4 WORKING MODES

During a call (incoming or outgoing), the TMI performs two identifications: at the beginning and at the end of the call. Only the second identification could cause a blockage of the line.

In any case if we start from the stand-by state. In this state the TMI is disconnected from the exchange and powered up by the own UI. The only two ways of going out of this state are:

- Incoming call.
- TMI communication answer.

4.1 INCOMING CALL

When the UI detects the incoming call current, the following actions are done:

- The UI connects the pair to the exchange up to 70 seconds meanwhile the handset is not picked up.
- If the handset is not picked up during 70 seconds, the TMI will return automatically to the standby state (artificial line).
- If the handset is picked up during this time-out, the UI will perform all the identification sequence, isolating the TMI from the exchange, and at the same time holding back the incoming call.
- If the identification is correct, the UI will connect the link to the TMI till the TMI will decide to contact again with the UI.
- If the identification is considered as not correct, the UI passes to the standby state, and the link is released. The 70 seconds time-out in cancelled.
- If the message is received correctly but the identification does not match, the UI sends the sequence WACK-NACK, and passes to the standby state with artificial line, the link is released. The 70 seconds time-out in cancelled.
- Once the call has finished, reception of the hung-up signal, the TMI has to do another identification, if the result is positive, the UI passes to the standby state, if not the UI increases its frauds counter and also goes to the standby state. If the counter threshold (5) is crossed the UI will pass to the blocked line state.

4.2 PICKING UP THE HANDSET

Once the handset has been picked up, the TMI can send the messages TT (start of the call) or TY (UI test). If the result of the test result are correct, the UI goes to the identified state, and connects the TMI to the exchange, then the UI will wait for the TMI hung-up.

4.3 TMI TEST

The TMI can send the UI test message after the communication demand. Then ,the UI could answer with the display message (TM) and will connect the TMI to the exchange in any case. These calls are considered as normal outgoing calls, but at the end of the call, no TF message (end of call message) is generated.Then the Ui will pass to the standby state regarding this TMI.

4.4 FRAUD IDENTIFICATION

When the user hang up, the TMI sends the message TF that indicates to the UI the call has finished. In this message are included between other fields , the following: three digits identification number and the FRAUD fields. This last field indicates to the UI that a fraud has been detected during the call (no reception of charging pulses when expected, reception of charging pulses when not expected, and others).

The UI fraud counter is increases when:

1) No reception of the TF message at the end of the call.

2) Incorrect three digits identification number.

3) The filed FRAUD of the TF message indicates that the TMI has detected fraud.

If the counter threshold (5) is crossed the UI will pass to the blocked line state.

4.5 BLOCKED LINE STATE

Once this state is reached, the very first time the TMI tries to communicates with the UI, this in the answer message to the TMI identification message, the TT message will communicate to the TMI the state of the line.

With this the TMI activates the alarm LINE BLOCKED, and sends it to the SETM.

To send the alarm message to the SETM, because the line is not released, the TMI acts in a different manner. It send the TY message that unblocks the line only for the send of the alarm message, then the TMI communicates with the SETM, and send the alarm message TA.

Once this message has been sent the UI passes again to the blocked state.

From this moment on, each time the TMI tries to perform a call (off-hook + TT message), the UI answers with the sequence WACK-DC1, that will be understood by the TMI as line blocked. With this the following message will be displayed at the TMI:

OUT OF SERVICE

To go out of this state, is necessary to act the alarm button located in the associated UIL. With this the counter is set to the value zero, and the UI will not answer to the TMI with the answer WACK-DC1 when it tries to communicate. At the same time the TMI sets its alarm flag to 0, and is ready to perform a normal service.

Anti-line Tapping (ALT)

This equipment should be placed at the exchange and it is hardware. Normally, 1 set of Anti-line Tapping can handle up to 9 payphones.

So, if 800 payphones should be equipped with this feature, 800/9 = 89 units. Anyway, we supply 90 units to make sure that 800 lines are covered adequately.

Please see "Identification Unit (UI)" for more information.

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5 ELECTRICAL CHARACTERISTICS

5.1 .A.C. CHARACTERISTICS

5.1.1 INPUT IMPEDANCE

In the loop condition, the UI has an input impedance that is equivalent to a return losses of 14 dB, measured regarding 600 ohm in the frequency range that goes from 300 to 3400 Hz.

The return losses requirement are measured with A.C. up to 2,5 V added to 66 VDC through a 220 ohm resistor. If once these conditions are stablished and the current overpasses the value of 125 mA, a check will be done with this current through the equipment.

For the UILs (lines 1 to 9), the impedance that the UI gives to the TMI pair is so that the return losses are not lower then 14 dB with a 600 ohm resistor for modem frequencies.

5.1.2 INSERTION LOSSES

The maximum attenuation for frequencies between 300 and 3400 Hz is 0,5 dB in the UILs.

5.1.3. LONGITUDINAL SYMMETRY

Both, in the handset hung up or handset picked up states, the ground impedance unbalanced of each terminal, measured according to the CCITT Q45 recommendation according to the bandwidth, are:

from 40 to 300 Hz: > 40 dB

from 300 to 600 Hz: > 50 dB

from 600 to 3.400 Hz: > 55 dB

As test signal a 7,75 Vrms AC voltage is used, with common power supply mode and with an output impedance of 300 ohms at each branch.

5.2 D.C. CHARACTERISTICS

5.2.1. POLARITY

The parameters that are going to be explained, must be understood with independence of the polarity applied on the line terminals (exchange side).

5.2.2 CURRENT LINE DETECTOR (TMI SIDE)

The maximum resistance the equipment gives is 50 ohms. It will detects currents under 18 and 100 mA. No detection is performed under 4 mA.

5.3 LINES´ INCOMING CALL CURRENT PROTECTION CHARACTERISTICS

5.3.1 INPUT IMPEDANCE

In the hung up condition the impedance of the system with a signal of 75 V rms and 25 Hz is greater than 30 KOhms. This is not applicable to the bell device that has a established value of 4 KOhms.

5.3.2. MAXIMUM CURRENT

The equipment shall be able to withstand the power resulting from applying 66 V DC added to 135 V rms AC to the line terminals, via a 500 Ohm resistor, during approximately 2 seconds after hanging over from the stand by condition to the seized condition. The AC frequency shall be between 16 and 55 Hz.

5.3.3 INCOMING CALL DETECTOR

The call detector informs the terminal about the incoming call.

The electrical parameters must be as follows:

5.3.3.1 STAND-BY LINE CONDITION DETECTOR

When the line is in the STAND-BY state, the detector satisfies the following impedance requirements: > 10 Kohms for a 75 Vrms and 25 Hz signal.

5.3.3.2. INCOMING CALL CURRENT DETECTOR INSENSITIVITY

The incoming call current detector is not activated when in the STAND-BY line state the following signals are applied to the line terminals:

- Call current signals: as specified , but with a duration shorter than 100 msec and repeated with a minimum interval of a second.
- Continuous signals made up with 25 to 66 V DC added with up to 17 Vrms.
- Noise pulses with a duration between 10 and 100 msec, applied in a unique way and with peak voltages up to 100 V.
- Loop make/break coming from the pulse dialing generated by the TMI.

5.4 POWER FEEDING CHARACTERISTICS

5.4.1 LOCAL POWER FEEDING BRIDGE

At the very moment after the handset is picked up and when the communication between the TMI and the UI is being produced, the UI gives a local power feeding with the following characteristics:

-Tension: central battery, between -40,5 and -60 VDC.

-Current: > 20 mA and < to 30 mA.

5.4.2 POWER FEEDING

The equipment works with a tension of -48 V with limits of -40,5 and -60 V as upper and lower limits respectively. Anyway it support without limits limitations tensions between 0 and -66 V without damage, coming back to its normal state when normal tension and applied again.

It also bears 200 DC during a lapse shorter than 100 microseconds.

5.5 PROTECTION AGAINST ELECTRICAL DISCHARGES

With both hung up or picked up state, or equivalents states, the equipment shall withstand at the line terminals, the application of 10 discharges with alternating polarity, at a rate of one minute each. The open circuit discharger shall give a voltage of 1500 VDC.

peak voltage, with a rise time of 50 % of 1 µsec with a stored power of 20 Joules. The discharger short-circuit current is 100 A.

5.6 ISOLATION

All the lines connected with the PSTN have galvanic isolation between themselves and ground.

The lines connected to the TMIs will not have galvanic isolation if they are not activated directly from the exchange. These lines are isolated when the UI is switched off or are connected with the exchange.

5.7 MECHANICS

The frame has capacity for 3 UILs with the following basic characteristics:

-Outdoor dimensions: 253mm (wide), 111mm (high), 154mm (deep)

-Frontal access.

-Posibility to be hung or located on a support.

-Access to all the connections with the withdrawal of the upper front.

-The equipment has been designed to be connected with standard cable gauge (diameter range from 0,4 to 0,7 mm).

5.8. CLIMATIC CHARACTERISTICS

5.8.1 OPERATING CONDITIONS

The correct temperature operation range of the UI goes from 0 °C to 60° C and 95% humidity without condensation.

5.8.2 EXTREME CONDITIONS

Within the range of -10° C to +70° C and 97,5% relative humidity, the UI operates with a reduction of the quality level but without permanent alteration.

6 COMMUNICATION PROTOCOL

In This chapter is going to be described the protocol communication and the message structure.

6.1 LINK LEVEL

The basic characteristics of the protocol are:

Transmission protocol	V23
Transmission mode	semiduplex
Transmission speed	1163 ± 5 bps
Modulation	Frequency modulation
Carriers	-1 Symbol(standby): 1300 Hz -0 Symbol(working): 2100 Hz
Transmitter frequency tolerance	±10 Hz from nominal
Receiver frequency tolerance	±16 Hz from nominal
Emission power level	-6 dBm ± 2 dBm.
Answer time from open to close	from 10 to 20 ms.
Answer time from close to open	from 5 to 16 ms.
Character coding	ASCII (8 bits)
Structure of the sent character	-star bit ("0") -ASCII character -parity bit (odd) -stop bit ("1")
Data channel threshold detector	> -43 dBm. < -48 dBm.

6.2 MESSAGE STRUCTURE

The message is formed by blocks and these by parameters and these by characters.

Block structure:

-Control character(STX).

-Message identifier(if it is the first block of the message)

-Content.

-End of block(ETB) or message (ETX).

-Longitudinal parity (BCC). 2 Module 2 of the transmitted character but STX.

The maximum size of a bloc is 250 characters, and the minimum size is 4 characters.

6.3 FLOW MESSAGE CONTROL PROCEDURE

The following elements are defined.

MASTER: Element that star the conversation.

SLAVE: Element the receives the messages that the Master transmit.

The switching between MASTER and SLAVE is performed when the master send the character DLE.

When the slave receives the Master call signal, it performs the following actions:

- To set the carrier.
- After 750 ms it sends a control character ENQ.
- It keeps the carrier during 10 ms.
- It switches to reception.
- It opens a time-out of 500 ms.

If there is not a valid reception, the process is repeated up to three times, and then the Slave passes to the rest state.

If the Master receives the ENQ, then sends the message and passes to reception.

Once the message has been received, the Slave will answer with one of these options:

- NACK Bad Transmission, the message is not accepted.(parity failure).
- WACKNo transmission errors, the block is accepted (without to check the inside)
- WACK-ACK Acceptance of the message content.
- WACK-NACK The message is not accepted because the content is not correct but the transmission was good.

- WACK-DC1 Valid message content and line blocked.

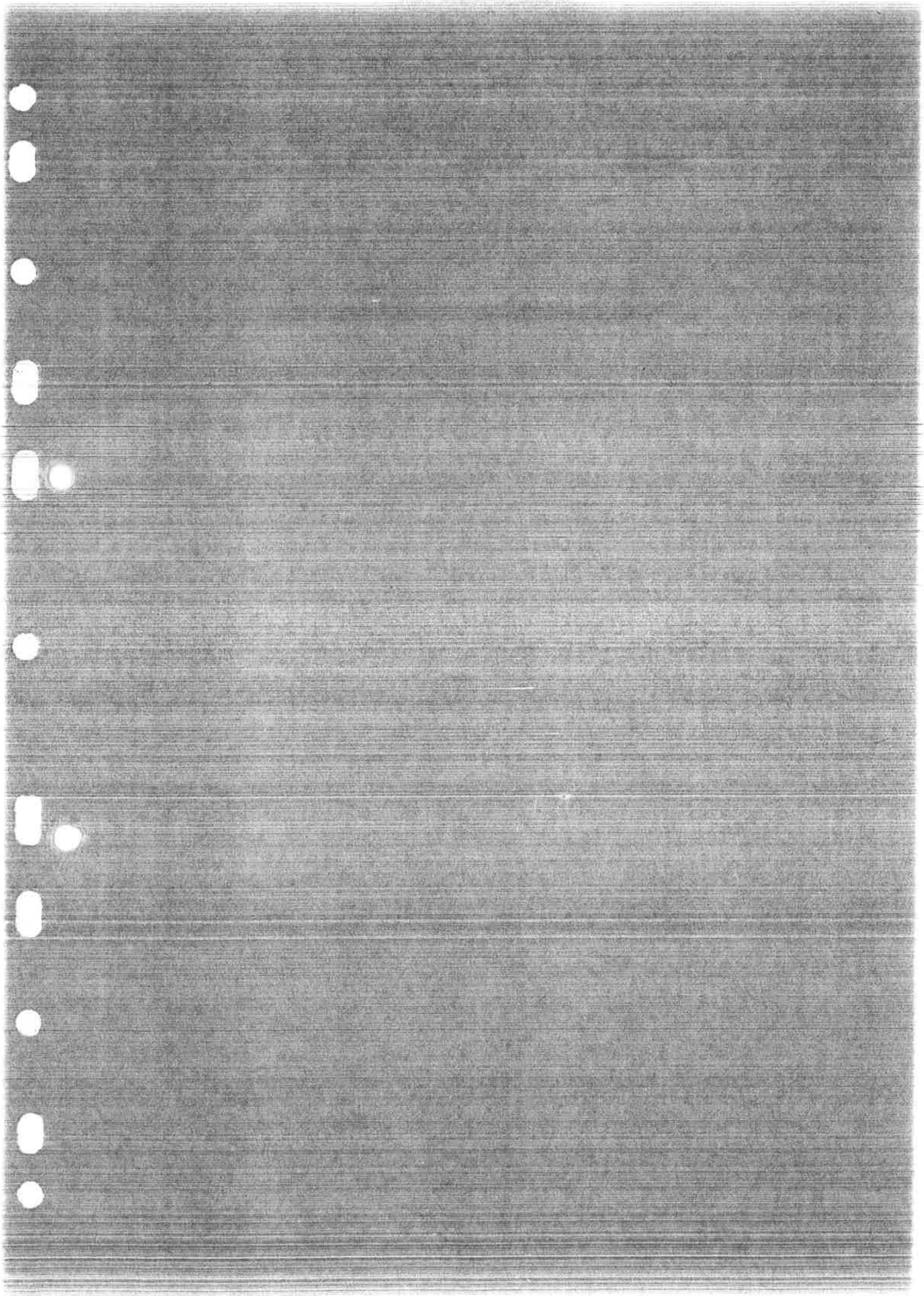
In this situation the Master can answer only with one of these options:

1. -To send a message (if any)
2. -To send the character EOT, that indicates the end of the communication and the pass to the rest state.
3. -To send HOLD characters (one each 30 seconds as maximum) that indicates to the Slave to keep in the reception state because the Master is checking if it has anything more to send..When the Slave receives the character HOLD it opens a time-out of 30 seconds, if no message of HOLD character is received it goes to the rest state.

When a message or block is rejected, it is send again up o 3 times before to go to the rest state.

The ASCII code table and the decimal equivalent of the control characters are:

CHAR.	ASCII	HEX
STX	STX	02
ETX	ETX	03
EOT	EOT	04
ENQ	ENQ	05
ACK	ACK	06
DLE	DLE	10
NACK	NAK	15
HOLD	SYN	16
ETB	ETB	17
WACK	EM	19
DC1	DC1	11



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TMI, ALT AND RMS TRAINING COURSES FOR TOT

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Siemens Elasa

Technology and R+D

DATE: 22/8/98

DOCUMENT: TRAIN2.DOC

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- MAINTAINING CAPABILITIES
- EXPLOITATION CAPABILITIES

GENERAL DESCRIPTION

OUTER ELEMENTS

- DISPLAY
- HANDSET
- HOOKSWITCH
- KEYPAD
- LOCKS
- INSTRUCTION PANEL

INNER ELEMENTS

- MAIN PCB
- CARD READER CONTROL PCB &SAM SOCKETS
- LINE PCB
- PCBS INSIDE THE MAIN ELEMENTS

ALT

6.2.2 ERASE

This option allows to cancel the TMI as activated. For this the TMI sends a message that is identical as the daily routine message, but here the cancellation intention is also indicated.

When choosing this option it will appear

1- CALL SETM
EXIT

When pushing "1" the TMI performs an automatic call to the SETM.

6.2.3 REPARATION CODE

This function allows to send to the SETM the reparation message. With this all the alarms are erased and the clock restarts. Statistics data are maintained.

When choosing this option is displayed:

1. REPAIR CODE XXX
*-CONFIRM #.EXIT

With this is allowed the introduction of the repairing codes. XXX indicates the number of the repair code (up to 5 codes can be introduced).

When introduced the last code is displayed:

1-CALL SETM

Where by pushing "1" the TMI starts the communication with the SETM in the same way as in the last point.

6.2.4 CONSULT

This function allows to display, introduce and modify the initial parameters required for the operation of the TMI

The list of parameters that can de displayed are:

NAME	EXPLANATION
IDENTIFICATION NUMBER OF THE TMI	TMI identity number for the communication with the SETM
SETM NUMBERS	Number the TMI dials when connection to SETM is desired. Two numbers are possible.
DIALLING	Pulse or DTMF
OUT OF SERVICE	Allows/disallows the payphone operation
S E T M	Allows/disallows the communication with the SETM

COMMUNICATION	
C A R D ACCEPTANCE	YES/NO

Movement through the parameter list is done with the help of the keys (0), (1), (*) and (#).

6.2.5 PARAMETER REQUEST

When choosing this option is allowed to send to the SETM a request for new parameter storage.

6.2.6 ALARMS

This function allows to display and erase the warnings generated during the operation of the main program. The local maintenance program does not generate alarms.

The list of the displayed alarms, indicates the status of the TMI alarms before moving into the test program. This list indicates the alarms produced by events that still remain active; if the cause that produced the alarm has disappeared, the alarm will not show up.

The displayed message of the ALARM menu is:

ALARMS 1-DISP
2-ERAS 3-CONS #-OUT

6.2.6.1 ALARMS DISPLAYING

This function allows to see the alarms generated during the running of the user program.

When choosing this option the alarms will be displayed consecutively by repeated pressing of the key (#). When all the alarms have been displayed, comes out the following message:

NO ALARMS
#-OUT

The detected alarms of the TMI are the following:

TYPE	FUNCTION
General failure	hung up without answer
handset broken	determines absence of answer
keyboard failure	determines the keyboard blockage
RAM memory fault	incorrect battery level and check-sum
EEPROM fault	determines writing faults in the EEPROM
Collecting card fault	incorrect operation of the card reader and/or control board
Card reader fault	incorrect operation of the card reader and/or the control board
Door open	Door open
Card reader jamming	determines when the introduced card does not reach the end of the cad reader many times

6.2.6.2 ERASURE OF ALARMS

With this option all the alarms are erased (but the door alarm). When choosing this option the next message is shown:

ALARMS ERASED
#-OUT

6.2.6.3 CONSULT OF ALARMS

This function allows to display the number of times that an alarm has been detected.

Then is shown:

TYPE OF ALARM XX YY

XX means the threshold of the alarm, and
YY means the counter value.

the displayed alarms are the same as showed in point ALARMS DISPLAYING.

6.2.7 PARAMETERS

This option allows to display the statistical data and the consultation of the main operation parameters.

6.2.7.1 STATISTICS DISPLAY

When choosing this option, the list of the statistics parameters is shown. For example for LOCAL CALLS, the message is:

XXXXX LOCAL CALLS
*-FW 0-BW #-EXIT

Where XXXXX is the quantity of LOCAL CALLS.

Movement through the statistics parameter list is done with the help of the keys (0),(*) and (#).

6.2.7.2 CONSULT OF PARAMETERS

When choosing this option, the main parameters are shown.

Movement through the statistics parameter list is done with the help of the keys (0),(*) and (#).

6.2.8 TESTS

There are two types of tests: automatic (a self-check-out of the different elements of the TMI), and manual (where manually and individually the different parts of the TMI are checked).

6.2.8.1 AUTOTEST

This option carries out several tests. The following table shows the elements involved in each test, the test proper, the displayed alarm, and the cause of the alarm.

TYPE	FUNCTION
handset broken	determines absence of answer
keyboard failure	determines the keyboard blockage
RAM memory fault	incorrect battery level and check-sum
EEPROM fault	determines writing faults in the EEPROM
Card reader fault	incorrect operation of the card reader and/or the control board
Permanent 16 khz pulse	determines the permanent presence of 16 khz
Door open	Door open

If the result of all the tests is good, the following message is displayed:

SELF-CHECK-OUT
GOOD #-EXIT

If anyone of the tests fails the message displayed is:

SELF-CHECK-OUT
BAD #-GO ON

Now, repeated pressing of the (#) key, displays the results of the individual tests. For example:

READER FAULT
#-GO ON

When there are no more results to be displayed, this message appears:

END SELF-CHECK-OUT
#-EXIT

6.2.8.2 GROUND TEST

With this a detection of the ground is performed. The result is indicated.

6.2.8.3 KEYPAD TEST

With this test is allowed the test of the operation of the keys, but the key # that is used to exit this functionality.

6.2.8.4 REAL TIME CLOCK TEST

When this test is done the next message is displayed:

1-START 2-STOP #-EXIT

If key 1 is pressed the following message appears:

DD: MM: YY:
*-FW 0-CH #-EXIT

When typing "*" the next menu is shown:

HH: MM: S:
*-FW 0-CH #-EXIT

If in the main menu of this option the key 2-stop is pressed the clock will stop.

Due to the relatively high power consumption of the clock oscillator, it is necessary to stop the clock when the RAM memory has no external power supply. This happens for example when the whole TMI is in the warehouse or when the clock is on a spare replacement PCB. So when the TMI is removed from its installation place, it is highly

recommended to stop the clock in order to save energy of the lithium cell mounted on the PCB.

6.2.8.5 **TONE GENERATOR**

This function generates the end of credit tone and the public payphone tone.

6.2.8.6 **CARD READER**

This function checks the card reader, and in case of incorrect operation, a message is displayed.

If no error is detected the displayed message is :

INTRODUCE CARD
#-OUT

When the card is introduced, the equipment determines if it is a magnetic strip card or an electronic card.

For magnetic cards, track 2 is read when the card is removed and upon correct reading the card data are displayed. If the reading was incorrect, the following message is presented.

ERROR IN CARD
#-OUT

If the reading was correct the data are shown.

If the card is electronic, the data are also read and for incorrect readings the message is:

REMOVE CARD

If the inserted prepaid card is correct, the message displayed in this test mode is the value of the card, for example:

CREDIT 80
0-COL #-EXIT

The key (0) is programmed to carry out collections (writing of a bit). If pressed, a bit is written and the remaining credit is displayed again in according with the value of the written bit.

If the collection is incorrect, the message displayed is:

COLLECTION FAILURE

#-EXIT

6.2.9 TEST OF OUTGOING CALLS

When choosing this option the payphone opens the line to get the dialling tone, with this is shown:

DIAL NUMBER

When dialling (i.e. 2345) the display shows:

2345

Only local calls are accepted in this option.

Once answer signal is received, the following message is shown:

ANSWERED

when hunging up it will appear:

**** END ****
#-EXIT

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INSTALLATION MANUAL

FOR THE TMI-PC/S

THIS DOCUMENT IS FOR ILLUSTRATION PURPOSES ONLY. THE FINAL DOCUMENT FOR TOT WILL BE ISSUED AFTER A DEFINITION PHASE.

Siemens Elasa

Techonology, R + D

DATE: 22/8/98

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TABLE OF CONTENTS

1. INTRODUCTION

This Manual contains the information required for carrying out the following operations on the following LIGHTWEIGTH MULTICARD MODULAR model, TMI-PC/S.

To this end, all the operations to install the equipment in a payphone booth, its connection to the telephone line, leaving it in complete operating condition, and including the tests required for checking the operation, are described.

This Manual is intended to be used by the authorised technical personnel when carrying out the operations defined herein.

Further information about the TMI is included in the Operation & Maintenance manual.

2. INSTALLATION

In this document we describe all the steps to be followed, when a payphone is going to be installed, from unpacking until connection to the telephone line. For illustration purposes we refer to one of our hanging plates; for each case the plate may be different but the procedure will be similar.

It is supposed that Siemens Elasa hanging plate is going to be used. For other installation devices, adaptation could be needed.

2.1 HANGING PLATE INSTALLATION

Place and secure the hanging plate at the place designated for the installation.

Fixing is done with three screws M-8x20, when the installation takes place in a booth (1, 2, 5 or 3, 4, 6), or five screws (1, 2, 3, 4, 5) and their corresponding wall plastic pegs when mounting is done on a wall.

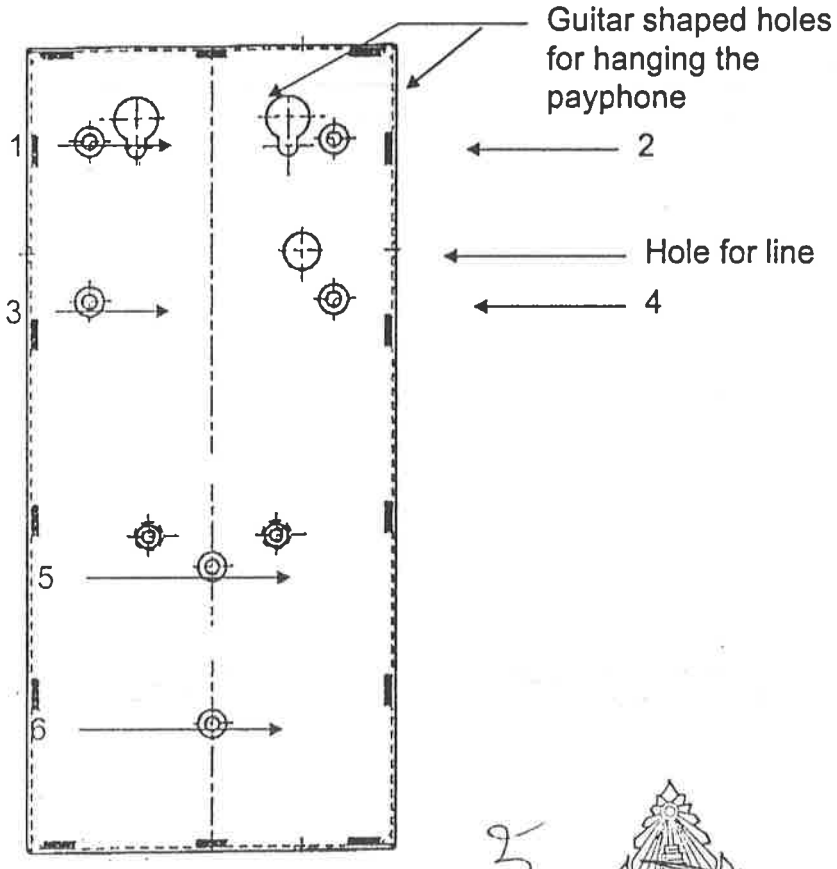


Figure 1

2.2 PROCEDURE

To better understand this document, we recommend to see the Operation & Maintenance Manual.

Take the telephone out of the packing and open it.

Attach the two hanging bolts, included in the mounting kit provided, to the two threaded holes located at the top of the back wall; these bolts will rest on the guitar-shaped holes of the hanging plate (see Figure 1). Tighten with a 20 mm wrench.

Introduce the telephone line cable through the appropriate opening (hole of 25 mm diameter. (see Figure 1) and set the telephone upon the hanging plate.

Secure the telephone to the hanging plate with the two Allen screws, M-10x30, through the bottom holes of the upper compartment.

Secure internally the line cable with the two retainers located on the upper part of the back wall.

With the handset off-hook, remove the main electronic board, first unplugging all the cables, flat and otherwise, and pushing slightly inwards the two plastic tabs that appear on the right upper border of the board.

Return the main electronic board to its normal position, sliding downwards after the two notches of the bottom edge of the board are lined-up with their corresponding resting bolts and pushing gently on the upper quarter of the board until the plastic tabs snap into place, pressing simultaneously the hook microswitch to make the operation easier.

Now plug again all the connectors.

2.3 PAYPHONE STARTING

Once the telephone has been physically installed, proceed to connect it to the telephone line.

Connect the line wires to the external positions of the connector provided on the line connection board, which is located on the lower left quarter of the compartment.

When the telephone is connected to the telephone line for the first time, the capacitors are completely discharged and they start to receive energy from the telephone line.

Approximately two minutes after connection to the line, with the handset in the on-hook position, the VCC supply will have reached a voltage value of 35 volts, enough for some of the circuits of the telephone to operate.

Picking up the handset at this moment, the telephone closes the loop and charging of the capacitors will continue at a faster pace; after a while the display presents the following message

```
WAIT, PLEASE
```

when the VLL supply is completely charged, and:

```
PLEASE, WAIT
```

when VCC supply is completely charged.

Keep the handset off-hook and the capacitors will continue their charging until the VCC supply reaches an approximate value of 4.75 volts; at this moment the previous message is replaced by this one

```
FREE CALLS ONLY
```

This message indicates that most or all of the telephone functions are already available; in this condition it is possible to access the local maintenance program in order to proceed with the initialisation of the telephone.

Access to the starting option in the maintenance menu program.

To access the program, the following steps must be followed:

1.-With the handset on hook and the compartment door closed (the bolt must be in the down position, so that the door detector detects the closed door status), open the door (the bolt is raised). This action activates the door detector and the following message appears:

```
*** TEST MODE ***
    CHECKING
```

And immediately

```
*** TEST MODE ***
    RELEASE X.Y.
```

Where X. Y is the memory version of the TMI.

2.-When this message appears, NOT BEFORE, pick up the handset.

3.-Push the red button of TEST located on the main board. There are 5 seconds to perform this operation, if the operation is not completed in this time the whole procedure must be repeated from the beginning.

4.-The MAIN MENU is shown:

```
1-START 2-REV   3-REP
4-PARAMETERS    5-ETC
```

To access one given function the associated digit must be dialled.

The answer of the function is displayed in the upper line of the display, the lower line is reserved for auxiliary functions. These auxiliary functions are:

- ADVANCE, END OR VALIDATE FUNCTION =KEY "*"
- CHANGE OR RETURN FUNCTION = KEY "0"
- EXIT OR ERASE (by pushing it, the program goes to the previous message and the introduced digits are erased) = KEY "#"

2.4 INITIALISATION

The first payphone installation is done by sending to the SETM the initialisation message. Then the SETM answers with the parameters message (previously the payphone has to be declared inserted in the plant at the SETM). When receiving the parameters message all the alarms and statistical data are erased.

To communicate with the SETM, first the initial parameters have to be introduced, these are:

NAME	EXPLANATION	MESSAGE DISPLAYED
IDENTIFICATION NUMBER OF THE TMI	TMI identity number for communications with the SETM. Eight digits.	IDEN. NUM.
SETM NUMBERS	Numbers the TMI dials when connection to the SETM is desired. Two numbers of 10 digits are possible.	1-SETM N 2-SETM N
DIALLING	Pulse or DTMF (0-yes, 1-no)	DIALLING
OUT OF SERVICE	Allows/disallows the payphone operation	OUT OF SERVICE
SETM COMMUNICATION	Allows/disallows the communication with the SETM	SETM COMMUN.
CARD ACCEPTANCE	YES/NO	CARD ACCEPTANCE

To introduce these parameters the procedure is the following:

In the main menu

```
1-START 2-REV   3-REP
4-PARAMETERS    5-ETC
```

Key I-START, then in the display will be shown:

```
IDEN.NUM:
*-FW    0-CH    #-Exit
```

Then key 0-CH, and will appear

```
IDEN.NUM:
*-Confirm #-Del/Exit
```

Introduce the identification number of the payphone. When done, key *-Confirm. The next parameter will appear:

```
1-SETM:
*-FW    0-CH    #-Exit
```

Press 0-CH and introduce the first SETM number, when finished key *-Confirm and will appear:

```
2-SETM:
*-FW    0-CH    #-Exit
```

Press 0-CH and introduce the second SETM number, when finished key *-Confirm and will appear the next parameter:

```
DIALLING PULSE
*-FW    0-CH    #-Exit
```

Press 0-CH for changing to DTMF mode and will appear:

```
DIALLING DTMF
*-FW    0-CH    #-Exit
```

Press *-FW and the next parameter will appear:

```
OUT OF SERVICE: Y
*-FW    0-CH    #-Exit
```

Press 0-CH for changing to N (in operation). Then the next parameter will appear:

```
SETM COMMUN: N
*-FW    0-CH    #-Exit
```

Press 0-CH for changing to Y (connected to the SETM). Then it will appear:

```
SETM COMMUN: Y
*-FW    0-CH    #-Exit
```

Press *-FW and the next parameter will appear:

```
CARD ACCEPTANCE: N
*-FW    0-CH    #-Exit
```

Press 0-CH for changing to Y. Then it will appear:

```
CARD ACCEPTANCE: Y
*-FW    0-CH    #-Exit
```

Press *-FW and the following message:

```
 1-CALL SETM
                #-Exit
```

When pushing 1 the following message will appear:

```
STAFF ID:
*-Confirm  #Del/Exit
```

Then the maintenance staff identification code has to be introduced (5 digits). Press *-Confirm and the following consecutive messages will appear:

```
SETM COMUN
```

Where X is the number of the trial to get dial tone. There is a time-out of 10 seconds for each trial. If no tone is obtained after 3 trials the following message is shown:

```
WAITING FOR TONE...
X TRIAL         #-Exit
```

If dial tone is obtained the following message is shown:

```
DIALLING YYYYYYYYY
X TRIAL          #-Exit
```

Where X is the number or the trial, and YYYYYYYYY is the dialled number.

Then, a time-out of 25 seconds plus the answer time is set after the last dialled number waiting for the answer of the SETM. If this time-out finishes the following message is shown:

```
WAIT, FAILURE IN THE
X TRIAL          #-Exit
```

Where X is the number of the trial performed. After this a new connection process is started. If no answer is obtained after 3 trials the following message is shown:

```
NO CONNECT WITH SETM
                 #-Exit
```

If the connection is achieved:

```
TRANSMITTING...
```

If there are transmission errors:

```
COMMUNICAT. FAILURE
                    #
```

During a correct communication the TMI sends a start message to the SETM, the SETM checks the TMI identification number and if correct the parameters message is sent to the TMI to perform a correct programming.

If the TMI receives the parameters message is displayed:

```
**    CHECKING    **
              -
```

Character "-" changes to "|" indicating the payphone activity.

And if the parameters are correct, after some minutes:

```
**    CHECKING    **
 PARAMETERS GOOD  #
```

if they are not correct:

```
**    CHECKING    **
 PARAMETERS BAD   #
```

When keying "#" it will appear the following message, and the main menu will be displayed main menu:

```
1-START 2-REV  3-REP
4-PARAMETERS   5-ETC
```

When hanging up the following messages will appear one after the other:

```
**    CHECKING    **
```

```
**    TEST MODE   **
      CLOSE DOOR
```

When closing the door the display will be switched off.

With this switching off of the display ends the initialisation procedure.

USER MANUAL FOR PAYPHONE MANAGEMENT SYSTEM (SETM)

THIS DOCUMENT IS FOR ILLUSTRATION PURPOSES ONLY. THE FINAL DOCUMENT FOR THE TOT WILL BE ISSUED AFTER A DEFINITION PHASE ACCORDING TO THE REQUESTED FEATURES.

Siemens Elasa

Technology and R+D

DATE: 22/8/98

DOCUMENT: PMSTOT.DOC

Chapter 1

Introduction

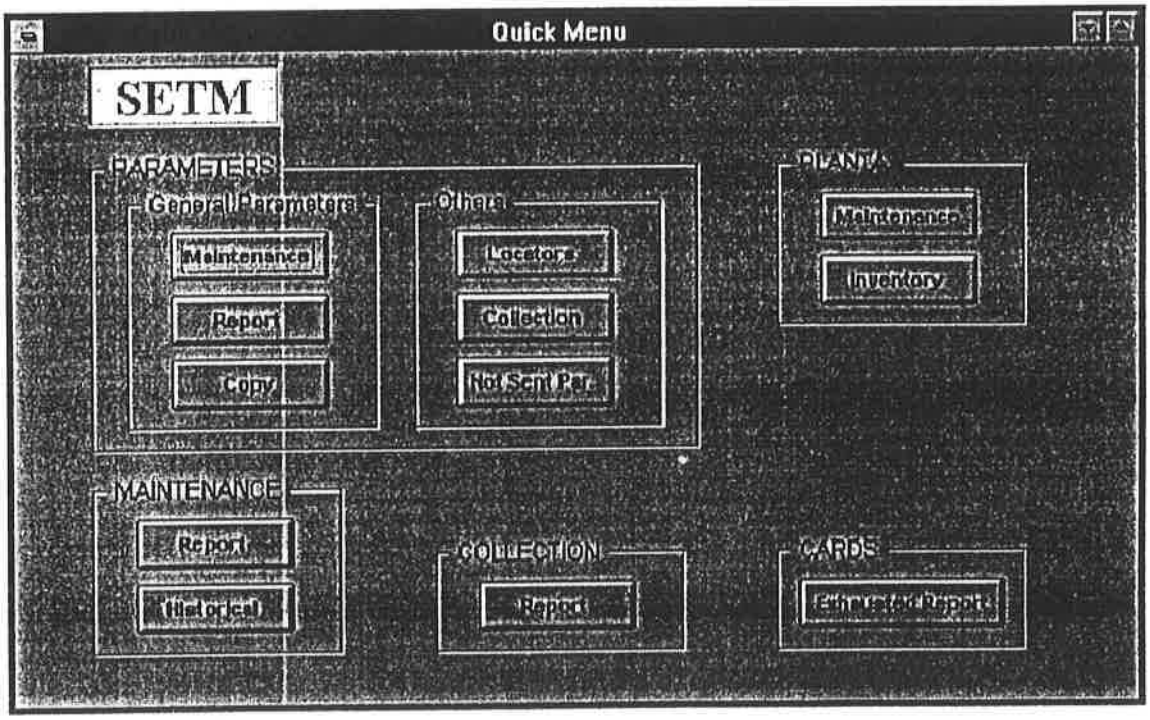
In this guide you can find an explanation about the functions that are into the management application for the public payphones that it is developed by Siemens ELASA S. A. Notice that this document is for information purpose only and that the final PMS will be designed jointly with TOT.

This application has mainly two functions:

.- Do the payphone management.

.- Provide reports about failures, collection, etc. in order to improve the management of the plant

In attached window, you can see an example of the look of a quick menu, with all the options in the program.



Payphone Management

In order to declare inserted the payphone in the plant, the following operations must be carried out.

1.-Declaring the exchanges, sites, districts and zones. This must be declared in the Administrator application.

2.-Creating the group parameters tables and thereafter associating these tables with a locator.

3.-Finally, one by one, the payphones must be inserted in the plant, associating them with the group parameters, the parameters related to the plant structure and the payphone specific parameters such as coin tin replacement parameters and acknowledgement parameters.

Reports

Note: All the information into the SETM is referenced to a sample plant.

Selection screen

In general the selection screens have a common outlay as indicated in the following paragraphs.

To select the telephone, there is the possibility for an individual telephone selection or the selection of all the telephones that share a certain characteristic, such as the same locator, site, district, zone or exchange. In addition there is the possibility of selecting data corresponding to a specific time period.

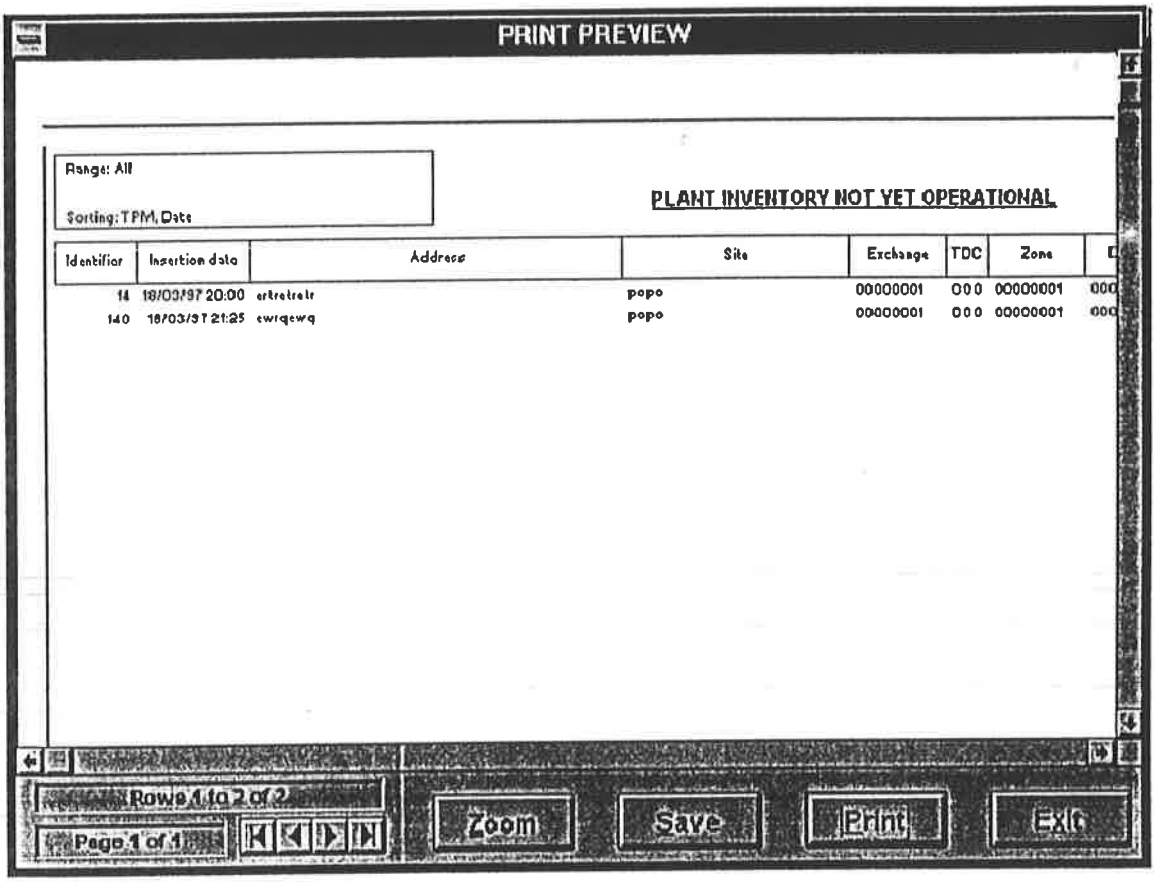
Once the telephones have been selected it is possible to establish several sorting criteria, up to a maximum of three. The first criterion includes locator, site, district, zone and exchange. The second criterion includes the types of payphones handled by the management system, TPM, Tarjetel, and others. The third criterion is the date. When sorting by the first criterion is in effect, it is possible to instruct the program so that when a change in locator, site, district, zone or exchange takes place, a jump to the following page is executed.

Three buttons become visible, with the following specific functions:

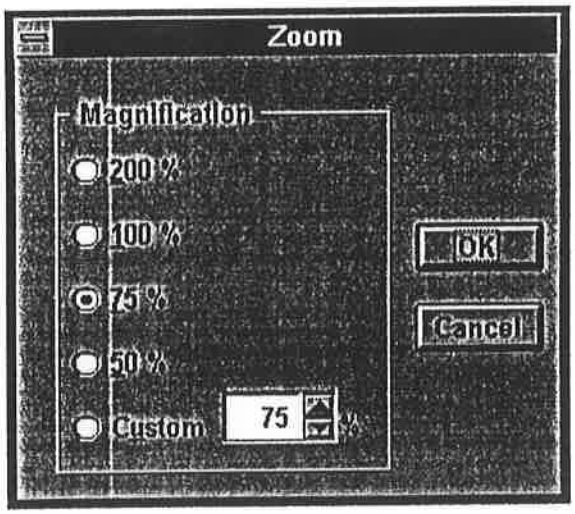
- The OK button, to fetch the listing
- The EXIT button, to return to the previous menu
- The CLEAN button, to load on all fields of the screen the default values of the relevant parameters.

Preliminary presentation

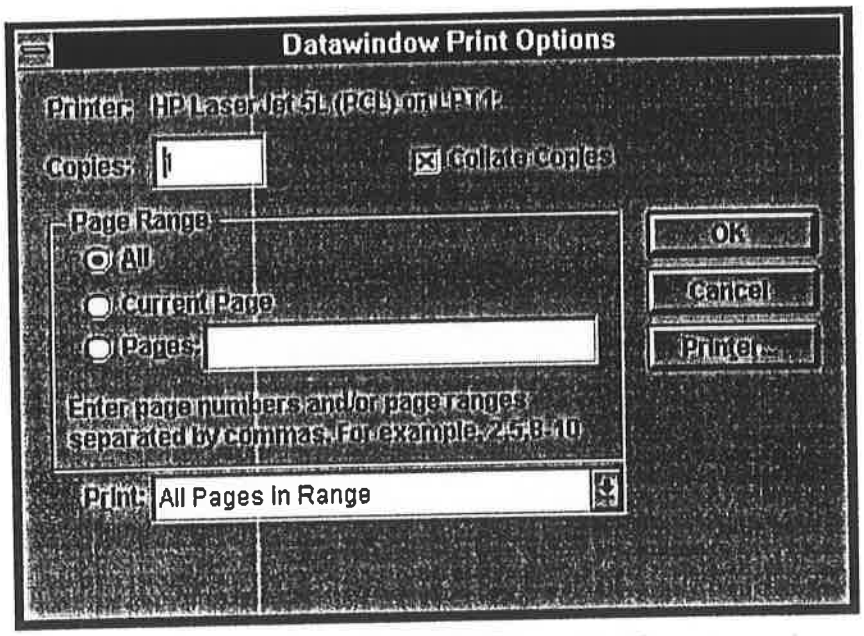
In the preliminary presentation screens of all the above mentioned listings there appear eight box-buttons to act upon:



The ZOOM button, to indicate the scale of the preliminary presentation.



The PRINT button, to print the listing. After clicking in this button the usual window appears, to specify the quantity of copies, the pages to print and the printer to use.



The SAVE button makes it possible to record in a disk file the data previously selected, in various formats.

The EXIT button, to return to the previous menu.

The remaining four buttons are used to swap among the various pages of the listings being handled.

Chapter 2

Parameters

This section describes the group parameters declaring procedure and how to associate them with a certain payphone group, or locator.

Group Parameters (General Parameters)

Maintenance of this type of parameters is done from within the Parameter Maintenance option, of the Main Management program. In this case, Group parameters are General Parameters.

The General Parameters Window operates as follows:

Enter the General Parameters table number and click the OK push-button; at this moment the boxes in the parameter list become enabled.

To access a parameter group it must be highlighted, and the selected group table appears.

NOTE.-Changes in the database do not take place until the OK box, in each window, is clicked. If this is not done the payphones will continue with the data existing at the time of the modification failed attempt.

Sending of parameters

Sending of group parameters takes place under the following circumstances. Always all the general parameters will be sent as an answer to the following messages from the payphone.

On occasion of a telephone initialisation

Answer to a fault repair message 21X or 100 (Change of logic board or change of EPROM memory)

A particular group will be sent whenever:

- There is an EEPROM failure in a specified group; as an answer to this message, the appropriate parameters will be sent.
- If a group of parameters has been modified in the table and as an answer to any message on the first communication between SETM and payphone after the modified parameters have become current.

This transition from updated to current can be the result of various actions.

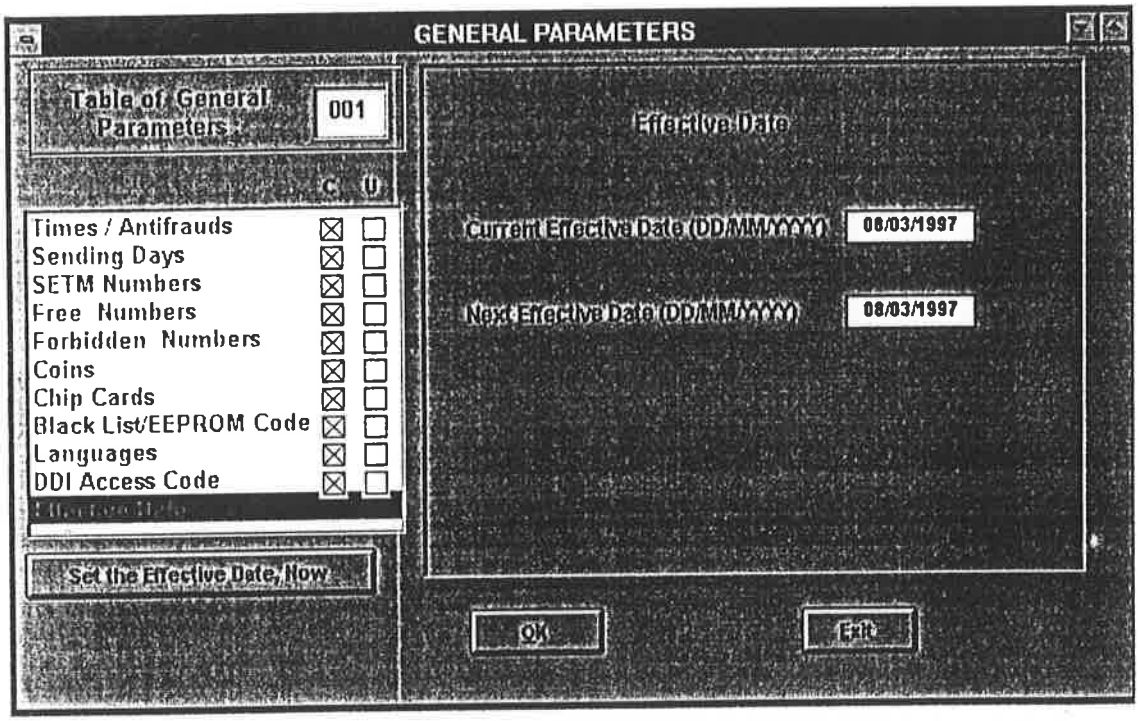
After modification of parameters the push-button **set effective date, now** has been pressed.

If the effective date field indicates the date of to-morrow as the effective date the updated parameters will become current on occasion of the first running of the parameter task. This task runs daily and the execution time is programmable in the Administrator menu, option Config.

After the execution of this task parameters will be updated at the first communication between payphone and SETM

If changes are made after the execution of the parameters task, setting as effective date the next day this will not take place; this must be taken into consideration at the time of establishing the moment for the execution of this parameters task.

The following picture shows the effective date window.



General Parameters

Access to this window is gained through three different options:

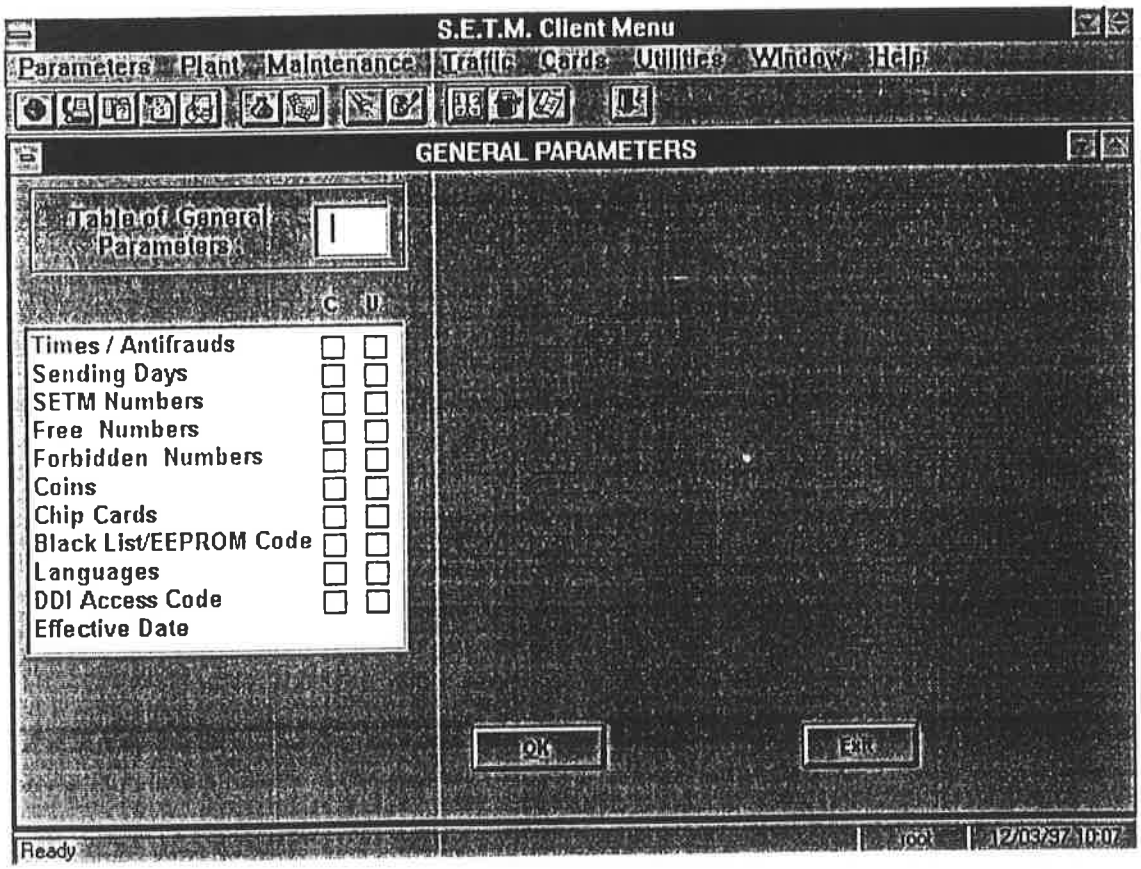
- Push first button from the toolbar.
- Select the Maintenance option from the Parameters menu and choose General Parameters.

  Parameters → Maintenance → General Parameters.

From the Rapid Access Menu, push Maintenance button from the General Parameters group.

After entering the number of the desired table, press return or click the OK button. Crosses will appear on the boxes of the existing tables. When the table number is first entered the boxes of Current tables are crossed. Thereafter, every time a change is made in the modified parameter table the day set in the effective date, when the parameter task is launched, the modified parameters will become current, and all the payphones that use this tables of parameters will be moved to the category of updating pending; these updated parameters will be sent to the payphone the first time that the payphones communicate with the SETM, usually at the time of the daily routine. It is important that the parameter task be scheduled close to the start of the daily routine sending time window.

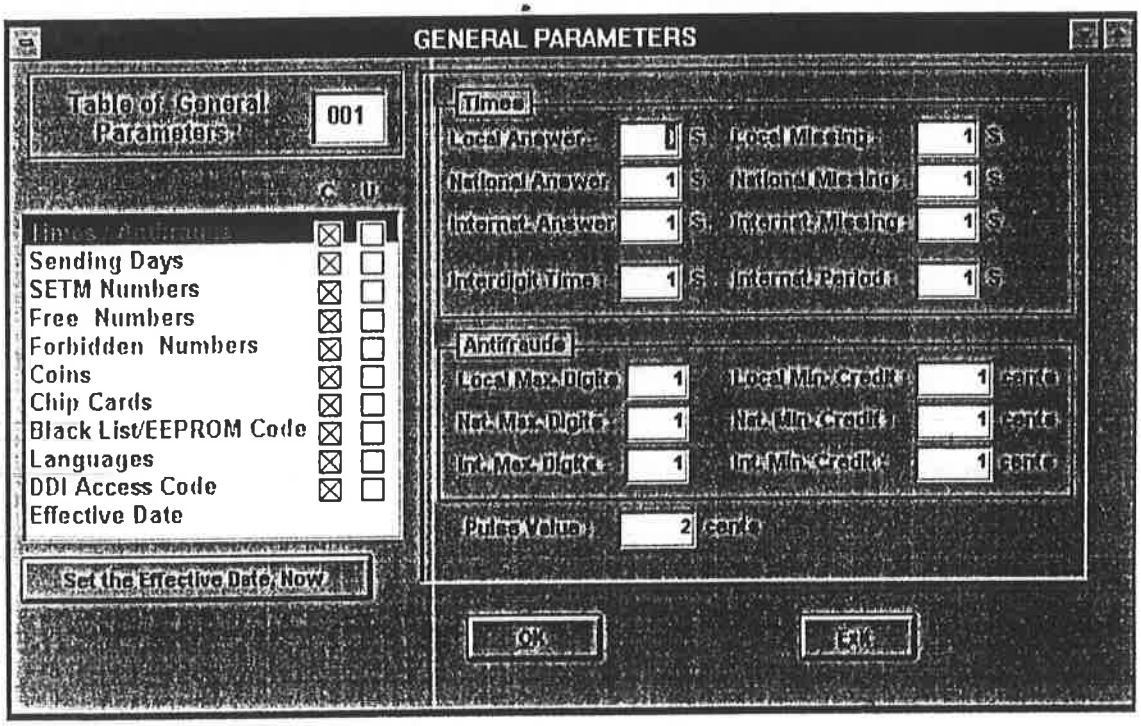
If the General Parameters table is associated in a locator, the Set effective date now box appears, and this will allow the immediate launching of the parameters task, the modified parameters become current and the payphones will be put in the wait for parameters sending condition.



Times / Antifrauds

This area covers all the parameters related to the maximum time to receive the called subscriber answered signal, the maximum quantity of

digits to be dialled by type of call an the minimum credit required to place the call. To exit and keep the changes click the OK button; with exit only no change is made to the database when abandoning the window.



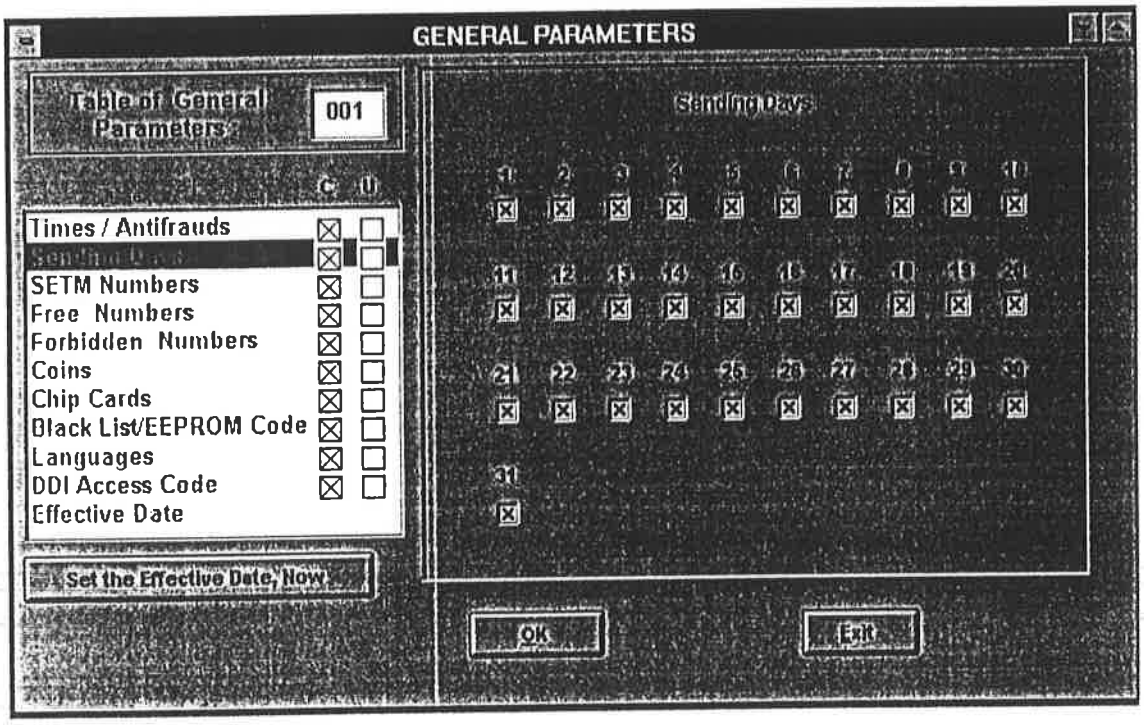
Range of the parameters appearing in the Times/Antifraud window

Answer time	0- 255 seconds
Missing time	0-4095 seconds
Interdigit time	0- 99 seconds
International period	0-4095 seconds
Digits	2-18 digits
Minimum credit	0-65535 cents
Pulse value	0-65535 cents

Sending Days

This window is used to set the daily routine sending days. On the days of the month with their box ticked the payphone will send all the statistics data to the SETM.

For months with less than 31 days the payphone will skip the non existing days and, at the end of the month, it will jump to the first day of the following month.

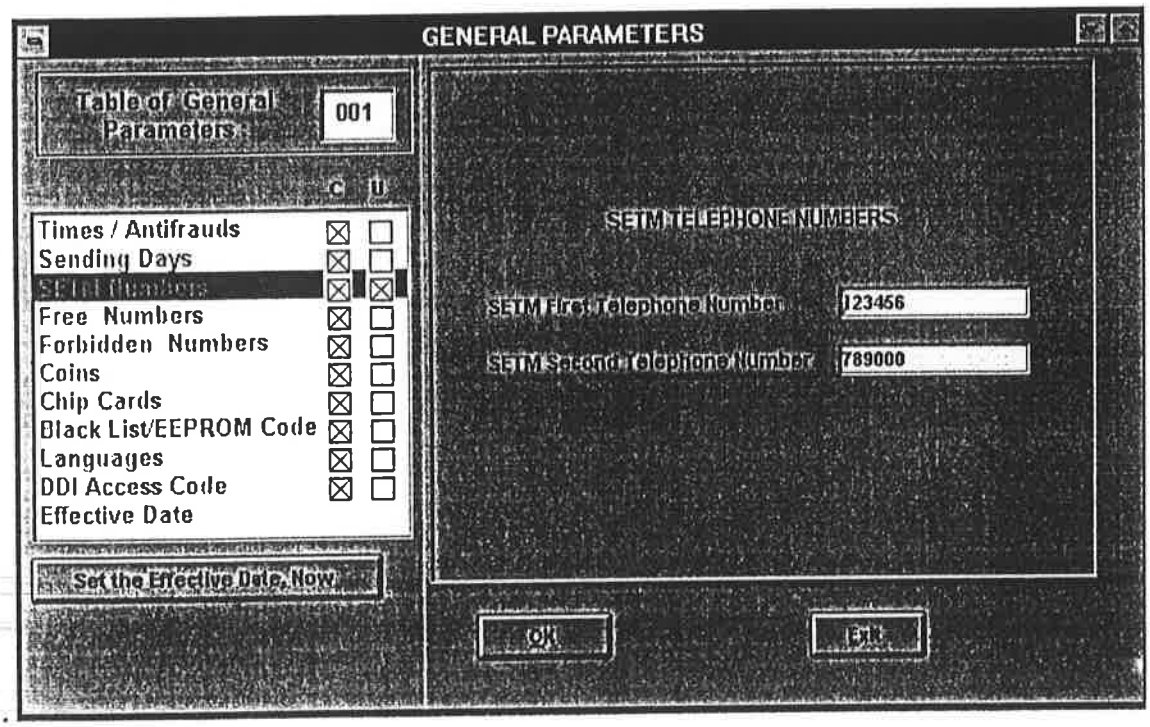


It is strongly recommended to program the sending of the daily routine every day, for obvious reasons of security of the information.

SETM numbers

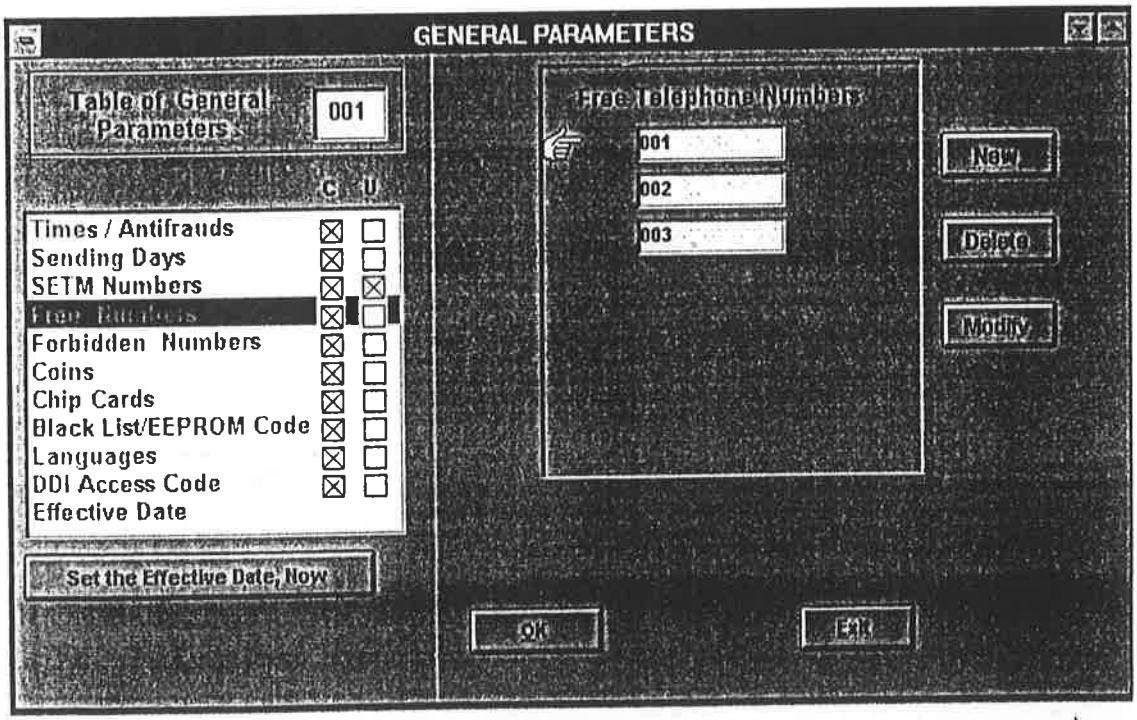
These are the numbers that the payphone will dial to send all its messages; these numbers are manually programmed in the payphone at initialisation time.

Later on, in case of change in the SETM numbers, this change can be done from the SETM.



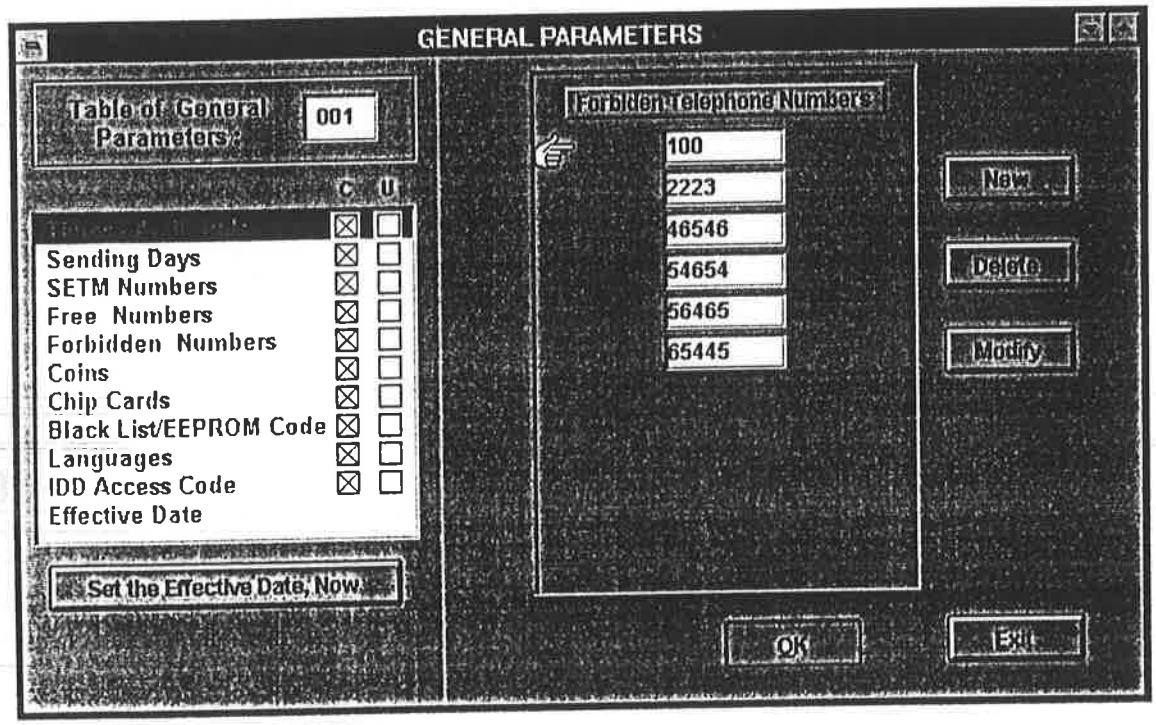
Free Numbers

This is a window used to add, modify, and erase the numbers that are free of charge. Up to 10 numbers, each one of six digits can be entered.



Forbidden Numbers

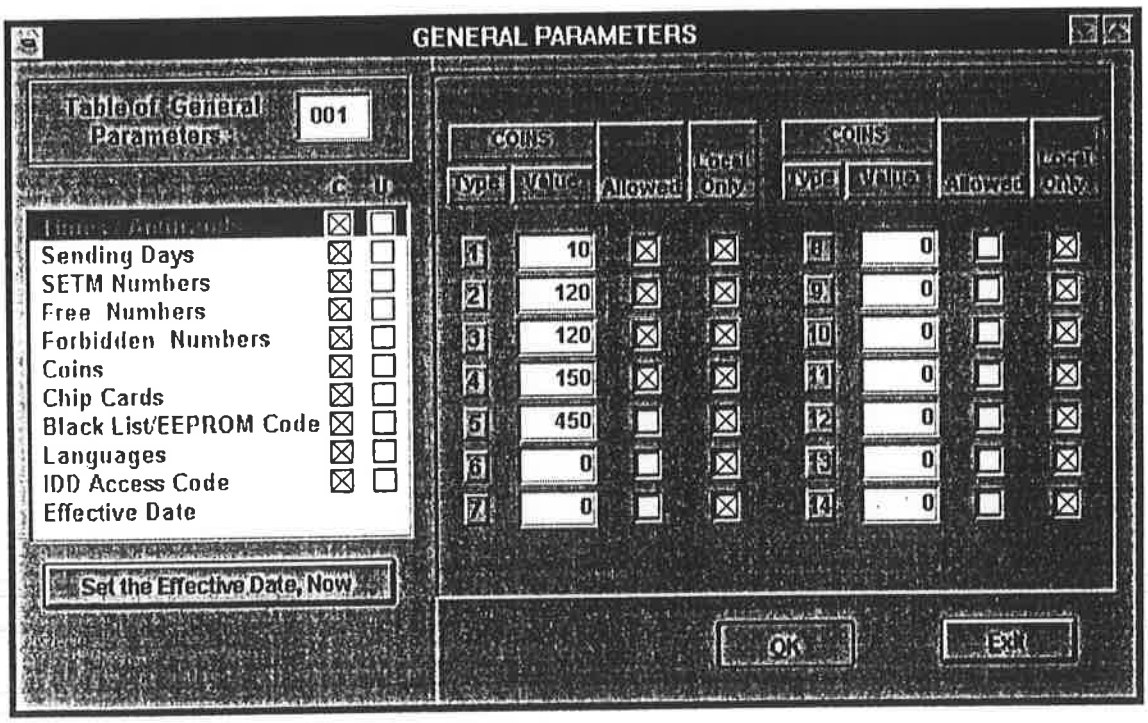
This is a window used to add, modify, and erase the prohibited numbers. Entering up 10 numbers each one of 6 digits is possible.



Coins

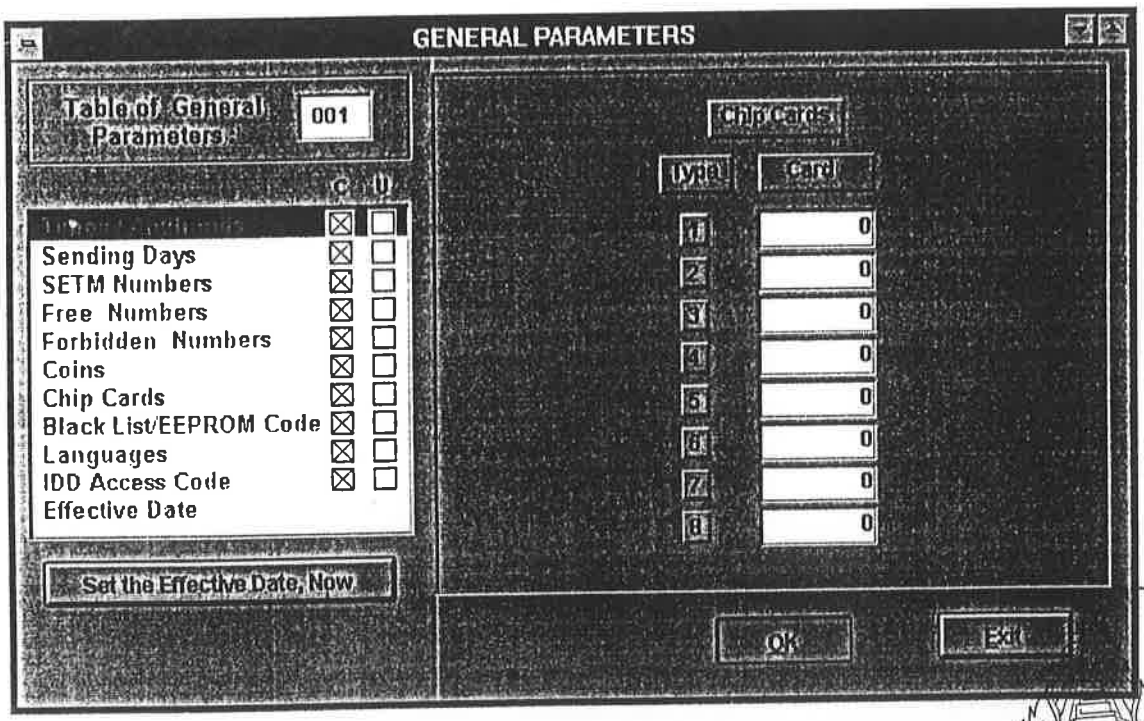
This window is used to enter the values of the various types of coins that can be recognised by the payphone. Also here, the allowed use of each type of coin is specified, i. e. for all types of calls except international calls or for all calls without exception.

The range of the coins is from 0 to 9999 cents.



Chip Cards

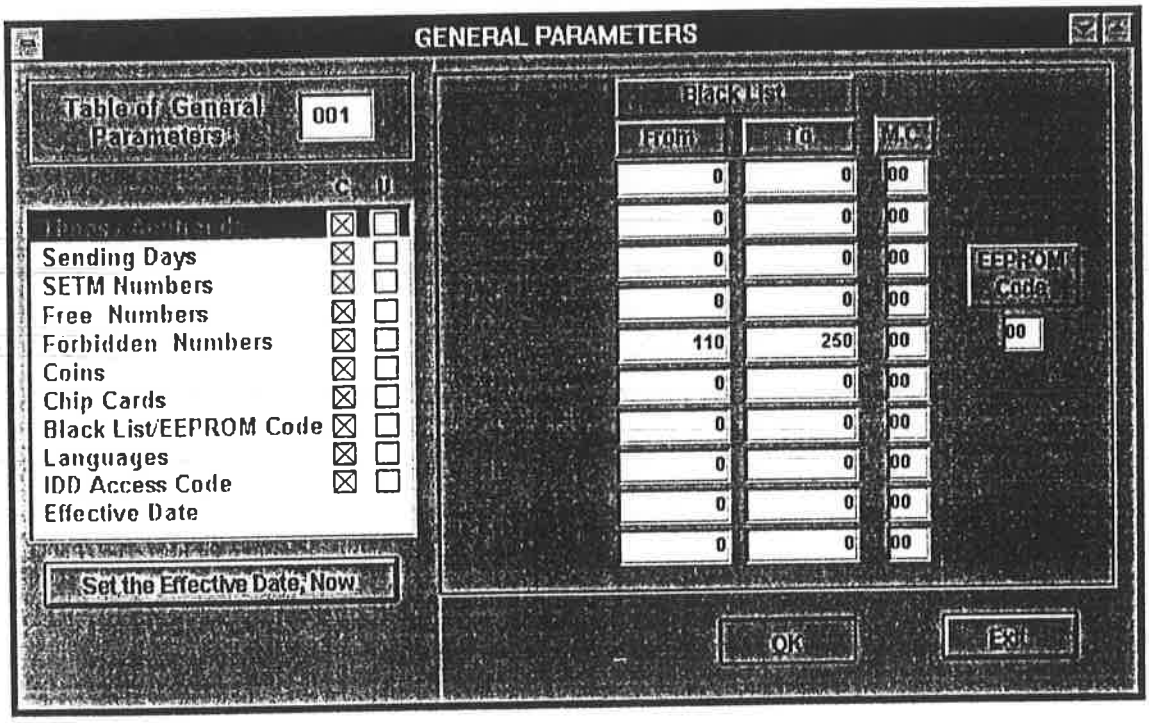
In this table, the prepaid disposable card values are defined. The payphone accepts up to 8 different cards. And a maximum of 65565 cents of dollar can be introduced.



Black list/ EEPROM Code

List of prepaid cards that will not be accepted by the payphone. The cards whose identity numbers appear in the black list will not be used in that payphone. The identity of the first and the last barred cards in the group must be entered as well as the manufacturer code.

The card numbers range from 0 to 16,777,215 and the manufacturer code from 00 to FF. Up to ten groups of blacklisted cards are possible.



Languages

This SETM version makes it possibie to load up to four languages in the telephone. For example, the foreseen languages are English, German, French and Spanish. Others are accepted.

These languages are available to the general user of the payphone. The information for the maintenance technicians will be only in English.