

**IBM 4610 SureMark Fiscal Printer
Chile - Models KC4/KC5/KS4/KS5
Programming Guide Supplement
Version 13 01**

Document Number (FCH81N13-PDF)

Owner: Alejandra Cartamil
Copy Printed: August 4, 2004 at 5:09 p.m.

Version	Date	Change Description
10 01	Apr 14, 2004	<ul style="list-style-type: none"> • C6 cmd. (Credit Card Voucher (Design 2)): was added. • C7 cmd. (Debit Card Voucher): was added. • RC 102: was added. • Counter Day_N_DebiC: was added. • Msg's M37, M38, M39, M40, M41, M42, M43, M44, M45, M46, M47, M48, M49, M50, M51 and M52: were added. • Printouts: <ul style="list-style-type: none"> – Credit Card Voucher for the customer (Design 2) was added. – Credit Card Voucher for the store (Design 2) was added. – Debit Card Voucher for the customer was added. – Debit Card Voucher for the store was added. • DB cmd. (Electronic Read Accumulators and Counters - Response where Variable Type = '0', Query Criterial = '1' and Accounting Variable = '01'): Day_N_DebiC counter was added. • RS-232 Communication Interface: differents baud rates are supported. • This version of Programming Guide Supplement corresponds to microcode EC level 10.
0F 01	Sep 1, 2003	<ul style="list-style-type: none"> • There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 0F.
0E 01	Sep 1, 2003	<ul style="list-style-type: none"> • 1E cmd. (Set Store/POS Id Information): range allowed for RUT Issuer Verification Number is from '0' to '9' and 'A' to 'Z' (uppercase). • This version of Programming Guide Supplement corresponds to microcode EC level 0E.
0D 01	Ago 13, 2003	<ul style="list-style-type: none"> • There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 0D.
0C 01	Ago 4, 2003	<ul style="list-style-type: none"> • Fiscal Printer and Fiscal Unit Status - KS4/KS5 Models: was added. • CD cmd. (Cash Drawer Management): only for KS4/KS5 Models. • Electronic Cmds.: RS-485 response was added. • This version of Programming Guide Supplement corresponds to microcode EC level 0C.

Version	Date	Change Description
0B 01	Jul 29, 2003	<ul style="list-style-type: none"> • Maximum Discount Percent Allowed (by item and transaction): was implemented. • 2E cmd. (Set General Parameters): was added. • E0 cmd. (Start Administrative Transaction): was added. • E1 cmd. (Print Administrative Transaction): was added. • E2 cmd. (End Administrative Transaction): was added. • 69 cmd. (Get Compact Flash Information): cmd. extension 01 was added. • DB cmd. (Electronic Read Accumulators and Counters): was changed. • D2 cmd. (Negative/Uplift Item Sale): new calculations were added. • D3 cmd. (Negative/Uplift Item Sale): <ul style="list-style-type: none"> – rectify, bonus and empty were eliminated. – new calculations were added. • D9 cmd. (Discount/Uplift on Subtotal): <ul style="list-style-type: none"> – rectify was eliminated. – new calculations were added. • 12 cmd. (Open Sale Period): new calculations were added. • 13 cmd. (Close Sale Period): new calculations were added. • DA cmd. (Electronic Read FM Tables and EJ Records): <ul style="list-style-type: none"> – read daily/lifetime administrative transaction record was added. – read daily/lifetime negative/uplift item/subtotal record was added. • Messages: <ul style="list-style-type: none"> – C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, V46, H08, H09, M33, M34, M35, M36 were added. – V15 and V17 were changed. – V03, V05, V07, V08, V09, V10, V11, V13, V16, V18 were eliminated. • Return Codes: <ul style="list-style-type: none"> – 092, 093, 094, 180, 181, 182, 183, 184 and 185 were added. – 003, 005, 011, 013, 019 and 021 were eliminated.

Version	Date	Change Description
0B 01	Jul 29, 2003	<ul style="list-style-type: none"> • Transaction Accumulators: Tra_Bonu and Tra_Empt were eliminated. • Daily Counters: credit note, deposit money, internal voucher and fee payment were added. • Daily Accumulators: <ul style="list-style-type: none"> – Day_Bonu and Day_Empt were eliminated. – credit note, deposit money, internal voucher and fee payment were added. • Lifetime Counters: credit note, deposit money, internal voucher and fee payment were added. • Lifetime Accumulators: <ul style="list-style-type: none"> – credit note, deposit money, internal voucher and fee payment were added. – return item, void item, discount item, uplift item, discount on subtotal and uplift on subtotal were added. • Daily Entry Table: credit note counter and accumulator were added. • Electronic Journal File - Daily and Lifetime Counters and Accumulators: <ul style="list-style-type: none"> – credit note, deposit money, internal voucher, fee payment were added. – negative/uplift item and discount/uplift on subtotal were added. • Printouts: <ul style="list-style-type: none"> – Fiscal Voucher was changed. – X-Report was changed. – Closure Report was changed. – Historic Daily Closure Report: <ul style="list-style-type: none"> — extended (with daily sale summary) was changed. — extended (without daily sale summary) was changed. — short was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 0B.
0A 01	May 19, 2003	<ul style="list-style-type: none"> • 13 cmd. (Close Sale Period): cmd. extension 03 (no print closure report) was added. • D2 cmd. (Item Sale): byte 3/bit 2 (item line format) was added. • DD cmd. (Start Non-Fiscal Report): byte 3/bit 2 (print M04 message): was added. • Fiscal Voucher: no more than 28 normal printing lines are allowed after the payment phase. • Msg's V44 and V45: were changed. • EJ RC's 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64 and 65: were added. • This version of Programming Guide Supplement corresponds to microcode EC level 0A.
09 01	Apr 11, 2003	<ul style="list-style-type: none"> • SII X-Report: cut paper after print report was added. • This version of Programming Guide Supplement corresponds to microcode EC level 09.

Version	Date	Change Description
08 01	Apr 7, 2003	<ul style="list-style-type: none"> • SII X-Report: was added. • CB cmd. (Flip Document in DI Station): was added. • C0 cmd. (Print Check): portrait orientation was added. • Msg. M32: was added in X-Report. • RC. 123: was changed. • This version of Programming Guide Supplement corresponds to microcode EC level 08.
07 01	Feb 17, 2003	<ul style="list-style-type: none"> • Full CE Jumper: was eliminated. • F7 cmd. (Command Buffer Management): was added. • This version of Programming Guide Supplement corresponds to microcode EC level 07.
06 01	Oct 29, 2002	<ul style="list-style-type: none"> • There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 06.
05 01	Oct 18, 2002	<ul style="list-style-type: none"> • There are not changes in the spec for this version. • This version of Programming Guide Supplement corresponds to microcode EC level 05.
04 01	Sep 27, 2002	<ul style="list-style-type: none"> • Flag FAUTFVE (Automatic Fiscal Voucher End by PLD Activated): was added. • Msg's V42, V43, C13, C14, C15, C16, I14, I15 and I16: were changed. • C4 cmd. (Fiscal Parameter Configuration): was added. • 12 cmd. (Open Sale Period): new counters and accumulators were added. • DA cmd. (Electronic Read Fiscal Memory Tables and Compact Flash Records): read automatic fiscal voucher totals record was added. • DB cmd. (Electronic Read Accumulators and Counters): new state and daily/ lifetime counters/accumulators were added. • 13 cmd. (Close Sale Period): new cmd. extension and calculations were added. • 14 cmd. (X-Report): new cmd. extension was added. • 15 cmd. (Historic Daily Sale Report): new report type was added. • Power-On Reports: msg. I14, I15 and I16 were added. • Electronic Journal File Format: was changed. • Fiscal Voucher Printout: total line is printed after payment phase. • X-Report Printout: was changed. • Closure Report Printout: was changed. • Historic Daily Report Printouts: were changed. • Fiscal Voucher with right to Credit Note Printouts: were added. • This version of Programming Guide Supplement corresponds to microcode EC level 04.

Version	Date	Change Description
03 01	Aug 28, 2002	<ul style="list-style-type: none"> • RC's 7, 15, 27, 56 and 57: were added. • Msg's C11 and C12: were added. • Msg's C03, C04, C05, C06 and C07: were changed. • Electronic Journal File Format: was changed. • D5 cmd. (Payment): new rule was added. • D6 cmd. (End Payment): new calculations were added. • DA cmd. (Electronic Read Fiscal Memory Tables): daily and lifetime payment totals tables were added. • 13 cmd. (Close Sale Period): new calculations were added. • X-Report Printout: was changed. • Closure Report Printout: was changed. • Historic Daily Report Printouts: were changed. • This version of Programming Guide Supplement corresponds to microcode EC level 03.
02 01	Jul 16, 2002	<ul style="list-style-type: none"> • Retry Bit: was eliminated. • Electronic Journal File Format: was changed. • 15 cmd. (Historic Daily Closure Report): response for (byte 3/bit 4 = 1) was changed. • 60 cmd. (Open Electronic Journal File): filename format was changed. • 65 cmd. (Get Compact Flash Directory): response was change. • This version of Programming Guide Supplement corresponds to microcode EC level 02.
01 04	Jun 26, 2002	<ul style="list-style-type: none"> • CD cmd. (Cash Drawer Management): was added. • This version of Programming Guide Supplement corresponds to microcode EC level 01.
01 03	Jun 21, 2002	<ul style="list-style-type: none"> • RC's 26 and 51: were added. • This version of Programming Guide Supplement corresponds to microcode EC level 01.
01 02	Jun 10, 2002	<ul style="list-style-type: none"> • DA cmd. (Electronic Read Fiscal Memory Tables): was changed. • DA cmd. (Electronic Read Fiscal Memory Tables - Read Serial Number Table): was added. • DB cmd. (Electronic Read Accumulators and Counters): was changed. • C3 cmd. (Check Line Feed): was removed. • RC's 137, 156, 163 and 169: were added. • RC 70: was removed. • Transaction Counters: were removed. • Day_N_CCheck Counter: was added. • Print Check: only landscape orientation will be allowed. • Print Barcode: new rules were added. • FKEYSET and FLASHER flags: were added. • Daily Entry Table: 4095 daily entries in fiscal memory are allowed. • C9 cmd. (Print Barcode): not allowed during DI Non-Fiscal Report (landscape). • This version of Programming Guide Supplement corresponds to microcode EC level 01.
01 01	Jun 3, 2002	<ul style="list-style-type: none"> • This version of Programming Guide Supplement corresponds to microcode EC level 01.

Table 1. Change Summary

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

Contents

1.0 Scope	17
2.0 Definition of Abbreviations and Terminology	19
2.1 Abbreviations	19
2.2 Terminology	19
3.0 IBM 4610 SureMark Fiscal Printer	21
3.1 Features	21
3.1.1 Models	21
3.2 RS-232 Communication Interface	22
3.2.1 Protocol	22
3.2.2 Packet Format	22
3.2.3 Header Format	22
3.2.4 Communication Parameters	23
3.2.5 State Machine for Host	24
3.2.6 State Machine for Slave	24
3.2.7 Initialization	25
3.2.7.1 Initialization Flow	25
3.2.8 Normal Communication	26
3.2.8.1 Normal Communication Flow	26
3.2.9 Timing	28
3.2.10 Polling	28
3.2.11 Retries	28
3.3 Electronic Journaling	28
3.3.1 Electronic Journaling Operation	28
3.3.2 Compact Flash	28
4.0 Fiscal Printer and Fiscal Unit Status	31
4.1 For KC4/KC5 Models (RS-232)	31
4.2 Version/Country Code Definitions	33
4.3 For KS4/KS5 Models (RS-485)	34
4.3.1 Version/Country Code Definitions	36
5.0 Fiscal Command Processing	37
5.1 Command Set	38
5.2 Y2K Issues	40
5.2.1 Scope	40
5.2.2 Year Window Description	40
5.2.3 Format Date in Printouts	40
5.2.4 Commands that have dates as I/O	40
5.2.5 Date in FM	40
6.0 Initialization Sequence	41
6.1 Training Mode Initialization Sequence	41
6.2 Fiscal Mode Initialization Sequence	42
6.3 Reinitialization Sequence (with RAM Clear)	43
7.0 Fiscal Hardware	45
7.1 J4/CE Jumper	45
7.1.1 Description	45
7.1.2 Procedure	45

7.1.3 Rules	45
7.1.4 Calculations while the jumper is active:	45
8.0 Various	47
8.1 Microcode EC Level	47
8.2 SII X-Report	48
8.2.1 Description	48
8.2.2 Printer Buttons Sequence	48
8.2.3 Calculations	48
8.2.4 Rules	48
8.3 Automatic Fiscal Voucher End by PLD	48
8.4 Error Conditions	49
8.5 Power Line Disturbance	50
8.6 A5 Pattern	50
9.0 Counters and Accumulators	51
9.1 Transaction Accumulators	51
9.2 Daily Counters	52
9.3 Daily Accumulators	53
9.4 Lifetime Counters	54
9.5 Lifetime Accumulators	55
10.0 Fiscal Unit	57
10.1 Fiscal Unit States	57
10.2 Operational Modes	58
10.3 Fiscal Unit Rules	58
10.3.1 Training Mode	58
10.3.2 Fiscal Mode	58
10.4 Fiscal Operations	59
10.4.1 Printer Operations	60
10.4.2 Characters Per Inch	60
10.4.3 Printed Amounts	60
10.4.4 Automatic Slip Cut	60
11.0 Command Set Reference	61
11.1 00 - SYSTEM COMMANDS	62
11.1.1 Command Format	62
11.2 SERIALIZATION COMMAND	63
11.2.1 66 - SET PUBLIC AND PRIVATE KEY	64
11.2.1.1 Command Format	64
11.2.1.2 Set Public and Private Key Rules	64
11.2.2 1B - SERIALIZE FISCAL MEMORY	65
11.2.2.1 Command Format	65
11.2.2.2 Serialize Fiscal Memory Rules	65
11.3 FISCALIZATION COMMAND	66
11.3.1 18 - SET FISCAL MODE	67
11.3.1.1 Command Format	67
11.3.1.2 Set Fiscal Mode Rules	67
11.4 INITIALIZATION COMMANDS	68
11.4.1 16 - SET DATE AND TIME	69
11.4.1.1 Command Format	69
11.4.1.2 Set Date and Time Rules	69
11.4.2 1E - SET STORE/POS ID INFORMATION	70
11.4.2.1 Command Format	70
11.4.2.2 Store/POS Id Information Rules	70

11.4.3	2E - SET GENERAL PARAMETERS	71
11.4.3.1	Command Format	71
11.4.3.2	Set General Parameters Rules	71
11.4.4	C4 - FISCAL PARAMETER CONFIGURATION (without J4/CE jumper intervention)	72
11.4.4.1	Command Format	72
11.4.4.2	Fiscal Parameter Configuration Rules	72
11.4.5	D7 - SET STORE HEADER	73
11.4.5.1	Command Format	73
11.4.5.2	Set Store Header Rules	73
11.5	SALE TRANSACTION	74
11.5.1	ST Commands	74
11.5.2	Sale Transaction Flow	74
11.5.3	Sale Transaction Rules	75
11.5.4	01 - PRINT STORE HEADER	76
11.5.4.1	Command Format	76
11.5.4.2	Print Store Header Calculations	76
11.5.4.3	Print Store Header Rules	77
11.5.5	D2 - ITEM SALE	78
11.5.5.1	Command Format	78
11.5.5.2	Item Sale Calculations	79
11.5.5.3	Item Sale Rules	79
11.5.6	D3 - NEGATIVE/UPLIFT ITEM SALE	80
11.5.6.1	Command Format	80
11.5.6.2	Negative/Uplift Item Sale Calculations	80
11.5.6.3	Negative/Uplift Item Sale Rules	83
11.5.7	D4 - TRANSACTION SUBTOTAL/TOTAL	84
11.5.7.1	Command Format	84
11.5.7.2	Transaction Subtotal/Total Calculations	84
11.5.7.3	Transaction Subtotal/Total Rules	84
11.5.8	D9 - DISCOUNT/UPLIFT ON SUBTOTAL	85
11.5.8.1	Command Format	85
11.5.8.2	Discount/Uplift on Subtotal Calculations	85
11.5.8.3	Discount/Uplift on Subtotal Rules	86
11.5.9	D5 - PAYMENT	87
11.5.9.1	Command Format	87
11.5.9.2	Payment Calculations	87
11.5.9.3	Payment Rules	88
11.5.10	D6 - END PAYMENT	89
11.5.10.1	Command Format	89
11.5.10.2	End Payment Calculations	89
11.5.10.3	End Payment Rules	89
11.5.11	06 - END FISCAL VOUCHER	90
11.5.11.1	Command Format	90
11.5.11.2	End Fiscal Voucher Calculation	90
11.6	CHECK PRINTING COMMANDS	92
11.6.1	Check Printing Rules	92
11.6.2	C0 - PRINT CHECK	93
11.6.2.1	Command Format	93
11.6.3	C1 - END CHECK	95
11.6.3.1	Command Format	95
11.6.3.2	End Check calculations	95
11.6.4	C2 - CANCEL CHECK	96
11.6.4.1	Command Format	96
11.6.4.2	Cancel Check calculations	96
11.6.5	C5 - CREDIT CARD VOUCHER (DESIGN 1)	97

11.6.5.1	Command Format	97
11.6.5.2	Credit Card Voucher (Design 1) Calculations	97
11.6.6	C6 - CREDIT CARD VOUCHER (DESIGN 2)	98
11.6.6.1	Command Format	98
11.6.6.2	Credit Card Voucher (Design 2) Calculations	99
11.6.6.3	Credit Card Voucher (Design 2) Rules	99
11.6.7	C7 - DEBIT CARD VOUCHER	100
11.6.7.1	Command Format	100
11.6.7.2	Debit Card Voucher Calculations	100
11.6.7.3	Debit Card Voucher Rules	100
11.7	NON-FISCAL REPORTS COMMANDS	101
11.7.1	Non-Fiscal Reports Rules	101
11.7.2	DD - START NON-FISCAL REPORT	102
11.7.2.1	Command Format	102
11.7.2.2	Start Non-Fiscal Report Rules	102
11.7.3	DE - END NON-FISCAL REPORT	103
11.7.3.1	Command Format	103
11.7.3.2	End Non-Fiscal Report Calculations	103
11.7.3.3	End Non-Fiscal Report Rules	103
11.8	ADMINISTRATIVE TRANSACTION COMMANDS	104
11.8.1	E0 - START ADMINISTRATIVE TRANSACTION	105
11.8.1.1	Command Format	105
11.8.1.2	Start Administrative Transaction Rules	105
11.8.2	E1 - PRINT ADMINISTRATIVE TRANSACTION	106
11.8.2.1	Command Format	106
11.8.3	E2 - END ADMINISTRATIVE TRANSACTION	107
11.8.3.1	Command Format	107
11.8.3.2	End Administrative Transaction Calculations	107
11.8.3.3	End Administrative Transaction Rules	108
11.9	SALE PERIOD COMMANDS	109
11.9.1	12 - OPEN SALE PERIOD	110
11.9.1.1	Command Format	110
11.9.1.2	Open Sale Period Calculations	110
11.9.2	13 - CLOSE SALE PERIOD	112
11.9.2.1	Command Format	112
11.9.2.2	Close Sale Period Calculations	112
11.9.2.3	Close Sale Period Rules	113
11.10	REPORTS	114
11.10.1	14 - X-REPORT	115
11.10.1.1	Command Format	115
11.10.1.2	X-Report Calculations	115
11.10.1.3	X-Report Rules	115
11.10.2	15 - HISTORIC DAILY CLOSURE REPORT	116
11.10.2.1	Command Format	116
11.10.2.2	Historic Daily Closure Report Calculations	117
11.10.2.3	Historic Daily Closure Report Rules	117
11.11	UTILITIES COMMANDS	118
11.11.1	DA - ELECTRONIC READ FISCAL MEMORY TABLES AND ELECTRONIC JOURNAL RECORDS	119
11.11.1.1	Command Format	119
11.11.1.2	Electronic Read Fiscal Memory Tables	127
11.11.2	DB - ELECTRONIC READ ACCUMULATORS AND COUNTERS	128
11.11.2.1	Command Format	128
11.11.2.2	Electronic Read Accumulators and Counters Rules	133
11.11.3	F1 - REPORT IPL COMPLETION STATUS	134

11.11.4	F7 - COMMAND BUFFER MANAGEMENT	135
11.11.4.1	Example: Command Buffer Management - Additional Information Response	136
11.11.4.2	Command Buffer Management Rules	136
11.11.5	F8 - REPORT PRINTER EC	137
11.11.5.1	Command Format	137
11.11.6	F9 - REPORT CURRENT STATUS	140
11.11.6.1	Command Format	140
11.11.7	FA - RESET FISCAL PRINTER	141
11.11.7.1	Command Format	141
11.11.8	FB - RUN ONLINE DIAGNOSTICS	142
11.11.8.1	Command Format	142
11.11.9	FC - REPORT MICROCODE EC	143
11.11.9.1	Command Format	143
11.11.10	FF - ENGINEERING DUMP RAM AND FISCAL MEMORY	144
11.11.10.1	Command Format	144
11.11.10.2	Engineering Dump RAM and FM Calculations	144
11.11.10.3	Engineering Dump RAM and Fiscal Memory Rules	145
11.12	ELECTRONIC JOURNAL/COMPACT FLASH COMMANDS	146
11.12.1	60 - OPEN ELECTRONIC JOURNAL FILE	147
11.12.1.1	Command Format	147
11.12.1.2	Open Electronic Journal File Rules	147
11.12.2	61 - CLOSE ELECTRONIC JOURNAL FILE	148
11.12.2.1	Command Format	148
11.12.3	62 - READ ELECTRONIC JOURNAL FILE	149
11.12.3.1	Command Format	149
11.12.3.2	Read Electronic Journal File Rules	149
11.12.4	63 - GET EXTENDED EJ ERROR	150
11.12.4.1	Command Format	150
11.12.5	65 - GET COMPACT FLASH DIRECTORY	151
11.12.5.1	Command Format	151
11.12.5.2	Get Compact Flash Directory Rules	152
11.12.6	67 - GET PUBLIC KEY	153
11.12.6.1	Command Format	153
11.12.6.2	Get Public Key Rules	154
11.12.7	69 - GET COMPACT FLASH INFORMATION	155
11.12.7.1	Command Format	155
11.12.7.2	Get Compact Flash Information Rules	155
11.13	PRINTER COMMANDS	156
11.13.1	E7 - DIAGNOSTIC AND ALIGNMENT UTILITIES	157
11.13.1.1	Command Format	157
11.13.2	E8 - SET NUMBER OF DOT ROWS PER LINEFEED	160
11.13.2.1	Command Format	160
11.13.2.2	Set Number of Dot Rows per Line Feed Rules	160
11.13.3	EA - NORMAL PRINTING LINE IN CR STATION	161
11.13.3.1	Command Format	161
11.13.3.2	Normal Printing Line in CR Station Rules	161
11.13.4	EB - NORMAL PRINTING LINE IN DI STATION	162
11.13.4.1	Command Format	162
11.13.5	EC - LINE FEED	163
11.13.5.1	Command Format	163
11.13.5.2	Line Feed Rules	163
11.13.6	ED - READY DOCUMENT	164
11.13.6.1	Command Format	164
11.13.7	EE - CUT CUSTOMER RECEIPT PAPER	165
11.13.7.1	Command Format	165

11.13.8 EF - DOCUMENT EJECT	166
11.13.8.1 Command Format	166
11.13.9 F4 - HEAD POSITION & OPEN/CLOSE THROAT	167
11.13.9.1 Command Format	167
11.14 MISCELLANEOUS COMMANDS	168
11.14.1 08 - SEND INTERRUPTED COMMAND	169
11.14.1.1 Command Format	169
11.14.1.2 Send Interrupted Command Rules	169
11.14.2 09 - SET DAYLIGHT SAVING TIME	170
11.14.2.1 Command Format	170
11.14.2.2 Set Daylight Saving Time Rules	170
11.14.3 C8 - SET BARCODE PARAMETERS	171
11.14.3.1 Command Format	171
11.14.3.2 Set Barcode Parameters Rules	171
11.14.4 C9 - PRINT BARCODE	172
11.14.4.1 Command Format	172
11.14.4.2 Print Barcode Rules	173
11.14.5 CA - DOWNLOAD GRAPHICS	174
11.14.5.1 Command Format	174
11.14.5.2 Download Graphics Flow	176
11.14.5.3 Print Graphics Flow	176
11.14.5.4 Download Graphic Example.	176
11.14.5.5 Download Graphics Rules	177
11.14.6 CB - FLIP DOCUMENT IN DI STATION	178
11.14.6.1 Command Format	178
11.14.6.2 Flip Document in DI Station Rules	178
11.14.7 CD - CASH DRAWER MANAGEMENT	179
11.14.7.1 Command Format	179
11.14.8 DC - MICR READ	180
11.14.8.1 Command Format	180
12.0 Fiscal Unit Return Codes	181
12.1 4690 OS Hardware Return Code Descriptions	181
12.2 DOS/WINDOWS and 4690 OS Return Code Descriptions	182
13.0 Electronic Journal Return Codes	199
13.1 EJ Return Code Descriptions	199
13.2 Return Code Conversion Table (4690 OS TO DOS/WINDOWS)	204
14.0 Electronic Journal File	205
14.1 Electronic Journal File Format	205
14.2 Electronic Journal File Name	211
15.0 Suggestions for Application Developers	213

1.0 Scope

This document covers the programming interface and functional characteristics of the IBM 4610 SureMark Fiscal Printer - Models KC4/KC5/KS4/KS5 for Chile.

This specification is applicable for fiscal microcode EC level 13.

2.0 Definition of Abbreviations and Terminology

2.1 Abbreviations

The following abbreviations are used in this document.

- FP: Fiscal Printer
- FU: Fiscal Unit
- EC: Engineering Change
- CF: Compact Flash
- FM: Fiscal Memory
- EJ: Electronic Journal
- TRM: Training Mode
- FIM: Fiscal Mode
- SP: Sale Period
- ST: Sale Transaction
- FV: Fiscal Voucher
- CR: Customer Receipt Station
- DI: Document Insert Station
- POS: Point of Sale
- RAM: Random Access Memory
- PLD: Power Line Disturbance
- POR: Power On Reset
- IPL: Initial Program Loaded
- EPROM: Electrically Programmable Read only Memory

2.2 Terminology

The English terminology may be different than you would expect.

Please study these definitions:

Customer Receipt	is the left side print thermal station that prints from rolls of paper. This station prints the slip of paper that verifies that a sales transaction occurred.
Document Insert	is the print impact 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.
Sales Period	is a group of sales transactions over a given amount of time, usually measured daily.
Sales Transaction	is a process of recording item sales and arriving at the amount to be paid by or to a customer. The receiving of payment for merchandise or services is also included in a transaction.
Fiscal Voucher	is the slip of paper that verifies that a sales transaction occurred. Is printed in the CR station of the printer.
Rectify	is an option on certain sales transaction commands used to modify, cancel or undo a previous operation.
Tendering	is the process of concluding a sales transaction and accounting for the methods of payment.

Return	is used when returning items total or partially.
Void	is used when cancelling or voiding items.
Discount	is the reduction of the item price (negative item) or the reduction of a part of a sales transaction (discount on subtotal), or the reduction of an entire sales transaction (discount on subtotal).
Uplift	is the surcharge of the item price (uplift item), or the surcharge of an entire sales transaction (uplift on subtotal).
Checks	are personal checks written by a customer to pay for merchandise.
J4/CE Jumper	is a procedure performed by service representatives that clears the battery-backed RAM.

3.0 IBM 4610 SureMark Fiscal Printer

3.1 Features

The FP features are:

- RS-232 communication interface (only KC4 and KC5 models)
- RS-485 communication interfaces (only KS4 and KS5 models)
- Customer Receipt Station - thermal printing (all models)
- Document Insert Station - impact printing (only KC4/KS4 model)
- Cash Drawer Management (only KC4/KC5 models)
- Electronic Journaling
- User Defined Character Sets
- Barcode generation (all models)
- Barcode printing capability (all models)
- MICR character reading (only KC4/KS4 model)
- Document Flipping (only KC4/KS4 model)
- Paper Cutter (all models, only CR station)

3.1.1 Models

```
* ===== *
* MODEL * INTERFACE * POWER * STATIONS * EJ * MICR *
*      *          *      * SJ * DI *      *
* ---- * - - - - - * - - - - - * - - - * - - - * - - - *
* KC4 * RS-232 * Brick * No * Yes * Yes * Yes *
* KC5 * RS-232 * Brick * No * No * Yes * No *
* KS4 * RS-485 * Terminal * No * Yes * Yes * Yes *
* KS5 * RS-485 * Terminal * No * No * Yes * No *
* ===== *
```

Where:

in MODEL, K = fiscal 2 stations thermal/impact

3.2 RS-232 Communication Interface

ONLY FOR KC4/KC5 MODELS

3.2.1 Protocol

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

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

So, the protocol could be defined as one of type Host (PC) / Slave (Fiscal Printer).

The protocol is a one-bit sliding window protocol. In this kind of protocol, the partners speak successively one each time. The first to speak will be always the host. Every part keeps internally a packet counter. After initialization, this counter is used to distinguish between new packets and retransmissions changing from 0 to 1 continuously. (see normal communication below).

All packets have the same format. There are no special packets for ACKs, NAKs, etc.

3.2.2 Packet Format

```
* ===== *
* HEADER * LENGTH * DATA * CRC-16 *
* ===== *
* 1 byte * 2 bytes * Length bytes * 2 bytes *
* ===== *
```

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

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

3.2.3 Header Format

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

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

```

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

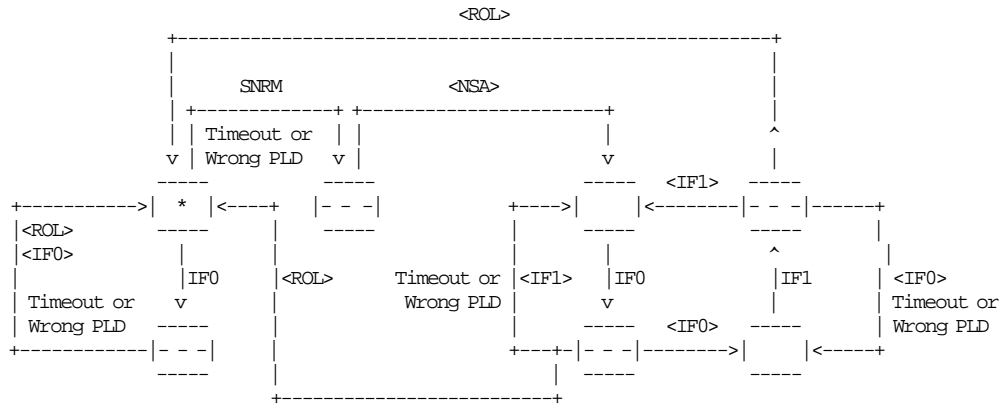
```

3.2.4 Communication Parameters

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

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

3.2.5 State Machine for Host

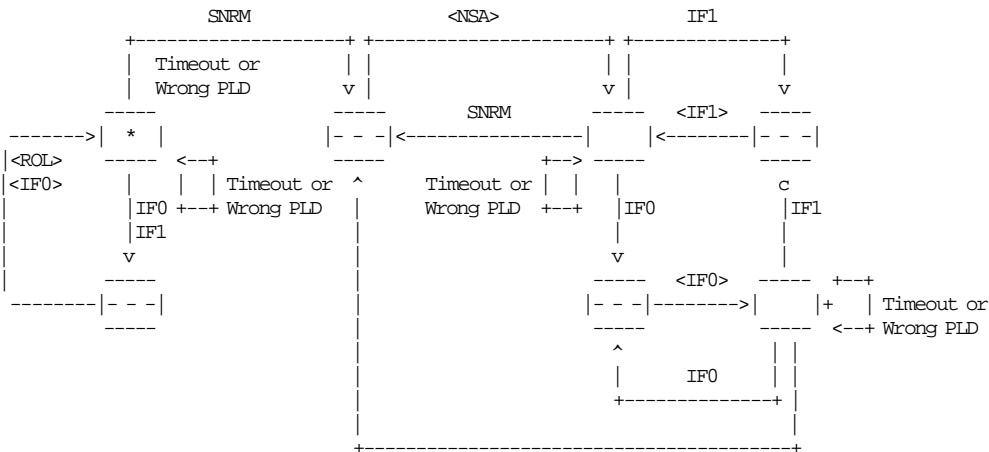


xxx = packet sent from host
 xxxx = packet sent from host
 <xxx> = packet sent from slave
 * = initial state

 | | = Host going to Tx State

 | - - - | = Host Rx State

3.2.6 State Machine for Slave



xxx = packet sent from host
 xxxx = packet sent from host
 <xxx> = packet sent from slave
 * = initial state

 | | = Host going to Tx State

 | - - - | = Host Rx State

3.2.7 Initialization

The very first packet that the Host transmits must be a SNRM (Set Normal Response Packet) or an IFO without data (see State Machine below). If an IFO is sent, the Slave can respond in two different ways: with a ROL (Request On Line) if the Slave is just initiating communications also, or with an IFO if the Slave has a previous communication ongoing. If this info result useful to recognize between these two cases, the IFO must be sent first and then SNRM. If it's not necessary, the SNRM can be sent directly.

When a SNRM is sent, after successful reception, the Slave will reset its internal packet counter to 0 and send a NSA (Non Sequence Acknowledge). If the Host receives it successfully, it will continue with the normal communication. If it's not, the host will resend the SNRM packet.

Initially, the Slave will wait for a packet from host (it always speaks after the host). If the first packet received is a SNRM, the slave must respond with NSA. If something else is correctly received the Slave must send a ROL (Request On Line) packet, asking the host to resynchronize communication. After reception the host must send a SNRM and set its internal packet counter to 0. The Slave will respond with NSA, and normal communication will continue.

3.2.7.1 Initialization Flow

- Normal case without Host recognizing Slave reset

```
* ===== *
*   HOST       *                               *   SLAVE   *
* ===== * ===== * ===== *
*           * ----- SNRM -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- NSA ----- *           *
* ===== *

```

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

```
* ===== *
*   HOST       *                               *   SLAVE   *
* ===== * ===== * ===== *
*           * ----- IFO -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- ROL ----- *           *
* ----- * ----- * ----- *
*           * ----- SNRM -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- NSA ----- *           *
* ===== *

```

- Host reset and Slave not with Host recognizing

```
* ===== *
*   HOST       *                               *   SLAVE   *
* ===== * ===== * ===== *
*           * ----- IFO -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IFO ----- *           *
* ----- * ----- * ----- *
*           * ----- SNRM -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- NSA ----- *           *
* ===== *

```

- Slave reset when Host has an ongoing communication

```

* ===== *
*   HOST     *                               *   SLAVE  *
* ===== * ===== * ===== *
*           * ----- IF0 or IF1 ----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- ROL ----- *           *
* ----- * ----- * ----- *
*           * ----- SNRM -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- NSA ----- *           *
* ===== *

```

3.2.8 Normal Communication

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

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

3.2.8.1 Normal Communication Flow

- Normal Case

```

* ===== *
*   HOST     *                               *   SLAVE  *
* ===== * ===== * ===== *
*           * ----- IF0 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF0 ----- *           *
* ----- * ----- * ----- *
*           * ----- IF1 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF1 ----- *           *
* ===== *

```

- Bad CRC Packet Received by Host

```

* ===== *
*   HOST     *                               *   SLAVE  *
* ===== * ===== * ===== *
*           * ----- IF0 -----> * Received OK *
* ----- * ----- * ----- *
* Bad Received * <----- IF0 ----- *           *
* ----- * ----- * ----- *
*           * ----- IF0 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF0 ----- *           *
* ----- * ----- * ----- *
*           * ----- IF1 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF1 ----- *           *
* ===== *

```

- No Packet received by Host

```

* ===== *
*   HOST   *                               *   SLAVE *
* ===== * ===== * ===== *
*           * ----- IF0 -----> * Received OK *
* ----- * ----- * ----- *
* No Received * X <----- IF0 ----- *           *
* ----- * ----- * ----- *
* Retransmitted * ----- IF0 -----> * Received OK *
* after time-out *           *           *
* ----- * ----- * ----- *
* Received OK * <----- IF0 ----- *           *
* ----- * ----- * ----- *
*           * ----- IF1 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF1 ----- *           *
* ===== *

```

- Bad CRC Packet received by Slave

```

* ===== *
*   HOST   *                               *   SLAVE *
* ===== * ===== * ===== *
*           * ----- IF0 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF0 ----- *           *
* ----- * ----- * ----- *
*           * ----- IF1 -----> * Bad Received, *
*           *           *           * Discarded *
* ----- * ----- * ----- *
* Retransmitted * ----- IF1 -----> * Received OK *
* after time-out *           *           *
* ----- * ----- * ----- *
* Received OK * <----- IF1 ----- *           *
* ===== *

```

- No Packet received by Slave

```

* ===== *
*   HOST   *                               *   SLAVE *
* ===== * ===== * ===== *
*           * ----- IF0 -----> * Received OK *
* ----- * ----- * ----- *
* Received OK * <----- IF0 ----- *           *
* ----- * ----- * ----- *
*           * ----- IF1 -----> X * No Received *
* ----- * ----- * ----- *
* Retransmitted * ----- IF1 -----> * Received OK *
* after time-out *           *           *
* ----- * ----- * ----- *
* Received OK * <----- IF1 ----- * Received OK *
* ===== *

```

3.2.9 Timing

The maximum delay between consecutive bytes sent by any device is 50ms. Also, after the host ends sending a packet, the device has a maximum of 250ms for sending the first byte of the response. The host has no restriction about how often it must send packets to the slave, the slave must wait forever to receive something from it, but, if the host doesn't give a 'chance to speak' to the device, it will be unable to inform the host of any asynchronous event detected i.e. cover open/close.

3.2.10 Polling

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

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

After sending a command, it is very important to keep 'polling' the printer (sending IFs without data) until the slave returns a final status. This way the host gives the FP a chance to send its status back. If command execution is not quick, the FP will send intermediate status periodically until the command is ended and a final status is sent.

The FP can generate also asynchronous status, that is status generated outside the execution of any command. These status are mainly originated due to changes in the status of the printer (covers open/close, buttons pressed, etc.). If the host needs to take care of these status, it must keep polling the printer even when no command is executed. The polling inside command execution must be more frequent to avoid slowing the device throughput (around once every 0.05 sec). The polling outside command execution can be usually slower (maybe once every 0.50 sec). These times doesn't need to be exact and some tuning could be necessary to achieve optimum performance.

3.2.11 Retries

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

3.3 Electronic Journaling

3.3.1 Electronic Journaling Operation

The FP includes the hardware and related microcode in order to implement an EJ method. Briefly this method consists in saving required data in the CF inserted in the respective slot.

To be considered valid for fiscal and audit purposes, this data is saved and signed safely at the end of the sales period using a private/public key signature method.

3.3.2 Compact Flash

The fiscal microcode EC level was tested with the following CF brands:

```

* ----- *
* BRANDS * 64 MBytes *
* ----- *
* Hitachi * NO *
* IBM * YES *
* Kingston * YES *
* SanDisk * YES *
* Simpletech * NO *
* Viking * YES *
* ----- *

```

YES = supported and tested

4.0 Fiscal Printer and Fiscal Unit Status

4.1 For KC4/KC5 Models (RS-232)

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

The following figure shows the content of the fiscal status.

BYTE	BIT	CONTENT
0		PRINTER UNIT STATUS
	0 (LSB)	COMMAND LOADED For RS-232 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 RS-232 immediate command and flash storage commands. Set to 1 when the command is complete.
	1	CASH RECEIPT RIGHT HOME POSITION Set to 1 when the print head is in the cash receipt right home position.
	2	LEFT HOME POSITION Set to 1 when the print head is in the left home position.
	3	DOCUMENT RIGHT HOME POSITION Set to 1 when the print head is in the document right home position.
	4	RESERVED (always = '0')
	5	RIBBON COVER OPEN Set to 1 when the ribbon cover is open.
	6	CASH RECEIPT PRINT ERROR Paper cover is open or the CR station is out of paper.
	7 (MSB)	COMMAND REJECT
1		PRINTER UNIT STATUS
	0 (LSB)	DOCUMENT READY Set to 0 when the DI station is ready for printing. This occurs when both document sensors are made and the document has been fed to the first print position.
	1	DOCUMENT PRESENT UNDER THE FRONT SENSOR Set to 0 when a document is under the front document sensor.
	2	DOCUMENT PRESENT UNDER THE TOP SENSOR Set to 0 when a document is under the top document sensor.
	3	RESERVED (always = '1').
	4	PRINT BUFFER HELD Set to a 1 when the print buffer is being held. Cleared when buffer released. The printer may be held due to a hold buffer command or one of the following printer errors: - Ribbon cover open with commands to be printed in DI station. - CR print error with commands to 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).

(Continued in the next page)

Figure 1. Fiscal Printer and Fiscal Unit Status - KC4/KC5 Models - Part 1 of 3

Fiscal Printer and Fiscal Unit Status - KC4/KC5 Models continued...

BYTE	BIT	CONTENT
2		PRINTER UNIT STATUS
	0 (LSB)	MEMORY SECTOR IS FULL
	1	HOME ERROR
	2	DOCUMENT ERROR The document not inserted after document station was selected and the wait timed out.
	3	FLASH EPROM LOAD ERROR OR MCT LOAD ERROR
	4	RESERVED (always = '0')
	5	USER FLASH STORAGE SECTOR IS FULL
	6	FIRMWARE ERROR CRC on the firmware failed. The printer is running out of the boot sector. ONLY system commands and firmware commands will be accepted.
7 (MSB)	FISCAL BIT Set to show a line completed printing.	
3	PRINTER UNIT STATUS Contains the printer EC level with all status messages.	
4		PRINTER UNIT STATUS
	0 (LSB)	PRINTER ID REQUEST/EXTENDED ADDRESS CMD Set to 1 when responding to a printer ID request.
	1	EC LEVEL Set to 1 when responding to an EC level request.
	2	MICR READ Set to 1 when responding to a MICR read command.
	3	MCT READ Set to 1 when responding to a MCT read command.
	4	USER FLASH READ Set to 1 when responding to a user flash read command.
	5	Reserved (always = '1').
	6	SJ COVER OPEN Set to 1 when the cover 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)	RESERVED (always = '0')
	1	+24 VOLT POWER SUPPLY STATUS 0 = Voltage in spec 1 = Voltage below spec
	2	RESERVED (always = '0')
	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 MICR command is executed.	

Figure 2. Fiscal Printer and Fiscal Unit Status - KC4/KC5 Models - Part 2 of 3

Fiscal Printer and Fiscal Unit Status - KC4/KC5 Models continued...

BYTE	BIT	CONTENT
7	0-7	PRINTER UNIT STATUS RESERVED (always = '0')
8	0	FISCAL UNIT STATUS FISCAL/PRINTER DEVICE INFO 0 = Fiscal Device Info is NOT contained in this message 1 = Fiscal or Printer Device Info IS contained in this message
	1	IPL STATUS When set, it indicates that status byte 13 contains the IPL completion status and bit 4 of byte 8 is set as it was at IPL time.
	2	IPL IN PROGRESS Set to indicate that the FU is performing the IPL sequence.
	3	MICROCODE EC When set it indicates that status byte 13 contains the microcode EC.
	4	PLD This bit is set at IPL time to indicate that a command was in execution during PLD and that all modifications caused by the suspended command have been deleted.
	5	ASYNCHRONOUS STATUS When set it indicates that the FU is executing an internal command (e.g. POR sequence) or it received an asynchronous status from the printer).
	6	INTERMEDIATE STATUS When set it indicates that execution of a command is still in progress.
	7	FISCAL UNIT BUSY Set to 1 when a command is received while a previous command is still in execution.
9	0-6	FISCAL UNIT STATUS RESERVED (always = '0')
	7	ADDITIONAL DATA (= 1 when any data is available; otherwise = 0) (Note 2)
10		COUNTRY CODE 06 = Chile
11		COUNTRY VERSION (hardware model) 05 = 4610 SureMark RS-232 - 2 stations
12		FISCAL MICROCODE EC LEVEL
13		FISCAL UNIT RETURN CODE (Note 1)
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: When FU return code is 43 hex. (67₁₀), it means that no error is indicated on this status message.

Note 2: Where additional data follow the fifteen FU status bytes.

Figure 3. Fiscal Printer and Fiscal Unit Status - KC4/KC5 Models - Part 3 of 3

The FU return codes are defined in 12.0, "Fiscal Unit Return Codes" on page 181 .

4.2 Version/Country Code Definitions

- Country Name = Chile
- Model = KC4 and KC5
- Country Code = 06
- Country Version (hardware model) = 05 (4610 SureMark RS-232 - 2 stations)
- Fiscal Microcode EC Level = 13

4.3 For KS4/KS5 Models (RS-485)

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

BYTE	BIT	CONTENT		
0		PRINTER UNIT STATUS		n/a
	0 (LSB)	RESERVED (Always = '1')		
	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)	RESERVED (Always = '0')		n/a
	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	COVER OPEN OR CR PAPER OUT Set to 1 when the cover in CR or DI stations is open. Set to 1 when CR station is out of paper.	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.		

(Continued in the next page)

Figure 4. Fiscal Printer and Fiscal Unit Status - KS4/KS5 Models - Part 1 of 3

Fiscal Printer and Fiscal Unit Status - KS4/KS5 Models continued...

BYTE	BIT	CONTENT		
2		PRINTER UNIT STATUS		
	0 (LSB)	LEFT HOME POSITION Set to 1 when the print head is in the left home position.	1	2
	1	RESERVED (Always = '0')		
	2	DOCUMENT PRESENT UNDER THE TOP SENSOR Set to 0 when a document is under the top document sensor.	2	2
	3	RESERVED (Always = '0')		n/a
	4	FLASH EPROM LOAD ERROR OR MCT LOAD ERROR	3	3
	5	RESERVED (Always = '0')		
	6	RESERVED (Always = '0')		n/a
	7 (MSB)	RESERVED (Always = '0')		
3		PRINTER UNIT STATUS Contains the printer EC level with all status messages.	4	
4		RESERVED (Always = '00')		n/a
5		PRINTER UNIT STATUS Contains the current line count the printer is on.	6	
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 4 is set as it was at IPL time.		
	2	IPL IN PROGRESS Set to indicate that the FU is performing the IPL sequence.		
	3	FISCAL MICROCODE EC LEVEL When set it indicates that status byte 7 contains the microcode EC.		
	4	PLD STATUS This bit is set at IPL time to indicate that a command was in execution during PLD and that all modifications caused by the suspended command have been deleted.		
	5	ASYNCHRONOUS STATUS When set it indicates that the FU is executing an internal command (e.g. POR sequence) or it received an asynchronous status from the printer.		
	6	INTERMEDIATE STATUS When set it indicates that execution of a command is still in progress.		
	7 (MSB)	FISCAL UNIT BUSY Set to 1 when a command is received while a previous command is still in execution.		

(Continued in the next page)

Figure 5. Fiscal Printer and Fiscal Unit Status - KS4/KS5 Models - Part 2 of 3

Fiscal Printer and Fiscal Unit Status - KS4/KS5 Models continued...

BYTE	BIT	CONTENT	
7		ADDITIONAL DATA/COUNTRY VERSION/COUNTRY CODE - x06 (06)	
	0-4	COUNTRY CODE Chile = x00110	
	5-6	COUNTRY VERSION (hardware model) 4610 SureMark RS-485 2 stations = x00 (00)	
	7 (MSB)	ADDITIONAL DATA	(Note 2)
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 FU status byte 5 is 00 then command is complete.

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

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

Figure 6. Fiscal Printer and Fiscal Unit Status - KS4/KS5 Models - Part 3 of 3

The FU return codes are defined in 12.0, “Fiscal Unit Return Codes” on page 181 .

4.3.1 Version/Country Code Definitions

- Country Name = Chile
- Models = KS4 and KS5
- Country Version (hardware model) = 00 (4610 SureMark RS-485 - Protocol SIO - Cable 7)
- Country Code = 06
- Country Version + Country Code:
 - Hexadecimal = 06
 - Decimal = 06
- Fiscal Microcode EC Level = 13

5.0 Fiscal Command Processing

The FU operates under control of an application program communicating with it via a serial link. 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 FU, but it can retrieve data related to accumulators, counters, FU state and FM.

The FU performs the following operations:

- Record serialization parameters.
- Record fiscal configuration option.
- Record store configuration options.
- Record sale amount and generate FV.
- Record daily sales on FM and generate closure report.
- Generate FM content reports.
- Print reports generated by the application program.
- Report selected data to the application program.
- Print on personal checks and credit card vouchers.
- Reads the checks magnetic ink data.

NON-FISCAL REPORT

DD - Start Non-Fiscal Report
DE - End Non-Fiscal Report

ADMINISTRATIVE TRANSACTION

E0 - Start Administrative Transaction
E1 - Print Administrative Transaction
E2 - End Administrative Transaction

PRINTER

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

MISCELLANEOUS

08 - Send Interrupted Command
09 - Set Daylight Saving Time
C8 - Set Barcode Parameters
C9 - Print Barcode
CA - Download Graphics
CB - Flip Document in DI Station
CD - Cash Drawer Management
DC - MICR Read

UTILITIES

DA - Electronic Read Fiscal Memory Tables and Electronic Journal Records
DB - Electronic Read Accumulators and Counters
F1 - Report IPL Compl. Status
F7 - Command Buffer Management
F8 - Report Printer EC
F9 - Report Current Status
FA - Reset Fiscal Printer
FB - Run Online Diagnostics
FC - Report Microcode EC
FF - Engineering Dump RAM and Fiscal Memory

ELECTRONIC JOURNAL/COMPACT FLASH

60 - Open Electronic Journal File
61 - Close Electronic Journal File
62 - Read Electronic Journal File
63 - Get Extended EJ Error
65 - Get Compact Flash Directory
67 - Get Public Key
69 - Get Compact Flash Information

SYSTEM

00 - System Commands

Figure 8. Command Set Summary - Part 2 of 2

5.2 Y2K Issues

5.2.1 Scope

The FP microcode have the ability to correctly process, provide and receive date data within and between the 20th and 21st centuries constrained to a 100 year window as described below.

5.2.2 Year Window Description

The microcode is utilizing the fixed window method.

It Define a 100 years window from Jan 1, 1990 through Dec 31, 2089 and interprets the date in 2-digit year format using this window.

Year values from 90 to 99 must be interpreted as 1990 through 1999.

Year values from 00 to 89 must be interpreted as 2000 through 2089.

5.2.3 Format Date in Printouts

In the following reports the format date printed is:

- Fiscal Voucher: dd/mm/yy
- Credit Card Voucher: dd/mm/yy
- Closure Report: dd/mm/yy
- X-Report: dd/mm/yy
- Historic Daily Closure Report: dd/mm/yy
- Engineering Dump Fiscal RAM and Fiscal Memory: dd/mm/yy
- Power-On Reports: dd/mm/yy

Where:

dd ranges from 01 to 31

mm ranges from 01 to 12

yy ranges from 90 (1990) to 89 (2089)

5.2.4 Commands that have dates as I/O

- Have dates as input:
 - 16 cmd. - Set Date and Time use ddmmyyyy input format
 - 15 cmd. - Historic Daily Closure Report use ddmmyyyy input format
- Have dates as output:
 - DA cmd. - Electronic Read Fiscal Memory Tables use dd/mm/yy output format
 - DB cmd. - Electronic Read Accumulators and Counters use dd/mm/yy output format

5.2.5 Date in FM

The date is stored in FM (yymmdd compacted format) during each:

- Repair Action Table generated with J4/CE jumper intervention.
- Daily Entry Table generated with 13 cmd.
- Microcode EC Level Table generated when the microcode EC level is updated in the FP.
- Store/Pos Id Information Table generated with 1E cmd.

6.0 Initialization Sequence

6.1 Training Mode Initialization Sequence

The TRM initialization sequence for Chile is:

1. RAM CLEAR
 - Turn OFF the FP
 - Put the J4/CE jumper in ACTIVE (ON) position
 - Turn ON the FP
 - Wait 30 seconds
 - Turn OFF the FP
 - Put the J4/CE jumper in STORED (OFF) position
 - Turn ON the FP
 2. SET PUBLIC AND PRIVATE KEY
 - Execute --> Set Public and Private Key = 1B66 6600 (1 time)
 - Execute --> Set Public and Private Key = 1B66 6601 (0 or 1 or more times)
 - Execute --> Set Public and Private Key = 1B66 6602 (1 time)
 - OR
 - Execute --> Set Public and Private Key = 1B66 6603 (1 time)
 3. SERIALIZE FISCAL MEMORY
 - Execute --> Serialize Fiscal Memory = 1B66 1B00
 4. J4/CE JUMPER ACTIVE
 - Put the J4/CE jumper in ACTIVE (ON) position
 - Turn ON the FP
 5. SET DATE AND TIME
 - Execute --> Set Date and Time = 1B66 1600
 6. SET POS IDENTIFICATION
 - Execute --> Set POS Identification = 1B66 1E00
 7. SET GENERAL PARAMETERS
(Optional)
 - Execute --> Set Maximum Discount Percent Allowed = 1B66 2E00
 8. J4/CE JUMPER STORED
 - Turn ON the FP
 - Put the J4/CE jumper in STORED (OFF) position
 - Turn ON the FP
 9. FISCAL PARAMETER CONFIGURATION
(Optional)
 - Execute --> Fiscal Parameter Configuration = 1B66 C400
 10. SET STORE HEADER
(Minimum = 1, Maximum = 7)
 - Execute --> Set Store Header 1 = 1B66 D701
 - Execute --> Set Store Header 2 = 1B66 D702
 - Execute --> Set Store Header 3 = 1B66 D703
 - Execute --> Set Store Header 4 = 1B66 D704
 - Execute --> Set Store Header 5 = 1B66 D705
 - Execute --> Set Store Header 6 = 1B66 D706
 - Execute --> Set Store Header 7 = 1B66 D707
-

Figure 9. Training Mode Initialization Sequence.

6.2 Fiscal Mode Initialization Sequence

The FIM initialization sequence for Chile is:

1. RAM CLEAR
 - Turn OFF the FP
 - Put the J4/CE jumper in ACTIVE (ON) position
 - Turn ON the FP
 - Wait 30 seconds
 - Turn OFF the FP
 - Put the J4/CE jumper in STORED (OFF) position
 - Turn ON the fiscal printer

 2. SET PUBLIC AND PRIVATE KEY
 - Execute --> Set Public and Private Key = 1B66 6600 (1 time)
 - Execute --> Set Public and Private Key = 1B66 6601 (0 or 1 or more times)
 - Execute --> Set Public and Private Key = 1B66 6602 (1 time)
 - OR
 - Execute --> Set Public and Private Key = 1B66 6603 (1 time)

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

 4. J4/CE JUMPER ACTIVE
 - Put the J4/CE jumper in ACTIVE (ON) position
 - Turn ON the FP

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

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

 7. SET POS IDENTIFICATION
 - Execute --> Set POS Identification = 1B66 1E00

 8. SET GENERAL PARAMETERS
(Optional)
 - Execute --> Set Maximum Discount Percent Allowed = 1B66 2E00

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

 10. FISCAL PARAMETER CONFIGURATION
(Optional)
 - Execute --> Fiscal Parameter Configuration = 1B66 C400

 11. SET STORE HEADER
(Minimum = 1, Maximum = 7)
 - Execute --> Set Store Header 1 = 1B66 D701
 - Execute --> Set Store Header 2 = 1B66 D702
 - Execute --> Set Store Header 3 = 1B66 D703
 - Execute --> Set Store Header 4 = 1B66 D704
 - Execute --> Set Store Header 5 = 1B66 D705
 - Execute --> Set Store Header 6 = 1B66 D706
 - Execute --> Set Store Header 7 = 1B66 D707
-

Figure 10. Fiscal Mode Initialization Sequence.

6.3 Reinitialization Sequence (with RAM Clear)

The reinitialization sequence for Chile is:

1. RAM CLEAR
 - Turn OFF the FP
 - Put the J4/CE jumper in ACTIVE (ON) position
 - Turn ON the FP
 - Wait 30 seconds
 - Turn OFF the FP
 - Put the J4/CE jumper in STORED (OFF) position
 - Turn ON the FP

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

 3. J4/CE JUMPER ACTIVE
 - Put the J4/CE jumper in ACTIVE (ON) position
 - Turn ON the FP

 4. SET POS IDENTIFICATION
 - Execute --> Set POS Identification = 1B66 1E00

 5. SET GENERAL PARAMETERS
(Optional)
 - Execute --> Set Maximum Discount Percent Allowed = 1B66 2E00

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

 7. FISCAL PARAMETER CONFIGURATION
(Optional)
 - Execute --> Fiscal Parameter Configuration = 1B66 C400

 8. SET STORE HEADER
(Minimum = 1, Maximum = 7)
 - Execute --> Set Store Header 1 = 1B66 D701
 - Execute --> Set Store Header 2 = 1B66 D702
 - Execute --> Set Store Header 3 = 1B66 D703
 - Execute --> Set Store Header 4 = 1B66 D704
 - Execute --> Set Store Header 5 = 1B66 D705
 - Execute --> Set Store Header 6 = 1B66 D706
 - Execute --> Set Store Header 7 = 1B66 D707
-

Figure 11. Reinitialization Sequence.

7.0 Fiscal Hardware

7.1 J4/CE Jumper

7.1.1 Description

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

7.1.2 Procedure

The activate jumper procedure consists in:

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

The deactivate J4/CE jumper procedure consists in:

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

7.1.3 Rules

- Only authorized service personnel can move the J4/CE jumper.
- The RAM pattern is initialized after all the other initialization has been completed.
- This process can take a long time if the FM is almost full or full.
- Flags are set or cleared as shown below.
- 200 repair actions are allowed during the life of the FP and each repair action is stored in the repair action table in FM.

7.1.4 Calculations while the jumper is active:

- **Recover the following counters from the FM tables**

Lif_N_Vouc

Lif_N_Slip

Lif_N_Clos

Lif_N_Ract

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

$Lif_N_Ract = Lif_N_Ract + 1$

8.0 Various

8.1 Microcode EC Level

- When a microcode EC level is updated in the FP, the new level number is stored in a table in FM.
- The FP supports up to 20 microcode EC level changes during the life of the FP (the first entry of this table will be usually filled during the first IPL in factory).
- When the table is full and is installed a microcode EC level not equal to the last stored in the table, the following options can be applied:
 - The microcode EC must be exchanged by the last microcode EC level stored in the table.
 - OR
 - The FM must be exchanged.
- When a IPL occurs the microcode EC level stored in EPROM code is compared to the last entry in the microcode EC level table stored in FM.
If the microcode EC level is the same, a new entry is not added to the table.
If the microcode EC level is not the same, a new entry is added to the table
- When a IPL occurs and the microcode EC level is not equal to the last stored in FM and the microcode EC level table is full, the error code 107 will be returned.

8.2 SII X-Report

8.2.1 Description

SII X-Report is a functionality that allows the user to issue a X-Report thru printer buttons.

8.2.2 Printer Buttons Sequence

The printer buttons sequence is:

- Press at the same time the CR button & DI button until the throat in DI station is opened.
- Press the DI button
- The SII X-Report is printed and paper is cut.

8.2.3 Calculations

$$Day_N_XRep = Day_N_XRep + 1$$

$$Day_N_Slip = Day_N_Slip + 1$$

$$Lif_N_Slip = Lif_N_Slip + 1$$

8.2.4 Rules

- By IPL or paper out errors, this report is cancelled and the counter and accumulators are not incremented.
- The SII X-Report is the one same issued with 14 cmd. - cmd. extension 00.
- Once the FP has started communicating with the host, the printer buttons sequence will not work if communication is lost. In this case, the fiscal printer must be powered off and then on again for the printer buttons sequence to work.

8.3 Automatic Fiscal Voucher End by PLD

- If this option is activated (by default or C4 cmd.) and a PLD occurs during a FV, it is ended automatically by fiscal microcode.
In this FV the "DON'T FORGET YOUR CREDIT NOTE" (V43 msg.) is printed.
- If this option is deactivated (by C4 cmd.) and a PLD occurs during a FV, it is ended by application program.

8.4 Error Conditions

Errors encountered during command execution are processed as follows:

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

In the FV to warn the operator that the same line could appear more than once, an overlay string ("###") is provided by microcode.

The string "###" overlays the first 3 characters of the printed line.

Only exception to the above process is the recovery from error occurred during x-report, closure report (close SP) and historic daily closure report.

- 14 cmd. - X-Report After error, the report is cancelled.
- 13 cmd. - Close Sale Period The close SP must be issued again not allowing another command until the closure report is printed completely.
- 15 cmd. - Historic Daily Closure Report After error, the report is cancelled.

8.5 Power Line Disturbance

When a PLD occurs the FU goes in a power off state.

When power is restored the microcode checks:

- 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.

- If no command was in progress but one line in buffer wasn't printed. In this case, when power is restored, the stored line is printed and the string ("###") overlays the first 3 characters.

The string ("###") is to warn the operator that the same line could appear more than once.

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

Only exception to the above process is the recovery from PLD occurred during x-report, closure report (close SP) and historic daily closure report.

- 14 cmd. - X-Report After PLD, the report is cancelled.
- 13 cmd. - Close Sale Period The close SP must be issued again not allowing another command until the closure report is printed completely.
- 15 cmd. - Historic Daily Closure Report After PLD, the report is cancelled.

8.6 A5 Pattern

The fiscal microcode writes the pattern "A5" in address 82 (hexa) in the FM to be able to detect the EPROM connection.

It is read for all fiscal commands.

If it isn't found, the FP returns error code 109.

9.0 Counters and Accumulators

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

9.1 Transaction Accumulators

The following accumulators are used during a ST:

	RANGE	
	Min	Max
Tra_Total (Transaction Total)	0	2147483647 (4 bytes signed)
Tra_Retn_Total (Return Item Total)	0	2147483647 (4 bytes signed)
Tra_Void_Total (Void Item Total)	0	2147483647 (4 bytes signed)
Tra_Disc_Total (Discount Item Total)	0	2147483647 (4 bytes signed)
Tra_Up1f_Total (Uplift Item Total)	0	2147483647 (4 bytes signed)
Tra_Tdsc_Total (Discount on Subtotal Total)	0	2147483647 (4 bytes signed)
Tra_Tupl_Total (Uplift on Subtotal Total)	0	2147483647 (4 bytes signed)
Tra_Pay_Total(00) (Payment Total CASH)	-2147483648	2147483647 (4 bytes signed)
Tra_Pay_Total(pp) (Payment Total by Payment Type)	0	2147483647 (4 bytes signed)
Tra_Donat_Total (Donation Total)	0	2147483647 (4 bytes signed)
Tra_Amt_Due (Amount Due Total)	-2147483648	2147483647 (4 bytes signed)

Where:

pp = Payment Type, range = 01 up to 09

Figure 12. Transaction Accumulators.

9.2 Daily Counters

The following counters are used during a SP:

		RANGE	
		Min	Max
	Day_N_Vouc (Number of Fiscal Vouchers)	0	65535 (2 bytes)
	Day_N_AutVouc (Number of Automatic Fiscal Vouchers)	0	65535 (2 bytes)
	Day_N_Slip (Number of Slips Printed)	0	65535 (2 bytes)
	Day_N_NFR_DI (Number of Non-Fiscal Reports - DI Station)	0	65535 (2 bytes)
L	Day_N_NFR_CR (Number of Non-Fiscal Reports - CR Station)	0	65535 (2 bytes)
	Day_N_Check (Number of Checks Printed)	0	65535 (2 bytes)
	Day_N_CCheck (Number of Checks Cancelled)	0	65535 (2 bytes)
	Day_N_CredC (Number of Credit Card Vouchers)	0	65535 (2 bytes)
	Day_N_DebiC (Number of Debit Card Vouchers)	0	65535 (2 bytes)
	Day_N_XRep (Number of X-Reports)	0	65535 (2 bytes)
	Day_N_HDCR (Number of Historic Daily Closure Reports)	0	65535 (2 bytes)
	Day_N_CNot (Number of Credit Notes)	0	65535 (2 bytes)
	Day_N_DMon (Number of Deposits Money)	0	65535 (2 bytes)
	Day_N_IVou (Number of Internal Vouchers)	0	65535 (2 bytes)
	Day_N_FPay (Number of Fees Payment)	0	65535 (2 bytes)

Figure 13. Daily Counters.

9.3 Daily Accumulators

The following accumulators are used during a SP:

		RANGE		
		Min		Max
Day_Total (Total)		0	140737488355327	(6 bytes signed)
Day_AutVouc_Total (Automatic F.V. Total)		0	140737488355327	(6 bytes signed)
Day_Retn_Total (Return Item Total)		0	140737488355327	(6 bytes signed)
Day_Void_Total (Void Item Total)		0	140737488355327	(6 bytes signed)
Day_Disc_Total (Discount Item Total)		0	140737488355327	(6 bytes signed)
Day_Uplf_Total (Uplift Item Total)		0	140737488355327	(6 bytes signed)
Day_Tupl_Total (Discount on Subtotal Total)		0	140737488355327	(6 bytes signed)
Day_Tdsc_Total (Uplift on Subtotal Total)		0	140737488355327	(6 bytes signed)
Day_Pay_Total(00) (Payment Total CASH)	-140737488355328		140737488355327	(6 bytes signed)
Day_Pay_Total(pp) (Payment Total by Payment Type)		0	140737488355327	(6 bytes signed)
Day_Donat_Total (Donation Total)		0	140737488355327	(6 bytes)
Day_CNot_Total (Credit Notes Total)		0	140737488355327	(6 bytes signed)
Day_DMon_Total (Deposits Money Total)		0	140737488355327	(6 bytes signed)
Day_IVou_Total (Internal Vouchers Total)		0	140737488355327	(6 bytes signed)
Day_FPay_Total (Fees Payment Total)		0	140737488355327	(6 bytes signed)

Where:

pp = Payment Type, range = 01 up to 09

Figure 14. Daily Accumulators.

9.4 Lifetime Counters

The following counters are for keeps during the life of the FP.

	RANGE	
	Min	Max
Lif_N_Vouc (Number of Fiscal Vouchers)	0	4294967295 (4 bytes)
Lif_N_AutVouc (Number of Automatic Fiscal Vouchers)	0	4294967295 (4 bytes)
Lif_N_Slip (Number of Slips Printed)	0	4294967295 (4 bytes)
Lif_N_Clos (Number of Closures)	0	4095
Lif_N_Ract (Number of Repair Actions)	0	200
Lif_N_CNot (Number of Credit Notes)	0	4294967295 (4 bytes)
Lif_N_DMon (Number of Deposits Money)	0	4294967295 (4 bytes)
Lif_N_IVou (Number of Internal Vouchers)	0	4294967295 (4 bytes)
Lif_N_FPay (Number of Fees Payment)	0	4294967295 (4 bytes)

Figure 15. Lifetime Counters.

9.5 Lifetime Accumulators

The following accumulators are for keeps during the life of the FP.

	Min	RANGE	Max
Lif_Grand_Total (Grand Total)	0	18446744073709551615	(8 bytes)
Lif_AutVouc_Grand_Total (Automatic F.V. Grand Total)	0	9223372036854775807	(8 bytes signed)
Lif_Retrn_Total (Return Item Total)	0	18446744073709551615	(8 bytes)
Lif_Void_Total (Void Item Total)	0	18446744073709551615	(8 bytes)
Lif_Disc_Total (Discount Item Total)	0	18446744073709551615	(8 bytes)
Lif_Uplf_Total (Uplift Item Total)	0	18446744073709551615	(8 bytes)
Lif_Tupl_Total (Discount on Subtotal Total)	0	18446744073709551615	(8 bytes)
Lif_Tdsc_Total (Uplift on Subtotal Total)	0	18446744073709551615	(8 bytes)
Lif_Pay_Total(00) (Payment CASH Grand Total)	-9223372036854775808	9223372036854775807	(8 bytes signed)
Lif_Pay_Total(pp) (Payment by Payment Type Grand Total)	0	9223372036854775807	(8 bytes signed)
Lif_CNot_Total (Credit Notes Total)	0	18446744073709551615	(8 bytes)
Lif_DMon_Total (Deposits Money Total)	0	18446744073709551615	(8 bytes)
Lif_IVou_Total (Internal Vouchers Total)	0	18446744073709551615	(8 bytes)
Lif_FPay_Total (Fees Payment Total)	0	18446744073709551615	(8 bytes)

Where:

pp = Payment Type, range = 01 up to 09

Figure 16. Lifetime Accumulators

10.0 Fiscal Unit

10.1 Fiscal Unit States

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

- **SALE PERIOD IN PROGRESS**

This state indicates that since the execution of the close SP procedure, the following command has been executed:

12 - Open Sale Period

This state is ended by close sale period (13 cmd.).

- **SALE TRANSACTION IN PROGRESS**

During this process a FV is printed.
ST is in progress when the following command is issued:

01 - Print Store Header

This state is ended by:

06 - End Fiscal Voucher

- **NON-FISCAL REPORT IN PROGRESS**

Non-fiscal report is in progress when the following command is issued:

DD - Start Non-Fiscal Report

This state is ended by:

DE - End Non-Fiscal Report

- **ADMINISTRATIVE TRANSACTION IN PROGRESS**

Administrative transaction is in progress when the following command is issued:

E0 - Start Administrative Transaction

This state is ended by:

E2 - End Administrative Transaction

- **PRINT CHECK**

A check is in progress when either of the following command is issued.

C0 - Print Check

This state is ended by:

C1 - End Check

C2 - Cancel Check

- **CREDIT CARD VOUCHER**

A credit card voucher (Design 1) is in progress when the following command is issued:

C5 - Credit Card Voucher (Design 1)

A credit card voucher (Design 2) is in progress when the following command is issued:

C6 - Credit Card Voucher (Design 2)

- **DEBIT CARD VOUCHER**

A debit card voucher is in progress when the following command is issued:

C7 - Debit Card Voucher

10.2 Operational Modes

The FU can operate in two different modes:

1. Training Mode
 - Fiscal rules are not applied and FM is not used.
2. Fiscal Mode
 - Fiscal rules are applied and FM is used.

10.3 Fiscal Unit Rules

10.3.1 Training Mode

The following rules are applicable when TRM is set:

- In the printouts the blank characters will be printed as '?'.
 - Accumulators and counters are not affected.
 - Fiscal logo is not printed in the documents.
 - No closures are stored in FM.
 - Closures are stored in CF.

10.3.2 Fiscal Mode

The following rules are applicable when FIM is set:

- Compact Flash
 - When set fiscal mode (18 cmd.) is issued, the CF is formatted losing the closures stored during TM.
- Fiscal LOGO
 - Is printed in the following documents:
 - Fiscal Voucher
 - Closure Report
 - Historic Daily Closure Report
- Each time the RAM is cleared using the hardware J4/CE jumper, the repair action counter residing in FM is increased by 1 and the FU current time is recorded for later printing on closure report.
- FM may not be disconnected.
 - The microcode checks for it before execution of the following commands:
 - 66 - Set Public and Private Key
 - 1B - Serialize Fiscal Memory
 - 18 - Set Fiscal Mode
 - 1E - Set Store/POS Id Information
 - D7 - Set Store Header
 - 12 - Open Sale Period

- 01 - Print Store Header
 - D2 - Item Sale
 - D3 - Negative/Uplift Item Sale
 - D4 - Transaction Subtotal/Total
 - D9 - Discount/Uplift on Subtotal
 - D5 - Payment
 - D6 - End Payment
 - 06 - End Fiscal Voucher
 - 13 - Close Sale Period
 - 14 - X-Report
 - 15 - Historic Daily Closure Report
 - C5 - Credit Card Voucher (Design 1)
 - C6 - Credit Card Voucher (Design 2)
 - C7 - Debit Card Voucher
 - EA - Normal Printing Line in CR Station
 - EB - Normal Printing Line in DI Station
 - EC - Line Feed
 - ED - Ready Document
 - EE - Cut Customer Receipt Paper
 - EF - Eject Document
 - 09 - Set Daylight Saving Time
 - C8 - Set Barcode Parameters
 - C9 - Print Barcode
 - CA - Download Graphics
 - DC - MICR Read
 - C0 - Print Check
 - C1 - End Check
 - C2 - Cancel Check
 - DD - Start Non-Fiscal Report
 - DE - End Non-Fiscal Report
 - E0 - Start Administrative Transaction
 - E1 - Print Administrative Transaction
 - E2 - End Administrative Transaction
- CF may not disconnected.
The microcode checks for it before execution of the following commands:
 - 12 - Open Sale Period
 - 01 - Print Store Header
 - 13 - Close Sale Period
 - 15 - Historic Daily Closure Report

If FM or CF 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.

10.4 Fiscal Operations

In this section is given a detailed description for executing fiscal procedures and their effect on FM, accumulators, counters and printed slips.

10.4.1 Printer Operations

The following bigtop print modes are supported:

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

The print mode is controlled by the application program by setting the required bits in the command extension. The selected print mode applies to all characters of the same line.

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

10.4.2 Characters Per Inch

- Thermal Printing (CR and SJ stations)
 - 15 CPI => 44 characters/line
 - 12 CPI => 33 characters/line
- Impact Printing (DI station)
 - 15 CPI => 47 characters/line
 - 12 CPI => 37 characters/line

10.4.3 Printed Amounts

The following rules apply to amounts printed on slips:

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

10.4.4 Automatic Slip Cut

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

- IPL messages.

11.0 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.

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 FU.

The format of the status is described in 4.0, "Fiscal Printer and Fiscal Unit Status" on page 31.

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

11.1 00 - SYSTEM COMMANDS

11.1.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0		00 - System Commands	hex	1
1		Commands	hex	1
		10 - Test		
		20 - Status		
		40 - POR		
		80 - EC LEVEL		

System commands are processed as follows:

1. Test

Firstly a FU test is performed and then the status is sent over the communication link.

2. Status

The FU status bytes are sent over the communication link.

3. POR

The microcode performs a software FU POR.

4. EC Level

The FU status containing the ec level is sent over the communication link.

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

11.2 SERIALIZATION COMMAND

The following command controls the FM serialization.

- 66 - Set Public and Private Key
- 1B - Serialize Fiscal Memory

11.2.1 66 - SET PUBLIC AND PRIVATE KEY

This command is used to set the public and private key used to sign EJ files.

11.2.1.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - Cmd Prefix	hex	2
2	66 - Set Public and Private Key	hex	1
3	Cmd. Extension	hex	1
	00 = First		
	01 = Next		
	02 = Last		
	03 = Unique		
For Cmd. Extension = 00 (First) specify:			
4-5	Length	hex	2
6-69	Data	hex	64
For Cmd. Extension = 01 (Next) specify:			
4-67	Data	hex	64
For Cmd. Extension = 02 (Last) specify:			
4-67	Data	hex	64 (Note 1)
For Cmd. Extension = 03 (Unique) specify:			
4-5	Length	hex	2
6-69	Data	hex	64 (Note 1)

Notes:

1. The remainder data bytes are sent. This is up to 64 bytes.

11.2.1.2 Set Public and Private Key Rules

- This command must be issued before the serialize FP (1B cmd.).
- Key Length vs. Cmd. Extension
 - 64 bytes < Key length ≤ 128 bytes ---> first and last (00 and 02 cmd. ext.) are used.
 - Key length > 128 bytes ---> first, next ... next and last (00, 01..01 and 02 cmd. ext.) are used.
 - Key length ≤ to 64 bytes ---> unique (03 cmd. ext.) is used.
- Currently only the DSA 512 bits (Digital Signature Algorithm) is supported (defined in the document FIPS PUB 186-1). In this case, the key must be specified in the following way:
 - Length = 00E9h (constant)
 - Data
 - Key Type (1 byte) = 01h (DSA 512 bits)
 - Subprime (20 bytes)
 - Prime (64 bytes)
 - Base (64 bytes)
 - Public Key (64 bytes)
 - Private Key (20 bytes)
- If a PLD occurs before the complete sequence is sent, the command must be reissued beginning from first.

11.2.2 1B - SERIALIZE FISCAL MEMORY

This command is used at the end of the manufacturing process to write the unit manufacturer id, IBM manufacturing id and serial number in a fixed area of the FM.

11.2.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		1B - Serialize Fiscal Memory	hex	1
3		Cnd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-5		Manufacturer ID	ASCII	2
6-7		IBM Manufacturing ID	ASCII	2
8-13		Fiscal Memory Serial Number	ASCII	6

11.2.2.2 Serialize Fiscal Memory Rules

- This command must be executed only once and updates the serial number table in FM.
- When this command is executed, the CF is formatted.

11.3 FISCALIZATION COMMAND

The following command controls the fiscalization.

- 18 - Set Fiscal Mode

11.3.1 18 - SET FISCAL MODE

This command is used to set the FP to FIM. In this mode the information is stored in FM and CF.

11.3.1.1 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

11.3.1.2 Set Fiscal Mode Rules

- This command must be executed out of the SP.
- When this command is executed, the CF is formatted losing the closures stored in TM.
- In this mode the daily transactions are stored in FM and CF.

11.4 INITIALIZATION COMMANDS

The following commands controls the FP initialization.

- 16 - Set Date and Time
- 1E - Set Store/POS Id Information
- 2E - Set General Parameters
- C4 - Fiscal Parameter Configuration
- D7 - Set Store Header

11.4.1 16 - SET DATE AND TIME

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

11.4.1.1 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

11.4.1.2 Set Date and Time Rules

- No closures stored in FM.
 - The set date and time is free.
- With closures stored in FM.
 - The time and date must be set once and out of a sales period.
 - The set date and time must be later than the date and time stamp of the last closure in FM, otherwise the next closure cannot be issue until the date and time are later than that of the last closure in FM.
 - With J4/CE Jumper in ACTIVE (ON) position
 - The date and time set must be later to the date and time stamp of the last closure in FM.
 - With J4/CE Jumper in STORED (OFF) position
 - Only once and out of the SP, the time can be changed in +/- 5 minutes range.

11.4.2 1E - SET STORE/POS ID INFORMATION

This command is used to load the store and FP information into the FM.

11.4.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		1E - Set Store/POS Id Information	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-47		Name or Store Name Issuer	ASCII	44 (Note 1)
48-55		RUT Issuer Number	ASCII	8 (Note 2)
56		RUT Issuer Verification Number	ASCII	1 (Note 3)
57-60		POS Id Number	ASCII	4 (Note 4)

Notes:

1. Mandatory field.
2. Mandatory field.
Range allowed: from '00000000' to '99999999'.
3. Mandatory field.
Range allowed: from '0' to '9' and from 'A' to 'Z' (uppercase).
4. Mandatory field.
Range allowed: from '0001' to '9999'.

11.4.2.2 Store/POS Id Information Rules

- This command must be executed out of the sales period.
- The store/pos id information is updated in the store/pos id information table in FM.
- The name or store name issuer, RUT issuer number, RUT issuer verification number and POS id number can be loaded into the FM 10 times during the life of the FP.
The new information is compared with the last entry stored in the table.
If the new information is the same, the new entry will not be added to the table, otherwise will be added.

11.4.3 2E - SET GENERAL PARAMETERS

This command is used to set the maximum discount percent allowed.

11.4.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		2E - Set General Parameters	hex	1
3		Cmd. Extension	hex	1
4-6		00 = Set Maximum Discount Allowed Percent Value	ASCII	3 (Note 1)

Notes:

1. Range allowed: from '000' to '100'.

11.4.3.2 Set General Parameters Rules

- This command must be executed out of the sales period.
- The maximum discount percent value will be stored in RAM memory.
- The maximum discount percent can be applied:
 - on item.
 - on transaccion (calculated on net amount sold).
- The maximum discount percent value default is "050".

11.4.4 C4 - FISCAL PARAMETER CONFIGURATION (without J4/CE jumper intervention)

This command is used to active or deactivate automatic end FV's end by PLD.

11.4.4.1 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
	7-0	Reserved (always = '0x00')		
4		Automatic Fiscal Voucher End by PLD	hex	1
		0 = YES		
		1 = NO		

11.4.4.2 Fiscal Parameter Configuration Rules

- This command must be executed out of the SP.

11.4.5 D7 - SET STORE HEADER

This command is used to set the header into FP battery backed up RAM memory.

11.4.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D7 - Set Store Header	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = 15 CPI Double-Height		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Print 15 CPI Double-Height, Emphasized		
2-0		Line Number		
		001 = First		
		010 = Second		
		011 = Third		
		100 = Fourth		
		101 = Fifth		
		110 = Sixth		
		111 = Seventh		
4-47		Description	ASCII	44

11.4.5.2 Set Store Header Rules

- This command must be executed out of the SP.
- The header lines are stored in RAM memory.
- The header lines are erased when RAM is cleared by activation of the J4/CE jumper and is necessary to set them again.

11.5 SALE TRANSACTION

11.5.1 ST Commands

- 01 - Print Store Header
- D2 - Item Sale
- D3 - Negative/Uplift Item Sale
- D4 - Transaction Subtotal/Total
- D9 - Discount/Uplift on Subtotal
- D5 - Payment
- D6 - End Payment
- 06 - End Fiscal Voucher

11.5.2 Sale Transaction Flow

The following diagram shows the command sequence to perform a FV.

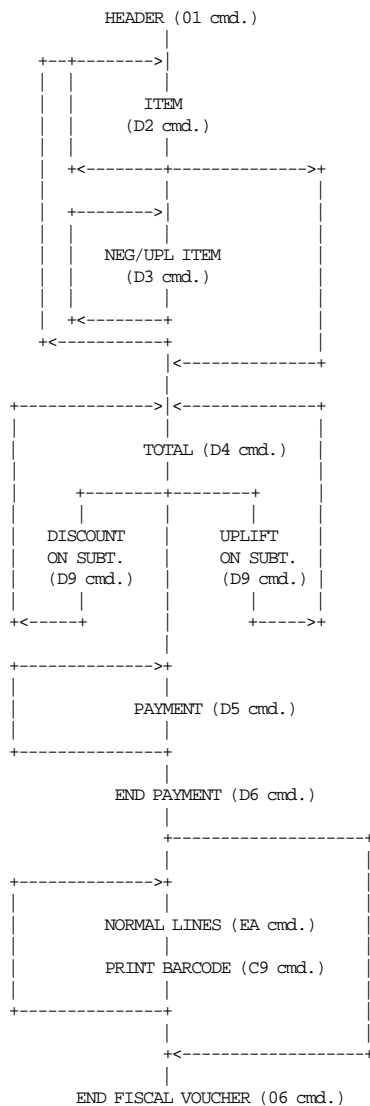


Figure 17. Sale Transaction Flow

11.5.3 Sale Transaction Rules

- The FV's produced are identified by consecutive numbers.
- The maximum number of FV's allowed during a SP is 1000.
When the maximum is reached:
 - All commands are allowed except FV's.
 - To continue saling, the close sale period (13 cmd.) and then open sale period (12 cmd.) must be issued.
- Only five (5) differents payment types are allowed in the FV. One of those is always "CASH" (payment type 00).

- Comment Lines

- L – The comment lines can be printed after the payment phase of the FV.
- L It can be:
 - L — normal printing lines (EA cmd.)
 - L — barcodes (C9 cmd.)
- L – The first normal printing line OR barcode printed, will print first the "START COMMENT" (V44) message.
- L – When the 06 cmd. is issued, the "END COMMENT" (V45) message will be printed if any normal printing line or barcode was printed previously.
- L – The maximum number of comment lines allowed is 30, otherwise the error code 069 is returned.
- L Note that every barcode is considered as one comment line.

- When the item line format is large, the quantity and unit price fields in command string of item can be blank.

The quantity and unit price fields in command string of negative/uplift item sale can be blank.

This allows the processing of items with description longer than the number of characters allowed in one line.

The maximum number of items lines with blank quantity and unit price is 3. These lines are sent before the item line with quantity and unit price.

- A minus sign is printed for return, void and discount items.
- A minus sign is printed for discount on subtotal.
- A minus sign is printed for payment with rectify = YES.
- The transaction total accumulator must NOT be negative when transaction total (D4 cmd.) is received.
- End fiscal voucher (06 cmd.) is executed only if the total paid amount is not less than the transaction total amount.

11.5.4 01 - PRINT STORE HEADER

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

11.5.4.1 Command Format

BYTE	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	01 - Print Store Header	hex	1
3	Print Graphic 00 = NO 01 = YES	hex	1
If byte 3 = 01 (YES) specify:			
4	Graphic Number	hex	1 (Note 1)

Notes:

1. Valid value is 0x01.

11.5.4.2 Print Store Header Calculations

- **Clearing Working Accumulators**

$W_Net_Acum = 0$
 $W_Item_Total = 0$
 $W_Disc_Acum = 0$
 $W_Disc_Item = 0$
 $W_Disc_Item_Allowed = 0$
 $W_Disc_Trans_Allowed = 0$

- **Clearing Transaction Accumulators**

$Tra_Total = 0$
 $Tra_Retn_Total = 0$
 $Tra_Void_Total = 0$
 $Tra_Disc_Total = 0$
 $Tra_Uplf_Total = 0$
 $Tra_Tdsc_Total = 0$
 $Tra_Tupl_Total = 0$
 $Tra_Pay_Total(pp) = 0$
 $Tra_Donat_Total = 0$
 $Tra_Amt_Due = 0$
 $Tra_Vouc_Dati = 0$

Where:

pp = payment type, range = 00 up to 09

$Day_N_Vouc = Day_N_Vouc + 1$

$Lif_N_Vouc = Lif_N_Vouc + 1$

$Day_N_Slip = Day_N_Slip + 1$

$Lif_N_Slip = Lif_N_Slip + 1$

Tra_Vouc_Dati = Current_Date_and_Time

11.5.4.3 Print Store Header Rules

- The store header is loaded from RAM and printed in CR station.
- All graphics will be printed always at 200 DPI.
- The maximum number of lines to print a graphic is 5.

11.5.5 D2 - ITEM SALE

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

11.5.5.1 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
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2		Item Line Format		(Note 1)
		0 = Large		
		1 = Short		
1-0		Reserved (always = '0')		
For (byte 3 - bit 2) = 0 (Large) specify:				
4-12		D2_Quantity	ASCII	9 (Note 2)
13-22		D2_Unit_Price	ASCII	10 (Note 3)
23-51		D2_Description	ASCII	29 (Note 5)
For (byte 3 - bit 2) = 1 (Short) specify:				
4-6		D2_Reserved (always =00')	ASCII	3
7-12		D2_Quantity	ASCII	6 (Note 4)
13-22		D2_Unit_Price	ASCII	10 (Note 3)
23-43		D2_Description	ASCII	21 (Note 5)

Notes:

1. When short format is specified, D2_Quantity, D2_Unit_Price and D2_Description are mandatory.
2. Fixed point number with 3 decimal digits. Maximum D2_Quantity = 999999999.
3. Maximum D2_Unit_Price = 2 147 483 647.
4. Fixed point number with 3 decimal digits. Maximum D2_Quantity = 999999.
5. When 12 CPI print mode is selected, the D2_Description field will be truncated depending on the printing length of the D2_Amount value.
If Item Line Format = Short, the printed D2_Description will have between 10 (D2_Amount with 10 digits) and 21 (D2_Amount with 2 or less digits) chars.
If Item Line Format = Large, the printed D2_Description will have between 18 (D2_Amount with 10 digits) and 29 (D2_Amount with 2 or less digits) chars.

11.5.5.2 Item Sale Calculations

$$D2_Amount = D2_Unit_Price \times D2_Quantity$$

$$Tra_Total = Tra_Total + D2_Amount$$

$$W_D3_Disc = 0$$

$$W_D3_Retn = 0$$

$$W_Disc_Item = 0$$

$$W_Uplf_Item = 0$$

$$W_Item_Total = D2_Amount$$

$$W_Net_Acum = W_Net_Acum + D2_Amount$$

$$W_Disc_Item_Allowed = \frac{((D2_Amount) \times (RAM_Max_Disc))}{100}$$

$$W_Disc_Trans_Allowed = \frac{((W_Net_Acum) \times (RAM_Max_Disc))}{100}$$

11.5.5.3 Item Sale Rules

- For Item Line Format = Large
 - D2_Quantity and D2_Unit_Price fields 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 maximum number of items lines with blank D2_Quantity and D2_Unit_Price is 3. These lines are sent before the item line with D2_Quantity and D2_Unit_Price specified.
 - When an item in short format is printed, any D2_Description with blank D2_Quantity and D2_Unit_Price that are not already printed are discarded.

11.5.6 D3 - NEGATIVE/UPLIFT ITEM SALE

This command is used to record the amount of a negative or uplift item and prints lines containing the quantity, unit price, description and amount.

11.5.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D3 - Negative/Uplift Item Sale	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2-0		Type		
		000 = RETURN		
		001 = VOID		
		010 = Reserved		
		011 = DISCOUNT		
		100 = Reserved		
		101 = UPLIFT		
4-12		D3_Quantity	ASCII	9 (Note 1, 3)
13-22		D3_Unit_Price	ASCII	10 (Note 2, 3)
23-51		D3_Description	ASCII	29

Notes:

1. Fixed point number with 3 decimal digits. Maximum D3_Quantity = 999999999.
2. Maximum D3_Unit_Price = 2147483647.
3. If Type = VOID, the D3_Quantity and D3_Unit_Price must be 0 (zero).

11.5.6.2 Negative/Uplift Item Sale Calculations

```
If (byte 3 - bit 2-0) = 000 (RETURN) or
  (byte 3 - bit 2-0) = 011 (DISCOUNT) or
  (byte 3 - bit 2-0) = 101 (UPLIFT)
{
  D3_Amount = D3_Item_Price * D3_Quantity
}
Else
{
  D3_Amount = 0
  D3_Quantity = 0
}
```


- RETURN ITEM

```

If (byte 3 - bit 2-0) = 000 (RETURN)
{
  If Tra_Total = 0 or (D3_Amount > Tra_Total)
  {
    RC = 8
  }
  Else
  {
    W_D3_Retrn = 1
    Tra_Total = Tra_Total - D3_Amount
    Tra_Retrn_Total = Tra_Retrn_Total + D3_Amount
    IF D3_Amount < Tra_Total
    {
      If D2_Amount > D3_Amount
      {
        W_Item_Total = W_Item_Total - D3_Amount
      }
    }
    Else
    {
      W_Item_Total = Tra_Total
    }
  }
  Else
  {
    RC = 8
  }
}

```

- VOID ITEM

```

If (byte 3 - bit 2-0) = 001 (VOID)
{
  If W_D3_Retrn = 0
  {
    If W_Item_Total > 0
    {
      W_Net_Acum = W_Net_Acum - W_Item_Total - W_Disc_Item
      W_Disc_Acum = W_Disc_Acum - W_Disc_Item

      W_Disc_Trans_Allowed =  $\frac{W\_Net\_Acum * RAM\_Max\_Disc\_ \%}{100}$ 

      Tra_Total = Tra_Total - W_Item_Total
      Tra_Disc_Total = Tra_Disc_Total - W_Disc_Item
      Tra_Uplf_Total = Tra_Uplf_Total - W_Uplf_Item
      Tra_Void_Total = Tra_Void_Total + W_Item_Total + W_Disc_Item - W_Uplf_Item
    }
    Else
    {
      RC = 94
    }
  }
  Else
  {
    RC = 94
  }
}

```

- DISCOUNT ITEM

```

If (byte 3 - bit 2-0) = 011 (DISCOUNT)
{
  If W_D3_Retrn = 0
  {
    If W_Item_Total > 0
    {
      If W_D3_Disc = 0
      {
        If D3_Amount <= W_Disc_Item_Allowed
        {
          W_Disc_Item = D3_Amount
          W_Disc_Acum = W_Disc_Acum + D3_Amount
          W_D3_Disc = 1
          W_Item_Total = W_Item_Total - D3_Amount
          Tra_Total = Tra_Total - D3_Amount
          Tra_Disc_Total = Tra_Disc_Total + D3_Amount
        }
        Else
        {
          RC = 92
        }
      }
      Else
      {
        RC = 93
      }
    }
    Else
    {
      RC = 94
    }
  }
  Else
  {
    RC = 94
  }
}

```

- UPLIFT ITEM

```

If (byte 3 - bit 2-0) = 101 (UPLIFT)
{
  If W_D3_Retrn = 0
  {
    If W_Item_Total > 0
    {
      W_Net_Acum = W_Net_Acum + D3_Amount
      W_Item_Total = W_Item_Total + D3_Amount
      W_Uplf_Item = W_Uplf_Item + D3_Amount

      W_Disc_Item_Allowed = W_Disc_Item_Allowed +  $\frac{D3\_Amount * RAM\_Max\_Disc\_ \%}{100}$ 

      W_Disc_Trans_Allowed =  $\frac{W\_Net\_Acum * RAM\_Max\_Disc\_ \%}{100}$ 

      Tra_Total = Tra_Total + D3_Amount
      Tra_Uplf_Total = Tra_Uplf_Total + D3_Amount
    }
    Else
    {
      RC = 94
    }
  }
  Else
  {
    RC = 94
  }
}

```

11.5.6.3 Negative/Uplift Item Sale Rules

- D3_Quantity and D3_Unit_Price field in command string of item can be blank.
This allows the processing of negative/uplift items with description longer than the number of characters allowed in one line.
The maximum number of negative/uplift items lines with blank unit price are 3. These lines are sent before the negative/uplift item line with D3_Quantity and D3_Unit_Price.
- The void, discount and uplift items only can be applied on last item sold.
- Is allowed only 1 (one) discount item by item sold.
- The void item discards the last item sold and its associated discount and uplifts items.
- After return item only can be issued a D2 cmd. (Item Sale), D3 cmd. (Return Item) or D4 cmd. (Transaccion Subtotal/Total).

11.5.7 D4 - TRANSACTION SUBTOTAL/TOTAL

This command is used to calculate the transaction subtotal or total and verify that the subtotal or total amount accumulated by the FU matches the subtotal or total amount accumulated by the application program.

11.5.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D4 - Transaction Subtotal/Total	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-13		D4_Amount	ASCII	10

11.5.7.2 Transaction Subtotal/Total Calculations

$Tra_Amt_Due = Tra_Total$

11.5.7.3 Transaction Subtotal/Total Rules

- The transaction total (Tra_Total) cannot be less or equal to 0.
- Tra_Total is printed in 15 CPI and single wide emphasized.
- The string "TOTAL" is printed in 15 CPI and double-wide emphasized.
- The string "SUBTOTAL" is printed in 15 CPI and single-wide emphasized.

11.5.8 D9 - DISCOUNT/UPLIFT ON SUBTOTAL

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

11.5.8.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D9 - Discount/Uplift on Subtotal	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2-1		Reserved (always = '0')		
0		Type		
		0 = DISCOUNT ON SUBTOTAL		
		1 = UPLIFT ON SUBTOTAL		
4-13		D9_Amount	ASCII	10
14-42		D9_Description	ASCII	29

11.5.8.2 Discount/Uplift on Subtotal Calculations

- DISCOUNT ON SUBTOTAL

```
If (byte 3 - bit 0) = 0 (DISCOUNT on SUBTOTAL)
{
  If (D9.Amount + W_Disc_Acum) <= W_Disc_Trans_Allowed
  {
    W_Disc_Acum = W_Disc_Acum + D9_Amount
    Tra_Total = Tra_Total - D9_Amount
    Tra_Tdsc_Total = Tra_Tdsc_Total + D9_Amount
  }
  Else
  {
    RC 92
  }
}
```

- UPLIFT ON SUBTOTAL

```
If (byte 3 - bit 0) = 1 (UPLIFT on SUBTOTAL)
{
  W_Net_Acum = W_Net_Acum + D9_Amount

  W_Net_Acum * RAM_Max_Disc_%
  W_Disc_Trans_Allowed = -----
                                100
```

```
Tra_Total = Tra_Total + D9_Amount  
Tra_Tupl_Total = Tra_Tupl_Total + D9_Amount  
}
```

11.5.8.3 Discount/Uplift on Subtotal Rules

- The discount or uplift amount is subtracted or added to the current transaction total.
- The D9_Amount field must be greater than 0.

11.5.9 D5 - PAYMENT

This command is used to select the payment type and to apply the paid amount.

11.5.9.1 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	Reserved (always = '0')		
	6	Rectify		
		0 = NO		
		1 = YES		
	5-3	Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
	2-0	Reserved (always = '0')		
4-4		D5_Payment_Type	hex	1 (Note 1)
5-14		D5_Amount	ASCII	10 (Note 2)
15-43		D5_Payment_Trailer_Line	ASCII	29

Notes:

1. Payment types allowed are:

- 00 = Cash
- 01 = Check
- 02 = Credit Card
- 03 = Debit Card
- 04 = Owner Card
- 05 = Coupon
- 06 = Others 1
- 07 = Others 2
- 08 = Others 3
- 09 = Others 4

2. Minimum D5_Amount = 1

Maximum D5_Amount = 2147483647.

11.5.9.2 Payment Calculations

- **Rectify = NO**

$$Tra_Amt_Due = Tra_Amt_Due - D5_Amount$$

$$Tra_Pay_Total(pp) = Tra_Pay_Total(pp) + D5_Amount$$

- **Rectify = YES**

$$Tra_Amt_Due = Tra_Amt_Due + D5_Amount$$
$$Tra_Pay_Total(pp) = Tra_Pay_Total(pp) - D5_Amount$$

Where:

pp = payment type, range = 00 up to 09

11.5.9.3 Payment Rules

- Only five (5) different payment types are allowed in the FV. One of those is always "CASH" (payment type 00).

11.5.10 D6 - END PAYMENT

This command is used to apply donation amount and calculate the amount due.

11.5.10.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		D6 - End Payment	hex	1
3		Cmd. Extension	hex	1
	7	Reserved (always = '0')		
	6	Donation		
		0 = NO		
		1 = YES		
	5-3	Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
	2-0	Reserved (always = '0')		
4-13		D6_Amount	ASCII	10 (Note 1)

Notes:

1. Maximum D6_Amount = 2147483647.
If (byte 3 - bit 6) = YES, D6_Amount field is mandatory.
If (byte 3 - bit 6) = NO, D6_Amount field is ignored.

11.5.10.2 End Payment Calculations

```
If (byte 3 - bit 6) = YES and ((Tra_Amt_Due + D6_Amount) <= 0)
{
  Tra_Amt_Due = Tra_Amt_Due + D6_Amount
  Tra_Donat_Total = D6_Amount
}
else
{
  RC = 64
}

If Tra_Amt_Due < 0
{
  Tra_Pay_Total(00) = Tra_Pay_Total(00) + Tra_Amt_Due
}
```

11.5.10.3 End Payment Rules

- Amount due (Tra_Amt_Due) is printed only if is greater than 0.

11.5.11 06 - END FISCAL VOUCHER

This command is used to end the FV.

11.5.11.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		06 - End Fiscal Voucher	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		
4-47		06_Trailer Message Line 1	ASCII	44
48-91		06_Trailer Message Line 2	ASCII	44

11.5.11.2 End Fiscal Voucher Calculation

$Day_Total = Day_Total + Tra_Total$

$Day_Retn_Total = Day_Retn_Total + Tra_Retn_Total$

$Day_Void_Total = Day_Void_Total + Tra_Void_Total$

$Day_Disc_Total = Day_Disc_Total + Tra_Disc_Total$

$Day_Uplf_Total = Day_Uplf_Total + Tra_Uplf_Total$

$Day_Tdsc_Total = Day_Tdsc_Total + Tra_Tdsc_Total$

$Day_Tupl_Total = Day_Tupl_Total + Tra_Tupl_Total$

$Day_Pay_Total(pp) = Day_Pay_Total(pp) + Tra_Pay_Total(pp)$

$Day_Donat_Total = Day_Donat_Total + Tra_Donat_Total$

If FV was automatically ended by PLD

```
{  
  Day_N_AutVouc  Day_N_AutVouc + 1  
  Day_AutVouc_Total  Day_AutVouc_Total + Tra_Total  
}
```

Where:

pp = payment type, range = 00 up to 09

For each FV (nnn) issued during a SP the following data are stored in RAM memory:

$RAM_Vouc_Dati(nnn) = Tra_Vouc_Dati$

$RAM_N_Vouc(nnn) = Lif_N_Vouc$

$RAM_Vouc_Total(nnn) = Day_Total$

If FV was automatically ended by PLD

```
{  
  RAM_AutVouc(nnn)  *  
}
```

```
For i=0 to 4
{
  RAM_Pay_Type(nnn, i) pp(i)
  RAM_Pay_Total(nnn, i) Tra_Pay_Total(pp(i))
}
```

Where:

nnn = 000 up to (Day_N_Vouc - 1)

pp(i) = payment type, hex range = 00 up to 09

11.6 CHECK PRINTING COMMANDS

This special procedure is used for franking checks.

The following commands controls the checks printing.

- C0 - Print Check
- C1 - End Check
- C2 - Cancel Check

11.6.1 Check Printing Rules

- The checks is printed in the DI station - landscape.
- The endorse of the check is printed in the DI station - portrait.
- The maximum number of lines that can be printed on the fronts of check is 6, otherwise the error 156 will be returned.
- The maximum number of lines that can be printed on the back of check is 6, otherwise the error 156 will be returned.
- The suggest sequence to read micr, print, flip and endorse a check would be:
 1. Issue DC cmd. - cmd. ext. 00 (Read Micr)
 2. FRONT CHECK: Issue C0 cmd. - cmd. ext. 01 (Print Check) (six times maximum)
 3. Issue CB cmd. - cmd. ext. 00 (Flip Document in DI Station)
 4. BACK CHECK (endorse): Issue C0 cmd. - cmd. ext. 00 (Print Check) (six times maximum)
 5. Issue C1 cmd. - cmd. ext. 00 (End Check)

11.6.2 C0 - PRINT CHECK

This command is used to print lines on the front of checks.

11.6.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		C0 - Print Check	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = Reserved		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = Reserved		
2-1		Reserved (always = '0')		
0		Orientation Print		
		0 = Portrait		
		1 = Landscape		(Note 1, 2)
L		If (Byte 3 - Bit 0) = 0 (Portrait) and		
L		(Byte 3 - Bit 5-3) = 000 (15 CPI) or		
L		100 (15 CPI Emphasized)		
L	4-50	C0_Description	ASCII	47 (Note 3)
L		If (Byte 3 - Bit 0) = 0 (Portrait) and		
L		(Byte 3 - Bit 5-3) = 001 (12 CPI) or		
L		101 (12 CPI Emphasized)		
L	4-40	C0_Description	ASCII	37 (Note 3)
L		If (Byte 3 - Bit 0) = 1 (Landscape)		
L	4-xx	C0_Description	ASCII	nn (Note 4)

Notes:

1. The emphasized option is ignored during landscape orientation print.
2. The print lines sent are from bottom-of-form to the top-of-form.
- L 3. C0_Description field will be truncated as follows:
 - L Portrait orientation at 15 CPI to 47 characters.
 - L Portrait orientation at 12 CPI to 37 characters.
- L 4. nn must be ≥ 1 and ≤ 86
 - xx $(nn + 4) - 1$
- L Example:

```
L   If nn = 72, C0_Description field will be truncated as follows:  
L   {  
L   Landscape orientation at 15 CPI to 72 characters  
L   Landscape orientation at 12 CPI to 57 characters  
L   }
```

11.6.3 C1 - END CHECK

This command is used to end a check printing.

11.6.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		C1 - End Check	hex	1
3		Cnd. Extension	hex	1
7-0		Reserved (always = '0x00')		

11.6.3.2 End Check calculations

$Day_N_Check = Day_N_Check + 1$

11.6.4 C2 - CANCEL CHECK

This command is used to cancel a check printing.

11.6.4.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		C2 - Cancel Check	hex	1
3		Cnd. Extension	hex	1
7-0		Reserved (always = '0x00')		

11.6.4.2 Cancel Check calculations

$Day_N_CCheck = Day_N_CCheck + 1$

11.6.5 C5 - CREDIT CARD VOUCHER (DESIGN 1)

This command is used to print a credit card voucher (design 1).

11.6.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		C5 - Credit Card Voucher (Design 1)	hex	1
3		Cnd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-30		C5_Credit_Card_Name	ASCII	27 (Note 1, 2)
31-45		C5_Credit_Card_Number	ASCII	15 (Note 1, 2)
46-49		C5_Expiration_Date (mmaa)	ASCII	4 (Note 1, 3)
50-57		C5_TBK_Autorization_Code	ASCII	8 (Note 1, 2)
58-67		C5_SA_Transaction_Number	ASCII	10 (Note 1, 2)
68-77		C5_Operator	ASCII	10 (Note 1, 2)
78-89		C5_Amount	ASCII	12 (Note 1, 3)

Notes:

1. Mandatory field.
2. Alphanumeric field.
3. Numeric field.

11.6.5.2 Credit Card Voucher (Design 1) Calculations

$Day_N_CredC = Day_N_CredC + 1$

11.6.6 C6 - CREDIT CARD VOUCHER (DESIGN 2)

This command is used to print a credit card voucher (design 2).

11.6.6.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	C6 - Credit Card Voucher (Design 2)	hex	1
3	Cmd. Extension	hex	1
	01 = Part 1		(Note 1, 9 on page 99)
	02 = Part 2		(Note 1)
	03 = Part 3		
	04 = Part 4		(Note 1)
	If Cmd. Extension = 01 (Part 1)		
4-37	C6_Version	ASCII	34 (Note 1, 2)
38-77	C6_Transaction_Type_Description	ASCII	40 (Note 1, 2)
78-93	C6_Payment_Type_Description	ASCII	16 (Note 2)
94-95	C6_Number_of_Payments	ASCII	2 (Note 3, 6)
96-99	C6_Payment_Rate	ASCII	4 (Note 3, 4)
	If Cmd. Extension = 02 (Part 2)		
4-30	C6_Credit_Card_Name	ASCII	27 (Note 1, 2)
31-45	C6_Credit_Card_Number	ASCII	15 (Note 1, 3)
46-49	C6_Expiration_Date (mmaa)	ASCII	4 (Note 1, 3)
50-57	C6_Authorization_Code	ASCII	8 (Note 1, 2)
58-67	C6_Transaction_Number	ASCII	10 (Note 1, 2)
68-77	C6_Operator	ASCII	10 (Note 1, 2)
78-87	C6_Fiscal_Voucher_Number	ASCII	10 (Note 1, 3, 5)
88-103	C6_Amount_Type_Description	ASCII	16 (Note 1, 2)
104-112	C6_Amount	ASCII	9 (Note 1, 3, 7)
	If Cmd. Extension = 03 (Part 3)		
4-5	C6_Payment_Number	ASCII	2 (Note 1, 6)
6-14	C6_Amount_Payment	ASCII	9 (Note 1, 3, 7)
	If Cmd. Extension = 04 (Part 4)		
4	C6_Trailer_Message	ASCII	1 (Note 1, 3, 8 on page 99)

Notes:

1. Mandatory cmd. extension or field.
2. Alphanumeric field.
3. Numeric field.
4. Range allowed from 0 to 99,99.
Payment Rate format: rr,rr (ex. 10,00).
5. Range allowed from 1 to 4294967295.
6. Range allowed from 0 to 48.
7. Range allowed from 0 to 999999999.

Amount format: aaa.aaa.aaa (ex. 888.888.888).

8. Range allowed from 0 to 1. 0 = print trailer message (Model 1)
1 = print trailer message (Model 2)
9. The execution of this command extension resets all values loaded with other cmd. extensions, which must be set before executing the cmd. extension 04.

11.6.6.2 Credit Card Voucher (Design 2) Calculations

```
If Cmd. Extension 04 was issued OK
{
  Day_N_CredC Day_N_CredC+1
}
```

11.6.6.3 Credit Card Voucher (Design 2) Rules

- The cmd. extension 03 is optional, in the case that is executed, the fields are mandatory and up to 48 payments can be issued.
- When the cmd. extension 04 is issued, the credit card vouchers are printed (for the customer and store), for that, the cmd. extensions 01 and 02 must be issued previously, otherwise the error code 102 is returned.

11.6.7 C7 - DEBIT CARD VOUCHER

This command is used to print a debit card voucher.

11.6.7.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	C7 - Debit Card Voucher	hex	1
3	Cmd. Extension	hex	1
	01 = Part 1		(Note 1)
	02 = Part 2		(Note 1)
	If Cmd. Extension = 01 (Part 1)		
4-37	C7_Version	ASCII	34 (Note 1, 2)
38-64	C7_Debit_Card_Name	ASCII	27 (Note 1, 2)
65-80	C7_Debit_Card_Number	ASCII	16 (Note 1, 3)
81-88	C7_Authorization_Code	ASCII	8 (Note 1, 2)
89-98	C7_Transaction_Number	ASCII	10 (Note 1, 2)
99-108	C7_Operator	ASCII	10 (Note 1, 2)
	If Cmd. Extension = 02 (Part 2)		
4-13	C7_Fiscal_Voucher_Number	ASCII	10 (Note 1, 3, 4)
14-22	C7_Amount	ASCII	9 (Note 1, 5)
23-31	C7_Change_Due	ASCII	9 (Note 1, 5)
32-40	C7_Total	ASCII	9 (Note 1, 6)

Notes:

1. Mandatory cmd. extension or field.
2. Alphanumeric field.
3. Numeric field.
4. Range allowed from 1 to 4294967295.
5. Range allowed from 0 to 999999999.
Amount format: aaa.aaa.aaa (ex. 888.888.888).
6. Range allowed from 1 to 999999999.
Amount format: aaa.aaa.aaa (ex. 888.888.888).

11.6.7.2 Debit Card Voucher Calculations

```
If Cmd. Extension 02 was issued OK
{
  Day_N_DebiC Day_N_DebiC+1
}
```

11.6.7.3 Debit Card Voucher Rules

- When the Cmd. Extension 02 is issued, the debit card vouchers are printed (for the customer and store), for that, the cmd. extensions 01 must be issued previously, otherwise the error code 102 is returned.
- If a PLD occurs during the command execution, after the IPL the command is continued.

11.7 NON-FISCAL REPORTS COMMANDS

There are two commands that control non-fiscal reports:

- DD - Start Non-Fiscal Report
- DE - End Non-Fiscal Report

11.7.1 Non-Fiscal Reports Rules

- CR and DI non-fiscal reports can be issued outside or inside of the SP.
- The DD cmd. is issued to start a CR or DI non-fiscal report
- The DE cmd. is issued to end a CR or DI non-fiscal report

L • CR Non-Fiscal Report

- L – The "START COMMENT" (V44) message is printed when the DD cmd. is issued.
- L – The "END COMMENT" (V45) message is printed when the DE cmd. is issued.
- L – Comment lines can be printed inside the report.
- L It can be:
 - L — normal printing lines (EA cmd.)
 - L — barcodes (C9 cmd.)
- L – The maximum number of comment lines allowed is 30, otherwise the error code 069 is returned.
- L Note that every barcode is considered as one comment line.
- L – The string "TOTAL" in upper, lower or mixed case is allowed.

• DI Non-Fiscal Report

– Portrait Orientation

- Comment lines can be printed inside the report.
 - It can be:
 - normal printing lines (EB cmd.)
 - barcodes (C9 cmd.)
 - If in DD cmd., the option for printing the M04 msg. is selected:
 - The "NON FISCAL DOCUMENT" (M04) message is printed when the DD cmd. is issued.
 - The "NON FISCAL DOCUMENT" (M04) message is printed every 6 comment lines.
 - Note that every barcode is considered as one comment line.
 - The "NON FISCAL DOCUMENT" (M04) message is printed when the DE cmd. is issued.
 - If in DD cmd., the option for not printing the M04 msg. is selected:
 - The "NON FISCAL DOCUMENT" (M04) message is not printed anywhere in the report.
 - Unlimited number of normal printing lines in DI station (EB cmd.) and barcodes (C9 cmd.) are allowed.
 - The string "TOTAL" in upper, lower or mixed case is allowed.

– Landscape Orientation

- Comment lines can be printed inside the report.
 - It can be:
 - normal printing lines (EB cmd.)
 - If in DD cmd., the option for printing the M04 msg. is selected:
 - The "NON FISCAL DOCUMENT" (M04) message is printed when the DD cmd. is issued.
 - The "NON FISCAL DOCUMENT" (M04) message is printed every 6 comment lines.
 - The "NON FISCAL DOCUMENT" (M04) message is printed when the DE cmd. is issued.
 - If in DD cmd., the option for not printing the M04 msg. is selected:
 - The "NON FISCAL DOCUMENT" (M04) message is not printed anywhere in the report.
 - Unlimited number of normal printing lines in DI station (EB cmd.) are allowed.
 - The string "TOTAL" in upper, lower or mixed case is allowed.

11.7.2 DD - START NON-FISCAL REPORT

This procedure is used to start of non-fiscal report in DI station.

11.7.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		DD - Start Non-Fiscal Report	hex	1
3		Cmd. Extension	hex	1
7-3		Reserved (always = '0')		
2		Print M04 Message		(Note 1)
		0 = YES		
		1 = NO		
1-0		Station and Orientation Report		
L		00 = CR		
		01 = Reserved		
		10 = DI - Portrait		
		11 = DI - Landscape		

Notes:

- L 1. Only apply for:
 - L • (byte 3 - bit 1-0) = 10 (DI - Portrait)
 - L and
 - L • (byte 3 - bit 1-0) = 11 (DI - Landscape)
 - L otherwise is ignored.

11.7.2.2 Start Non-Fiscal Report Rules

- L • If CR Station (byte 3 - bit 1-0 = 00) was selected
 - L - The "START COMMENT" (V44) message is printed.
- If DI Station - Portrait/Landscape (byte 3 - bit 1-0 = 10 or 11) was selected
 - If "Print M04 Message = YES" (byte 3 - bit 2 = 0)
 - The "NON FISCAL DOCUMENT" (M04) message is printed.
 - If "Print M04 Message = NO" (byte 3 - bit 2 = 1)
 - The "NON FISCAL DOCUMENT" (M04) message is not printed.

11.7.3 DE - END NON-FISCAL REPORT

This procedure is used to end the non-fiscal report.

11.7.3.1 Command Format

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

11.7.3.2 End Non-Fiscal Report Calculations

$$Day_N_Slip = Day_N_Slip + 1$$

L If in DD cmd. the (byte 3 - bit 1-0 = 00) was selected
L {
 Day_N_NFR_CR Day_N_NFR_CR + 1
L }

L If in DD cmd. the (byte 3 - bit 1-0 = 10 or 11) was selected
L {
 Day_N_NFR_DI Day_N_NFR_DI + 1
L }

11.7.3.3 End Non-Fiscal Report Rules

- L • If in DD cmd., the CR Station (byte 3 - bit 1-0 = 00) was selected
 - L – The "END COMMENT" (V45) message is printed.
- If in DD cmd., the DI Station - Portrait/Landscape (byte 3 - bit 1-0 = 10 or 11) was selected
 - If in DD cmd. the "Print M04 Message = YES" (byte 3 - bit 2 = 0) was selected
 - The "NON FISCAL DOCUMENT" (M04) message is printed.
 - If in DD cmd., the "Print M04 Message = NO" (byte 3 - bit 2 = 1) was selected
 - The "NON FISCAL DOCUMENT" (M04) message is not printed.

11.8 ADMINISTRATIVE TRANSACTION COMMANDS

There are three commands that control the administrative transactions:

- E0 - Start Administrative Transaction
- E1 - Print Administrative Transaction
- E2 - End Administrative Transaction

11.8.1 E0 - START ADMINISTRATIVE TRANSACTION

This command is used to start a administrative transaction.

11.8.1.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		E0 - Start Administrative Transaction	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		Orientation Print and Direction		
		0 = Landscape - Forward		
		1 = Portrait - Forward		
1-0		Reserved (always = '0')		
4		Transaction Type	hex	1
		00 = Credit Note		
		01 = Deposit Money		
		02 = Internal Voucher		
		03 = Fee Payment		

11.8.1.2 Start Administrative Transaction Rules

- If "Deposit Money" or "Internal Voucher" or "Fee Payment" was selected, the transaction starts printing the "NON FISCAL DOCUMENT" (M04) message in DI station.

11.8.2 E1 - PRINT ADMINISTRATIVE TRANSACTION

This command is used to print a administrative transaction.

11.8.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		E1 - Print Administrative Transaction	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	Reserved (always = '0')		
4		Reserved (always = '0')	ASCII	1
5-90		E1_Description	ASCII	86 (Note 1)

Notes:

1. E1_Description field will be truncated as follows:
Portrait orientation at 15 CPI to 47 characters.
Portrait orientation at 12 CPI to 37 characters.
Landscape orientation at 15 CPI to 86 characters.
Landscape orientation at 12 CPI to 68 characters.

11.8.3 E2 - END ADMINISTRATIVE TRANSACTION

This command is used to end a administrative transaction.

11.8.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		E2 - End Administrative Transaction	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		Reserved (always = '0')		
4		Reserved (always = '0')	hex	1
5-14		E2_Amount	ASCII	10 (Note 1)
15-86		E2_Description	ASCII	72 (Note 2)

Notes:

1. For Credit Note, Deposit Money and Fee Payment the E2_Amount must be greater than "0".
For Internal Voucher the E2_Amount must be equal or greater than "0".
2. E2_Description field will be truncated as follows:
Portrait orientation at 15 CPI to 47 characters.
Portrait orientation at 12 CPI to 37 characters.
Landscape orientation at 15 CPI to 86 characters.
Landscape orientation at 12 CPI to 68 characters.

11.8.3.2 End Administrative Transaction Calculations

$$Day_N_Slip = Day_N_Slip + 1$$

- **If Credit Note in Progress**

$$Day_N_CNot = Day_N_CNot + 1$$

$$Day_CNot_Total = Day_CNot_Total + E2.Amount$$

- **If Deposit Money in Progress**

$$Day_N_DMon = Day_N_DMon + 1$$

$$Day_DMon_Total = Day_DMon_Total + E2.Amount$$

- **If Internal Voucher in Progress**

$$Day_N_IVou = Day_N_IVou + 1$$

$$Day_IVou_Total = Day_IVou_Total + E2.Amount$$

- **If Fee Payment in Progress**

$Day_N_FPay = Day_N_FPay + 1$
 $Day_FPay_Total = Day_FPay_Total + E2.Amount$

11.8.3.3 End Administrative Transaction Rules

- If "Deposit Money" or "Internal Voucher" or "Fee Payment" was selected, the transaction ends printing the "NON FISCAL DOCUMENT" (M04) message in DI station.

11.9 SALE PERIOD COMMANDS

The following commands controls the SP:

- 12 - Open Sale Period
- 13 - Close Sale Period

11.9.1 12 - OPEN SALE PERIOD

This command is used to start a SP.

11.9.1.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		12 - Open Sale Period	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

11.9.1.2 Open Sale Period Calculations

- **Clearing Daily Counters**

Day_N_Slip = 0
Day_N_Vouc = 0
Day_N_AutVouc = 0
Day_N_NFR_CR = 0
Day_N_NFR_DI = 0
Day_N_CNot = 0
Day_N_DMon = 0
Day_N_IVou = 0
Day_N_FPay = 0
Day_N_Check = 0
Day_N_CCheck = 0
Day_N_CredC = 0
Day_N_DebiC = 0
Day_N_XRep = 0
Day_N_HDCR = 0

- **Clearing Daily Accumulators**

Day_Total = 0
Day_AutVouc_Total = 0
Day_Retn_Total = 0
Day_Void_Total = 0
Day_Disc_Total = 0
Day_Uplf_Total = 0
Day_Tdsc_Total = 0
Day_Tupl_Total = 0
Day_Pay_Total(pp) = 0
Day_Donat_Total = 0
Day_CNot_Total = 0
Day_DMon_Total = 0
Day_IVou_Total = 0
Day_FPay_Total = 0

Where:

pp = payment type, range = 00 up to 09

```
For nnn = 000 up to (Day_N_Vouc - 1)
{
  RAM_Vouc_Dati(nnn)  0
  RAM_N_Vouc(nnn)    0
  RAM_Vouc_Total(nnn) 0
  RAM_AutVouc(nnn)   •
  RAM_Pay_Type_0(nnn) 0
  RAM_Pay_Type_1(nnn) 0
  RAM_Pay_Type_2(nnn) 0
  RAM_Pay_Type_3(nnn) 0
  RAM_Pay_Type_4(nnn) 0
  RAM_Pay_Total_0(nnn) 0
  RAM_Pay_Total_1(nnn) 0
  RAM_Pay_Total_2(nnn) 0
  RAM_Pay_Total_3(nnn) 0
  RAM_Pay_Total_4(nnn) 0
}
```

11.9.2 13 - CLOSE SALE PERIOD

This command is used to close SP storing information in FM and CF and printing the closure report.

11.9.2.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	13 - Close Sale Period	hex	1
3	Cmd. Extension	hex	1
	00 = No Print Daily Sale Summary		
	01 = Print Daily Sale Summary including all Fiscal Vouchers		
	02 = Print Daily Sale Summary including only Fiscal Vouchers with Right to Credit Note		
	03 = No Print Closure Report		

11.9.2.2 Close Sale Period Calculations

$$Lif_N_Clos = Lif_N_Clos + 1$$

$$Day_N_Slip = Day_N_Slip + 1$$

$$Lif_N_Slip = Lif_N_Slip + 1$$

$$Lif_N_AutVouc = Lif_N_AutVouc + Day_N_AutVouc$$

$$Lif_Grand_Total = Lif_Grand_Total + Day_Total$$

$$Lif_AutVouc_Grand_Total = Lif_AutVouc_Grand_Total + Day_AutVouc_Total$$

$$Lif_Pay_Total(pp) = Lif_Pay_Total(pp) + Day_Pay_Total(pp)$$

$$Lif_N_CNot = Lif_N_CNot + Day_N_CNot$$

$$Lif_CNot_Total = Lif_CNot_Total + Day_CNot_Total$$

$$Lif_N_DMon = Lif_N_DMon + Day_N_DMon$$

$$Lif_DMon_Total = Lif_DMon_Total + Day_DMon_Total$$

$$Lif_N_IVou = Lif_N_IVou + Day_N_IVou$$

$$Lif_IVou_Total = Lif_IVou_Total + Day_IVou_Total$$

$$Lif_N_FPay = Lif_N_FPay + Day_N_FPay$$

$$Lif_FPay_Total = Lif_FPay_Total + Day_FPay_Total$$

$$Lif_Retn_Total = Lif_Retn_Total + Day_Retn_Total$$

$$Lif_Void_Total = Lif_Void_Total + Day_Void_Total$$

$$Lif_Disc_Total = Lif_Disc_Total + Day_Disc_Total$$

$$Lif_Uplf_Total = Lif_Uplf_Total + Day_Uplf_Total$$

$$Lif_Tdsc_Total = Lif_Tdsc_Total + Day_Tdsc_Total$$

$$Lif_Tupl_Total = Lif_Tupl_Total + Day_Tupl_Total$$

Where:

pp = payment type, range = 00 up to 09

11.9.2.3 Close Sale Period Rules

- The daily totals are loaded in the daily entry table in FM.
- After 26 hours of opened a SP will be not allowed to start a fiscal voucher (01 cmd.). In this case a close sale period (13 cmd.) must be issued.
- The closure report containing the daily totals will be printed.

11.10 REPORTS

- 14 - X-Report
- 15 - Historic Daily Closure Report

11.10.1 14 - X-REPORT

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

11.10.1.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	14 - X-Report	hex	1
3	Cmd. Extension	hex	1
	00 = No Print Daily Sale Summary		
	01 = Print Daily Sale Summary including all Fiscal Vouchers		
	02 = Print Daily Sale Summary including only Fiscal Vouchers with Right to Credit Note		

11.10.1.2 X-Report Calculations

$Day_N_XRep = Day_N_XRep + 1$

$Day_N_Slip = Day_N_Slip + 1$

$Lif_N_Slip = Lif_N_Slip + 1$

The calculations done during the print x-report are the same as those done during the close sale period (13 cmd.) before update the daily entry table in FM and before create a new EJ file in the CF.

11.10.1.3 X-Report Rules

- By IPL or paper out errors, this report is cancelled.

11.10.2 15 - HISTORIC DAILY CLOSURE REPORT

This command is used to obtain printed or electronic the historic daily closures stored in FM and CF.

11.10.2.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	15 - Historic Daily Closure Report	hex	1
3	Cmd. Extension	hex	1
7	Reserved (always = '0')		
6-5	Report Type		
	00 = Extended (Print Daily Sale Summary including all Fiscal Vouchers)		
	01 = Extended (No Print Daily Sale Summary)		
	10 = Extended (Print Daily Sale Summary including only Fiscal Vouchers with Right to C.N. Summary)		
	11 = Short		
4	Report Output		
	0 = Printed (On Paper - CR station)		
	1 = Electronic (On Screen)		
3	Reserved (always = '0')		
2-0	Range		
	100 (4) = Between Closure Numbers		
	010 (2) = Between Closure Dates		
	001 (1) = All Fiscal Memory		
	If Range = 100 (4) specify:		
4-7	15_First_Closure_Number	ASCII	4
8-11	15_Last_Closure_Number	ASCII	4 (Note 1)
	If Range = 010 (2) specify:		
4-11	15_First_Closure_Date	ASCII	8 (Note 2)
12-19	15_Last_Closure_Date	ASCII	8 (Note 2)

Notes:

1. If a number greater than the last closure stored in FM is specified, the historic daily closure report will print until the last closure stored.
2. Date string must be formatted as: ddmmyyyy

Where:

dd = day
mm = month
yyyy = year

Response for (byte 3/bit 4 = 1) will be formatted as follows :

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9-20	15-26	From File Short Name ("n..n"."ttt")	ASCII	12 (Note 1)
21-32	27-38	To File Short Name ("n..n"."ttt")	ASCII	12 (Note 1)
33-71	39-77	From File Large Name ("n..n"."ttt")	ASCII	39 (Note 1)
72-110	78-116	To File Large Name ("n..n"."ttt")	ASCII	39 (Note 1)

Notes:

1. "n..n" = file name
"ttt" = file type

11.10.2.2 Historic Daily Closure Report Calculations

$$Day_N_HDCR = Day_N_HDCR + 1$$

$$Day_N_Slip = Day_N_Slip + 1$$

$$Lif_N_Slip = Lif_N_Slip + 1$$

11.10.2.3 Historic Daily Closure Report Rules

- Three types of reports are provided:
 - Extended (Print Daily Sale Summary including all Fiscal Vouchers)
 - Extended (Print Daily Sale Summary including only Fiscal Vouchers with Right to C.N. Summary)
 - Short
- By IPL or paper out errors, this report is cancelled.

11.11 UTILITIES COMMANDS

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

11.11.1 DA - ELECTRONIC READ FISCAL MEMORY TABLES AND ELECTRONIC JOURNAL RECORDS

This command is used to request a electronic report of the FM tables and EJ records content.

11.11.1.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - cmd prefix	hex	2
2	DA - Electronic Read FM Tables & EJ Records	hex	1
3	Cmd. Extension	hex	1
	00 Read Daily Entry Table		
	01 Read Store/POS Id Table		
	02 Read Microcode EC Level Table		
	03 Read Repair Action Table		
	04 Read Serial Number Table		
	05 Read Daily Payment Totals Record		
	06 Read Lifetime Payment Totals Record		
	07 Read Automatic Fiscal Voucher Totals Record		
	08 Read Daily Administrative Transactions Record		
	09 Read Lifetime Administrative Transactions Record		
	0A Read Daily Negative/Uplift Items/Subtotal Record		
	0B Read Lifetime Negative/Uplift Items/Subtotal Record		
4-7	DA_Entry_Number	ASCII	4 (Note 1)

Notes:

1. Range allowed from 0001 up to 9999.

Response to read Daily Entry Table will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Daily Entry Table)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 5A = Closure Not Found 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	FM_DE_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	FM_DE_Date
38-42	44-48	Time (hh:mm)	ASCII	5	FM_DE_Time
43-48	49-54	Daily Total	hex	6	FM_DE_Total
49-54	55-60	Donation Total	hex	6	FM_DE_Donat_Total
55-62	61-68	Grand Total	hex	8	FM_DE_Grand_Total
63-66	69-72	First Voucher Number	hex	4	FM_DE_N_FVouc
67-70	73-76	Last Voucher Number	hex	4	FM_DE_N_LVouc
71	77	Repair Action Number	hex	1	FM_DE_N_Ract
72-75	78-81	Last Transaction Number	hex	4	FM_DE_N_Slip
76-79	82-85	Last Credit Note Number	hex	4	FM_DE_N_CNot
80-85	86-91	Credit Note Total	hex	6	FM_DE_CNot_Total

Response to read Store/POS Id Table will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Store/POS Id Table)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 5A = Closure Not Found 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	FM_SP_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	FM_SP_Date
38-42	44-48	Time (hh:mm)	ASCII	5	FM_SP_Time
43-86	49-92	Name or Store Name Issuer	ASCII	44	FM_SP_Name
87-94	93-100	RUT Issuer Number	ASCII	8	FM_SP_RUT
95	101	RUT Issuer Verification Number	ASCII	1	FM_SP_RUT_V
96-99	102-105	POS Id Number	ASCII	4	FM_SP_POSId

Response to read Microcode EC Level Table will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Microcode EC Level Table)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 5A = Closure Not Found 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	FM_ML_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	FM_ML_Date
38-42	44-48	Time (hh:mm)	ASCII	5	FM_ML_Time
43-44	49-50	Microcode EC External Level	ASCII	2	FM_ML_Ext_Level
45-46	51-52	Microcode EC Internal Level	ASCII	2	FM_ML_Int_Level

Response to read Repair Action Table will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Repair Action Table)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 5A = Closure Not Found 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	FM_RA_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	FM_RA_Date
38-42	44-48	Time (hh:mm)	ASCII	5	FM_RA_Time
43-45	49-51	Number of Repair Action	ASCII	3	

Response to read Serial Number Table will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Serial Number Table)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-27	32-33	Manufacturing ID	ASCII	2	FM_SN_MF_ID
28-29	34-35	IBM Manufacturing ID	ASCII	2	FM_SN_IBM_MF_ID
30-35	36-41	Fiscal Memory Serial Number	ASCII	6	FM_SN_SerNum

Response to read Daily Payment Totals Record will be formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Daily Payment Totals Record)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-48	49-54	Cash	hex	6	CF_32_Pay_Total_0
49-54	55-60	Check	hex	6	CF_32_Pay_Total_1
55-60	61-66	Credit Card	hex	6	CF_32_Pay_Total_2
61-66	67-73	Debit Card	hex	6	CF_32_Pay_Total_3
67-72	74-79	Owner Card	hex	6	CF_32_Pay_Total_4
73-78	80-85	Coupon	hex	6	CF_32_Pay_Total_5
79-84	86-90	Others 1	hex	6	CF_32_Pay_Total_6
85-90	91-96	Others 2	hex	6	CF_32_Pay_Total_7
91-96	97-102	Others 3	hex	6	CF_32_Pay_Total_8
97-102	103-108	Others 4	hex	6	CF_32_Pay_Total_9

```

-----

```

Response to read Lifetime Payment Totals Record will be formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Lifetime Payment Totals Record)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-50	49-56	Cash	hex	8	CF_34_Pay_Total_0
51-58	57-64	Check	hex	8	CF_34_Pay_Total_1
59-66	65-72	Credit Card	hex	8	CF_34_Pay_Total_2
67-74	73-80	Debit Card	hex	8	CF_34_Pay_Total_3
75-82	81-88	Owner Card	hex	8	CF_34_Pay_Total_4
83-90	89-96	Coupon	hex	8	CF_34_Pay_Total_5
91-98	97-104	Others 1	hex	8	CF_34_Pay_Total_6
99-106	105-112	Others 2	hex	8	CF_34_Pay_Total_7
107-114	113-120	Others 3	hex	8	CF_34_Pay_Total_8
115-122	121-128	Others 4	hex	8	CF_34_Pay_Total_9

```

-----

```

Response to read Automatic Fiscal Voucher Totals Record will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Automatic Fiscal Voucher Totals Record)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-44	49-50	Daily Number of Automatic Fiscal Vouchers	hex	2	CF_36_N_AutVouc
45-50	51-56	Daily Total of Automatic Fiscal Vouchers	hex	6	CF_38_AutVouc_Total
51-54	57-60	Lifetime Number of Automatic Fiscal Vouchers	hex	4	CF_3A_N_AutVouc_Total
55-62	61-68	Lifetime Total of Automatic Fiscal Vouchers	hex	8	CF_3C_AutVouc_Grand_Total

Response to read Daily Administrative Transactions Record will be formatted as follows:

```
-----
```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Daily Administrative Transactions Record)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 5A = Closure Not Found 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-44	49-50	Credit Note Number	hex	2	CF_70_N_CNot
45-50	51-56	Credit Note Total	hex	6	CF_70_CNot_Total
51-52	57-58	Deposits Money Number	hex	2	CF_74_N_DMon
53-58	59-64	Deposits Money Total	hex	6	CF_74_DMon_Total
59-60	65-66	Internal Vouchers Number	hex	2	CF_78_N_IVou
61-66	67-72	Internal Vouchers Total	hex	6	CF_78_IVou_Total
67-68	73-74	Fees Payment Number	hex	2	CF_7C_N_FPay
69-74	75-80	Fees Payment Total	hex	6	CF_7C_FPay_Total

```
-----
```

Response to read Lifetime Administrative Transactions Record will be formatted as follows:

```
-----
```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification (Lifetime Administrative Transactions Record)	hex	1	
10-23	16-29	Request Date and Time (dd/mm/yy hh:mm)	ASCII	14	
24	30	Return Code 43 = Good Completion 60 = Invalid Character in Bytes 4-7 of Command 5A = Closure Not Found 64 = Error on Reading FM BB = Block Empty	hex	1	
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-46	49-52	Credit Note Number	hex	4	CF_72_N_CNot
47-54	53-60	Credit Note Total	hex	8	CF_72_CNot_Total
55-58	61-64	Deposits Money Number	hex	4	CF_76_N_DMon
59-66	65-72	Deposits Money Total	hex	8	CF_76_DMon_Total
67-70	73-76	Internal Vouchers Number	hex	4	CF_7A_N_IVou
71-78	77-84	Internal Vouchers Total	hex	8	CF_7A_IVou_Total
79-82	85-88	Fees Payment Number	hex	4	CF_7E_N_FPay
83-90	89-96	Fees Payment Total	hex	8	CF_7E_FPay_Total

```
-----
```

Response to read Daily Negative/Uplift Items/Subtotal Record will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification	hex	1	
		(Daily Negative/Uplift Items/Subtotal Record)			
10-23	16-29	Request Date and Time	ASCII	14	
		(dd/mm/yy hh:mm)			
24	30	Return Code	hex	1	
		43 = Good Completion			
		60 = Invalid Character in			
		Bytes 4-7 of Command			
		5A = Closure Not Found			
		64 = Error on Reading FM			
		BB = Block Empty			
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-48	49-54	Returned Item Total	hex	6	CF_80_Retrn_Total
49-54	55-60	Voided Item Total	hex	6	CF_80_Void_Total
55-60	61-66	Discounted Item Total	hex	6	CF_80_Disc_Total
61-66	67-72	Uplifted Item Total	hex	6	CF_80_Uplf_Total
67-72	73-78	Discounted on Subtotal Total	hex	6	CF_84_Tupl_Total
73-78	79-84	Uplifted on Subtotal Total	hex	6	CF_84_Tdsc_Total

Response to read Lifetime Negative/Uplift Items/Subtotal Record will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
0-8		Fiscal Unit Status	hex	9	
	0-14	Fiscal Unit Status	hex	15	
9	15	DA - Record Identification	hex	1	
		(Lifetime Negative/Uplift Items/Subtotal Record)			
10-23	16-29	Request Date and Time	ASCII	14	
		(dd/mm/yy hh:mm)			
24	30	Return Code	hex	1	
		43 = Good Completion			
		60 = Invalid Character in			
		Bytes 4-7 of Command			
		5A = Closure Not Found			
		64 = Error on Reading FM			
		BB = Block Empty			
25	31	Reserved (always = '0x00')	hex	1	
26-29	32-35	Closure Number	ASCII	4	CF_20_N_Clos
30-37	36-43	Date (dd/mm/yy)	ASCII	8	
38-42	44-48	Time (hh:mm)	ASCII	5	
43-50	49-56	Returned Item Total	hex	8	CF_82_Retrn_Total
51-58	57-64	Voided Item Total	hex	8	CF_82_Void_Total
59-66	65-72	Discounted Item Total	hex	8	CF_82_Disc_Total
67-74	73-80	Uplifted Item Total	hex	8	CF_82_Uplf_Total
75-82	81-88	Discounted on Subtotal Total	hex	8	CF_86_Tupl_Total
83-90	89-96	Uplifted on Subtotal Total	hex	8	CF_86_Tdsc_Total

11.11.1.2 Electronic Read Fiscal Memory Tables

- This command can be issued anytime during FIM.

11.11.2 DB - ELECTRONIC READ ACCUMULATORS AND COUNTERS

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

11.11.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		DB - Electronic Read Accumulators and Counters	hex	1
3		Cmd. Extension	hex	1
7-4		Reserved (always = '0x00')		
3		Variables Type		
		0 = Accumulators and Counters		
		1 = Miscellaneous		
		If (Byte 3 - Bit 3) = 0		
2		Query Criterial		
		0 = Accumulators		
		1 = Counters		
1-0		Accounting Variables		
		00 = Transaction		
		01 = Daily		
		10 = Lifetime		
		If (Byte 3 - Bit 3) = 1		
2-0		Reserved (always = '0x00')		
4		DB_Payment_Type (pp)	hex	1 (Note 1)

Notes:

1. Range allowed from '0x00' up to '0x09'.

Response will be formatted as follows:

```

-----

```

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH
RS-485	RS-232				
0-8			Fiscal Unit Status	hex	9
	0-14		Fiscal Unit Status	hex	15
9	15		DB - Record Identification	hex	1
10-23	16-29		REQUEST DATE AND TIME (dd/mm/yy hh-mm)	ASCII	14
24	30		RETURN CODE 43 = Good Completion	hex	1
25	31		FISCAL UNIT STATE 00 = No Procedure in Progress 01 = Sale Transaction in Progress 02 = Reserved 03 = Reserved 04 = Reserved 05 = CR Non-Fiscal Report in Progress 06 = Reserved 07 = DI Non-Fiscal Report Landscape in Progress 08 = DI Non-Fiscal Report Portrait in Progress 09 = Check Printing in Progress 0A = DI Credit Note Landscape in Progress 0B = DI Credit Note Portrait in Progress 0C = DI Deposit Money Landscape in Progress 0D = DI Deposit Money Portrait in Progress 0E = DI Internal Voucher Landscape in Progress 0F = DI Internal Voucher Portrait in Progress 10 = DI Fee Payment Landscape in Progress 11 = DI Fee Payment Portrait in Progress	hex	1
L					
26	32		SALE TRANSACTION 7 1 = Header Printed 6 Reserved (always = '0') 5 1 = Total Requested 4 1 = Discount/Uplift on Subtotal 3 1 = Payment in Progress 2 1 = Amount Due Printed 1-0 Reserved (always = '0')	hex	1
27	33		FISCAL UNIT MODE 7 1 = Fiscal Mode Set 6 1 = Automatic Fiscal Voucher End by PLD Deactive 5 1 = Sale Period in Progress 4 1 = Training Mode Set 3 1 = DST for Winter Set 2 1 = DST for Summer Set 1 1 = Graphic Set 0 Reserved (always = '0')	hex	1
28-30	34-36		RESERVED	hex	3

```

-----

```

(Continued in the next page)

Response where **Variables Type = '0'**, **Query Criterial = '0'** and **Accounting Variable = '00'** is formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
TRANSACTION ACCUMULATORS					

31-34	37-40	Total	hex	4	Tra_Total
35-38	41-44	Returns Items	hex	4	Tra_Retn_Total
39-42	45-48	VOIDS Items	hex	4	Tra_Void_Total
43-46	49-52	Discounts Items	hex	4	Tra_Disc_Total
47-50	53-56	Uplift Items	hex	4	Tra_Upplf_Total
51-58	57-64	Reserved	hex	8	
59-62	65-68	Discount on Subtotal	hex	4	Tra_Tdsc_Total
63-66	69-72	Uplift on Subtotal	hex	4	Tra_Tupl_Total
67-70	73-76	Payment (by Payment Type)	hex	4	Tra_Pay_Total(pp)
71-74	77-80	Donation	hex	4	Tra_Donat_Total
75-78	81-84	Amount Due	hex	4	Tra_Amt_Due

```

-----

```

Response where **Variables Type = '0', Query Criterial = '1' and Accounting Variable = '01'** is formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
		DAILY COUNTERS			

31-32	37-38	Fiscal Vouchers	hex	2	Day_N_Vouc
33-34	39-40	Slips Printed	hex	2	Day_N_Slip
35-36	41-42	DI Non-Fiscal Reports	hex	2	Day_N_NFR_DI
37-38	43-44	Checks Printed	hex	2	Day_N_Check
39-40	45-46	Checks Cancelled	hex	2	Day_N_CCheck
41-42	47-48	Credit Card Vouchers	hex	2	Day_N_CredC
43-44	49-50	X-Reports	hex	2	Day_N_XRep
45-46	51-52	Historic Daily Closure Reports	hex	2	Day_N_HDCR
47-48	53-54	Automatic Fiscal Vouchers	hex	2	Day_N_AutVouc
49-50	55-56	Credit Notes	hex	2	Day_N_CNot
51-52	57-58	Deposits Money	hex	2	Day_N_DMon
53-54	59-60	Internal Vouchers	hex	2	Day_N_IVou
55-56	61-62	Fees Payment	hex	2	Day_N_FPay
57-58	63-64	Debit Card Vouchers	hex	2	Day_N_DebiC
L 59-60	65-66	CR Non-Fiscal Reports	hex	2	Day_N_NFR_CR

(Continued in the next page)

Response where **Variables Type = '0', Query Criterial = '0' and Accounting Variable = '01'** is formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
		DAILY ACCUMULATORS			

31-36	37-42	Total	hex	6	Day_Total
37-42	43-48	Returns Items	hex	6	Day_Retrn_Total
43-48	49-54	Voids Items	hex	6	Day_Void_Total
49-54	55-60	Discounts Items	hex	6	Day_Disc_Total
55-60	61-66	Uplift Items	hex	6	Day_Uplf_Total
61-72	67-78	Reserved	hex	12	
73-78	79-84	Discount on Subtotal	hex	6	Day_Tdsc_Total
79-84	85-90	Uplift on Subtotal	hex	6	Day_Tupl_Total
85-90	91-96	Payment (by Payment Type)	hex	6	Day_Pay_Total(pp)
91-96	97-102	Donation	hex	6	Day_Donat_Total
97-102	103-108	Total - Automatic Fiscal Voucher	hex	6	Day_AutVouc_Total
103-108	109-114	Credit Note Total	hex	6	Day_CNot_Total
109-114	115-120	Deposit Money Total	hex	6	Day_DMon_Total
115-120	121-126	Internal Voucher Total	hex	6	Day_IVou_Total
121-126	127-132	Fee Payment Total	hex	6	Day_FPay_Total

Response where **Variables Type = '0', Query Criterial = '1' and Accounting Variable = '10'** is formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
		LIFETIME COUNTERS			

31-34	37-40	Fiscal Vouchers	hex	4	Lif_N_Vouc
35-38	41-44	Slips Printed	hex	4	Lif_N_Slip
39-40	45-46	Closures	hex	2	Lif_N_Clos
41-42	47-48	Repair Actions	hex	2	Lif_N_Ract
43-46	49-52	Automatic Fiscal Voucher	hex	4	Lif_N_AutVouc
47-50	53-56	Credit Note	hex	4	Lif_N_CNot
51-54	57-60	Deposit Money	hex	4	Lif_N_DMon
55-58	61-64	Internal Voucher	hex	4	Lif_N_IVou
59-62	65-68	Fee Payment	hex	4	Lif_N_FPay

```

-----

```

Response where **Variables Type = '0', Query Criterial = '0' and Accounting Variable = '10'** is formatted as follows:

```

-----

```

BYTE	BYTE	CONTENT	TYPE	LENGTH	VARIABLE NAME
RS-485	RS-232				
		LIFETIME ACCUMULATORS			

31-38	37-44	Grand Total	hex	8	Lif_Grand_Total
39-46	45-52	Grand Payment Total (by Payment Type)	hex	8	Lif_Pay_Total(pp)
47-54	53-60	Grand Total - Automatic Fiscal Voucher	hex	8	Lif_AutVouc_Grand_Total
55-62	61-68	Credit Note	hex	8	Lif_CNot_Total
63-70	69-76	Deposit Money	hex	8	Lif_DMon_Total
71-78	77-84	Internal Voucher	hex	8	Lif_IVou_Total
79-86	85-92	Fee Payment	hex	8	Lif_FPay_Total
87-94	93-100	Returns Items	hex	8	Lif_Retrn_Total
95-102	101-108	Voids Items	hex	8	Lif_Void_Total
103-110	109-116	Discounts Items	hex	8	Lif_Disc_Total
111-118	117-124	Uplift Items	hex	8	Lif_Up1f_Total
119-126	125-132	Discount on Subtotal	hex	8	Lif_Tdsc_Total
127-134	133-140	Uplift on Subtotal	hex	8	Lif_Tupl_Total

```

-----

```

Response where **Variables Type** = '1' is formatted as follows:

BYTE RS-485	BYTE RS-232	CONTENT	TYPE	LENGTH	VARIABLE NAME
		MISCELLANEOUS -----			
31	37	Maximum Discount Percent Allowed	hex	1	RAM_Max_Disc_%

11.11.2.2 Electronic Read Accumulators and Counters Rules

- This command can be issued anytime.

11.11.3 F1 - REPORT IPL COMPLETION STATUS

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

11.11.4 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	RS-232			
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	RS-232			
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 136)
12	18	Command	hex	1
		Command Extension	hex	n0
		Command Data	hex	n1
		Additional Data	hex	n2 (Note 4 on page 136)
		Fiscal Unit Status Executed Command	hex	n3 (Note 5 on page 136)

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
- $n2 = 129 - (\text{Type} + \text{Command} + \text{Command Extension} + \text{Command Data} + \text{Fiscal Unit Status})$

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

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

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

- RS-485 = 9 bytes
- RS-232 = 15 bytes

11.11.4.1 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															

11.11.4.2 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 FU status of the executed command is equal zero.

11.11.5 F8 - REPORT PRINTER EC

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

11.11.5.1 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 = Fiscal Unit		
		01 = Fiscal Device Information		
		02 = Printer Device Information		

Response of the Fiscal Unit:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15

Response of the Fiscal Device Information

```

-----

```

BYTE RS-485	BYTE RS-232	BIT	CONTENT	TYPE	LENGTH
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	Fiscal/Printer Device Info (<u>ONLY FOR RS-485</u>) 0 = Fiscal Device Info is NOT contained in this message 1 = Fiscal or Printer Device Info IS contained in this message		
		0	Reserved (<u>ONLY FOR RS-232</u>)		
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 0x31 = Fiscal Printer	hex	1
10	16		DEVICE ID 0x00 = fiscal 2 stations thermal/impact (K --> Jacare) 0x01 = fiscal 3 stations thermal/impact (G --> Macarena) 0x02 - 0xFF = Reserved	hex	1
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	FM Size 0 = 512 KB 1 = 256 KB		
12	18		RESERVED (always '0x00')	hex	1
13	19		FISCAL EC LEVEL	hex	1

```

-----

```

Response of the Printer Device Information

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH
RS-485	RS-232				
0-5			PRINTER STATUS	hex	6
	0-7		PRINTER STATUS	hex	8
6	8		Fiscal Status and Device Info	hex	1
		7-1	Fiscal Status		
		0	Fiscal/Printer Device Info		
			0 = Fiscal Device Info is NOT contained in this message		
			1 = Fiscal or Printer Device Info IS contained in this message		
7	9		Additional Status	hex	1
		7	Device Information Response		
			0 = NO		
			1 = YES		
		6-0	Reserved (always = '0')		
8	10		Country Code		
9	11		Country Version		
10	12		Country EC Level		
11-12	13-14		Fiscal Return Code	hex	2
13-14	15-19		Device Info Bytes (exactly as received from the printer microcode - See SureMark User Guide Extended Address Command)	hex	5

11.11.6 F9 - REPORT CURRENT STATUS

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

11.11.6.1 Command Format

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

11.11.7 FA - RESET FISCAL PRINTER

This command is used to reset the FU and FP.

11.11.7.1 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		

11.11.8 FB - RUN ONLINE DIAGNOSTICS

This command is used to run the print diagnostics.

11.11.8.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		FB - Run Online Diagnostics	hex	1
3		Cmd. Extension	hex	1
		01 = Fiscal Unit		
		02 = Printer		
		03 = Both		

11.11.9 FC - REPORT MICROCODE EC

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

11.11.9.1 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 External Level		
		01 = Fiscal Microcode EC Internal Level		
		02 = Country Code		(Note 1)
		03 = Country Version (Hardware Model)		(Note 2)

Notes:

1. Country Code is '0x06' (06 decimal) (Chile).
2. The Country Version according to communication interface is:
 - For 4610 SureMark RS-485 - KS4/KS5 Models
Country Version (Hardware Model) = '0x00' (00 decimal)
 - For 4610 SureMark RS-232 - KC4/KC5 Models
Country Version (Hardware Model) = '0x05' (05 decimal)

11.11.10 FF - ENGINEERING DUMP RAM AND FISCAL MEMORY

This command is used to print the content of the RAM and Fiscal Memory in hexadecimal format.

11.11.10.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		FF - Engineering Dump RAM & FM	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 Memory		
		0 = RAM		
		1 = FISCAL		
4-8		FF_Start_Address	ASCII	5 (Note 1)
9-13		FF_End_Address	ASCII	5 (Note 2)

Notes:

1. Fiscal RAM address range (64 Kbytes):
X'00000' - X'0FFFF'
2. Fiscal EPROM address range (512 Kbytes):
X'00000' - X'7FFFF'

Response for Electronic Dump will be formatted as follows:

BYTE	BYTE	BIT	CONTENT	TYPE	LENGTH
RS-485	RS-232				
0-8			Fiscal Unit Status	hex	9
	0-14		Fiscal Unit Status	hex	15
9-218			Electronic Data	hex	210 (Note 1)
	15-142		Electronic Data	hex	128 (Note 2)

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.
2. The electronic data block can be up to 128 bytes long. Only are shown those bytes specified in the command.

11.11.10.2 Engineering Dump RAM and FM Calculations


```
If Type Report = Printed (on paper)
{
  Day_N_Slip Day_N_Slip+1
}
```

11.11.10.3 Engineering Dump RAM and Fiscal Memory Rules

- When type report "on paper" is selected, the report is printed in CR station.
- This command can be issued with J4/CE jumper (FJUMPER flag) in ACTIVE (ON) or STORED (OFF) position.

11.12 ELECTRONIC JOURNAL/COMPACT FLASH COMMANDS

- 60 - Open Electronic Journal File
- 61 - Close Electronic Journal File
- 62 - Read Electronic Journal File
- 63 - Get Extended EJ Error
- 65 - Get Compact Flash Directory
- 67 - Get Public Key
- 69 - Get Compact Flash Information

11.12.1 60 - OPEN ELECTRONIC JOURNAL FILE

This command is used to specify the EJ file that is necessary to begin to read.

11.12.1.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		60 - Open Electronic Journal File	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-15		60_Filename	ASCII	12 (Note 1)

Notes:

1. 60_Filename format is "IBM~cccc.EJ "

where:

cccc = Closure Number

e.g. "IBM~0012.EJ "

11.12.1.2 Open Electronic Journal File Rules

- The 60_Filename specified must be in normal DOS format (filename.ext).

11.12.2 61 - CLOSE ELECTRONIC JOURNAL FILE

This command is used to close the EJ file that is currently been read.

11.12.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		61 - Close Electronic Journal File	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

11.12.3 62 - READ ELECTRONIC JOURNAL FILE

This command is used to read the EJ file opened with open electronic journal file (60 cmd.)

11.12.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		62 - Read Electronic Journal File	hex	1
3		Cmd. Extension	hex	1
	7-0	Reserved (always = '0x00')		
4-7		62_Sequence	hex	4 (Note 1)

Response will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9-10	15-16	Length Read	hex	2 (Note 1)
11-138	17-144	Bytes read from the file	hex	128 (Note 2)

Notes:

1. Specified in Motorola format (MSB first).
2. If length read < 128, the end of file was reached and bytes beyond length read are not meaningful.

11.12.3.2 Read Electronic Journal File Rules

- This command reads always in 128 bytes blocks.
- The first time after an Open Electronic Journal File (60 cmd.), sequence must be 0.
- Later, the sequence can be:
 - 0 = reads the first block
 - n = read again the last block read
 - n + 1 = read the block following the last block read
- Length read will be between 0 and 128.
- If length read is less than 128, the end of file was reached.

11.12.4 63 - GET EXTENDED EJ ERROR

This command is used to get the extended EJ error.

Due to the limited number of return codes available, all commands that fails due to a problem related with EJ, just fail returning a general EJ error "84".

If the application needs to know the reason for failure, it must send this command. To know the meaning of a particular EJ error, refer to 13.0, "Electronic Journal Return Codes" on page 199.

11.12.4.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		63 - Get Extended EJ Error	hex	1
3		Cmd. Extension	hex	1
7-0		Reserved (always = '0x00')		

Response will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	Extended EJ Error	hex	1
10	16	Extended EJ Error Subcode	hex	1 (Note 1)

Notes:

1. This subcode is used to identify the different situations when the same extended EJ error is returned.

11.12.5 65 - GET COMPACT FLASH DIRECTORY

This command is used to retrieve the CF directory.

11.12.5.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		65 - Get Compact Flash Directory	hex	1
3		Cmd. Extension	hex	1
		00 = Find First		
		01 = Find Next		
		If Cmd. Extension = 00 specify:		
4-15		65_Filename (IBM~cccc.EJ)	ASCII	12 (Note 1)
16		65_Arch_Attribute_State	hex	1
		0 = Clear		
		1 = Set		
		2 = Both		

Response will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	EJ Error	hex	1 (Note 2)
10-21	16-27	Filename (short format)	ASCII	12 (Note 3)
22	28	File Attributes	hex	1 (Note 4)
23-24	29-30	File Last Modification Time	hex	2 (Note 5, 7 on page 152)
25-26	31-32	File Last Modification Date	hex	2 (Note 6 on page 152, 7 on page 152)
27-30	33-36	File Length	hex	4 (Note 7 on page 152)
31-69	37-75	Filename (large format)	ASCII	39

Notes:

- Where:
 - cccc = Closure Number
- This field will be:
 - 0 = file info returned
 - 0x1B = no more files available
- Specified in normal DOS format (filename.ext) padded with spaces if necessary.
- Specified in normal DOS format.
- Specified in normal DOS format (hhhhhhmmmmmmsssss).

- hhhh = hours (0 to 23)
- mmmmm = minutes (0 to 59)
- sssss = seconds divided by 2 (0 to 29)

6. Specified in normal DOS format (yyyyyyymmddddd).

- yyyyyy = year (1980 based)
- mmm = month (1 to 12)
- dddd = day (1 to 31)

7. Specified in INTEL format (LSB First) for DOS compatibility.

11.12.5.2 Get Compact Flash Directory Rules

- The normal use will be to send a find first option followed by successive calls to find next until it returns EJ Error 27 (hex 1B).
In this case the RC will be 67, because this is not really an error, just a message to signal that no more files are available.
- There is only a root directory in the CF. No support for subdirectories is available.
- The 65_Filename specified must be in normal DOS format (IBM~cccc.EJ).
- Wildcards (*) and (?) can be used as usual in DOS.
e.g. "IB*.E? "
- The 65_Arch_Attribute_State can be used to restrict the search only to the files with the arch attribute in the specified condition.
- Find first will retrieve data related with the first file in the directory that matches the filename and attribute requested.
- Find next will retrieve successive files matching the filename and attribute specified in find first.

11.12.6 67 - GET PUBLIC KEY

This command is used to get the public key.

11.12.6.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		67 - Get Public Key	hex	1
3		Cmd. Extension	hex	1
		00 = First		
		01 = Next		
		If Cmd. Extension = 00		
4-5		67_Key Number	ASCII	2 (Note 1)

Notes:

1. Range allowed is 00 to 01.
'00' return the last public key set.
'01' return the first public key set.

Response to the Get Public Key command (for FIRST) will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9-10	15-16	Key Number	ASCII	2
11-18	17-24	Creation Date (ddmmyyyy)	ASCII	8
19-23	25-29	Creation Time (hh:mm)	ASCII	5
24	30	Record Type	ASCII	1
		0 = Next		
		1 = Last		
25-26	31-32	Key Length	hex	2
27-90	33-96	Key	hex	64

Response to the Get Public Key command (for NEXT) will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15

9	15	Record Type 0 = Next 1 = Last	ASCII	1
10-73	16-79	Key	hex	64

11.12.6.2 Get Public Key Rules

- To begin getting key, the cmd. extension 00 (FIRST) must be used. If the length returned is ≤ 64 bytes, all data is returned in the response. Else, subsequent calls with cmd. extension 01 (NEXT) will bring the following data in 64 bytes chunks until the length is exhausted.
- The key data are:
 - Data
 - Key Type (1 byte) = 01h (DSA 512 bits)
 - Subprime (20 bytes)
 - Prime (64 bytes)
 - Base (64 bytes)
 - Public Key (64 bytes)

11.12.7 69 - GET COMPACT FLASH INFORMATION

This command is used to get the serial number, size and the remaining free space in the inserted CF.

11.12.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Cmd Prefix	hex	2
2		69 - Get Compact Flash Information	hex	1
3		Cmd. Extension	hex	1
		00 = Get Compact Flash Free Space		
		01 = Get Compact Flash Serial Number and Size		

Response to Get CF Free Space (Cmd. Extension 00) will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9-12	15-18	Compact Flash Free Space (in bytes)	hex	4 (Note 1)

Response to Get CF Serial Number and Size (Cmd. Extension 01) will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9-28	15-34	CF Serial Number	ASCII	20
29-32	35-38	CF Size (in bytes)	hex	4 (Note 1)

Notes:

1. Specified in Motorola format (MSB First).

11.12.7.2 Get Compact Flash Information Rules

- If the free space in CF is less than 40000 bytes, the SP cannot be open.

11.13 PRINTER COMMANDS

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

11.13.1 E7 - DIAGNOSTIC AND ALIGNMENT UTILITIES

This command is used to diagnostics and alignmets.

11.13.1.1 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 = Reserved		
	03 = DI Print Backlash Adjustment Pattern		
	04 = Reserved		
	05 = CR Read MCT Value		
	06 = Reserved		
	07 = Reserved		
	08 = CR Print Test Command		
	09 = CR 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		

(Continued in the next page)

Diagnostic and Alignment Utilities Command continued...

BYTE	BIT	CONTENT	TYPE	LENGTH

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

(Continued in the next page)

Diagnostic and Alignment Utilities Command continued...

Response for CR Read MCT Value:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
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

11.13.2 E8 - SET NUMBER OF DOT ROWS PER LINEFEED

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

11.13.2.1 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		Cnd. Extension	hex	1
7-4		Reserved (always = '0')		
3		DI Station - Landscape		
		0 = Set Default Value (6 lines/inch)		
		1 = Set Alternate Value (8 lines/inch)		
2		DI Station - Portrait		
		0 = Set Default Value (6 lines/inch)		
		1 = Set Alternate Value (8 lines/inch)		
1		Reserved (always = '0')		
0		CR Station		
		0 = Set Default Value (6 lines/inch)		
		1 = Set Alternate Value (8 lines/inch)		

11.13.2.2 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.

11.13.3 EA - NORMAL PRINTING LINE IN CR STATION

This command is used to print comment lines in CR station.

11.13.3.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		EA - Normal Printing Line in CR Station	hex	1
3		Cmd. Extension	hex	1
7-6		Reserved (always = '0')		
5-3		Print Mode		
		000 = 15 CPI		
		001 = 12 CPI		
		010 = Reserved		
		011 = 15 CPI Double-High		
		100 = 15 CPI Emphasized		
		101 = 12 CPI Emphasized		
		110 = Reserved		
		111 = 15 CPI Double-High, Emphasized		
2-0		Number of Line Feed (min 1, max 7)		(Note 1)
4-47		EA_Description	ASCII	44

Notes:

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

11.13.3.2 Normal Printing Line in CR Station Rules

- L • Normal printing lines can be printed:
 - L – After the payment phase of the FV
 - L – During a CR non-fiscal report.
- L • The first normal printing line OR barcode printed in a FV, will print first the "START COMMENT" (V44) message.
- L • The string "TOTAL" in upper, lower or mixed case is allowed in the EA_Description field.

11.13.4 EB - NORMAL PRINTING LINE IN DI STATION

This command is used to print lines in DI station.

11.13.4.1 Command Format

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

Notes:

1. The emphasized option is ignored during landscape orientation print.
2. The print lines sent are from bottom-of-form to the top-of-form.
3. EB_Description field will be truncated as follows:
 - Portrait orientation at 15 CPI to 47 characters.
 - Portrait orientation at 12 CPI to 37 characters.
 - Landscape orientation at 15 CPI to 86 characters.
 - Landscape orientation at 12 CPI to 68 characters.

11.13.5 EC - LINE FEED

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

11.13.5.1 Command Format

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

11.13.5.2 Line Feed Rules

- There are not allowed line feeds inside the FV.

11.13.6 ED - READY DOCUMENT

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

11.13.6.1 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		

11.13.7 EE - CUT CUSTOMER RECEIPT PAPER

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

11.13.7.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		EE - Cut Customer Receipt Paper	hex	1
3		Cnd. Extension	hex	1
7-0		Reserved (always = '0')		

11.13.8 EF - DOCUMENT EJECT

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

11.13.8.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - cmd prefix	hex	2
2		EF - Document Eject	hex	1
3		Cnd. Extension	hex	1
7-1		Reserved (always = '0')		
0		Line Feed Direction		
		0 = Forward		
		1 = Reverse		

11.13.9 F4 - HEAD POSITION & OPEN/CLOSE THROAT

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

11.13.9.1 Command Format

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

11.14 MISCELLANEOUS COMMANDS

- 08 - Send Interrupted Command
- 09 - Set Daylight Saving Time
- C8 - Set Barcode Parameters
- C9 - Print Barcode
- CA - Download Graphics
- CB - Flip Document in DI Station
- CD - Cash Drawer Management
- DC - MICR Read

11.14.1 08 - SEND INTERRUPTED COMMAND

This command is used to send the same command that was in progress when a PLD or printer error occurred and returns it as part of the command response.

11.14.1.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command prefix	hex	2
2		08 - Send Interrupted Command	hex	1
3		Cnd. Extension	hex	1
		00 = Send Interrupted Command (RC 165)		(Note 1)
		01 = Send Interrupted Command (RC 67)		(Note 2)

Notes:

1. If a command is in progress when a PLD or printer error occurs, the interrupted command is sent, otherwise it gives return code 165.
2. If a command is in progress when a PLD or printer error occurs, the interrupted command is sent, otherwise no actions are executed and it gives return code 67.

11.14.1.2 Send Interrupted Command Rules

- This command is allowed if a PLD or printer error occurs before.
- Using this command, the following command can be send after PLD or printer error:
 - (13) Close Sale Period

11.14.2 09 - SET DAYLIGHT SAVING TIME

This command is used to alternatively set back and ahead 1 hours the FP time of day clock.

11.14.2.1 Command Format

BYTE	BIT	CONTENT	TYPE	LENGTH
0-1		1B66 - Command prefix	hex	2
2		09 - Set Daylight Saving Time	hex	1
3		Cnd. Extension	hex	1
		00 = From Summer to Winter (-1 hour)		(Note 1)
		01 = From Winter to Summer (+1 hour)		(Note 2)

Notes:

1. This option is used to set back 1 hour the FP time of day clock.
2. This option is used to set ahead 1 hour the FP time of day clock.

11.14.2.2 Set Daylight Saving Time Rules

- This command is allowed out of the SP.
- The set date and time must be later than the date and time stamp of the last closure in FM, otherwise the next closure cannot be issue until the date and time are later than that of the last closure in FM.
- The set daylight saving time will be lost if the hardware J4/CE jumper is used.

11.14.3 C8 - SET BARCODE PARAMETERS

This command is used to set the barcode parameters.

11.14.3.1 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		C8_Barcode Width	ASCII	1 (Note 1)
5-7		C8_Barcode Height	ASCII	3 (Note 2)
If Cmd. Extension = 01 specify:				
4		C8_Station	hex	1
		0 = CR		
		1 = 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

11.14.3.2 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.
- The applied settings will remain after power off. Only will be reset to default values after J4/CE jumper operation.

11.14.4 C9 - PRINT BARCODE

This command is used to print barcode.

11.14.4.1 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 1 = 12 CPI 0 = 15 CPI		(Note 1)
	5-4	HRI location 11 = Both Above and Below the Barcode 10 = Below the Barcode 01 = Above the Barcode 00 = Not Printed		(Note 2)
	3-0	Barcode Type 1111 = Reserved 1110 = Reserved 1101 = Reserved 1100 = Reserved 1011 = Reserved 1010 = Reserved 1001 = Reserved 1000 = CODE93 0111 = CODE128 (C) 0110 = CODABAR 0101 = ITF 0100 = CODE39 0011 = JAN8 0010 = JAN13 0001 = UPC_E 0000 = UPC_A		
4-n		C9_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.
 - Data must be null terminated.
 - Excess characters will be discarded.
 - If a 'x'00' or an invalid char is received before the required number of data bytes, zeros will be inserted following the data until the required number of bytes is reached. This is for UPC-A, UPC-E, JAN8 and JAN13.
 - A check digit will be generated if one is not supplied for UPC-A and JAN13.
 - UPC-E will generate it's own check characters. The printer will expand the data, generate a check digit and then parse the data before generating the bar code. Six or seven digits will be expected. If seven digits are received and the first is a zero, then the last 6 bytes

will be used to generate the barcode. If the first digit is not a zero, then the first six bytes will be used to generate the bar code and the seventh byte ignored.

- A leading zero will be added to the data for ITF barcodes if the data received has an odd number of bytes.
- Check digits will be figured and added for Code 128 and Code 93.

11.14.4.2 Print Barcode Rules

- In barcode types CODE39 and CODE93, if the width is ≥ 3 , the barcode might not fit in the sheet. In this case, it will be truncated.
- The barcodes can be printed:
 - Outside of any document (CR or DI station).
 - L – Inside of a CR non-fiscal report
 - L — See 11.7.1, “Non-Fiscal Reports Rules” on page 101
 - Inside of a DI non-fiscal report (portrait)
 - See 11.7.1, “Non-Fiscal Reports Rules” on page 101
 - Inside of FV (CR station)
 - See 11.5.3, “Sale Transaction Rules” on page 75

11.14.5 CA - DOWNLOAD GRAPHICS

This command is used to download graphics.

11.14.5.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - Cmd Prefix	hex	2
2	CA - Download Graphics	hex	1
3	Cmd. Extension	hex	1
	00 = Reserved		
	01 = Reserved		
	02 = Download First Packet		(Note 1)
	08 = Download Next Packet		
	09 = Download Last Packet		
	0A = Cancel Graphics Transmission		
	10 = Initialize Graphics Download Area		
	11 = Reserved		
	12 = Reserved		
	If Cmd. Extension = 02 specify:		
4	CA_Width	hex	1 (Note 2)
5	CA_Height	hex	1 (Note 2)
6	CA_Graphic Number	hex	1 (Note 3)
7-65	CA_First Pixels in Graphics	hex	59
	If Cmd. Extension = 08 or 09 specify:		
4-65	CA_Pixels in Graphics	hex	62

Notes:

1. If the number of data bytes exceeds 61 or 62 (depending of 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 is expresed in bytes, it should be multiplied by 8 in order to get the number of pixels.
3. Valid value is '0x01'.

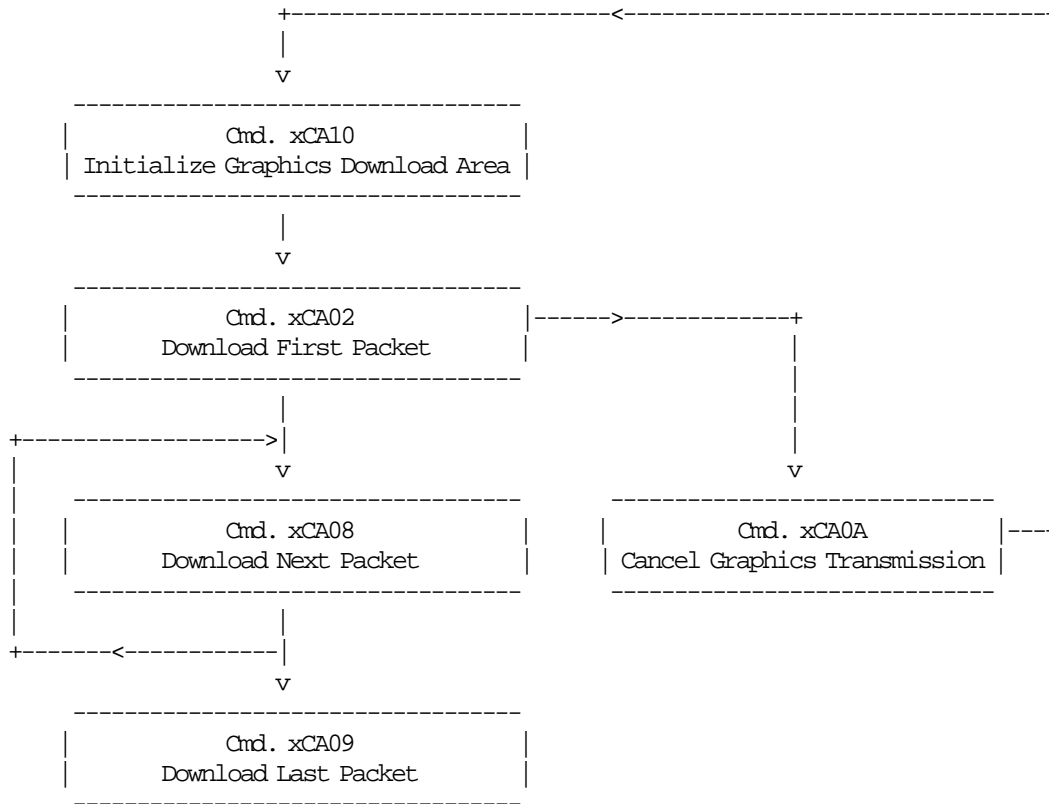
Response to the Cmd. Extension 02 will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
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		

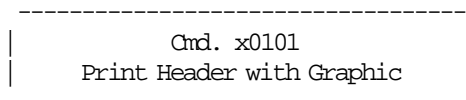
Response to the Cmd. Extension 08 or 09 will be formatted as follows:

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
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		

11.14.5.2 Download Graphics Flow



11.14.5.3 Print Graphics Flow



11.14.5.4 Download Graphic Example.

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

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

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

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

Send the following packet in order to set the above graphic in 200 DPI in the CR station.
The semicolons (;) are used only to separate bytes in this example.

```
X'1B;66;CA;02;02;02;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;AA;55;55;55;55;55;55;55;55;55;55;55;55;55;55;55;55'
```

Figure 18. Print Graphic Example.

11.14.5.5 Download Graphics Rules

- The graphic printing is allowed in the header of the FV.
- When a PLD, J4/CE jumper intervention, reset printer or cancel graphics transmission occur during the download packet, the graphics download area is corrupted. In this case, issue initialize graphics download area (CA cmd. - cmd. extension 10) and then download packet again.
- All graphics will be printed always at 200 DPI.
- The maximum size allowed for one graphic is 72 x 21 bytes (representing 576 x 168 pixels).

11.14.6 CB - FLIP DOCUMENT IN DI STATION

This command is used to flip automatically a document in DI station to print the reverse side later.

11.14.6.1 Command Format

BYTE BIT	CONTENT	TYPE	LENGTH
0-1	1B66 - Cmd Prefix	hex	2
2	CB - Flip Document in DI Station	hex	1
3	Cmd. Extension	hex	1
7-0	Reserved (always = '0x00')		

11.14.6.2 Flip Document in DI Station Rules

- Specifications for documents that can be flipped (refer to 4610 User's Guide)
 - Minimum form length: 80 mm (3.14 in.)
 - Maximum form length: 223 mm (8.78 in.)
 - Maximum form width : 102 mm (4 in.)
 - Paper weight : 75-95 g/•

11.14.7 CD - CASH DRAWER MANAGEMENT

ONLY FOR KC4/KC5 MODELS

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

11.14.7.1 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	CD_Cash Drawer Number	hex	1 (Note 1)
5	CD_Pulse Width ON Time	hex	1 (Note 2)
6	CD_Pulse Width OFF Time	hex	1 (Note 2)

Notes:

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

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		

11.14.8 DC - MICR READ

This command reads the checks magnetic ink data and returns it as part of the command response.

11.14.8.1 Command Format

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

Response to the MICR Read command will be formatted as follows :

BYTE	BYTE	CONTENT	TYPE	LENGTH
RS-485	RS-232			
0-8		Fiscal Unit Status	hex	9
	0-14	Fiscal Unit Status	hex	15
9	15	DC - MICR Read	hex	1
10	16	Return Code	hex	1
		43 = Good Completion		
11	17	Number of Bytes Read by MICR	hex	1
12-75	18-81	MICR Data	ASCII	64 (Note 1)

Notes:

1. This is the maximum data length that could be returned by the FP.
Always the data is padded to right with 0 hex.

12.0 Fiscal Unit Return Codes

12.1 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 printer to replace both the fiscal processor card and the FP.*

80900006

Explanation: The FU is off-line.

User Response: Retry the operation.

If the problem remains, service the FP to replace the fiscal processor card.

80900007

Explanation: The FU is not ready.

User Response: Retry the operation.

If the problem remains, service the printer to replace the fiscal processor card.

80900008

Explanation: A PLD occurred during command execution.

User Response: Issue a RESUME or RESUME RETRY command.

80900009

Explanation: The command was rejected by the FU at the time it was issued.

User Response: Issue the command again.

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

12.2 DOS/WINDOWS and 4690 OS Return Code Descriptions

000 = DOS/WINDOWS 80900100 = 4690 OS

Explanation: An overflow occurred. The TRANSACTION TOTAL exceeds the maximum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

001 = DOS/WINDOWS 80900101 = 4690 OS

Explanation: An overflow occurred. The RETURN TRANSACTION TOTAL exceeds the maximum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

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 a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

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 a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

006 = DOS/WINDOWS 80900106 = 4690 OS

Explanation: An overflow occurred. The UPLIFT TRANSACTION TOTAL exceeds the maximum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

007 = DOS/WINDOWS 80900107 = 4690 OS

Explanation: An overflow occurred. The PAYMENT TRANSACTION TOTAL exceeds the maximum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

008 = DOS/WINDOWS 80900108 = 4690 OS

Explanation: An underflow occurred. The TRANSACTION TOTAL is less than the minimum allowed value. The request is not processed.

User Response: Take action to make the total higher than the minimum allowed value.

009 = DOS/WINDOWS 80900109 = 4690 OS

Explanation: An underflow occurred. The RETURN TRANSACTION TOTAL is less than the minimum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

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 a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

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 a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

014 = DOS/WINDOWS 80900114 = 4690 OS

Explanation: An underflow occurred. The UPLIFT TRANSACTION TOTAL is less than the minimum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

015 = DOS/WINDOWS 80900115 = 4690 OS

Explanation: An underflow occurred. The PAYMENT TRANSACTION TOTAL is less than the minimum allowed value. The request is not processed.

User Response: Issue a transaccion subtotal/total (D4 cmd.) and end fiscal voucher (06 cmd.) to end the voucher.

016 = DOS/WINDOWS 80900116 = 4690 OS

Explanation: An overflow occurred. The DAILY TOTAL exceeded the maximum allowed value. The request is not processed.

User Response: Take action to make the total lower than or equal to the maximum allowed, then end the fiscal voucher (06 cmd.) and then issue a close sale period (13 cmd.).

017 = DOS/WINDOWS 80900117 = 4690 OS

Explanation: An overflow occurred. The RETURN DAILY TOTAL exceeded the maximum allowed value. The request is not processed.

User Response: Take action to make the total lower than or equal to the maximum allowed, then end the fiscal voucher (06 cmd.) and then issue a close sale period (13 cmd.).

018 = DOS/WINDOWS 80900118 = 4690 OS

Explanation: An overflow occurred. The VOIDS DAILY TOTAL exceeded the maximum allowed value. The request is not processed.

User Response: Take action to make the total lower than or equal to the maximum allowed, then end the fiscal voucher (06 cmd.) and then issue a close sale period (13 cmd.).

020 = DOS/WINDOWS 80900120 = 4690 OS

Explanation: An overflow occurred. The DISCOUNT DAILY TOTAL exceeded the maximum allowed value. The request is not processed.

User Response: Take action to make the total lower than or equal to the maximum allowed, then end the fiscal voucher (06 cmd.) and then issue a close sale period (13 cmd.).

022 = DOS/WINDOWS 80900122 = 4690 OS

Explanation: An overflow occurred. The UPLIFT DAILY TOTAL exceeded the maximum allowed value. The request is not processed.

User Response: Take action to make the total lower than or equal to the maximum allowed, then end the fiscal voucher (06 cmd.) and then issue a close sale period (13 cmd.).

024 = DOS/WINDOWS 80900124 = 4690 OS

Explanation: The user TOTAL is not equal to the fiscal TOTAL. The value associated with the TOTAL request does not reflect the total stored in the FM. The request is not processed.

User Response: Correct the computation procedure of the total and then end the fiscal voucher (06 cmd.).

026 = DOS/WINDOWS 80900126 = 4690 OS

Explanation: The transaction total is not greater than zero. The request is not processed.

User Response: Make the transaction total greater than zero.

027 = DOS/WINDOWS 8090061B = 4690 OS

Explanation: The maximum number of payments allowed in a FV was exceeded. The request is not processed.

User Response: Correct the application program.

029 = DOS/WINDOWS 80900129 = 4690 OS

Explanation: The PAYMENT total was less than the amount to be cashed. The request is not processed.

User Response: Correct the computation procedure of PAYMENT or issue a payment (D5 cmd.) to complete processing.

030 = DOS/WINDOWS 80900130 = 4690 OS

Explanation: An overflow occurred. The request is not processed.

User Response: Correct the application program and issue the request again or service the printer.

031 = DOS/WINDOWS 8090061F = 4690 OS

Explanation: An underflow occurred. The request is not processed.

User Response: Correct the application program and issue the request again or service the printer.

039 = DOS/WINDOWS 80900627 = 4690 OS

Explanation: Not allowed items sale (D2 cmd.) or negative/uplift item sale (D3 cmd.) after to issued uplift or discount on subtotal (D9 cmd.). The request is not processed.

User Response: Correct the application program.

051 = DOS/WINDOWS 80900633 = 4690 OS

Explanation: After 26 hours of opened a SP will be not allowed to start a FV (01 cmd.). The request is not processed.

User Response: Issue a close sale period (13 cmd.), start sale period (12 cmd.) and then start a FV (01 cmd.).

052 = DOS/WINDOWS 80900634 = 4690 OS

Explanation: Daylight saving time already set for requested season. The request is not processed.

User Response: Check the application program.

053 = DOS/WINDOWS 80900635 = 4690 OS

Explanation: The date requested is more than +/- 5 minutes of the current date or the date requested is not later to the date and time stamp of the last closure stored in FM. The request is not processed.

User Response: Check the date sent by the application program.

Note: Only authorized service personnel can set the date and time when outside the limits allowed.

054 = DOS/WINDOWS 80900636 = 4690 OS

Explanation: The date can be changed only one time between SPs. The request is not processed.

User Response: Check the application program.

055 = DOS/WINDOWS 80900203 = 4690 OS

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

User Response: Check the application program.

056 = DOS/WINDOWS 80900150 = 4690 OS

Explanation: An underflow occurred. The PAYMENT 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, then end the fiscal voucher (06 cmd.) and issue a close sale period (13 cmd.).

057 = DOS/WINDOWS 80900151 = 4690 OS

Explanation: An overflow occurred. The PAYMENT DAILY TOTAL exceeds the maximum allowed value. The request is not processed.

User Response: Make the total lower than or equal to the maximum allowed value, then end the fiscal voucher (06 cmd.) and 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 request 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 request again.

063 = DOS/WINDOWS 8090063F = 4690 OS

Explanation: Store/POS Id Information not set. The request is not processed.

User Response: Correct the application program. Issue set store/pos id information (1E cmd.).

064 = DOS/WINDOWS 80900127 = 4690 OS

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

User Response: Retry the operation with a correct value.

065 = DOS/WINDOWS 80900201 = 4690 OS

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

User Response: Check the application program.

066 = DOS/WINDOWS 80900202 = 4690 OS

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

User Response: Check the application program.

067 = DOS/WINDOWS 80900643 = 4690 OS

Explanation: The command was processed successfully.

User Response: None

068 = DOS/WINDOWS 80900204 = 4690 OS

Explanation: An attempt was made to print a line on the customer receipt outside a sales transaction. The request is not processed.

User Response: Check the application program.

L **069 = DOS/WINDOWS 80900205 = 4690 OS**

L **Explanation:** Comment lines inside the FV or CR non-fiscal report exceed the limit allowed. The request is L not processed.

L **User Response:** Issue end fiscal voucher (06 cmd.) or end non-fiscal report (DE cmd.).

071 = DOS/WINDOWS 80900302 = 4690 OS

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

User Response: Service the printer.

073 = DOS/WINDOWS 80900303 = 4690 OS

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

User Response: Service the printer.

074 = DOS/WINDOWS 80900208 = 4690 OS

Explanation: Close SP not allowed until the current date is later than the last daily entry stored in FM. The request is not processed.

User Response: Wait the required amount of time and issue the command again. If the problem persists, service the printer.

L **075 = DOS/WINDOWS 80900209 = 4690 OS**

L **Explanation:**

L • Printing in DI station is not allowed during a FV or CR non-fiscal report.

L • Printing in CR station is not allowed during a DI non-fiscal report.

L The request is not processed.

L **User Response:** Check the application program.

076 = DOS/WINDOWS 80900210 = 4690 OS

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

User Response: Check the application program.

081 = DOS/WINDOWS 80900651 = 4690 OS

Explanation: An invalid print mode was specified. The request is not processed.

User Response: Specify a valid print mode.

L 082 = DOS/WINDOWS 80900306 = 4690 OS

L Explanation:

L • A request was issued to print normal printing lines in DI station without the correct orientation selected.

L The request is not processed.

L **User Response:** Check the application program sequence.

083 = DOS/WINDOWS 80900307 = 4690 OS

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

User Response: Service the printer.

084 = DOS/WINDOWS 80900308 = 4690 OS

Explanation: General EJ Error.

User Response: Due to the limited number of return codes available, all commands that fails due to a problem related with EJ, just fail returning this general EJ error "84".

To know the exact reason for failure, the application must send the Get Extended EJ Error (63 cmd.) to get the specific EJ return code. Refer to 13.0, "Electronic Journal Return Codes" on page 199.

L 085 = DOS/WINDOWS 80900309 = 4690 OS

L **Explanation:** Normal printing lines in CR station are not allowed. The request is not processed.

L **User Response:** Issue a sale transaction until the payment phase is finished or a start CR non-fiscal report
L and then issue the command again.

086 = DOS/WINDOWS 80900401 = 4690 OS

Explanation: An invalid password was entered. The request is not processed.

User Response: Re-enter using the correct password.

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

087 = DOS/WINDOWS 80900657 = 4690 OS

Explanation: FV not allowed. Exceed the maximum number of FV's allowed during a SP. The request is not processed.

User Response: Close the sale period (13 cmd.) and open a new sale period (12 cmd.) for continue issuing FV's.

089 = DOS/WINDOWS 80900312 = 4690 OS

Explanation: Daily entry table in FM is full. All fiscal requests are rejected except the Historic Daily Closure Report (15 cmd.) and Electronic Read Fiscal Memory Tables (DA cmd.).

User Response: Service the printer.

090 = DOS/WINDOWS 8090065A = 4690 OS

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

User Response: Specify a valid closure number or valid dates for the Historic Daily Closure Report (15 cmd.) or Electronic Read Fiscal Memory Tables (DA cmd.).

091 = DOS/WINDOWS 80900314 = 4690 OS

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

User Response: Service the printer.

092 = DOS/WINDOWS 80900315 = 4690 OS

Explanation: Amount of discount exceed the maximum allowed. The request is not processed.

User Response: Correct the application program.

093 = DOS/WINDOWS 80900316 = 4690 OS

Explanation: Only is allowed one (1) discount item by item sale. The request is not processed.

User Response: Correct the application program.

094 = DOS/WINDOWS 80900317 = 4690 OS

Explanation: There are not item to apply void, discount or uplift. The request is not processed.

User Response: Correct the application program.

095 = DOS/WINDOWS 80900425 = 4690 OS

Explanation: Invalid data. The requested address range is invalid or wrong in the engineering dump RAM and FM (FF cmd.). The request is not processed.

User Response: Correct the input data.

096 = DOS/WINDOWS 80900140 = 4690 OS

Explanation: A numeric field contains invalid characters. The request is not processed.

User Response: Correct the value and reissue the request.

098 = DOS/WINDOWS 80900411 = 4690 OS

Explanation: Fiscal RAM restored.

User Response: Put the J4/CE jumper in STORED (OFF) position and reinitialize the printer. See 7.1, "J4/CE Jumper" on page 45.

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

099 = DOS/WINDOWS 80900318 = 4690 OS

Explanation: The maximum repairing actions number has been reached. The request is not processed.

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

100 = DOS/WINDOWS 80900329 = 4690 OS

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

User Response: Service the printer.

101 = DOS/WINDOWS 80900326 = 4690 OS

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

User Response: Service the printer.

102 = DOS/WINDOWS 80900327 = 4690 OS

Explanation: Invalid sequence.

- For Credit Card Voucher (Design 2) The cmd. extension 01 and 02 must be issued before of the cmd. extension 04.
- For Debit Card Voucher The cmd. extension 01 must be issued before of the cmd. extension 02.

The request is not processed.

User Response: Correct the application program and issue the request again.

103 = DOS/WINDOWS 80900421 = 4690 OS

Explanation: Invalid data. 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 or graphic size is invalid. The request is not processed.

User Response: Correct the barcode or graphic size and issue the command again.

107 = DOS/WINDOWS 8090066B = 4690 OS

Explanation: The Microcode EC Level table is full. The request is not processed.

User Response: Exchange the microcode EC level by the last microcode EC level stored in the microcode EC level table or exchange the FM.

108 = DOS/WINDOWS 80900328 = 4690 OS

Explanation: Store/POS Id Information table full. The request is not processed.

User Response: Change the FM.

109 = DOS/WINDOWS 80900324 = 4690 OS

Explanation: FM is not connected. The FU cannot restart processing.

User Response: Service the printer.

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

112 = DOS/WINDOWS 80900670 = 4690 OS

Explanation: The printer was reset.

User Response: No action required.

113 = DOS/WINDOWS 80900341 = 4690 OS

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

User Response: Switch **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: Invalid value in the daily entry table pointer. The request is not processed.

User Response: Put the J4/CE jumper in ACTIVE (ON) position and reinitialize the printer.

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

116 = DOS/WINDOWS 80900702 = 4690 OS

Explanation: The download graphic is corrupted. The request is not processed.

User Response: 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.

117 = DOS/WINDOWS 80900703 = 4690 OS

Explanation: Graphic with same number already in printer flash. The request is not processed.

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.

118 = DOS/WINDOWS 80900704 = 4690 OS

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

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

119 = DOS/WINDOWS 80900677 = 4690 OS

Explanation: Graphic not download. The request is not processed.

User Response: Download graphic with CA cmd. (cmd. extension 02) before printing.

120 = DOS/WINDOWS 80900678 = 4690 OS

Explanation: The printer card timed-out while executing a command.

User Response: Switch **POWER OFF** and then ON again.

If the problem persists, service the printer.

123 = DOS/WINDOWS 8090067B = 4690 OS

Explanation: Operation not valid.

Possible reasons are:

- Error reading MICR data.
- Error doing flipper function.
- MICR function not present in the printer.
- Flip function not present in the printer.

User Response: Test again with another check. If the error persists service the printer.

125 = DOS/WINDOWS 8090067D = 4690 OS

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

User Response: Service the printer.

128 = DOS/WINDOWS 80900320 = 4690 OS

Explanation: FM is not yet serialized. The requested command cannot be executed.

User Response: Service the printer.

129 = DOS/WINDOWS 80900321 = 4690 OS

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

User Response: Set fiscal mode.

If the problem persists, service the printer.

Note: Only authorized service personnel can do this procedure.

134 = DOS/WINDOWS 80900325 = 4690 OS

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

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

135 = DOS/WINDOWS 80900220 = 4690 OS

Explanation: The command is not valid outside of a SP. The request is not processed.

User Response: Correct the application program sequence.

136 = DOS/WINDOWS 80900221 = 4690 OS

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

User Response: Correct the application program sequence.

137 = DOS/WINDOWS 80900222 = 4690 OS

Explanation: The public and private keys not set. The request is not processed.

User Response: Correct the application program sequence.

138 = DOS/WINDOWS 80900223 = 4690 OS

Explanation: Payment phase not finished. The request is not processed.

User Response: Correct the application program sequence.

140 = DOS/WINDOWS 80900225 = 4690 OS

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

User Response: Correct the application program sequence.

141 = DOS/WINDOWS 80900226 = 4690 OS

Explanation: A discount/uplif on subtotal (D9 cmd.) or payment (D5 cmd.) was issued before a total (D4 cmd.). The requested command cannot be executed.

User Response: Correct the application program sequence.

142 = DOS 80900227 = 4690 OS

Explanation: The payment phase is not in progress. The request is not processed.

User Response: Correct the application program sequence.

144 = DOS/WINDOWS 80900229 = 4690 OS

Explanation: Store header not set. The request is not processed.

User Response: Correct the application program sequence.

145 = DOS/WINDOWS 80900229 = 4690 OS

Explanation: Command not accepted if the J4/CE jumper is not in ACTIVE (ON) position. The request is not processed.

User Response: Put the J4/CE jumper in ACTIVE (ON) position.

146 = DOS/WINDOWS 80900692 = 4690 OS

Explanation: Fiscal memory is in error. Serialization mismatch between RAM and EPROM.

User Response: Service the printer.

147 = DOS/WINDOWS 80900693 = 4690 OS

Explanation: Fiscal memory is in error. Fiscalization mismatch between RAM and EPROM.

User Response: Service the printer.

156 = DOS/WINDOWS 8090069C = 4690 OS

Explanation: Check printing lines would exceed the limit allowed. The request is not processed.

User Response: Correct the application program sequence.

157 = DOS/WINDOWS 8090069D = 4690 OS

Explanation: Check printing not in progress. The request is not processed.

User Response: Correct the application program sequence.

158 = DOS/WINDOWS 8090069E = 4690 OS

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

User Response: Issue a set date and time (16 cmd).

160 = DOS/WINDOWS 80900330 = 4690 OS

Explanation: FM already serialized. The requested command cannot be executed.

User Response: No action required.

161 = DOS/WINDOWS 80900331 = 4690 OS

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

User Response: No action required.

163 => DOS/WINDOWS 809006A3 => 4690 OS

Explanation: Invalid command after a printer error or PLD or invalid command after that an unrecoverable error occurred when writing to FM. The request is not processed.

User Response: After a printer error or PLD, the same command that was in progress during a printer error or PLD to be issued again. Query commands like DA, DB, F8, F9 are accepted too. After that an unrecoverable error occurred when writing to FM, service the printer.

164 = DOS/WINDOWS 80900350 = 4690 OS

Explanation: The IPL is in process.

User Response: No action required.

165 = DOS/WINDOWS 809006A5 = 4690 OS

Explanation: The send interrupted (08 cmd.) was issued without a printer error or PLD previous. The request is not processed.

User Response: Correct the application program sequence.

167 = DOS/WINDOWS 80900230 = 4690 OS

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

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

168 = DOS/WINDOWS 80900231 = 4690 OS

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

User Response: Issue the command again when the FV is completed.

169 = DOS/WINDOWS 80900232 = 4690 OS

Explanation: The public and private keys already set. The request is not processed.

User Response: Correct the application program sequence.

170 = DOS/WINDOWS 80900233 = 4690 OS

Explanation: Payment phase already finished. The request is not processed.

User Response: Correct the application program sequence.

172 = DOS/WINDOWS 80900235 = 4690 OS

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

User Response: Check the application program.

173 = DOS/WINDOWS 80900236 = 4690 OS

Explanation: Only discount/uplift on subtotal (D9 cmd.), payment (D5 cmd.) or end payment (D6 cmd.) can follow a total request. The request is not processed.

User Response: Check the application program.

174 = DOS/WINDOWS 80900237 = 4690 OS

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

User Response: Complete the PAYMENT processing.

178 = DOS/WINDOWS 809006B2 = 4690 OS

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

User Response: Service the printer.

179 = DOS/WINDOWS 809006B3 = 4690 OS

Explanation: RAM memory is in error.

User Response: Service the printer.

180 = DOS/WINDOWS 809006B4 = 4690 OS

Explanation: A invalid command sequence occurred. A command not related to a credit note was issued while a credit note is in progress. The request is not processed.

User Response: Check the application program sequence.

181 = DOS/WINDOWS 809006B5 = 4690 OS

Explanation: A invalid command sequence occurred. A command not related to a deposit money was issued while a deposit money is in progress. The request is not processed.

User Response: Check the application program sequence.

182 = DOS/WINDOWS 809006B6 = 4690 OS

Explanation: A invalid command sequence occurred. A command not related to a internal voucher was issued while a internal voucher is in progress. The request is not processed.

User Response: Check the application program sequence.

183 = DOS/WINDOWS 809006B7 = 4690 OS

Explanation: A invalid command sequence occurred. A command not related to a fee payment was issued while a fee payment is in progress. The request is not processed.

User Response: Check the application program sequence.

184 = DOS/WINDOWS 809006B8 = 4690 OS

Explanation: An invalid command sequence occurred. A command not related to a non-fiscal report was issued while a non-fiscal report is in progress. The request is not processed.

User Response: Check the application program sequence.

185 = DOS/WINDOWS 809006B9 = 4690 OS

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

User Response: Check the application program sequence.

189 = DOS/WINDOWS 809006BD = 4690 OS

Explanation: Check printing in progress. The request is not processed.

User Response: Check the application program sequence.

192 = DOS/WINDOWS 80900524 = 4690 OS

Explanation: Command reject from printer logic card.

User Response: Service the printer.

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

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

User Response: Ensure the paper is installed correctly. If the problem persists, service the printer.

202 = DOS/WINDOWS 80900527 = 4690 OS

FOR 4610 SureMark - MODEL KC4 (with DI station)

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

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

FOR 4610 SureMark - MODEL KC5 (without DI station)

Explanation: Invalid command. The request is not processed.

User Response: Correct the application program.

203 = DOS/WINDOWS 80900522 = 4690 OS

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

User Response: Close the printer cover.

If the cover is already closed, 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.

208 = DOS/WINDOWS 809006D0 = 4690 OS

Explanation: The logo or set characters is corrupted. The request is not processed.

User Response: Service the printer.

214 = DOS/WINDOWS 80900527 = 4690 OS

Explanation: A top-insert document error occurred. The request is not processed.

User Response: Ensure that the document is inserted correctly.

13.0 Electronic Journal Return Codes

Due to the limited number of return codes available, all commands that fails due to a problem related with EJ, just fail returning a general EJ error "84".

To know the reason for failure, the application must send the Get Extended EJ Error (63 cmd.) to get the following EJ return codes.

13.1 EJ Return Code Descriptions

001

Explanation: CF not present. The request is not processed.

User Response: Insert the CF and issue the command again.

002

Explanation: Not enough free space in CF. The request is not processed.

User Response: Close the current Journal Period, then replace the CF with a new one and then issue the command again.

003

Explanation: Flash Transfer Error. The request is not processed.

User Response: Retry the command. If the error persists, replace the CF, put the J4/CE jumper in ACTIVE (ON) position and reinitialize the printer.

004

Explanation: The CF was changed inside a journal period.

User Response: Put again the old one.

005 (hex 5)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

006 (hex 6)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

007 (hex 7)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

008 (hex 8)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

009 (hex 9)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

010 (hex A)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

011 (hex B)

Explanation: EJ Filename exists. The request is not processed.

User Response: Change the EJ filename and issue the command again.

012 (hex C)

Explanation: Invalid EJ Filename. The first five chars of an EJ filename specified cannot be equal to the five chars used for automatic generated EJ filenames. These chars are usually equal to the first five chars of the serial number. The request is not processed.

User Response: Change the EJ filename and issue the command again.

013 (hex D)

Explanation: Invalid Char in EJ Filename. The EJ filenames can only consist of the following chars: A to Z, a to z, 0 to 9, '-' and '_'. The request is not processed.

User Response: Change the EJ filename and issue the command again.

014 (hex E)

Explanation: Key length or command length invalid. The request is not processed.

User Response: Check the application program sequence.

015 (hex F)

Explanation: The algorithm specified is not known. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

016 (hex 10)

Explanation: The key specified is too long to be handle by the microcode. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

017 (hex 11)

Explanation: The length specified is invalid. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

018 (hex 12)

Explanation: Invalid sequence during set public and private key command. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

019 (hex 13)

Explanation: The key prime or subprime is invalid. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

020 (hex 14)

Explanation: The key base is invalid. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

021 (hex 15)

Explanation: The public and private key doesn't form a valid pair. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

022 (hex 16)

Explanation: The key prime and subprime doesn't form a valid pair. The request is not processed.

User Response: Correct the input data and issue the Set Public and Private Key (66 cmd.) again.

023 (hex 17)

Explanation: Key Table full. The request is not processed.

User Response: Change FM.

024 (hex 18)

Explanation: Key not set. The request is not processed.

User Response: Issue the Set Public and Private Key (66 cmd.).

025 (hex 19)

Explanation: Key corrupt. The request is not processed.

User Response: Change the FM.

026 (hex 1A)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

027 (hex 1B)

Explanation: File not found. The CF doesn't have any (open EJ file or get directory first file) or more (get directory next file) file matching the filename specified. The request is not processed.

User Response: (none).

028 (hex 1C)

Explanation: Invalid filename characters. The filename specified includes invalid characters. The request is not processed.

User Response: Correct the application program.

029 (hex 1D)

Explanation: EJ file already open. There is one EJ file currently open. The request is not processed.

User Response: Correct the application program.

030 (hex 1E)

Explanation: EJ file not open. There is no one EJ file open. The request is not processed.

User Response: Correct the application program.

031 (hex 1F)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

032 (hex 20)

Explanation: Invalid EJ file attributes. The EJ file attribute requested is invalid. The request is not processed.

User Response: Correct the application program.

034 (hex 22)

Explanation: Internal Error. The request is not processed.

User Response: Service the printer.

035 (hex 23)

Explanation: The current Journal Period must be closed. The request is not processed.

User Response: Close the Journal Period.

036 (hex 24)

Explanation: Internal error.

User Response: Service the printer.

037 (hex 25)

Explanation: Invalid sequence reading EJ file.

User Response: The sequence must be "0" (first block), "n" (again the last read block) or "n + 1" (read the next block).

038 (hex 26)

Explanation: CF hardware error. It didn't pass the diagnostic test.

User Response: Insert a new CF.

040 (hex 28)

Explanation: CF hardware error.

User Response: Issue the command again. If the problem persists, remove and insert the CF and reissue the command.

041 (hex 29)

Explanation: The arch attribute state specified is invalid.

User Response: Select the correct arch attribute state and issue the command again.

043 (hex 2B)

Explanation: CF not ready.

User Response: Issue the command again.

066 (hex 42)

Explanation: Internal error. The request is not processed.

User Response: Change the CF or service the printer.

13.2 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 12.0, "Fiscal Unit Return Codes" on page 181.

4690 OS	DOS/WINDOWS	4690 OS	DOS/WINDOWS	4690 OS	DOS/WINDOWS
80900006	N/A	80900235	172	8090067B	123
80900007	N/A	80900236	173	8090067D	125
80900008	N/A	80900237	174	80900692	146
80900009	N/A	80900302	071	80900693	147
80900100	000	80900303	073	8090069C	156
80900101	001	80900306	082	8090069D	157
80900102	002	80900307	083	8090069E	158
80900103	003	80900308	084	809006A3	163
80900104	004	L 80900309	085	809006A5	165
80900105	005	80900312	089	809006B2	178
80900106	006	80900314	091	809006B3	179
80900107	007	80900318	099	809006B8	184
80900108	008	80900320	128	809006BD	189
80900109	009	80900321	129	809006D0	208
80900110	010	80900324	109	80900701	115
80900111	011	80900325	134	80900702	116
80900112	012	80900326	101	80900703	117
80900113	013	80900328	108	80900704	118
80900114	014	80900329	100	8090070D	200
80900115	015	80900330	160	Table 2. 4690 OS to DOS/WINDOWS	
80900116	016	80900331	161		
80900117	017	80900341	113		
80900118	018	80900350	164		
80900119	019	80900360	104		
80900120	020	80900361	105		
80900121	021	80900363	114		
80900122	022	80900401	086		
80900124	024	80900411	098		
80900126	026	80900421	103		
80900127	064	80900425	095		
80900129	029	80900521	194		
80900130	030	80900522	203		
80900140	096	80900524	192		
80900150	056	80900526	205		
80900151	057	80900527	202		
80900201	065	80900527	214		
80900202	066	8090061B	027		
80900203	055	8090061F	031		
80900204	068	80900627	039		
80900205	069	80900633	051		
80900208	074	80900634	052		
80900209	075	80900635	053		
80900210	076	80900636	054		
80900220	135	8090063A	058		
80900221	136	8090063B	059		
80900222	137	8090063F	063		
80900223	138	80900643	067		
80900225	140	80900651	081		
80900226	141	80900657	087		
80900227	142	8090065A	090		
80900229	144	8090066B	107		
80900230	167	80900670	112		
80900231	168	80900677	119		
80900232	169	80900678	120		

14.0 Electronic Journal File

14.1 Electronic Journal File Format

The information stored in the EJ file is:

DESCRIPTION	BYTE	LOCATIONS	OBSERVATIONS	VARIABLE NAME
	FROM	TO	QT.	
* RECORD HEADER				
Record Type	1	4	4	Constant BDA331E9 * CF_BDA331E9_RecType (Note 5)
* RECORD EC LEVEL				
Record Type	1	1	1	Constant 00 * CF_00_RecType (Note 5)
Microcode EC Ext. Level	2	2	1	* CF_00_Ext_Level (Note 5)
* RECORD STORE NAME				
Record Type	1	1	1	Constant 02 * CF_02_RecType (Note 5)
Name/Store Name Issuer	2	45	44	* CF_02_Name (Note 6)
* RECORD RUT NUMBER				
Record Type	1	1	1	Constant 04 * CF_04_RecType (Note 5)
RUT Issuer Number	2	9	8	* CF_04_RUT (Note 6)
RUT Issuer Verif. Number	10	10	1	* CF_04_RUT_V (Note 6)
* RECORD POS ID				
Record Type	1	1	1	Constant 06 * CF_06_RecType (Note 5)
POS Id Number	2	5	4	* CF_06_POSId (Note 6)
* RECORD SERIAL NUMBER				
Record Type	1	1	1	Constant 08 * CF_08_RecType (Note 5)
Serial Number	2	11	10	* CF_08_SerNum (Note 6)
* RECORD CLOSURE NUMBER				
Record Type	1	1	1	Constant 20 * CF_20_RecType (Note 5)
Closure Number	2	3	2	* CF_20_N_Clos (Note 8)
* RECORD DATE/TIME				
Record Type	1	1	1	Constant 22 * CF_22_RecType (Note 5)
Closure Date and Time	2	5	4	* CF_22_Clos_DaTi (Note 7)
* RECORD DAILY TOTAL				
Record Type	1	1	1	Constant 24 * CF_24_RecType (Note 5)
Daily Total	2	7	6	* CF_24_Day_Total (Note 8)
* RECORD DONATION TOTAL				
Record Type	1	1	1	Constant 26 * CF_26_RecType (Note 5)
Donation Total	2	7	6	* CF_26_Donat_Total (Note 8)
* RECORD GRAND TOTAL				
Record Type	1	1	1	Constant 28 * CF_28_RecType (Note 5)
Grand Total	2	9	8	* CF_28_Grand_Total (Note 8)
* RECORD FIRST VOUCHER				
Record Type	1	1	1	Constant 2A * CF_2A_RecType (Note 5)
First Voucher Number	2	5	4	* CF_2A_N_FVouc (Note 8)
* RECORD LAST VOUCHER				
Record Type	1	1	1	Constant 2C * CF_2C_RecType (Note 5)
Last Voucher Number	2	5	4	* CF_2C_N_LVouc (Note 8)

(Continued in the next page)

Electronic Journal File continued...

DESCRIPTION	* BYTE LOCATIONS *			OBSERVATIONS	VARIABLE NAME	
	FROM	TO	QT.			
* RECORD REPAIR ACTION * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 2E	* CF_2E_RecType	* (Note 5)
* Number of Repair Actions	* 2	* 2	* 1	*	* CF_2E_N_Ract	* (Note 8)
* RECORD TRANSACTION * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 30	* CF_30_RecType	* (Note 5)
* Transaction Number	* 2	* 5	* 4	*	* CF_30_N_Slip	* (Note 8)
* RECORD DAILY NUMBER - AUTOMATIC FISCAL VOUCHER * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 36	* CF_36_RecType	* (Note 5)
* Number of Automatic F.V.	* 2	* 3	* 2	*	* CF_36_N_AutVouc	* (Note 8)
* RECORD DAILY TOTAL - AUTOMATIC FISCAL VOUCHER * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 38	* CF_38_RecType	* (Note 5)
* Daily Total	* 2	* 7	* 6	*	* CF_38_AutVouc_Total	* (Note 8)
* RECORD LIFETIME NUMBER - AUTOMATIC FISCAL VOUCHER * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 3A	* CF_3A_RecType	* (Note 5)
* Number of Automatic F.V.	* 2	* 5	* 4	*	* CF_3A_N_AutVouc	* (Note 8)
* RECORD LIFETIME TOTAL - AUTOMATIC FISCAL VOUCHER * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 3C	* CF_3C_RecType	* (Note 5)
* Grand Total	* 2	* 9	* 8	*	* CF_3C_AutVouc_Grand_Total	* (Note 8)
* RECORD DAILY PAYMENT TOTALS * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 32	* CF_32_RecType	* (Note 5)
* Payment CASH	* 2	* 7	* 6	*	* CF_32_Pay_Total_0	* (Note 8)
* Payment CHECK	* 8	* 13	* 6	*	* CF_32_Pay_Total_1	* (Note 8)
* Payment CREDIT CARD	* 14	* 19	* 6	*	* CF_32_Pay_Total_2	* (Note 8)
* Payment DEBIT CARD	* 20	* 25	* 6	*	* CF_32_Pay_Total_3	* (Note 8)
* Payment OWNER CARD	* 26	* 31	* 6	*	* CF_32_Pay_Total_4	* (Note 8)
* Payment COUPON	* 32	* 37	* 6	*	* CF_32_Pay_Total_5	* (Note 8)
* Payment OTHERS 1	* 38	* 43	* 6	*	* CF_32_Pay_Total_6	* (Note 8)
* Payment OTHERS 2	* 44	* 49	* 6	*	* CF_32_Pay_Total_7	* (Note 8)
* Payment OTHERS 3	* 50	* 55	* 6	*	* CF_32_Pay_Total_8	* (Note 8)
* Payment OTHERS 4	* 56	* 61	* 6	*	* CF_32_Pay_Total_9	* (Note 8)
* RECORD LIFETIME PAYMENT TOTALS * (Note 1)						
* Record Type	* 1	* 1	* 1	* Constant 34	* CF_34_RecType	* (Note 5)
* Payment CASH	* 2	* 9	* 8	*	* CF_34_Pay_Total_0	* (Note 8)
* Payment CHECK	* 10	* 17	* 8	*	* CF_34_Pay_Total_1	* (Note 8)
* Payment CREDIT CARD	* 18	* 25	* 8	*	* CF_34_Pay_Total_2	* (Note 8)
* Payment DEBIT CARD	* 26	* 33	* 8	*	* CF_34_Pay_Total_3	* (Note 8)
* Payment OWNER CARD	* 34	* 41	* 8	*	* CF_34_Pay_Total_4	* (Note 8)
* Payment COUPON	* 42	* 49	* 8	*	* CF_34_Pay_Total_5	* (Note 8)
* Payment OTHERS 1	* 50	* 57	* 8	*	* CF_34_Pay_Total_6	* (Note 8)
* Payment OTHERS 2	* 58	* 65	* 8	*	* CF_34_Pay_Total_7	* (Note 8)
* Payment OTHERS 3	* 66	* 73	* 8	*	* CF_34_Pay_Total_8	* (Note 8)
* Payment OTHERS 4	* 74	* 81	* 8	*	* CF_34_Pay_Total_9	* (Note 8)

(Continued in the next page)

Electronic Journal File continued...

DESCRIPTION	BYTE	LOCATIONS	OBSERVATIONS	VARIABLE NAME
	FROM	TO	QT.	
* RECORD DAILY CREDIT NOTE * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 70	* CF_70_RecType * (Note 5)
* Number of Credit Note	* 2	* 3	* 2 *	* CF_70_N_CNot * (Note 8)
* Credit Note Total	* 4	* 9	* 6 *	* CF_70_CNot_Total * (Note 8)
* RECORD LIFETIME CREDIT NOTE * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 72	* CF_72_RecType * (Note 5)
* Last Credit Note Number	* 2	* 5	* 4 *	* CF_72_N_CNot * (Note 8)
* Credit Note Total	* 6	* 13	* 8 *	* CF_72_CNot_Total * (Note 8)
* RECORD DAILY DEPOSIT MONEY * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 74	* CF_74_RecType * (Note 5)
* Number of Deposit Money	* 2	* 3	* 2 *	* CF_74_N_DMon * (Note 8)
* Deposit Money Total	* 4	* 9	* 6 *	* CF_74_DMon_Total * (Note 8)
* RECORD LIFETIME DEPOSIT MONEY * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 76	* CF_76_RecType * (Note 5)
* Last Dep. Money Number	* 2	* 5	* 4 *	* CF_76_N_DMon * (Note 8)
* Deposit Money Total	* 6	* 13	* 8 *	* CF_76_DMon_Total * (Note 8)
* RECORD DAILY INTERNAL VOUCHER * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 78	* CF_78_RecType * (Note 5)
* Number of Int. Voucher	* 2	* 3	* 2 *	* CF_78_N_IVou * (Note 8)
* Internal Voucher Total	* 4	* 9	* 6 *	* CF_78_IVou_Total * (Note 8)
* RECORD LIFETIME INTERNAL VOUCHER * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 7A	* CF_7A_RecType * (Note 5)
* Last Int. Voucher Number	* 2	* 5	* 4 *	* CF_7A_N_IVou * (Note 8)
* Internal Voucher Total	* 6	* 13	* 8 *	* CF_7A_IVou_Total * (Note 8)
* RECORD DAILY FEE PAYMENT * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 7C	* CF_7C_RecType * (Note 5)
* Number of Fee Payment	* 2	* 3	* 2 *	* CF_7C_N_FPay * (Note 8)
* Fee Payment Total	* 4	* 9	* 6 *	* CF_7C_FPay_Total * (Note 8)
* RECORD LIFETIME FEE PAYMENT * (Note 1)				
* Record Type	* 1	* 1	* 1 * Constant 7E	* CF_7E_RecType * (Note 5)
* Last Fee Payment Number	* 2	* 5	* 4 *	* CF_7E_N_FPay * (Note 8)
* Fee Payment Total	* 6	* 13	* 8 *	* CF_7E_FPay_Total * (Note 8)

(Continued in the next page)

Electronic Journal File continued...

```

-----
*          *          *          *          *          *          *
*   DESCRIPTION   *  BYTE LOCATIONS *  OBSERVATIONS *  VARIABLE NAME *
*          *          *  FROM * TO * QT. *          *
*-----*-----*-----*-----*-----*-----*
* RECORD DAILY NEGATIVE/UPLIFT ITEMS * (Note 1)
* Record Type * 1 * 1 * 1 * Constant 80 * CF_80_RecType * (Note 5)
* Returned Total * 2 * 7 * 6 * * CF_80_Retrn_Total * (Note 8)
* Voided Total * 8 * 13 * 6 * * CF_80_Void_Total * (Note 8)
* Discounted Total * 14 * 19 * 6 * * CF_80_Disc_Total * (Note 8)
* Uplifted Total * 20 * 25 * 6 * * CF_80_Uplf_Total * (Note 8)
*-----*-----*-----*-----*-----*
* RECORD LIFETIME NEGATIVE/UPLIFT ITEMS * (Note 1)
* Record Type * 1 * 1 * 1 * Constant 82 * CF_82_RecType * (Note 5)
* Returned Total * 2 * 9 * 8 * * CF_82_Retrn_Total * (Note 8)
* Voided Total * 10 * 17 * 8 * * CF_82_Void_Total * (Note 8)
* Discounted Total * 18 * 25 * 8 * * CF_82_Disc_Total * (Note 8)
* Uplifted Total * 26 * 33 * 8 * * CF_82_Uplf_Total * (Note 8)
*-----*-----*-----*-----*
* RECORD DAILY NEGATIVE/UPLIFT ON SUBTOTAL * (Note 1)
* Record Type * 1 * 1 * 1 * Constant 84 * CF_84_RecType * (Note 5)
* Discounted Total * 2 * 7 * 6 * * CF_84_Tdsc_Total * (Note 8)
* Uplifted Total * 8 * 13 * 6 * * CF_84_Tupl_Total * (Note 8)
*-----*-----*-----*-----*
* RECORD LIFETIME NEGATIVE/UPLIFT ON SUBTOTAL * (Note 1)
* Record Type * 1 * 1 * 1 * Constant 86 * CF_86_RecType * (Note 5)
* Discounted Total * 2 * 9 * 8 * * CF_86_Tdsc_Total * (Note 8)
* Uplifted Total * 10 * 17 * 8 * * CF_86_Tupl_Total * (Note 8)
*-----*-----*-----*-----*

```

(Continued in the next page)

Electronic Journal File continued...

DESCRIPTION	BYTE	LOCATIONS	OBSERVATIONS	VARIABLE NAME
	FROM	TO	QT.	
* RECORD FISCAL VOUCHER * (Note 2)				
* Record Type	* 1	* 1	* 1	* Constant 40 * CF_40_RecType(nnn) * (Note 5)
* F. Voucher Date and Time	* 2	* 5	* 4	* CF_40_Vouc_Dati(nnn) * (Note 7)
* F. Voucher Number	* 6	* 9	* 4	* CF_40_N_Vouc(nnn) * (Note 8)
* F. Voucher Total	* 10	* 13	* 4	* CF_40_Vouc_Total(nnn) * (Note 8)
* RECORD AUTOMATIC FISCAL VOUCHER * (Note 2)				
* Record Type	* 1	* 1	* 1	* Constant 42 * CF_42_RecType(nnn) * (Note 5)
* F. Voucher Date and Time	* 2	* 5	* 4	* CF_42_Vouc_Dati(nnn) * (Note 7)
* F. Voucher Number	* 6	* 9	* 4	* CF_42_N_Vouc(nnn) * (Note 8)
* F. Voucher Total	* 10	* 13	* 4	* CF_42_Vouc_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT CASH * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 50 * CF_50_RecType * (Note 5)
* Payment CASH	* 2	* 5	* 4	* CF_50_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT CHECK * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 52 * CF_52_RecType * (Note 5)
* Payment CHECK	* 2	* 5	* 4	* CF_52_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT CREDIT CARD * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 54 * CF_54_RecType * (Note 5)
* Payment CREDIT CARD	* 2	* 5	* 4	* CF_54_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT DEBIT CARD * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 56 * CF_56_RecType * (Note 5)
* Payment DEBIT CARD	* 2	* 5	* 4	* CF_56_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT OWNER CARD * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 58 * CF_58_RecType * (Note 5)
* Payment OWNER CARD	* 2	* 5	* 4	* CF_58_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT COUPON * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 5A * CF_5A_RecType * (Note 5)
* Payment COUPON	* 2	* 5	* 4	* CF_5A_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT OTHERS 1 * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 5C * CF_5C_RecType * (Note 5)
* Payment OTHERS 1	* 2	* 5	* 4	* CF_5C_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT OTHERS 2 * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 5E * CF_5E_RecType * (Note 5)
* Payment OTHERS 2	* 2	* 5	* 4	* CF_5E_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT OTHERS 3 * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 60 * CF_60_RecType * (Note 5)
* Payment OTHERS 3	* 2	* 5	* 4	* CF_60_Pay_Total(nnn) * (Note 8)
* RECORD VOUCHER PAYMENT OTHERS 4 * (Note 9)				
* Record Type	* 1	* 1	* 1	* Constant 62 * CF_62_RecType * (Note 5)
* Payment OTHERS 4	* 2	* 5	* 4	* CF_62_Pay_Total(nnn) * (Note 8)

(Continued in the next page)

Electronic Journal File continued...

DESCRIPTION	BYTE	LOCATIONS	OBSERVATIONS	VARIABLE NAME
	FROM	TO	QT.	
* RECORD PUBLIC KEY				
* Record Type	* 1	* 1	* 1	* Constant E2
* Key Type	* 2	* 2	* 1	* Constant E2
* Subprime	* 3	* 22	* 20	* Constant E2
* Prime	* 23	* 86	* 64	* Constant E2
* Base	* 87	* 150	* 64	* Constant E2
* Public Key	* 151	* 214	* 64	* Constant E2
* Record Type	* 215	* 215	* 1	* Constant E2
* RECORD SIGNATURE				
* Record Type	* 1	* 1	* 1	* Constant E4
* Signature	* 2	* 41	* 40	* Constant E4
* Record Type	* 42	* 42	* 1	* Constant E4
* RECORD END OF FILE				
* Record Type	* 1	* 1	* 1	* Constant E6
* Public Key Length	* 2	* 3	* 2	* Constant E6
* Signature Length	* 4	* 5	* 2	* Constant E6
* Uncompressed Data Length	* 6	* 9	* 4	* Constant E6
* Record Type	* 10	* 10	* 1	* Constant E6

(Continued in the next page)

Electronic Journal File continued...

Note 1: One record by SP.

Note 2: One record by each FV issued during a SP.
nnn = 000 up to (Day_N_Vouc - 1).

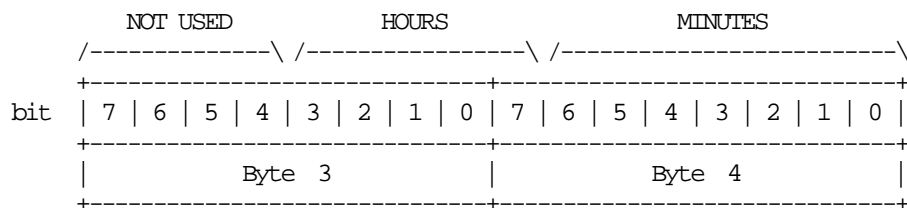
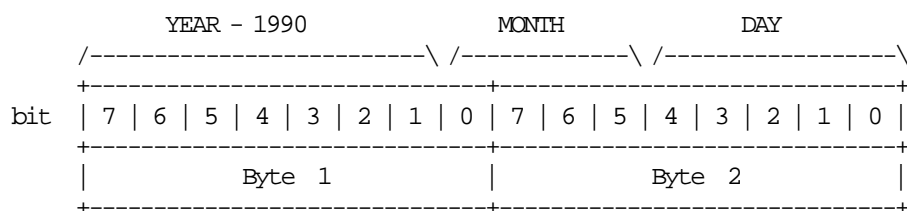
Note 3: The public key is type 1 (Hashing: SHA-1, Digital Signature: DSA 512 bits).

Note 4: The most significant byte is located at the end of the field.

Note 5: Value represents hexadecimal data is stored as binary.

Note 6: Value represents alphanumeric data is stored as binary.

Note 7: The date and time format is:



Note 8: Value represents numeric data is stored as binary.

Note 9: This record is related to the previous "RECORD FISCAL VOUCHER".

14.2 Electronic Journal File Name

The saved file in the CF will be named as follows:

Short format: IBM~ cccc.EJ

Large format: IBM CL Serial-ssssssssss cccc.EJm

Where:

cccc = Closure Number

s..s = Manufacturer ID, IBM Manufacturing ID and Serial Number

m = "T" (training mode) or "F" (fiscal mode)

15.0 Suggestions for Application Developers

This chapter is to suggest some hints for the application programs to improve the performance.

- The usage of the emphasized and double-high characters should be minimized in order to reduce the printing time, due to the lines that contains such characters take four times more than the regular printing.
- If the totals in regular vouchers are calculated by the application instead of be requested to the FP, generally takes less time.
- **ONLY FOR RS-485 AND RS-232**
After a PLD, read the "PLD STATUS" bit to determine if the last command sent before the PLD was executed or not. This should avoid duplication of interrupted commands.
For 4610 SureMark RS-232 - KC4/KC5 Models: see 4.1, "For KC4/KC5 Models (RS-232)" on page 31 (byte 8 - bit 4).
For 4610 SureMark RS-485 - KS4/KS5 Models: see 4.3, "For KS4/KS5 Models (RS-485)" on page 34 (byte 6 - bit 4).
- We recommend the usage the DA (Electronic Read Fiscal Memory Tables and Electronic Journal Records) and DB (Electronic Read Counters and Accumulators) commands after any type of interrupts, like power down, paper out to determine the state of the FP and the values of internal counters and accumulators to allow the continuation of the current document in progress, if any.
FM tables can also be interrogated.
- In some countries, all the header lines are not mandatory, so the use of less lines result in a better performance.