IBM 4610 SureMark Fiscal Printer
Turkey - Models GR3/GR5/GB3/GB5
Programming Guide Supplement
Version 21 01

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Reviewers

Version	Reviewers
All versions	Erkut Erdemir - Turkey Marketing

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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
v21 01	Jan 7, 2004	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 21.
v20 01	Dic 22, 2004	• Commands: – 18 cmd. (Set Fiscal Mode): the rules were changed. – 19 cmd. (Currency Management): the rules were changed. • Training Mode: – the rules were changed. • This version of Programming Guide Supplement corresponds to microcode EC level 20.
v19 01	Sep 2, 2004	• There are not changes for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 19.
v18 01	Aug 27, 2004	• There are not changes for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 18.
v17 01	Aug 8, 2004	• Commands: – 18 cmd. (Set Fiscal Mode): calculation and rules were added. – 19 cmd. (Currency Management): rules were added. – D5 cmd. (Payment): payment types were changed. – 06 cmd. (End Transaction): calculation were changed. – 07 cmd. (Cancel Transaction): calculation were changed. – 13 cmd. (Close Sale Period): calculation were changed. – DB cmd. (Electronic Read Counters and Accumulators): note 2 was changed. • Printouts: – X-Report (Old Lira): was changed. – X-Report (New Lira): was changed. – Closure Report (Old Lira): was changed. – Closure Report (New Lira): was changed. – Extended Fiscal Memory Report (Old Lira): was changed. – Extended Fiscal Memory Report (New Lira): was changed. – Short Fiscal Memory Report (Old Lira): was changed. – Short Fiscal Memory Report (New Lira): was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 17.
v14 01	May 23, 2004	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 14.

Version	Date	Change Description
v13 01	May 4, 2004	• Lifetime Accumulators for old and new Lira: were created. • Fiscal Memory: – fiscal memory map was changed. – new Lira table was added. • 13 cmd. (Close Sale Period): – calculation of lifetime accumulators for old Lira were added. – calculation of lifetime accumulators for new Lira were added. • 19 cmd. (Currency Management): set new Lira was added. • DA cmd. (Electronic Read Fiscal Memory Tables): – read new Lira table was added. – response of daily entry table was changed. • 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, D09 and D10: were created. • Fiscal Voucher: – for new Lira was added. • X-Report: – for old Lira was changed. – for new Lira was added. • Closure Report: – for old Lira was changed. – for new Lira was added. • Fiscal Memory Report: – for old Lira was changed. – for new Lira was added. • This version of Programming Guide Supplement corresponds to microcode EC level 13.
v10 01	May 19, 02	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 10.
v0F 01	Mar 18, 02	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 0F.
v0E 01	Dic 23, 02	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 0E.
v0D 01	Dic 6, 02	• F7 cmd. (Command Buffer Management): was added. • This version of Programming Guide Supplement corresponds to microcode EC level 0D.
v0C 01	Nov 26, 02	• RC 201: was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 0C.
v0B 01	Jul 22, 02	• CD cmd. (Cash Drawer Management): was added. • This version of Programming Guide Supplement corresponds to microcode EC level 0B.

Version	Date	Change Description
v0A 02	Jun 13, 02	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 0A.
v07 01	Mar 13, 02	• There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 07.
v06 03	Jan 3, 02	• F4 cmd. (Head Position & Open/Close Throat): open and close throat were added. • This version of Programming Guide Supplement corresponds to microcode EC level 06.
v05 01	Dic 11, 01	• Printer and Fiscal Unit Status - GB3/GB5 Models (USB): byte 10 was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 05.
v04 02	Nov 28, 01	• RC's 193, 213, 225, 226 and 237: were eliminated. • RC's 204, 210 and 235: were added. • RC's 200, 203, 206 and 214: were changed. • Msg's 108, 109, 110, 111 and 112: were added. • The accumulators Tra_Pay_Type_0, Tra_Pay_Type_1, Tra_Pay_Type_2, Tra_Pay_Type_3, Tra_Pay_Type_4, Tra_Payment, Day_Pay_Type_0, Day_Pay_Type_1, Day_Pay_Type_2, Day_Pay_Type_3, Day_Pay_Type_4 and Day_Payment: were added. • D5 cmd. (Payment): payment types were added. • D8 cmd. (Not Paid): new accumulators were added. • 06 cmd. (End Transaction): payment accumulators were added. • DB cmd. (Electronic Read Counters and Accumulators): payment types accumulators are showed. • 1C cmd. (Set Training Mode Off): was eliminated. • 1D cmd. (Set Training Mode On): was eliminated. • X-Report and Closure Report: daily payment types accumulators are printed. • Fiscal Memory size: was changed to 512 Kbytes (524288 bytes) - Type 27C040. • This version of Programming Guide Supplement corresponds to microcode EC level 04.
v04 01	Oct 30, 01	• Printer and Fiscal Unit Status - GB3/GB5 Models (USB): was added. • This version of Programming Guide Supplement corresponds to microcode EC level 04.

Version	Date	Change Description
v03 01	Oct 10, 01	• E0 cmd. (Print Fiscal, Return and Diplomatic Receipt): was changed. • E3 cmd. (End Fiscal, Return and Diplomatic Receipt): was changed. • 0F cmd. (Cancel Fiscal, Return and Diplomatic Receipt): was changed. • E2 cmd. (Print Waybill Receipt): was changed. • E5 cmd. (End Waybill Receipt): was changed. • 11 cmd. (Cancel Waybill Receipt): was changed. • C0 cmd. (Print Credit Card Slip): was changed. • C1 cmd. (End Credit Card Slip): was changed. • DD cmd. (Start Application-Originated Report): was changed. • EB cmd. (Ordinary Print Line on DI Station): was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 03.
v02 02	Oct 04, 01	• 13 cmd. (Close Sale Period): new calculations were added. • X-Report Printout: was changed. • Closure Report: was changed. • Application-Originated Report on DI Printout: was changed. • Turkish Character 0x8D (141): was added. • Fiscal Logo for Thermal Station: was added. • This version of Programming Guide Supplement corresponds to microcode EC level 02.
v01 01	Jun 26, 01	• DD cmd. (Start Application-Originated Report): was changed. • EB cmd. (Ordinary Print Line on DI Station): was changed. • EC cmd. (Line Feed): in DI station, the line feed is portrait only. • EE cmd. (Cut Customer Receipt): cmd. extension 00 was added. • ED cmd. (Ready Document): cmd. extension 01 was added. • EF cmd. (Document Eject): for portrait orientation print only. • E0 cmd. (Print Fiscal, Return and Diplomatic Receipt): was changed. • E3 cmd. (End Fiscal, Return and Diplomatic Receipt): was changed. • E7 cmd. (Diagnostic and Alignment Utilities): was changed. • 0F cmd. (Cancel Fiscal, Return and Diplomatic Receipt): was changed. • E2 cmd. (Print Waybill Receipt): was changed. • E5 cmd. (End Waybill Receipt): was changed. • 11 cmd. (Cancel Waybill Receipt): was changed. • C0 cmd. (Print Credit Card Slip): was changed. • C1 cmd. (End Credit Card Slip): was changed. • C3 cmd. (Line Feed Credit Card Slip): was changed. • C8 cmd. (Set Barcode Parameters): was added. • C9 cmd. (Print Barcode): was added. • CA cmd. (Print and Download Graphics): was added. • E8 cmd. (Set Number of Dot Rows per LF): DI station landscape was added. • F4 cmd. (Head Position & Open/Close Throat): was changed to right and left. • F8 cmd. (Report Printer EC): cmd. extension 01 and 02 were added. • RC's 104, 105, 119, 123, 124, 125, 208 and 209: were added. • This version of Programming Guide Supplement corresponds to microcode EC level 01.

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
- Document Insert Station (DI) – impact printing (GR3 and GB3 models only)
- User defined character sets
- RS-485 communication interfaces   (only GR3 and GR5 models)
- USB   communication interfaces   (only GB3 and GB5 models)
- Barcode printing capability   (all stations)
- PDF417 barcode generation   (CR and SJ stations only)
- Paper Cutter   (CR station only)

1.1.2 Models

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

  Where:
      in MODEL, G = fiscal printer with 3 stations (thermal/impact)
```

1.1.3 Characters Per Inch

- Thermal Printing (CR and SJ stations)

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

- Impact Printing (DI stations

  - 15 CPI => 47 characters/line
  - 12 CPI => 37 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-485, a DS80C320 microprocessor is used to process the data and perform arithmetic.

For 4610 SureMark USB, 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 IBM fiscal printer can store 3840 days of data at 64 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 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 GR3/GR5 Models (RS-485)

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

For compatibility reasons, the printer status bytes received from the 4610 are mapped in the closest possible way to the model 3 status bytes.
The "MAPPED FROM" column shows from which byte/bit of the 4610 status bytes was the returned taken form.

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

BYTE	BIT	CONTENT	MAPPED FROM BYTE	BIT
0		PRINTER UNIT STATUS	n/a	
	0 (LSB)	COMMAND COMPLETE Set to 1 when the command is complete.		
	1	LEFT HOME POSITION Set to 1 when the print head is in the left home position.	1	2
	2	RESERVED (Always = '0')	n/a	
	3	MICR PRESENT Set to 1 when the micr is present.	n/a	
	4	RESERVED (Always = '0')	n/a	
	5	HOME ERROR	3	1
	6	DOCUMENT ERROR The document not inserted after document station was selected and the wait timed out.	3	2
	7 (MSB)	COMMAND REJECT		
1		PRINTER UNIT STATUS		
	0 (LSB)	CASH RECEIPT PRINT ERROR Paper cover is open or the CR station is out of paper.	1	6
	1	RESERVED (Always = '0')	n/a	
	2	PRINTER KEY PRESSED Set to 1 when a printer key operation is in progress.	7	4
	3	EC LEVEL Set to 1 when responding to an EC level request.	5	1
	4	SJ COVER OPEN Set to 1 when the cover in SJ station is open.	5	6
	5	DOCUMENT READY Set to 0 when the DI station is ready for printing. This occurs when both document sensors are made and the document has been fed to the first print position.	2	0
	6	DOCUMENT PRESENT UNDER THE FRONT SENSOR Set to 0 when a document is under the front document sensor.	2	1
	7	CASH RECEIPT PRINT ERROR Paper cover is open or the CR station is out of paper.		

Figure 1. Printer and Fiscal Unit Status - GR3/GR5 Models - Part 1 of 2

```
BYTE    BIT        CONTENT                                                        MAPPED FROM
                                                                                  BYTE    BIT

2                  PRINTER UNIT STATUS
        0 (LSB)    LEFT HOME POSITION                                              1       2
                   Set to 1 when the print head is in the left home position.
        1          DOCUMENT ERROR                                                  3       2
                   The document not inserted after DI station was selected and
                   the wait timed out.
        2          DOCUMENT PRESENT UNDER THE TOP SENSOR                           2       2
                   Set to 0 when a document is under the top document sensor.
        3          RESERVED (Always = '0')                                            n/a
        4          FLASH EPROM LOAD ERROR OR MCT LOAD ERROR                        3       3
        5          RIBBON COVER OPEN                                               1       5
                   Set to 1 when the ribbon cover is open.
        6          RESERVED (Always = '0')                                            n/a
        7 (MSB)    SJ STATION PAPER FAULT                                          5       7
                   Set to 1 when the paper is not present.

3                  PRINTER UNIT STATUS                                            4
                   Contains the printer EC level with all status messages.

4                  RESERVED (Always = '00')                                          n/a

5                  PRINTER UNIT STATUS                                            6
                   Contains the current line count the printer is on.

6                  FISCAL UNIT STATUS                                             (Note 1)
        0 (LSB)    RESERVED (Always = '0')
        1          IPL STATUS
                   When set, it indicates that status byte 8 contains the IPL completion
                   status; and bit 4 of byte 6 is set as it was at IPL time.
        2          IPL IN PROGRESS
                   Set to indicate that the fiscal unit is performing the IPL sequence.
        3          MICROCODE EC
                   When set it indicates that status byte 8 contains the microcode EC.
        4          PLD
                   This bit is set at IPL time to indicate that a command was in execution
                   during PLD and that all modifications caused by the suspended command have been deleted.
        5          ASYNCHRONOUS STATUS
                   When set it indicates that the fiscal unit is executing an internal
                   command (e.g. POR sequence) or it received an asynchronous status from the printer.
        6          INTERMEDIATE STATUS
                   When set it indicates that execution of a command is still in progress.
        7 (MSB)    FISCAL UNIT BUSY
                   Set to 1 when a command is received while a previous command is still in execution.

7                  ADDITIONAL DATA VERSION/COUNTRY CODE - x22 (34)
        7 (MSB)    ADDITIONAL DATA                                                (Note 2)
        6-5        VERSION CODE (hardware model)
                   4610 SureMark GR3/GR5 (RS-485) = x01 (01)
        4-0        COUNTRY CODE
                   Turkey = x00010 (02)

8                  FISCAL UNIT RETURN CODE                                        (Note 3)

9 - n              ADDITIONAL DATA (if byte 7 bit 7 is on)
```

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

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

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

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

Figure 2. Printer and Fiscal Unit Status - GR3/GR5 Models - Part 2 of 2

2.1.1 Version/Country Code Definitions

- Country Name = Turkey

- Models = GR3/GR5

- Version Code (hardware model) = 02 (4610 SureMark RS-485 (Protocol SIO, Cable RS-485))

- Country Code = 02

- Version Code + Country Code:
  - Hexadecimal = 22
  - Decimal = 34

- Fiscal Microcode EC Level = 21

2.2 For GB3/GB5 Models (USB)

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

```
BYTE  BIT       CONTENT

 0              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 3. Printer and Fiscal Unit Status - GB3/GB5 Models - 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                                        (Note 1)
                1 = Selected
                0 = Not Selected
       1
       2        PDF417 BAR CODE GENERATION PROBLEM
                Set to 1 when there is a problem creating a pdf417 bar code image.
       3        CASH DRAWER STATUS
                Set to 1 when cash draw is opened.
       4        PRINTER KEY PRESSED
                Set to 1 when a printer key operation is in progress.
       5        RESERVED (Always = '1')
       6        STATION SELECTED
                Set when the DI station is selected. Clear when 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 4. Printer and Fiscal Unit Status - GB3/GB5 Models - 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 COUNTRY VERSION
       0-4      VERSION CODE (hardware model)
                4610 SureMark GB3/GB5 (USB) = x04 (04)
       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 journal station is selected
             - If it is '0' then the journal 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 5. Printer and Fiscal Unit Status - GB3/GB5 Models - Part 3 of 3

The fiscal unit return codes are defined in 6.0, "Fiscal Unit Return Codes" on page 155 .

2.2.1 Version/Country Code Definitions

- Country Name = Turkey

- Models = GB3/GB5

- Version Code (hardware model) = 04 (4610 SureMark USB (Protocol USB, Cable USB))

- Country Code = 02

- Fiscal Microcode EC Level = 21

3.0 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.

3.1 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

3.2 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.

(DI) Document Insert
              is the print station that has the capability to insert forms from the top or the bottom of the printer and print either in a forward or reverse direction, where allowed.

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

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.
Fiscal Voucher	The 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 fiscal voucher is printed in CR station of the printer.
TAX	is value-added TAX.
Rectify	is an option on certain sale transaction commands used to modify, cancel, or undo a previous operation.
Void	is used when cancelling or voiding items.
Bonus	although not limited to this description, bonus items are items that are discounted by means of a coupon or promotional sale.
Discount	is the reduction of the item price (negative item), or the reduction of a part of a sales transaction (item discount), or the reduction of an entire sales transaction (discount on subtotal).
Empties	Although not limited to this description, empties are a type of return, such as the return of an empty bottle to be used for recycling purposes.
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.

3.3 POS Fiscal General Information and Rules

3.3.1 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:

- 01 - Print Header
- 06 - End Transaction
- 15 - Fiscal Memory Report
- 13 - Close Sale Period

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 - Set Currency Thousand Separator
- C4 - Fiscal Parameter Configuration
- 07 - Cancel Transaction
- D2 - Item Sale
- D3 - Negative Item Sale
- D4 - Subtotal/Total Transaction
- D5 - Payment
- D9 - Discount/Uplift on Subtotal
- E0 - Print Fiscal, Return and Diplomatic Receipt
- E3 - End Fiscal, Return and Diplomatic Receipt
- E2 - Print Waybill Receipt
- E5 - End Waybill Receipt
- C0 - Print Credit Card Slips
- 14 - X-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.

4.0 Fiscal Accounting Variables and Command Reference

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.

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

4.1 Definition of Accounting Variables

The following variables are defined in this section:

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

4.1.1 Definition of Transaction Accumulators

Table 2 and Table 3 list the accumulators used during a sale transaction.

Table 2. Transaction Accumulators − Totals and Taxes

Accumulator Name	Description	Minimum Range	Maximum Range
Tra_Tot_v(vv)	Transaction total by TAX	0	549755813887
Tra_Tot	Transaction total	0	549755813887
Tra_VAT_v(vv)	Transaction TAX total	0	549755813887
Tra_VAT	Transaction TAX total	0	549755813887

Table 3. Transaction Accumulators − Negative Items, Payment, and Subtotal Operations

Accumulator Name	Description	Minimum Range	Maximum Range
Tra_Void_v(vv)	Transaction voids total by TAX category	0	549755813887
Tra_Void	Transaction voids total	0	549755813887
Tra_Bonu_v(vv)	Transaction bonus total by TAX category	0	549755813887
Tra_Bonu	Transaction bonus total	0	549755813887
Tra_Disc_v(vv)	Transaction discounts total by TAX category	0	549755813887
Tra_Disc	Transaction discounts total	0	549755813887
Tra_Empt_v(vv)	Transaction empties total by TAX category	0	549755813887
Tra_Empt	Transaction empties total	0	549755813887
Tra_Pay_Type_0	Transaction payment cash total	0	549755813887
Tra_Pay_Type_1	Transaction payment credit card total	0	549755813887
Tra_Pay_Type_2	Transaction payment check card total	0	549755813887
Tra_Pay_Type_3	Transaction payment currency total	0	549755813887
Tra_Pay_Type_4	Transaction payment other total	0	549755813887
Tra_Payment	Transaction payment total	0	549755813887
Tra_Amt_Due	Amount due/Change	−549755813888	549755813887
Tra_Tdsc	Transaction discount on subtotal	0	549755813887
Tra_Tupl	Transaction uplift on subtotal	0	549755813887

Where:

vv = TAX category, range from 01 to 10.

4.1.2 Definition of Transaction Counters

Table 4 lists the counters used during a sale transaction.

Table 4. Transaction Counters

Counter Name	Description	Minimum Range	Maximum Range
Tra_N_Void	Number of voided items	0	65535
Tra_N_Disc	Number of discounted items	0	65535
Tra_N_Bonu	Number of bonus items	0	65535
Tra_N_Empt	Number of empties items	0	65535
Tra_N_Tdsc	Number of discounts on subtotal	0	65535
Tra_N_Tupl	Number of uplifts on subtotal	0	65535

4.1.3 Definition of Daily Accumulators

Table 5 and Table 6 list the accumulators that are used during a sales period.

Table 5. Daily Accumulators − Totals and Taxes

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Tot_v(vv)	Individual totals by TAX category	0	140737488355327
Day_Tot	Daily total	0	140737488355327
Day_VAT_v(vv)	Daily TAX total by TAX category	0	140737488355327
Day_VAT	Daily TAX total	0	140737488355327
Day_VATC	Daily TAX total calculated at reporting time	0	140737488355327
Day_VATC_v(vv)	Daily TAX total by TAX category calculated at reporting time	0	140737488355327

Table 6. Daily Accumulators − Negative Items, Payment, and Subtotal Operations

Accumulator Name	Description	Minimum Range	Maximum Range
Day_Void_v(vv)	Daily voids total by TAX category	0	140737488355327
Day_Void	Daily voids total	0	140737488355327
Day_Bonu_v(vv)	Daily bonus total by TAX category	0	140737488355327
Day_Bonu	Daily bonus total	0	140737488355327
Day_Disc_v(vv)	Daily discounts total by TAX category	0	140737488355327
Day_Disc	Daily discounts total	0	140737488355327
Day_Empt_v(vv)	Daily empties total by TAX category	0	140737488355327
Day_Empt	Daily empties total	0	140737488355327
Day_Pay_Type_0	Daily payment cash total	0	140737488355327
Day_Pay_Type_1	Daily payment credit card total	0	140737488355327
Day_Pay_Type_2	Daily payment check card total	0	140737488355327
Day_Pay_Type_3	Daily payment currency total	0	140737488355327
Day_Pay_Type_4	Daily payment other total	0	140737488355327
Day_Payment	Daily payment total	0	140737488355327
Day_Tdsc	Daily discount on subtotal	0	140737488355327
Day_Tupl	Daily uplift on subtotal	0	140737488355327
Day_Canc_v(vv)	Daily cancelled transaction total by TAX category	0	140737488355327
Day_Canc	Daily cancelled transaction total	0	140737488355327
Day_WBill_Tot	Daily waybill receipt total	0	140737488355327
Day_WBill_VTot	Daily waybill receipt TAX total	0	140737488355327
Day_WBill_CTot	Daily waybill receipt cancel total	0	140737488355327
Day_FRec_Tot	Daily fiscal receipt total	0	140737488355327
Day_FRec_VTot	Daily fiscal receipt TAX total	0	140737488355327
Day_FRec_CTot	Daily fiscal receipt cancel total	0	140737488355327
Day_RRec_Tot	Daily return receipt total	0	140737488355327
Day_RRec_VTot	Daily return receipt TAX total	0	140737488355327
Day_RRec_CTot	Daily return receipt cancel total	0	140737488355327
Day_DRec_Tot	Daily diplomatic receipt total	0	140737488355327
Day_DRec_VTot	Daily diplomatic receipt TAX total	0	140737488355327
Day_DRec_CTot	Daily diplomatic receipt cancel total	0	140737488355327

Where:

vv = TAX category, range from 01 to 10.

4.1.4 Definition of Daily Counters

Table 7 lists the counters used during a sales period.

Table 7. Daily Counters

Counter Name	Description	Minimum Range	Maximum Range
Day_N_Vouc	Number of fiscal vouchers	0	9999
Day_N_Fisc	Number of fiscal slips printed	0	9999
Day_N_CFisc	Number of fiscal slips cancelled	0	9999
Day_N_NFR	Number of application-originated reports – all stations	0	9999
Day_N_NFCR	Number of NFR on CR station	0	9999
Day_N_NFJL	Number of NFR on SJ station	0	9999
Day_N_NFDI	Number of NFR on DI station	0	9999
Day_N_Cred	Number of credit slips	0	9999
Day_N_Void	Number of voided items	0	65535
Day_N_Disc	Number of discounted items	0	65535
Day_N_Bonu	Number of bonus items	0	65535
Day_N_Empt	Number of empties items	0	65535
Day_N_Tdsc	Number of discounts on subtotal	0	65535
Day_N_Tupl	Number of uplifts on subtotal	0	65535
Day_N_Canc	Number of cancelled transactions	0	9999
Day_N_WBill	Number of waybill receipts	0	9999
Day_N_FRec	Number of fiscal receipts	0	9999
Day_N_RRec	Number of return receipts	0	9999
Day_N_DRec	Number of diplomatic receipts	0	9999
Day_N_CWbl	Number of cancelled waybill receipts	0	9999
Day_N_CFrc	Number of cancelled fiscal receipts	0	9999
Day_N_CRrc	Number of cancelled return receipts	0	9999
Day_N_CDrc	Number of cancelled diplomatic receipts	0	9999
Day_N_Ract	Number of repair actions	0	200
Day_N_Dump	Number of fiscal memory reports	0	9999
Day_N_X	Number of X-Reports	0	9999

4.1.5 Definition of Lifetime Accumulators

Table 8 lists the accumulators kept for the life of the fiscal printer.

Table 8. Lifetime Accumulators

Accumulator Name	Description	Minimum Range	Maximum Range
Lif_Tot_OL	Lifetime Total (old Lira)	0	18.446.744.073.709.600.000 (8 bytes - unsigned)
Lif_VATC_OL	Lifetime VAT total (old Lira)	0	18.446.744.073.709.600.000 (8 bytes - unsigned)
Lif_Tot_NL	Lifetime Total (new Lira)	0	18.446.744.073.709.600.000 (8 bytes - unsigned)
Lif_VATC_NL	Lifetime VAT total (new Lira)	0	18.446.744.073.709.600.000 (8 bytes - unsigned)

Where:

vv = TAX category, range from 01 to 10.

4.1.6 Definition of Lifetime Counters

Table 9 lists the counters kept for the life of the fiscal printer.

Table 9. Lifetime Counters

Counter Name	Description	Minimum Range	Maximum Range	See Notes
Lif_N_Clos	Closure number	1	3840	1
Lif_N_Ract	Number of repair actions	0	200	1

Notes:

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

4.2 Fiscal Hardware Functions

4.2.1 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 J4/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.

4.2.2 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

4.2.3 Calculations while the jumper is active:

- Recover the following counters from the fiscal memory tables

  Lif_N_Clos

  Lif_N_Ract

- Recover the following accumulators from the fiscal memory tables

  Lif_Tot_OL
  Lif_VATC_OL

  Lif_Tot_NL

  Lif_VATC_NL

- 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

4.2.3.1 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 repair action table is full, 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.

4.2.4 Display Checking

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

4.3 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. **SET DISPLAY SENSING DEFINITION**

   (Optional)

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

5. **SET DISPLAY ADDRESS**

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

6. **SET HEADERS**

   (Minimum = 1, Maximum = 5)

   - Execute --> Set Header 1 = 1B66 D701
   - Execute --> Set Header 2 = 1B66 D702
   - Execute --> Set Header 3 = 1B66 D703
   - Execute --> Set Header 4 = 1B66 D704
   - Execute --> Set Header 5 = 1B66 D705

7. **SET DATE AND TIME**

   - Execute --> Set Date and Time = 1B66 1600

8. **LOAD TAX RATE TABLE**

   - Execute --> Load Tax Rate Table = 1B66 2001
   - Execute --> Load Tax Rate Table = 1B66 2002

9. **SET DEPARTMENT NAME**

(Optional)

- Execute --> Set Department Name = 1B66 2201
- Execute --> Set Department Name = 1B66 2202
- Execute --> Set Department Name = 1B66 2203
- Execute --> Set Department Name = 1B66 2204
- Execute --> Set Department Name = 1B66 2205
- Execute --> Set Department Name = 1B66 2206
- Execute --> Set Department Name = 1B66 2207
- Execute --> Set Department Name = 1B66 2208
- Execute --> Set Department Name = 1B66 2209
- Execute --> Set Department Name = 1B66 220A

4.4 Training Mode

The fiscal printer is in training mode until the fiscal mode is set (issuing 18 cmd.).

4.4.1 Training Mode Rules

- Fiscal memory is not used.

- Fiscal voucher counter is not printed.

- Fiscal logo and serial number is not printed.

- The following fiscal reports can be issued:

  - Fiscal Voucher
  - Close Sale Period (Z-Report)

- The following non-fiscal reports can be issued:

  - Fiscal Receipt
  - Return Receipt
  - Diplomatic Receipt
  - Waybill Receipt
  - Credit Card
  - Check Slips
  - Summary Fiscal Report (X-Report)
  - Application-Originated Reports
  - Dump RAM and Fiscal Memory

- The new Lira is set automatically when the fiscal printer is in training mode, but in this case the new Lira table is not updated.

- The FNEWLIR (New Lira Set) flag state is set YES.

4.5 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.

4.5.1 Initialization

16   Set Date and Time
18   Set Fiscal Mode
19   Set Currency Thousand Separator
1A   Set Display Address
1B   Initialize Fiscal Memory
20   Load Tax Rate Table
22   Set Department Name
C4   Fiscal Parameter Configuration
D7   Set Store Header

4.5.2 Sales Transaction

Sales transactions are printed in customer receipt and summary journal stations.

01   Print Store Header
D2   Item Sale
D3   Negative Item Sale
            Voids
            Bonus
            Discounts
            Empties
D4   Subtotal/Total Transaction
D5   Payment
D8   Not Paid
D9   Discount/Uplift on Subtotal
06   End Transaction
07   Cancel Transaction

4.5.3 Close Sale Period

13   Close Sale Period (Z-Report)

4.5.4 Fiscal Memory

15   Fiscal Memory Report

4.5.5 Credit Card Slip Printing

C0   Print Credit Card Slip
C1   End Credit Card Slip
C3   Line Feed Credit Card Slip

4.5.6 Fiscal Documents

E0   Print Fiscal, Return & Diplomatic Receipt
E2   Print Waybill Receipt
E3   End Fiscal, Return & Diplomatic Receipt

E5 End Waybill Receipt
0F Cancel Fiscal, Return & Diplomatic Receipt
11 Cancel Waybill Receipt

4.5.7 Reports

14 Print X-Report
DD Start Application-Originated Report
DE End Application-Originated Report

4.5.8 Printer

E8 Set Number of Dot Rows per Line Feed
EA Ordinary Print Line in CR/SJ Station
EB Ordinary Print Line in DI Station
EC Line Feed
ED Ready Document (Top/Bottom Registration)
EE Cut Customer Receipt
EF Document Eject
F4 Head Position and Open/Close Throat

4.5.9 Utilities

DA Electronic Read Fiscal Memory Tables
DB Electronic Read Accumulators and Counters
F1 Report IPL Completion Status
F9 Report Current Status

4.5.10 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

4.5.11 Miscellaneous

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

5.0 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.

5.1 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
- 1A - Set Display Address
- 1B - Serialize Fiscal Printer
- 20 - Load Tax Rate Table
- 22 - Set Department Names (Optional)
- C4 - Set Fiscal Parameters (Optional)
- D7 - Set Header

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

5.1.1 16 - SET DATE AND TIME

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

5.1.1.1 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


 ----------------------------------------------------------------------
```

5.1.1.2 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.

5.1.2 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.

5.1.2.1 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


 ----------------------------------------------------------------------
```

5.1.2.2 Set Fiscal Mode Calculations

If the new Lira was set, the fiscal memory is updated by filling an entry in the new Lira table with the following data:

$FM\_NL\_Date = Current\_Date$
$FM\_NL\_Time = Current\_Time$
$FM\_NL\_N\_Clos = Lif\_N\_Clos + 1$

5.1.2.3 Set Fiscal Mode Rules

- This procedure can be executed only once and out of the sale period.
- If the new Lira was set in training mode, then the new Lira table is stored in FM when the x18 cmd. is issued.

5.1.3 1A - SET DISPLAY ADDRESS

This command is used to set the addresses of the 2 display(s) that have to be monitored for connection by the fiscal unit.

5.1.3.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT  CONTENT                                     TYPE    LENGTH

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


------------------------------------------------------------------------
```

Notes:

1. Specify the ASCII representation of the hexadecimal address.
   Example: for hexadecimal address x'2A' specify ASCII characters '2', 'A'.
   Valid display addresses are: x'20'–x'27 ' and x'2A'–x'2F'

2. If C4 cmd. was issued to allow single display, specify the second address as x'0000' for single display sensing.

5.1.3.2 Set Display Address Rules

• Display addresses are erased when RAM is cleared by activation of the J4/CE jumper.

5.1.4 1B - SERIALIZE FISCAL MEMORY

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

5.1.4.1 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        Manufacturer_ID                       ASCII      2 (Note 1)
  6-7        IBM_Manufacturing_ID                  ASCII      2
  8-13       Serial_Number                         ASCII      6


 ----------------------------------------------------------------------
```

Notes:

1. Assigned by Goverment.

5.1.4.2 Serialize Fiscal Memory Rules

• This procedure can be executed only once.

5.1.5 20 - LOAD TAX RATE TABLE

This command is used to load the TAX rate table into fiscal battery backed up RAM.

5.1.5.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT   CONTENT                                  TYPE    LENGTH

  0-1      1B66 - cmd prefix                        hex        2
  2        20 - Load TAX Rate Table                 hex        1
  3        Cmd. Extension                           hex        1
           01 = TAX Departament 01 - 05
           02 = TAX Departament 06 - 10
  4-7      Password                                 ASCII      4
  8-9      Reserved                                 ASCII      2
 10-13     TAX Rate for Departament 01/06           ASCII      4
 14-15     Reserved                                 ASCII      2
 16-19     TAX Rate for Departament 02/07           ASCII      4
 20-21     Reserved                                 ASCII      2
 22-25     TAX Rate for Departament 03/08           ASCII      4
 26-27     Reserved                                 ASCII      2
 28-31     TAX Rate for Departament 04/09           ASCII      4
 32-33     Reserved                                 ASCII      2
 32-37     TAX Rate for Departament 05/10           ASCII      4


 ----------------------------------------------------------------------
```

Notes:

1. Tax rate is a fixed point number with 2 decimal digits.
   Separator characters must not be included in the TAX rate string.
   For example, for TAX rate 8%, specify '0800'.

2. TAX rate field can range from '0000' to '9999'.
   Values from '0000' to '9998' are used to specify the TAX rate, while value '9999' is used to inhibit the corresponding category.

3. The print format for TAX 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

5.1.5.2 Load TAX Rate Table Rules

- The TAX rate table is loaded into fiscal battery backed up RAM.
- 10 categories must be loaded.

5.1.6 22 - SET DEPARTMENT NAMES

This command is used to replace the default departament names.

5.1.6.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

 0-1       1B66 – Cmd Prefix                          hex        2
 2         22 – Set Department Name                   hex        1
 3         Cmd. Extension                             hex        1
    7-4    Reserved (always = '0')
    3-0    Departament Number                                          (Note 1)
 4-15      Department Name                            ASCII      12


 ----------------------------------------------------------------------
```

Notes:

 1. Department number range is from 1 to 10.

5.1.6.2 Set Department Names Rules

• This command must be issued for 10 number of departments for fiscal vouchers.
• The departament names are restored to their original default character string when RAM is cleared by installation of the hardware J4/CE jumper.

5.1.7 C4 - FISCAL PARAMETER CONFIGURATION

This command is used to set the number of displays to sense.

5.1.7.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

 0-1       1B66 - Cmd Prefix                          hex        2
 2         C4 - Fiscal Parameter Configuration        hex        1
 3         Cmd. Extension                             hex        1
           02 = Display Sensing Definition
 4-7       Password                                   ASCII      4
 8         Display Sensing Definition                 ASCII      1 (Note 1)
           1 = Single/Dual
           2 = Dual


 ----------------------------------------------------------------------
```

Notes:

1. It must be executed before the set display (1A cmd.), otherwise the code senses two displays.

5.1.8 D7 - SET HEADER

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

5.1.8.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT  CONTENT                                       TYPE    LENGTH

 0-1      1B66 - Cmd Prefix                             hex        2
 2        D7 - Set Header                               hex        1
 3        Cmd. Extension                                hex        1
     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.
```

5.1.8.2 Set Header Rules

- Loads the header into fiscal printer battery backed up RAM.
- The header is erased when RAM is cleared by activation of the J4/CE jumper.
- This command cannot be executed when sales period is in progress.
- The minimum number of header lines required is 1.
- The maximum number of header lines allowed is 5.

5.2 Utility Commands

The utility commands include:

- 19 - Set Currency Thousand Separator
- DA - Electronic Read Fiscal Memory Tables
- DB - Electronic Read Counters and Accumulators
- F1 - Communicate Power On Status
- F9 - Report Current Status

5.2.1 19 - CURRENCY MANAGEMENT

This command is used to set currency thousand separator.

5.2.1.1 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)
           01 = Set New Lira                                       (Note 2)
           08 = None   Thousand Separator                          (Note 3)
           10 = Dot    Thousand Separator (.)                      (Note 4)
           20 = Comma Thousand Separator (,)                       (Note 5)
           Reserved always = '0')
 4-7       Password                                    ASCII     4


-----------------------------------------------------------------------
```

Notes:

1. Only one can be selected each time (set new Lira, none, dot or comma).

2. Can be issued only one time after the fiscalization.

3. Amount format example: aaaaaaaaaaaa   (Old Lira)
   Amount format example: aaaaaaaaaaaa,aa (new Lira)

4. Amount format example: aaa.aaa.aaa.aaa   (Old Lira)
   Amount format example: aaa.aaa.aaa.aaa,aa (new Lira)

5. Amount format example: aaa,aaa,aaa,aaa   (Old Lira)
   Amount format example: aaa,aaa,aaa,aaa.aa (new Lira)

5.2.1.2 Currency Management Rules

- This cmd. must be issued:
  - Out of the sale period (FSALEON = NO).
  - J4/CE jumper in OFF (STORED) position (FJUMPER = NO).
- Set New Lira (Cmd. Extension 01)
  - This cmd. extension can be issued only one time, otherwise the error code 162 is returned.
  - Fiscal Mode
    — The new lira table is stored into the fiscal memory as follow:
      - If the new Lira was set in training mode, then it is stored when the set fiscal mode (x18 cmd.) is issued.
      - If the new Lira was not set in training mode, then it is stored when the currency management (x19 cmd. - cmd. extension 01) is issued.
  - Training Mode
    — The new Lira is set automatically when the fiscal printer is in training mode, but in this case the new Lira table is not updated.
    — The x19 cmd. - cmd. extension 01 can not be issued in training mode, otherwise the error code 162 is returned.
    — If the new Lira was set in training mode but if necessary to disable it for fiscal mode then the J4/CE jumper procedure must be issued to clear the setting.
  - After the new Lira was set, the amounts will be printed with 2 digit decimals.
    The amount format depend on the thousand separator selected:

      — for none :   aaaaaaaaaa,aa.

      — for comma: a,aaa,aaa,aaa.aa

      — for dot : a.aaa.aaa.aaa,aa.

- Thousand Separator (Cmd. Extension 08, 10 and 20)
    - The default thousand separator type is ″none″. Example (aaaaaaaaaaaa or 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.

5.2.2 DA - ELECTRONIC READ FISCAL MEMORY TABLES

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

5.2.2.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT  CONTENT                                       TYPE    LENGTH

 0-1      1B66 – cmd prefix                             hex        2
 2        DA – Electronic Read Fiscal Memory Tables     hex        1
 3        Cmd. Extension                                hex        1
          00 = Start Read Daily Block
          01 = Read  Next Daily Block
          06 = Start Read Repair Action Table
          07 = Read  Next Repair Action Table
          08 = Read  New Lira Table
 4-7      Closure Number                                ASCII    4 (Note 1, 2)


 ----------------------------------------------------------------------
```

Notes:

1. Bytes 4-7 apply to Start Read Daily Block only.

2. If the closure number '0000' is specified, the first closure stored in fiscal memory will be
   returned.

Response for Daily Read Block will be formatted as follows:

```
-----------------------------------------------------------------------------------

BYTE     BYTE           CONTENT                              TYPE    LENGTH  VARIABLES
RS-485   USB


BYTE     BYTE    BIT    CONTENT                              TYPE    LENGTH
RS-485   USB

 0-8                    Fiscal Unit Status                   hex        9
         0-14           Fiscal Unit Status                   hex       15

  9      15            DA - Record Identification            hex        1
10-25    16-31         Request Date and Time                 ASCII     16
                       (dd.mm.yyyy hh.mm)
26       32            Return Code
                       43 = Good Completion
                       60 = Invalid Character
                       5A = Closure Not Found
                       64 = Error on Reading Fiscal Memory
                       BB = Block Empty
27       33            Currency Indicator                                (Note 1)
                       0 = Old Lira
                       1 = New Lira
28-37    34-43         Closure Date (dd.mm.yyyy)             ASCII     10   FM_DE_Date
38-41    44-47         Closure Number                       ASCII      4   FM_DE_N_Clos
42-47    48-53         Daily Total                          hex        6   FM_DE_Tot
48-53    54-59         Daily VAT Total                      hex        6   FM_DE_TAX


------------------------------------------------------------------------
```

Note 1: corresponds to the currency used by the closure number required.

Response for Repair Action Table will be formatted as follows:

```
--------------------------------------------------------------------------------
```

BYTE RS-485	BYTE USB	CONTENT	TYPE	LENGTH	VARIABLES
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification	hex	1	
10-25	16-31	Request Date and Time (dd.mm.yyyy hh.mm)	ASCII	16	
26	32	Return Code 43 = Good Completion 60 = Invalid Character 5A = Closure Not Found 64 = Error on Reading Fiscal Memory BB = Block Empty			
27	33	Reserved	hex	1	
28-30	34-36	Repair Action Number	ASCII	3	FM_RA_N_Ract
31-34	37-40	Closure Number	ASCII	4	FM_RA_N_Clos
35-44	41-50	Date (dd.mm.yyyy)	ASCII	10	FM_RA_Date
45-49	51-55	Time (hh.mm)	ASCII	5	FM_RA_Time

```
------------------------------------------------------------------------
```

Response for New Lira Table will be formatted as follows:

```
-------------------------------------------------------------------------------

 BYTE    BYTE      CONTENT                              TYPE    LENGTH  VARIABLES
 RS-485  USB

  0-8              Fiscal Unit Status                   hex        9
          0-14     Fiscal Unit Status                   hex       15

  9       15       DA - Record Identification           hex        1
 10-25    16-31    Request Date and Time                ASCII     16
                   (dd.mm.yyyy hh.mm)
 26       32       Return Code
                   43 = Good Completion
                   60 = Invalid Character
                   5A = Closure Not Found
                   64 = Error on Reading Fiscal Memory
                   BB = Block Empty
 27       33       Reserved                             hex        1
 28-31    34-37    Closure Number                       ASCII      4   FM_NL_N_Clos
 32-41    38-47    Date (dd.mm.yyyy)                    ASCII     10   FM_NL_Date
 42-46    48-52    Time (hh:mm)                         ASCII      5   FM_NL_Time


-------------------------------------------------------------------------------
```

5.2.3 DB - ELECTRONIC READ COUNTERS AND ACCUMULATORS

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

5.2.3.1 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
     7-4  Reserved (always = '0')
     3    Lifetime
          0 = Old Lira
          1 = New Lira
     2    Reserved (always = '0')
     1    Parameters
          0 = TAX Category
          1 = Payment Type
     0    Type
          0 = Transaction
          1 = Daily

 5        Reserved                                       ASCII    1
   If (byte 4 – bit 1) = 0
 6-7      TAX Category (vv)                              ASCII    2 (Note 1)

   If (byte 4 – bit 1) = 1
 6-7      Payment Type (pp)                              ASCII    2 (Note 2)

----------------------------------------------------------------------
```

Note 1: To read the sum totals for all TAX categories, use '00' as the ASCII data string.
        Range 00 up to 10.

Note 2: To read the sum totals for all payment types, use '00' as the ASCII data string.
        Range 00 up to 05 where:

                          00 = sum of all payment types totals
                          01, 03 and 04 = Cash
                          02 = Credit Card
                          05 = Other

5.2.3.2 Response to the Electronic Read Counters and Accumulators

----

BYTE RS-485	BYTE USB	BIT	CONTENT	TYPE	LENGTH
0-8			Fiscal Unit Status	hex	9
	0-14		Fiscal Unit Status	hex	15
9	15		DB - Record Identification	hex	1
10-25	16-31		REQUEST DATE AND TIME (dd.mm.yyyy hh.mm)	ASCII	16
26	32		RETURN CODE 43 = Good Completion	hex	1
27	33		PROCEDURE IN PROGRESS 00 = No Procedure in Progress 01 = Sale Transaction in Progress 02 = Fiscal Receipt in Progress 03 = Return Receipt in Progress 04 = Waybill Receipt in Progress 05 = Application-Originated Report - CR in Progress 06 = Application-Originated Report - SJ in Progress 07 = Application-Originated Report - DI Landscape in Progress 08 = Application-Originated Report - DI Portrait in Progress 09 = Credit Card Printing in Progress 0A = Diplomatic Receipt in Progress	hex	1
28	34		SALE TRANSACTION STEP	hex	1
		7	1 = Header Printed		
		6	1 = Item/Negitem Sold		
		5	1 = Total Requested		
		4	1 = Payment in Progress		
		3	1 = End Transaction in Progress		
		2	1 = Cancel Transaction in Progress		
		1-0	Reserved (always = '0')		
29	35		FISCAL UNIT MODE	hex	1
		7	1 = Fiscal Mode Set		
		6	Reserved (always = '0')		
		5	1 = Sales Period in Progress		
		4-3	Currency Thousand Separator Set 00 = none 01 = Dot (.) 10 = Comma (,) 11 = Reserved		
		2	1 = New Lira Set		
		1-0	Reserved (always = '0')		
30-32	36-38		RESERVED	hex	3

If (byte 4 - bit 0 = 0) and (byte 4 - bit 1 = 0) and TAX category = 0

```
--------------------------------------------------------------------------------------------

  BYTE     BYTE  BIT  CONTENT                            TYPE   LENGTH  VARIABLE
  RS-485   USB


              TRANSACTION ACCUMULATORS
              -----------------------

  33-38     39-44      Voucher Total                     hex       6   Tra_Tot
  39-62     45-68      Reserved                          hex      24
  63-68     69-74      TAX Total                         hex       6   Tra_VAT
  69-92     75-98      Reserved                          hex      24
  93-98     99-104     Voids Total                       hex       6   Tra_Void
  99-104   105-110     Bonus Total                       hex       6   Tra_Bonu
 105-110   111-116     Discounts Total                   hex       6   Tra_Disc
 111-116   117-122     Empties Total                     hex       6   Tra_Empt
 117-122   123-128     Reserved                          hex       6
 123-128   129-134     Discounts on Subtotal Total       hex       6   Tra_Tdsc
 129-134   135-140     Uplifts   on Subtotal Total       hex       6   Tra_Tupl
 135-139   141-145     Amount Due Total (signed)         hex       5   Tra_Amt_Due
 140-174   146-180     Reserved                          hex      35

              TRANSACTION COUNTERS
              -------------------

 175-176   181-182     Voided Items                      hex       2   Tra_N_Void
 177-178   183-184     Discounted Items                  hex       2   Tra_N_Disc
 179-180   185-186     Bonus Items                       hex       2   Tra_N_Bonu
 181-182   187-188     Empties Items                     hex       2   Tra_N_Empt
 183-184   189-190     Discounts on Subtotal             hex       2   Tra_N_Tdsc
 185-186   191-192     Uplifts   on Subtotal             hex       2   Tra_N_Tupl
 187-210   193-216     Reserved                          hex      24


--------------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 0) and (byte 4 - bit 1 = 1) and payment type = 0:

```
--------------------------------------------------------------------------------------------

  BYTE     BYTE  BIT  CONTENT                            TYPE   LENGTH  VARIABLE
  RS-485   USB


              TRANSACTION ACCUMULATORS
              -----------------------

  33-38     39-44      Payment Total                     hex       6   Tra_Payment
  39-210    45-216     Reserved                          hex     172


--------------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 0) and (byte 4 - bit 1 = 0) and TAX category > 0:

```
------------------------------------------------------------------------------------------------

   BYTE     BYTE  BIT  CONTENT                                          TYPE    LENGTH  VARIABLE
   RS-485   USB


            TRANSACTION ACCUMULATORS
            ------------------------

   33-38    39-44       Voucher Total                                   hex        6   Tra_Tot_v(vv)
   39-62    45-68       Reserved                                        hex       24
   63-68    69-74       TAX Total                                       hex        6   Tra_VAT_v(vv)
   69-92    75-98       Reserved                                        hex       24
   93-98    99-104      Voids Total                                     hex        6   Tra_Void_v(vv)
   99-104  105-110      Bonus Total                                     hex        6   Tra_Bonu_v(vv)
  105-110  111-116      Discounts Total                                 hex        6   Tra_Disc_v(vv)
  111-116  117-122      Empties Total                                   hex        6   Tra_Empt_v(vv)
  117-134  123-140      Reserved                                        hex       18
  135-140  141-146      Amount Due Total (signed)                       hex        6   Tra_Amt_Due
  140-174  146-180      Reserved                                        hex       35


            TRANSACTION COUNTERS
            --------------------

  175-176  181-182      Voided Items                                    hex        2   Tra_N_Void
  177-178  183-184      Discounted Items                                hex        2   Tra_N_Disc
  179-180  185-186      Bonus Items                                     hex        2   Tra_N_Bonu
  181-182  187-188      Empties Items                                   hex        2   Tra_N_Empt
  183-184  189-190      Discounts on Subtotal                           hex        2   Tra_N_Tdsc
  185-186  191-192      Uplifts   on Subtotal                           hex        2   Tra_N_Tupl
  187-210  193-216      Reserved                                        hex       24


------------------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 0) and (byte 4 - bit 1 = 1) and payment type > 0:

```
 -------------------------------------------------------------------------------------------

   BYTE      BYTE  BIT  CONTENT                                      TYPE    LENGTH  VARIABLE
   RS-485    USB


             TRANSACTION ACCUMULATORS
             ------------------------


   If Payment Type (pp) = Cash (01, 03 or 04)
  33-38     39-44         Cash Total                                 hex         6  Tra_Pay_Type_0


   If Payment Type (pp) = Credit Card (02)
  33-38     39-44         Credit Card Total                          hex         6  Tra_Pay_Type_1


   If Payment Type (pp) = Other (05)
  33-38     39-44         Other Total                                hex         6  Tra_Pay_Type_4

  39-210    45-216        Reserved                                   hex       172


 -------------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 1) and (byte 4 - bit 1 = 0) and TAX category = 0:

```
-------------------------------------------------------------------------------------

    BYTE      BYTE  BIT  CONTENT                                      TYPE    LENGTH  VARIABLE
    RS-485    USB

              DAILY ACCUMULATORS
              ------------------

    33-38     39-44      Voucher Total                                hex        6    Day_Tot
    39-44     45-50      Fiscal  Receipt Total                        hex        6    Day_FRec_Tot
    45-50     51-56      Waybill Receipt Total                        hex        6    Day_WBill_Tot
    51-56     57-62      Return  Receipt Total                        hex        6    Day_RRec_Tot
    57-62     63-68      Diplomatic Receipt Total                     hex        6    Day_DRec_Tot
    63-68     69-74      TAX Total                                    hex        6    Day_VAT
    69-74     75-80      Fiscal  Receipt TAX Total                    hex        6    Day_FRec_VTot
    75-80     81-86      Waybill Receipt TAX Total                    hex        6    Day_WBill_VTot
    81-86     87-92      Return  Receipt TAX Total                    hex        6    Day_RRec_VTot
    87-92     93-98      Diplomatic Receipt TAX Total                 hex        6    Day_DRec_VTot
    93-98     99-104     Voids Total                                  hex        6    Day_Void
    99-104   105-110     Bonus Total                                  hex        6    Day_Bonu
   105-110   111-116     Discounts Total                              hex        6    Day_Disc
   111-116   117-122     Empties Total                                hex        6    Day_Empt
   117-122   123-128     Reserved                                     hex        6
   123-128   129-134     Discounts on Subtotal Total                  hex        6    Day_Tdsc
   129-134   135-140     Uplifts   on Subtotal Total                  hex        6    Day_Tupl
   135-140   141-146     Cancelled Transaction Total                  hex        6    Day_Canc
   141-146   147-152     Cancelled Fiscal  Receipt Total              hex        6    Day_FRec_CTot
   147-152   153-158     Cancelled Waybill Receipt Total              hex        6    Day_WBill_CTot
   153-158   159-164     Cancelled Return  Receipt Total              hex        6    Day_RRec_CTot
   159-164   165-170     Cancelled Diplomatic Receipt Total           hex        6    Day_DRec_CTot

              DAILY COUNTERS
              --------------

   165-166   171-172     Fiscal Voucher                               hex        2    Day_N_Vouc
   167-168   173-174     Application-Originated Reports - All Stations hex        2    Day_N_NFR
   169-170   175-176     Application-Originated Reports - CR          hex        2    Day_N_NFCR
   171-172   177-178     Application-Originated Reports - SJ          hex        2    Day_N_NFJL
   173-174   179-180     Credit Slips                                 hex        2    Day_N_Cred
   175-176   181-182     Voided Items                                 hex        2    Day_N_Void
   177-178   183-184     Discounted Items                             hex        2    Day_N_Disc
   179-180   185-186     Bonus Items                                  hex        2    Day_N_Bonu
   181-182   187-188     Empties Items                                hex        2    Day_N_Empt
   183-184   189-190     Discounts on Subtotal                        hex        2    Day_N_Tdsc
   185-186   191-192     Uplifts   on Subtotal                        hex        2    Day_N_Tupl
   187-188   193-194     Cancelled Transactions                       hex        2    Day_N_Canc
   189-190   195-196     Fiscal Receipt                               hex        2    Day_N_FRec
   191-192   197-198     Cancelled Fiscal Receipt                     hex        2    Day_N_CFrc
   193-194   199-200     Waybill Receipt                              hex        2    Day_N_WBill
   195-196   201-202     Cancelled Waybill Receipt                    hex        2    Day_N_CWbl
   197-198   203-204     Return Receipt                               hex        2    Day_N_RRec
   199-200   205-206     Cancelled Return Receipt                     hex        2    Day_N_CRrc
   201-202   207-208     Diplomatic Receipt                           hex        2    Day_N_DRec
   203-204   209-210     Cancelled Diplomatic Receipt                 hex        2    Day_N_CDrc
   205-206   211-212     Fiscal Slips                                 hex        2    Day_N_Fisc
   207-208   213-214     Fiscal Slips Cancelled                       hex        2    Day_N_CFisc
   209       215         Reserved                                     hex        1
   210       216         Repair Actions                               hex        1    Day_N_Ract

-------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 1) and (byte 4 - bit 1 = 1) and payment type = 0:

```
 ------------------------------------------------------------------------------------

   BYTE     BYTE  BIT  CONTENT                                  TYPE    LENGTH  VARIABLE
   RS-485   USB


            DAILY ACCUMULATORS
            ------------------

   33-38    39-44      Payment Total                            hex          6  Day_Payment
   39-210   45-216     Reserved                                 hex        172


 ------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 1) and (byte 4 - bit 1 = 0) and TAX category > 0:

```
----------------------------------------------------------------------------------------

   BYTE       BYTE  BIT  CONTENT                                    TYPE    LENGTH  VARIABLE
   RS-485     USB

           DAILY ACCUMULATORS
           ------------------

   33-38     39-44       Total                                      hex          6  Day_Tot_v(vv)
   39-44     45-50       Fiscal  Receipt Total                      hex          6  Day_FRec_Tot
   45-50     51-56       Waybill Receipt Total                      hex          6  Day_WBill_Tot
   51-56     57-62       Return  Receipt Total                      hex          6  Day_RRec_Tot
   57-62     63-68       Diplomatic Receipt Total                   hex          6  Day_DRec_Tot
   63-68     69-74       TAX Total                                  hex          6  Day_VAT_v(vv)
   69-74     75-80       Fiscal  Receipt TAX Total                  hex          6  Day_FRec_VTot
   75-80     81-86       Waybill Receipt TAX Total                  hex          6  Day_WBill_VTot
   81-86     87-92       Return  Receipt TAX Total                  hex          6  Day_RRec_VTot
   87-92     93-98       Diplomatic Receipt TAX Total               hex          6  Day_DRec_VTot
   93-98     99-104      Voids Total                                hex          6  Day_Void_v(vv)
   99-104   105-110      Bonus Total                                hex          6  Day_Bonu_v(vv)
  105-110   111-116      Discounts Total                            hex          6  Day_Disc_v(vv)
  111-116   117-122      Empties Total                              hex          6  Day_Empt_v(vv)
  117-134   123-140      Reserved                                   hex         18
  135-140   141-146      Cancelled Transactions Total               hex          6  Day_Canc_v(vv)
  141-146   147-152      Cancelled Fiscal  Receipt Total            hex          6  Day_FRec_CTot
  147-152   153-158      Cancelled Waybill Receipt Total            hex          6  Day_WBill_CTot
  153-158   159-164      Cancelled Return  Receipt Total            hex          6  Day_RRec_CTot
  159-164   165-170      Cancelled Diplomatic Receipt Total         hex          6  Day_DRec_CTot

           DAILY COUNTERS
           --------------

  165-166   171-172      Fiscal Voucher                             hex          2  Day_N_Vouc
  167-168   173-174      Application-Originated Reports - All Stations hex        2  Day_N_NFR
  169-170   175-176      Application-Originated Reports - CR        hex          2  Day_N_NFCR
  171-172   177-178      Application-Originated Reports - SJ        hex          2  Day_N_NFJL
  173-174   179-180      Credit Slips                               hex          2  Day_N_Cred
  175-176   181-182      Voided Items                               hex          2  Day_N_Void
  177-178   183-184      Discounted Items                           hex          2  Day_N_Disc
  179-180   185-186      Bonus Items                                hex          2  Day_N_Bonu
  181-182   187-188      Empties Items                              hex          2  Day_N_Empt
  183-184   189-190      Discounts on Subtotal                      hex          2  Day_N_Tdsc
  185-186   191-192      Uplifts   on Subtotal                      hex          2  Day_N_Tupl
  187-188   193-194      Cancelled Transactions                     hex          2  Day_N_Canc
  189-190   195-196      Fiscal Receipt                             hex          2  Day_N_FRec
  191-192   197-198      Cancelled Fiscal Receipt                   hex          2  Day_N_CFrc
  193-194   199-200      Waybill Receipt                            hex          2  Day_N_WBill
  195-196   201-202      Cancelled Waybill Receipt                  hex          2  Day_N_CWbl
  197-198   203-204      Return Receipt                             hex          2  Day_N_RRec
  199-200   205-206      Cancelled Return Receipt                   hex          2  Day_N_CRrc
  201-202   207-208      Diplomatic Receipt                         hex          2  Day_N_DRec
  203-204   209-210      Cancelled Diplomatic Receipt               hex          2  Day_N_CDrc
  205-206   211-212      Fiscal Slips                               hex          2  Day_N_Fisc
  207-208   213-214      Fiscal Slips Cancelled                     hex          2  Day_N_CFisc
  209       215          Reserved                                   hex          1
  210       216          Repair Actions                             hex          1  Day_N_Ract


----------------------------------------------------------------------------------------
```

If (byte 4 - bit 0 = 1) and (byte 4 - bit 1 = 1) and payment type > 0:

```
    -----------------------------------------------------------------------------------------

    BYTE      BYTE BIT  CONTENT                                    TYPE    LENGTH  VARIABLE
    RS-485    USB

                  DAILY ACCUMULATORS
                  ------------------

    If Payment Type (pp) = Cash (01, 03 or 04)
    33-38    39-44       Cash Total                                hex         6   Day_Pay_Type_0

    If Payment Type (pp) = Credit Card (02)
    33-38    39-44       Credit Card Total                         hex         6   Day_Pay_Type_1

    If Payment Type (pp) = Other (05)
    33-38    39-44       Other Total                               hex         6   Day_Pay_Type_4

    39-210   45-216      Reserved                                  hex       172

    -----------------------------------------------------------------------------------------
```

If (byte 4 - bit 3 = 0 (OLD LIRA))

```
    -----------------------------------------------------------------------------------------

    BYTE      BYTE BIT  CONTENT                                    TYPE    LENGTH  VARIABLE
    RS-485    USB

                  LIFETIME ACCUMULATORS AND COUNTERS
                  ----------------------------------

    211       217        Reserved                                  hex         1
    212-219   218-225    Total                                     hex         8   Lif_Tot_OL
    220-221   226-227    Last Closure Number                       hex         2   Lif_N_Clos
    222-223   228-229    Repair Actions                            hex         2   Lif_N_Ract
    224-228   230-234    Reserved                                  hex         5
    229-238   235-244    Serial Number                             ASCII      10   FM_SL_SerNum
    239-246   245-252    TAX Total                                 hex         8   Lif_VATC_OL
    247-248   253-254    TAX Rate                                  hex         2   (Note 1)

    -----------------------------------------------------------------------------------------
```

If (byte 4 - bit 3 = 1 (NEW LIRA))

```
    -----------------------------------------------------------------------------------------

    BYTE      BYTE BIT  CONTENT                                    TYPE    LENGTH  VARIABLE
    RS-485    USB

                  LIFETIME ACCUMULATORS AND COUNTERS
                  ----------------------------------

    211       217        Reserved                                  hex         1
    212-219   218-225    Total                                     hex         8   Lif_Tot_NL
    220-221   226-227    Last Closure Number                       hex         2   Lif_N_Clos
    222-223   228-229    Repair Actions                            hex         2   Lif_N_Ract
    224-228   230-234    Reserved                                  hex         5
    229-238   235-244    Serial Number                             ASCII      10   FM_SL_SerNum
    239-246   245-252    TAX Total                                 hex         8   Lif_VATC_NL
    247-248   253-254    TAX Rate                                  hex         2   (Note 1)

    -----------------------------------------------------------------------------------------
```

Note : For all type hex, hex data is in normal format, not byte switch format.

Note 1: is the TAX rate correspoding to TAX category selected in bytes 6-7
        when the (byte 4 - bit 1 = 0).

5.2.4 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.

5.2.4.1 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')


------------------------------------------------------------------------
```

5.2.5 F7 - COMMAND BUFFER MANAGEMENT

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

```
------------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

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


------------------------------------------------------------------------
```

Response for Command Buffer Management will be formatted as follows:

```
----------------------------------------------------------------------

BYTE    BYTE       CONTENT                    TYPE   LENGTH
RS-485  USB

 0-8               Fiscal Unit Status         hex      9
        0-14       Fiscal Unit Status         hex      15

 9-128             Additional Information     hex    120 (Note 1)
        15-128     Additional Information     hex    114 (Note 1)

----------------------------------------------------------------------
```

Notes:

1. See response for the Additional Information.

Response for Additional Information will be formatted as follows:

```
----------------------------------------------------------------------

BYTE    BYTE       CONTENT                             TYPE   LENGTH
RS-485  USB

 9      15         Type                                hex    1 (Note 1)
 10     16         Command    Data Length              hex    1 (Note 2)
 11     17         Additional Data Length              hex    1 (Note 3 on page 73)
 12     18         Command                             hex    1
                   Command Extension                   hex    n0
                   Command     Data                    hex    n1
                   Additional Data                     hex    n2 (Note 4 on page 73)
                   Fiscal Untit Status Executed Command hex   n3 (Note 5 on page 73)

----------------------------------------------------------------------
```

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-485 = 9 bytes
   - USB = 15 bytes

5.2.5.1 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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
+------------------------------------------------+
```

5.2.5.2 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.

5.2.6 F9 - REPORT CURRENT STATUS

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

5.2.6.1 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')


------------------------------------------------------------------------
```

5.3 Sales Period in Progress Commands

- The sale period is started when any of the following commands is executed:

    - D2 - Item Sale
    - E0 - Print Fiscal, Return and Diplomatic Receipt
    - E2 - Print Waybill Receipt

- The sale period is finished when the following command is executed:

    - 13 - Close Sale Period

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

- Fiscal   Receipt in Progress
- Return   Receipt in Progress
- Waybill   Receipt in Progress
- Diplomatic Receipt 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

5.4 Sale Transaction in Progress Commands

The fiscal voucher is generated during a sale transaction.

- The following command is executed to print header (it not start a sale period neither a sale transaction).

    - 01 - Print Header

- The sale transaction is started when the following command is executed:

    - D2 - Item Sale

- These commands are executed when a sales transaction is in progress:

    - D3 - Negative Item Sale
    - D4 - Subtotal/Total Transaction
    - D5 - Payment
    - D8 - Not Paid
    - D9 - Discount/Uplift on Subtotal
    - 06 - End of Transaction
    - 07 - Cancel Transaction
    - C0 - Print Credit Card Slip
    - C1 - End Credit Card Slip
    - C3 - Line Feed Credit Card Slip

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

5.5 General Fiscal Voucher Rules

- Payment phase is required.

- Credit card printing in DI station while in the sales transaction state is allowed in the payment phase only.

- When an error occurred during an end transaction the following is allowed:

   – To issue the end transaction (06 cmd.) again if the fiscal logo was not printed yet.
   – To issue the cancel transaction (07 cmd.) if the fiscal logo was printed yet.

5.5.1 01 - PRINT HEADER

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

5.5.1.1 Command Format

```
------------------------------------------------------------------------

BYTE        CONTENT                                   TYPE     LENGTH

 0-1        1B66 - cmd prefix                         hex           2
 2          01 - Print Header                         hex           1
 3          Cmd. Extension                            hex           1
     7-0    Reserved (always = '0x00')


------------------------------------------------------------------------
```

5.5.2 D2 - ITEM SALE

This command is used to record the amount of an item and to print a line containing item description and item amount.

5.5.2.1 Command Format

```
 -------------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

 0-1       1B66 - Cmd Prefix                          hex       2
 2         D2 - Item Sale                             hex       1
 3         Cmd. Extension                             hex       1
     7     Retry
           1 = YES
           0 = NO
     6     Reserved (always = '0')
     5     Print Density
           0 = Normal
           1 = Emphasized
     4     Reserved (always = '0')
     3     Print Typeface
           0 = 15 CPI
           1 = 12 CPI
    2-0    Reserved (always = '0')
 4-20      D2_Description                             ASCII     17 (Note 1)
21-27      Reserved                                   ASCII      7
28-39      D2_Amount                                  ASCII     12 (Note 2)
40-41      D2_TAX_Category                            ASCII      2 (Note 3)


 -------------------------------------------------------------------------
```

Notes:

1. D2_Description field is truncated as follows:
   Document at 12 CPI to 9 characters.
   Document at 15 CPI to 17 characters.

2. Max D2_Amount = 549 755 813 887
   D2_Amount string can be blank, in this case the transaction counters are not affected.

3. Specify a valid D2_TAX_Category, ex. 01, 02,.... if D2_Amount string is not blank.

5.5.2.2 Item Sale Calculations

$Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) + D2\_Amount$

Where: specific values of vv are determined from the item sale command.

   vv = D2_TAX_Category, range 01 to 10.

5.5.2.3 Item Sale Rules

- Each item is assigned a value-added TAX (TAX) category that indicates the tax rate applied to the base price to obtain the sale price.
- Items cannot be accepted if the D2_TAX_Category specified in the item sale command is disabled (rate = 9999).
- The item price includes TAX.
- D2_Amount field in command string of item can be blank.
  This allows the processing of items with description longer than the number of characters allowed in one line.
- The number of items with blank amount which can be sent between non-blank item lines is 5.
- If D2_Amount field in command string of Item/Negative Item is not blank, specify D2_TAX_Category.
- The string TOTAL in upper, lower or mixed case is not allowed in the D2_Description field.

5.5.3 D3 - NEGATIVE ITEM SALE

This command is usde to records the amount of a negative item and prints a line containing the item description and item amount.

5.5.3.1 Command Format

```
---------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE   LENGTH

 0-1      1B66 - Cmd Prefix                          hex      2
 2        D3 - Negative Item Sale                    hex      1
 3        Cmd. Extension                             hex      1
     7    Retry
          1 = YES
          0 = NO
     6    Rectify
          1 = YES
          0 = NO
     5    Print Density
          0 = Normal
          1 = Emphasized
     4    Reserved (always = '0')
     3    Print Typeface
          0 = 15 CPI
          1 = 12 CPI
     2-0  Negative Item Type
          001 (1) = VOID
          010 (2) = BONUS/COUPONS
          011 (3) = DISCOUNT
          100 (4) = EMPTY (as in empty bottles)
 4-20     D3_Description                             ASCII   17 (Note 1)
21-27     Reserved                                   ASCII    7
28-39     D3_Amount                                  ASCII   12 (Note 2)
40-41     D3_TAX_Category                            ASCII    2 (Note 3)


---------------------------------------------------------------------
```

Notes:

1. D3_Description field is truncated as follows:
   Document at 12 CPI to 9 characters.
   Document at 15 CPI to 17 characters.

2. D3_Amount string cannot be blank. Max D3_Amount = 549 755 813 887.

3. Specify a valid D3_TAX_Category, ex. 01, 02,...

5.5.3.2 Negative Item Sale Calculations

- **For Rectify = NO**

  $Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) - D3\_Amount$

  - **According to the negative item type:**

    $Tra\_N\_Void = Tra\_N\_Void + 1$

    $Tra\_Void\_v(vv) = Tra\_Void\_v(vv) + D3\_Amount$
    $Tra\_Void = Tra\_Void + D3\_Amount$

$Tra\_N\_Bonu = Tra\_N\_Bonu + 1$

$Tra\_Bonu\_v(vv) = Tra\_Bonu\_v(vv) + D3\_Amount$
$Tra\_Bonu = Tra\_Bonu + D3\_Amount$

$Tra\_N\_Disc = Tra\_N\_Disc + 1$

$Tra\_Disc\_v(vv) = Tra\_Disc\_v(vv) + D3\_Amount$
$Tra\_Disc = Tra\_Disc + D3\_Amount$

$Tra\_N\_Empt = Tra\_N\_Empt + 1$

$Tra\_Empt\_v(vv) = Tra\_Empt\_v(vv) + D3\_Amount$
$Tra\_Empt = Tra\_Empt + D3\_Amount$

- **For Rectify = YES**

$Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) + D3\_Amount$

  - **According to the negative item type:**

  $Tra\_Void\_v(vv) = Tra\_Void\_v(vv) - D3\_Amount$
  $Tra\_Void = Tra\_Void - D3\_Amount$

  $Tra\_Bonu\_v(vv) = Tra\_Bonu\_v(vv) - D3\_Amount$
  $Tra\_Bonu = Tra\_Bonu - D3\_Amount$

  $Tra\_Disc\_v(vv) = Tra\_Disc\_v(vv) - D3\_Amount$
  $Tra\_Disc = Tra\_Disc - D3\_Amount$

  $Tra\_Empt\_v(vv) = Tra\_Empt\_v(vv) - D3\_Amount$
  $Tra\_Empt = Tra\_Empt - D3\_Amount$

where: specific values of vv are determined from the negative item sale command.

vv = D3_TAX_Category, range 01 to 10.

5.5.3.3 Negative Item Sale Rules

- A minus sign is printed for negative items with rectify = NO.
- The rectify = YES allows modification or cancellation of a previous negative item operation.
  The rectified value is added to the appropriate negative item category.
- Negative items cannot be accepted if the D3_TAX_Category specified in the item sale command is disabled (rate = 9999).
- None of the negative or uplift item accumulators may be allowed to become negative as a result of the command or the command cannot be accepted.
- The string TOTAL in upper, lower, or mixed case is not allowed in the D3_Description field.

5.5.4 D4 - SUBTOTAL/TOTAL TRANSACTION

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

5.5.4.1 Command Format

```
---------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

 0-1      1B66 - Cmd Prefix                          hex       2
 2        D4 - Subtotal/Total Transaction            hex       1
 3        Cmd. Extension                             hex       1
      7   Retry
          0 = NO
          1 = YES
      6   Reserved (always = '0')
      5   Print Density
          0 = Normal
          1 = Emphasized
     4-3  Character Hight                                    (Note 1)
          00 = Single
          11 = Double
     2-1  Reserved (always = '0')
      0   Character Width
          0 = Single
          1 = Double
 4-15     D4_Amount                                  ASCII    12


---------------------------------------------------------------------
```

Notes:

1. Double-wide should be selected to use double-high.

2. The number of CPI and emphasized apply to both the total message and the D4_Amount.
   Double-wide apply to D4_Amount only.

5.5.4.2 Subtotal/Total Transaction Calculations

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

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

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

for values of vv ranging from 1 to the maximum value

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

5.5.4.3 Subtotal/Total Transaction Rules

- Calculates transaction total and amount due.

5.5.5 D5 - PAYMENT

This command is used to apply the paid amount.

5.5.5.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT  CONTENT                                      TYPE    LENGTH

0-1       1B66 – Cmd Prefix                            hex        2
2         D5 – Payment                                 hex        1
3         Cmd. Extension                               hex        1
    7     Retry
          0 = NO
          1 = YES
    6     Rectify
          0 = NO
          1 = YES
    5-3   Print Typeface                                        (Note 1)
          000 = 15 CPI
          001 = 12 CPI
          010 = Reserved
          011 = Reserved
          100 = 15 CPI Emphasized
          101 = 12 CPI Emphasized
          110 = Reserved
          111 = Reserved
    2-0   Payment Type
          000 = Cash
          001 = Credit Card
I         010 = Reserved
I         011 = Reserved
          100 = Other
          101 = Reserved
          110 = Reserved
          111 = Reserved
  4-26    D5_Description                               ASCII     23
  27-38   D5_Amount                                    ASCII     12


------------------------------------------------------------------------
```

Notes:

1. Print typeface is also applied to the change due line.

5.5.5.2 Payment Calculations

• **Rectify = NO**

I $Tra\_Pay\_Type\_0 = Tra\_Pay\_Type\_0 + D5\_Amount$ (if Payment Type = Cash)
I $Tra\_Pay\_Type\_1 = Tra\_Pay\_Type\_1 + D5\_Amount$ (if Payment Type = Credit Card)
I $Tra\_Pay\_Type\_4 = Tra\_Pay\_Type\_4 + D5\_Amount$ (if Payment Type = Other)

$Tra\_Payment = Tra\_Payment + D5\_Amount$

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

• **Rectify = YES**

I $Tra\_Pay\_Type\_0 = Tra\_Pay\_Type\_0 - D5\_Amount$ (if Payment Type = Cash)

I $Tra\_Pay\_Type\_1 = Tra\_Pay\_Type\_1 - D5\_Amount$ (if Payment Type = Credit Card)

I $Tra\_Pay\_Type\_4 = Tra\_Pay\_Type\_4 - D5\_Amount$ (if Payment Type = Other)

$Tra\_Payment = Tra\_Payment - D5\_Amount$

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

5.5.5.3 Payment Rules

- The end transaction (06 cmd.) is executed only if the Tra_Payment is greater than or equal to Tra_Tot.
- If the paid amount is greater than Tra_Tot, a 'CHANGE DUE' line is printed.
- The string TOTAL in upper, lower, or mixed case is not allowed in the D5_Description field.

5.5.6 D8 - NOT PAID

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

5.5.6.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT   CONTENT                                      TYPE    LENGTH

 0-1       1B66 - Cmd Prefix                            hex       2
 2         D8 - Not Paid                                hex       1
 3         Cmd. Extension                               hex       1
     7     Retry
           0 = NO
           1 = YES
     6     Rectify
           0 = NO
           1 = YES
   5-3     Print Typeface                                        (Note 1)
           000 = 15 CPI
           001 = 12 CPI
           010 = Reserved
           011 = Reserved
           100 = 15 CPI Emphasized
           101 = 12 CPI Emphasized
           110 = Reserved
           111 = Reserved
   2-0     Reserved (always = '0')
 4-26      D8_Description                               ASCII     23
27-38      D8_Amount                                    ASCII     12


------------------------------------------------------------------------
```

Notes:

```
1. Print typeface is also applied to the change due line.
```

5.5.6.2 Not Paid Calculations

- **Rectify = NO**

  $Tra\_Pay\_Type\_4 = Tra\_Pay\_Type\_4 + D8\_Amount$ (Other)

  $Tra\_Payment = Tra\_Payment + D8\_Amount$

  $Tra\_Amt\_Due = Tra\_Amt\_Due - D8\_Amount$

- **Rectify = YES**

  $Tra\_Pay\_Type\_4 = Tra\_Pay\_Type\_4 - D8\_Amount$ (Other)

  $Tra\_Payment = Tra\_Payment - D8\_Amount$

  $Tra\_Amt\_Due = Tra\_Amt\_Due + D8\_Amount$

5.5.6.3 Not Paid Rules

- The Tra_Payment can exceed the Tra_Tot.
- The end transaction (06 cmd.) is executed only if the Tra_Payment is greater than or equal to Tra_Tot.
- If the D8_Amount is greater than Tra_Tot, a 'CHANGE DUE' line is printed.
- The string TOTAL in upper, lower, or mixed case is not allowed in the D8_Description field.

5.5.7 D9 - DISCOUNT/UPLIFT ON SUBTOTAL

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

5.5.7.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT  CONTENT                                     TYPE    LENGTH

 0-1      1B66 - Cmd Prefix                           hex        2
 2        D9 - Discount/Uplift 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     D9_Description                              ASCII      20
24-25     Reserved                                    ASCII       2
26-37     D9_Amount                                   ASCII      12


 ----------------------------------------------------------------------
```

5.5.7.2 Discount/Uplift on Subtotal Calculations

- **Discount and Rectify = NO**

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

  $$Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) - \frac{D9\_Amount \times Tra\_Tot\_v(vv)}{Tra\_Tot}$$
  for values of vv ranging from 1 to the maximum values

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

  $Tra\_Tdsc = Tra\_Tdsc + D9\_Amount$

- **Discount and Rectify = YES**

  $$Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) + \frac{D9\_Amount \times Tra\_Tot\_v(vv)}{Tra\_Tot}$$
  for values of vv ranging from 1 to the maximum values

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

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

- **Uplift and Rectify = NO**

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

$$Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) + \frac{D9\_Amount \times Tra\_Tot\_v(vv)}{Tra\_Tot}$$

for values of vv ranging from 1 to the maximum values

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_v accumulators.

$$Tra\_Tupl = Tra\_Tupl + D9\_Amount$$

- **Uplift and Rectify = YES**

$$Tra\_Tot\_v(vv) = Tra\_Tot\_v(vv) - \frac{D9\_Amount \times Tra\_Tot\_v(vv)}{Tra\_Tot}$$

for values of vv ranging from 1 to the maximum values

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_v accumulators.

$$Tra\_Tupl = Tra\_Tupl - D9\_Amount$$

5.5.7.3 Discount/Uplift on Subtotal Rules

- The discount or uplift amount is distributed (subtracted or added) to the TAX category accumulators proportionally to their current amount.
- The string TOTAL in upper, lower, or mixed case is not allowed in the D9_Description field.
- The D9_Amount field must be greater than 0, otherwise return code 052 is issued.

5.5.8 06 - END TRANSACTION

This command is used to end the sale transaction.

5.5.8.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

  0-1     1B66 – Cmd Prefix                          hex        2
  2       06 – End Transaction                       hex        1
  3       Cmd. Extension                             hex        1
      7-0 Reserved (always = '0x00')
  4-7     06_Store_Number                            ASCII      4
  8-11    06_Operator_Number                         ASCII      4
 12-15    06_Terminal_Number                         ASCII      4
 16-53    06_Trailer_Message_1                       ASCII     38
 54-91    06_Trailer_Message_2                       ASCII     38


------------------------------------------------------------------------
```

5.5.8.2 End Transaction 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.

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

$Day\_N\_Void = Day\_N\_Void + Tra\_N\_Void$
$Day\_N\_Disc = Day\_N\_Disc + Tra\_N\_Disc$
$Day\_N\_Bonu = Day\_N\_Bonu + Tra\_N\_Bonu$
$Day\_N\_Empt = Day\_N\_Empt + Tra\_N\_Empt$

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

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

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

```
I  While Change_Due > 0
I  {
I     If (Change_Due - Tra_Pay_Type_x >= 0
I     {
I        W_Chg_Payment_x = Tra_Pay_Type_x
I     }
I     else
I     {
I        W_Chg_Payment_x = Tra_Pay_Type_x - Change_Due
I     }
I     Tra_Pay_Type_x = Tra_Pay_Type_x - W_Chg_Payment_x
I     Tra_Payment = Tra_Payment - W_Chg_Payment_x
I     Change_Due  = Change_Due - W_Chg_Payment_x
I  }
```

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

$Day\_Payment = Day\_Payment + Tra\_Payment$
$Day\_Pay\_Type\_0 = Day\_Pay\_Type\_0 + Tra\_Pay\_Type\_0$
$Day\_Pay\_Type\_1 = Day\_Pay\_Type\_1 + Tra\_Pay\_Type\_1$
$Day\_Pay\_Type\_4 = Day\_Pay\_Type\_4 + Tra\_Pay\_Type\_4$

I   for values of vv ranging from 1 to the maximum values

$Day\_Void\_v(vv) = Day\_Void\_v(vv) + Tra\_Void\_v(vv)$
$Day\_Void = Day\_Void + Tra\_Void$

$Day\_Bonu\_v(vv) = Day\_Bonu\_v(vv) + Tra\_Bonu\_v(vv)$
$Day\_Bonu = Day\_Bonu + Tra\_Bonu$

$Day\_Disc\_v(vv) = Day\_Disc\_v(vv) + Tra\_Disc\_v(vv)$
$Day\_Disc = Day\_Disc + Tra\_Disc$

$Day\_Empt\_v(vv) = Day\_Empt\_v(vv) + Tra\_Empt\_v(vv)$
$Day\_Empt = Day\_Empt + Tra\_Empt$

$Day\_Tdsc = Day\_Tdsc + Tra\_Tdsc$

$Day\_Tupl = Day\_Tupl + Tra\_Tupl$

   for values of vv ranging from 1 to the maximum values

- **Clearing Transaction Accumulators**

  $Tra\_Tot\_v(vv) = 0$
  $Tra\_Tot = 0$

  $Tra\_Payment = 0$
  $Tra\_Pay\_Type\_0 = 0$
  $Tra\_Pay\_Type\_1 = 0$
  $Tra\_Pay\_Type\_4 = 0$

  $Tra\_Void\_v(vv) = 0$
  $Tra\_Void = 0$

  $Tra\_Bonu\_v(vv) = 0$
  $Tra\_Bonu = 0$

Tra_Disc_v(vv) = 0
Tra_Disc = 0

Tra_Empt_v(vv) = 0
Tra_Empt = 0

Tra_Tdsc = 0
Tra_Tupl = 0

Tra_Amt_Due = 0

    for values of vv ranging from 1 to the maximum values

- **Clearing Transaction Counters**

Tra_N_Void = 0
Tra_N_Disc = 0
Tra_N_Bonu = 0
Tra_N_Empt = 0
Tra_N_Tdsc = 0
Tra_N_Tupl = 0

5.5.8.3 End Transaction Rules

- End Transaction command is executed only if the total paid amount is not less than the transaction total amount if the payment phase is selected. 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 trailer message lines of this command.

5.5.9 07 - CANCEL TRANSACTION

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

5.5.9.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

 0-1     1B66 – Cmd Prefix                           hex        2
 2       07 – Cancel Transaction                     hex        1
 3       Cmd. Extension                              hex        1
    7-0  Reserved (always = '0x00')
 4-7     07_Store_Number                             ASCII      4
 8-11    07_Operator_Number                          ASCII      4
12-15    07_Terminal_Number                          ASCII      4


------------------------------------------------------------------------
```

5.5.9.2 Cancel Transaction Calculations

- **If only the store header has been printed, then there are no calculations for this command.**

- **If anything more than the store header is printed, the following calculations are performed:**

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

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

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

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

  $Tra\_Tot = \sum\limits_{vv} Tra\_Tot\_v(vv)$

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

     for values of vv ranging from 1 to the maximum values

- **Clearing Transaction Accumulators**

  $Tra\_Tot\_v(vv) = 0$
  $Tra\_Tot = 0$

  $Tra\_Void\_v(vv) = 0$
  $Tra\_Void = 0$

  $Tra\_Bonu\_v(vv) = 0$
  $Tra\_Bonu = 0$

  $Tra\_Disc\_v(vv) = 0$
  $Tra\_Disc = 0$

  $Tra\_Empt\_v(vv) = 0$
  $Tra\_Empt = 0$

  $Tra\_Tdsc = 0$

  $Tra\_Tupl = 0$

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

Tra_Payment = 0

Tra_Amt_Due = 0

  for values of vv ranging from 1 to the maximum values

- **Clearing Transaction Counters**

Tra_N_Void = 0

Tra_N_Disc = 0

Tra_N_Bonu = 0

Tra_N_Empt = 0

Tra_N_Tdsc = 0

Tra_N_Tupl = 0

5.5.9.3 Cancel Transaction Rules

- The string TOTAL in upper, lower, or mixed case is not allowed in this command.

5.6 Fiscal, Return & Diplomatic Receipt in Progress Commands

This fiscal, return & diplomatic receipt in progress commands include:

- E0 - Print Fiscal, Return & Diplomatic Receipt
- E3 - End   Fiscal, Return & Diplomatic Receipt
- 0F - Cancel Fiscal, Return & Diplomatic Receipt

5.6.1 E0 - PRINT FISCAL, RETURN AND DIPLOMATIC RECEIPT

This command is used to print fiscal, return and diplomatic receipts.

5.6.1.1 Command Format

```
------------------------------------------------------------------

BYTE BIT  CONTENT                                     TYPE   LENGTH

 0-1      1B66 - Command Prefix                        hex      2
 2        E0 - Print Fiscal, Ret. & Diplom. Receipt    hex      1
 3        Cmd. Extension                               hex      1
     7    Retry
          0 = NO
          1 = YES
     6    Reserved (always = '0')
    5-3   Print Typeface
          000 = 15 CPI
          001 = 12 CPI
          010 = Reserved
          011 = Reserved
          100 = 15 CPI Emphasized
          101 = 12 CPI Emphasized
          110 = Reserved
          111 = Reserved
     2    Orientation Print and Direction
          0 = Landscape - Forward
          1 = Portrait  - Forward
    1-0   Receipt Type
          00 = Fiscal
          01 = Return
          10 = Diplomatic
          11 = Reserved
 4-89     E0_Description                               ASCII   86 (Note 1)


------------------------------------------------------------------
```

Notes:

1. E0_Description field is truncated as follows:
   Portrait   orientation at 15 CPI to 47 characters.
   Portrait   orientation at 12 CPI to 37 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 68 characters.

5.6.2 E3 - END FISCAL, RETURN AND DIPLOMATIC RECEIPT

This command is used to end fiscal, return and diplomatic receipts.

5.6.2.1 Command Format

```
 ----------------------------------------------------------------------

 BYTE BIT   CONTENT                                   TYPE    LENGTH

  0-1        1B66 – Command Prefix                    hex       2
  2          E3 – End Fiscal, Ret. & Diplom. Receipt  hex       1
  3          Cmd. Extension                           hex       1
      7      Retry
             0 = NO
             1 = YES
      6      Reserved (always = '0' )
      5-3    Print Typeface
             000 = 15 CPI
             001 = 12 CPI
             010 = Reserved
             011 = Reserved
             100 = 15 CPI Emphasized
             101 = 12 CPI Emphasized
             110 = Reserved
             111 = Reserved
      2      Orientation Print and Direction
             0 = Landscape – Forward
             1 = Portrait  – Forward
      1-0    Receipt Type
             00 = Fiscal
             01 = Return
             10 = Diplomatic
             11 = Reserved
  4-89       E3_Description                           ASCII    86  (Note 1)
 90-101      E3_Amount                                ASCII    12
102-113      E3_VAT_Amount                            ASCII    12


 ----------------------------------------------------------------------
```

Notes:

1. E3_Description field is truncated as follows:
   Portrait   orientation at 15 CPI to 38 characters.
   Portrait   orientation at 12 CPI to 30 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 68 characters.

5.6.2.2 End Fiscal, Return and Diplomatic Receipt Calculations

- **If Fiscal Receipt**

  $Day\_N\_FRec = Day\_N\_FRec + 1$

  $Day\_FRec\_Tot = Day\_FRec\_Tot + E3\_Amount$

  $Day\_FRec\_VTot = Day\_FRec\_VTot + E3\_VAT\_Amount$

- **If Return Receipt**

$Day\_N\_RRec = Day\_N\_RRec + 1$

$Day\_RRec\_Tot = Day\_RRec\_Tot + E3\_Amount$

$Day\_RRec\_VTot = Day\_RRec\_VTot + E3\_VAT\_Amount$

- **If Diplomatic Receipt**

$Day\_N\_DRec = Day\_N\_DRec + 1$

$Day\_DRec\_Tot = Day\_DRec\_Tot + E3\_Amount$

$Day\_DRec\_VTot = Day\_DRec\_VTot + E3\_VAT\_Amount$

5.6.3 0F - CANCEL FISCAL, RETURN AND DIPLOMATIC RECEIPT

This command is used to cancel fiscal, return and diplomatic receipts.

5.6.3.1 Command Format

```
---------------------------------------------------------------------

BYTE BIT   CONTENT                                      TYPE    LENGTH

 0-1       1B66 - Command Prefix                        hex        2
 2         0F - Cancel Fiscal, Ret. & Diplom. Receipt   hex        1
 3         Cmd. Extension                               hex        1
     7-3   Reserved (always = '0')
     2     Orientation Print and Direction
           0 = Landscape - Forward
           1 = Portrait  - Forward
     1-0   Receipt Type
           00 = Fiscal
           01 = Return
           10 = Diplomatic
           11 = Reserved
 4-15      0F_Amount                                    ASCII     12


---------------------------------------------------------------------
```

5.6.3.2 Cancel Fiscal, Return and Diplomatic Receipt Calculations

- **If Fiscal Receipt**

  $Day\_N\_FRec = Day\_N\_FRec + 1$

  $Day\_N\_CFrc = Day\_N\_CFrc + 1$

  $Day\_FRec\_CTot = Day\_FRec\_CTot + 0F\_Amount$

- **If Return Receipt**

  $Day\_N\_RRec = Day\_N\_RRec + 1$

  $Day\_N\_CRrc = Day\_N\_CRrc + 1$

  $Day\_RRec\_CTot = Day\_RRec\_CTot + 0F\_Amount$

- **If Diplomatic Receipt**

  $Day\_N\_DRec = Day\_N\_DRec + 1$

  $Day\_N\_CDrc = Day\_N\_CDrc + 1$

  $Day\_DRec\_CTot = Day\_DRec\_CTot + 0F\_Amount$

5.7 Waybill Receipt in Progress Commands

The waybill receipt in progress commands include:

- E2 - Print Waybill Receipt
- E5 - End   Waybill Receipt
- 11 - Cancel Waybill Receipt

5.7.1 E2 - PRINT WAYBILL RECEIPT

This command is used to print waybill receipts.

5.7.1.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

 0-1      1B66 - Command Prefix                      hex        2
 2        E2 - Print Waybill Receipt                 hex        1
 3        Cmd. Extension                             hex        1
     7    Retry
          0 = NO
          1 = YES
     6    Reserved (always = '0')
    5-3   Print Typeface
          000 = 15 CPI
          001 = 12 CPI
          010 = Reserved
          011 = Reserved
          100 = 15 CPI Emphasized
          101 = 12 CPI Emphasized
          110 = Reserved
          111 = Reserved
    2-0   Orientation Print and Direction
          000 = Reserved
          001 = Reserved
          010 = Reserved
          011 = Reserved
          100 = Reserved
          101 = Landscape - Forward
          110 = Portrait  - Forward
          111 = Reserved
 4-89     Description                                ASCII     86 (Note 1)


------------------------------------------------------------------------
```

Notes:

```
1. Description field is truncated as follows:
   Portrait  orientation at 15 CPI to 47 characters.
   Portrait  orientation at 12 CPI to 37 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 86 characters.
```

5.7.2 E5 - END WAYBILL RECEIPT

This command is used to end a waybill receipt.

5.7.2.1 Command Format

```
-----------------------------------------------------------------------

BYTE BIT   CONTENT                                      TYPE    LENGTH

 0-1       1B66 - Command Prefix                        hex       2
 2         E5 - End Waybill Receipt                     hex       1
 3         Cmd. Extension                               hex       1
     7     Retry
           0 = NO
           1 = YES
     6     Reserved (always = '0')
   5-3     Print Typeface
           000 = 15 CPI
           001 = 12 CPI
           010 = Reserved
           011 = Reserved
           100 = 15 CPI Emphasized
           101 = 12 CPI Emphasized
           110 = Reserved
           111 = Reserved
   2-0     Orientation Print and Direction
           000 = Reserved
           001 = Reserved
           010 = Reserved
           011 = Reserved
           100 = Reserved
           101 = Landscape - Forward
           110 = Portrait  - Forward
           111 = Reserved
 4-89      E5_Description                               ASCII    86 (Note 1)
90-101     E5_Amount                                    ASCII    12
102-113    E5_TAX_Amount                                ASCII    12


-----------------------------------------------------------------------
```

Notes:

```
1. E5_Description field is truncated as follows:
   Portrait   orientation at 15 CPI to 47 characters.
   Portrait   orientation at 12 CPI to 37 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 68 characters.
```

5.7.2.2 End Waybill Receipt Calculations

$Day\_N\_WBill = Day\_N\_WBill + 1$

$Day\_WBill\_Tot = Day\_WBill\_Tot + E5\_Amount$

$Day\_WBill\_VTot = Day\_WBill\_VTot + E5\_TAX\_Amount$

5.7.3 11 - CANCEL WAYBILL RECEIPT

This command is used to cancel the waybill receipts.

5.7.3.1 Command Format

```
 ------------------------------------------------------------------------

 BYTE BIT   CONTENT                                    TYPE    LENGTH

  0-1       1B66 - Command Prefix                      hex        2
  2         11 - Cancel Waybill Receipt               hex        1
  3         Cmd. Extension                             hex        1
      7-3   Reserved (always = '0')
      2-0   Orientation Print and Direction
            000 = Reserved
            001 = Reserved
            010 = Reserved
            011 = Reserved
            100 = Reserved
            101 = Landscape - Forward
            110 = Portrait  - Forward
            111 = Reserved
  4-15      11_Amount                                  ASCII     12


 ------------------------------------------------------------------------
```

5.7.3.2 Cancel Waybill Receipt Calculations

$Day\_N\_CWbl = Day\_N\_CWbl + 1$

$Day\_N\_WBill = Day\_N\_WBill + 1$

$Day\_WBill\_CTot = Day\_WBill\_CTot + 11\_Amount$

5.8 Credit Card Slip in Progress Commands

The credit card slip in progress commands include:

- C0 - Print Credit Card Slip
- C1 - End Credit Card Slip
- C3 - Line Feed Credit Card Slip

5.8.1 Credit Card Slip Rules

- The credit card slip printing is allowed during the payment phase of a sale transaction.

- The credit card slip printing commands allow for special considerations when printing these documents, different than those allowed for application-originated reports.

- No application-originated message line is printed at the start and the end of a credit card document.

- Linefeed commands count the same as a print line as referenced below.

- When printing a credit card slip, after 255 lines, no additional printing can be allowed and a end credit card slip command must be executed to end the state.
  Since the end credit card slip command can have data to be printed, the total number of lines allowed is 255 + 1.

5.8.2 C0 - PRINT CREDIT CARD SLIP

This command is used to print a credit card slip.

5.8.2.1 Command Format

```
-----------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

 0-1       1B66 - cmd prefix                          hex        2
 2         C0 - Print Credit Card Slip                hex        1
 3         Cmd. Extension                             hex        1
     7     Retry
           0 = NO
           1 = YES
     6     Document Type
           0 = Reserved
           1 = Credit Card
     5-3   Print Typeface
           000 = 15 CPI
           001 = 12 CPI
           010 = Reserved
           011 = Reserved
           100 = 15 CPI Emphasized
           101 = 12 CPI Emphasized
           110 = Reserved
           111 = Reserved
     2-0   Orientation Print and Direction
           000 = Reserved
           001 = Reserved
           010 = Landscape
           011 = Portrait - Reverse
           100 = Reserved
           101 = Landscape
           110 = Portrait - Forward
           111 = Reserved
 4-89      C0_Description                             ASCII     86 (Note 1)


-----------------------------------------------------------------------
```

Notes:

```
1. C0_Description field is truncated as follows:
   Portrait   orientation at 15 CPI to 47 characters.
   Portrait   orientation at 12 CPI to 37 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 68 characters.
```

5.8.2.2 Print Credit Card Slips Rules

- Credit card slip is printed in DI station.

5.8.3 C1 - END CREDIT CARD SLIP

This command is used to end the credit card slip printing on DI station.

5.8.3.1 Command Format

```
---------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

 0-1       1B66 - Cmd Prefix                          hex        2
 2         C1 - End Credit Card Slip                  hex        1
 3         Cmd. Extension                             hex        1
     7     Retry
           0 = NO
           1 = YES
     6     Document Type
           0 = Reserved
           1 = Credit Card
    5-3    Print Typeface
           000 = 15 CPI
           001 = 12 CPI
           010 = Reserved
           011 = Reserved
           100 = 15 CPI Emphasized
           101 = 12 CPI Emphasized
           110 = Reserved
           111 = Reserved
    2-0    Orientation Print and Direction
           000 = Reserved
           001 = Reserved
           010 = Landscape
           011 = Portrait - Reverse
           100 = Reserved
           101 = Landscape
           110 = Portrait - Forward
           111 = Reserved
 4-89      C1_Description                             ASCII     86 (Note 1)


---------------------------------------------------------------------
```

Notes:

1. C1_Description field is truncated as follows:
   Portrait   orientation at 15 CPI to 47 characters.
   Portrait   orientation at 12 CPI to 37 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 68 characters.

5.8.3.2 End Credit Card Slips Calculations

$Day\_N\_Cred = Day\_N\_Cred + 1$

5.8.3.3 End Credit Card Slips Rules

• The fiscal printer will issue a document eject command to the printer.

5.8.4 C3 - LINE FEED CREDIT CARD SLIP

This command is used to apply line feeds during a credit card slip.

5.8.4.1 Command Format

```
---------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

 0-1      1B66 - Cmd Prefix                          hex        2
 2        C3 - Line Feed Credit Card Slip            hex        1
 3        Cmd. Extension                             hex        1
     7    Reserved (always = '0')
     6    Document Type
          0 = Reserved
          1 = Credit Card
     5-4  Orientation Print and Direction
          10 = Portrait - Forward
          11 = Portrait - Reverse
     3-0  Number of Line Feed
          (min 1, max 15)
 4        Number of Dots Rows Per Line Feed          hex        1
          (min 3, max 12)


---------------------------------------------------------------------
```

5.8.4.2 Line Feed Credit Card Slips Rules

- This command starts the credit card slip printing state just as if a print credit card command had been issued.
- An end or cancel credit card slip command must be issued to exit this state.

5.9 Miscellaneous Commands

The miscellaneous commands include:

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

5.9.1 C8 - SET BARCODE PARAMETERS

This command is used to set the barcode parameters.

5.9.1.1 Command Format

```
 --------------------------------------------------------------------

BYTE BIT   CONTENT                                  TYPE    LENGTH

 0-1       1B66 - Cmd Prefix                        hex        2
 2         C8 - Set Barcode Parameters              hex        1
 3         Cmd. Extension                           hex        1
           00 = Size
           01 = Station

    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                                  hex        1
           0 = CR
           1 = SJ
           2 = DI


 --------------------------------------------------------------------
```

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
   - For DI station:
     – Minimum = 3
     – Maximum = 5

5.9.1.2 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.
  – For DI station is 4.
- CR is the default station.
- After PLD or J4/CE jumper operation, the printer returns to its default station (CR).

5.9.2 C9 - PRINT BARCODE

This command is used to print barcode.

5.9.2.1 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.

5.9.2.2 Print Barcode Rules

- In barcode types CODE39 and CODE93, if the width is $\geq$ 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, application-originated reports, fiscal receipts, return receipts, diplomatic receipts or waybill receipts.
  - – Outside Sale Period
    - — Inside of application-originated reports.
    - — Outside of application-originated reports.

5.9.3 CA - PRINT AND DOWNLOAD GRAPHICS

This command is used to download and print graphics.

5.9.3.1 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-485	BYTE USB	CONTENT	TYPE	LENGTH
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	CA - Record Identification	hex	1
10	16	Return Code	hex	1
		43 = Good Completion		
		74 = Invalid Sequence		
		75 = Invalid Size		

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

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

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

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

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

```
--------------------------------------------------------------------------------

BYTE      BYTE      CONTENT                                     TYPE    LENGTH
RS-485    USB

 0-8                Fiscal Unit Status                          hex          9
          0-14      Fiscal Unit Status                          hex         15

  9        15       CA - Record Identification                  hex          1
 10        16       Return Code                                 hex          1
                    43 = Good Completion
                    76 = Invalid Graphic Number


--------------------------------------------------------------------------------
```

5.9.3.2 Print Graphics Flow

```
  ----------------------           ----------------------
 |     Cmd xCA00        |         |     Cmd xCA01        |
 | First Print 100 DPI  |         | First Print 200 DPI  |
  ----------------------           ----------------------
           |                                |
      +---------------------------------+
           |
           |---------------------------+
           |                           |
       ---------------------        ----------------------
 +-->|     Cmd xCA08       |------>|     Cmd xCA0A        |
 |   |    Next Packet      |       | Cancel Graphic Transm.|
 |    ---------------------         ----------------------
 |                    |
 +-------------|
                 |
        ----------------------
       |     Cmd xCA09        |
       |    Last Packet       |
        ----------------------
```
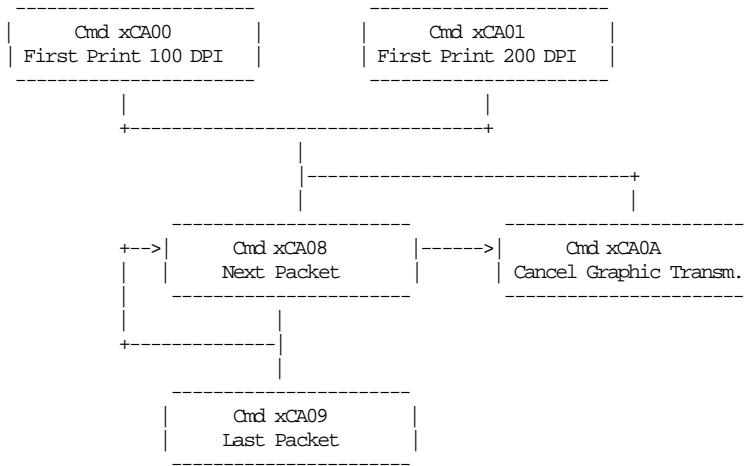
5.9.3.3 Download/print Graphics Flow

```
                ----------------------
 +-------->|     Cmd xCA02        |--------------------+
 |         | First Download Packet |                    |
 |          ----------------------                      |
 |                   |                                  |
 |                   |                                  |
 |                   |                                  |
 |          ----------------------          ----------------------
 |   +-->|     Cmd xCA08        |------->|     Cmd xCA0A        |
 |   |   |    Next Packet       |        | Cancel Graphic Transm.|
 |   |    ----------------------          ----------------------
 |   |               |
 |   +-------------|
 |                  |
 |         ----------------------
 +---------|     Cmd xCA09        |--------------------+
           |    Last Packet       |                    |
            ----------------------                     |
                   |                                   |
                   |                                   |
                   |                                   |
       ---------------------       ----------------------
 +-->|     Cmd xCA11       |<----+-->|     Cmd xCA12        |
 |   | Print Down. 100 DPI |     |   | Print Down. 200 DPI  |
 |    ---------------------      |    ----------------------
 |             |                 |             |
 +-------------+                 +---------------+


        ----------------------
       |     Cmd xCA10        |
       | Erase Graph.Down.Area |
        ----------------------
```
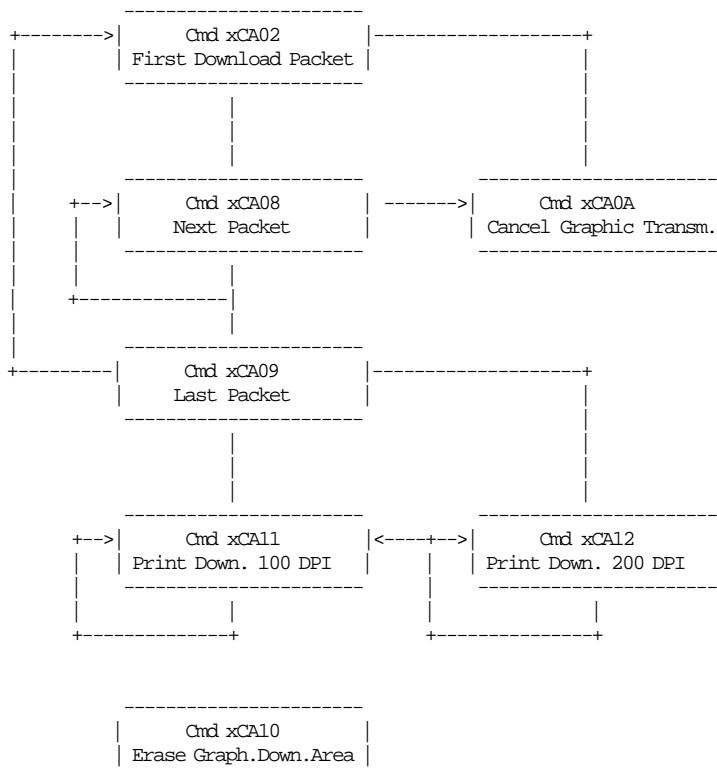
5.9.3.4 Print Graphic Example.

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)


                                                            Data
Column #  1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16    Bytes

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

5.9.4 CD - CASH DRAWER MANAGEMENT

ONLY VALID FOR 4610 USB

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

5.9.4.1 Command Format

```
---------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

 0-1      1B66 - Cmd Prefix                          hex       2
 2        CD - Cash Drawer Management                hex       1
 3        Cmd. Extension                             hex       1
          00 = Open Cash Drawer
          01 = Get  Cash Drawer Status

 If Cmd. Extension = 00 specify:
 4        Cash Drawer Number                         hex       1 (Note 1)
 5        Pulse Width ON  Time                       hex       1 (Note 2)
 6        Pulse Width OFF Time                       hex       1 (Note 2)


---------------------------------------------------------------------
```

Notes:

1. Numbers allowed: 0 and 1.

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

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

```
---------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

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


---------------------------------------------------------------------
```

5.10 Report Printing Commands

These are the report printing commands:

- 13 - Close Sale Period (Z-Report)
- 14 - Print X-Report
- 15 - Fiscal Memory Report

There are two commands that control application-originated reports:

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

5.10.1 13 - CLOSE SALE PERIOD (Z-Report)

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

5.10.1.1 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')


-------------------------------------------------------------------------
```

5.10.1.2 Close Sale Period Calculations

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

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

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

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

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

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

  - **IF NEW LIRA WAS NOT SET**

    $Lif\_Tot\_OL = Lif\_Tot\_OL + Day\_Tot$
    $Lif\_VATC\_OL = Lif\_VATC\_OL + Day\_VATC$

  - **IF NEW LIRA WAS SET**

    $Lif\_Tot\_NL = Lif\_Tot\_NL + Day\_Tot$
    $Lif\_VATC\_NL = Lif\_VATC\_NL + Day\_VATC$

    for values of vv ranging from 1 to the maximum values

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

```
          ----------------------
          * TAX  * vv * Day_Tot_v *
          * Rate *    *           *
          * ---- * -- * --------- *
          *  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_r(rr) is accumulated all Day_Tot_v(vv) with the same TAX rate.
Example:

```
-------------------------
* rr * TAX  * W_Day_Tot_r *
*     * Rate *            *
* -- * ---- * ---------- *
* 01 *  10  *      90    *
* 02 *   8  *      50    *
* 03 *   6  *      70    *
* 04 *   4  *      30    *
* 05 *   2  *      65    *
-------------------------
```

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

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

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

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

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

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

- **The following operations are performed after update the daily entry table**

$Day\_Tot\_v = 0$
$Day\_Tot = 0$

$Day\_VATC\_v(vv) = 0$
$Day\_VATC = 0$

$Day\_Void\_v(vv) = 0$
$Day\_Void = 0$

$Day\_Bonu\_v(vv) = 0$
$Day\_Bonu = 0$

$Day\_Disc\_v(vv) = 0$
$Day\_Disc = 0$

$Day\_Empt\_v(vv) = 0$
$Day\_Empt = 0$

$Day\_Tdsc\_v(vv) = 0$
$Day\_Tdsc = 0$

$Day\_Tupl\_v(vv) = 0$
$Day\_Tupl = 0$

$Day\_Canc\_v(vv) = 0$
$Day\_Canc = 0$

for values of vv ranging from 1 to the maximum values

$Day\_Pay\_Type\_0 = 0$
$Day\_Pay\_Type\_1 = 0$
$Day\_Pay\_Type\_4 = 0$

$Day\_Payment = 0$

$Day\_WBill\_Tot = 0$
$Day\_WBill\_VTot = 0$

Day_WBill_CTot = 0

Day_FRec_Tot = 0
Day_FRec_VTot = 0
Day_FRec_CTot = 0

Day_RRec_Tot = 0
Day_RRec_VTot = 0
Day_RRec_CTot = 0

Day_DRec_Tot = 0
Day_DRec_VTot = 0
Day_DRec_CTot = 0

- **Clearing Daily Counters:**

Day_N_Ract = 0
Day_N_Vouc = 0
Day_N_Canc = 0

Day_N_Void = 0
Day_N_Bonu = 0
Day_N_Disc = 0
Day_N_Empt = 0

Day_N_Tdsc = 0
Day_N_Tupl = 0

Day_N_Fisc = 0
Day_N_CFisc = 0

Day_N_WBill = 0
Day_N_CWbl = 0

Day_N_FRec = 0
Day_N_CFrc = 0

Day_N_RRec = 0
Day_N_CRrc = 0

Day_N_DRec = 0
Day_N_CDrc = 0

Day_N_NFR = 0

Day_N_Dump = 0

Day_N_Cred = 0

Day_N_X = 0

5.10.1.3 Close Sale Period Rules

- The daily totals are loaded in the daily entry table in fiscal memory.
- Up to 3840 entries in the table are available for the fiscal unit life time.

5.10.2 14 - PRINT X-REPORT

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

5.10.2.1 Command Format

```
------------------------------------------------------------------------

BYTE BIT  CONTENT                                      TYPE   LENGTH

 0-1      1B66 - cmd prefix                            hex        2
 2        14 - Print X-Report                          hex        1
 3        Cmd. Extension                               hex        1
     7-0  Reserved (always = '0x00')


------------------------------------------------------------------------
```

5.10.2.2 Print X-Report Calculations

The calculations done during this command 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:**

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

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

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

The calculations done during the close sale period (13 cmd.) after the fiscal memory is written are NOT done during this command.

5.10.2.3 Print 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.

5.10.3 15 - FISCAL MEMORY REPORT

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

5.10.3.1 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

5.10.3.2 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**

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

5.10.3.3 Fiscal Memory Report Rules

- Two types of dump are provided: short and extended.
- Extended - Old Lira
  This report is printed when the requested period include closures performed with the old Lira. If the first closure of the requested period is performed in the old Lira, then the fiscal memory report will be printed with the closures from the first requested until the last closure done in the old Lira.

Example:
```
* ------------------------------ * ------------------- *
* First closure in FM in Old Lira  *                   1 *
* Last   closure in FM in Old Lira  *                  50 *
* ------------------------------ * ------------------- *
* First closure in FM in New Lira  *                  51 *
* Last   closure in FM in New Lira  *                 100 *
* ------------------------------ * ------------------- *
* Closures requested            * A) 1-100            *
*                               * B) 25-75            *
*                               * C) 25-50            *
*                               * D) 55-75            *
* ------------------------------ * ------------------- *
* Closures reports printed      * A) 1-50  (Old Lira) *
*                               * B) 25-50 (Old Lira) *
*                               * C) 25-50 (Old Lira) *
*                               * D) 55-75 (New Lira) *
* ------------------------------ * ------------------- *
```

- Extended - New Lira
  This report is printed when the requested period include only closures performed with the new Lira.
- Short - Old Lira
  This report is printed when the requested period include closures performed with the old Lira. If the first closure of the requested period is performed in the old Lira, then the fiscal memory report will be printed with the closures from the first requested until the last closure done in the old Lira.
- Short - New Lira
  This report is printed when the requested period include only closures performed with the new Lira.

5.10.4 DD - START APPLICATION-ORIGINATED REPORT

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

5.10.4.1 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 = DI - Landscape
           11 = DI - Portrait


------------------------------------------------------------------------
```

5.10.5 DE - END APPLICATION-ORIGINATED REPORT

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

5.10.5.1 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')


-----------------------------------------------------------------------
```

5.10.5.2 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

5.10.5.3 End Application-Originated Report Rules

There are not rules for this command.

5.10.6 General Application-Originated Lines and Reports Rules

1. **TRAINING MODE State**

   a. **INSIDE SALE PERIOD**

      1) **ORDINARY LINES INSIDE THE VOUCHER**

         a) After the each 01, D2, D3, D4, D9, D5 and D8 cmds., the maximum number of ordinary print lines lines in CR station (EA cmd.) that can be printed are 255.

         b) After the each 01, D2, D3, D4, D9, D5 and D8 cmds. and after the last of the 255 ordinary lines in CR station (EA cmd.) is printed, the fiscal printer generates RETURN CODE 069 if additional ordinary print lines are requested.

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

         d) After the 01, D2, D3, D4, D9, D5 and D8 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 01, D2, D3, D4, D9, D5 and D8 cmds., the maximum number of ordinary print lines lines in SJ station (EA cmd.) that can be printed are 255.

         g) After the each 01, D2, D3, D4, D9, D5 and D8 cmds. and after the last of the 255 ordinary lines in SJ station (EA cmd.) is printed, the fiscal printer generates RETURN CODE 069 if additional ordinary print lines are requested.

         h) Each ordinary line printed in SJ station (EA cmd.) during a fiscal voucher IS replicated in CR station.

         i) After the 01, D2, D3, D4, D9, D5 and D8 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 OUTSIDE THE VOUCHER**

         a) Printing ordinary lines in CR station (EA 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 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.

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

         j) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

      3) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) start with a ″*** MALi DEgERi YOK ***″ (nro. C45), 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.) end with a ″*** MALi DEgERi YOK ***″ (nro. C45).

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.) start with a ″*** MALi DEgERi YOK ***″ (nro. C45), 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.) end with a ″*** MALi DEgERi YOK ***″ (nro. C45).

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

o) An Start Application-Originated Report in DI station (DD cmd.) start with a ″*** MALi DEgERi YOK ***″ (nro. C45) message line.

p) An End Application-Originated Report in DI station (DE cmd.) end with a ″*** MALi DEgERi YOK ***″ (nro. C45) message line.

4) **FISCAL, RETURN AND DIPLOMATIC RECEIPTS**

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

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

5) **WAYBILL RECEIPT**

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

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

b. **OUTSIDE SALE PERIOD**

1) **ORDINARY LINES**

a) Printing ordinary lines in CR station (EA 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 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.

i) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed before and after.

j) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

2) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) start with a "*** MALi DEgERi YOK ***" (nro. C45), 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.) end with a "*** MALi DEgERi YOK ***" (nro. C45) message line.

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.) start with a "*** MALi DEgERi YOK ***" (nro. C45), 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.) end with a "*** MALi DEgERi YOK ***" (nro. C45) message line.

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

o) An Start Application-Originated Report in DI station (DD cmd.) start with a "*** MALi DEgERi YOK ***" (nro. C45) message line.

p) An End Application-Originated Report in DI station (DE cmd.) end with a "*** MALi DEgERi YOK ***" (nro. C45) message line.

3) **FISCAL, RETURN AND DIPLOMATIC RECEIPTS**

a) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed every 5 lines.

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

4) **WAYBILL RECEIPT**

a) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed every 5 lines.

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

2. **FISCAL MODE State**

a. **INSIDE SALE PERIOD**

1) **ORDINARY LINES INSIDE THE VOUCHER**

a) After the each 01, D2, D3, D4, D9, D5 and D8 cmds., the maximum number of ordinary print lines lines in CR station (EA cmd.) that can be printed are 255.

b) After the each 01, D2, D3, D4, D9, D5 and D8 cmds. and after the last of the 255 ordinary lines in CR station (EA cmd.) is printed, the fiscal printer generates RETURN CODE 069 if additional ordinary print lines are requested.

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

d) After the 01, D2, D3, D4, D9, D5 and D8 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 01, D2, D3, D4, D9, D5 and D8 cmds., the maximum number of ordinary print lines lines in SJ station (EA cmd.) that can be printed are 255.

g) After the each 01, D2, D3, D4, D9, D5 and D8 cmds. and after the last of the 255 ordinary lines in SJ station (EA cmd.) is printed, the fiscal printer generates RETURN CODE 069 if additional ordinary print lines are requested.

h) Each ordinary line printed in SJ station (EA cmd.) during a fiscal voucher IS replicated in CR station.

i) After the 01, D2, D3, D4, D9, D5 and D8 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 OUTSIDE THE VOUCHER**

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

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 every 5 lines.

f) Each ordinary line printed in SJ Station (EA 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.

i) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed every 5 lines.

j) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

3) **APPLICATION-ORIGINATED REPORT**

a) An Start Application-Originated Report in CR station (DD cmd.) start with a "*** MALi DEgERi YOK ***" (nro. C45), 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) The maximum number of ordinary lines can be printed 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) An End Application-Originated Report in CR station (DE cmd.) end with a ″*** MALi DEgERi YOK ***″ (nro. C45) message line.

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.) start with a ″*** MALi DEgERi YOK ***″ (nro. C45), date, time and non-fiscal receipt number message lines.

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 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.) end with a ″*** MALi DEgERi YOK ***″ (nro. C45) message line.

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

n) An Start Application-Originated Report in DI station (DD cmd.) start with a ″*** MALi DEgERi YOK ***″ (nro. C45) message line.

o) An End Application-Originated Report in DI station (DE cmd.) end with a ″*** MALi DEgERi YOK ***″ (nro. C45) message line.

4) **FISCAL, RETURN AND DIPLOMATIC RECEIPTS**

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

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

5) **WAYBILL RECEIPT**

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

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

b. **OUTSIDE SALE PERIOD**

1) **ORDINARY LINES**

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

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 every 5 lines.

f) Each ordinary line printed in SJ Station (EA 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.

i) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed every 5 lines.

j) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

2) APPLICATION-ORIGINATED REPORT

a) An Start Application-Originated Report in CR station (DD cmd.) start with a "*** MALi DEgERi YOK ***" (nro. C45), 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) During an Application-Originated Report in CR station, the ordinary lines (EA 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 ***" (nro. C45) message line.

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.) start with a "*** MALi DEgERi YOK ***" (nro. C45), date, time and non-fiscal receipt number message lines.

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 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 ***" (nro. C45) message line.

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

m) An Start Application-Originated Report in DI station (DD cmd.) start with a "*** MALi DEgERi YOK ***" (nro. C45) message line.

n) An End Application-Originated report in DI station (DE cmd.) is ended by an inserted "*** MALi DEgERi YOK ***" (nro. C45) message line.

3) FISCAL, RETURN AND DIPLOMATIC RECEIPTS

a) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed every 5 lines.

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

4) WAYBILL RECEIPT

a) Printing ordinary lines in DI station (EB cmd.), the message "NOT FISCAL (msg. no. M05)" will be printed every 5 lines.

b) The maximum number of ordinary lines in DI station (EB cmd.) are 255.

5.11 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
- EB - Ordinary Print Line in DI Station
- EC - Line Feed
- ED - Ready Document
- EE - Cut Customer Receipt
- E8 - Set Number of Dot Rows per Line Feed
- EF - Document Eject
- F4 - Head Position & Open/Close Throat

There are no calculations performed for any printer commands.

5.11.1 EA - ORDINARY PRINT LINE IN CR/SJ STATION

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

5.11.1.1 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


---------------------------------------------------------------------
```

5.11.1.2 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.

5.11.2 EB - ORDINARY PRINT LINE IN DI STATION

This command is used to print lines in document insert station.

5.11.2.1 Command Format

```
-----------------------------------------------------------------------

BYTE BIT   CONTENT                                        TYPE    LENGTH

 0-1       1B66 – Command Prefix                          hex        2
 2         EB – Ordinary Print Line in DI Station         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   Orientation Print and Direction
           000 = Reserved
           001 = Reserved
           010 = Landscape                                       (Note 1, 2)
           011 = Portrait – Reverse
           100 = Reserved
           101 = Landscape                                       (Note 1, 2)
           110 = Portrait – Forward
           111 = Reserved
 4-89      EB_Description                                 ASCII     86 (Note 3)


-----------------------------------------------------------------------
```

Notes:

1. The emphasized option is ingnored during landscape orientation print.

2. The print lines are sent from botton-of-form to top-of-form.

3. EB_Description field is truncated as follows:
   Portrait orientation at 15 CPI to 47 characters.
   Portrait orientation at 12 CPI to 37 characters.
   Landscape orientation at 15 CPI to 86 characters.
   Landscape orientation at 12 CPI to 68 characters.

5.11.2.2 Application-Originated Printing in DI Station Rules

- The string TOTAL in upper, lower, or mixed case is not allowed in the EB_Description field.
- The serial number is allowed in the EB_Description field.

5.11.3 EC - LINE FEED

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

5.11.3.1 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 = DI - Portrait - Forward
           11 = DI - Portrait - Reverse
     3-0   Number of Line Feed (min 1, max 15)


----------------------------------------------------------------------
```

5.11.3.2 Line Feed Rules

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

5.11.4 ED - READY DOCUMENT

This command is used to request the printer to advance the document in DI station.

5.11.4.1 Command Format

```
 --------------------------------------------------------------------

BYTE BIT   CONTENT                                  TYPE    LENGTH

 0-1       1B66 - cmd prefix                        hex        2
 2         ED - Ready Document                      hex        1
 3         Cmd. Extension                           hex        1
           00 = Top     Registration
           01 = Botton Registration


 --------------------------------------------------------------------
```

5.11.5 EE - CUT CUSTOMER RECEIPT

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

5.11.5.1 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


------------------------------------------------------------------------
```

5.11.6 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).

5.11.6.1 Command Format

```
-------------------------------------------------------------------------

BYTE BIT  CONTENT                                    TYPE    LENGTH

 0-1      1B66 - cmd prefix                          hex       2
 2        E8 - Set Number of Dot Rows per LF         hex       1
 3        Cmd. Extension                             hex       1
    7-4   Reserved (always = '0')
    3     DI Station - Landscape
          1 = Set Alternate Value
          0 = Set Default   Value
    2     DI Station - Portrait
          1 = Set Alternate Value
          0 = Set Default   Value
    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.

5.11.6.2 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.

5.11.7 EF - DOCUMENT EJECT

This command is used to request the printer to do line feeds of the document until EOF sensor is broken.

5.11.7.1 Command Format

```
 ----------------------------------------------------------------------

BYTE BIT   CONTENT                                   TYPE    LENGTH

 0-1       1B66 - command prefix                     hex       2
 2         EF - Document Eject                       hex       1
 3         Cmd. Extension                            hex       1
     7-1   Reserved (always = '0')
     0     Orientation Print and Direccion
           0 = Portrait - Forward
           1 = Portrait - Reverse


 ----------------------------------------------------------------------
```

5.11.8 F4 - HEAD POSITION & OPEN/CLOSE THROAT

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

5.11.8.1 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                     hex        1
           00 (00) = Right
           01 (01) = Left
           10 (02) = Open  Throat
           11 (03) = Close Throat


-----------------------------------------------------------------------
```

5.12 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

5.12.1 00 - SYSTEM COMMANDS

5.12.1.1 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.

5.12.1.2 System Commands Rules

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

5.12.2 E7 - DIAGNOSTIC AND ALIGNMENT UTILITIES

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

5.12.2.1 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)
```

Diagnostic and Alignment Utilities continued ....

```
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    BYTE    CONTENT                              TYPE    LENGTH
RS-485  USB

 0-8            Fiscal Unit Status                   hex          9
        0-14    Fiscal Unit Status                   hex         15

  9      15     MCT Value - High Order Byte          hex          1
 10      16     MCT Value - Low  Order Byte          hex         14


-------------------------------------------------------------------------
```

5.12.3 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.

5.12.3.1 Command Format

```
-------------------------------------------------------------------------

BYTE BIT   CONTENT                                    TYPE    LENGTH

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


-------------------------------------------------------------------------
```

Response to the Fiscal Unit:

```
--------------------------------------------------------------------------------

BYTE      BYTE      CONTENT                                    TYPE    LENGTH
RS-485    USB

 0-8                Fiscal Unit Status                         hex        9
          0-14      Fiscal Unit Status                         hex        15


--------------------------------------------------------------------------------
```

Response to the Fiscal Device Information:

```
--------------------------------------------------------------------------------

BYTE    BYTE  BIT  CONTENT                                      TYPE   LENGTH
RS-485  USB

 0-5                PRINTER STATUS                               hex       6


        0-7         PRINTER STATUS                               hex       8

 6       8          FISCAL STATUS & DEVICE INFO                  hex       1
              7-1  Fiscal Status
              0    (For RS-485) Fiscal/Printer Device Info
                   0 = Fiscal Device Info is NOT contained
                       in this message
                   1 = Fiscal or Printer Device Info IS contained
                       in this message
              0    (For USB) Reserved


 7                  COUNTRY VERSION - COUNTRY CODE               hex       1

         9          ADDITIONAL STATUS                            hex       1
              7    Device Information Response
                   0 = NO
                   1 = YES
              6-0  Reserved

        10          COUNTRY CODE                                 hex       1

        11          COUNTRY VERSION                              hex       1

        12          COUNTRY EC LEVEL                             hex       1

 8      13          FISCAL RETURN CODE                           hex       1

        14          FISCAL RETURN CODE                           hex       1

 9      15          DEVICE TYPE                                  hex       1
                    0x31 = Fiscal Printer

10      16          DEVICE ID                                    hex       1
                    0x00      = fiscal 2 stations thermal/impact (K --> Jacare)
                    0x01      = fiscal 3 stations thermal/impact (G --> Macarena)
                    0x02 - 0xFF = Reserved

11      17          FEATURE BYTE #1                              hex       1
              7-4  Reserved (always = '0')
              3    Reference Data Base Present
                   0 = NOT
                   1 = YES
              2    Microcode Flash Can be Updated
                   0 = NO
                   1 = YES
              1    Compact Flash Present
                   0 = NO
                   1 = YES
              0    Fiscal Memory Size
                   0 = 512 KB
                   1 = 256 KB

12      18          RESERVED (always '0x00')                     hex       1

13      19          FISCAL EC LEVEL                              hex       1


--------------------------------------------------------------------------------

        (Continued in the next page)
```

Response to the Printer Device Information:

```
--------------------------------------------------------------------------------

BYTE   BYTE  BIT  CONTENT                                       TYPE    LENGTH
RS-485 USB

 0-5               PRINTER STATUS                               hex        6


       0-7         PRINTER STATUS                               hex        8

 6      8          FISCAL STATUS & DEVICE INFO                  hex        1
              7-1  Fiscal Status
              0    (For RS-485) Fiscal/Printer Device Info
                   0 = Fiscal Device Info is NOT contained
                        in this message
                   1 = Fiscal or Printer Device Info IS contained
                        in this message
              0    (For USB) Reserved


 7                 COUNTRY VERSION - COUNTRY CODE               hex        1

        9          ADDITIONAL STATUS                            hex        1
              7    Device Information Response
                   0 = NO
                   1 = YES
              6-0  Reserved

       10          COUNTRY CODE                                 hex        1

       11          COUNTRY VERSION                              hex        1

       12          COUNTRY EC LEVEL                             hex        1

 8     13          FISCAL RETURN CODE                           hex        1

       14          FISCAL RETURN CODE                           hex        1

 9-13  15-19       DEVICE INFO BYTES                            hex        5
                   (exactly as received from the printer
                   microcode - See SureMark User Guide
                   Extended Address Command)


--------------------------------------------------------------------------------
```

5.12.4 FA - RESET FISCAL PRINTER

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

5.12.4.1 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


 ----------------------------------------------------------------------
```

5.12.4.2 Reset Fiscal Printer Rules

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

5.12.5 FB - RUN DIAGNOSTICS

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

5.12.5.1 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 (1) = Fiscal Unit
          10 (2) = Printer
          11 (3) = Both


-----------------------------------------------------------------------
```

5.12.6 FC - REPORT MICROCODE EC

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

5.12.6.1 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-485 communication interface
     Version Code = x01
   - USB communication interface
     Version Code = x04

5.12.7 FF - DUMP RAM & FISCAL MEMORY

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

5.12.7.1 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:

5.12.7.2 Command Format

```
-------------------------------------------------------------------------

BYTE     BYTE    CONTENT                              TYPE    LENGTH
RS-485   USB

 0-8             Fiscal Unit Status                   hex       9
         0-14    Fiscal Unit Status                   hex       15

 9-218   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.

5.12.7.3 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.

6.0 Fiscal Unit Return Codes

6.1 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.

6.2 DOS/WINDOWS and 4690 OS Return Code Descriptions

002 => DOS/WINDOWS 80900102 => 4690 OS

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

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

003 => DOS/WINDOWS 80900103 => 4690 OS

Explanation: An overflow occurred. The bonus transaction total exceeds the maximum allowed value. The request is not processed.

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

004 => DOS/WINDOWS 80900104 => 4690 OS

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

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

005 => DOS/WINDOWS 80900105 => 4690 OS

Explanation: An overflow occurred. The empties transaction total exceeds the maximum allowed value. The request is not processed.

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

007 => DOS/WINDOWS 80900107 => 4690 OS

Explanation: An overflow occurred. The notpaid transaction total exceeds the transaction total value. 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. The current transaction total or one of the TAX Category transaction sale totals is less than the minimum allowed value. The request is not processed.

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

010 => DOS/WINDOWS 80900110 => 4690 OS

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

User Response: Issue the total and end transaction commands to end the sales transaction or a cancel transaction command to cancel the sale transaction.

011 => DOS/WINDOWS 80900111 => 4690 OS

Explanation: An underflow occurred. The bonus transaction total is less than the minimum allowed value. The request is not processed.

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

012 => DOS/WINDOWS 80900112 => 4690 OS

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

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

013 => DOS/WINDOWS 80900113 => 4690 OS

Explanation: An underflow occurred. The empties transaction total is less than the minimum allowed value. The request is not processed.

User Response: Issue the total and end transaction commands to end the sale transaction or a cancel transaction command to cancel the sale transaction.

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 TAX 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 end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

018 => DOS/WINDOWS 80900118 => 4690 OS

Explanation: An overflow occurred. The void 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 and end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

019 => DOS/WINDOWS 80900119 => 4690 OS

Explanation: An overflow occurred. The bonus 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 end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

020 => DOS/WINDOWS 80900120 => 4690 OS

Explanation: An overflow occurred. The discount 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 end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

021 => DOS/WINDOWS 80900121 => 4690 OS

Explanation: An overflow occurred. The empties 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 and end transaction (06 cmd.) or cancel transaction (07 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 and end transaction (06 cmd.) or cancel transaction (07 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 end transaction (06 cmd.) or cancel transaction (07 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
- TAX total
- TAX category total accumulator
- TAX category tax accumulator

The request is not processed.

User Response: Make the amount greater than or equal to zero, then issue an end transaction or cancel transaction command.

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 end transaction (06 cmd.) or cancel transaction (07 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 end transaction (06 cmd.) or cancel transaction (07 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: The negative item or uplift item operation is not valid. Possible reasons are:

- The requested void amount did not match the current adjusted item accumulator.
- The resulting item accumulator is either less than or equal to zero or greater than the maximum allowed item value.
- A negative item or uplift item operation was requested for an item that was previously voided.

The request is not processed.

User Response: Correct the negative item or uplift item operation.

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 end transaction (06 cmd.) or cancel transaction (07 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 end transaction (06 cmd.) or cancel transaction (07 cmd.).

---

034 => DOS/WINDOWS 80900142 => 4690 OS

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

User Response: Make the total greater than or equal to the minimum allowed value, issue an end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

---

035 => DOS/WINDOWS 80900143 => 4690 OS

Explanation: An underflow occurred. The bonus daily total is less than the minimum allowed value. The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, issue an end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

---

036 => DOS/WINDOWS 80900144 => 4690 OS

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

User Response: Make the total greater than or equal to the minimum allowed value, issue an end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

---

037 => DOS/WINDOWS 80900145 => 4690 OS

Explanation: An underflow occurred. The empties daily total is less than the minimum allowed value. The request is not processed.

User Response: Make the total greater than or equal to the minimum allowed value, issue an end transaction (06 cmd.) or cancel transaction (07 cmd.) and then issue a close sale period (13 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 tax category field is not blank and the amount field is blank in a item sales transaction. The request is not processed.

User Response: Correct the application program.

041 => DOS/WINDOWS 80900629 => 4690 OS

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

User Response: Check the application program. The program must issue a load TAX rate table command before further operations are processed.

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

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

User Response: Correct the application TAX rate table and issue the command again.

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

Explanation: The tax rate table in fiscal memory is full. The request is not processed.

User Response: Call for service. The fiscal base unit must be exchanged in order to load new tax table rates.

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

Explanation: The tax category specified in item sale or negative item sale command is not valid or the data supplied with the load tax 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 end transaction (06 cmd.) or cancel transaction (07 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 end transaction (06 cmd.) or cancel transaction (07 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 end transaction (06 cmd.) or cancel transaction (07 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 daily transaction 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 end transaction (06 cmd.) or cancel transaction (07 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 a cancel transaction command.

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 the fiscal memory. The request is not processed.

User Response: Either correct the time sent to the fiscal printer or, if 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 cancel transaction daily 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 a cancel transaction (07 cmd.) and then issue a close sale period (13 cmd.).

057 => DOS/WINDOWS 80900151 => 4690 OS

Explanation: An underflow occurred. The cancel transaction daily 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 cancel transaction (07 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 or one of the TAX category transaction sale totals exceeds the maximum allowed value on an item sale command. The request is not processed.

User Response: Issue an end transaction (06 cmd.) or cancel transaction (07 cmd.).

---

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.

---

068 => DOS/WINDOWS 80900204 => 4690 OS

Explanation: A request has been made to print more than the allowed number of credit card print lines. The request is not processed.

User Response: Check the application program. Issue an end or cancel credit card slip command to exit the credit card printing sequence.

---

069 => DOS/WINDOWS 80900205 => 4690 OS

Explanation: An attempt was made to print a line in CR or SJ stations that exceeds the maximum number of ordinary print lines allowed during a fiscal voucher. The request is not processed.

User Response: Either issue an end transaction or cancel transaction command 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 a sale transaction is in progress.

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

---

070 => DOS/WINDOWS 80900646 => 4690 OS

Explanation: Partial line feed dots are out-of-range on the line feed credit slips (C3 cmd.) The request is not processed.

User Response: Check the application program 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.

---

073 => DOS/WINDOWS 80900303 => 4690 OS

Explanation: An error occurred while printing in DI station. The request is not processed.

User Response: If the error continues, service the printer.

---

075 => DOS/WINDOWS 80900209 => 4690 OS

Explanation: Printing on an inserted document is not allowed at this point during a sale transaction. 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 a 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.

079 => DOS/WINDOWS 80900212 => 4690 OS

Explanation: A line feed in CR station is not allowed during printing of inserted fiscal documents. The request is not processed.

User Response: Check the application program.

---

080 => DOS/WINDOWS 80900213 => 4690 OS

Explanation: A line feed on an inserted document is not allowed at this point during a sale transaction. The request is not processed.

User Response: Check the application program.

---

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, SJ or DI 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 tax rate for this tax 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.

089 => DOS/WINDOWS 80900312 => 4690 OS

Explanation: The daily entry table is full. 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.

---

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 reapirt actions table is full.

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

100 => DOS/WINDOWS 80900329 => 4690 OS

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

User Response: 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.

102 => DOS/WINDOWS 80900327 => 4690 OS

Explanation: The fiscal parameter configuration (C4 cmd.) was attempted more than once with the same extension since the last J4/CE jumper reset or X′C402′ was attempted with the display addresses already set. The request is not processed.

User Response: Reset the printer using the J4/CE jumper procedure and initialize the printer again.

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

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.

111 => DOS/WINDOWS 80900132 => 4690 OS

Explanation: An overflow occurred. The daily fiscal, return or diplomatic receipt total exceeds the maximum allowed value at end transaction time. The request is not processed.

User Response: Issue a close sale period (13 cmd.).

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.

115 => DOS/WINDOWS 80900701 => 4690 OS

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

User Response: Issue the command again after the return receipt is complete.

116 => DOS/WINDOWS 80900702 => 4690 OS

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

User Response: Issue the command again after the diplomatic receipt is complete.

117 => DOS/WINDOWS 80900703 => 4690 OS

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

User Response: Correct the application program sequence.

118 => DOS/WINDOWS 80900704 => 4690 OS

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

User Response: Correct the application program sequence.

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 the FA cmd. (cmd. extension 01) and then restart the print or download sequence.

120 => DOS/WINDOWS 80900678 => 4690 OS

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

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

121 => DOS/WINDOWS 80900679 => 4690 OS

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

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

123 = DOS/WINDOWS 8090067B = 4690 OS

Explanation: Invalid Size. Byte 4 is greater than 72. This cmd. can not be sent when a print or download graphics occurs.

User Response: Correct the value and issue the 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 CA cmd. (10 cmd. extension) and then issue the CA cmd. (02 cmd. extension) again.

125 = DOS/WINDOWS 8090067D = 4690 OS

Explanation: Invalid graphic number.

Correct the graphic number and issue the 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 in fiscal mode. The request is not processed.

User Response: Call for service to set fiscal mode.

130 => DOS/WINDOWS 80900322 => 4690 OS

Explanation: The secondary serial number is not set. The request is not processed.

User Response: Service the printer.

131 => DOS/WINDOWS 80900323 => 4690 OS

Explanation: A problem was detected in a display or in the configuration for the point-of-sale displays.
No fiscal commands can be executed. The minimum number of POS displays that must be configured is 2.

User Response: Follow the maintenance manual procedures to set the configuration correctly. If problem
persists, service the POS terminal.

132 => DOS/WINDOWS 80900684 => 4690 OS

Explanation: The department names are not loaded. The request is not processed.

User Response: Follow the country-specific procedures to load the names using the set department name
(22 cmd.).

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 print X-report (14 cmd.).

136 => DOS/WINDOWS 80900221 => 4690 OS

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

User Response: Correct the application program sequence.

137 => DOS/WINDOWS 80900222 => 4690 OS

Explanation: A fiscal, return or diplomatic receipt command was issued while a fiscal, return or diplomatic
receipt was not in progress. The request is not processed.

User Response: Correct the application program sequence.

139 => DOS/WINDOWS 80900224 => 4690 OS

Explanation: An waybill receipt command was issued while an waybill receipt was not in progress. The
request is not processed.

User Response: Correct the application program sequence.

140 => DOS/WINDOWS 80900225 => 4690 OS

Explanation: A 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 total command is successfully executed. The request is not processed.

User Response: Correct the application program sequence.

142 => DOS/WINDOWS 80900227 => 4690 OS

Explanation: The transaction 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.

157 => DOS/WINDOWS 8090069D => 4690 OS

Explanation: The correct operation of credit slip printing is not in progress. The request is not processed.

User Response: Correct the application program sequence.

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 in fiscal mode. The request is not processed.

User Response: No action is required.

---

162 => DOS/WINDOWS 80900332 => 4690 OS

Explanation: The new Lira was already set. 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.

---

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: Perform a close sale period (13 cmd.) and then issue the command again.

---

168 => DOS/WINDOWS 80900231 => 4690 OS

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

User Response: Check the application program.

---

169 => DOS/WINDOWS 80900232 => 4690 OS

Explanation: A command not related to a fiscal, return or diplomatic receipt was issued while a fiscal, return or diplomatic receipt is in progress. The request is not processed.

User Response: Issue the command again after the fiscal, return or diplomatic receipt is complete.

---

171 => DOS/WINDOWS 80900234 => 4690 OS

Explanation: A command not related to an waybill receipt was issued while an waybill receipt is in progress. The request is not processed.

User Response: Issue the command again when the waybill receipt transaction is completed.

---

172 => DOS/WINDOWS 80900235 => 4690 OS

Explanation: Only a fiscal voucher-related 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 total command 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: A payment is in progress. The request is not processed.

User Response: After the 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 or issue a set training mode OFF (1C cmd.).

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.

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

Explanation: An error occurred during an end transaction (06 cmd.). The request is not processed.

User Response: Issue the end transaction (06 cmd.) again.
If this error was encountered during an online printer diagnostic test, it indicates that the test cannot be completed because a sales transaction is in progress. The end transaction (06 cmd.) must be sent in order to complete the transaction.

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

Explanation: An error occurred during a cancel transaction (07 cmd.). The request is not processed.

User Response: Issue the cancel transaction (07 cmd.) again.
If this error was encountered during the online printer diagnostic test, it indicates that the test cannot be completed because a sales transaction is in progress. The cancel transaction (07 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.

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

Explanation: A different mode of credit slip printing is already in progress so the selected mode cannot be ended. The request is not processed.

User Response: Check the application program sequence.

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. (On 4690 OS Operating System, this error could be reported for other types of printer problems besides home errors.)

User Response: If the problem persists, service the printer.

200 = DOS/WINDOWS 8090070D => 4690 OS

ONLY VALID FOR 4610 USB (GB3/GB5 models)

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

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

201 => DOS/WINDOWS 80900528 => 4690 OS

ONLY VALID FOR 4610 RS-485 (GR3/GR5 models)

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

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

202 => DOS/WINDOWS 80900527 => 4690 OS

ONLY FOR 4610 SureMark (GB3/GR3 models)

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

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

ONLY FOR 4610 SureMark (GB5/GR5 models)

Explanation: Invalid command. The request is not processed.

User Response: Correct the application program.

203 = DOS/WINDOWS 80900522 = 4690 OS

ONLY VALID FOR 4610 USB (GB3/GB5 models)

Explanation: The DI printer cover is open. The request is not processed.

User Response: Close the DI printer cover.

If the cover is already closed, service the printer.

204 => DOS/WINDOWS 80900711 => 4690 OS

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

205 => DOS/WINDOWS 80900526 => 4690 OS

Explanation: A printer 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.

210 => DOS/WINDOWS 809006D2 => 4690 OS

Explanation: Printer DI throat is opened. The request is not processed.

User Response: Close the throat and issue the command print again.

214 => DOS/WINDOWS 80900527 => 4690 OS

Explanation: A feed paper error occurred. The request is not processed.

User Response: Ensure that the paper is inserted correctly.

235 => DOS/WINDOWS 809006EB => 4690 OS

Explanation: EPROM load error. The request is not processed.

User Response: Service the printer.

6.3 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 6.0, "Fiscal Unit Return Codes" on page 155.

Table 10 (Page 1 of 2). 4690 OS to DOS/WINDOWS Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code	4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
80900102	002	80900228	143
80900103	003	80900229	144
80900104	004	80900230	167
80900105	005	80900231	168
80900107	007	80900232	169
80900108	008	80900234	171
80900110	010	80900235	172
80900111	011	80900236	173
80900112	012	80900237	174
80900113	013	80900238	175
80900115	015	80900239	176
80900116	016	80900302	071
80900118	018	80900303	073
80900119	019	80900304	078
80900120	020	80900306	082
80900121	021	80900307	083
80900123	023	80900309	085
80900124	024	80900312	089
80900125	025	80900314	091
80900126	026	80900315	092
80900127	064	80900318	099
80900129	029	80900320	128
80900130	030	80900321	129
80900132	111	80900322	130
80900140	096	80900323	131
80900142	034	80900324	109
80900143	035	80900325	134
80900144	036	80900326	101
80900145	037	80900327	102
80900146	038	80900329	100
80900150	056	80900330	160
80900151	057	80900331	161
80900201	065	80900332	162
80900202	066	80900341	113
80900203	055	80900350	164
80900204	068	80900360	104
80900205	069	80900361	105
80900207	072	80900363	114
80900209	075	80900401	086
80900210	076	80900410	097
80900211	077	80900411	098
80900212	079	80900421	103
80900213	080	80900425	095
80900220	135	80900521	194
80900221	136	80900522	203
80900222	137	80900524	192
80900224	139	80900525	206
80900225	140	80900526	205
80900226	141	80900527	202
80900227	142	80900527	214

Table 10 (Page 2 of 2). 4690 OS to DOS/WINDOWS
Return Code Conversion

4690 OS Return Code	Equivalent DOS/WINDOWS Return Code
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
8090069D	157
8090069E	158
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

7.0 Fiscal Software and Hardware Interface Information

7.1 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.

7.2 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.

- Item Sale
- Negative Item Sale
- Payment
- Not Paid
- Discount/Uplift on Subtotal
- Print Fiscal, Return and Diplomatic Receipt
- End Fiscal, Return and Diplomatic Receipt
- Print Waybill Receipt
- End Waybill Receipt

The only exceptions to this overlay process occurs 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 close sale period is completed in one of the following two ways:

Fiscal Memory Already Updated - The close sale period (13 cmd.) is terminated as if the error did not occur.

Fiscal Memory Not Yet Updated - The daily data is restored as it was before to issue the 13 cmd. and the closure report 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.

- **End Transaction (06 cmd.)** – Only the end transaction or cancel transaction commands are accepted.

- **Cancel Transaction (07 cmd.)** – Only the cancel transaction command is accepted.

7.3 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.

- Item Sale
- Negative Item Sale
- Payment
- Not Paid
- Discount/Uplift on Subtotal
- Print Fiscal, Return and Diplomatic Receipt
- End Fiscal, Return and Diplomatic Receipt
- Print Waybill Receipt
- End Waybill Receipt

The only exceptions to this overlay process occurs during the following commands:

- **Close Sale Period (13 cmd.)** – On IPL completion, after a PLD, the close sale period is completed in one of the following two ways:

    Fiscal memory already updated - The close sale period (13 cmd.) is terminated as if the PLD did not occur.

    Fiscal memory not yet updated - The daily data is restored as it was before to issue the 13 cmd. and the closure report is voided.

- **Fiscal Memory Report (15 cmd.)** – On IPL completion, after a PLD, this function is terminated and the fiscal memory report is voided.

8.0 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-485**
  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-485: see 2.1, "For GR3/GR5 Models (RS-485)" on page 19 (byte 6 - 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 end transaction (06 cmd.)
  After a PLD or paper out during the end transaction (06 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 28 - bit 3 = End Transaction in Progress). See 5.2.3.2, "Response to the Electronic Read Counters and Accumulators" on page 63
  If this bit is OFF, it means that Fiscal Logo was not printed and the application is able to perform a cancel transaction (07 cmd.).
  Else, if this bit is ON, it means that the fiscal microcode will only accept to finish the voucher with the reexecution of end transaction (06 cmd.) because the Fiscal Logo was printed or was about to be printed (*). So, in this case, Applications are forced to resend the end transaction (06 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.