ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. January 1989 Volume 1 Number 10

INTRODUCING PAOF

PAYPHONE AUTOMATED OPERATOR FUNCTION (PAOF) is Elcotel's newest product. Your payphone can now perform all the tasks of a live operator in addition to storing all 0+ and 0- call records for billing purposes. It is designed to send more money your way through the use of bulk rate transmission and the elimination of live operators. PAOF will convert your 0+ and collect calls to 1+ calls through the carrier of your choice. PAOF is also capable of carrying intraLATA traffic in states where it is unprofitable or illegal with an AOS. Below are the minimum requirements for PAOF.

1. IBM-PC compatible computer with:
   a. 400k of memory
   b. 360k DS-DD floppy-disk drive
   c. 10 Megabyte hard-disk drive
   d. MS-DOS or PC-DOS version 2.0 or later
   e. date/time clock
   f. one parallel or serial printer port
   g. color generator card
   h. color monitor (recommended)

2. "Hayes compatible" 300 baud modem (internal recommended)

3. Payphone Network Manager 1.1.0

4. Current rate center files*

5. Series 4MT, 3MT or 2.5MT PCM with:
   a. latest revisions
   b. modem and time clock
   c. EEPROM
   d. 4.3 software
   e. PAOF module

6. Verification of 10XXX capability on the COCOT line that PAOF will be installed on.

*Considering PAOF can handle local 0+ calls it is imperative that the rates data be totally accurate regardless of whether you choose to handle local 0+ or route them to the Local Exchange. It is advisable that you examine your rate center files and ensure that none of the local exchanges in your area reside in any of the intraLATA bands.

USING PNM WITH OTHER MANAGEMENT PACKAGES

We recently experienced difficulty when using PNM that was loaded on the same machine with a competitor's management package. It appears that when exiting the competitor's package and entering PNM you may get some strange results, (data coming across the transmit and receive bar simultaneously etc.). However, when you enter PNM after a soft boot, (pressing CTRL, ALT and DEL keys all at once) things act normally.

The problem is that each program initializes the modem differently and since exiting one program and entering another will not reinitialize the modem, a soft (or total) boot of the computer is the most efficient way to deal with this phenomenon.

WHAT ARE DIALING MACROS?

With the advent of 4.2 software, Elcotel payphones now utilize "dialing macros." Macros are small programs consisting of a sequence of low level commands that tell the payphone how to react to certain call types. Presently, we have eighteen pre-designed macros built into our software. Naturally we can't predict how every type of service will respond, so we made space available for two custom macros. This space corresponds to registers, 370 and 371. If you have a special request or would like to try to use your phones on an AOS that isn't supported by the standard pre-programmed macros, first get the protocol, (how the phone is supposed to react at certain times and to certain signals or commands) and then call us here in Customer Service. These special macros can also be programmed into your rate module when placing an order. Of course if you are using a EEPROM, they can be burned on site, from a remote phone, or by downloading from your computer.

USED ELCOTEL EQUIPMENT

Many of you have been approached about purchasing used Elcotel payphones or boards. While some of the offers are completely legitimate, some of them involve equipment that is either stolen, or has never been paid for. If you are in the market for used products, first call us here in Customer Service and we will reference the serial number in our database which will reveal the original purchaser. With this information you can make a better decision as to whether the purchase is wise or not. We might even have a better deal than you are being offered on some used equipment through our Sales department. (Ours also includes a warranty.)

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. February 1989 Volume 1 Number 11

TOOLS OF THE TRADE

In the next few issues, we'll be taking a look at some of the equipment that can help you troubleshoot your phone problems more efficiently. Some of the folks we talk to don't have the proper tools or are unfamiliar with what's available and how it works. This month we'll review the operation of the VNA 64 Digit Grabber and highlight its features.

A Digit Grabber is a battery powered device that when connected between the payphone and the telco line will measure DC line voltage, loop current and polarity, all of which are essential in analyzing on and off hook parameters. AC signals can also be measured in decibels or AC volts to help determine signal loss, tone levels or noise on the telco line. Its most important features are that it can analyze dial tone, ringback, progress tones or return codes. It is equipped with a tone generator which is ideal as a reference for line loss measurements or identifying wire pairs. There is also a pulse/tone digit display screen where digits and signals will appear. Return signals can also be monitored through a small speaker to insure the payphone is dialing out at the proper time according to certain protocols.

Now that many companies are starting their own AOS, the payphone may encounter a variety of protocols. A digit grabber can be a valuable tool if you're running into problems reaching an AOS. You'll be able to see if the phone is dialing the correct access number or hear if return signals are prompting the phone to send the authorization codes and ANI numbers at the right time.

If you're interested in the VNA 64 Digit Grabber or would like further information contact:

Metro Tel. Corp.
485-13 South Broadway
Hicksville, NY 11801-5071
(516) 937-3420

WEST COAST TOLL FREE NUMBER

Elcotel's west coast office in Torrance, California now has a toll free number. So for those of you on the west coast or those who like to work late, call:
1-800-225-8033.

CUSTOMER SERVICE CONTACT REPORTS

Our Customer Service department has always made it a point to maintain contact reports on customers' problems. Up until several months ago these reports had been recorded on paper and filed for reference. Via a computer terminal we are now able to record your contact report along with the previous contacts with your company. This will allow us to keep a tab on an ongoing problem, thus avoiding confusion the next time you happen to talk to another technician. We can sort our contacts by company or by symptom code to analyze developing trends. To help us serve you better please be prepared to give us your name and your company name when you call.

PROBLEMS USING INTELLICALL'S INET BOARD WITH PNM

Intellicall requires you to install their manufactured modem board into your computer in order to use the INET software program. If you are using INET and PNM software on the same computer, this board may cause you to experience problems contacting your phones. The INET modem board must be initialized through several commands in the AUTOEXEC.BAT file when you boot up your computer. This renders your computer helpless when trying to use other communications packages that require a modem. In simple terms certain interfacing messages between PNM and the computer's modem will be stolen by or routed to the INET modem. PNM on the other hand is a friendly program that doesn't interfere with these messages or require a special modem. The majority of computers have only two com ports, one of which is assumed by your operating system for your serial printer. This leaves one com port for a modem, the INET modem with which PNM is not compatible, or a Hayes with which INET is not compatible. However, here are two alternative configurations that will work. Make sure you are using a parallel printer and each program is in its own directory.

	PARALLEL PORT	COM PORT 1*	COM PORT 2
1.	parallel printer	external Hayes compat. modem	INET modem
2.	parallel printer	INET modem	internal Hayes compat. modem

*same as the serial port

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. March 1989 Volume 1 Number 12

TOOLS OF THE TRADE

Instead of having several test telephone lines for your office, this month's subject, the Proctor 49200 Telephone Demonstrator, can emulate most all the functions of a Telephone Company Central Office in one small box. It is equipped with four-line capability whereby each line operates just like a standard telephone line, performing dial tone, ringback, busy tones, ringing and voice/data transmission functions. Each of the four lines are assigned a phone number which are 21, 22, 23, and 24.

The Proctor 49200 Telephone Demonstrator can be incorporated into a setup for interfacing Elcotel products to other telephone products such as answering machines, or perhaps a computer. It can also be used in a variety of test applications such as having a payphone call to a modem/printer setup to test for SMDR dumps and alarm conditions, or call another phone in voice telemetry. Perhaps the most practical application would be interfacing the payphone to your computer to utilize PNM. There are also several programmable features such as ring cycle, length of ring burst and automatic ringdown.

Since the Proctor 49200 Telephone Demonstrator can only recognize two digits as a valid number, it will give a fast busy signal when the payphone dials out any number that doesn't start with 21, 22, 23 or 24. The only way around this is to make a local call that begins with 21, 22, 23 or 24, or for long distance you can turn on option 177 to strip the leading 1 (if you have 4.2 software) and dial a number that has an area code such as 212, 213, 214, 215, etc. The Proctor 49200 Telephone Demonstrator will pick up on the first two numbers and ignore the remaining digits. If you are interested in purchasing or would like further information on the Proctor 49200 Telephone Demonstrator contact:

Proctor & Associates
15050 N.E. 36th
Redmond, WA 98052
(206) 881-7000

IF YOUR PHONE IS UNABLE TO DIAL OUT

When troubleshooting a phone that won't dial out there are several things to check to determine the source of the problem. Since the phone cannot begin dialing until it recognizes dial tone it is very important that this be the first step in your troubleshooting. Begin checking at the interface box with your butt-sett and work your way through the lead-in wire, RJ-11 connector, and any other connections that you may have along the way to the payphone. Since dial tone must be detected at various points on the board, if you have it at the RJ-11 and the board still will not dial out,it is possible that somewhere along this route the signal is being blocked denoting a board problem. Remember, any wiring or connections between the interface box and the payphone is your responsibility.

PROGRAMMING OPTIONS FOR KEYPAD ALWAYS ON

When setting up your phone for keypad always on after dialing, you only need to be concerned with chain dialing if secondary dial tone is present. "Secondary dial tone" is a term frequently used in the COCOT industry where the call being terminated at the other end returns dial tone to the payphone, allowing the user to then make subsequent calls without paying for them. You can test for secondary dial tone by completing a call and having the called party hang up. If you receive dial tone after a few seconds (10-20), the potential for chain dialing exists.

Elcotel payphones have the ability to detect "wink" to disable the keypad. Wink is a momentary loss of line current just before dial tone is returned. If option 126 (wink detect) is on, the board will see the current drop and disable the keypad. We recommend these option settings if you have:

1. Secondary dial tone and wink:
   123 OFF, 127 OFF, 126 ON, 145 ON.

2. Secondary dial tone and no wink:
   123 ON, 127 ON, 126 OFF, 145 OFF.

3. No secondary dial tone:
   123 OFF, 127 OFF, 126 OFF, 145 ON.

Be sure to make a series of test calls, i.e. local, long distance, 0+, free calls, information, 1-800, etc., ensuring that if you do get secondary dial tone that you cannot chain dial, before making these settings permanent.

********** WARNING: **********

These settings are strictly phone by phone, and by no means should they be used on a global basis. Each phone line may react differently, therefore this type of adjustment should ALWAYS be done on each phone individually.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. April 1989 Volume 2 Number 1

TOOLS OF THE TRADE

This month's topic is perhaps the most popular item in the telephone technician's tool kit. I'm sure many of you are familiar with the operations of a buttsett and its status as a valuable troubleshooting tool. There are a variety of models on the market, but we'll be reviewing the Dracon TS21 Craft Test Set since most buttsetts contain similar features. It's main purpose is for line testing and temporary communications. It's basically a handset with a recessed keypad in the receiver end. It is attached to tip and ring using two wires fitted with alligator clips.

The Dracon TS21 can provide either touch tone or pulse dialing and can be switched from one to the other even when on line. This is helpful when trying to access an AOS from a rotary dial area since you must dial in pulse to get to the switch and provide DTMF once your in. Some of the other features include polarity LEDs to indicate line polarity when determining tip and ring. There is also a talk/monitor switch which when in monitor mode removes the transmitter from the circuit. This allows line monitoring without disrupting conversations, data or signaling. If you are interested in purchasing or would like further information on the Dracon TS21 Craft Test Set contact:

Harris Coporation Dracon Division
809 Calle Plano
Camarillo, CA 93010
(805) 987-9511

TROUBLESHOOTING AN AOS WITH YOUR BUTTSETT

In case you don't have a digit grabber (see Feb '89 issue) to troubleshoot an AOS problem, one alternative is to use a buttsett. Hook your buttsett up at the interface box and switch to monitor mode. This will allow you to listen to everything that happens on the phone line. From the payphone, make an 0- or 0+ call and listen to the phone dialing out. Make sure when it receives return signals that it dials out at the right time according to the protocol for your operator service. You should be able to tell where in the dialing sequence the phone is not responding properly. If you need to call us for further assistance, please make a note of where the problem is occuring. This will allow us to help you solve the problem more efficiently.

PAOF...HOW DOES IT WORK?

Welcome to a new monthly series of articles dedicated to teaching you the many aspects of a lengthy subject. That subject will be Elcotel's latest product PAOF (Payphone Automated Operator Function). In the January issue of the Troubleshooter we introduced POAF and listed the minimum requirements for it to work. You may want to review that article before proceeding. This month we'll begin by discussing an essential counterpart to POAF...PNM 1.1.0. In PNM 1.0.7 any data that is uploaded to the computer from the payphone (i.e. general registers, speed dial numbers, band charges and exceptions group) will be stored in the CHAT.MIF file. This file will no longer exist in PNM 1.1.0. In order to retain the MIF data for PNM 1.1.0 we must go through the process of converting this data from PNM 1.0.7 into a usable format for the new PNM 1.1.0. Before you install PNM 1.1.0 and convert any data you should:

1. Print out a master list of your phones and group them by register similarities.
2. Upload general registers, speed dial numbers, band charges and exceptions group for at LEAST one phone in each group of phones.
3. BACKUP YOUR CHAT FILES FROM PNM 1.0.7 (see August '88 issue)
4. Dinstall PNM 1.0.7

Now you can INSTALL PNM 1.1.0 and start the task of cutting up the CHAT.MIF file.

CUTTING UP THE CHAT.MIF FILE

Essentially, we are breaking up the CHAT.MIF to create separate generic files for general registers, speed dial numbers, band charges and exceptions group which will be denoted with the file extensions REG, SPD, BAN, and XCT respectively. You can then create separate versions of each file and assign any combination to a phone or group of phones in the database. From the main menu of PNM enter 7 for Utilities and then 4 for Convert CHAT.MIF to generic files. After reviewing the next screen press enter to begin cutting. You'll then be asked to choose the file(s) you want to convert. In the final stage you'll name the file, choose the ID you want to make it from and process the file...simple as that. Since there is now no need for the MIF file, you can erase it from the PNM directory. We recommend saving the backups, just in case you make a mis- it might be advantageous to start over again.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. May 1989 Volume 2 Number 2

TROUBLESHOOTING AN AOS WITH YOUR BUTTSET

In case you don't have a digit grabber (see Feb. '89 issue) to troubleshoot an AOS problem, one alternative is to use a buttset. Hook your buttset up at the interface box and switch to monitor mode. This will allow you to listen to everything that happens on the phone line. From the payphone, make an 0- or 0+ call and listen to the phone dialing out. Make sure when it receives return signals that it dials out at the right time according to the protocol for your operator service. You should be able to tell where in the dialing sequence the phone is not responding properly. If you need to call us for further assistance, please make a note of where the problem is occurring. This will allow us to help you solve the problem more efficiently.

ADDING AREA CODES OUTSIDE THE U.S.

Within our rate tables are rates for the continental United States only. In some cases it is desirable to allow calling to **AREA CODES** outside the United States (Canada, Mexico, Puerto Rico, etc.) which is relatively simple. However, you should take some precautions before doing so.

When calling other countries you are dealing with other Central Offices that perform on their own standards. Imagine a customer putting in $2.50 to call Moose Jaw, Saskatchewan and the ringback they receive is not the "standard" 2 seconds on and 4 seconds off as it is here in the United States. Nobody is home, the mic. opens and the phone collects their money. The same goes for busy signals. If you run into such a problem call Customer Service and we may be able to make a few programming changes to compensate for these out of spec. signals.

Here's how to enter new area codes and price them. You want to enter these new area codes under Special NPA Band Exceptions in registers 780 through 799. For each register enter the area code and the band number you want to refer it to. If you chose say band 60, simply enter the initial and subsequent rates and periods for that band. To get a good idea of how to price these calls you might want to go to a Bell phone and see what they are charging.

TECHNICAL TRAINING

ELCOTEL conducts Technical Training seminars twice a month at the Florida Corporate office and once a quarter in the California office. These seminars cover hardware, software, PAOF, PNM, installation and maintenance, and are completely free of charge. Seating is presently limited to six in our Florida office but will soon be expanded to accommodate twelve or more. The California seminars can accomodate twenty to twenty-five students.

We urge everyone to attend these informative sessions at least once a year to keep your knowledge and skills at their peak.

If you are interested call Linda Means in the Florida office @ 813/758-0389 (X304). Space is limited so be sure to register far enough in advance to ensure reservations.

PAOF.....HOW DOES IT WORK?

Last month we went over the basic installation procedures for PNM 1.1.0 and how to cutup your MIF file. Now that PNM is ready for PAOF you'll need to know if the installation sites are ready. This month we'll be going over various preliminary test procedures to determine if the site is conducive for PAOF. Here is what to test for:

1. VERIFICATION OF 10XXX ACCESS

The last thing the phone does when processing a PAOF call is send it out as a 1+ number. 10XXX access is needed to utilize a discount equal access carrier (also referred to as an IXC) such as MCI or Sprint to cut costs on these calls. If you have a digit grabber you would see the final call go out something like 1022218137580389. If you don't have 10XXX access you can still send the call through AT&T but you won't receive discount rates. This can be accomplished by leaving a blank entry when asked for your 10XXX IXC access in the Expert Editor. Another way to accomplish this is if your telephone line is pre-subscribed to an IXC. In other words all your 1+ traffic is routed to your IXC at the Central Office.

2. RECEIVE 2 BONGS WHEN AN INVALID CREDIT CARD IS ENTERED

When using DTMF validation a second bong is required after entering an invalid credit card. If you are in an area that does not provide 2 bongs you can put a 10XXX access to AT&T in front of the validation access number, if 10XXX service is available, allowing 2 bongs from AT&T. Modem validation is now available as well. Contact Customer Service for further information.

Note: PAOF will still work if only one of the above conditions is met.

3. VERIFY WINK IS PRESENT TO DISABLE KEYPAD BEFORE SECONDARY DIAL TONE IS RETURNED

Set 145 and 126 ON to leave the keypad open. Make a local call and have the called party hang up. If you receive secondary dial tone check to see that the keypad is dead. If you don't have secondary dial tone then this shouldn't be a concern (see March '89 issue). An open keypad is not a requirement for PAOF, but just an added convenience to the customer.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. June 1989 Volume 2 Number 3

OPTIMIZING YOUR POLLING

In version 4.2 software registers 276 and 277 are used to optimize polling time. If you poll your phones at night, which most of you do, it is possible to set the phones to answer on the first ring at a certain time of day (reg. 276) for a certain number of hours (reg. 277). This will allow you to poll your phones quicker since you don't have to wait for 5 full rings before the phone answers.

You also have the option of using a DOS command line to poll by dialing list. This will enable you to exit or enter PNM automatically through a batch file in order to utilize other programs. Future releases will allow you to poll and print reports automatically. Typing the command "CHAT L1" from DOS will begin polling dialing list number 1. To poll several dialing lists type the command "CHAT L1 L2 L3" (note proper syntax). These commands must be accompanied by the auto exit from PNM after polling feature if you are going to utilize other software packages with your batch file. In next month's issue we will make an example batch file.

AFTER SWITCHBOARD HOURS

Our main lobby switchboard is staffed continuously Monday through Fridays (holidays excluded) from 8 A.M. till 6 P.M. If you have a need to call between 7:30 A.M. and 8:00 A.M. or 6:00 P.M. and 7:30 P.M. you will get our automated operator "CINDI". To reach Customer Service just dial 585.

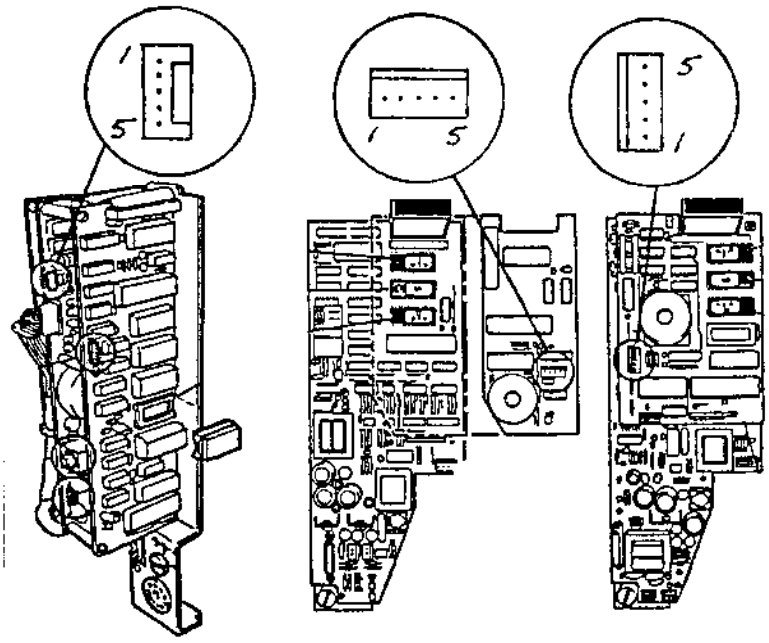
RATES CHANGES

Several of our customers have requested they be notified when rate changes are made in their areas. Below is a listing of the areas that were affected in the month of May 1989. If you have phones in any of the areas listed below, don't panic...most of the updates are simply the addition of local exchanges. Detailed information can usually be obtained from your local PSC/PUC. If changes become complex or involved we recommend purchasing a new rate center from Elcotel.

Alabama 205; **California** 209, 408, 619, 707, 714, 805, 916; **Connecticut** 203; **Delaware** 302; **Florida** 305, 904, 407; **Georgia** 404, 912; **Illinois** 217, 309, 312, 618, 708; **Iowa** 319, 712; **Kansas** 316, 913; **Kentucky** 502, 606; **Louisiana** 318, 504; **Maine** 207; **Massachusetts** 508, 617; **Michigan** 313, 517, 616, 906; **Minnesota** 218, 507, 612; **Mississippi** 601; **Missouri** 314, 417, 816; **Montana** 406; **Nebraska** 308, 402; **New Jersey** 201; **New York** 212, 516, 718; **Ohio** 216, 419, 614; **Pennsylvania** 215, 412, 717, 814; **Texas** 214, 409, 512, 806, 817, 915; **Virginia** 703, 804; **Wisconsin** 414, 608, 715; **Washington D.C.** 202.

OPTIONAL PROGRAMMMING ACCESS

We frequently receive calls concerning inability to access the payphone programming mode. This is sometimes due to a RAM glitch that may have changed the bypass code or someone has inadvertently misprogrammed it. There is however more than one method of finding out the owner bypass. Each series of board is equipped with an alarm connector that with an alarm kit can monitor the cash box, upper housing and an external device. With the phone on hook, short pins 4 and 5 on this connector for 5 seconds. Lift the receiver and you should have no dial tone. You are now in the programming mode. Just dial 230 to find out the bypass code. This procedure is also the only way to access programming if register 135 (high security) is ON. High security disables access to the programming mode from the keypad. The following illustrates where the connectors and the pins can be found on each board as it sits in the cabinet.



FRAUDULENT CALLING

On February 2, 1989 a letter was mailed to every active customer on our database concerning the remote possibility of fraudulent calls being made from your payphone. This is a recap of that letter in case you or your technicians were unaware of its contents. If you are using register 169 (treat 00 like 0) in conjunction with some call type registers fraudulent calls may be made from the payphone. We recommend disabling register 169 and enabling register 181 (modify 00 to 0) If you are not using call type register 880 (Manual coin AOS) insert "00" in it.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. July 1989 Volume 2 Number 4

ERRATIC COIN RELAYS

After spending many hours trying to determine why a phone was losing a considerable amount of revenue, Stan Plauche (CRS Communications, Metairie La.) called and shared the solution with us. What Stan discovered was that when installing the phone the ground wire was routed behind the coin relay hopper interfering with its operation. What would happen is that when a call was made that would require the coin relay to fire in the collect position, the hopper would bind and the coins would build up everytime a collect signal occurred. However, when a call was made so the relay would activate in the return position some lucky person would "hit the jackpot" and all of the money captured in the hopper would be routed to the coin return. Stan's solution was quite simply to reroute the ground wire from behind the coin relay hopper so it would not interfere with the flapper.

We would like to thank Stan for sharing this information with us and we would also like to thank him for giving us permission to share it with you. Good work Stan.

RATES CHANGES

Below is a listing of the areas that were affected in the month of June 1989. If you have phones in any of the areas listed below, don't panic...most of the updates are simply the addition of local exchanges. Detailed information can usually be obtained from your local PSC/PUC. If changes become complex or involved we recommend purchasing new rates from Elcotel.

Alabama 205; **Arkansas** 501; **California** 209; **Florida** 813; **Georgia** 404, 912 (see article); **Idaho** 208; **Illinois** 708; **Indiana** 219; **Iowa** 515; **Louisana** 504; **Massachusetts** 413, 508, 617; **Mississippi** 601; **Nebraska** 308, 402; **Nevada** 702; **New Mexico** 505; **New York** 212, 516, 607, 914; **North Carolina** 704, 919; **Ohio** 216, 419, 513, 614; **Oregon** 503; **Pennsylvania** 215, 412, 717, 814; **Rhode Island** 401; **South Carolina** 803; **Tennessee** 615, 901; **Texas** 214, 512, 713, 806, 915; **Utah** 801; **Washington** 206, 509; **West Virginia** 304; **Wisconsin** 414, 608, 715; **Wyoming** 307.

NEW GEORGIA DIALING INSTRUCTIONS

Currently, a long distance call within the 404 area can be made by dialing "0" or "1" plus the seven digit number. Effective October 1, 1989 it will be necessary to include the area code on **EVERY** long distance call dialed within the 404 area code. To make the change easier you may begin dialing the area code on long distance calls now. Don't forget that you might also have to reprogram some of your "call home" numbers in your payphones to include the 404 area code.

PAOF....HOW DOES IT WORK?

One of the printing options for PAOF information is the Detail Summary Report of PAOF calls. This differs from the normal Summary Report in that it contains not only totals for each phone, but SMDR information on each PAOF call made from the phone. The SMDR (Station Message Detail Report) is broken down into the following headings of which an explanation is given for each.

Destination #: The 0+ number the user dialed.
Date: The date the call was made.
Time: The time of day the call was made.
Dur: The duration of the call.
$Price: The price of the call as billed to the customer.
TY: How the call was catagorized according to the call type table. (See pages 11 & 12 of 4.2 Software Manual).
RT: The macro the call was routed through. (See page 13 of the 4.2 Software Manual).

There have been call type and macro additions to the manual for PAOF. They are as follows:

ADDITIONS TO CALL TYPE LOOKUP TABLE

NUMBER	REG.	CALL TYPE
7	867	PAOF 0+ converted to 1+
25	* 885	PAOF collect\CC validation
26	* 886	PAOF collect call
28	* 888	0+ modem validated unbillable

ADDITIONAL MACROS

macro 4	PAOF IXC Access
macro 31	PAOF Collect
macro 33	Modem Validation
macro 34	IXC access W/O branding

* Note: These registers can only be changed through the Expert Editor.

ENGINEERING NOTICE

As of January 1, 1989, all new AT&T keypads have been changed by the factory and will not work with our product. This will require a modification to keypads dating from 1/89. Due to the difficulty of this modification we recommend that you call Customer Service for further information and to receive a return authoriztion number to have the modification done. Keypads bought from Elcotel already have this modification before they leave the factory. If you wish to purchase extra keypads in the future you may want to buy directly from us.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. August 1989 Volume 2 Number 5

PROPER HARD DISK MANAGEMENT

Improper hard disk management can result in PNM running too slow. This will become noticable if it takes too long for the highlight bar to move from one entry to the next on the scan list. Hard disk management or "optimizing" your hard disk may be the solution. Access to information on the hard disk can be affected because of any or all the following reasons:

1. **Buffers**

When accessing the hard drive, the information is temporarily stored in an area of memory called a buffer. When the hard drive is accessed again the computer searches the buffer before looking on the hard drive thus cutting down access time. The more buffers assigned, the less the hard drive is accesed. However, too many buffers can slow down the system as well since the computer has to go through all the buffers before looking at the hard drive. Generally, PNM will require 15 to 20 buffers. To check your buffer size type the command "**type config.sys**" from your DOS directory.

2. **Deleted files**

When a file is deleted from a directory it is marked as a deleted entry rather than erasing it completely. A lot of deleted files can slow the computer because it searches through the deleted entries as well as the existing files.

3. **Directory Order**

Directories in DOS are specially marked files. When these files become scattered over the hard disk the computer must first find the directory and then find the target file. On computers with many files and directories this can waste time. The solution is to place the directories at the beginning of the hard disk using a directory sort utility. This way the computer will search through only directories first instead of a mixture of files and directory names.

4. **Fragmentation**

When files are stored they are placed one after another in the first available space on the hard disk with no regard to size, date, subject, etc. If the file is too large, the remainder of the file will go into the next available space. This storage technique can cause files to be broken up into two or more pieces at various locations on the disk. This is known as fragmentation. Every time a file is deleted the potential for fragmentation increases. A disk optimizer can solve this problem by rearranging each file in one continuous piece adjacent to neighboring files. You may want to visit your local computer store and pick up a hard disk maintenance package. We are most familiar with Golden Bow's Vopt, Paul Maces Mace Utilities and Peter Norton's Norton Utilities. Others include Disk Doctor, Disk Optimizer, Disk Organizer, Fastrax and PC-Tools.

Note: Please be sure to back up your computer before installing any disk management package in the event there is a glitch in it.

RATES CHANGES

Below is a listing of the areas that were affected in the month of July 1989. We are generally notified of these changes in advance so, they may not be effective immediately. If you have phones in any of the areas listed below, don't panic...most of the updates are simply the addition of an exchange. Detailed information can usually be obtained from your local PSC/PUC. If changes become complex or involved we recommend purchasing new rate files from Elcotel.

California 209, 408, 619, 714, 805, 916; **Colorado** 303, 719; **Connecticut** 203; **Delaware** 302; **Florida** 305; 813; 904; 407; **Georgia** 404, 912; **Illinois** 217, 309, 312, 618, 708, 815; **Indiana** 219, 317, 812; **Iowa** 319, 515, 712; **Kansas** 913; **Kentucky** 502; **Louisiana** 318, 504; **Maine** 207; **Maryland** 301; **Massachusetts** 413, 508, 617; **Michigan** 313, 517, 616, 906; **Minnesota** 612; **Missouri** 314, 816; **Nebraska** 308, 402; **Nevada** 702; **New Hampshire** 603; **New Jersey** 201, 609; **New Mexico** 505; **New York** 212; 516, 716, 718, 914; **North Carolina** 704, 919; **Ohio** 216, 419, 614; **Oklahoma** 405, 918; **Oregon** 503; **Pennsylvania** 215, 717 **Rhode Island** 401; **Texas** 214, 713, 817; **Utah** 801; **Virginia** 703, 804; **West Virginia** 304; **Washington D.C.** 202.

PAOF...HOW DOES IT WORK?

It is possible to program your phones to use a secondary AOS even if you are using PAOF. This can be a worthwhile option if for example PAOF has a billing restriction within the state but your AOS does not. Situations such as this vary from state to state. You may also want to send 0+ no credit card (reg. 893) or Invalid credit card at bong (reg. 898) through your secondary AOS. When creating a rate center file to use a secondary AOS, setup your AOS first before configuring PAOF. If you configure your AOS last and that particular operator service does not use the internal phone bong, register 150 (disable bong on 0+ calls) will be turned ON. This will in turn disable PAOF. You'll know PAOF has been disabled if the PAOF prompt is not heard. If you encounter this, check reg. 150 to be sure it is OFF. In next month's issue, we'll go over different state and LATA routing options when using PAOF with a secondary AOS.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. September 1989 Volume 2 Number 6

DELAYING FOR WINK AND NOISE USING SPECIAL DIALING MACROS

When using 0+ dialing several situations may arise concerning keypads being disabled or an audible second bong tone due to noise or wink on the line. The phone can be programmed to delay looking for wink or noise with a customized macro. Below is a graphic look at what can happen when using the internal bong (150 OFF) or the C.O. bong (150 ON).

A = user dials 0+ number
B = user enter c.c. number
C = phone dials 0+ number
D = phone dials c.c. number

1. OPERATION WITH SIMULATED BONG (150 OFF)

```
        phone              | x |  C.O.
|---A-- bong  ---B---|--C---------  bong --D----|---------|
|     audible        |      inaudible           | audible |
```

2. OPERATION WITH C.O. BONG (150 ON)

```
                   |     x      |   C.O.
|---A----------|--C-----------------  bong ----B----------|
|  audible     |   inaudible     |  audible               |
```

Problem: If wink should appear during period x the keypad may become disabled.

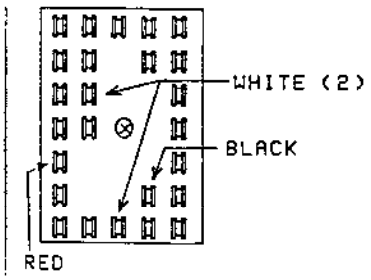
Problem: If noise should appear during period x the mic may open and the C.O. bong will become audible causing the customer to think he must enter his card number again.

Solution: Measure the time from outpulse of 0+ destination number to wink or noise. See pg. 3 of the Model 1200-4 Installation Guide for instructions on how to verify for wink. Call Customer Service for a customized macro.

AUGUST RATES CHANGES

Alabama 205; Arizona 602; Arkansas 501; California 213, 714 916; Colorado 303, 719; Connecticut 203; Delaware 302; Florida 305, 813, 904, 407; Georgia 404, 912; Idaho 208; Illinois 309, 312, 708, 815; Indiana 219; Iowa 319, 515, 712; Kansas 316; Maine 207; Maryland 301; Mass. 508, 617; Mississippi 601; Missouri 314, 417, 816; Montana 406; Nevada 702; New Hampshire 603; New Jersey 201, 609; New York 716; North Carolina 919; North Dakota 701; Ohio 216, 419, 513, 614; Oregon 503; Pennsylvania 215, 412, 717, 814; Rhode Island 401; South Dakota 605; Tennessee 615; Texas 214, 409, 512, 713, 806, 817, 915; Utah 801; Virginia 703; Washington 206, 509; Wisconsin 414, 608, 715; Wyoming 307.

COMPATIBILITY OF WALKER 500T AMPLIFIED HANDSET



Our Engineering department has found the Walker amplified handset to be somewhat compatible with our Series 2 and 4 payphones. Amplification will only work after answer supervision has taken place. At left is a wiring diagram for Palco and GTE keypads.

The only programming requirement is to turn register 132 OFF. Otherwise changes in impedance will cause the phone to call home with a handset alarm.

SOFTWARE/RATING DEVICE COMPATIBILITY

Model	Latest software	Rating device compatibility
1200-1	3.0.23	Series 1 RM
1200-1.5	3.0.419	Series 2 RM
1200-2	4.1.5	4.1.X RM
	4.2.2	4.2.X RM
1200-2.5	4.1.5	4.1.X RM
	4.2.2	4.2.X RM or *EEprom
	4.3.4	*EEprom
1200-3	4.1.5	4.1.X RC
	4.2.2	4.2.X RC or *EEprom
	4.3.4	*EEprom
1200-4	4.1.5	4.1.X RM/RC
	4.2.2	4.2.X RM/RC or *EEprom
	4.3.4 (PAOF)	*EEprom

*Note: Any software level using EEproms must be downloaded using PNM computer software and rate center files.

NEW TELEPHONE PRACTICES

Effective the first week in October, there will be some changes in telephone practices, primarily to serve you better but also to curb certain telephone abuses, contributing to excessive WATS line costs.

Our basic number has been and remains:

(813) 758-0389

During business hours this number will be answered by our receptionist. If your call goes unanswered for six rings or more, our automated operator (CINDI) will answer. CINDI will allow you to enter the extension of the dept. or person you wish to speak. So it is very important to make notes of the extensions you call most frequently.

The very popular (800) **ELCOTEL** will be answered **ONLY** by CINDI who will be programmed to take messages only. These messages will be forwarded to the appropriate extension and a return call will be made in a timely manner.

A new number (800) **67-SALES** will be answered by our receptionist, and can be directed **ONLY** to our Sales representatives and Order Processing personnel.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. October 1989 Volume 2 Number 7

****

THIS IS A VERY IMPORTANT ISSUE OF THE TROUBLESHOOTER IT DEALS WITH THE EXTREMELY CRITICAL SUBJECT OF THE POSSIBILITY OF FRAUDULENT CHAIN DIALING BEING PERFORMED FROM YOUR PAYPHONES

****

IMPORTANT NOTICE

October 23, 1989

Dear 4.2 and 4.3 Software user,

On February 2, 1989 Elcotel distributed to everyone in the "Active Database" a letter regarding the remote possibility that fraudulent calls could be made from their payphones.

Recently a new method of fraud has been discovered.

To eliminate this fraud register 870 (1-800 Access) must contain a "01".

Also register 869 should contain a "00" unless adequate call screening is available and 10xxx0+ calls are absolutely required.

To review... the recommended register and options settings are as follows.

Option/Register	Setting
169	off
181	on
880	00
869	00
870	01

If you are unclear on these matters please don't hesitate to call us in Customer Service Engineering for a more detailed explanation.

Sorry for any inconvenience this may have caused you, and thank you for your cooperation.

Sincerely,

Dick Maxey
Director Customer Service Engineering
Elcotel, Inc.

This is a reprint of a letter sent to all of our customers on October 23, 1989.

****

TROUBLESHOOTER MAILING LIST

Each month Elcotel Customer Service Engineering publishes this technical newsletter. If this is the first Troubleshooter that you have received but would like to be put on the permanent mailing list, call Customer Service Engineering at...

1-813-758-0389

PREVENTING FRAUD

When setting up your phones for keypad operation you need to be concerned with fraudulent "Chain Dialing." Chain Dialing is only possible when your C.O. (Central Office) returns dial tone without requiring your set to go back "on-hook." The way to test for this is to call your office and tell the person answering to hang up. If within the next minute or so you get dial tone from the C.O. without going back on hook..... YOU HAVE THE POTENTIAL FOR CHAIN DIALING!!

THIS MUST BE DONE ON EACH INDIVIDUAL TELEPHONE!

After testing the conditions at the individual telephone and setting it according to the chart below...it is **IMPERATIVE** that you make a series of test calls confirming that when secondary dial tone returns the keypad on the payphone is dead and that the phone cannot be frauded. If you need assistance with any of these tests or determining what the tests mean, don't hesitate to call Customer Service Engineering.

Condition	Option Setup			
	123	127	126	145
No secondary dial tone.	OFF	OFF	OFF	ON
Secondary dial tone and no wink	ON	ON	OFF	OFF
Secondary dial tone with wink	OFF	OFF	ON	ON

****

RATES CHANGES

On Nov. 11, Illinois will introduce the new Area Code of **708** to the suburbs of Chicago. Any rate modules or Rate Center files ordered after Nov. 1 will include this new Area Code. Below is a listing of areas that were affected in the month of September 1989.

201; 203; 205; 206; 207; 208; 209; 212; 213; 214; 215; 217; 218; 219; 301; 302; 304; 305; 308; 309; 312; 313; 314; 317; 318; 404; 406; 408; 409; 412; 413; 414; 415; 419; 502; 504; 507; 508; 509; 512; 515; 517; 518; 601; 602; 606; 607; 608; 609; 612; 614; 615; 616; 617; 618; 619; 701; 703; 704; 707; 708; 713; 714; 716; 717; 718; 803; 804; 805; 806; 812; 814; 816; 817; 818; 901; 906; 912; 914; 915; 916; 919.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. November 1989 Volume 2 Number 8

SERIES 5 LINE POWERED BETA INSTALLATIONS

We have done some Series 5 line powered beta installations recently and things are going much better than first expected. These original installations were done in our immediate area so we can keep a very close watch on them. So far we are very pleased with their performance and it looks like the final release version will be available in the very near future.

SERIES 5 SNEAK PREVIEW

We have had many inquiries about the series 5 line powered product. Here is a "Sneak Preview" of some of the most exciting features on the 5LP.

- **LINE POWERED** (operates on standard 48 vdc loop providing no less than 25 ma of line current)
- **DOWNLOADABLE SOFTWARE** (Point releases are downloadable to EEprom, leaving a default program always in Eprom)
- **"PRIORITY PARSING"** (allows special treatment of single numbers, or any group of numbers, ie. exchange, NPA, or any combination)
- **"Zero-Crossing"** answer detect (state of the art methods allowing even calls to and from noisy lines to be accurate)
- Downloadable **TROUBLESHOOTING DIAGNOSTICS.** (Remote diagnostics show you **EVERYTHING** that has happened on the payphone)
- **HIGHER SECURITY** on PNM and voice telemetry. (Eight digit PNM password, four digit I.D. and eight digit owner bypass code)
- **EXTENSIVE ANTI-FRAUD** pattern scanning
- **1200/300 BAUD** modem for faster polling

OCTOBER RATES CHANGES

Below is a listing of the areas that were affected in October 1989. We are generally notified of these changes in advance so, they may not be effective immediately. If you have phones in any of the areas listed below, don't over-react, as most of the updates are simply the addition of a local exchange. Detailed information can usually be obtained from your local PSC/PUC. If changes become complex or involved we recommend purchasing new rate files from Elcotel.

201; 205; 209; 212; 213; 214; 215; 216; 218; 219; 301; 312; 313; 315; 319; 401; 402; 404; 405; 408; 409; 413; 415; 419; 501; 503; 507; 508; 512; 513; 515; 516; 517; 601; 602; 603; 605; 612; 614; 615; 616; 617; 619; 702; 704; 707; 708; 712; 713; 714; 717; 805; 806; 814; 815; 817; 818; 904; 906; 912; 916; 919;

THE FACTS ABOUT OVER-WRITE

The question has come up quite often as to what happens when you choose **over-write** or **do not over-write** general registers as a polling option. A great deal of confusion and frustration has resulted from misconceptions about what this option does.

To use or not use this option is done from the polling options menu in the network manager. Whether you choose to over-write or not, the entire rate center, including general registers, is burned into the phone when the module file is downloaded. The only data affected by this option is the register file shown for that phone in the master list.

When the module file is downloaded and do not over-write is selected, the register file in the master list remains as it was before the download. Over-write general registers at download will take the general registers portion of the module file and write that set of general registers to the register file in the master list.

Care must be taken when using this feature if you have the same register file name assigned to more than one phone. Using over-write general registers will change the register file for the phone being downloaded but it will also change any other phone that has the same register file name.

NEW TELEPHONE PRACTICES

As many of you have already noticed, we have changed some of our telephone procedures and practices. For those of you that didn't get the word...our basic number is still:

813-758-0389

This number affords you the fastest access to Elcotel as it has the most trunks assigned to it. A new toll free number:

800-67-SALES

has been added to make your ordering easier and it rings directly into the order processing department.

The popular (yet frequently abused) 800-ELCOTEL has been programmed to only take messages. If you still use this number, leave a message containing your name and company name, and a telephone number where we can reach you. The message mailbox is checked every fifteen minutes, so a return call should not result in a delay or inconvenience.

If you have any difficulties getting service, or don't get a return call in a timely manner, feel free to contact Customer Service Engineering and we will try to correct the problem as soon as possible.

ELCOTELLER

THE TROUBLESHOOTER

Published by Elcotel Inc. December 1989 Volume 2 Number 9

PAYPHONE FRAUD AND SECURITY

On December 18, 1989 you were mailed a five page document concerning "Payphone Fraud and Security". This document covers many important issues and should be studied thoroughly and kept for future reference.

However, on page 3 there is an important section dealing with "**Set-UP FOR 1-800 and 950 IXC ACCESS AND NO WINK**" that has an error in it. Many of you have probably already identified the oversight, which is of course that the keypad should be **DISABLED (145 OFF)** not enabled (145 on), when setting up for 1-800 or 950 IXC access and no wink.

Accompanying this month's copy of the Troubleshooter is a replacement page 3 for this important document. Please take a moment to **REMOVE & DISCARD** the existing page (WDK/112289) and insert the new page (WDK/010490).

Thank you for your cooperation on this matter and we apologize for any inconvenience this may have caused.

If for any reason you did not receive the **PAYPHONE FRAUD AND SECURITY** document and would like to, please inform us and we will get one on the way.

MATERIAL RETURN AUTHORIZATIONS

Anytime there is a need to return products of any type to Elcotel, an R.A. (return authorization) is required. This is usually done by calling the Customer Service department and describing what you need to return and why. Here are some basic guidelines that must be followed in order to obtain an R.A.

1. If you are returning a P.C.M. (payphone control module or board), you must first collect the following information before calling. Serial number, Series (2, 2.5, 3, 4, 5) level (modem and or timer), and most important a brief description of the problem.

2. When mechanical telephone parts are to be returned it is necessary to return the entire assembly. This is the only way that the warranty can be honored.

3. With all the returns for credit, we request that you provide us with the invoice number you received with the new product so that we can issue a credit directly to that invoice. This eliminates hunting for the correct invoice and significantly decreases the time for the credit to be applied to your account.

4. Products sent to us for any reason and that do not have an R.A. will not be checked into our system. They will be refused.

RECEIVING THE TROUBLESHOOTER

If you do not receive the Troubleshooter on a regular basis (monthly) and would like to be added to the mailing list, either drop us a note or call us here in Customer Service Engineering at 813-758-0389. If you have any suggestions for the Troubleshooter that you think would enhance its effectiveness, don't hesitate to let us know.

PAOF 950 IXC ACCESS

The Customer Service Engineering Department is in the process of testing 950 access for P.A.O.F. calls. This testing is in response to customers requests for inter-exchange access in areas that do not have Feature Group "D" (10xxx). Although there are some limitations to this configuration, the majority of P.A.O.F. calls are handled exactly the same as with 10xxx access. Contact Customer Service Engineering for details.

NOVEMBER RATES CHANGES

Below is a listing of the areas that were affected in November 1989. We are generally notified of these changes in advance so, they may not be effective immediately. If you have phones in any of the areas listed below, don't over-react, as most of the updates are simply the addition of a local exchange. Detailed information can usually be obtained from your local PSC/PUC. If changes become complex or involved we recommend purchasing new rate files from Elcotel.

203; 207; 208; 212; 214; 216; 217; 218; 302; 303; 305; 309; 314; 318; 319; 404; 407; 408; 414; 419; 501; 507; 512; 513; 515; 516; 518; 601; 602; 605; 607; 612; 614; 615; 618; 619; 704; 707; 708; 712; 714; 716; 717; 718; 719; 802; 805; 813; 815; 818; 901; 904; 912; 914; 915; 916; 918; 919.

RATE CENTER FILES ON HARD DISK

For those of you that use Rate center files (.zap files) to download payphones, it is possible for your hard drive to become congested due to unnecessary files. This will not only deplete your available storage area, but will greatly increase your hard disk access time. (the amount of time that it takes your hard drive to find specific information)

We recommend that you copy any rate center file that you haven't used in a couple of months onto diskette for archive purposes. Then run a disk organizer and directory sort utility program to optimize your hard drive and reduce access time.

However, don't rely on rate center files that are very old, as the only way to ensure accurate rates is to get fresh rate center files, since changes do occur frequently.

10XXX DIALING AND NO SCREENING.

Dialing 10XXX to an IXC (Inter-Exchange Carrier) bypasses screening at the LEC if the IXC operator becomes involved. Payphone patron dialing of 10XXX-1+ must be blocked at the payphone. However, it may be necessary for the payphone to dial 10XXX-1+ to access the IXC for lowest cost routing of calls. In this case, the IXC should provide international call screening. Dialing 10XXX-0+ must also have screening to prevent billing to the originating phone. Dialing 10XXX-0+ appears to be a weak link. If the caller dials 10288-0+ and waits for the operator, it is very easy to bill the call to the payphone. Test calls must be made to ensure the correct Telco screening is being accepted.

ALLOWING 800 and 950 ACCESS TO IXC.

Allowing 800 and 950 access to IXC in locations with secondary dial tone can also present problems. This has to do with the ready tone returned to the caller when the IXC is reached. This tone is often dial tone, at which point the caller is to enter the destination or authorization number for the IXC use. This type of ready tone prevents the use of dial tone detection for terminating secondary touch tone signalling.

To allow touch tone signalling after 1-800 or 950 access to the IXC is fine in locations with no secondary dial tone. Locations that provide Wink can allow touch tone signalling even with secondary dial tone present. The Wink will close the keypad and prevent additional dialing. However, this type access presents a problem in locations with no Wink and secondary dial tone. For this IXC access, timed keypad control must be used if touch tone signalling is required in locations with no Wink and secondary dial tone. Timed control does not provide the same level of protection as Wink and should be used only when absolutely required by the site.

SET-UP FOR 1-800 and 950 IXC ACCESS AND NO WINK.

- **Keypad disabled - 145 OFF.**
- OCC access through local call - 123 ON.
- OCC keypad on at 1st ring back - 127 ON.
- Macro 03 - must be used in place of Macro 02.

TAMPERING.

Another method of allowing free calls is by gaining access to a payphone and tamper with its operational configuration. While the possibility of "hacking" an entry in theory is possible, tamper fraud may come from ex-employees. The payphone can be secured with the use of high security access and limiting remote access to payphone control from touch tone phones.

SET-UP TO STOP TAMPERING.

- High security on local voice telemetry - 135 ON.
  This requires an upper housing key and the owner by-pass code.
- Remote voice telemetry off - 129 OFF.
  This prevents access to the payphone from a remote touch tone phone.
- Change owner bypass code regularly - register 230.

FOR COMPLETE SET-UP INFORMATION, PLEASE CONSULT TECHNICAL MANUAL

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