (On-Line Sale Cancel): flags were added. – AC cmd. (Off-Line Sale Start): — cmd. extension was changed. — calculations were added. — flags were added. – AD cmd. (Off-Line Sale Print): calculations were added. – AE cmd. (Off-Line Sale End): — calculations were added. — flags were added. – DA cmd. (Electronic Read FM Tables): response for new Lira table was removed. • Flags: – FNEWCUR was removed. – FSTDTX (Standard Transaction) was added. – FVISTX (Vehicle Identification System Transaction) was added. – FTRATX (Transfer Transaction) was added. – FTSTTX (Test Transaction) was added. • This version of Programming Guide Supplement corresponds to microcode EC level 15.

Version	Date	Change Description
v12 01	Apr 13, 04	• Lifetime Accumulators for old and new Lira: were created. • Fiscal Memory: – fiscal memory map was changed. – new Lira table was added. – daily entry table was changed. • 13 cmd. (Close Sale Period): – calculation of lifetime accumulators for old Lira were added. – calculation of lifetime accumulators for new Lira were added. – in update daily entry table section, new accumulators were added. • 19 cmd. (Currency Management): set new Lira was added. • DA cmd. (Electronic Read Fiscal Memory Tables): – response for daily entry table was changed. – read new Lira table was added. • DB cmd. (Electronic Read Counters and Accumulators): – byte 4 - bit 3 (Lifetime Accumulators) was added. – byte 35 - bit 2 (New Lira Set) was added. – lifetime accumulators for old Lira were added. – lifetime accumulators for new Lira were added. • FNEWCUR flag: was added. • Msg's C60, C61, D05, D09, D10, M10, M11, M12 and M13: were created. • RC 162: was added. • Fiscal Memory Report (extended): msg. D05 was added. • Complete Fuel Types Report: was added. • Enabled Fuel Types Report: was added. • X-Report for new Lira: was added. • Closure Report: – for new Lira was added. – for new and old Lira was added. • Fiscal Memory Report: – short for new Lira was added. – extended for new Lira was added. • RS-232 Communication Interface: differents baud rates are supported. • This version of Programming Guide Supplement corresponds to microcode EC level 12.
v11 01	Mar 15, 04	• This version of Programming Guide Supplement corresponds to microcode EC level 11.

Table 1. Change Summary

Contents

Figures

1.0 Fiscal Hardware Technical Specification

1.1 4610 Suremark Fiscal Printer

1.1.1 Features

The 4610 SureMark fiscal printer is the TI-3/4 printer with a second thermal station which is used as a journal station. Since 4610 SureMark in based on the TI-3/4, it has the same SBCS logic card as a the TI-3/4.

The printer features are:

- Customer Receipt Station (CR) - thermal printing
- Summary Journal Station (SJ) - thermal printing
- User defined character sets
- RS-232 communication interfaces
- Barcode printing capability (all stations)
- PDF417 barcode generation (all stations)
- Paper Cutter (CR station only)

1.1.2 Models

MODEL	INTERFACE	POWER	STATIONS	
			SJ	DI
GD5	RS-232	Brick	Yes	No

1.1.3 Characters Per Inch

- Thermal Printing (CR and SJ stations)
  - 15 CPI => 44 characters/line
  - 12 CPI => 34 characters/line

1.2 Fiscal Security Characteristics

The IBM POS fiscal solution is based on the concept of a ′fiscal printer′.
Because of the restrictions in most countries relative to the definition of a ′fiscal machine′, a distributed POS must have the fiscal electronics sealed in the printer. The printer becomes the ′fiscal machine′ in a distributed POS. This solution prevents fraud by ensuring absolutely that what is printed is recorded in the fiscal electronics.
In this case the only fiscal dependency remaining on the POS terminal that the printer is attached to is the ability to sense connection of the POS displays.
Our system provides that capability by having all the POS I/O wired in parallel which allows the fiscal printer to monitor the serial I/O responses to polls from the configured displays. If a display is disconnected or stops operating, the fiscal printer will inhibit further printing until the display resumes operation.

1.2.1 Method of Sealing

IBM seals the printer with a single screw covered by a lead plug.
The CE uses an official tool to stamp the authorized fiscal logo into the lead seal when it is inserted into the opening over the screw.

1.2.2 Fiscal Processing

The IBM fiscal printer has a special electronics board sealed in the fiscal base which intercepts the data from the POS terminal and processes it before sending it to the printer to be printed. The 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 32K 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 SureMark RS-232, a 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.

There is a J4/CE jumper which is used to reset the RAM after a repair or in the event of a temporary data error in the RAM. The J4/CE jumper can also be used to control some commands so that only the CE can perform them.

A battery jumper is available on fiscal printer logic card to allow a certification test to verify that the processor card would detect a low battery condition.

1.2.3 Fiscal Memory

IBM uses a 2 megabit EPROM (electronically programmable read-only memory) sealed in a tub of epoxy on the base of the fiscal printer for the long term fiscal memory. At the end of each day the daily totals are written to the fiscal memory. The fiscal processor logic board generates the appropriate voltages and logic to write data to an EPROM. EPROMs are completely non-volatile and have a life span measured in decades rather than years.
Because it is covered with epoxy the EPROM data cannot be erased. (Although EPROMs start at all ′ones′, so if the fiscal seal is breached any ′one′ bits could be programmed to ′zero′ even in previously recorded data.)

The fiscal printer can store 2100 days of data at 152 bytes of data per day.

The IBM fiscal printer provides electronic readout of the fiscal data (if allowed by law) to allow a TAX inspector to readout the data electronically, possibly from the store controller/server, as opposed to having to printout the data from each cash register on the register tape.

1.2.4 Fiscal Memory - A5 pattern

The fiscal microcode writes the pattern ″A5″ in address 82 (hexa) in the fiscal memory to be able to detect the eprom connection.
It is read for all fiscal commands. If it isn′t found, the fiscal microcode returns the error code 109.

1.2.5 Fiscal Label

The fiscal label is attached to the base of the fiscal printer and contains the same serial number that is electronically written in the fiscal memory.
Since the label is part of the same field replaceable unit as the fiscal base with epoxied fiscal memory there is no danger of having a serial number mismatch.
In accordance with many of the fiscal laws, the integrated mounting hardware for the IBM 469X POS, IBM SurePOS 300/500/600 terminals has been modified to allow visibility of the fiscal label and fiscal seal to a person walking around the POS terminal without requiring any disassembly.

2.0 Printer and Fiscal Unit Status

2.1 For GD5 Models (RS-232)

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

BYTE	BIT	CONTENT
0		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 on the DI station. - CR print error with commands to the 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 - GD5 Model - Part 1 of 3

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 in 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 1 = Selected 0 = Not Selected	(Note 1)
	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 the 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 - GD5 Model - Part 2 of 3

BYTE	BIT	CONTENT
7		PRINTER UNIT STATUS (reserved for future use)
8		FISCAL UNIT STATUS
	0	RESERVED (Always = '0')
	1	IPL STATUS When set, it indicates that status byte 13 contains the IPL completion status and bit 4 of byte 8 is set as it was at IPL time.
	2	IPL IN PROGRESS Set to indicate that the fiscal unit is performing the IPL sequence.
	3	MICROCODE EC When set it indicates that status byte 13 contains the microcode EC.
	4	PLD This bit is set at IPL time to indicate that a command was in execution during PLD and that all modifications caused by the suspended command have been deleted.
	5	ASYNCHRONOUS STATUS When set it indicates that the fiscal unit is executing an internal command (e.g. POR sequence) or it received an asynchronous status from the printer).
	6	INTERMEDIATE STATUS When set it indicates that execution of a command is still in progress.
	7	FISCAL UNIT BUSY Set to 1 when a command is received while a previous command is still in execution.
9		FISCAL 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 (= 1 when any data is available; otherwise = 0)
10		COUNTRY CODE 02 = Turkey
11		ADDITIONAL DATA AND VERSION CODE
	0-4	VERSION CODE (hardware model)
	5-6	RESERVED
	7	ADDITIONAL DATA (Note 2)
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 9 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 the 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 SJ station is selected
- If it is '0' then the SJ station is not selected and status byte 6, bit 6 must be cheched to determine which station is selected.
If status byte 6, bit 6 is a '0' then the CR is selected.
If status byte 6, bit 6 is a '1' then the DI is selected.

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

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

Figure 3. Printer and Fiscal Unit Status - GD5 Model - Part 3 of 3

The fiscal unit return codes are defined in 7.0, "Fiscal Unit Return Codes" on page 167 .

2.1.1 Version/Country Code Definitions

- Country Name = Turkey
- Country Version (hardware model) = 05 (4610 SureMark RS-232)
- Models = GD5
- Country Code = 02
- Fiscal Microcode EC Level = 1B

3.0 RS-232 Communication Interface

ONLY FOR RS-232

3.1 Protocol

The protocol implemented for communication with the FP has two main characteristics:

- The host begins all communications.
- The FP will never send an unsolicited message.

So, the protocol could be defined as one of type Host (PC) / Slave (Fiscal Printer)
The protocol is a one-bit sliding window protocol. In this kind of protocol, the partners speaks successively one each time. The first to speak will be always the host. Every part keeps internally a packet counter. After initialization, this counter is used to distinguish between new packets and retransmissions changing from 0 to 1 continuously. (see normal communication below).
All packets have the same format. There are no special packets for ACKs, NAKs, etc.

3.2 Packet Format

HEADER	LENGTH	DATA	CRC-16
1 byte	2 bytes	Length bytes	2 bytes

- HEADER: Source / Packet Type (see below Header Format)
- LENGTH: A binary 2 bytes unsigned value representing a number from 0 to 0xFFFF = 65535. This is the maximum theoretical length of the data to be transmitted. The real maximum will be a lot shorter due to buffer limits.
  Length can be > 0 only for packet types IF0 and IF1.
- DATA: This is the meaningful data to be transmitted. If length = 0, then no Data must be present. This is mandatory for packet types SNRM, ROL and NSA. It's optional for packet types IF0 and IF1. In this last case, such a packet can be used from he host side to give 'the right to speak' to the device (polling), or, from the slave side, to recognize successful reception of a previous packet from host when the slave has no data to send.
- CRC-16: This is the CRC-16 of all the preceding data (Header + Length + Data). The polynomial used is x^16+x^12+x^5+1 (the one recommended by CCITT).

Note that LENGTH and CRC are transmitted in Big Endian Format (most significant byte first). That's the format used internally by the device C microcode. While most of the Hosts will have to swap the bytes because they use Little Endian Format, we choose to favor the slowest device.

3.3 Header Format

BITS 7-4	BIT 3	BITS 2 - 0
Reserved (specify 0)	Source	Packet Type

- SOURCE: The source of the packet (0 = Host / 1 = Slave)
- PACKET TYPE: One of these values

NAME	VALUE	DIRECTION	LENGTH FIELD
SNRM (Set Normal Response Mode)	0x04	From Host	Must be 0 (no data)
ROL (Request On Line)	0x05	From Slave	Must be 0 (no data)
NSA (Non Sequence Acknowledge)	0x06	From Slave	Must be 0 (no data)
RESET	0x07	From Host	Must be 0 (no data)
Information Frame #0	0x00	Both	0 to 0xFFFF
Information Frame #1	0x01	Both	0 to 0xFFFF

3.4 Communication Parameters

28800/19200/9600 bits per second / No Parity / 8 bits / 1 Stop bit

- The fiscal printer with RS-232 communication interface is able to communicate at different baud rates.
- The microcode will detect automatically at which baud rate the host communicates amoung these: 28800, 19200 and 9600.
- At IPL the microcode will start at 28800 and after a bad reception, it will cycle to the next baud rate thru this sequence 28800 -> 19200 -> 9600 -> 28800.

3.5 State Machine for Host

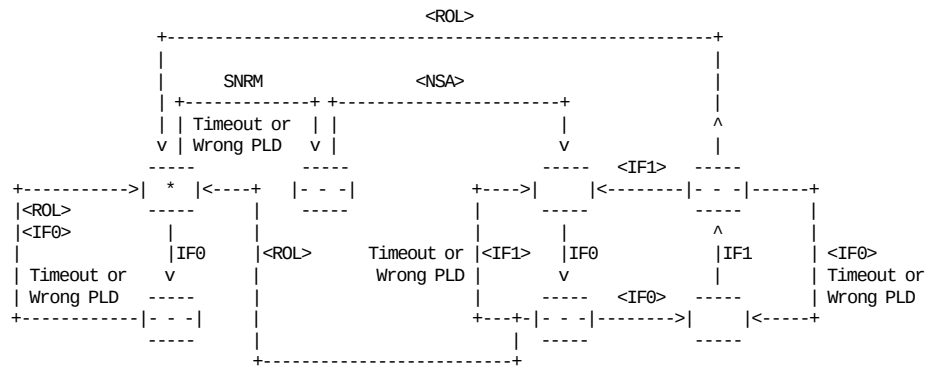


Figure 4. State Machine for Host.

3.6 State Machine for Slave

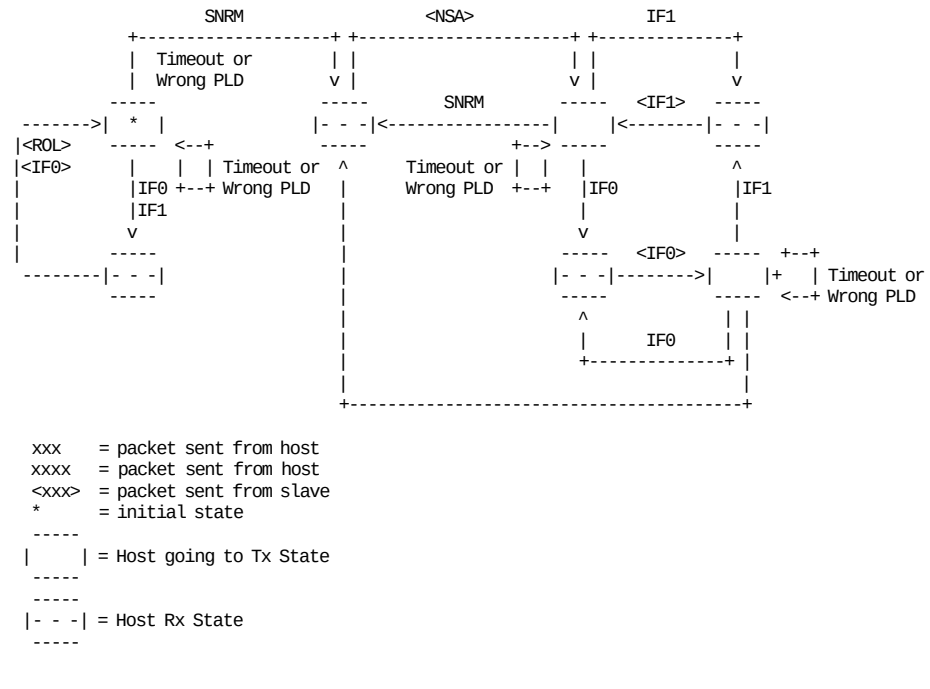


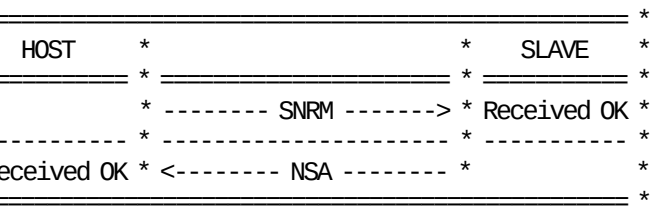
Figure 5. State Machine for Slave.

3.7 Initialization

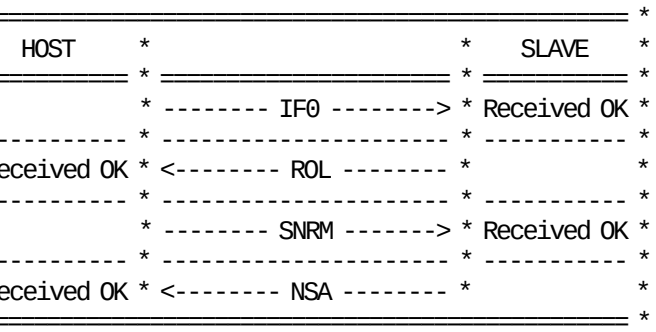
The very first packet that the Host transmits must be a SNRM (Set Normal Response Packet) or an IF0 without data (see State Machine below). If an IF0 is sent, the Slave can respond in two differents ways: with a ROL (Request On Line) if the Slave is just initiating communications also, or with an IF0 if the Slave has a previous communication ongoing. If this info result useful to recognize between these two cases, the IF0 must be sent first and then SNRM. If it's not necessary, the SNRM can be sent directly.
When a SNRM is sent, after successful reception, the Slave will reset its internal packet counter to 0 and send a NSA (Non Sequence Acknowledge). If the Host receives it successfully, it will continue with the normal communication. If it's not, the host will resend the SNRM packet.
Initially, the Slave will wait for a packet from host (it always speaks after the host). If the first packet received is a SNRM, the slave must respond with NSA. If something else is correctly received the Slave must send a ROL (Request On Line) packet, asking the host to resynchronize communication. After reception the host must send a SNRM and set its internal packet counter to 0. The Slave will respond with NSA, and normal communication will continue.

3.7.1 Initialization Flow

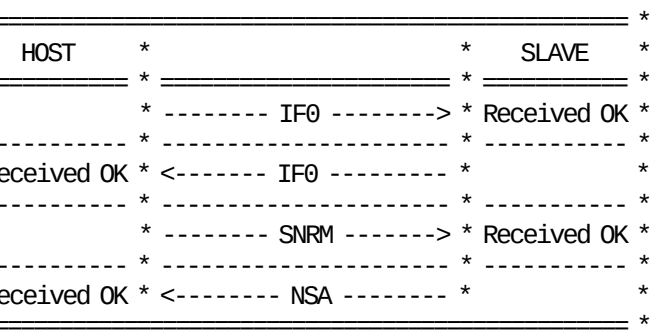
- Normal case without Host recognizing Slave reset



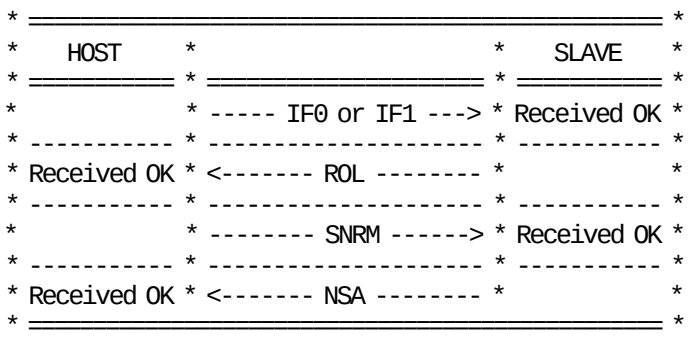
- Host and Slave reset at the same time with Host recognizing



- Host reset and Slave not with Host recognizing



- Slave reset when Host has an ongoing communication



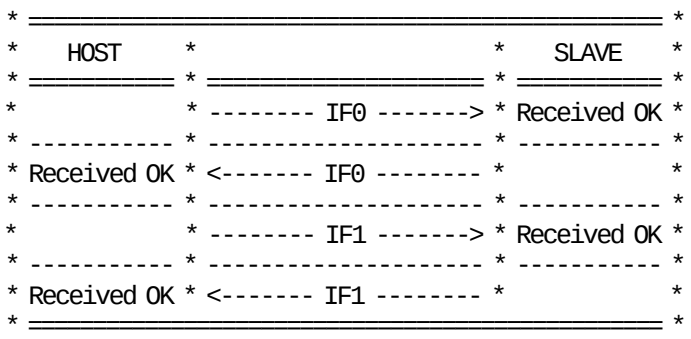
3.8 Normal Communication

Information Frame (IF) packets are interchanged between host and slave. These IF packets have two different types 0 and 1 corresponding to the internal counter kept by each part. The first packet to be sent will be IF0, then IF1, then IF0 and so on. This way, the partner can recognize a new packet from a retransmission.

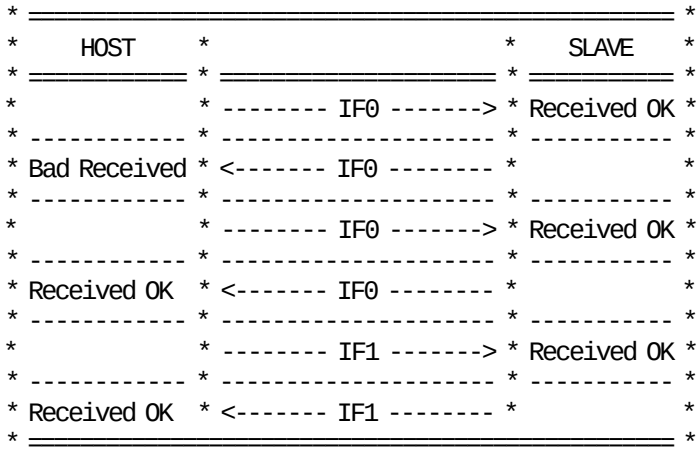
A packet is automatically acknowledged when the partner sends the following packet with the expected numbering. If the host receives a packet with wrong CRC, the preceding host packet will be retransmitted forcing the slave to retransmit its packet. If the slave receives a packet with wrong CRC it will just ignore it and the host must retransmit it when the time waiting for a response has expired. If the host doesn't receive a response for its packet, it must resend the packet after a time-out period.

3.8.1 Normal Communication Flow

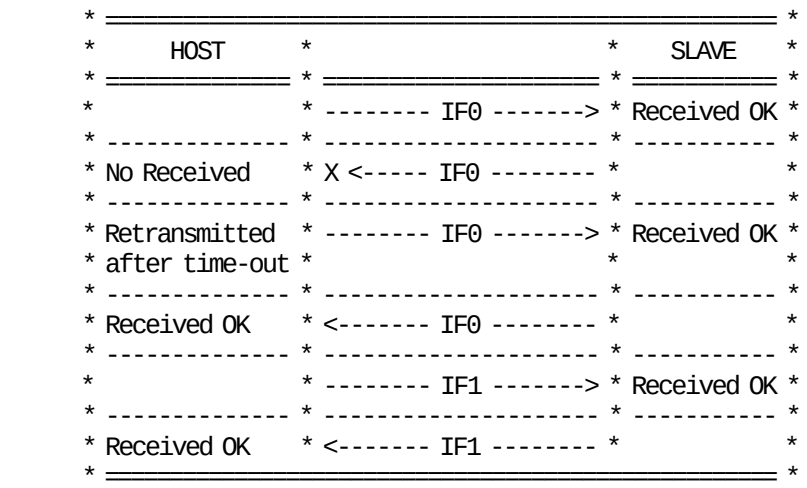
- Normal Case



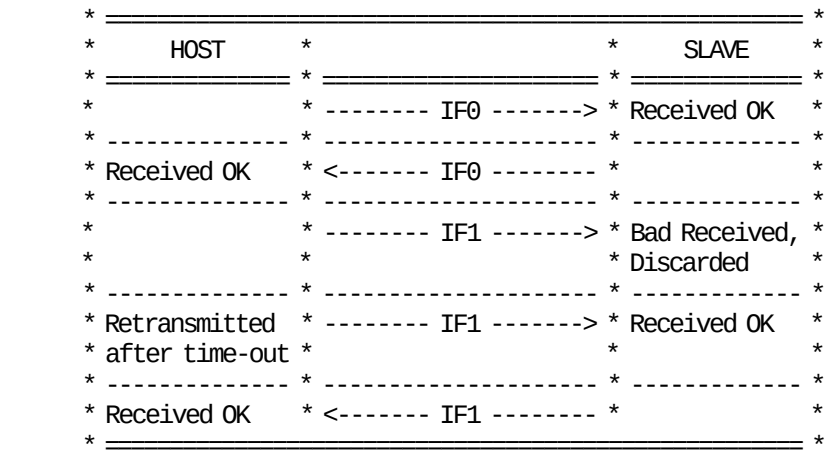
- Bad CRC Packet Received by Host



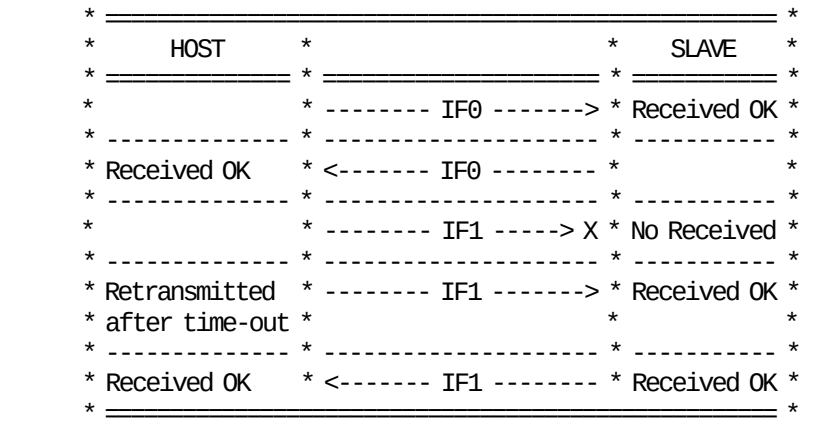
- No Packet received by Host



- Bad CRC Packet received by Slave



- No Packet received by Slave



3.9 Timing

The maximum delay between consecutive bytes sent by any device is 50ms. Also, after the host ends sending a packet, the device has a maximum of 250ms for sending the first byte of the response. The host has no restriction about how often it must send packets to the slave, the slave must wait forever to receive something from it, but, if the host doesn′t gives a ′chance to speak′ to the device, it will be unable to inform the host of any asynchronous event detected i.e. cover open/close.

3.10 Polling

Even if this is not strictly related to the protocol, it′s important to note that the FP responses are always status. These status can be one of three different types:

- Intermediate: Status sent during execution of a command while not complete.
- Final: Status sent at command execution ending.
- Asynchronous: Status sent outside command execution.

After sending a command, it is very important to keep ′polling′ the printer (sending IFs without data) until the slave returns a final status. This way the hosts gives the FP a chance to send its status back. If command execution is not quick, the FP will send intermediate status periodically until the command is ended and a final status is sent.
The FP can generate also asynchronous status, that is status generated outside the execution of any command. These status are mainly originated due to changes in the status of the printer (covers open/close, buttons pressed, etc.). If the host needs to take care of these status, it must keep polling the printer even when no command is executed. The polling inside command execution must be more frequent to avoid slowing the device throughput (around once every 0.05 sec). The polling outside command execution can be usually slower (maybe once every 0.50 sec). These times doesn′t need to be exact and some tuning could be necessary to achieve optimum performance.

3.11 Retries

The number of retries is infinite for the slave. This means that, by example, it will keep sending IF0s all the time if, while it′s waiting an IF1, it continuously receives IF0s from the host. For the host, the number of retries must be decided according to the perceived quality of the communication link. Anyway, at least 5 retries before considering the communication as broken are strongly suggested.

4.0 Fiscal Accounting Technical Description

This section discusses the fiscal printer operation, defines the terminology used in the operation of the printer, and describes the fiscal commands in terms of the function they provide.

4.1 Fiscal Printer Operation

The fiscal printer operates under control of an application program communicating with it through a serial link (Device Channel).
It is designed to execute a predefined set of commands, logically sequenced according to the type of operations to be performed.
The application program has no direct control of the resources residing in the fiscal unit, but it can retrieve data related to accumulators, counters, fiscal unit state and fiscal memory.

The fiscal printer performs the following operations, assuring that they are executed according to the fiscal law in Turkey:

- Record serialization parameters
- Record fiscal configuration options
- Record store configuration options
- Record sale amount and generate customer fiscal voucher
- Record fiscal receipt amount and generate receipt receipt document
- Record return receipt amount and generate return receipt document
- Record diplomatic receipt amount and generate diplomatic receipt document
- Record waybill receipt amount and generate waywill receipt document
- Print X-Report
- Record daily sales in the fiscal memory and generate closure report
- Generate fiscal memory content reports
- Print reports generated by the application program
- Report selected data to the application program
- Print Credit Slips

4.2 Definition of Terminology

Please study these definitions.

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

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

(SJ) Summary Journal
is the right side print station that prints on rolls of paper and winds up the printed paper in the printer as the journal of the day's printing.

Sale Period is a group of sale transactions over a given amount of time, usually measured daily.

On-Line Sale Transaction
is a process of recording item sale 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.

Off-Line Sale Transaction

In case of ECR broken or cable, communication problem between pump and ECR, Pump will continue to work as itself until the problem solved. There will be another part in the pump (we call Additional Module). Additional Module will understand the problem exists, then automatically it turn off-line mode. In this mode the pump will not ask permission to ECR any more. But, Additional Module saves the information of fuel (qty, amt, type, vat, ... etc). After recovery these saved sold fuel info will be sent to the ECR as off-line sale by the Additional Module. ECR, then prints the ticket regarding to off-line sales.

On-Line Fiscal Voucher

The on-line fiscal voucher is the slip of paper that verifies that a sale transaction occurred and is commonly called the "customer receipt" in US English. The on-line fiscal voucher is printed in CR station of the printer.

Off-Line Voucher The off-line voucher is the slip of paper that verifies that a standard or vehicle identification system sale occurred. The off-line voucher is printed in CR station of the printer.

VAT is value-added TAX.

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

Discount on Subtotal

is the reduction of an entire sales transaction.

Uplift on Subtotal is the surcharge of an entire sales transaction.

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

Cancel is used when cancelling or voiding an entire sale transaction.

Ordinary Printing also known as application-originated (or normal) printing, these are print lines that do not have a specific fiscal law function monitored or controlled by the printer.

4.3 POS Fiscal General Information and Rules

4.3.1 Fiscal Memory Connection

Fiscal memory may not be disconnected. The microcode checks for a good connection at power up and before execution of the following commands:

- A1 - On-Line Sale Header
- A6 - On-Line Sale End
- 15 - Fiscal Memory Report
- 13 - Close Sale Period (Z-Report)

If the fiscal memory is not connected, an error is reported to the application when the application attempts to execute the commands above.

Once the memory is detected as being disconnected, an error is sent to the application if any of the following commands are sent to the printer:

- 1B - Serialize Fiscal Printer
- 18 - Set Fiscal Mode
- 19 - Currency Management
- 23 - Set/Enabled Fuel Types Table
- A1 - On-Line Sale Header
- A2 - On-Line Sale Item
- A4 - On-Line Sale Subtotal/Total
- A5 - On-Line Sale Payment
- A6 - On-Line Sale End
- A7 - On-Line Sale Cancel
- A8 - On-Line Sale Not Paid
- A9 - On-Line Sale Discount/Uplift on Subtotal
- AC - Off-Line Sale Start
- AD - Off-Line Sale Print
- AE - Off-Line Sale End
- AF - Off-Line Sale Cancel
- 13 - Close Sale Period (Z-Report)
- 14 - Summary Fiscal Report (X-Report)
- 9F - Off-Line Events Report
- DD - Start Application-Originated Report
- DE - End Application-Originated Report
- All Printer Commands

If Fiscal memory is not connected, an error is reported to the application. Recovery from this error requires that the RAM is cleared using the hardware J4/CE jumper.

5.0 Fiscal Accounting Variables

A detailed description of the rules governing the execution of fiscal commands and the effect on fiscal memory, accumulators, and counters is in this section.
See 9.0, “Turkey - Specific Information” on page 189 for the description of the data to be printed on the official fiscal slips.

Note: In all of the commands, bit 7 is the most significant bit and bit 0 is the least significant bit.

5.1 Definition of Accounting Variables

The following variables are defined in this section:

- Transaction accumulators
- Transaction counters
- Daily accumulators
- Daily counters
- Lifetime accumulators
- Lifetime counters

5.1.1 Transaction Accumulators

Table 2 list the accumulators used during a sale transaction.

Accumulator Name	Description	Minimum Range	Maximum Range
Tra_Tot_ON	On-Line Transaction total	0	2.147.483.647 (4 bytes)
Tra_Tot_ON_v(vv)	On-Line Transaction total by VAT	0	2.147.483.647 (4 bytes)
Tra_Tot_ON_FT(ii)	On-Line Transaction total by RAM fuel type id number enabled	0	2.147.483.647 (4 bytes)
Tra_VAT_ON_v(vv)	On-Line Transaction VAT total	0	2.147.483.647 (4 bytes)
Tra_VAT_ON	On-Line Transaction VAT total	0	2.147.483.647 (4 bytes)
Tra_Ltr_Qty_ON_FT(ii)	On-Line transaction quantity of liters by RAM fuel type id number enabled	0	2.147.483.647 (4 bytes)
Tra_Tot_OFF	Off-Line transaction - total	0	2.147.483.647 (4 bytes)
Tra_Tot_OFF_v(vv)	Off-Line transaction - total by VAT	0	2.147.483.647 (4 bytes)
Tra_Tot_OFF_FT(ii)	Off-Line transaction - total by RAM fuel type id number enabled	0	2.147.483.647 (4 bytes)
Tra_VAT_OFF_v(vv)	Off-Line transaction - VAT total	0	2.147.483.647 (4 bytes)
Tra_VAT_OFF	Off-Line transaction - VAT total	0	2.147.483.647 (4 bytes)
Tra_Ltr_Qty_OFF_FT(ii)	Off-Line transaction - quantity of liters by RAM fuel type id number enabled	0	2.147.483.647 (4 bytes)
Tra_Ltr_Qty_OFF	Off-Line transaction - quantity of liters	0	2.147.483.647 (4 bytes)
Tra_Pay_Type_0	Transaction - payment cash total	0	2.147.483.647 (4 bytes)
Tra_Pay_Type_1	Transaction - payment credit card total	0	2.147.483.647 (4 bytes)
Tra_Pay_Type_4	Transaction - payment other total	0	2.147.483.647 (4 bytes)
Tra_Payment	Transaction payment total	0	2.147.483.647 (4 bytes)
Tra_Amt_Due	Amount due	-2.147.483.648	2.147.483.647 (4 bytes)
Change_Due	Change due	0	2.147.483.647 (4 bytes)
Tra_Tdsc	Transaction discount on subtotal	0	2.147.483.647 (4 bytes)
Tra_Tupl	Transaction uplift on subtotal	0	2.147.483.647 (4 bytes)

Where:

vv = VAT category, range from 01 to 10.
ii = RAM fuel type id number enabled, range from 01 to 06.

Table 2. Transaction Accumulators - Part 1 of 1

5.1.2 Transaction Counters

Table 3 lists the counters used during a sale transaction.

Counter Name	Description	Minimum Range	Maximum Range
Tra_N_ON_FT(ii)	On-Line transaction - number of transactions by fuel type	0	65.535 (2 bytes)
Tra_N_OFF_FT(ii)	Off-Line transaction - number of transactions by fuel type	0	65.535 (2 bytes)
Tra_N_OFF	Off-Line transaction - number of transactions	0	65.535 (2 bytes)
Tra_N_Tdsc	Transaction - number of discounts on subtotal	0	65.535 (2 bytes)
Tra_N_Tupl	Transaction - number of uplifts on subtotal	0	65.535 (2 bytes)

Where:

ii = RAM fuel type id number enabled, range from 01 to 06.

Table 3. Transaction Counters - Part 1 of 1

5.1.3 Daily Accumulators

Table 4, Table 5 on page 39, Table 6 on page 40, Table 7 on page 41, Table 8 on page 42, Table 9 on page 43 and Table 10 on page 44 list the accumulators that are used during a sales period.

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Tot	Daily - total	0	549.755.813.888 (5 bytes)
Day_Tot_v(vv)	Daily - total by VAT	0	549.755.813.888 (5 bytes)
Day_Tot_VIS_v(vv)	Daily VIS - total by VAT	0	549.755.813.888 (5 bytes)
Day_Tot_VIS_FT(ii)	Daily VIS - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_VIS	Daily VIS - total	0	549.755.813.888 (5 bytes)
Day_Tot_FT(ii)	Daily - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_VATC_VIS_v(vv)	Daily VIS - VAT total by VAT category	0	549.755.813.888 (5 bytes)
Day_VATC_VIS	Daily VIS - VAT total	0	549.755.813.888 (5 bytes)
W_Day_TotC_v(vv)	Daily working - total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
W_Day_VATC_v(vv)	Daily working - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)

Where:

ii = RAM fuel type id number enabled, range from 01 to 06.

Table 4. Daily Accumulators - Part 1 of 6

Daily Accumulators continued...

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Ltr_Qty_ON_FT(ii)	Daily on-line - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON	Daily on-line - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_Std_FT(ii)	Daily on-line standard - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_Std	Daily on-line standard - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_VIS_FT(ii)	Daily on-line VIS - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_VIS	Daily on-line VIS - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_Tra_FT(ii)	Daily on-line transfer - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_Tra	Daily on-line transfer - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_Tst_FT(ii)	Daily on-line test - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_ON_Tst	Daily on-line test - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_FT(ii)	Daily - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_VIS	Daily VIS - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_VIS FT(ii)	Daily VIS - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_VIS	Daily VIS - quantity of liters	0	4.294.967.295 (4 bytes)

Where:

ii = RAM fuel type id number enabled, range from 01 to 06.

Table 5. Daily Accumulators - Part 2 of 6

Daily Accumulators continued...

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Tot_ON	Daily on-line - total	0	549.755.813.888 (5 bytes)
Day_Tot_ON_v(vv)	Daily on-line - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_ON_FT(ii)	Daily on-line - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Std	Daily on-line Std - total	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Std_v(vv)	Daily on-line Std - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Std_FT(ii)	Daily on-line Std - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_ON_VIS	Daily on-line VIS - total	0	549.755.813.888 (5 bytes)
Day_Tot_ON_VIS_v(vv)	Daily on-line VIS - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_ON_VIS_FT(ii)	Daily on-line VIS - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Tra	Daily on-line transfer - total	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Tra_v(vv)	Daily on-line transfer - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Tra_FT(ii)	Daily on-line transfer - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Tst	Daily on-line test - total	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Tst_v(vv)	Daily on-line test - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_ON_Tst_FT(ii)	Daily on-line test - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)

Where:

ii = RAM fuel type id number enabled, range from 01 to 06.

Table 6. Daily Accumulators - Part 3 of 6

Daily Accumulators continued...

Accumulator Name	Description	Minimum Range	Maximum Range
Day_VATC_ON	Daily on-line - VAT total calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_ON_v(vv)	Daily on-line - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_ON_Std	Daily on-line standard - VAT total	0	549.755.813.888 (5 bytes)
Day_VATC_ON_Std_v(vv)	Daily on-line standard - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_ON_VIS	Daily on-line VIS - VAT total	0	549.755.813.888 (5 bytes)
Day_VATC_ON_VIS_v(vv)	Daily on-line VIS - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_ON_Tra	Daily on-line transfer - VAT total	0	549.755.813.888 (5 bytes)
Day_VATC_ON_Tra_v(vv)	Daily on-line transfer - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_ON_Tst	Daily on-line test - VAT total	0	549.755.813.888 (5 bytes)
Day_VATC_ON_Tst_v(vv)	Daily on-line test - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
W_Day_TotC_ON_v(vv)	Daily working on-line - total by VAT category calculated at reporting time	0	140.737.488.355.327 (6 bytes)
W_Day_VATC_ON_v(vv)	Daily working on-line - VAT total by VAT category calculated at reporting time	0	140.737.488.355.327 (6 bytes)

Where:

ii = RAM fuel type id number enabled, range from 01 to 06.

Table 7. Daily Accumulators - Part 4 of 6

Daily Accumulators continued...

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Ltr_Qty_OFF_FT(ii)	Daily off-line - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_OFF	Daily off-line - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_OFF_Std_FT(ii)	Daily off-line standard - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_OFF_Std	Daily off-line standard - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_OFF_VIS_FT(ii)	Daily off-line VIS - quantity of liters by RAM fuel type id number enabled	0	4.294.967.295 (4 bytes)
Day_Ltr_Qty_OFF_VIS	Daily off-line VIS - quantity of liters	0	4.294.967.295 (4 bytes)
Day_Tot_OFF	Daily off-line - total	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_v(vv)	Daily off-line - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_FT(ii)	Daily off-line - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_Std	Daily off-line Std - total	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_Std_v(vv)	Daily off-line Std - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_Std_FT(ii)	Daily off-line Std - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_VIS	Daily off-line VIS - total	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_VIS_v(vv)	Daily off-line VIS - total by VAT category	0	549.755.813.888 (5 bytes)
Day_Tot_OFF_VIS_FT(ii)	Daily off-line VIS - total by RAM fuel type id number enabled	0	549.755.813.888 (5 bytes)

Where:

ii = RAM fuel type id number enabled, range from 01 to 06.

Table 8. Daily Accumulators - Part 5 of 6

Daily Accumulators continued...

Accumulator Name	Description	Minimum Range	Maximum Range
Day_VATC_OFF	Daily off-line - VAT total calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_OFF_v(vv)	Daily off-line - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_OFF_Std_v(vv)	Daily off-line standard - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_OFF_Std	Daily off-line standard - VAT total	0	549.755.813.888 (5 bytes)
Day_VATC_OFF_VIS_v(vv)	Daily off-line VIS - VAT total by VAT category calculated at reporting time	0	549.755.813.888 (5 bytes)
Day_VATC_OFF_VIS	Daily off-line VIS - VAT total	0	549.755.813.888 (5 bytes)
W_Day_TotC_OFF_v(vv)	Daily working off-line - total by VAT category calculated at reporting time	0	140.737.488.355.327 (6 bytes)
W_Day_VATC_OFF_v(vv)	Daily working off-line - VAT total by VAT category calculated at reporting time	0	140.737.488.355.327 (6 bytes)

Where:

vv = VAT category, range from 01 to 10.
ii = RAM fuel type id number enabled, range from 01 to 06.

Table 9. Daily Accumulators - Part 6 of 7

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Pay_Type_0	Daily - payment cash total	0	140.737.488.355.327 (6 bytes)
Day_Pay_Type_1	Daily - payment credit card total	0	549.755.813.888 (5 bytes)
Day_Pay_Type_4	Daily - payment other total	0	549.755.813.888 (5 bytes)
Day_Payment	Daily - payment total	0	549.755.813.888 (5 bytes)
Day_Tdsc	Daily - discount on subtotal	0	549.755.813.888 (5 bytes)
Day_Tupl	Daily - uplift on subtotal	0	549.755.813.888 (5 bytes)
Day_Canc	Daily - cancelled transaction total	0	549.755.813.888 (5 bytes)
Day_Canc_v(vv)	Daily - cancelled transaction total by VAT category	0	549.755.813.888 (5 bytes)
Where:			
vv = VAT category, range from 01 to 10.			

Table 10. Daily Accumulators - Part 7 of 7

5.1.4 Daily Counters

Table 11 and Table 12 on page 46 lists the counters used during a sale period.

Counter Name	Description	Minimum Range	Maximum Range
Day_N_Vouc	Daily - number of fiscal vouchers	0	9.999 (2 bytes)
Day_N_Canc	Daily - number of fiscal vouchers cancelled	0	9.999 (2 bytes)
Day_N_Fisc	Daily - number of fiscal slips printed	0	9.999 (2 bytes)
Day_N_CFisc	Daily - number of fiscal slips cancelled	0	9.999 (2 bytes)
Day_N_NFR	Daily - number of application-originated reports – all stations	0	9.999 (2 bytes)
Day_N_NFCR	Daily - number of application-originated reports in CR station	0	9.999 (2 bytes)
Day_N_Tdsc	Daily - number of discounts on subtotal	0	9.999 (2 bytes)
Day_N_Tupl	Daily - number of uplifts on subtotal	0	9.999 (2 bytes)
Day_N_Ract	Daily - number of repair actions	0	200 (1 byte)
Day_N_OFF_Sale_Events	Daily - number of off-line sale events	0	200 (1 byte)

Table 11. Daily Counters - Part 1 of 2

Daily Counters continued...

Counter Name	Description	Minimum Range	Maximum Range
Day_N_ON_FT(ii)	Daily on-line - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_ON	Daily on-line - number of transactions	0	65.535 (2 bytes)
Day_N_ON_Std_FT(ii)	Daily on-line standard - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_ON_Std	Daily on-line standard - number of transactions	0	65.535 (2 bytes)
Day_N_ON_VIS_FT(ii)	Daily on-line VIS - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_ON_VIS	Daily on-line VIS - number of transactions	0	65.535 (2 bytes)
Day_N_ON_Tra_FT(ii)	Daily on-line transfer - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_ON_Tra	Daily on-line transfer - number of transactions	0	65.535 (2 bytes)
Day_N_ON_Tst_FT(ii)	Daily on-line test - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_ON_Tst	Daily on-line test - number of transactions	0	65.535 (2 bytes)
Day_N_OFF_FT(ii)	Daily off-line - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_OFF	Daily off-line - number of transactions	0	65.535 (2 bytes)
Day_N_OFF_Std_FT(ii)	Daily off-line standard - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_OFF_Std	Daily off-line standard - number of transactions	0	65.535 (2 bytes)
Day_N_OFF_VIS_FT(ii)	Daily off-line VIS - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_OFF_VIS	Daily off-line VIS - number of transactions	0	65.535 (2 bytes)
Day_N_Tx_FT(ii)	Daily - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_VIS_FT(ii)	Daily VIS - number of transactions by RAM fuel type id number enabled	0	65.535 (2 bytes)
Day_N_VIS	Daily VIS - number of transactions	0	

Table 12. Daily Counters - Part 2 of 2

5.1.5 Lifetime Accumulators

Table 13 lists the accumulators kept for the life of the fiscal printer.

Accumulator Name	Description	Minimum Range	Maximum Range
Lif_Tot_ON	Lifetime on-line - Total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot_ON_VIS	Lifetime on-line VIS - Total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot_ON_Tra	Lifetime on-line transfer - Total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot_ON_Tst	Lifetime on-line test - Total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot	Lifetime - Total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_ON	Lifetime on-line - VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_ON_VIS	Lifetime on-line VIS - VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_ON_Tra	Lifetime on-line transfer - VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_ON_Tst	Lifetime on-line test - VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT	Lifetime VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot_OFF	Lifetime off-line - total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot_OFF_VIS	Lifetime off-line VIS - Total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_OFF	Lifetime off-line - VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_OFF_VIS	Lifetime off-line VIS - VAT total	0	36.028.797.018.064.000 (7 bytes)
Lif_Tot_VIS	Lifetime VIS - total	0	36.028.797.018.064.000 (7 bytes)
Lif_VAT_VIS	Lifetime VIS - VAT total	0	36.028.797.018.064.000 (7 bytes)

Table 13. Lifetime Accumulators - Part 1 of 1

5.1.6 Lifetime Counters

Table 14 lists the counters kept for the life of the fiscal printer.

Counter Name	Description	Minimum Range	Maximum Range	See Notes
Lif_N_Clos	Closure number	1	2.100 (2 bytes)	
Lif_N_Ract	Lifetime - number of repair actions	0	200 (1 byte)	1
Lif_N_Fuel_Type	Lifetime - number of fuel types entries set	1	100 (1 byte)	1
Lif_N_XClos	Lifetime - extended closure number	1	800 (2 bytes)	
Lif_N_VAT	Lifetime - number of VAT rates entries set	1	30 (1 byte)	
Lif_N_OFF_Sale_Events	Lifetime off-line - number of sale events	1	1.000 (2 bytes)	1

Notes:

1. This counter must be recovered from the fiscal memory in the case of the J4/CE jumper activation procedure being performed.

Table 14. Lifetime Counters - Part 1 of 1

5.2 Fiscal Hardware Functions

5.2.1 J4/CE Jumper Description

There is a J4/CE jumper which is used to reset the RAM after a repair or in the event of a temporary data error in the RAM. The J4/CE jumper can also be used to control some commands so that only the CE can perform them.

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

A battery jumper is available on the fiscal printer logic card to allow a certification test to verify that the processor card would detect a low battery condition.

5.2.2 J4/CE Jumper Procedure

The activate jumper procedure consists in:

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

The deactivate jumper procedure consists in:

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

5.2.3 Calculations while the jumper is active:

- Calculate the following accumulators from the daily entry table

  Lif_Tot_ON
  Lif_Tot_ON_VIS
  Lif_Tot_ON_Tra
  Lif_Tot_ON_Tst

  Lif_VAT_ON
  Lif_VAT_ON_VIS
  Lif_VAT_ON_Tra
  Lif_VAT_ON_Tst

- Calculate the following accumulators from the extended daily entry table

  Lif_Tot_OFF
  Lif_Tot_OFF_VIS

  Lif_VAT_OFF
  Lif_VAT_OFF_VIS

- Calculate the following accumulators

  Lif_Tot = Lif_Tot_ON + Lif_Tot_OFF
  Lif_Tot_VIS = Lif_Tot_ON_VIS + Lif_Tot_OFF_VIS

  Lif_VAT = Lif_VAT_ON + Lif_VAT_OFF

Lif_VAT_VIS = Lif_VAT_ON_VIS + Lif_VAT_OFF_VIS

- Recover the following counters from the fiscal memory tables

  Lif_N_Clos
  Lif_N_XClos

  Lif_N_Ract

  Lif_N_VAT

  Lif_N_Fuel_Type

  Lif_N_OFF_Sale_Events

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

  Day_N_Ract = Day_N_Ract + 1

  Lif_N_Ract = Lif_N_Ract + 1

5.2.4 J4/CE Jumper Function Rules

- Only authorized service personnel can move the J4/CE jumper.
- 200 repair actions are allowed during the life of the fiscal printer and each repair action is stored in the fiscal memory.
- When the number repair reach is 200, no more J4/CE jumper action can be issued and only the following commands are allowed:
  - 15 - Fiscal Memory Report - Extended and Short
  - FF - Dump RAM & Fiscal Memory
  - DA - Electronic Read Fiscal Memory Tables
  - DB - Electronic Read Counters and Accumulators
- The RAM pattern is initialized after all the other initialization has been completed.
- This process can take a long time if the fiscal memory is almost full or full.
- Flags are set or cleared as shown below.

5.3 Initialization Sequence

The initialization sequence for Turkey is:

1. **RAM CLEAR**
   - Turn ON the fiscal printer **with J4/CE jumper in OFF (stored) position**
   - **Put J4/CE jumper in ON (active) position**
   - Execute --> Reset = 0040
   - **Put J4/CE jumper in OFF (stored) position**
   - Execute --> Reset = 0040

2. **SERIALIZATION**
   - Execute --> Serialize Fiscal Printer = 1B66 1B00

3. **FISCALIZATION**
   - Execute --> Set Fiscal Mode = 1B66 1800

4. **LOAD HEADERS**

   (Minimum = 1, Maximum = 5)
   - Execute --> Load Header 1 = 1B66 D701
   - Execute --> Load Header 2 = 1B66 D702
   - Execute --> Load Header 3 = 1B66 D703
   - Execute --> Load Header 4 = 1B66 D704
   - Execute --> Load Header 5 = 1B66 D705

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

6. **SET VAT RATES TABLE**
   - Execute --> Set VAT Rates Table = 1B66 2001
   - Execute --> Set VAT Rates Table = 1B66 2002

7. **SET/ENABLE FUEL TYPES TABLE**
   - Execute --> Set Fuel Types Table = 1B66 2301 (FM)
   - Execute --> Enable Fuel Types Table = 1B66 2300 (RAM)

5.4 Training Mode

The fiscal printer is in training mode state before the fiscal mode is set (issuing 18 cmd.). After the fiscalization, no more training mode operations can be performed. That means: if the fiscal printer is in ″fiscal mode″, the ″training mode″ is not allowed.

5.4.1 Training Mode Rules

- Fiscal memory is not used.
- The fiscal and non-fiscal report counters are printed.
- Fiscal logo and serial number is not printed.
- The lifetime counter and accumulators will be erased after J4/CE jumper procedure.
- The following fiscal reports can be issued:
  - On-Line Sale Transaction
  - Close Sale Period (Z-Report) (without store data in daily entry table)
- The following non-fiscal reports can be issued:
  - Off-Line Sale Transaction
  - Complete Fuel Types Report
  - Enabled Fuel Types Report
  - Summary Fiscal Report (X-Report)
  - Application-Originated Reports
  - Dump RAM and Fiscal Memory

5.4.2 Set Fuel Type Functionality in Training Mode

In training mode, the fuel types will be stored in RAM memory. The procedure is the same used in fiscal mode but the fuel type data is stored in RAM memory.

- Rules
  - The fuel type data is stored in ″Fuel Types Table″ in RAM memory.
  - A maximum of 12 entries can be stored in the fuel types table, before it becomes full.
  - After the table is set, is mandatory to enable at least one fuel type.
  - The maximum number of fuel types to enable in a sale period is 6.
  - After the J4/CE jumper ON/OFF procedure, the commands x2301 and x2300 are ″mandatory″ before the start of SP.
  - The complete fuel types report (0B cmd.) will print the data stored in ″Fuel Types Table″ in RAM memory.

5.5 Command Set Summary List

This section contains a cross-reference between the fiscal unit command code and command name.
The command code preceding the command name represents the hexadecimal value of command byte 2.

5.5.1 Initialization

16 Set Date and Time
18 Set Fiscal Mode
1B Initialize Fiscal Memory
20 Set VAT Rates Table
23 Set/Enable Fuel Types Table
D7 Load Header

5.5.2 On-Line Sale Transaction

The on-line sale transaction is printed in CR and replicated in SJ station.

A1 On-Line Sale Header
A2 On-Line Sale Item
A4 On-Line Sale Subtotal/Total
A5 On-Line Sale Payment
A8 On-Line Sale Not Paid
A9 On-Line Sale Discount/Uplift on Subtotal
A6 On-Line Sale End
A7 On-Line Sale Cancel

5.5.3 Off-Line Sale Transaction

The off-line sale transaction is printed in CR and replicated in SJ station.

AC Off-Line Sale Start
AD Off-Line Sale Print
AE Off-Line Sale End
AF Off-Line Sale Cancel

5.5.4 Close Sale Period

13 Close Sale Period (Z-Report)

5.5.5 Fiscal Memory

15 Fiscal Memory Report

5.5.6 Reports

0B Fuel Types Report
14 Print X-Report
9F Off-Line Events Report
DD Start Application-Originated Report
DE End Application-Originated Report

5.5.7 Printer

E8 Set Number of Dot Rows per Line Feed
EA Ordinary Print Line in CR/SJ Station
EC Line Feed
EE Cut Customer Receipt
F4 Head Position and Open/Close Throat

5.5.8 Utilities

08 Get Sale Status
19 Currency Management
DA Electronic Read Fiscal Memory Tables
DB Electronic Read Accumulators and Counters
F1 Report IPL Completion Status
F7 Command Buffer Management
F9 Report Current Status

5.5.9 Original Equipment Manufacturer

00 System Commands
E7 Diagnostic and Alignment Utilities
F8 Report Printer EC
FA Reset Fiscal Printer
FB Run Diagnostics
FC Report Microcode EC
FF Dump RAM and Fiscal Memory

5.5.10 Miscellaneous

C8 Set Barcode Parameters
C9 Print Barcode
CA Print and Download Graphics
CD Cash Drawer Management

6.0 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 byte; 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 byte 2. 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 byte 2 of command string. It identifies the command to be executed.
   Its value can range from x′00′ to x′FF′.

3. **Command Extension**

   Command extension is in byte 3 of command string. 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 byte 4 of command string. Its content depends on the command type.
   Character strings must be left aligned.
   Numeric strings must be right aligned.
   Non significant digits in numeric fields can be blank.

At least one status is sent in response to a command.
The only exception is related to system commands: no response is given for system commands not recognized by the fiscal unit.
The format of the status is described in 2.0, “Printer and Fiscal Unit Status” on page 19.

Note - 7 is the most significant bit and 0 is the least significant bit.

6.1 Initialization Commands

Those commands that require FJUMPER=ON have to be executed with the J4/CE jumper in active position and those that require FJUMPER=OFF have to be executed with the J4/CE jumper in store position, taking care that the jumper position is sensed during IPL, so each time the jumper is moved it′s necessary to execute an IPL immediately after in order to have the jumper state updated.

Note: To execute several commands which requires the jumper in active position it′s necessary to execute only one IPL and then all the commands.

These are the initialization commands:

- 16 - Set Date and Time
- 18 - Set Fiscal Mode
- 1B - Serialize Fiscal Printer
- 20 - Set VAT Rate Table
- 23 - Set/Enable Fuel Types Table
- D7 - Load Header

There are no calculations performed for any of the initialization commands.

6.1.1 16 - SET DATE AND TIME

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

6.1.1.1 Command Format

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

6.1.1.2 Set Date and Time Rules

- The time and date can be set only if a sale period is not in progress.
- The date/time cannot be set previous to the time stamp of the last closure in the fiscal memory.

6.1.2 18 - SET FISCAL MODE

This command is used to set the fiscal mode in fiscal memory.
Once this procedure has been executed the fiscal printer operates according to the configured country fiscal law.

6.1.2.1 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

6.1.2.2 Set Fiscal Mode Rules

- This procedure can be executed only once and out of the sale period.
- The J4/CE jumper must be used immediately prior to execution of this command to clear all RAM.

6.1.3 1B - SERIALIZE FISCAL MEMORY

This command is used at the end of manufacturing process to serialize the fixed area of fiscal memory.

6.1.3.1 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')			
4-5		1B_Manufacturer_ID	ASCII	2	(Note 1)
6-7		1B_IBM_Manufacturing_ID	ASCII	2	
8-13		1B_Serial_Number	ASCII	6	

Notes:

1. Assigned by Goverment.

6.1.3.2 Serialize Fiscal Memory Rules

- This procedure can be executed only once.

6.1.4 20 - SET VAT RATES TABLE

This command is used to store the VAT rates table in fiscal memory.

6.1.4.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		20 - Set VAT Rates Table	hex	1
3		Cmd. Extension 01 = VAT Category (from 01 to 05) 02 = VAT Category (from 06 to 06)	hex	1
4-7		Password	ASCII	4
8-9		Reserved	ASCII	2
If Cmd. Extension = 01				
10-13		20_VAT_Rate_01	ASCII	4
14-15		Reserved	ASCII	2
16-19		20_VAT_Rate_02	ASCII	4
20-21		Reserved	ASCII	2
22-25		20_VAT_Rate_03	ASCII	4
26-27		Reserved	ASCII	2
28-31		20_VAT_Rate_04	ASCII	4
32-33		Reserved	ASCII	2
32-37		20_VAT_Rate_05	ASCII	4
If Cmd. Extension = 02				
10-13		20_VAT_Rate_06	ASCII	4
14-37		Reserved	ASCII	24

Notes:

1. The 20_VAT_Rate_xx is a fixed point number with 2 decimal digits.
   Separator characters must not be included in the VAT rate string.
   For example, for VAT rate 8%, specify '0800'.
2. The 20_VAT_Rate_xx fields can range from '0000' to '9999'.
   Values from '0000' to '9998' are used to specify the VAT rate, while value '9999' is used to inhibit the corresponding category.
3. The print format for VAT rates depends on their specification:
   a. If all rates are specified as 'xx00' the print format is %rr
   b. If at least one rate is not specified as 'xx00' the print format is %rr.rr

6.1.4.2 Set VAT Rates Table Calculations

$Lif\_N\_VAT = Lif\_N\_VAT + 1$

6.1.4.3 Set VAT Rates Table Rules

- **Fiscal Mode:**
  - The VAT rates are stored in the VAT rates table in fiscal memory.
  - 6 categories must be stored.
  - This command can be executed out of the sale period only.
  - J4/CE jumper ON/OFF after the fiscalization:
    - This cmd. is mandatory before to start the sale period.
  - If the new entry is different at the lastest entry stored, it will be stored in the table.
  - If the new entry is equal at the lastest entry stored, it will not be stored.
  - Up to 30 entries can be stored in the table during the life of the fiscal printer.
  - When the table is full, the new entry stored in RAM must be equal at the last entry stored in the table, otherwise error code = 43 is returned.
- Training Mode:
  - The VAT rates table is set into fiscal battery backed up RAM.
  - 6 categories must be load.
  - After the J4/CE jumper ON/OFF procedure, the x2001 and x2002 cmd's. are mandatory before to start the sale period.

6.1.5 23 - SET/ENABLE FUEL TYPES TABLE

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

6.1.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		23 - Set/Enable Fuel Types 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)
		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 fiscal mode: range allowed from "000" to "100".
   In training mode: range allowed from "000" to "007".
   "000" = not fuel type id number selected.
2. Range allowed from 01 to 06.

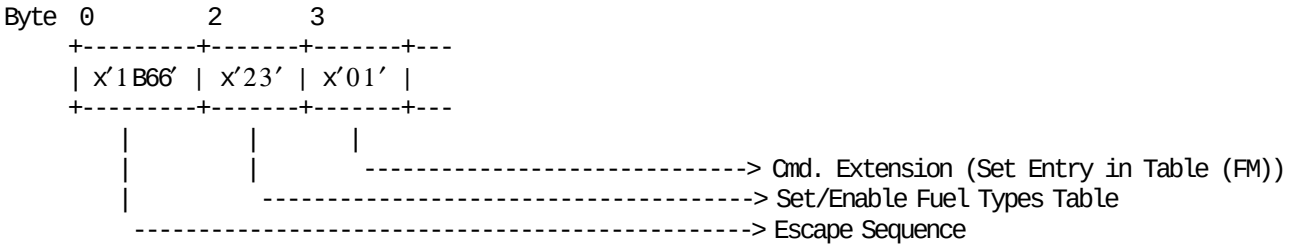
Response to Set/Enable Fuel Types Table will be formatted as follow:

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.

6.1.5.2 Command Example



6.1.5.3 Set/Enable Fuel Types Table Calculations

- **When Cmd. Extension = 00 (Enable Fuel Types)**

  The fuel types id numbers selected are stored in RAM memory (table with 6 entries) sorted from lowest to highest. Only exception is when the fuel type id number is ″000″, thate will be stored in the lastest entries.
  The sorted fuel type id numbers are stored in RAM_FT_Id_Number_Enabled Table.

  The table format is:

```
 ************************************************************************
* ENABLED ID NUMBER           * VAT CATEG            * FT DESCRIPTION  *
* ********************************************************************** *
* RAM_FT_Id_Number_Enabled(01) * RAM_FT_VAT_Categ(01) * RAM_FT_Desc(01) *
* RAM_FT_Id_Number_Enabled(02) * RAM_FT_VAT_Categ(02) * RAM_FT_Desc(02) *
* RAM_FT_Id_Number_Enabled(03) * RAM_FT_VAT_Categ(03) * RAM_FT_Desc(03) *
* RAM_FT_Id_Number_Enabled(04) * RAM_FT_VAT_Categ(04) * RAM_FT_Desc(04) *
* RAM_FT_Id_Number_Enabled(05) * RAM_FT_VAT_Categ(05) * RAM_FT_Desc(05) *
* RAM_FT_Id_Number_Enabled(06) * RAM_FT_VAT_Categ(06) * RAM_FT_Desc(06) *
 ************************************************************************
```

  Example:
  - The 2300 cmd. will be:
    x2300'000043011072000001'

  - The data in RAM_FT_Id_Number_Enabled Table will be stored as follow:

    RAM_FT_Id_Number_Enabled(01) = x01 (001)
    RAM_FT_VAT_Categ(01) = FM_FT_VAT_Categ(001)
    RAM_FT_Desc(01) = FM_FT_Desc(001)

    RAM_FT_Id_Number_Enabled(02) = x0b (011)
    RAM_FT_VAT_Categ(02) = FM_FT_VAT_Categ(011)
    RAM_FT_Desc(02) = FM_FT_Desc(011)

    RAM_FT_Id_Number_Enabled(03) = x2B (043)
    RAM_FT_VAT_Categ(03) = FM_FT_VAT_Categ(043)
    RAM_FT_Desc(03) = FM_FT_Desc(043)

```
RAM_FT_Id_Number_Enabled(04) = x48 (072)
RAM_FT_VAT_Categ(04)         = FM_FT_VAT_Categ(072)
RAM_FT_Desc(04)              = FM_FT_Desc(072)

RAM_FT_Id_Number_Enabled(05) = x00
RAM_FT_VAT_Categ(05)         = " "
RAM_FT_Desc(05)              = " "

RAM_FT_Id_Number_Enabled(06) = x00
RAM_FT_VAT_Categ(06)         = " "
RAM_FT_Desc(06)              = " "
```

- **When Cmd. Extension = 01 (Set Entry in Table)**

  Lif_N_Fuel_Type = *Lif_N_Fuel_Type* + 1

6.1.5.4 Set/Enable Fuel Types Table Rules

- Rules for Fiscal Mode
  - 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 and 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 command x2301 is "optional" (if the fuel types table has at least one entry) and x2300 is "mandatory" before to start the SP.
  - For x2301 - If the new entry is different than any existent in FM, then this entry is set in the fuel types table (in FM).
    Different means:
    - The 23_VAT_Category or 23_FT_Description in at least one character has changed.
  - A maximum of 100 entries can be set in the fuel types table, before it becomes full.
  - When the fuel types table is full, the new entry set must be equal at one entry stored in fuel types table (in FM), otherwise the error code 088 is returned.
  - When the VAT category associated to the A2_Fuel_Type_Id_Number is disabled (9999), the error code 44 (VAT category is not valid) is returned.
  - Is mandatory to enable at least one fuel type id number, otherwise the error code 103 will be returned.
  - If the fuel types table is not set in FM, the error code 147 will be returned.
- Rules for Training Mode
  - See 5.4.2, "Set Fuel Type Functionality in Training Mode" on page 52

6.1.6 D7 - LOAD HEADER

This command is used to load the headers into fiscal battery backed up RAM.

6.1.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		D7 - Load Header	hex	1	
3		Cmd. Extension	hex	1	
	7-6	Reserved (always = '0')			
	5-3	Print Typeface			
		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	Line Number			(Note 1)
		001 = First			
		010 = Second			
		011 = Third			
		100 = Fourth			
		101 = Fifth			
4-41		D7_Description	ASCII	38	(Note 2)

Notes:

1. If a line number is not set, it is not printed.
2. If an all blank character string is specified then the corresponding header line is not printed.

6.1.6.2 Load Header Rules

- This cmd. must be issued out of the sales period (FSALEON = NO).
- The header is load into fiscal printer battery backed up RAM.
- The header is erased when RAM is cleared by activation of the J4/CE jumper.
- The minimum number of header lines required is 1.
- The maximum number of header lines allowed is 5.

6.2 Utility Commands

The utility commands include:

- 08 - Get Sale Status
- 19 - Currency Management
- DA - Electronic Read Fiscal Memory Tables
- DB - Electronic Read Counters and Accumulators
- F1 - Communicate Power On Status
- F7 - Command Buffer Management
- F9 - Report Current Status

6.2.1 08 - GET SALE STATUS

This command is used to get the return code of the current state of the fiscal printer.

6.2.1.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	08 - Get Sale Status	hex	1
3	Cmd. Extension	hex	1
7-0	Reserved (always = '0x00')		

6.2.1.2 Get Sale Status Rules

- This command gets the return code of the current state of the fiscal printer. That means, if any document is in progress or any condition is reached, like paper out or daily entry table full, then the corresponding error code is returned (i.e. If a no-fiscal report is in progress then the command returns the error code 184 or if daily entry table is full then it returns error code 89).
- If the fiscal printer is ready to start a fiscal operation the command returns the error code 67 (command executed succesfully).
- The execution of this command is like the On-Line Sale Header (A1 cmd.), but not printing actions are performed.
- So, the application can use this command in order to know if the fiscal printer is available to start a fiscal operation (i.e. On-Line Fiscal Voucher).
- For more details of the current fiscal printer status, use the electronic read counters and accumulators (DB cmd.).

6.2.2 19 - CURRENCY MANAGEMENT

This command is used to management the currency.

6.2.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - cmd prefix	hex	2	
2		19 - Currency Management	hex	1	
3		Cmd. Extension	hex	1	(Note 1)
		08 = None Thousand Separator			(Note 2)
		10 = Dot Thousand Separator (.)			(Note 3)
		20 = Comma Thousand Separator (,)			(Note 4)
		Reserved always = '0')			
4-7		Password	ASCII	4	

Notes:

1. Only one can be selected each time (none, dot or comma).
2. Amount format example: aaaaaaaaaaaa,aa
3. Amount format example: aaa.aaa.aaa.aaa,aa
4. Amount format example: aaa,aaa,aaa,aaa.aa

6.2.2.2 Currency Management Rules

- This cmd. must be issued:
  - Out of the sale period (FSALEON = NO).
  - J4/CE jumper in OFF (STORED) position (FJUMPER = NO).
- For Thousand Separator (Cmd. Extension 08, 10 and 20)
  - The default thousand separator type is ″none″. Example (aaaaaaaaaaaa,aa).
  - The thousand separator is erased when RAM is cleared by activation of the J4/CE jumper, when the recovery is executed, the default thousand separator ″none″ is assumed.
  - When a PLD occurs and then the power is restored, the thousand separator will be kept to the last set.

6.2.3 DA - ELECTRONIC READ FISCAL MEMORY TABLES

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

6.2.3.1 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 00 = Start Read Daily Entry Table 01 = Read Next Daily Entry Table 02 = Read Fuel Types Table 04 = Read Off-Line Events Table 06 = Start Read Repair Action Table 07 = Read Next Repair Action Table 09 = Read Extended Daily Entry Table 0A = Read VAT Rates Table	hex	1
4-7		Entry Number	ASCII	4 (Note 1, 2)

Notes:

1. Bytes 4-7 apply to Start Read Daily Entry Table, Read Fuel Types Table, Read Off-Line Events Table, Read Extended Daily Entry Table and Read VAT Rate Table.
2. Entry Number Value:
   - If Cmd. Extension = 00 (Start Read Daily Entry Table):
     - Entry Number = closure number (range from 0001 to 2100)
   - If Cmd. Extension = 02 (Read Fuel Types Table):
     - Entry Number = number of entry table (range from 0001 to 0100)
   - If Cmd. Extension = 04 (Read Off-Line Event Table):
     - Entry Number = number of entry table (range from 0001 to 0800)
   - If Cmd. Extension = 09 (Read Extended Daily Entry Table):
     - Entry Number = extended closure number (range from 0001 to 0400)
   - If Cmd. Extension = 0A (Read VAT Rate Table):
     - Entry Number = number of entry table (range from 0001 to 0030)

Response for Daily Entry Table will be formatted as follows:

BYTE RS-232	BIT	CONTENT	TYPE	LENGTH	VARIABLES
0-14		Fiscal Unit Status	hex	15	
15		DA - Record Identification	hex	1	
16-31		Request Date and Time (dd.mm.yyyy hh:mm)	ASCII	16	
32		Return Code 43 = Good Completion 60 = Invalid Character 5A = Closure Not Found 64 = Error on Reading Fiscal Memory BB = Block Empty			
33		Reserved	hex	1	
34-43		Closure Date (dd.mm.yyyy)	ASCII	10	FM_DE_Date
44-47		Closure Number	ASCII	4	FM_DE_N_Clos
48-51		Daily Qty. Lts. - Fuel Type 01 - On-Line	hex	4	FM_DE_Ltr_Qty_ON_FT01
52-55		Daily Qty. Lts. - Fuel Type 02 - On-Line	hex	4	FM_DE_Ltr_Qty_ON_FT02
56-59		Daily Qty. Lts. - Fuel Type 03 - On-Line	hex	4	FM_DE_Ltr_Qty_ON_FT03
60-63		Daily Qty. Lts. - Fuel Type 04 - On-Line	hex	4	FM_DE_Ltr_Qty_ON_FT04
64-67		Daily Qty. Lts. - Fuel Type 05 - On-Line	hex	4	FM_DE_Ltr_Qty_ON_FT05
68-71		Daily Qty. Lts. - Fuel Type 06 - On-Line	hex	4	FM_DE_Ltr_Qty_ON_FT06
72-73		Daily Number - Fuel Type 01 - On-Line	hex	4	FM_DE_Nbr_ON_FT01
74-75		Daily Number - Fuel Type 02 - On-Line	hex	4	FM_DE_Nbr_ON_FT02
76-77		Daily Number - Fuel Type 03 - On-Line	hex	4	FM_DE_Nbr_ON_FT03
78-79		Daily Number - Fuel Type 04 - On-Line	hex	4	FM_DE_Nbr_ON_FT04
80-81		Daily Number - Fuel Type 05 - On-Line	hex	4	FM_DE_Nbr_ON_FT05
82-88		Daily Number - Fuel Type 06 - On-Line	hex	4	FM_DE_Nbr_ON_FT06
84-88		Daily Total - Fuel Type 01 - On-Line	hex	5	FM_DE_Tot_ON_FT01
89-93		Daily Total - Fuel Type 02 - On-Line	hex	5	FM_DE_Tot_ON_FT02
94-98		Daily Total - Fuel Type 03 - On-Line	hex	5	FM_DE_Tot_ON_FT03
99-103		Daily Total - Fuel Type 04 - On-Line	hex	5	FM_DE_Tot_ON_FT04
104-108		Daily Total - Fuel Type 05 - On-Line	hex	5	FM_DE_Tot_ON_FT05
109-113		Daily Total - Fuel Type 06 - On-Line	hex	5	FM_DE_Tot_ON_FT06
114-117		Daily Qty. Lts. - Veh.Id - On-Line	hex	4	FM_DE_Ltr_Qty_ON_VIS
118-121		Daily Qty. Lts. - Transfer - On-Line	hex	4	FM_DE_Ltr_Qty_ON_Tra
122-125		Daily Qty. Lts. - Test - On-Line	hex	4	FM_DE_Ltr_Qty_ON_Tst
126-127		Daily Number - Veh.Id - On-Line	hex	2	FM_DE_Nbr_ON_VIS
128-129		Daily Number - Transfer - On-Line	hex	2	FM_DE_Nbr_ON_Tra
130-131		Daily Number - Test - On-Line	hex	2	FM_DE_Nbr_ON_Tst
132-136		Daily Total - Veh.Id - On-Line	hex	5	FM_DE_Tot_ON_VIS
137-141		Daily Total - Transfer - On-Line	hex	5	FM_DE_Tot_ON_Tra
142-146		Daily Total - Test - On-Line	hex	5	FM_DE_Tot_ON_Tst
147-151		Daily VAT Total - Standard - On-Line	hex	5	FM_DE_VAT_ON_Std
152-156		Daily VAT Total - Veh.Id - On-Line	hex	5	FM_DE_VAT_ON_VIS
157-161		Daily VAT Total - Transfer - On-Line	hex	5	FM_DE_VAT_ON_Tra
162-166		Daily VAT Total - Test - On-Line	hex	5	FM_DE_VAT_ON_Tst
167		First Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Id_Number_Enabled_01
168		Second Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Id_Number_Enabled_02
169		Third Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Id_Number_Enabled_03
170		Fourth Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Id_Number_Enabled_04
171		Fiveth Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Id_Number_Enabled_05
172		Sixth Fuel Type Id Number Enabled	hex	1	FM_DE_FT_Id_Number_Enabled_06
173-174		Lifetime Off-Line Sale Events Number	hex	2	FM_DE_N_OFF_Sale_Events
175-176		Lifetime Extended Closure Number	hex	2	FM_DE_N_XClos
177		Number of VAT Rates Entries Set	hex	1	FM_DE_N_VAT

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

BYTE RS-232	BIT	CONTENT	TYPE	LENGTH	VARIABLES
0-14		Fiscal Unit Status	hex	15	
15		DA - Record Identification	hex	1	
16-31		Request Date and Time (dd.mm.yyyy hh:mm)	ASCII	16	
32		Return Code 43 = Good Completion 60 = Invalid Character 5A = Closure Not Found 64 = Error on Reading Fiscal Memory BB = Block Empty			
33		Reserved	hex	1	
34-37		Extended Closure Number	ASCII	2	FM_XDE_N_XClos
38-47		Closure Number	ASCII	2	FM_XDE_N_Clos
42-51		Daily Qty. Lts. - Fuel Type 1 - Off_Line	hex	4	FM_XDE_Ltr_Qty_OFF_FT0
46-55		Daily Qty. Lts. - Fuel Type 2 - Off_Line	hex	4	FM_XDE_Ltr_Qty_OFF_FT0
50-59		Daily Qty. Lts. - Fuel Type 3 - Off_Line	hex	4	FM_XDE_Ltr_Qty_OFF_FT0
54-63		Daily Qty. Lts. - Fuel Type 4 - Off_Line	hex	4	FM_XDE_Ltr_Qty_OFF_FT0
58-67		Daily Qty. Lts. - Fuel Type 5 - Off_Line	hex	4	FM_XDE_Ltr_Qty_OFF_FT0
62-65		Daily Qty. Lts. - Fuel Type 6 - Off_Line	hex	4	FM_XDE_Ltr_Qty_OFF_FT0
66-67		Daily Number - Fuel Type 1 - Off-Line	hex	2	FM_XDE_Nbr_OFF_FT01
68-69		Daily Number - Fuel Type 2 - Off-Line	hex	2	FM_XDE_Nbr_OFF_FT02
70-71		Daily Number - Fuel Type 3 - Off-Line	hex	2	FM_XDE_Nbr_OFF_FT03
72-73		Daily Number - Fuel Type 4 - Off-Line	hex	2	FM_XDE_Nbr_OFF_FT04
74-75		Daily Number - Fuel Type 5 - Off-Line	hex	2	FM_XDE_Nbr_OFF_FT05
76-77		Daily Number - Fuel Type 6 - Off-Line	hex	2	FM_XDE_Nbr_OFF_FT06
78-82		Daily Total - Fuel Type 1 - Off-Line	hex	5	FM_XDE_Tot_OFF_FT01
83-87		Daily Total - Fuel Type 2 - Off-Line	hex	5	FM_XDE_Tot_OFF_FT02
88-92		Daily Total - Fuel Type 3 - Off-Line	hex	5	FM_XDE_Tot_OFF_FT03
93-97		Daily Total - Fuel Type 4 - Off-Line	hex	5	FM_XDE_Tot_OFF_FT04
98-102		Daily Total - Fuel Type 5 - Off-Line	hex	5	FM_XDE_Tot_OFF_FT05
103-107		Daily Total - Fuel Type 6 - Off-Line	hex	5	FM_XDE_Tot_OFF_FT06
108-111		Daily Qty. Lts. - Veh.Id - Off-Line	hex	4	FM_XDE_Ltr_Qty_OFF_VIS
112-113		Daily Number - Veh.Id - Off-Line	hex	2	FM_XDE_Nbr_OFF_VIS
114-118		Daily Total - Veh.Id - Off-Line	hex	5	FM_XDE_Tot_OFF_VIS
119-123		Daily VAT Total - Standard - Off-Line	hex	5	FM_XDE_VAT_OFF_Std
124-128		Daily VAT Total - Veh.Id - Off-Line	hex	5	FM_XDE_VAT_OFF_VIS

Response for Fuel Types Table will be formatted as follows:

BYTE RS-232	CONTENT	TYPE	LENGTH	VARIABLES
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-31	Request Date and Time (dd.mm.yyyy hh:mm)	ASCII	16	
32	Return Code 43 = Good Completion 60 = Invalid Character 5A = Closure Not Found 64 = Error on Reading Fiscal Memory BB = Block Empty			
33	Reserved	hex	1	
34-37	Fuel Type Id Number	ASCII	4	Number of table entry
38	Fuel Type VAT Category	hex	1	FM_FT_VAT_Categ
39-58	Fuel Type Description	ASCII	20	FM_FT_Desc

Response for Off-Line Events Table will be formatted as follows:

BYTE RS-232	CONTENT	TYPE	LENGTH	VARIABLES
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-31	Request Date and Time (dd.mm.yyyy hh:mm)	ASCII	16	
32	Return Code 43 = Good Completion 60 = Invalid Character 64 = Error on Reading Fiscal Memory BB = Block Empty			
33	Reserved	hex	1	
34-37	Off-Line Event Number	ASCII	4	Number of entry table
38-47	Date	ASCII	10	FM_OFF_Date
48-51	Closure Number	ASCII	4	FM_OFF_N_Clos
52-61	Begining Date of the Event	ASCII	10	FM_OFF_Date_Begin
62-66	Begining Time of the Event	ASCII	5	FM_OFF_Time_Begin
67-76	Ending Date of the Event	ASCII	10	FM_OFF_Date_End
77-81	Ending Time of the Event	ASCII	5	FM_OFF_Time_End

Response for Repair Actions Table will be formatted as follows:

BYTE RS-232	CONTENT	TYPE	LENGTH	VARIABLES
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-31	Request Date and Time (dd.mm.yyyy hh:mm)	ASCII	16	
32	Return Code 43 = Good Completion 60 = Invalid Character 64 = Error on Reading Fiscal Memory BB = Block Empty			
33	Reserved	hex	1	
34-36	Repair Action Number	ASCII	3	FM_RA_N_Ract
37-40	Closure Number	ASCII	4	FM_RA_N_Clos
41-50	Date (dd.mm.yyyy)	ASCII	10	FM_RA_Date
51-55	Time (hh:mm)	ASCII	5	FM_RA_Time

Response for VAT Rates Table will be formatted as follows:

BYTE RS-232	CONTENT	TYPE	LENGTH	VARIABLES
0-14	Fiscal Unit Status	hex	15	
15	DA - Record Identification	hex	1	
16-31	Request Date and Time (dd.mm.yyyy hh:mm)	ASCII	16	
32	Return Code 43 = Good Completion 60 = Invalid Character 64 = Error on Reading Fiscal Memory BB = Block Empty			
33	Reserved	hex	1	
34-37	Entry Number Table	ASCII	4	Number of entry table
38-47	Date	ASCII	10	FM_VR_Date
48-51	Closure Number	ASCII	4	FM_VR_N_Clos
52-53	VAT Rate Category 01	ASCII	2	FM_VR_Rate_1
54-55	VAT Rate Category 02	ASCII	2	FM_VR_Rate_2
56-57	VAT Rate Category 03	ASCII	2	FM_VR_Rate_3
58-59	VAT Rate Category 04	ASCII	2	FM_VR_Rate_4
60-61	VAT Rate Category 05	ASCII	2	FM_VR_Rate_5
62-63	VAT Rate Category 06	ASCII	2	FM_VR_Rate_6

6.2.3.2 Electronic Read Fiscal Memory Tables Rules

- To read the Daily Entry Table issue the Cmd. Extension 00 (Start Read Daily Entry Table) and indicate the closure number in the Entry Number field to start the reading. To continue reading the following entries, issue the Cmd. Extension 01 (Read Next Daily Entry Table) until there are no more entries in the table.
- To read the Fuel Types Table issue the Cmd. Extension 02 (Read Fuel Types Table) and indicate the fuel type id number in the Entry Number field to start the reading. To continue, indicate the next fuel type id number in the Entry Number field.
- To read the Off-Line Events Table issue the Cmd. Extension 04 (Read Off-Line Events Table) and indicate the off-line event number in the Entry Number field to start the reading. To continue, indicate the next off-line event number in the Entry Number field.
- To read the Repair Action Table issue the Cmd. Extension 06 (Start Read Repair Action Table) to start the reading of the first entry. To continue, issue the Cmd. Extension 07 (Read Next Repair Action Table) until there are no more entries in table.
- To read the Extended Daily Entry Table issue the Cmd. Extension = 09 (Read Extended Daily Entry Table) and indicate the extended closure number in the Entry Number field to start the reading. To continue, indicate the next extended closure number in the Entry Number field.
- To read the VAT Rate Table issue the Cmd. Extension = 0A (Read VAT Rate Table): and indicate the number of entry table in the Entry Number field to start the reading. To continue, indicate the next number of entry table in the Entry Number field.
- The characters of the Entry Number field must be valid, otherwise the error code 96 is returned (i.e. xx04 returns RC = 96).
- The Entry Number field must be in the allowed range, otherwise the error code 103 is returned (i.e. 0000 or 9999 returns RC = 103).
- If there are no entries to show, the error code 90 is returned.

6.2.4 DB - ELECTRONIC READ COUNTERS AND ACCUMULATORS

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

6.2.4.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command Prefix	hex	2
2		DB - Electronic Read Counters and Accumulators	hex	1
3		Cmd. Extension	hex	1
	7-1	Reserved (always = '0')		
	0	Read Accumulators and Counters		
4		Auxiliary Cmd. Extension	hex	1
	7-3	Reserved (always = '0')		
	4	Voucher Type		(Note 1)
		0 = On-Line		
		1 = Off-Line		
	3	Reserved (always = '0')		
	2-0	Counter/Accumulator Type		
		000 = Transaction by VAT Category		
		001 = Daily by VAT Category		
		010 = Transaction by Payment Type		
		011 = Daily by Payment Type		
		100 = Transaction by Fuel Type Id Number		
		101 = Daily by Fuel Type Id Number		
		110 = Reserved		
		111 = Lifetime		
5		Reserved	ASCII	1
		If (byte 4 - bit 2-0) = 000 or 001		
6-7		VAT Category (vv)	ASCII	2 (Note 1)
		If (byte 4 - bit 2-0) = 010 or 011		
6-7		Payment Type (pp)	ASCII	2 (Note 2)
		If (byte 4 - bit 2-0) = 100 or 101		
6-8		Fuel Type Id Number (ttt)	ASCII	3 (Note 3)
		If (byte 4 - bit 2-0) = 111		
6-7		Reserved	ASCII	2

Note 1: Only applied for daily and lifetime counter/accumulators, otherwise it is ignored.

Note 2: To read the sum totals for all VAT categories, use '00' as the ASCII data string.
Range allowed: from 00 up to 06.

Note 3: To read the sum totals for all payment types, use '00' as the ASCII data string.
Range allowed: from 00 up to 05 where:
00 = sum of all payment types totals
01 = Cash
02 = Credit Card
03 = Cheque
04 = Currency
05 = Other

Note 4: Range allowed: from 001 up to 100.

6.2.4.2 Response to the Electronic Read Counters and Accumulators

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME RS-232
0-14		Fiscal Unit Status	hex	15	
15		DB - Record Identification	hex	1	
16-31		REQUEST DATE AND TIME (dd.mm.yyyy hh:mm)	ASCII	16	
32		RETURN CODE 43 = Good Completion	hex	1	
33		PROCEDURE IN PROGRESS 00 = No Procedure in Progress 01 = On-Line Sale Transaction in Progress 05 = CR Application-Originated Report in Progress 06 = SJ Application-Originated Report in Progress 0B = Off-Line Sale Transaction in Progress	hex	1	
If Byte 33 = 01 (On-Line Sale Transaction in Progress)					
34		ON-LINE 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 in Progress			
	2	1 = Cancel in Progress			
	1-0	Reserved (always = '0')			
If Byte 33 = 0B (Off-Line Sale Transaction in Progress)					
34		OFF-LINE SALE TRANSACTION STEP	hex	1	
	7	1 = Header Printed			
6	6-4	Reserved (always = '0')			
6	3	1 = End in Progress			
6	2	1 = Cancel in Progress			
6	1-0	Reserved (always = '0')			
35		FISCAL UNIT MODE	hex	1	
	7	Mode Set 0 = Training 1 = Fiscal			
	6	Reserved (always = '0')			
	5	1 = Sale Period in Progress			
	4-3	Currency Thousand Separator Set 00 = none 01 = Dot (.) 10 = Comma (,) 11 = Reserved			
	2	Fuel Type Table Status 0 = Disabled (FUELSET = NO) 1 = Enabled (FUELSET = YES)			
	1	VAT Rates Table Status 0 = No Set (FLTXTBL = NO) 1 = Set (FLTXTBL = YES)			
	0	Headers 0 = No Load (FHEADER = NO) 1 = Load (FHEADER = YES)			
36		TRANSACTION TYPE 00 = Standard 01 = Vehicle Identification System 02 = Transfer 03 = Test	hex	1	
37-38		RESERVED	hex	2	

TRANSACTION ACCUMULATORS BY VAT CATEGORY

- **ON-LINE SALE**

If (byte 4 - bits 2-0 = 000) and VAT Category = 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME RS-232
		TRANSACTION ACCUMULATORS VAT CATEGORY			
39-62		Reseved	hex	24	
63-68		Total	hex	6	Tra_Tot_ON
69-86		Reserved	hex	18	
87-92		VAT Total	hex	6	Tra_VAT_ON
93-128		Reserved	hex	36	
129-134		Discounts on Subtotal Total	hex	6	Tra_Tdsc
135-140		Uplifts on Subtotal Total	hex	6	Tra_Tupl
141-146		Reserved	hex	6	
147-152		Amount Due (signed)	hex	6	Tra_Amt_Due
153-170		Reserved	hex	18	

If (byte 4 - bits 2-0 = 000) and VAT Category > 0

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME RS-232
		TRANSACTION ACCUMULATORS BY VAT CATEGORY			
39-62		Reseved	hex	24	
63-68		Total	hex	6	Tra_Tot_ON_v(vv)
69-86		Reserved	hex	18	
87-92		VAT Total	hex	6	Tra_VAT_ON_v(vv)
93-128		Reserved	hex	36	
129-134		Discounts on Subtotal Total	hex	6	Tra_Tdsc
135-140		Uplifts on Subtotal Total	hex	6	Tra_Tupl
141-146		Reserved	hex	6	
147-152		Amount Due (signed)	hex	6	Tra_Amt_Due
153-170		Reserved	hex	18	

- **OFF-LINE SALE**

If (byte 4 - bits 2-0 = 000) and VAT Category = 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION ACCUMULATORS BY VAT CATEGORY			
39-62		Reserved	hex	24	
63-68		Total	hex	6	Tra_Tot_OFF
69-170		Reserved	hex	102	

If (byte 4 - bits 0 = 000) and VAT Category > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION ACCUMULATORS BY VAT CATEGORY			
39-62		Reserved	hex	24	
63-68		Total	hex	6	Tra_Tot_OFF_v(vv)
69-170		Reserved	hex	102	

TRANSACTION ACCUMULATORS BY PAYMENT TYPE

If (byte 4 - bits 2-0 = 010) and payment type = 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION ACCUMULATORS BY PAYMENT TYPE			
39-44		Payment Total	hex	6	Tra_Payment
45-170		Reserved	hex	126	

If (byte 4 - bits 2-0 = 010) and payment type > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION ACCUMULATORS BY PAYMENT TYPE			
		If Payment Type (pp) = Cash (01 or 03 or 04)			
39-44		Cash Total	hex	6	Tra_Pay_Type_0
		If Payment Type (pp) = Credit Card (02)			
39-44		Credit Card Total	hex	6	Tra_Pay_Type_1
		If Payment Type (pp) = Other (05)			
39-44		Other Total	hex	6	Tra_Pay_Type_4
45-170		Reserved	hex	126	

TRANSACTION ACCUMULATORS BY FUEL TYPE

- **ON-LINE SALE**

If (byte 4 - bits 2-0 = 100) and fuel type id number > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION ACCUMULATORS BY FUEL TYPE			
39-42		Quantity of Liters	hex	4	Tra_Ltr_Qty_ON_FT(ii)
43-54		Reserved	hex	12	
55-56		Number of Transaction by Fuel Type	hex	2	Tra_N_ON_FT(ii)
57-62		Reserved	hex	6	
63-68		Total by Fuel Type	hex	6	Tra_Tot_ON_FT(ii)
69-128		Reserved	hex	60	
129-134		Discount on Subtotal	hex	6	Tra_Tdsc
135-140		Uplift on Subtotal	hex	6	Tra_Tupl
141-146		Reserved	hex	6	
147-152		Amount Due	hex	6	Tra_Amt_Due
153-170		Reserved	hex	18	

ii = index of the fuel type enabled - range from 01 to 06 (associated with the fuel type id number ttt)
ttt = fuel type id number - range from 001 to 100

Note: if the fuel type id number ttt is not enabled, all the bytes (from 39 to 170) are equal zero.

- **OFF-LINE SALE**

If (byte 4 - bits 2-0 = 100) and fuel type id number > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION ACCUMULATORS BY FUEL TYPE			
39-42		Quantity of Liters	hex	4	Tra_Ltr_Qty_OFF_FT(ii)
43-54		Reserved	hex	12	
55-56		Number of Transaction by Fuel Type	hex	2	Tra_N_OFF_FT(ii)
57-62		Reserved	hex	6	
63-68		Total by Fuel Type	hex	6	Tra_Tot_OFF_FT(ii)
69-170		Reserved	hex	102	

ii = index of the fuel type enabled - range from 01 to 06 (associated with the fuel type id number ttt)
ttt = fuel type id number - range from 001 to 100

Note: if the fuel type id number ttt is not enabled, all the bytes (from 39 to 170) are equal zero.

TRANSACTION COUNTERS

If (byte 4 - bits 2-0 = 000 or 010 or 100):

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		TRANSACTION COUNTERS			

171-188		Reserved	hex	18	
189-190		Discount on Subtotal	hex	2	Tra_N_Tdsc
191-192		Uplift on Subtotal	hex	2	Tra_N_Tupl
193-194		Reserved	hex	2	

DAILY ACCUMULATORS BY VAT CATEGORY

- **ON-LINE SALE**

If (byte 4 - bit 2-0 = 001) and (byte 4 - bit 4 = 0) and VAT Category = 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS VAT CATEGORY			

39-42		Quantity of Liters - Standard	hex	4	Day_Ltr_Qty_ON_Std
43-46		Quantity of Liters - Vehicle Ident. System	hex	4	Day_Ltr_Qty_ON_VIS
47-50		Quantity of Liters - Transfer	hex	4	Day_Ltr_Qty_ON_Tra
51-54		Quantity of Liters - Test	hex	4	Day_Ltr_Qty_ON_Tst
55-56		Number of Transactions - Standard	hex	2	Day_N_ON_Std
57-58		Number of Transactions - Vehicle Ident. System	hex	2	Day_N_ON_VIS
59-60		Number of Transactions - Transfer	hex	2	Day_N_ON_Tra
61-62		Number of Transactions - Test	hex	2	Day_N_ON_Tst
63-68		Total - Standard	hex	6	Day_Tot_ON_Std
69-74		Total - Vehicle Ident. System	hex	6	Day_Tot_ON_VIS
75-80		Total - Transfer	hex	6	Day_Tot_ON_Tra
81-86		Total - Test	hex	6	Day_Tot_ON_Tst
87-92		VAT Total - Standard	hex	6	Day_VATC_ON_Std
93-98		VAT Total - Vehicle Ident. System	hex	6	Day_VATC_ON_VIS
99-104		VAT Total - Transfer	hex	6	Day_VATC_ON_Tra
105-110		VAT Total - Test	hex	6	Day_VATC_ON_Tst
111-128		Reserved	hex	18	
129-134		Discount on Subtotal Total	hex	6	Day_Tdsc
135-140		Uplift on Subtotal Total	hex	6	Day_Tupl
141-146		Cancelled Transactions Total	hex	6	Day_Canc
147-170		Reserved	hex	24	

If (byte 4 - bit 2-0 = 001) and (byte 4 - bit 4 = 0) and VAT Category > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY VAT CATEGORY			

39-42		Quantity of Liters - Standard	hex	4	Day_Ltr_Qty_ON_Std
43-46		Quantity of Liters - Vehicle Ident. System	hex	4	Day_Ltr_Qty_ON_VIS
47-50		Quantity of Liters - Transfer	hex	4	Day_Ltr_Qty_ON_Tra
51-54		Quantity of Liters - Test	hex	4	Day_Ltr_Qty_ON_Tst
55-56		Number of Transactions - Standard	hex	2	Day_N_ON_Std
57-58		Number of Transactions - Vehicle Ident. System	hex	2	Day_N_ON_VIS
59-60		Number of Transactions - Transfer	hex	2	Day_N_ON_Tra
61-62		Number of Transactions - Test	hex	2	Day_N_ON_Tst
63-68		Total - Standard	hex	6	Day_Tot_ON_Std_v(vv)
69-74		Total - Vehicle Ident. System	hex	6	Day_Tot_ON_VIS_v(vv)
75-80		Total - Transfer	hex	6	Day_Tot_ON_Tra_v(vv)
81-86		Total - Test	hex	6	Day_Tot_ON_Tst_v(vv)
87-92		VAT Total - Standard	hex	6	Day_VATC_ON_Std_v(vv)
93-98		VAT Total - Vehicle Ident. System	hex	6	Day_VATC_ON_VIS_v(vv)
99-104		VAT Total - Transfer	hex	6	Day_VATC_ON_Tra_v(vv)
105-110		VAT Total - Test	hex	6	Day_VATC_ON_Tst_v(vv)
111-128		Reserved	hex	18	
129-134		Discount on Subtotal Total	hex	6	Day_Tdsc
135-140		Uplift on Subtotal Total	hex	6	Day_Tupl
141-146		Cancelled Transactions Total	hex	6	Day_Canc
147-170		Reserved	hex	24	

- **OFF-LINE SALE**

If (byte 4 - bit 2-0 = 001) and (byte 4 - bit 4 = 2) and VAT Category = 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY VAT CATEGORY			
39-42		Quantity of Liters - Standard	hex	4	Day_Ltr_Qty_OFF_Std
43-46		Quantity of Liters - Vehicle Ident. System	hex	4	Day_Ltr_Qty_OFF_VIS
47-54		Reserved	hex	8	
55-56		Number of Transactions - Standard	hex	2	Day_N_OFF_Std
57-58		Number of Transactions - Vehicle Ident. System	hex	2	Day_N_OFF_VIS
59-62		Reserved	hex	4	
63-68		Total - Standard	hex	6	Day_Tot_OFF_Std
69-74		Total - Vehicle Ident. System	hex	6	Day_Tot_OFF_VIS
75-86		Reserved	hex	12	
87-92		VAT Total - Standard	hex	6	Day_VATC_OFF_Std
93-98		VAT Total - Vehicle Ident. System	hex	6	Day_VATC_OFF_VIS
99-170		Reserved	hex	54	

If (byte 4 - bit 2-0 = 001) and (byte 4 - bit 4 = 1) and VAT Category > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY VAT CATEGORY			
39-42		Quantity of Liters - Standard	hex	4	Day_Ltr_Qty_OFF_Std
43-46		Quantity of Liters - Vehicle Ident. System	hex	4	Day_Ltr_Qty_OFF_VIS
47-54		Reserved	hex	8	
55-56		Number of Transactions - Standard	hex	2	Day_N_OFF_Std
57-58		Number of Transactions - Vehicle Ident. System	hex	2	Day_N_OFF_VIS
59-62		Reserved	hex	4	
63-68		Total - Standard	hex	6	Day_Tot_OFF_Std_v(vv)
69-74		Total - Vehicle Ident. System	hex	6	Day_Tot_OFF_VIS_v(vv)
75-86		Reserved	hex	12	
87-92		VAT Total - Standard	hex	6	Day_VATC_OFF_Std_v(vv)
93-98		VAT Total - Vehicle Ident. System	hex	6	Day_VATC_OFF_VIS_v(vv)
99-170		Reserved	hex	54	

DAILY ACCUMULATORS BY PAYMENT TYPE

If (byte 4 - bit 2-0 = 011) and payment type = 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY PAYMENT TYPE			
39-44		Payment Total	hex	6	Day_Payment
45-170		Reserved	hex	126	

If (byte 4 - bit 2-0 = 011) and payment type > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY PAYMENT TYPE			
		If Payment Type (pp) = Cash (01 or 03 or 04)			
39-44		Cash Total	hex	6	Day_Pay_Type_0
		If Payment Type (pp) = Credit Card (02)			
39-44		Credit Card Total	hex	6	Day_Pay_Type_1
		If Payment Type (pp) = Other (05)			
39-44		Other Total	hex	6	Day_Pay_Type_4
45-170		Reserved	hex	126	

DAILY ACCUMULATORS BY FUEL TYPE

- **ON-LINE SALE**

If (byte 4 - bit 2-0 = 101) and (byte 4 - bit 4 = 0) and fuel type id number > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY FUEL TYPE			
39-42		Quantity of Liters - Standard	hex	4	Day_Ltr_Qty_ON_Std_FT(ii)
43-46		Quantity of Liters - Vehicle Ident. System	hex	4	Day_Ltr_Qty_ON_VIS_FT(ii)
47-50		Quantity of Liters - Transfer	hex	4	Day_Ltr_Qty_ON_Tra_FT(ii)
51-54		Quantity of Liters - Test	hex	4	Day_Ltr_Qty_ON_Tst_FT(ii)
55-56		Number of Transactions - Standard	hex	2	Day_N_ON_Std_FT(ii)
57-58		Number of Transactions - Vehicle Ident. System	hex	2	Day_N_ON_VIS_FT(ii)
59-60		Number of Transactions - Transfer	hex	2	Day_N_ON_Tra_FT(ii)
61-62		Number of Transactions - Test	hex	2	Day_N_ON_Tst_FT(ii)
63-68		Total - Standard	hex	6	Day_Tot_ON_Std_FT(ii)
69-74		Total - Vehicle Ident. System	hex	6	Day_Tot_ON_VIS_FT(ii)
75-80		Total - Transfer	hex	6	Day_Tot_ON_Tra_FT(ii)
81-86		Total - Test	hex	6	Day_Tot_ON_Tst_FT(ii)
87-92		VAT Total - Standard	hex	6	Day_VATC_ON_Std
93-98		VAT Total - Vehicle Ident. System	hex	6	Day_VATC_ON_VIS
99-104		VAT Total - Transfer	hex	6	Day_VATC_ON_Tra
105-110		VAT Total - Test	hex	6	Day_VATC_ON_Tst
111-128		Reserved	hex	18	
129-134		Discount on Subtotal Total	hex	6	Day_Tdsc
135-140		Uplift on Subtotal Total	hex	6	Day_Tupl
141-146		Cancelled Transactions Total	hex	6	Day_Canc
147-170		Reserved	hex	24	

ii = index of the fuel type enabled - range from 01 to 06 (associated with the fuel type id number ttt)
ttt = fuel type id number - range from 001 to 100

Note: if the fuel type id number ttt is not enabled, all the bytes (from 39 to 170) are equal zero.

- **OFF-LINE SALE**

If (byte 4 - bit 2-0 = 101) and (byte 4 - bit 4 = 1) and Fuel Type > 0:

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		DAILY ACCUMULATORS BY FUEL TYPE			
39-42		Quantity of Liters - Standard	hex	4	Day_Ltr_Qty_OFF_Std_FT(ii)
43-46		Quantity of Liters - Vehicle Ident. System	hex	4	Day_Ltr_Qty_OFF_VIS_FT(ii)
47-54		Reserved	hex	8	
55-56		Number of Transactions - Standard	hex	2	Day_N_OFF_Std_FT(ii)
57-58		Number of Transactions - Vehicle Ident. System	hex	2	Day_N_OFF_VIS_FT(ii)
59-62		Reserved	hex	4	
63-68		Total - Standard	hex	6	Day_Tot_OFF_Std_FT(ii)
69-74		Total - Vehicle Ident. System	hex	6	Day_Tot_OFF_VIS_FT(ii)
75-86		Reserved	hex	12	
87-92		VAT Total - Standard	hex	6	Day_VATC_OFF_Std
93-98		VAT Total - Vehicle Ident. System	hex	6	Day_VATC_OFF_VIS
99-170		Reserved	hex	54	

ii = index of the fuel type enabled - range from 01 to 06 (associated with the fuel type id number ttt)
ttt = fuel type id number - range from 001 to 100

Note: if the fuel type id number ttt is not enabled, all the bytes (from 39 to 170) are equal zero.

DAILY COUNTERS

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
DAILY COUNTERS					
171-172		Fiscal Vouchers	hex	2	Day_N_Vouc
173-174		Non-Fiscal Reports	hex	2	Day_N_NFR
175-176		CR Non-Fiscal Reports	hex	2	Day_N_NFCR
177-180		Reserved	hex	4	
181-182		Fiscal Slips	hex	2	Day_N_Fisc
183-184		Fiscal Slips Cancelled	hex	2	Day_N_CFisc
185		Repair Actions	hex	1	Day_N_Ract
186-188		Reserved	hex	3	
189-190		Discounts on Subtotal	hex	2	Day_N_Tdsc
191-192		Uplifts on Subtotal	hex	2	Day_N_Tupl
193-194		Cancelled Transactions	hex	2	Day_N_Canc

LIFETIME ACCUMULATORS AND COUNTERS

- **ON-LINE SALE**

If (byte 4 - bit 2-0 = 111) and (byte 4 - bit 4 = 0):

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		LIFETIME ACCUMULATORS			
39-46		Total	hex	8	Lif_Tot_ON
47-54		Total - Vehicle Ident. System	hex	8	Lif_Tot_ON_VIS
55-62		Total - Transfer	hex	8	Lif_Tot_ON_Tra
63-70		Total - Test	hex	8	Lif_Tot_ON_Tst
71-78		VAT Total	hex	8	Lif_VAT_ON
79-86		VAT Total - Vehicle Ident. System	hex	8	Lif_VAT_ON_VIS
87-94		VAT Total - Transfer	hex	8	Lif_VAT_ON_Tra
95-102		VAT Total - Test	hex	8	Lif_VAT_ON_Tst
103-170		Reserved	hex	68	

- **OFF-LINE SALE**

If (byte 4 - bit 2-0 = 111) and (byte 4 - bit 4 = 1):

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		LIFETIME ACCUMULATORS			
39-46		Total	hex	8	Lif_Tot_OFF
47-54		Total - Vehicle Ident. System	hex	8	Lif_Tot_OFF_VIS
55-70		Total - Transfer	hex	16	
71-78		VAT Total	hex	8	Lif_VAT_OFF
79-86		VAT Total - Vehicle Ident. System	hex	8	Lif_VAT_OFF_VIS
103-170		Reserved	hex	84	

If (byte 4 - bit 2-0 = 111):

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
		LIFETIME COUNTERS			
171-172		Last Closure Number	hex	2	Lif_N_Clos
173		Repair Actions	hex	1	Lif_N_Ract
174		Fuel Types Entries Set	hex	1	Lif_N_Fuel_Type
175-176		Off-Line Sale Events	hex	2	Lif_N_OFF_Sale_Events
177-178		Extended Closure Number	hex	2	Lif_N_XClos
179		Number of VAT Rates Entries Set	hex	1	Lif_N_VAT
180-194		Reserved	hex	15	

MISCELLANEOUS

BYTE	BIT	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-232					
MISCELLANEOUS					
195-233		Reserved	hex	1	
234-243		Serial Number	ASCII	10	(Note 1)
244		First Fuel Type Id Number Enabled	hex	1	RAM_FT_Id_Number_Enabled(01)
245		Second Fuel Type Id Number Enabled	hex	1	RAM_FT_Id_Number_Enabled(02)
246		Third Fuel Type Id Number Enabled	hex	1	RAM_FT_Id_Number_Enabled(03)
247		Fourth Fuel Type Id Number Enabled	hex	1	RAM_FT_Id_Number_Enabled(04)
248		Fiveth Fuel Type Id Number Enabled	hex	1	RAM_FT_Id_Number_Enabled(05)
249		Sixth Fuel Type Id Number Enabled	hex	1	RAM_FT_Id_Number_Enabled(06)
250-251		Reserved	hex	2	
VAT RATE					
252-253		VAT Rate	hex	2	(Note 2)

Notes:

1. Serial Number = FM_SL_Manuf, FM_SL_IBM_Manuf, FM_SL_SerNum
2.
   - By VAT Category (byte 4 - bit 2-0 = 000 or 001)
     - If VAT Category > 0, the VAT Rate shown matches the specified VAT category.
     - If VAT Category = 0, the VAT Rate shown is zero.
   - By Payment Type (byte 4 - bits 2-0 = 010 or 011)
     - the VAT Rate shown is zero.
   - By Fuel Type Id Number (byte 4 - bits 2-0 = 100 or 101)
     - the VAT Rate shown matches the category for the fuel type id number specified.

6.2.4.3 Electronic Read Counters and Accumulators Calculations

- **ON-LINE SALE**

$$Day\_VATC\_ON\_Std\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_Std\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_ON\_Std = \sum_{vv} Day\_VATC\_ON\_Std\_v(vv)$$

$$Day\_VATC\_ON\_VIS\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_VIS\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_ON\_VIS = \sum_{vv} Day\_VATC\_ON\_VIS\_v(vv)$$

$$Day\_VATC\_ON\_Tra\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_Tra\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_ON\_Tra = \sum_{vv} Day\_VATC\_ON\_Tra\_v(vv)$$

$$Day\_VATC\_ON\_Tst\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_Tst\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_ON\_Tst = \sum_{vv} Day\_VATC\_ON\_Tst\_v(vv)$$

- **OFF-LINE SALE**

$$Day\_VATC\_OFF\_v(vv) = TRUNC(\frac{Day\_Tot\_OFF\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_OFF = \sum_{vv} Day\_VATC\_OFF\_v(vv)$$

$$Day\_VATC\_OFF\_Std\_v(vv) = TRUNC(\frac{Day\_Tot\_OFF\_Std\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_OFF\_Std = \sum_{vv} Day\_VATC\_OFF\_Std\_v(vv)$$

$$Day\_VATC\_OFF\_VIS\_v(vv) = TRUNC(\frac{Day\_Tot\_OFF\_VIS\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_OFF\_VIS = \sum_{vv} Day\_VATC\_OFF\_VIS\_v(vv)$$

6.2.5 F1 - COMMUNICATE POWER ON STATUS

This command is used to determines if the printer power was turned off in the middle of a command as shown by status byte 6, bit 4.

6.2.5.1 Command Format

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

6.2.6 F7 - COMMAND BUFFER MANAGEMENT

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

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

Response for Command Buffer Management will be formatted as follows:

BYTE RS-232	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 RS-232	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 94)
18	Command	hex	1
	Command Extension	hex	n0
	Command Data	hex	n1
	Additional Data	hex	n2 (Note 4 on page 94)
	Fiscal Untit Status Executed Command	hex	n3 (Note 5 on page 94)

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:
   - RS-232 = 15 bytes

6.2.6.1 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															

6.2.6.2 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.

6.2.7 F9 - REPORT CURRENT STATUS

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

6.2.7.1 Command Format

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

6.3 Sales Period in Progress Commands

- The sale period is started when any of the following commands is executed:
  - A2 - On-Line Sale Item
- The sale period is finished when the following command is executed:
  - 13 - Close Sale Period (Z-Report)

Additionally, the following commands can be executed when a sales period is in progress:

- Application-Originated Reports in Progress

Additionally, the following commands can be executed when a sales period is not in progress:

- Application-Originated Reports in Progress

6.4 On-Line Sale Transaction

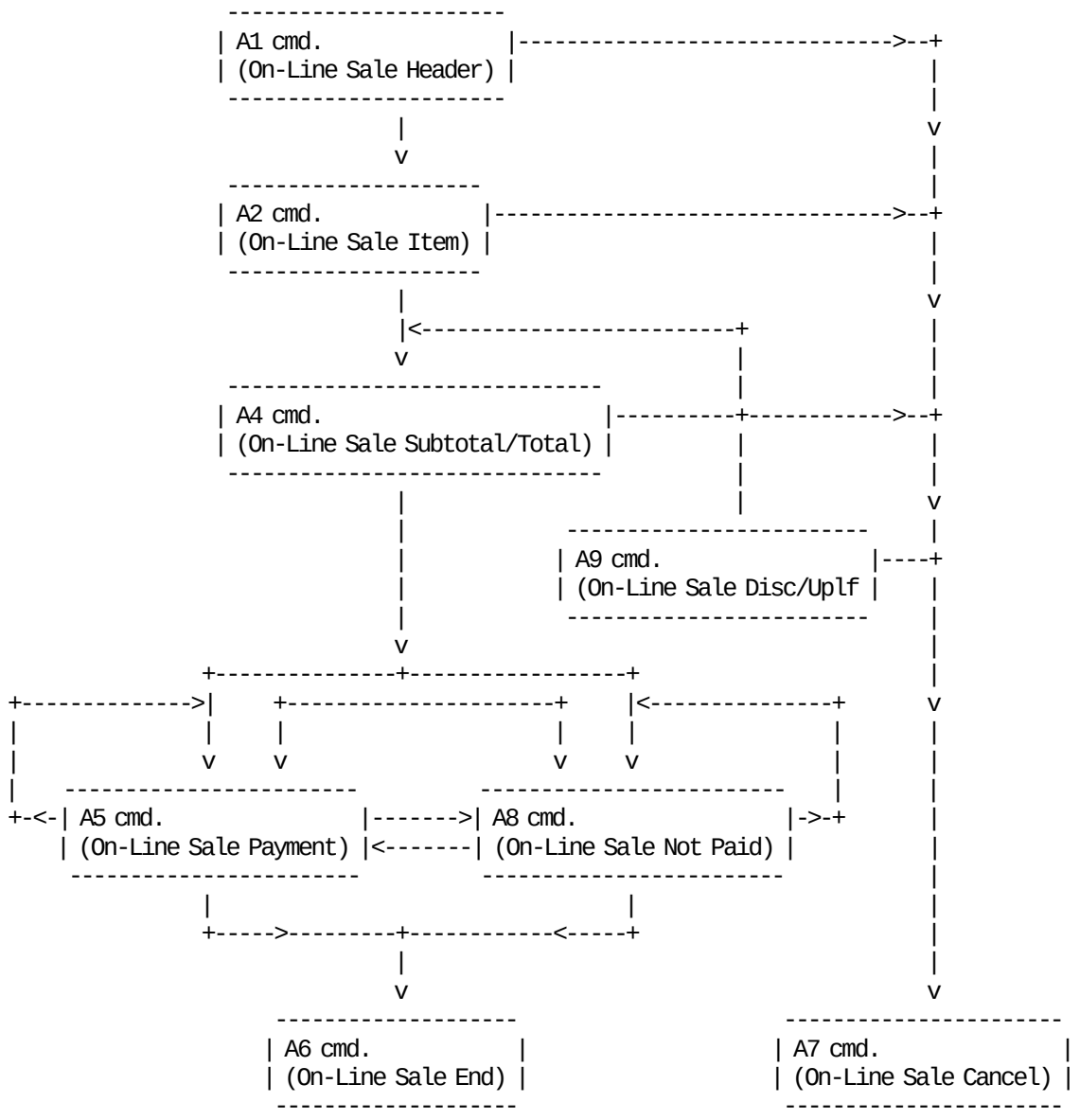
6.4.1 Commands

The on-line fiscal voucher is generated during a on-line sale transaction.

- The following command is executed to print header (it not start a sale period neither a sale transaction).
  - A1 - On-Line Sale Header
- The on-line sale transaction is started when the following command is executed:
  - A2 - On-Line Sale Item
- These commands are executed when a on-line sale transaction is in progress:
  - A4 - On-Line Sale Subtotal/Total
  - A5 - On-Line Sale Payment
  - A8 - On-Line Sale Not Paid
  - A9 - On-Line Sale Discount/Uplift on Subtotal
  - A6 - On-Line Sale End
  - A7 - On-Line Sale Cancel

The calculations listed in this section are performed after the successful execution of the command.

6.4.2 Flow



6.4.3 Rules

- Payment phase is required.
- When an error occurred during an end transaction the following is allowed:
  - To issue the on-line sale end (A6 cmd.) again if the fiscal logo was not printed yet.
  - To issue the on-line sale cancel (A7 cmd.) if the fiscal logo was printed yet.

- PLD and paper out conditions

COMMANDS	PLD	PAPER OUT
A1 (On-Line Sale Header)	1) The printing is interrupted by PLD 2) The power is restored 3) The Power-ON Report is printed 4) The cmd. is not in progress and it is like it has not been sent	1) The printing is interrupted by paper out 2) The RC = 200/206 is returned 3) The paper is restored 4) The cmd. is not in progress and it is like it has not been sent
A2 (On-Line Sale Item) A5 (On-Line Sale Payment) A8 (On-Line Sale Not Paid) A9 (On-Line Sale Subtotal/Total)	1) The printing is interrupted by PLD 2) The power is restored 3) The M01 msg. is printed (if the first item is interrupted, then the Power-ON Report is printed) 4) The cmd. is not in progress and it is like it has not been sent (only in the case that it is processed but not printed, it is reprinted by the microcode with the string ### overlaying the first 3 characters of the printed line before to print the M01 msg.	1) The printing is interrupted by paper out 2) The RC = 200/206 is returned 3) The paper is restored 4) The cmd. is not in progress and it is like it has not been sent
A6 (On-Line Sale End)	1) The printing is interrupted by PLD 2) The power is restored 3) The M01 msg. is printed 4) The cmd. is in progress and must be sent again, otherwise the RC = 182 is returned 5) If the cmd. has not been printed succefully, it prints all the lines again	1) The printing is interrupted by paper out 2) The RC = 200/206 is returned 3) The paper is restored 4) The cmd. is in progress and must be sent again, otherwise the RC = 182 is returned 5) If the cmd. has not been printed succefully, it prints all the lines again
A7 (On-Line Sale Cancel)	1) The printing is interrupted by PLD 2) The power is restored 3) The M01 msg. is printed 4) The cmd. is in progress and must be sent again, otherwise the RC = 183 is returned 5) If the cmd. has not been printed succefully, it prints all the lines again	1) The printing is interrupted by paper out 2) The RC = 200/206 is returned 3) The paper is restored 4) The cmd. is in progress and must be sent again, otherwise the RC = 182 is returned 5) If the cmd. has not been printed succefully, it prints all the lines again

6.4.4 A1 - ON-LINE SALE HEADER

This command is used to print the on-line sale header in CR station.

6.4.4.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	A1 - On-Line Sale Header	hex	1
3	Cmd. Extension	hex	1
7-2	Reserved (always = '0x00')		
1-0	Transaction Type		
	00 = Standard		
	01 = Vehicle Identification System		
	10 = Transfer		
	11 = Test		

6.4.5 A2 - ON-LINE SALE ITEM

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

6.4.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		A2 - On-Line Sale Item	hex	1
3		Cmd. Extension	hex	1
	7	Retry 1 = YES 0 = NO		
	6	Reserved (always = '0')		
	5	Print Density 0 = Normal 1 = Emphasized		
	4	Reserved (always = '0')		
	3	Print Typeface 0 = 15 CPI 1 = 12 CPI		
	2-0	Reserved (always = '0')		
4		A2_Fuel_Type_Id_Number	hex	1 (Note 1)
5-13		A2_Quantity	ASCII	9 (Note 2)
14-22		A2_Unit_Price	ASCII	9

Notes:

1. Range allowed from x01 (001 dec.) to x64 (100 dec.).
2. Fixed point with 3 decimal digits. Maximum allowed 999999999 (printed 999999,999).

6.4.5.2 On-Line Sale Item Calculations

$Tra\_N\_ON\_FT(ii) = Tra\_N\_ON\_FT(ii) + 1$

$A2\_Amount = A2\_Quantity \times A2\_Unit\_Price$

$Tra\_Tot\_ON\_v(vv) = Tra\_Tot\_ON\_v(vv) + A2\_Amount$

$Tra\_Tot\_ON\_FT(ii) = Tra\_Tot\_ON\_FT(ii) + A2\_Amount$

$Tra\_Ltr\_Qty\_ON\_FT(ii) = Tra\_Ltr\_Qty\_ON\_FT(ii) + A2\_Quantity$

Where: specific values of vv and ii are determined for the command.

vv = VAT category, range from 01 to 10.
ii = range from 01 to 06 (for RAM_FT_Id_Number_Enabled(ii) = A2_Fuel_Type_Id_Number)

6.4.5.3 On-Line Sale Item Rules

- Only one item by sale transaction is allowed.
- If the A2_Fuel_Type_Id_Number is not set or not enabled, the error code 147 is returned.

6.4.6 A4 - ON-LINE SALE SUBTOTAL/TOTAL

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

6.4.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		A4 - On-Line Subtotal/Total	hex	1	
3		Cmd. Extension	hex	1	
	7	Retry 0 = NO 1 = YES			
	6	Reserved (always = '0')			
	5	Print Density 0 = Normal 1 = Emphasized			
	4-3	Character Hight 00 = Single 11 = Double			(Note 1)
	2-1	Reserved (always = '0')			
	0	Character Width 0 = Single 1 = Double			
4-15		A4_Amount	ASCII	12	

Notes:

1. Double-wide should be selected to use double-high.
2. The emphasized apply to both, the total message and the A4_Amount. Double-wide apply to A4_Amount only.

6.4.6.2 On-Line Sale Subtotal/Total Calculations

$$Tra\_Tot\_ON = \sum_{vv} Tra\_Tot\_ON\_v(vv)$$

$$Tra\_VAT\_ON\_v(vv) = TRUNC\left(\frac{Tra\_Tot\_ON\_v(vv) \times VAT\_Rate\_v(vv)}{100 + VAT\_Rate\_v(vv)} + 0.5\right)$$

$$Tra\_VAT\_ON = \sum_{vv} Tra\_VAT\_ON\_v(vv)$$

$$Tra\_Amt\_Due = Tra\_Tot\_ON$$

Where:

vv = VAT category, range from 01 to 10.
VAT_Rate_v(vv) = rate of the VAT category associated to the A2_Fuel_Type_Id_Number.

6.4.7 A5 - ON-LINE SALE PAYMENT

This command is used to apply the paid amount.

6.4.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		A5 - On-Line Sale Payment	hex	1	
3		Cmd. Extension	hex	1	
	7	Retry 0 = NO 1 = YES			
	6	Rectify 0 = NO 1 = YES			
	5	Print Density 0 = Normal 1 = Emphasized			
	4	Reserved (always = '0')			
	3	Print Typeface 0 = 15 CPI 1 = 12 CPI			(Note 1)
	2-0	Payment Type 000 = Cash 001 = Credit Card 010 = Cheque 011 = Currency 100 = Other 101 = Reserved 110 = Reserved 111 = Reserved			
4-26		A5_Description	ASCII	23	(Note 2)
27-38		A5_Amount	ASCII	12	

Notes:

1. The print typeface is also applied to the change due line.
2. The string TOTAL in upper, lower or mixed case is not allowed.

6.4.7.2 On-Line Sale Payment Calculations

- **Rectify = NO**

  *Tra_Pay_Type*_0 = *Tra_Pay_Type*_0 + *A5_Amount* (if Payment Type = Cash)
  *Tra_Pay_Type*_1 = *Tra_Pay_Type*_1 + *A5_Amount* (if Payment Type = Credit Card)
  *Tra_Pay_Type*_2 = *Tra_Pay_Type*_2 + *A5_Amount* (if Payment Type = Cheque)
  *Tra_Pay_Type*_3 = *Tra_Pay_Type*_3 + *A5_Amount* (if Payment Type = Currency)
  *Tra_Pay_Type*_4 = *Tra_Pay_Type*_4 + *A5_Amount* (if Payment Type = Other)

  Tra_Payment = *Tra_Payment* + *A5_Amount*

  Tra_Amt_Due = *Tra_Amt_Due* – *A5_Amount*

- **Rectify = YES**

*Tra_Pay_Type*_0 = *Tra_Pay_Type*_0 – *A*5_*Amount* (if Payment Type = Cash)
*Tra_Pay_Type*_1 = *Tra_Pay_Type*_1 – *A*5_*Amount* (if Payment Type = Credit Card)
*Tra_Pay_Type*_2 = *Tra_Pay_Type*_2 – *A*5_*Amount* (if Payment Type = Cheque)
*Tra_Pay_Type*_3 = *Tra_Pay_Type*_3 – *A*5_*Amount* (if Payment Type = Currency)
*Tra_Pay_Type*_4 = *Tra_Pay_Type*_4 – *A*5_*Amount* (if Payment Type = Other)

Tra_Payment = *Tra_Payment* – *A*5_*Amount*

Tra_Amt_Due = *Tra_Amt_Due* + *A*5_*Amount*

6.4.7.3 On-Line Sale Payment Rules

- The on-line sale end (A6 cmd.) is executed only if the Tra_Payment is greater than or equal to the Tra_Tot_ON.
- If the Tra_Payment is greater than the Tra_Tot_ON, the ‘CHANGE DUE’ line is printed.

6.4.8 A8 - ON-LINE SALE NOT PAID

This command is used to apply the paid amount. Generally is used when the pay is not cash.

6.4.8.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		D8 - On-Line Sale Not Paid	hex	1	
3		Cmd. Extension	hex	1	
	7	Retry 0 = NO 1 = YES			
	6	Rectify 0 = NO 1 = YES			
	5	Print Density 0 = Normal 1 = Emphasized			
	4	Reserved (always = '0')			
	3	Print Typeface 0 = 15 CPI 1 = 12 CPI			(Note 1)
	2-0	Reserved (always = '0')			
4-26		A8_Description	ASCII	23	(Note 2)
27-38		A8_Amount	ASCII	12	

Notes:

1. The print typeface is also applied to the change due line.
2. The string TOTAL in upper, lower or mixed case is not allowed.

6.4.8.2 On-Line Sale Not Paid Calculations

- **Rectify = NO**

  *Tra_Pay_Type*_4 = *Tra_Pay_Type*_4 + *A8_Amount* (Other)

  Tra_Payment = *Tra_Payment* + *A8_Amount*

  Tra_Amt_Due = *Tra_Amt_Due* – *A8_Amount*

- **Rectify = NO**

  *Tra_Pay_Type*_4 = *Tra_Pay_Type*_4 – *A8_Amount* (Other)

  Tra_Payment = *Tra_Payment* – *A8_Amount*

  Tra_Amt_Due = *Tra_Amt_Due* + *A8_Amount*

6.4.8.3 On-Line Sale Not Paid Rules

- The on-line sale end (A6 cmd.) is executed only if the Tra_Payment is greater than or equal to the Tra_Tot_ON.
- If the Tra_Payment is greater than the Tra_Tot_ON, the 'CHANGE DUE' line is printed.

6.4.9 A9 - ON-LINE SALE DISCOUNT/UPLIFT ON SUBTOTAL

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

6.4.9.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		A9 - On-Line Sale Discount/Uplift on Subtotal	hex	1
3		Cmd. Extension	hex	1
	7	Retry 0 = NO 1 = YES		
	6	Rectify 0 = NO 1 = YES		
	5-1	Reserved (always = '0')		
	0	Operation Type 0 = DISCOUNT 1 = UPLIFT		
4-23		A9_Description	ASCII	20 (Note 1)
24-25		Reserved	ASCII	2
26-37		A9_Amount	ASCII	12

Notes:

1. The string TOTAL in upper, lower or mixed case is not allowed.

6.4.9.2 Discount/Uplift on Subtotal Calculations

- **DISCOUNT AND RECTIFY=NO**

  $Tra\_N\_Tdsc = Tra\_N\_Tdsc + 1$

  $Tra\_Tdsc = Tra\_Tdsc + A9\_Amount$

  $Tra\_Tot\_ON\_FT(ii) = Tra\_Tot\_ON\_FT(ii) - A9\_Amount$

  $$Tra\_Tot\_ON\_v(vv) = Tra\_Tot\_ON\_v(vv) - \frac{A9\_Amount \times Tra\_Tot\_ON\_v(vv)}{Tra\_Tot\_ON}$$

- **DISCOUNT AND RECTIFY=YES**

  $Tra\_Tdsc = Tra\_Tdsc - D9\_Amount$

  $Tra\_Tot\_ON\_FT(ii) = Tra\_Tot\_ON\_FT(ii) + A9\_Amount$

  $$Tra\_Tot\_ON\_v(vv) = Tra\_Tot\_ON\_v(vv) + \frac{A9\_Amount \times Tra\_Tot\_ON\_v(vv)}{Tra\_Tot\_ON}$$

- **UPLIFT AND RECTIFY=NO**

  $Tra\_N\_Tupl = Tra\_N\_Tupl + 1$

  $Tra\_Tupl = Tra\_Tupl + A9\_Amount$

  $Tra\_Tot\_ON\_FT(ii) = Tra\_Tot\_ON\_FT(ii) + A9\_Amount$

$$Tra\_Tot\_ON\_v(vv) = Tra\_Tot\_ON\_v(vv) + \frac{A9\_Amount \times Tra\_Tot\_ON\_v(vv)}{Tra\_Tot\_ON}$$

- **UPLIFT AND RECTIFY=YES**

  $Tra\_Tupl = Tra\_Tupl - A9\_Amount$

  $Tra\_Tot\_ON\_FT(ii) = Tra\_Tot\_ON\_FT(ii) - A9\_Amount$

$$Tra\_Tot\_ON\_v(vv) = Tra\_Tot\_ON\_v(vv) - \frac{A9\_Amount \times Tra\_Tot\_ON\_v(vv)}{Tra\_Tot\_ON}$$

Notes:

Rounding is performed by incrementing quotients of divisions with highest reminders, until the sum of all quotients corresponds to uplift amount. Note that this rounding operation is done on the Tra_Tot_ON_v accumulators.

Where: specific values of vv and ii are determined for the command.

vv = VAT category, range from 01 to 10.
ii = range from 01 to 06 (RAM_FT_Id_Number_Enabled(ii) = A2_Fuel_Type_Id_Number)

6.4.9.3 On-Line Sale Discount/Uplift on Subtotal Rules

- The discount or uplift amount is distributed (subtracted or added) to the VAT category accumulators proportionally to their current amount.
- The D9_Amount must be greater than 0, otherwise error code 052 is returned.

6.4.10 A6 - ON-LINE SALE END

This command is used to end the sale transaction.

6.4.10.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		A6 - On-Line Sale End	hex	1	
3		Cmd. Extension	hex	1	
	7-0	Reserved (always = '0x00')			
4-7		A6_Store	ASCII	4	
8-11		A6_Operator	ASCII	4	
12-15		A6_Terminal	ASCII	4	
16-53		A6_Trailer_Message_1	ASCII	38	(Note 1)
54-91		A6_Trailer_Message_2	ASCII	38	

Notes:

1. The string TOTAL in upper, lower or mixed case is not allowed.

6.4.10.2 On-Line Sale End Calculations

Note that if training mode is active the calculations shown below are not performed except for those listed in "Clearing Transaction Accumulators". So the transaction totals during training mode are not added to the daily totals.

$Day\_N\_Vouc = Day\_N\_Vouc + 1$
$Day\_N\_Fisc = Day\_N\_Fisc + 1$

$Day\_N\_Tdsc = Day\_N\_Tdsc + Tra\_N\_Tdsc$
$Day\_N\_Tupl = Day\_N\_Tupl + Tra\_N\_Tupl$

$Day\_N\_ON\_FT(ii) = Day\_N\_ON\_FT(ii) + Tra\_N\_ON\_FT(ii)$
$Day\_N\_ON = \sum_{ii} Day\_N\_ON\_FT(ii)$

$Day\_Tot\_ON\_v(vv) = Day\_Tot\_ON\_v(vv) + Tra\_Tot\_ON\_v(vv)$
$Day\_Tot\_ON = \sum_{vv} Day\_Tot\_ON\_v(vv)$
$Day\_Tot\_ON\_FT(ii) = Day\_Tot\_ON\_FT(ii) + Tra\_Tot\_ON\_FT(ii)$

$Day\_Ltr\_Qty\_ON\_FT(ii) = Day\_Ltr\_Qty\_ON\_FT(ii) + Tra\_Ltr\_Qty\_ON\_FT(ii)$
$Day\_Ltr\_Qty\_ON = Day\_Ltr\_Qty\_ON + Tra\_Ltr\_Qty\_ON$

- **If FSTDTX (Standard Transaction) = YES**

  $Day\_N\_ON\_Std\_FT(ii) = Day\_N\_ON\_Std\_FT(ii) + Tra\_N\_ON\_FT(ii)$
  $Day\_N\_ON\_Std = \sum_{ii} Day\_N\_ON\_Std\_FT(ii)$
  $Day\_Tot\_ON\_Std\_v(vv) = Day\_Tot\_ON\_Std\_v(vv) + Tra\_Tot\_ON\_v(vv)$
  $Day\_Tot\_ON\_Std = \sum_{vv} Day\_Tot\_ON\_Std\_v(vv)$
  $Day\_Tot\_ON\_Std\_FT(ii) = Day\_Tot\_ON\_Std\_FT(ii) + Tra\_Tot\_ON\_FT(ii)$

  $Day\_Ltr\_Qty\_ON\_Std\_FT(ii) = Day\_Ltr\_Qty\_ON\_Std\_FT(ii) + Tra\_Ltr\_Qty\_ON\_FT(ii)$

$Day\_Ltr\_Qty\_ON\_Std = Day\_Ltr\_Qty\_ON\_Std + Tra\_Ltr\_Qty\_ON$

- **If FVISTX (Vehicle Identification System Transaction) = YES**

$Day\_N\_ON\_VIS\_FT(ii) = Day\_N\_ON\_VIS\_FT(ii) + Tra\_N\_ON\_FT(ii)$
$Day\_N\_ON\_VIS = \sum_{ii} Day\_N\_ON\_VIS\_FT(ii)$

$Day\_Tot\_ON\_VIS\_v(vv) = Day\_Tot\_ON\_VIS\_v(vv) + Tra\_Tot\_ON\_v(vv)$
$Day\_Tot\_ON\_VIS = \sum_{vv} Day\_Tot\_ON\_VIS\_v(vv)$
$Day\_Tot\_ON\_VIS\_FT(ii) = Day\_Tot\_ON\_VIS\_FT(ii) + Tra\_Tot\_ON\_FT(ii)$

$Day\_Ltr\_Qty\_ON\_VIS\_FT(ii) = Day\_Ltr\_Qty\_ON\_VIS\_FT(ii) + Tra\_Ltr\_Qty\_ON\_FT(ii)$
$Day\_Ltr\_Qty\_ON\_VIS = Day\_Ltr\_Qty\_ON\_VIS + Tra\_Ltr\_Qty\_ON$

- **If FTRATX (Transfer Transaction) = YES**

$Day\_N\_ON\_Tra\_FT(ii) = Day\_N\_ON\_Tra\_FT(ii) + Tra\_N\_ON\_FT(ii)$
$Day\_N\_ON\_Tra = \sum_{ii} Day\_N\_ON\_Tra\_FT(ii)$

$Day\_Tot\_ON\_Tra\_v(vv) = Day\_Tot\_ON\_Tra\_v(vv) + Tra\_Tot\_ON\_v(vv)$
$Day\_Tot\_ON\_Tra = \sum_{vv} Day\_Tot\_ON\_Tra\_v(vv)$
$Day\_Tot\_ON\_Tra\_FT(ii) = Day\_Tot\_ON\_Tra\_FT(ii) + Tra\_Tot\_ON\_FT(ii)$

$Day\_Ltr\_Qty\_ON\_Tra\_FT(ii) = Day\_Ltr\_Qty\_ON\_Tra\_FT(ii) + Tra\_Ltr\_Qty\_ON\_FT(ii)$
$Day\_Ltr\_Qty\_ON\_Tra = Day\_Ltr\_Qty\_ON\_Tra + Tra\_Ltr\_Qty\_ON$

- **If FTSTTX (Test Transaction) = YES**

$Day\_N\_ON\_Tst\_FT(ii) = Day\_N\_ON\_Tst\_FT(ii) + Tra\_N\_ON\_FT(ii)$
$Day\_N\_ON\_Tst = \sum_{ii} Day\_N\_ON\_Tst\_FT(ii)$

$Day\_Tot\_ON\_Tst\_v(vv) = Day\_Tot\_ON\_Tst\_v(vv) + Tra\_Tot\_ON\_v(vv)$
$Day\_Tot\_ON\_Tst = \sum_{vv} Day\_Tot\_ON\_Tst\_v(vv)$
$Day\_Tot\_ON\_Tst\_FT(ii) = Day\_Tot\_ON\_Tst\_FT(ii) + Tra\_Tot\_ON\_FT(ii)$

$Day\_Ltr\_Qty\_ON\_Tst\_FT(ii) = Day\_Ltr\_Qty\_ON\_Tst\_FT(ii) + Tra\_Ltr\_Qty\_ON\_FT(ii)$
$Day\_Ltr\_Qty\_ON\_Tst = Day\_Ltr\_Qty\_ON\_Tst + Tra\_Ltr\_Qty\_ON$

$Change\_Due = (-1) \times Tra\_Amt\_Due$

```
while Change_Due > 0
{
  if (Change_Due - Tra_Pay_Type_j)  >=  0
    {
      W_Chg_Payment_j = Tra_Pay_Type_j
    }
  else
    {
      W_Chg_Payment_j = Tra_Pay_Type_j - Change_Due
    }

  Tra_Pay_Type_j = Tra_Pay_Type_j - W_Chg_Payment_j
  Tra_Payment    = Tra_Payment    - W_Chg_Payment_j
  Change_Due     = Change_Due     - W_Chg_Payment_j
}
```

where the "j" sequence is the following:
j = 0 (Cash) or 1 (Credit Card) or 2 (Cheque) or 3 (Currency) or 4 (Other)

$Day\_Payment = Day\_Payment + Tra\_Payment$

$Day\_Pay\_Type\_0 = Day\_Pay\_Type\_0 + Tra\_Pay\_Type\_0$
$Day\_Pay\_Type\_1 = Day\_Pay\_Type\_1 + Tra\_Pay\_Type\_1$

*Day_Pay_Type*_2 = *Day_Pay_Type*_2 + *Tra_Pay_Type*_2
*Day_Pay_Type*_3 = *Day_Pay_Type*_3 + *Tra_Pay_Type*_3
*Day_Pay_Type*_4 = *Day_Pay_Type*_4 + *Tra_Pay_Type*_4

Day_Tdsc = *Day_Tdsc* + *Tra_Tdsc*

Day_Tupl = *Day_Tupl* + *Tra_Tupl*

- **Clearing Transaction Accumulators**

  Tra_Tot_ON_v(*vv*) = 0
  Tra_Tot_ON = 0
  Tra_Tot_ON_FT(*ii*) = 0

  Tra_VAT_ON_v(*vv*) = 0
  Tra_VAT_ON = 0

  Tra_Ltr_Qty_ON_FT(*ii*) = 0

  Tra_Tdsc = 0
  Tra_Tupl = 0

  *Tra_Pay_Type*_0 = 0
  *Tra_Pay_Type*_1 = 0
  *Tra_Pay_Type*_2 = 0
  *Tra_Pay_Type*_3 = 0
  *Tra_Pay_Type*_4 = 0

  Tra_Payment = 0

  Tra_Amt_Due = 0

- **Clearing Transaction Counters**

  Tra_N_Tdsc = 0
  Tra_N_Tupl = 0

Where: specific values of vv and ii are determined for the command.

vv = VAT category, range from 01 to 10.
ii = range from 01 to 06 (RAM_FT_Id_Number_Enabled(ii) = A2_Fuel_Type_Id_Number)

6.4.10.3 On-Line Sale End Rules

- If the payment phase was issued, this command is accept only if the Tra_Payment is not less than the Tra_Tot_ON.
  Tra_Amt_Due must be less than or equal to 0.
- The string TOTAL in upper, lower or mixed case is not allowed in the A6_Store, A6_Operator and A6_Terminal fields.

6.4.11 A7 - ON-LINE SALE CANCEL

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

6.4.11.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		A7 - On-Line Sale Cancel	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-7		A7_Store	ASCII	4
8-11		A7_Operator	ASCII	4
12-15		A7_Terminal	ASCII	4

6.4.11.2 On-Line Sale Cancel Calculations

$Day\_N\_Vouc = Day\_N\_Vouc + 1$

$Day\_N\_Canc = Day\_N\_Canc + 1$

$Day\_N\_Fisc = Day\_N\_Fisc + 1$

$Day\_N\_CFisc = Day\_N\_CFisc + 1$

$Tra\_Tot\_ON = \sum_{vv} Tra\_Tot\_ON\_v(vv)$

$Day\_Canc\_v(vv) = Day\_Canc\_v(vv) + Tra\_Tot\_v(vv)$
$Day\_Canc = Day\_Canc + Tra\_Tot\_ON$

- **Clearing Transaction Accumulators**

  $Tra\_Tot\_ON\_v(vv) = 0$
  $Tra\_Tot\_ON = 0$
  $Tra\_Tot\_ON\_FT(ii) = 0$

  $Tra\_VAT\_ON\_v(vv) = 0$
  $Tra\_VAT\_ON = 0$

  $Tra\_Ltr\_Qty\_ON\_FT(ii) = 0$

  $Tra\_Tdsc = 0$

  $Tra\_Tupl = 0$

  $Tra\_Pay\_Type\_0 = 0$
  $Tra\_Pay\_Type\_1 = 0$
  $Tra\_Pay\_Type\_2 = 0$
  $Tra\_Pay\_Type\_3 = 0$
  $Tra\_Pay\_Type\_4 = 0$

  $Tra\_Payment = 0$

  $Tra\_Amt\_Due = 0$

- **Clearing Transaction Counters**

  Tra_N_Tdsc = 0
  Tra_N_Tupl = 0

Where: specific values of vv and ii are determined for the command.

vv = VAT category, range from 01 to 10.
ii = range from 01 to 06 (RAM_FT_Id_Number_Enabled(ii) = A2_Fuel_Type_Id_Number)

6.4.11.3 On-Line Sale Cancel Rules

- The string TOTAL in upper, lower or mixed case is not allowed in the A7_Store, A7_Operator and A7_Terminal fields.

6.5 Off-Line Sale Transaction

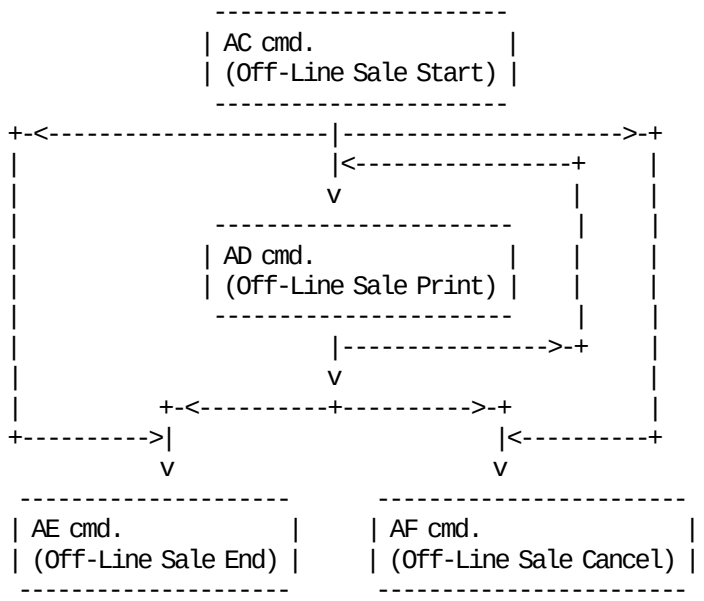
6.5.1 Commands

The off-line voucher is generated during a off-line sale transaction.

- The off-line sale transaction is started when the following command is executed:
  - AC - Off-Line Sale Start
- These commands are executed when a off-line sale transaction is in progress:
  - AD - Off-Line Sale Print
  - AE - Off-Line Sale End
  - AF - Off-Line Sale Cancel

The calculations listed in this section are performed after the successful execution of the command.

6.5.2 Flow



6.5.3 Rules

- PLD and paper out conditions

COMMANDS	PLD	PAPER OUT
AC (Off-Line Sale Start)	1) The printing is interrupted by PLD 2) The power is restored 3) The Power-ON Report is printed 4) The cmd. is not in progress and it is like it has not been sent	1) The printing is interrupted by paper out 2) The error 200/206 is returned 3) The paper is restored 4) The cmd. is not in progress and it is like it has not been sent
AD (Off-Line Sale Print)	1) The printing is interrupted by PLD 2) The power is restored 3) The M01 msg. is printed 4) The cmd. is not in progress and it is like it has not been sent	1) The printing is interrupted by paper out 2) The error 200/206 is returned 3) The paper is restored 4) The cmd. is not in progress and it is like it has not been sent
AE (Off-Line Sale End)	1) The printing is interrupted by PLD 2) The power is restored 3) The M01 msg. is printed 4) The cmd. is in progress; the AE cmd. must be sent again, otherwise the error 152 is returned 5) If the printing has not been succesfully, the cmd. will print the lines again	1) The printing is interrupted by paper out 2) The error 200/206 is returned 3) The paper is restored 4) The cmd. is in progress; the AE cmd. must be sent again, otherwise the error 152 is returned 5) If the printing has not been succesfully, the cmd. will print the lines again
AF (Off-Line Sale Cancel)	1) The printing is interrupted by PLD 2) The power is restored 3) The M01 msg. is printed 4) The cmd. is in progress; the AF cmd. must be sent again, otherwise the error 153 is returned 5) If the printing has not been succesfully, the cmd. will print the lines again	1) The printing is interrupted by paper out 2) The error 200/206 is returned 3) The paper is restored 4) The cmd. is in progress; the AF cmd. must be sent again, otherwise the error 153 is returned 5) If the printing has not been succesfully, the cmd. will print the lines again

6.5.4 AC - OFF-LINE SALE START

This command is used to start a off-line sale in CR station.

6.5.4.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	AC - Off-Line Sale Start	hex	1
3	Cmd. Extension	hex	1
7-2	Reserved (always = '0x00')		
1-0	Transaction Type 00 = Standard 01 = Vehicle Identification System 10 = Reserved 11 = Reserved		
4-11	AC_Begining_Date	ASCII	8 (Note 1)
12-15	AC_Begining_Time	ASCII	4 (Note 2)
16-23	AC_Ending_Date	ASCII	8 (Note 1)
24-27	AC_Ending_Time	ASCII	4 (Note 2)

Notes:

1. Date string must be formatted as: ddmmyyyy
   Where: dd = day, mm = month, yyyy = year
2. Time string must be formatted as: hhmm
   Where: hh = hours, mm = minutes

6.5.4.2 Off-Line Sale Start Calculations

W_OFF_Date_Begin = AC_Beginning_Date
W_OFF_Time_Begin = AC_Beginning_Time

W_OFF_Date_End = AC_Ending_Date
W_OFF_Time_End = AC_Ending_Time

$Day\_N\_NFR = Day\_N\_NFR + 1$

6.5.4.3 Off-Line Sale Start Rules

- The date and time characters must be valid, otherwise the error code 96 is returned (i.e. xx/01/2004 returns error code 96).
- The date and time data must be valid, otherwise the error code 103 is returned (i.e. 32/01/2004 returns error code 103).
- The AC_Beginning_Date and AC_Beginning_Time must be less than the AC_Ending_Date and AC_Ending_Time, otherwise the error code 103 is returned (i.e. Begin = 02/01/2004 12:00 - End = 01/01/2004 12:00 returns error code 103).

6.5.5 AD - OFF-LINE SALE PRINT

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

6.5.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		AD - Off-Line Sale Print	hex	1	
3		Cmd. Extension	hex	1	
	7	Retry 1 = YES 0 = NO			
	6	Reserved (always = '0')			
	5	Print Density 0 = Normal 1 = Emphasized			
	4	Reserved (always = '0')			
	3	Print Typeface 0 = 15 CPI 1 = 12 CPI			
	2-0	Reserved (always = '0')			
4		AD_Fuel_Type_Id_Number	hex	1	(Note 1)
5-13		AD_Quantity	ASCII	9	(Note 2)
14-22		AD_Unit_Price	ASCII	9	

Notes:

1. Range allowed from x01 (001 dec.) to x64 (100 dec.).
2. Fixed point with 3 decimal digits. Maximum allowed 99999999.

6.5.5.2 Off-Line Sale Print Calculations

$Tra\_N\_OFF\_FT(ii) = Tra\_N\_OFF\_FT(ii) + 1$

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

$Tra\_Tot\_OFF\_v(vv) = Tra\_Tot\_OFF\_v(vv) + AD\_Amount$

$Tra\_Tot\_OFF\_FT(ii) = Tra\_Tot\_OFF\_FT(ii) + AD\_Amount$

$Tra\_Ltr\_Qty\_OFF\_FT(ii) = Tra\_Ltr\_Qty\_OFF\_FT(ii) + AD\_Quantity$

Where: specific values of vv and ii are determined for the command.

vv = VAT category, range from 01 to 10.
ii = range from 01 to 06 (for RAM_FT_Id_Number_Enabled(ii) = AD_Fuel_Type_Id_Number)

6.5.5.3 Off-Line Sale Print Rules

- If the AD_Fuel_Type_Id_Number is not set or not enabled, the error code 147 is returned.

6.5.6 AE - OFF-LINE SALE END

This command is used to end a off-line sale transaction.

6.5.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		AE - Off-Line Sale End	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

6.5.6.2 Off-line Sale End Calculations

Note that if training mode is active the calculations shown below are not performed except for those listed in "Clearing Transaction Accumulators". So the transaction totals during training mode are not added to the daily totals.

$$Tra\_N\_OFF = \sum_{ii} Tra\_N\_OFF\_FT(ii)$$

$$Tra\_Tot\_OFF = \sum_{vv} Tra\_Tot\_OFF\_v(vv)$$

$$Tra\_VAT\_OFF\_v(vv) = TRUNC(\frac{Tra\_Tot\_OFF\_v(vv) \times VAT\_Rate\_v(vv)}{100 + VAT\_Rate\_v(vv)} + 0.5)$$

$$Tra\_VAT\_OFF = \sum_{vv} Tra\_VAT\_OFF\_v(vv)$$

$$Tra\_Ltr\_Qty\_OFF = \sum_{ii} Tra\_Ltr\_Qty\_OFF\_FT(ii)$$

$$Day\_N\_OFF\_FT(ii) = Day\_N\_OFF\_FT(ii) + Tra\_N\_OFF\_FT(ii)$$
$$Day\_N\_OFF = Day\_N\_OFF + Tra\_N\_OFF$$

$$Day\_Tot\_OFF\_v(vv) = Day\_Tot\_OFF\_v(vv) + Tra\_Tot\_OFF\_v(vv)$$
$$Day\_Tot\_OFF = vv \;\; Day\_Tot\_OFF\_v(vv)$$
$$Day\_Tot\_OFF\_FT(ii) = Day\_Tot\_OFF\_FT(ii) + Tra\_Tot\_OFF\_FT(ii)$$

$$Day\_Ltr\_Qty\_OFF\_FT(ii) = Day\_Ltr\_Qty\_OFF\_FT(ii) + Tra\_Ltr\_Qty\_OFF\_FT(ii)$$
$$Day\_Ltr\_Qty\_OFF = Day\_Ltr\_Qty\_OFF + Tra\_Ltr\_Qty\_OFF$$

- **If FSTDTX (Standard Transaction) = YES**

  $$Day\_N\_OFF\_Std\_FT(ii) = Day\_N\_OFF\_Std\_FT(ii) + Tra\_N\_OFF\_FT(ii)$$
  $$Day\_N\_OFF\_Std = \sum_{ii} Day\_N\_OFF\_Std\_FT(ii)$$
  $$Day\_Tot\_OFF\_Std\_v(vv) = Day\_Tot\_OFF\_Std\_v(vv) + Tra\_Tot\_OFF\_v(vv)$$
  $$Day\_Tot\_OFF\_Std = \sum_{vv} Day\_Tot\_OFF\_Std\_v(vv)$$
  $$Day\_Tot\_OFF\_Std\_FT(ii) = Day\_Tot\_OFF\_Std\_FT(ii) + Tra\_Tot\_OFF\_FT(ii)$$

  $$Day\_Ltr\_Qty\_OFF\_Std\_FT(ii) = Day\_Ltr\_Qty\_OFF\_Std\_FT(ii) + Tra\_Ltr\_Qty\_OFF\_FT(ii)$$
  $$Day\_Ltr\_Qty\_OFF\_Std = Day\_Ltr\_Qty\_OFF\_Std + Tra\_Ltr\_Qty\_OFF$$

- **If FVISTX (Vehicle Identification System Transaction) = YES**

$Day\_N\_OFF\_VIS\_FT(ii) = Day\_N\_OFF\_VIS\_FT(ii) + Tra\_N\_OFF\_FT(ii)$
$Day\_N\_OFF\_VIS = \sum_{ii} Day\_N\_OFF\_VIS\_FT(ii)$
$Day\_Tot\_OFF\_VIS\_v(vv) = Day\_Tot\_OFF\_VIS\_v(vv) + Tra\_Tot\_OFF\_v(vv)$
$Day\_Tot\_OFF\_VIS = \sum_{vv} Day\_Tot\_OFF\_VIS\_v(vv)$
$Day\_Tot\_OFF\_VIS\_FT(ii) = Day\_Tot\_OFF\_VIS\_FT(ii) + Tra\_Tot\_OFF\_FT(ii)$

$Day\_Ltr\_Qty\_OFF\_VIS\_FT(ii) = Day\_Ltr\_Qty\_OFF\_VIS\_FT(ii) + Tra\_Ltr\_Qty\_OFF\_FT(ii)$
$Day\_Ltr\_Qty\_OFF\_VIS = Day\_Ltr\_Qty\_OFF\_VIS + Tra\_Ltr\_Qty\_OFF$

```
If Day_Tot_OFF > 0
{
  Day_N_OFF_Sale_Events  Day_N_OFF_Sale_Events+1
  Lif_N_OFF_Sale_Events  Lif_N_OFF_Sale_Events+1
}
```

Clearing Transaction Accumulators

$Tra\_Tot\_OFF\_v(vv) = 0$
$Tra\_Tot\_OFF = 0$
$Tra\_Tot\_OFF\_FT(ii) = 0$

$Tra\_VAT\_OFF\_v(vv) = 0$
$Tra\_VAT\_OFF = 0$

$Tra\_Ltr\_Qty\_OFF\_FT(ii) = 0$

Where: specific values of vv and ii are determined for the command.

vv = VAT category, range from 01 to 10.
ii = range from 01 to 06 (for RAM_FT_Id_Number_Enabled(ii) = AC_Fuel_Type_Id_Number)

6.5.6.3 Off-Line Sale End Rules

- If the printing of this command is interrupted for any condition (i.e. PLD or paper out), when the normal operation is recovered, the AE cmd. must be issued, otherwise the error code 152 is returned.

6.5.7 AF - OFF-LINE SALE CANCEL

This command is used to cancel a off-line sale transaction.

6.5.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		AF - Off-Line Sale Cancel	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

6.5.7.2 Off-Line Sale Cancel Rules

- When this command is issued:
  - The off-line counters and accumulators are not updated.
  - No entries are stored in the off-line events table.
- If the printing of this command is interrupted for any condition (i.e. PLD or paper out), when the normal operation is recovered, the AF cmd. must be issued, otherwise the error code 153 is returned.

6.6 Miscellaneous Commands

The miscellaneous commands include:

- C8 - Set Barcode Parameters
- C9 - Print Barcode
- CA - Print and Download Graphics
- CD - Cash Drawer Management

6.6.1 C8 - SET BARCODE PARAMETERS

This command is used to set the barcode parameters.

6.6.1.1 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 = SJ 2 = DI	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 and SJ stations:
     - Minimum = 001
     - Maximum = 255

6.6.1.2 Set Barcode Parameters Rules

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

6.6.2 C9 - PRINT BARCODE

This command is used to print barcode.

6.6.2.1 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			(Note 1)
		1 = 12 CPI			
		0 = 15 CPI			
	5-4	HRI location			(Note 2)
		11 = Both above and below the barcode			
		10 = Below the barcode			
		01 = Above the barcode			
		00 = Not printed			
	3-0	Barcode Type			
		1111 = Reserved			
		1110 = Reserved			
		1101 = Reserved			
		1100 = Reserved			
		1011 = Reserved			
		1010 = Reserved			
		1001 = Reserved			
		1000 = CODE93			
		0111 = CODE128			
		0110 = CODABAR			
		0101 = ITF			
		0100 = CODE39			
		0011 = JAN8 (EAN-8)			
		0010 = JAN13 (EAN-13)			
		0001 = UPC_E			
		0000 = UPC_A			
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.

6.6.2.2 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 barcode will be printed in the station selected thru C8 cmd.
- The barcodes can be printed:
  - Inside Sale Period
    - Inside of fiscal vouchers.

    - Inside of application-originated reports.
    - Outside of fiscal vouchers.
    - Outside of application-originated reports.
- Outside Sale Period
    - Inside of application-originated reports.
    - Outside of application-originated reports.

6.6.3 CA - PRINT AND DOWNLOAD GRAPHICS

This command is used to download and print graphics.

6.6.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH	
0-1		1B66 - Cmd Prefix	hex	2	
2		CA - Print and Download Graphics	hex	1	
3		Cmd. Extension	hex	1	
		00 = First Print 100 DPI Packet			(Note 1)
		01 = First Print 200 DPI Packet			(Note 1)
		02 = First Download Packet			(Note 1)
		08 = Next Packet			
		09 = Last Packet			
		0A = Cancel Graphics Transmission			
		10 = Erase Graphics Download Area			
		11 = Print Downloaded 100 DPI			
		12 = Print Downloaded 200 DPI			
		If Cmd. Extension = 00 or 01 specify			
4		Width	hex	1	(Note 2)
5		Height	hex	1	(Note 2)
6-65		First Pixels in Graphics	hex	60	
		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 = 11 or 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.
3. The fiscal printer can store up to 40 graphics in its internal memory so they can be printed later. The valid range is from x01 to x28.

Response to the Cmd. Extension 00 or 01 will be formatted as follows:

BYTE RS-232	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	hex	1

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

BYTE RS-232	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

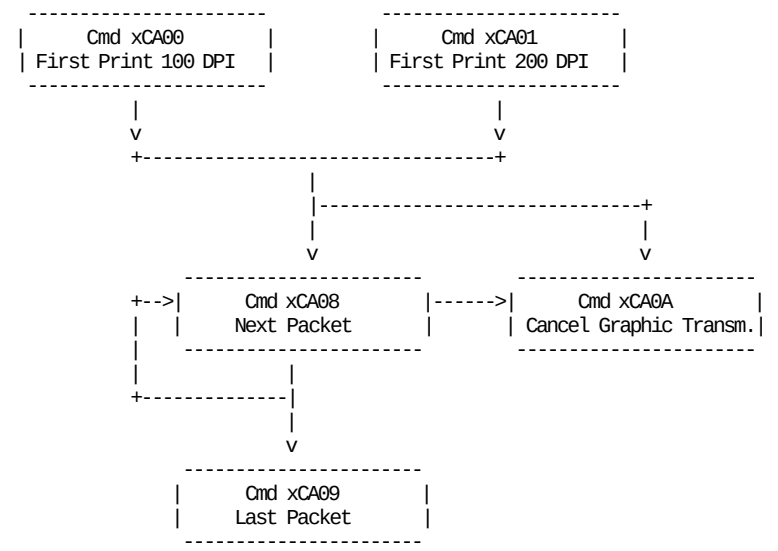
Response to the Cmd. Extension 08 or 09 will be formatted as follows:

BYTE RS-232	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

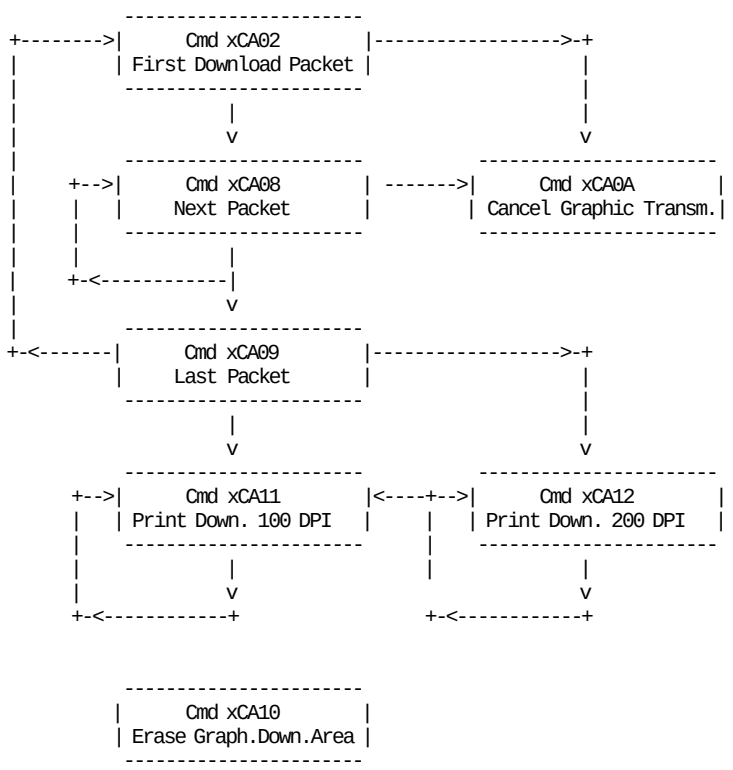
Response to the Cmd. Extension 11 or 12 will be formatted as follows:

BYTE RS-232	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

6.6.3.2 Print Graphics Flow



6.6.3.3 Download/print Graphics Flow



6.6.3.4 Print Graphic Example

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

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

Example: width = 2 (16 pixels) & 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 the 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 6. Print Graphic Example

6.6.4 CD - CASH DRAWER MANAGEMENT

ONLY VALID FOR 4610 RS-232

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

6.6.4.1 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
RS-232				
0-14		Fiscal Unit Status	hex	15
15		Cash Drawer Status 00 = Open 01 = Close	hex	1

6.7 Report Printing Commands

These are the report printing commands:

- 0B - Fuel Types Report
- 13 - Close Sale Period (Z-Report)
- 14 - Summary Fiscal Report (X-Report)
- 15 - Fiscal Memory Report
- 9F - Off-Line Event Report

There are two commands that control application-originated reports:

- DD - Start Application-Originated Report
- DE - End Application-Originated Report

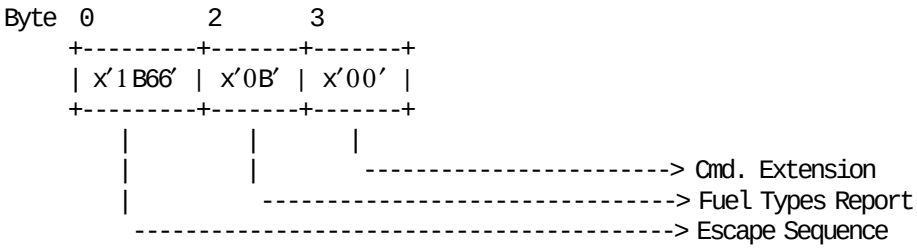
6.7.1 0B - FUEL TYPES REPORT

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

6.7.1.1 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 = Enabled Fuel Types Report	hex	1

6.7.1.2 Command Example



6.7.1.3 Fuel Types Report Calculations

$Day\_N\_NFR = Day\_N\_NFR + 1$

6.7.1.4 Fuel Types Report Rules

- For Cmd. Extension = 00 (Complete Fuel Types Report)
  If there are not entries to print, the error code 90 is returned.
- For Cmd. Extension = 01 (Enabled Fuel Types Report)
  If there are not enabled fuel types to print, the error code 138 is returned.

6.7.2 13 - CLOSE SALE PERIOD (Z-Report)

This command is used to close the sale period, update the fiscal memory (only in fiscal mode) and issue the closure report (Z-Report).

6.7.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		13 - Close Sale Period (Z-Report)	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

6.7.2.2 Close Sale Period Calculations

- **The following operations are performed BEFORE printing the report and to store data in the daily entry table in fiscal memory:**

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

  $Day\_N\_Fisc = Day\_N\_Fisc + 1$

```
If Day_Tot_OFF > 0
{
  Lif_N_XClos  Lif_N_XClos+1
}
```

  – **ON-LINE SALE**

  $$Day\_VATC\_ON\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

  $$Day\_VATC\_ON = \sum_{vv} Day\_VATC\_ON\_v(vv)$$

  $Lif\_Tot\_ON = Lif\_Tot\_ON + Day\_Tot\_ON$
  $Lif\_VAT\_ON = Lif\_VAT\_ON + Day\_VATC\_ON$

  — **STANDARD**

  $$Day\_VATC\_ON\_Std\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_Std\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

  $$Day\_VATC\_ON\_Std = \sum_{vv} Day\_VATC\_ON\_Std\_v(vv)$$

  $Lif\_Tot\_ON\_Std = Lif\_Tot\_ON\_Std + Day\_Tot\_ON\_Std$

  $Lif\_VAT\_ON\_Std = Lif\_VAT\_ON\_Std + Day\_VATC\_ON\_Std$

  — **VEHICLE IDENTIFICATION SYSTEM**

  $$Day\_VATC\_ON\_VIS\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_VIS\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

  $$Day\_VATC\_ON\_VIS = \sum_{vv} Day\_VATC\_ON\_VIS\_v(vv)$$

  $Lif\_Tot\_ON\_VIS = Lif\_Tot\_ON\_VIS + Day\_Tot\_ON\_VIS$

  $Lif\_VAT\_ON\_VIS = Lif\_VAT\_ON\_VIS + Day\_VATC\_ON\_VIS$

— **TRANSFER**

$$Day\_VATC\_ON\_Tra\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_Tra\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_ON\_Tra = \sum_{vv} Day\_VATC\_ON\_Tra\_v(vv)$$

$$Lif\_Tot\_ON\_Tra = Lif\_Tot\_ON\_Tra + Day\_Tot\_ON\_Tra$$

$$Lif\_VAT\_ON\_Tra = Lif\_VAT\_ON\_Tra + Day\_VATC\_ON\_Tra$$

— **TEST**

$$Day\_VATC\_ON\_Tst\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_Tst\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_ON\_Tst = \sum_{vv} Day\_VATC\_ON\_Tst\_v(vv)$$

$$Lif\_Tot\_ON\_Tst = Lif\_Tot\_ON\_Tst + Day\_Tot\_ON\_Tst$$

$$Lif\_VAT\_ON\_Tst = Lif\_VAT\_ON\_Tst + Day\_VATC\_ON\_Tst$$

Where:

vv = VAT category, range from 01 to 10.
ttt = fuel type id number = hex_to_num(RAM_FT_Id_Number_Enabled(ii)), range from 001 to 100

— In working area is generated a table sorted by VAT Rate with the following data:
Example:

VAT Rate	vv	Day_Tot_ON_v
10	01	20
10	02	30
10	05	40
8	04	50
6	03	70
4	08	15
4	06	10
4	10	5
2	07	40
2	09	25

— In W_Day_Tot_ON_r(rr) is accumulated all Day_Tot_ON_v(vv) with the same VAT rate.
Example:

rr	VAT Rate	W_Day_Tot_ON_r
01	10	90
02	8	50
03	6	70
04	4	30
05	2	65

$$W\_Day\_TotC\_ON\_r(rr) = \sum_{vv} Day\_Tot\_ON\_v(vv)$$

$$W\_VAT\_r(rr) = VAT\_Rate$$

$$W\_Day\_VATC\_ON\_r(rr) = \sum_{vv} Day\_VATC\_ON\_v(vv)$$

Where:

for values of vv (with the same VAT rate) and rr from 1 to 10

- **OFF-LINE SALE**

$$Day\_VATC\_OFF\_v(vv) = TRUNC(\frac{Day\_Tot\_OFF\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_OFF = \sum_{vv} Day\_VATC\_OFF\_v(vv)$$

$$Lif\_Tot\_OFF = Lif\_Tot\_OFF + Day\_Tot\_OFF$$

$$Lif\_VAT\_OFF = Lif\_VAT\_OFF + Day\_VATC\_OFF$$

  - **STANDARD**

$$Day\_VATC\_OFF\_Std\_v(vv) = TRUNC(\frac{Day\_Tot\_OFF\_Std\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_OFF\_Std = \sum_{vv} Day\_VATC\_OFF\_Std\_v(vv)$$

  - **VEHICLE IDENTIFICATION SYSTEM**

$$Day\_VATC\_OFF\_VIS\_v(vv) = TRUNC(\frac{Day\_Tot\_OFF\_VIS\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$$Day\_VATC\_OFF\_VIS = \sum_{vv} Day\_VATC\_OFF\_VIS\_v(vv)$$

$$Lif\_Tot\_OFF\_VIS = Lif\_Tot\_OFF\_VIS + Day\_Tot\_OFF\_VIS$$

$$Lif\_VAT\_OFF\_VIS = Lif\_VAT\_OFF\_VIS + Day\_VATC\_OFF\_VIS$$

Where:

vv = VAT category, range from 01 to 10.
ttt = fuel type id number = hex_to_num(RAM_FT_Id_Number_Enabled(ii)), range from 001 to 100
ii = from 01 to 06

- In working area is generated a table sorted by VAT Rate with the following data:
  Example:

VAT Rate	vv	Day_Tot_OFF_v
10	01	20
10	02	30
10	05	40
8	04	50
6	03	70
4	08	15
4	06	10
4	10	5
2	07	40
2	09	25

- In W_Day_Tot_OFF_r(rr) is accumulated all Day_Tot_OFF_v(vv) with the same VAT rate.
  Example:

rr	VAT Rate	W_Day_Tot_OFF_r
01	10	90
02	8	50
03	6	70
04	4	30
05	2	65

$W\_Day\_TotC\_OFF\_r(rr) = \sum_{vv} Day\_Tot\_OFF\_v(vv)$

$W\_VAT\_r(rr) = VAT\_Rate$

$W\_Day\_VATC\_OFF\_r(rr) = \sum_{vv} Day\_VATC\_OFF\_v(vv)$

Where:

for values of vv (with the same VAT rate) and rr from 1 to 10

– **ON-LINE SALE + OFF-LINE SALE**

$Day\_N\_Tx\_Ft(ii) = Day\_N\_ON\_FT(ii) + Day\_N\_OFF\_FT(ii)$
$Day\_N\_Tx = Day\_N\_ON + Day\_N\_OFF$

$Day\_Tot\_FT(ii) = Day\_Tot\_ON\_FT(ii) + Day\_Tot\_OFF\_FT(ii)$
$Day\_Tot\_v(vv) = Day\_Tot\_ON\_v(vv) + Day\_Tot\_OFF\_v(vv)$

$Day\_Tot = Day\_Tot\_ON + Day\_Tot\_OFF$

$$Day\_VATC\_v(vv) = TRUNC(\frac{Day\_Tot\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$Day\_VATC = \sum_{vv} Day\_VATC\_v(vv)$

$Day\_Ltr\_Qty\_FT(ii) = Day\_Ltr\_Qty\_ON\_FT(ii) + Day\_Ltr\_Qty\_OFF\_FT(ii)$
$Day\_Ltr\_Qty = Day\_Ltr\_Qty\_ON + Day\_Ltr\_Qty\_OFF$

$Lif\_Tot = Lif\_Tot + Day\_Tot$

$Lif\_VAT = Lif\_VAT + Day\_VATC$

— **VEHICLE IDENTIFICATION SYSTEM**

$Day\_N\_VIS\_FT(ii) = Day\_N\_ON\_VIS\_FT(ii) + Day\_N\_OFF\_VIS\_FT(ii)$
$Day\_N\_VIS = Day\_N\_ON\_VIS + Day\_N\_OFF\_VIS$

$Day\_Tot\_VIS\_FT(ii) = Day\_Tot\_ON\_VIS\_FT(ii) + Day\_Tot\_OFF\_VIS\_FT(ii)$
$Day\_Tot\_VIS\_v(vv) = Day\_Tot\_ON\_VIS\_v(vv) + Day\_Tot\_OFF\_VIS\_v(vv)$

$Day\_Tot\_VIS = Day\_Tot\_ON\_VIS + Day\_Tot\_OFF\_VIS$

$$Day\_VATC\_ON\_VIS\_v(vv) = TRUNC(\frac{Day\_Tot\_ON\_VIS\_v(vv) \times VAT\_Rate(vv)}{100 + VAT\_Rate(vv)} + 0.5)$$

$Day\_VATC\_ON\_VIS = \sum_{vv} Day\_VATC\_ON\_VIS\_v(vv)$

$Day\_Ltr\_Qty\_VIS\_FT(ii) = Day\_Ltr\_Qty\_ON\_VIS\_FT(ii) + Day\_Ltr\_Qty\_OFF\_VIS\_FT(ii)$
$Day\_Ltr\_Qty\_VIS = Day\_Ltr\_Qty\_ON\_VIS + Day\_Ltr\_Qty\_OFF\_VIS$

$W\_Day\_TotC\_r(rr) = Day\_Tot\_ON\_v(vv) + Day\_Tot\_OFF\_v(vv)$

$W\_VAT\_r(rr) = VAT\_Rate$

$W\_Day\_VATC\_r(rr) = Day\_VATC\_ON\_v(vv) + Day\_VATC\_OFF\_v(vv)$

Where:

vv = VAT category, range from 01 to 10.
ttt = fuel type id number = hex_to_num(RAM_FT_Id_Number_Enabled(ii)), range from 001 to 100
ii = from 01 to 06

- **The following operation is performed if the closure report is cancelled by any cause:**

Day_N_CFisc = *Day_N_CFisc* + 1

- **The following operations are performed AFTER to store data in the daily entry table:**

Day_Tot_ON_v(*vv*) = 0
Day_Tot_ON = 0
Day_VATC_ON_v(*vv*) = 0
Day_VATC_ON = 0
Day_Ltr_Qty_ON_FT(*ii*) = 0
Day_Tot_ON_FT(*ii*) = 0
W_Day_Tot_ON_v(*vv*) = 0
W_Day_VATC_ON_v(*vv*) = 0

Day_Tot_OFF_v(*vv*) = 0
Day_Tot_OFF = 0
Day_VATC_OFF_v(*vv*) = 0
Day_VATC_OFF = 0
Day_Ltr_Qty_OFF_FT(*ii*) = 0
Day_Tot_OFF_FT(*ii*) = 0
W_Day_TotC_OFF_v(*vv*) = 0
W_Day_VATC_OFF_v(*vv*) = 0

Day_Tot = 0
Day_VATC = 0
Day_Ltr_Qty_FT(*ii*) = 0
Day_Tot_FT(*ii*) = 0

Day_Payment = 0
*Day_Pay_Type*_0 = 0
*Day_Pay_Type*_1 = 0
*Day_Pay_Type*_2 = 0
*Day_Pay_Type*_3 = 0
*Day_Pay_Type*_4 = 0

Day_Tdsc = 0
Day_Tupl = 0

Day_Canc_v(*vv*) = 0
Day_Canc = 0

Where:

vv = VAT category, range from 01 to 10
ii = from 01 to 06

- **Clearing Daily Counters:**

Day_N_Vouc = 0
Day_N_Canc = 0

Day_N_Fisc = 0
Day_N_CFisc = 0

Day_N_Tdsc = 0

$Day\_N\_Tupl = 0$

$Day\_N\_NFR = 0$

$Day\_N\_Ract = 0$

6.7.2.3 Close Sale Period Rules

- The daily totals are stored in the daily entry table in fiscal memory. Up to 2100 entries are available for the fiscal unit lifetime.

6.7.3 14 - SUMMARY FISCAL REPORT (X-Report)

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

6.7.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		14 - Summary Fiscal Report (X-Report)	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		

6.7.3.2 X-Report Calculations

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

- **PLUS THE FOLLOWING IS ALSO DONE:**

  $Day\_N\_NFR = Day\_N\_NFR + 1$

- **AND THE FOLLOWING ARE *NOT* DONE:**

  $Lif\_N\_Clos = Lif\_N\_Clos + 1$
  Grand Totals calculations

The calculations done during the close sale period (13 cmd.) after to update the daily entry table are NOT done during this command.

6.7.3.3 X-Report Rules

- If a PLD occurs when the report is printed, after the power-on, the stored lines in the buffer are printed and the report is interrupted.

6.7.4 15 - FISCAL MEMORY REPORT

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

6.7.4.1 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	Report Type 0 = Extended 1 = Short		
	5-3	Reserved (always = '0')		
	2-0	Range 001 (1) = All Fiscal Memory 010 (2) = Between Closure Dates 100 (4) = Between Closure Numbers		
		If Range = 2 specify:		
4-11		First Closure Date	ASCII	8 (Note 1)
12-19		Last Closure Date	ASCII	8 (Note 1)
		If Range = 4 specify:		
4-7		First Closure Number	ASCII	4
8-11		Last Closure Number	ASCII	4

Notes:

1. Dates strings must be formatted as: ddmmyyyy dd = day mm = month yyyy = year

6.7.4.2 Fiscal Memory Report Calculations

- **Successful completion of command**

  $Day\_N\_Dump = Day\_N\_Dump + 1$
  $Day\_N\_Fisc = Day\_N\_Fisc + 1$
  $Lif\_N\_Dump = Lif\_N\_Dump + 1$

- **Unsuccessful completion of command**

  $Day\_N\_CFisc = Day\_N\_CFisc + 1$

6.7.4.3 Fiscal Memory Report Rules

- Two types of dump are provided: short and extended.

6.7.5 9F - OFF-LINE EVENTS REPORT

This command is used to print the off-line events for the requested period.

6.7.5.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	9F - Off-Line Events Report	hex	1
3	Cmd. Extension	hex	1
7-0	Reserved (always = '0x00')		
4-11	9F_Begining_Date	ASCII	8 (Note 1)
12-19	9F_Ending_Date	ASCII	8 (Note 1)

Notes:

1. Date string must be formatted as: ddmmyyyy
   Where: dd = day, mm = month, yyyy = year

6.7.5.2 Off-Line Events Report Calculations

Day_N_Fisc = Day_N_Fisc + 1

6.7.5.3 Off-Line Events Report Rules

- The date characters must be valid, otherwise the error code 96 is returned (i.e. xx/01/2004 returns error code 96).
- The date data must be valid, otherwise the error code 103 is returned (i.e. 32/01/2004 returns error code 103).
- The 9F_Beginning_Date must be less than the AC_Ending_Date, otherwise the error code 103 is returned (i.e. Begin = 02/01/2004 - End = 01/01/2004 returns error code 103).
- Each period stored in the extended daily entry table that is included between 9F_Beginning_Date and 9F_Ending_Date is printed in the Off-Line Events Report.
- PLD and paper out conditions

COMMANDS	PLD	PAPER OUT
9F - Off-Line Event Report	1) The printing is interrupted by PLD 2) The power is restored 3) The Power-ON Report is printed 4) The V34 msg. is printed and the report is cancelled.	1) The printing is interrupted by paper out 2) The RC = 200/206 is returned 3) The paper is restored 4) The V34 msg. is printed and the report is cancelled.

6.7.6 DD - START APPLICATION-ORIGINATED REPORT

This command is used to start a application-originated report (non-fiscal report).

6.7.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command Prefix	hex	2
2		DD - Start Application-Originated Report	hex	1
3		Cmd. Extension	hex	1
	7-2	Reserved (always = '0')		
	1-0	Station & Orientation Print		
		00 = CR		
		01 = SJ		
		10 = Reserved		
		11 = Reserved		

6.7.7 DE - END APPLICATION-ORIGINATED REPORT

This command is used to end a application-originated report (non-fiscal report).

6.7.7.1 Command Format

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

6.7.7.2 End Application-Originated Report Calculations

- **If 'FOPENCR' = YES**

  $Day\_N\_NFR = Day\_N\_NFR + 1$
  $Day\_N\_NFCR = Day\_N\_NFCR + 1$

- **If 'FOPENSJ' = YES**

  $Day\_N\_NFR = Day\_N\_NFR + 1$
  $Day\_N\_NFJL = Day\_N\_NFJL + 1$

6.7.7.3 End Application-Originated Report Rules

There are not rules for this command.

6.7.8 General Application-Originated Lines and Reports Rules

1. **TRAINING MODE State**

   a. **INSIDE SALE PERIOD**

      1) **ORDINARY LINES INSIDE THE ON-LINE FISCAL VOUCHER**

         a) After the each A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of ordinary print lines lines in CR station (EA or E9 cmd.) that can be printed are 255.

         b) After the each A1, A2, A3, A4, A9, A5 and A8 cmds. and after the last of the 255 ordinary lines in CR station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

         c) Each ordinary line printed in CR station (EA or E9 cmd.) during an on-line fiscal voucher IS replicated in SJ station.

         d) After the A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of line-feed lines in CR station (EC cmd.) that can be printed are 255.

         e) The line-feed lines on CR station (EC cmd.) to be NOT replicated on SJ station.

         f) After the each A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of ordinary print lines lines in SJ station (EA or E9 cmd.) that can be printed are 255.

         g) After the each A1, A2, A3, A4, A9, A5 and A8 cmds. and after the last of the 255 ordinary lines in SJ station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

         h) Each ordinary line printed in SJ station (EA or E9 cmd.) during an on-line fiscal voucher IS replicated in CR station.

         i) After the A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of line-feed lines on SJ station (EC cmd.) that can be printed are 255.

         j) The line-feed lines on SJ station (EC cmd.) to be NOT replicated on CR station.

      2) **ORDINARY LINES INSIDE THE OFF-LINE VOUCHER**

         a) After the each AC and AD cmds., the maximum number of ordinary print lines lines in CR station (EA or E9 cmd.) that can be printed are 255.

         b) After the each AC and AD cmds. and after the last of the 255 ordinary lines in CR station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

         c) Each ordinary line printed in CR station (EA or E9 cmd.) during an off-line fiscal voucher IS replicated in SJ station.

         d) After the AC and AD cmds., the maximum number of line-feed lines in CR station (EC cmd.) that can be printed are 255.

         e) The line-feed lines on CR station (EC cmd.) to be NOT replicated on SJ station.

         f) After the each AC and AD cmds., the maximum number of ordinary print lines lines in SJ station (EA or E9 cmd.) that can be printed are 255.

         g) After the each AC and AD cmds. and after the last of the 255 ordinary lines in SJ station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

         h) Each ordinary line printed in SJ station (EA or E9 cmd.) during an off-line fiscal voucher IS replicated in CR station.

i) After the AC and AD cmds., the maximum number of line-feed lines on SJ station (EC cmd.) that can be printed are 255.

j) The line-feed lines on SJ station (EC cmd.) to be NOT replicated on CR station.

3) **ORDINARY LINES OUTSIDE DOCUMENTS**

a) Printing ordinary lines in CR station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed before and after.

b) Each ordinary line printed in CR Station (EA or E9 cmd.) IS replicated in SJ station.

c) The maximum number of ordinary lines in CR station (EA or E9 cmd.) are 255.

d) The line-feed print lines in CR station (EC cmd.) is NOT replicated in SJ station.

e) Printing ordinary lines in SJ station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed before and after.

f) Each ordinary line printed in SJ Station (EA or E9 cmd.) IS replicated in CR station.

g) The maximum number of ordinary lines in SJ station (EA cmd.) are 255.

h) The line-feed print lines in SJ station (EC cmd.) is NOT replicated in CR station.

4) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), header lines, date, time and non-fiscal receipt number message lines.

b) An Start Application-Originated Report in CR station (DD cmd.) replicate all lines in SJ station except header lines.

c) Each ordinary line printed in CR Station (EA cmd.) IS replicated in SJ station.

d) The maximum number of ordinary lines in CR station (EA cmd.) are 255.

e) The line-feed print lines in CR station (EC cmd.) IS NOT replicated in SJ station.

f) An End Application-Originated Report in CR station (DE cmd.) ends with a ″*** MALi DEgERi YOK ***″ (C45 msg.).

g) An End Application-Originated Report in CR station (DE cmd.) IS replicated in SJ station.

h) An Start Application-Originated Report in SJ station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), date, time and non-fiscal receipt number message lines.

i) An Start Application-Originated Report in SJ station (DD cmd.) IS replicated in CR station.

j) Each ordinary line printed in SJ station (EA cmd.) IS replicated in CR station.

k) The maximum number of ordinary lines in SJ station (EA cmd.) are 255.

l) The line-feed print lines in SJ station (EC cmd.) IS NOT replicated in CR station.

m) An End Application-Originated Report in SJ station (DE cmd.) ends with a ″*** MALi DEgERi YOK ***″ (C45 msg.).

n) An End Application-Originated Report in SJ station (DE cmd.) IS replicated in CR station.

b. **OUTSIDE SALE PERIOD**

1) **ORDINARY LINES**

a) Printing ordinary lines in CR station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed before and after.

b) Each ordinary line printed in CR Station (EA cmd.) IS replicated in SJ station.

c) The maximum number of ordinary lines in CR station (EA cmd.) are 255.

d) The line-feed print lines in CR station (EC cmd.) is NOT replicated in SJ station.

e) Printing ordinary lines in SJ station (EA cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed before and after.

f) Each ordinary line printed in SJ Station (EA or E9 cmd.) IS replicated in CR station.

g) The maximum number of ordinary lines in SJ station (EA cmd.) are 255.

h) The line-feed print lines in SJ station (EC cmd.) is NOT replicated in CR station.

2) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), header lines, date, time and non-fiscal receipt number.

b) An Start Application-Originated Report in CR station (DD cmd.) replicate all lines in SJ station except header lines.

c) Each ordinary line printed in CR Station (EA cmd.) IS replicated in SJ station.

d) The maximum number of ordinary lines in CR station (EA cmd.) are 255.

e) The line-feed print lines in CR station (EC cmd.) IS NOT replicated in SJ station.

f) An End Application-Originated Report in CR station (DE cmd.) ends with a ″*** MALi DEgERi YOK ***″ (C45 msg.).

g) An End Application-Originated Report in CR station (DE cmd.) IS replicated in SJ station.

h) An Start Application-Originated Report in CR station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), date, time and non-fiscal receipt number.

i) An Start Application-Originated Report in SJ station (DD cmd.) IS replicated in CR station.

j) Each ordinary line printed in SJ station (EA or E9 cmd.) IS replicated in CR station.

k) The maximum number of ordinary lines in SJ station (EA cmd.) are 255.

l) The line-feed print lines in SJ station (EC cmd.) IS NOT replicated in CR station.

m) An End Application-Originated Report in SJ station (DE cmd.) ends with a ″*** MALi DEgERi YOK ***″ (C45 msg.).

n) An End Application-Originated Report in SJ station (DE cmd.) IS replicated in CR station.

2. **FISCAL MODE State**

a. **INSIDE SALE PERIOD**

1) **ORDINARY LINES INSIDE THE ON-LINE FISCAL VOUCHER**

a) After the each A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of ordinary print lines lines in CR station (EA or E9 cmd.) that can be printed are 255.

b) After the each A1, A2, A3, A4, A9, A5 and A8 cmds. and after the last of the 255 ordinary lines in CR station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

c) Each ordinary line printed in CR station (EA cmd.) during an on-line fiscal voucher IS replicated in SJ station.

d) After the A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of line-feed lines in CR station (EC cmd.) that can be printed are 255.

e) The line-feed lines on CR station (EC cmd.) to be NOT replicated on SJ station.

f) After the each A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of ordinary print lines lines in SJ station (EA or E9 cmd.) that can be printed are 255.

g) After the each A1, A2, A3, A4, A9, A5 and A8 cmds. and after the last of the 255 ordinary lines in SJ station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

h) Each ordinary line printed in SJ station (EA or E9 cmd.) during an on-line fiscal voucher IS replicated in CR station.

i) After the A1, A2, A3, A4, A9, A5 and A8 cmds., the maximum number of line-feed lines on SJ station (EC cmd.) that can be printed are 255.

j) The line-feed lines on SJ station (EC cmd.) to be NOT replicated in CR station.

2) **ORDINARY LINES INSIDE THE OFF-LINE VOUCHER**

a) After the each AC and AD cmds., the maximum number of ordinary print lines lines in CR station (EA or E9 cmd.) that can be printed are 255.

b) After the each AC and AD cmds. and after the last of the 255 ordinary lines in CR station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

c) Each ordinary line printed in CR station (EA or E9 cmd.) during an off-line fiscal voucher IS replicated in SJ station.

d) After the AC and AD cmds., the maximum number of line-feed lines in CR station (EC cmd.) that can be printed are 255.

e) The line-feed lines on CR station (EC cmd.) to be NOT replicated on SJ station.

f) After the each AC and AD cmds., the maximum number of ordinary print lines lines in SJ station (EA or E9 cmd.) that can be printed are 255.

g) After the each AC and AD cmds. and after the last of the 255 ordinary lines in SJ station (EA or E9 cmd.) is printed, the fiscal printer returns the ERROR CODE 069 if additional ordinary print lines are requested.

h) Each ordinary line printed in SJ station (EA or E9 cmd.) during an off-line fiscal voucher IS replicated in CR station.

i) After the AC and AD cmds., the maximum number of line-feed lines on SJ station (EC cmd.) that can be printed are 255.

j) The line-feed lines on SJ station (EC cmd.) to be NOT replicated on CR station.

3) **ORDINARY LINES OUTSIDE DOCUMENTS**

a) Printing ordinary lines in CR station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed every 5 lines.

b) Each ordinary line printed in CR Station (EA or E9 cmd.) IS replicated in SJ station.

c) The maximum number of ordinary lines in CR station (EA or E9 cmd.) are 255.

d) The line-feed print lines in CR station (EC cmd.) is NOT replicated in SJ station.

e) Printing ordinary lines in SJ station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed every 5 lines.

f) Each ordinary line printed in SJ Station (EA or E9 cmd.) IS replicated in CR station.

g) The maximum number of ordinary lines in SJ station (EA or E9 cmd.) are 255.

h) The line-feed print lines in SJ station (EC cmd.) is NOT replicated in CR station.

4) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), header lines, date, time and non-fiscal receipt number.

b) An Start Application-Originated Report in CR station (DD cmd.) replicate all lines in SJ station except header lines.

c) The maximum number of ordinary lines can be printed in CR station (EA or E9 cmd.) are 255.

d) The line-feed print lines in CR station (EC cmd.) IS NOT replicated in SJ station.

e) An End Application-Originated Report in CR station (DE cmd.) ends with a ″*** MALi DEgERi YOK ***″ (C45 msg.).

f) An End Application-Originated Report in CR station (DE cmd.) IS replicated in SJ station.

g) An Start Application-Originated Report in SJ station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), date, time and non-fiscal receipt number.

h) An Start Application-Originated Report in SJ station (DD cmd.) IS replicated in CR station.

i) Each ordinary line printed in SJ station (EA cmd.) IS replicated in CR station.

j) The maximum number of ordinary lines can be printed in SJ station (EA or E9 cmd.) are 255.

k) The line-feed print lines in SJ station (EC cmd.) IS NOT replicated in CR station.

l) An End Application-Originated Report in SJ station (DE cmd.) ends with a ″*** MALi DEgERi YOK ***″ (C45 msg.).

m) An End Application-Originated Report in SJ station (DE cmd.) IS replicated in CR station.

b. **OUTSIDE SALE PERIOD**

1) **ORDINARY LINES**

a) Printing ordinary lines in CR station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed every 5 lines.

b) Each ordinary line printed in CR Station (EA or E9 cmd.) IS replicated in SJ station.

c) The maximum number of ordinary lines in CR station (EA or E9 cmd.) are 255.

d) The line-feed print lines in CR station (EC cmd.) is NOT replicated in SJ station.

e) Printing ordinary lines in SJ station (EA or E9 cmd.), the message ″NOT FISCAL (msg. no. M05)″ will be printed every 5 lines.

f) Each ordinary line printed in SJ Station (EA or E9 cmd.) IS replicated in CR station.

g) The maximum number of ordinary lines in SJ station (EA or E9 cmd.) are 255.

h) The line-feed print lines in SJ station (EC cmd.) is NOT replicated in CR station.

2) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), header lines, date, time and non-fiscal receipt number.

b) An Start Application-Originated Report in CR station (DD cmd.) replicate all lines in SJ station except header lines.

c) During an Application-Originated Report in CR station, the ordinary lines (EA or E9 cmd.) ARE replicated in SJ station.

d) During an Application-Originated Report in CR station, the line-feed lines (EC cmd.) are NOT replicated in SJ station.

e) A End Application-Originated report in CR station (DE cmd.) is ended by an inserted ″*** MALi DEgERi YOK ***″ (C45 msg.).

f) An End Application-Originated Report in CR station (DE cmd.) IS replicated in SJ station.

g) An Start Application-Originated Report in SJ station (DD cmd.) starts with a ″*** MALi DEgERi YOK ***″ (C45 msg.), date, time and non-fiscal receipt number.

h) An Start Application-Originated Report in SJ station (DD cmd.) IS replicated in CR station.

i) During an Application-Originated Report to the SJ station, the ordinary lines (EA or E9 cmd.) ARE replicated in CR station.

j) During an Application-Originated Report to the SJ station, the line-feed lines (EC cmd.) are NOT replicated in CR station.

k) An End Application-Originated report in SJ station (DE cmd.) is ended by an inserted ″*** MALi DEgERi YOK ***″ (C45 msg.).

l) An End Application-Originated Report in SJ station (DE cmd.) IS replicated in CR station.

6.8 Printer Commands

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

The printer commands include:

- EA - Ordinary Print Line in CR/SJ Station
- EC - Line Feed
- EE - Cut Customer Receipt
- E8 - Set Number of Dot Rows per Line Feed
- F4 - Head Position & Open/Close Throat

There are no calculations performed for any printer commands.

6.8.1 EA - ORDINARY PRINT LINE IN CR/SJ STATION

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

6.8.1.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command Prefix	hex	2
2		EA - Ordinary Print Line in CR/SJ Station	hex	1
3		Cmd. Extension	hex	1
	7	Reserved (always = '0')		
	6	Station 0 = CR 1 = SJ		
	5-3	Print Typeface 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)		
4-41		EA_Description	ASCII	38

6.8.1.2 Ordinary Print Line in CR/SJ Station Rules

- The string TOTAL in upper, lower, or mixed case is not allowed in the EA_Description field.
- The serial number is allowed in the EA_Description field.
6 • This command can be issued:
6 – Outside any document.
6 – During an application-originated report in CR/SJ stations.
6 – During an on-line fiscal voucher:
6 — After A1 cmd. (On-Line Sale Header) and before A2 cmd. (On-Line Sale Item).
6 — After A5/A8 cmd. (On-Line Sale Payment/Not Paid) and before A6 cmd. (On-Line Sale End).

6.8.2 EC - LINE FEED

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

6.8.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command Prefix	hex	2
2		EC - Line Feed	hex	1
3		Cmd. Extension	hex	1
	7-6	Reserved (always = '0')		
	5-4	Station, Orientation Print and Direction		
		00 = CR		
		01 = SJ		
		10 = Reserved		
		11 = Reserved		
	3-0	Number of Line Feed (min 1, max 15)		

6.8.2.2 Line Feed Rules

- Line Feed requests the fiscal unit to feed the paper a specified number of lines on one of the printer stations.

6.8.3 EE - CUT CUSTOMER RECEIPT

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

6.8.3.1 Command Format

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

6.8.4 E8 - SET NUMBER OF DOT ROWS PER LINE FEED

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).

6.8.4.1 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	
	7-2	Reserved (always = '0')			
	1	SJ Station			(Note 1)
		1 = Set Alternate Value			
		0 = Set Default Value			
	0	CR Station			(Note 2)
		1 = Set Alternate Value			
		0 = Set Default Value			

Note : default = 12 Dot Rows per LF = 6 lines/inch.
alternate = 9 Dot Rows per LF = 8 lines/inch.

Note 1: Values set in SJ station will be equal to values set in CR station.

Note 2: Values set in CR station will apply to values set in SJ station.

6.8.4.2 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.

6.8.5 F4 - HEAD POSITION & OPEN/CLOSE THROAT

This command requests the printer to return the print head to right or left home position.

6.8.5.1 Command Format

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

6.9 Original Equipment Manufacturer Commands

The OEM commands include:

- 00 - System Commands
- E7 - Diagnostic and Alignment Utilities
- F8 - Report Printer EC
- FA - Reset Fiscal Printer
- FB - Run Diagnostics
- FC - Report Microcode EC
- FF - Dump RAM & Fiscal Memory

6.9.1 00 - SYSTEM COMMANDS

6.9.1.1 Command Format

BYTE	BIT	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.

6.9.1.2 System Commands Rules

- This command cannot be used by applications using the IBM device drivers.
  It is intended for device driver use only.

6.9.2 E7 - DIAGNOSTIC AND ALIGNMENT UTILITIES

This command is used to print the data pattern on document insert station.

6.9.2.1 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 Botton 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 Home Head Left		
		0F = DI Home Head Right		
If Cmd. Extension = 00 or 01				
4-4		MCT Number	hex	1
5-5		MCT Value - High Order Byte	hex	1
6-6		MCT Value - Low Order Byte	hex	1

(Continued in the next page)

BYTE	BIT	CONTENT	TYPE	LENGTH
If Cmd. Extension = 03 or 0B				
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				
4	4	MCT Number	hex	1

(Continued in the next page)

Diagnostic and Alignment Utilities continued....

Response for Read MCT Value (Cmd. Extension 05):

BYTE RS-232	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

6.9.3 F8 - REPORT PRINTER EC

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

6.9.3.1 Command Format

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

Response to the Fiscal Unit:

BYTE RS-232	CONTENT	TYPE	LENGTH
0-14	Fiscal Unit Status	hex	15

Response to the Fiscal Device Information:

BYTE	BIT	CONTENT	TYPE	LENGTH
RS-232				
		PRINTER STATUS	hex	6
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 RS-232/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 = fiscal 3 stations thermal/impact (G --> Macarena) 0x02 - 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	BIT	CONTENT	TYPE	LENGTH
RS-232				
		PRINTER STATUS	hex	6
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 RS-232/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

6.9.4 FA - RESET FISCAL PRINTER

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

6.9.4.1 Command Format

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

6.9.4.2 Reset Fiscal Printer Rules

- This command cannot be used by applications using the IBM device drivers. It is intended for device driver use only.

6.9.5 FB - RUN DIAGNOSTICS

This command is used to obtain fiscal unit and printer diagnostics.

6.9.5.1 Command Format

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

6.9.6 FC - REPORT MICROCODE EC

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

6.9.6.1 Command Format

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

Notes:

1. Country Code = x02.
2. For 4610 Hardware Model with:
   - RS-232 communication interface
     Version Code = x05

6.9.7 FF - DUMP RAM & FISCAL MEMORY

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

6.9.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		FF - Dump RAM & 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 Memory 1 = Fiscal Memory		
4-8		Start Address	ASCII	5 (Note 1)
9-13		End Address	ASCII	5 (Note 2)
14-17		Password	ASCII	4

Notes:

1. The RAM memory address range is X'00000' - X'0FFFF'
2. The fiscal memory address range is X'00000' - X'7FFFF'

Response for Electronic Dump will be formatted as follows:

BYTE RS-232	CONTENT	TYPE	LENGTH
0-14	Fiscal Unit Status	hex	15
15-224	Electronic Data	hex	210 (Note 1)

Notes:

1. The data are shown in a block of 210 bytes where valid are only those specified in the command, the rest are padded with zeroes.

6.9.7.2 Dump RAM & Fiscal Memory Rules

- This command can be issued with J4/CE jumper (FJUMPER flag) in ON or OFF position depending of the type report.

7.0 Fiscal Unit Return Codes

7.1 4690 OS Hardware Return Code Descriptions

This list contains information about the return code (RC=*8090xxxx*) in system messages.
If your return code is not listed here - **or** - under "Return Code Descriptions" in the *IBM 4690 OS Store System: Messages Guide*, it is an undefined error.

Note: ***Service the fiscal printer to replace both the fiscal processor card and the fiscal printer.***

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

7.2 DOS/WINDOWS and 4690 OS Return Code Descriptions

006 => DOS/WINDOWS 80900106 => 4690 OS

Explanation: An overflow occurred. Transaction - The number of transactions exceeds the maximum value allowed. The request is not processed.

User Response: Cancel the transaction.

007 => DOS/WINDOWS 80900107 => 4690 OS

Explanation: An overflow occurred. Transaction - The notpaid total exceeds the maximum value allowed. The request is not processed.

User Response: Make the notpaid amount less than or equal to the transaction total.

008 => DOS/WINDOWS 80900108 => 4690 OS

Explanation: An underflow occurred. Transaction - The total, quantity of liters total or one of the VAT category is less than the minimum value allowed. The request is not processed.

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

015 => DOS/WINDOWS 80900115 => 4690 OS

Explanation: The notpaid transaction total is negative. The request is not processed.

User Response: Make the notpaid total greater than or equal to zero.

016 => DOS/WINDOWS 80900116 => 4690 OS

Explanation: An overflow occurred. The daily total or one of the VAT category daily sales totals exceeds the maximum allowed value at total request time. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

023 => DOS/WINDOWS 80900123 => 4690 OS

Explanation: An overflow occurred. The notpaid daily total exceeds the maximum allowed value at end transaction time. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

---

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 match the totals stored in the fiscal memory. The request is not processed.

User Response: Correct the computation procedure of the total, then issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.).

---

025 => DOS/WINDOWS 80900125 => 4690 OS

Explanation: A fiscal rules violation has occurred. The word 'total' (or equivalent) occurs in a message when not allowed or a reserved character is used in the message. The request is not processed.

User Response: Correct the fiscal rules violation and try the command again.

---

026 => DOS/WINDOWS 80900126 => 4690 OS

Explanation: An underflow occurred. A transaction amount was negative at total request time. This return code applies (where applicable) to:

- Transaction total
- VAT total
- VAT category total accumulator
- VAT category VAT accumulator

The request is not processed.

User Response: Make the amount greater than or equal to zero, then issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.).

---

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

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

User Response: Make the amount less than the maximum allowed value, then issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.).

---

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

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

User Response: Make the amount less than the maximum allowed value, then issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.).

029 => DOS/WINDOWS 80900129 => 4690 OS

Explanation: Tender is not completed. The payment total was less than the transaction total. The request is not processed.

User Response: Use the rectify option on the payment command or issue an additional payment command to complete processing.

---

030 => DOS/WINDOWS 80900130 => 4690 OS

Explanation: An overflow ocurred. Daily - The number of transactions exceeds the maximum value allowed at end transaction time. The request is not processed.

User Response: Cancel the transaction.

User Response: Issued an on-line sale end (A6 cmd.)/off-line sale end (AE cmd.) or on-line cancel (A7 cmd.) and issue a close sale period (13 cmd.).

---

031 => DOS/WINDOWS 8090061F => 4690 OS

Explanation: An underflow occurred. The sum of the discount on subtotal operations in this sale transaction is less than the minimum allowed value. The request is not processed.

User Response: Make the amount greater than or equal to the minimum allowed value, then issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.).

---

032 => DOS/WINDOWS 80900620 => 4690 OS

Explanation: An underflow occurred. The sum of the uplift on subtotal operations in this sale transaction is less than the minimum allowed value. The request is not processed.

User Response: Make the total greater than or equal to zero, then issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.).

---

039 => DOS/WINDOWS 80900627 => 4690 OS

Explanation: The command sequence is not valid. A command was requested that is not allowed after an discount command. The request is not processed.

User Response: Check the application program sequence.

---

040 => DOS/WINDOWS 80900628 => 4690 OS

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

User Response: Correct the application program.

---

041 => DOS/WINDOWS 80900629 => 4690 OS

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

User Response: Check the application program. The program must issue a set VAT rate table (20 cmd.) before further operations are 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 rate table and issue the command again.

---

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

Explanation: The VAT rate table is full. The request is not processed.

User Response: The fiscal base unit must be exchanged in order to set new VAT table rates or the new entry loaded in RAM memory must be equal at the lastest entry set in the VAT rate table in fiscal memory.

---

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

Explanation: The VAT category specified in item sale or negative item sale command is not valid or the data supplied with the set VAT rate table (20 cmd.) is not valid.
For example, entering a non-zero rate for a category that must be equal to a rate of zero. The request is not processed.

User Response: Correct the application program.

---

047 => DOS/WINDOWS 8090062F => 4690 OS

Explanation: The decimal point is already reset. The request is not processed.

User Response: No action is required.

---

048 => DOS/WINDOWS 80900630 => 4690 OS

Explanation: An overflow occurred. The sum of the daily operations for discount on subtotal exceeds the maximum allowed value at end transaction time. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

---

049 => DOS/WINDOWS 80900631 => 4690 OS

Explanation: An overflow occurred. The sum of the daily operations for uplift on subtotal exceeds the maximum allowed value. The request is not processed.

User Response: Make the total less than or equal to the maximum allowed value, issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

---

050 => DOS/WINDOWS 80900632 => 4690 OS

Explanation: An underflow occurred. The sum of the daily operations for discount on subtotal is less than the minimum allowed value. The request is not processed.

User Response: Make the total greater than the minimum allowed value, issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

051 => DOS/WINDOWS 80900633 => 4690 OS

Explanation: An overflow occurred. The sum of the daily operations for the uplift on subtotal total is less than the minimum allowed value. The request is not processed.

User Response: Make the total greater than the minimum allowed value, issue an on-line sale end (A6 cmd.) or on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

---

052 => DOS/WINDOWS 80900634 => 4690 OS

Explanation: The uplift and discount on subtotal (D9 cmd.) are not allowed when the transaction total is equal to zero.

User Response: Adjust the transaction total or issue an on-line sale cancel (A7 cmd.).

---

053 => DOS/WINDOWS 80900635 => 4690 OS

Explanation: The requested time used on the set date and time (16 cmd.) is previous to the date of the last closure stored in daily entry table in fiscal memory. The request is not processed.

User Response: Either correct the time sent to the fiscal printer or, if the fiscal printer time differs from the actual time by more than the allowed range, call for service.

---

055 => DOS/WINDOWS 80900203 => 4690 OS

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

User Response: Check the application program.

---

056 => DOS/WINDOWS 80900150 => 4690 OS

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

User Response: Make the total less than or equal to the maximum allowed value, issue an on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

---

057 => DOS/WINDOWS 80900151 => 4690 OS

Explanation: An underflow occurred. The daily cancel total is less than the minimum allowed value at cancel transaction time. The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, issue an on-line sale cancel (A7 cmd.) and then issue a close sale period (13 cmd.).

---

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

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

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

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

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

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

---

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

Explanation: An overflow occurred. The transaction total, quantity of liters or one of the VAT category transaction totals exceeds the maximum value allowed. The request is not processed.

User Response: Issue an end transaction or cancel transaction command.

---

064 => DOS/WINDOWS 80900127 => 4690 OS

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

User Response: Correct the value and try the operation again.

---

065 => DOS/WINDOWS 80900201 => 4690 OS

Explanation: A request was sent to the fiscal unit and the fiscal command byte is not recognized. The request is not processed.

User Response: Check the application program.

---

066 => DOS/WINDOWS 80900202 => 4690 OS

Explanation: A request was sent to the fiscal unit and the fiscal command byte extension is not 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 occurred.

User Response: No action is required.

---

069 => DOS/WINDOWS 80900205 => 4690 OS

Explanation: An attempt was made to print a line in CR or SJ station that exceeds the maximum number of ordinary print lines allowed during an on-line fiscal voucher. The request is not processed.

User Response: Either issue an on-line sale end (A6 cmd.) or an on-line sale cancel (A7 cmd.) before printing the ordinary print lines.
If this error occurred during the online printer diagnostic test, it indicates that the test cannot be completed because an on-line sale transaction is in progress.
Either have the salesperson end the transaction, or diagnose the printer problem using the offline printer test that is invoked by pressing the keys on the printer in the correct sequence.

---

071 => DOS/WINDOWS 80900302 => 4690 OS

Explanation: An error occurred while printing in CR station. The request is not processed.

User Response: If the error continues, service the printer.

072 => DOS/WINDOWS 80900207 => 4690 OS

Explanation: The print operation requested during training mode is not valid. The request is not processed.

User Response: Check the application program.

---

076 => DOS/WINDOWS 80900210 => 4690 OS

Explanation: Invalid print station selected. The request is not processed.

User Response: Correct the print station and issue the command again.

---

077 => DOS/WINDOWS 80900211 => 4690 OS

Explanation: An attempt was made to print a line in SJ station outside an on-line sale transaction during training mode. The request is not processed.

User Response: Check the application program.

---

078 => DOS/WINDOWS 80900304 => 4690 OS

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

User Response: If the error continues, service the printer.

---

081 => DOS/WINDOWS 80900651 => 4690 OS

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

User Response: Specify a valid print typeface.

---

082 => DOS/WINDOWS 80900306 => 4690 OS

Explanation: A request to print in CR or SJ station was made without the correct application-originated report mode selected. The request is not processed.

User Response: Check the application program sequence.

---

083 => DOS/WINDOWS 80900307 => 4690 OS

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

User Response: Service the printer.

---

085 => DOS/WINDOWS 80900309 => 4690 OS

Explanation: The VAT rate for this VAT category is not valid. The request is not processed.

User Response: Check the application program.

---

086 => DOS/WINDOWS 80900401 => 4690 OS

Explanation: The password entered is not valid or the maximum number of attempts to enter the correct password was exceeded. The request is not processed.

User Response: Reenter the correct password or, if the maximum number of attempts was exceeded, use the J4/CE jumper to restore normal operation.

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

087 => DOS/WINDOWS 80900657 => 4690 OS

Explanation: The printer command received by the fiscal printer is not valid. The request is not processed.

User Response: Issue a valid printer command.

---

088 => DOS/WINDOWS 80900311 => 4690 OS

Explanation: The fuel types table is full. The request is not processed. All fiscal commands are rejected except the fiscal memory report (15 cmd.).

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

---

089 => DOS/WINDOWS 80900312 => 4690 OS

Explanation: The daily entry table is full. The request is not processed. All fiscal commands are rejected except the fiscal memory report (15 cmd.).

User Response: Service the printer.

---

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

Explanation: The requested closure number was not found in the daily entry table. The request is not processed.

User Response: Specify a valid closure number or valid dates for the fiscal memory report (15 cmd.).

---

091 => DOS/WINDOWS 80900314 => 4690 OS

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

User Response: Turn the power OFF and ON again. If the error continues, service the printer.

---

092 => DOS/WINDOWS 80900315 => 4690 OS

Explanation: The requested internal table register was not found in the fiscal memory. The request is not processed.

User Response: Specify a valid table entry.

---

093 => DOS/WINDOWS 80900316 => 4690 OS

Explanation: The extended daily entry table or the off-line events table is full. The request is not processed. All fiscal commands are rejected except the fiscal memory report (15 cmd.) and the close sale period (13 cmd.).

User Response: The fiscal base unit must be replaced to set new entries in the table.

---

095 => DOS/WINDOWS 80900425 => 4690 OS

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

User Response: Correct the input data.

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 issue the command again.

---

097 => DOS/WINDOWS 80900410 => 4690 OS

Explanation: RAM is in error or does not match the fiscal memory.

User Response: Service the printer. The J4/CE jumper procedure is required.

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

---

098 => DOS/WINDOWS 80900411 => 4690 OS

Explanation: RAM is restored.

User Response: Remove the J4/CE jumper to restore normal operation.

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

---

099 => DOS/WINDOWS 80900318 => 4690 OS

Explanation: The repair actions table is full. The request is not processed. All fiscal commands are rejected except the fiscal memory report (15 cmd.).

User Response: Exchange the fiscal base unit at the next failure occurrence.

---

100 => DOS/WINDOWS 80900329 => 4690 OS

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

User Response: Service the printer.

---

101 => DOS/WINDOWS 80900326 => 4690 OS

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

User Response: Service the printer.

---

103 => DOS/WINDOWS 80900421 => 4690 OS

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

User Response: Correct the input data.

---

104 = DOS/WINDOWS 80900360 = 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.

105 = DOS/WINDOWS 80900361 = 4690 OS

Explanation: The barcode size is invalid. The request is not processed.

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

---

106 => DOS/WINDOWS 80900362 => 4690 OS

Explanation: An unexpected command error occurred. The request is not processed.

User Response: If the error continues, service the fiscal printer.

---

109 => DOS/WINDOWS 80900324 => 4690 OS

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

User Response: Service the printer. When servicing, first check to ensure the cable connections on the fiscal processor card are correct.
The J4/CE jumper procedure is required when the fiscal memory is reconnected.

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

---

112 => DOS/WINDOWS 80900670 => 4690 OS

Explanation: The fiscal printer was reset.

User Response: No action is required.

---

113 => DOS/WINDOWS 80900341 => 4690 OS

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

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

---

114 => DOS/WINDOWS 80900363 => 4690 OS

Explanation: A printer communication error occurred.

User Response: Service the printer.

---

119 = DOS/WINDOWS 80900677 = 4690 OS

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

User Response: Issue a reset fiscal printer (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. Byte 4 is greater than 72. This cmd. cannot be sent when a print or download graphics occurs.

User Response: Correct the value and issue the print and download graphics (CA cmd. - 00, 01 or 02 cmd. extension) again.

---

124 = DOS/WINDOWS 8090067C = 4690 OS

Explanation: Graphic with same number already in printer flash.

User Response: The user attempted to download a graphic using a number already in printer flash.

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

---

125 = DOS/WINDOWS 8090067D = 4690 OS

Explanation: Invalid graphic number.

Correct the graphic number and issue the print and download graphics (CA cmd. - 02, 11 or 12 cmd. extension) again.

---

128 => DOS/WINDOWS 80900320 => 4690 OS

Explanation: Fiscal memory is not serialized. The request is not processed.

User Response: Service the printer.

---

129 => DOS/WINDOWS 80900321 => 4690 OS

Explanation: The fiscal unit is not fiscalized (operating in fiscal mode). The request is not processed.

User Response: Call for service to set the fiscal mode.

---

134 => DOS/WINDOWS 80900325 => 4690 OS

Explanation: The fiscal unit detected an internal hardware error. The request is not processed.

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

---

135 => DOS/WINDOWS 80900220 => 4690 OS

Explanation: The command is not valid outside of a sale period. The request is not processed.

User Response: Issue an x-report (14 cmd.).

---

136 => DOS/WINDOWS 80900221 => 4690 OS

Explanation: An on-line sale transaction cmd. was issued while an on-line sale transaction 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 types 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: An on-line fiscal voucher command was issued before printing the store header. The request is not processed.

User Response: Correct the application program sequence.

---

141 => DOS/WINDOWS 80900226 => 4690 OS

Explanation: A command was issued that is not allowed before the on-line sale subtotal/total (A4 cmd.) is successfully executed. The request is not processed.

User Response: Correct the application program sequence.

---

142 => DOS/WINDOWS 80900227 => 4690 OS

Explanation: The on-line payment procedure is not in progress. The request is not processed.

User Response: Correct the application program sequence.

---

143 => DOS/WINDOWS 80900228 => 4690 OS

Explanation: Training mode is not selected. The request is not processed.

User Response: Change the application program or set training mode on.

---

144 => DOS/WINDOWS 80900229 => 4690 OS

Explanation: The command was issued before the store header was set. The request is not processed.

User Response: Correct the application program sequence to set the store headers before issuing this command.

---

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 80900692 => 4690 OS

Explanation: An off-line sale cmd. was issued while the off-line sale voucher is not in progress. The request is not processed.

User Response: Correct the application program sequence.

147 => DOS/WINDOWS 80900693 => 4690 OS

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

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

152 => DOS/WINDOWS 80900698 => 4690 OS

Explanation: An error ocurred during an off-line sale end (AE cmd.) The request is not processed.

User Response: Issue the off-line sale end (AE cmd.) again. If this error was encountered during an online printer diagnostic test, it indicates that the test cannot be completed because an off-line sale transaction is in progress. The off-line sale end (AE cmd.) must be sent in order to complete the transaction.

153 => DOS/WINDOWS 80900699 => 4690 OS

Explanation: An error ocurred during an off-line sale cancel (AF cmd.) The request is not processed.

User Response: Issue the off-line sale cancel (AF cmd.) again. If this error was encountered during an online printer diagnostic test, it indicates that the test cannot be completed because an off-line sale transaction is in progress. The off-line sale cancel (AF cmd.) must be sent in order to complete the transaction.

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

Explanation: The date and time is not set by application program. The request is not processed.

User Response: Correct the application program sequence.

160 => DOS/WINDOWS 80900330 => 4690 OS

Explanation: Fiscal memory is serialized. The request is not processed.

User Response: No action is required.

161 => DOS/WINDOWS 80900331 => 4690 OS

Explanation: The fiscal unit is fiscalized (operating in fiscal mode). The request is not processed.

User Response: No action is required.

164 => DOS/WINDOWS 80900350 => 4690 OS

Explanation: The power-on sequence is in progress.

User Response: No action is required.

166 => DOS/WINDOWS 809006A6 => 4690 OS

Explanation: An command not related to an off-line sale was issued while an off-line sale voucher is in progress. The request is not processed.

User Response: Correct the application program sequence.

167 => DOS/WINDOWS 80900230 => 4690 OS

Explanation: The requested command cannot be issued while a sale period is in progress. The request is not processed.

User Response: Issue the close sale period (13 cmd.) and then issue the command again.

168 => DOS/WINDOWS 80900231 => 4690 OS

Explanation: A command not related to an on-line sale transaction was issued while an on-line sale transaction is in progress. The request is not processed.

User Response: Check the application program.

172 => DOS/WINDOWS 80900235 => 4690 OS

Explanation: Only an on-line sale transaction command is accepted after the store header is printed. The request is not processed.

User Response: Check the application program.

173 => DOS/WINDOWS 80900236 => 4690 OS

Explanation: After the on-line sale subtotal/total (A4 cmd.) was issued, the command sequence is not valid. The request is not processed.

User Response: Check the application program.

174 => DOS/WINDOWS 80900237 => 4690 OS

Explanation: The on-line payment is in progress. The request is not processed.

User Response: After the on-line payment processing is complete, issue the request again.

175 => DOS/WINDOWS 80900238 => 4690 OS

Explanation: Training mode is in progress. The request is not processed.

User Response: Correct the application program sequence.

176 = DOS/WINDOWS 80900239 = 4690

Explanation: The fiscal unit detected an internal hardware error. The request is not processed.

User Response: Service the printer.

180 => DOS/WINDOWS 809006B4 = 4690 OS

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

User Response: Service the printer.

181 = DOS/WINDOWS 809006B5 = 4690 OS

Explanation: RAM is in error. Return to the FB cmd.

User Response: Service the printer.

6 **182 => DOS/WINDOWS 809006B6 => 4690 OS**

6 **Explanation:** An error occurred during an on-line sale end (A6 cmd.). The request is not processed.

6 **User Response:** Issue the on-line sale end (A6 cmd.) again. If this error was encountered during the online
6 printer diagnostic test, it indicates that the test cannot be completed because an on-line sale transaction is in
6 progress. The on-line sale end (A6 cmd.) must be sent in order to complete the transaction.

---

6 **183 => DOS/WINDOWS 809006B7 => 4690 OS**

6 **Explanation:** An error occurred during an on-line sale cancel (A7 cmd.). The request is not processed.

6 **User Response:** Issue the on-line sale cancel (A7 cmd.) again. If this error was encountered during the
6 online printer diagnostic test, it indicates that the test cannot be completed because an on-line sale
6 transaction is in progress. The on-line sale end (A7 cmd.) must be sent in order to complete the transaction.

---

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

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

User Response: Check the application program sequence.

---

185 => DOS/WINDOWS 809006B9 => 4690 OS

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

User Response: Service the printer.

---

186 = DOS/WINDOWS 809006BA = 4690 OS

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

User Response: Insert the jumper and reinitialize the printer.

If the problem persists, service the printer.

---

187 => DOS/WINDOWS 809006BB => 4690 OS

Explanation: Block read from fiscal memory empty. The request is not processed.

User Response: Check the application program.

---

192 => DOS/WINDOWS 80900524 => 4690 OS

Explanation: The command is rejected from the printer logic card. The request is not processed.

User Response: Check for a device driver programming error.

---

194 => DOS/WINDOWS 80900521 => 4690 OS

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

User Response: If the problem persists, service the printer.

201 => DOS/WINDOWS 80900528 => 4690 OS

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

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

---

202 => DOS/WINDOWS 80900527 => 4690 OS

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 keybutton is pressed. The request is not processed.

User Response: Release the pressed keybutton. If a keybutton is not pressed, service the printer.

---

206 => DOS/WINDOWS 80900525 => 4690 OS

Explanation: SJ paper error or SJ cover open occurred. The request is not processed.

User Response: Ensure the paper is installed correctly or close the SJ cover. If the problem persists, service the printer.

---

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

Explanation: The download graphic or logo or set character is corrupted. The request is not processed.

User Response:

- If the download graphic is corrupt: The graphics must be initialized. Erase all graphics from printer flash using CA cmd. (Cmd. Extension 10) and the issued CA cmd. (Cmd. Extension 02) again.
- If the logo or set character is corrupted: Service the printer.

---

209 => DOS/WINDOWS 809006D1 => 4690 OS

Explanation: SJ cover is opened. The request is not processed.

User Response: Close the SJ cover and issue the command print again.

---

214 => DOS/WINDOWS 80900527 => 4690 OS

Explanation: A feed paper error occurred. The request is not processed.

User Response: Ensure that the paper is inserted correctly.

---

235 => DOS/WINDOWS 809006EB => 4690 OS

Explanation: EPROM load error. The request is not processed.

User Response: Service the printer.

7.3 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 7.0, “Fiscal Unit Return Codes” on page 167.

Table 15 (Page 1 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900102	002
80900103	003
80900104	004
80900105	005
80900107	007
80900108	008
80900110	010
80900111	011
80900112	012
80900113	013
80900115	015
80900116	016
80900118	018
80900119	019
80900120	020
80900121	021
80900123	023
80900124	024
80900125	025
80900126	026
80900127	064
80900129	029
80900130	030
80900132	111
80900140	096
80900142	034
80900143	035
80900144	036
80900145	037
80900146	038
80900150	056
80900151	057
80900201	065
80900202	066
80900203	055
80900204	068
80900205	069
80900207	072
80900209	075
80900210	076
80900211	077
80900212	079
80900213	080
80900220	135
80900221	136
80900222	137
80900223	138
80900224	139
80900225	140
80900226	141

Table 15 (Page 1 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900227	142
80900228	143
80900229	144
80900230	167
80900231	168
80900232	169
80900234	171
80900235	172
80900236	173
80900237	174
80900238	175
80900239	176
80900302	071
80900303	073
80900304	078
80900306	082
80900307	083
80900309	085
80900311	088
80900312	089
80900314	091
80900315	092
80900316	093
80900318	099
80900320	128
80900321	129
80900322	130
80900324	109
80900325	134
80900326	101
80900327	102
80900329	100
80900330	160
80900331	161
80900341	113
80900350	164
80900360	104
80900361	105
80900363	114
80900401	086
80900410	097
80900411	098
80900421	103
80900425	095
80900521	194
80900522	203
80900524	192
80900525	206
80900526	205
80900527	202

Table 15 (Page 2 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900527	214
80900528	201
8090061B	027
8090061C	028
8090061F	031
80900620	032
80900628	040
80900629	041
8090062A	042
8090062B	043
8090062C	044
8090062F	047
80900630	048
80900631	049
80900632	050
80900633	051
80900634	052
80900635	053
8090063A	058
8090063B	059
8090063D	061
80900643	067
80900646	070
80900651	081
80900657	087
8090065A	090
80900670	112
80900677	119
80900678	120
80900679	121
8090067B	123
8090067C	124
8090067D	125
80900684	132
80900691	145
80900692	146
80900693	147
6 80900698	152
6 80900699	153
8090069D	157
8090069E	158
809006A6	166
809006B4	180
809006B5	181
809006B6	182
809006B7	183
809006B8	184
809006B9	185
809006BA	186
809006BB	187
809006BD	189
809006D0	208
809006D1	209
809006D2	210
809006EB	235
80900701	115
80900702	116
80900703	117
80900704	118
8090070D	200
80900711	204

Table 15 (Page 2 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

8.0 Fiscal Software and Hardware Interface Information

8.1 Supported Printer Typefaces

The following bigtop print modes are supported:

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

The print typeface is controlled by the application program by setting the required bits in the command extension.
The selected print typeface applies to all characters of the same line.

8.2 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 send the same command again (retry) or send any other command that is valid for the procedure in progress.

To warn the operator that the same line could appear more than once for the same item, an overlay string ### is provided by microcode.
This overlay operation is activated when the device driver sets the retry bit in the repeated command.
In response to a retry operation from the application program, the retry bit is set, allowing the ### string to overlay the characters on the slip.
The retry bit has effect only on the following commands, but it may be used on all other fiscal commands with no adverse effect.
The string ### overlays the first three characters of the printed line.

- On-Line Sale Item
- On-Line Sale Payment
- On-Line Sale Not Paid
- On-Line Sale Subtotal/Total

The only exceptions to this overlay process occur during the following commands: close sale period, fiscal memory report, end transaction or cancel transaction:.

- **Close Sale Period (13 cmd.) –** On receipt of the first command after error, the closure is completed in one of the following two ways:

  Fiscal Memory Already Updated - The close sale period command is terminated as if the error did not occur.

  Fiscal Memory Not Yet Updated - The daily data is restored as it was before the close sale period command and the closure report printout is voided.

- **Fiscal Memory Report (15 cmd.)** – On receipt of first command after an error, the function is terminated and the fiscal memory report is voided.
- **On-Line Sale End (A6 cmd.)** – Only the end transaction or cancel transaction commands are accepted.
- **On-Line Sale Cancel (A7 cmd.)** – Only the cancel transaction command is accepted.

8.3 Power Line Disturbance (PLD)

When a PLD occurs the fiscal unit goes into 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 at PLD time). A bit (PLD bit) is included in the IPL status sent over the communication link. The PLD bit indicates to the Application that the last command sent was not executed because of PLD.
The IPL routines restore the accumulators and counters to their original values, but no actions can be performed on totally or partially printed lines.
To warn the operator that the same line could appear more than once for the same item, an overlay string (###) is provided by microcode. This overlay operation is activated when the device driver sets the retry bit in the repeated command. In response to a retry operation from the application program, the retry bit is set, allowing the ### string to overlay the characters on the slip.
The retry bit has effect only on the following commands, but it may be used on all other fiscal commands with no adverse effect. The string ### overlays the first 3 characters of the printed line.

- On-Line Sale Item
- On-Line Sale Payment
- On-Line Sale Not Paid
- On-Line Sale Subtotal/Total

The only exceptions to this overlay process occurs during the following commands:

- **Close Sale Period (13 cmd.) –** On IPL completion, after a PLD, the closure is completed in one of the following two ways:

  Fiscal memory already updated - The close sale period command is terminated as if the PLD did not occur.

  Fiscal memory not yet updated - The daily data is restored as it was before the close sale period command and the closure report printout is voided.

- **Fiscal Memory Report (15 cmd.) –** On IPL completion, after a PLD, this function is terminated and the fiscal memory report printout is voided.

9.0 Turkey - Specific Information

This chapter contains information that is specific to Turkey:

- Character Set

10.0 Suggestions for Application Developers

This chapter is to suggest some hints for the application programs to improve the performance.

- If the totals in regular vouchers are calculated by the application instead of be requested to the fiscal printer, generally takes less time.
- **ONLY FOR RS-232**
  After a PLD, read the ″PLD STATUS″ bit to determine if the last command sent before the PLD was executed or not. This should avoid duplication of interrupted commands.
  For 4610 SureMark RS-232 - GD5 Model: see 2.1, “For GD5 Models (RS-232)” on page 19 (byte 8 - bit 4).
- We recommend the usage the DA (Electronic Read Fiscal Memory Tables) and DB (Electronic Read Counters and Accumulators) commands after any type of interrupts, like power down, paper out to determine the state of the fiscal printer and the values of internal counters and accumulators to allow the continuation of the current document in progress, if any.
  Fiscal memory tables can also be interrogated.
- In some countries, all the header and trailer lines are not mandatory, so the use of less lines result in a better performance.
- PLD or paper out during on-line sale end (A6 cmd.)
  After a PLD or paper out during the on-line sale end (A6 cmd.) execution, applications will know whether to cancel or re-end the transaction, querying the value of FENDTRA flag via DB command.
  This value could be located in the DB Electronic Response (Byte 34 - bit 2 = End in Progress). See 6.2.4.2, “Response to the Electronic Read Counters and Accumulators” on page 78
  If this bit is OFF, it means that Fiscal Logo was not printed and the application is able to perform a on-line sale cancel (A7 cmd.).
  Else, if this bit is ON, it means that the fiscal microcode will only accept to finish the on-line sale voucher with the reexecution of on-lin sale end (A6 cmd.) because the Fiscal Logo was printed or was about to be printed (*). So, in this case, the applications are forced to resend the on-line sale end (A6 cmd.).
  (*) When I mean ″...Fiscal Logo was about to be printed″, it means that it might be no visible sign of the Fiscal Logo being printed on paper, but the request of the microcode to print the Fiscal logo was already performed and stored into 4610 SureMark printing′s queue to be inmediately printed.