Flash 7000
Installation Manual

Protel®

Innovation is our business

Flash 7000
Installation Manual

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Introduction

Introducing the Flash 7000

You have made a wise choice in selecting Protel's Flash 7000 chassis. Protel is committed to providing the best possible solution to your paystation needs. The Flash 7000, specifically designed for the telecommunications industry, utilizes the most advanced and dependable components available and features patented line-powered technology. This product shares the proud heritage of excellence that Protel has established in the paystation industry.

The Flash 7000 is a line-powered, smart pay telephone chassis featuring a built-in modem for communication with a remote computer running Protel's ExpressNet®, ExpressNet III® or Panorama® Payphone Management software. The computer provides the ability to perform remote diagnostics, centralized coin collection, remote polling and full-featured route management. The computer will maintain reports detailing call type analysis and revenue generated.

Features

Features of the Flash 7000 paystation include the following:

- Line powered. Needs no AC outlet.
- Flash memory technology allows for field reprogramming.
- Downloadable voice.
- Capability for multi-language.
- DTMF or DP outpulsing.
- Telephone line DTMF receiver.
- Battery backup provides retention of operating parameters.
- Receiver volume control is user adjustable using the "#" key on the paystation keypad or by using an external passive volume control switch.
- Natural sounding digitally synthesized voice instructions enhance user friendliness.
- Built-in modem for remote computer polling and programming. (300 bps FSK half duplex or 1200 bps FSK half duplex when communicating with a Protel UPMS 1200 modem.)
- Communicates with a remote computer running Protel's payphone management software. This provides audit trails of all phone activity (maintenance/ trouble reports and summary reports detailing call type analysis and revenue generated).
- Antifraud design reduces fraud.
- Dialing error correction interprets dialed numbers and adds or eliminates digits as needed to process a call.
- Provides conversion of local post-pay calls to local prepay calls.
- Converts "911" dialing to an appropriate emergency number for areas that do not have "911" emergency service.
- Remote monitoring of the amount in the coin box.
- Remote diagnostics.
- Compatible with Equal Access and standard operator service offerings.
- Hearing-aid compatible.
- Interfaces with voice message systems.
- FCC approved/ETL and CSA listed.
- Reference the section titled "Optional Components" elsewhere in this manual for a listing of available options.

Optional Components

Optional Components

Optional components available with the 7000 Series include the following:

Electronic Coin Scanner (ECS II) Option Interface Board

Provides the interface between Protel's electronic coin scanner (ECS II) and the chassis assembly.

Electronic Coin Scanner (ECS II)

This kit consists of a simple molded plastic track and electronics that provide electronic coin identification and validation functions. The electronic coin scanner recognizes all U.S. and Canadian coins.

Mars Electronics® MS-16 Interface

Allows interface with Mars Electronics® MS-16 electronic coin validator.

Coin Line Board

An optional board that gives the phone the capability of operating on a standard coin line.

1200 Baud DPSK Modem

V.22/Bell 212A compatible 1200 baud DPSK modem circuit.

Bell Ringer Assembly

This is a double gong ringer that mounts directly on to the chassis assembly. The bell ringer may be used in place of the standard electronic ringer.

Volume Control (Push Button)

An external passive volume control switch may be used in place of the "#" key to adjust the volume level of the handset receiver. Ascension® hardware has built-in volume control.

Vault Door Alarm Switch

A vault door alarm switch may be installed to monitor entrance to the coin box vault.

Initializing the Phone

When to Initialize

- All new installations.
- After replacing the chassis assembly.

This section details the process of initializing the phone for operation. The initialization procedure is basically used to reset the operating parameters of the phone to a known condition. Initializing the phone requires the following steps:

- Entering the program mode of the phone.
- Specifying the telephone number of the payphone and the remote computer.
- Downloading the operating parameters from the remote computer to the phone.
- Confirming the download.

Verify that an account record has been set up for phone

Before beginning the initialization procedure, it is highly recommended that you verify with the computer operator that the computer is on-line and that an account record has been set up for the phone.

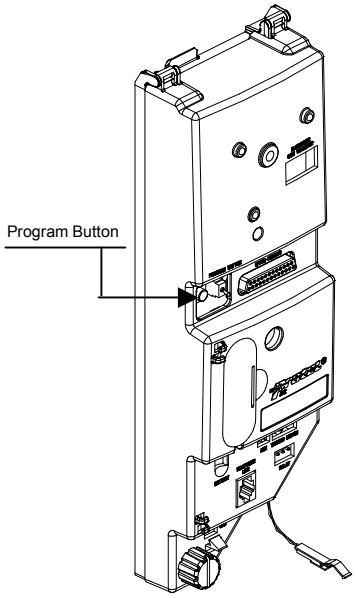
Keep the following points in mind when initializing the phone.

- During the initialization sequence, one beep in the handset indicates that the data entered at the keypad was accepted.
- During the initialization sequence, three beeps indicate that an error was made while entering data at the keypad. The information causing the error must be reentered.
- If an error is made while entering data at the keypad, press the "**#**". When three beeps are heard in the handset, reenter only that line of data.

Step One

Enter the Program Mode

- Locate the **program button** access hole on the chassis assembly just under the terminal block connector.
- With the phone on hook, press and hold down the programming button.
- While still pressing the button, lift the handset off hook.
- Listen in the receiver for a single beep. When the beep is heard, release the button.



Step Two

Input the phone number of the payphone

- Input the telephone number of the paystation using one of the formats shown below. A beep will be heard in the receiver when the number is accepted.

For B1 Line Operation

00	(HAC)	NXX XXXX	*
Code for Non-Coin Line service	Area Code of phone	Telephone number of the payphone	"Star" completes the entry

For Coin Line Operation

01	(HAC)	NXX XXXX	*
Code for Coin Line service	Area Code of phone	Telephone number of the payphone	"Star" completes the entry

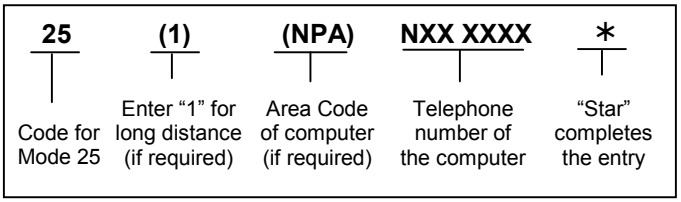
Do Not Hang Up. Proceed to Next Step.

Step Three

Input the Telephone Number of the Remote Computer

- Enter the phone number of the remote computer exactly as it should be dialed by the phone. Use the following format to enter the phone number:

Remote Computer Phone Number



NOTE:
(For coin line phones)
The telephone number to the remote computer must be a 1-800 number, a local 7-digit call, or programmed free number in the CO switch.

Step Four

Installation in Ascension® Housing

If the chassis is to be installed in a Protel Ascension® housing, press 946 and wait for beep. The chassis is now ready to operate the Ascension® volume control and function buttons.

Step Five

Download the Program from the Computer to the Payphone

- Press the "**Star**" (✱) key.
- Press the "**Pound**" (**#**) key.
- Press the "**3**" key.
- Listen for the phone to repeat the ANI number and verify that it is correct.
- Listen for the paystation to dial out and the computer to answer.
- Place the handset on hook. The paystation automatically reports in to the remote computer and requests a download of rates/options information.

Step Six

Confirming the Download

- After the download is complete, come off hook and listen for dial tone.
- Press the "**Star**" (✱) key.
- Press the "**Pound**" (**#**) key.
- Press the "**6**" key.
- Listen for a voice prompt stating the date and time of the last successful phone update. The date and time heard should match the date and time that the download in Step Five took place. If the download was not successful, repeat **Steps One** through **Five** or refer to the troubleshooting section of the manual titled "Phone Will Not Take Download From Computer".

This completes the steps necessary to initialize the phone. The upper and lower housings of the phone may be secured together at this time.

Operational Test

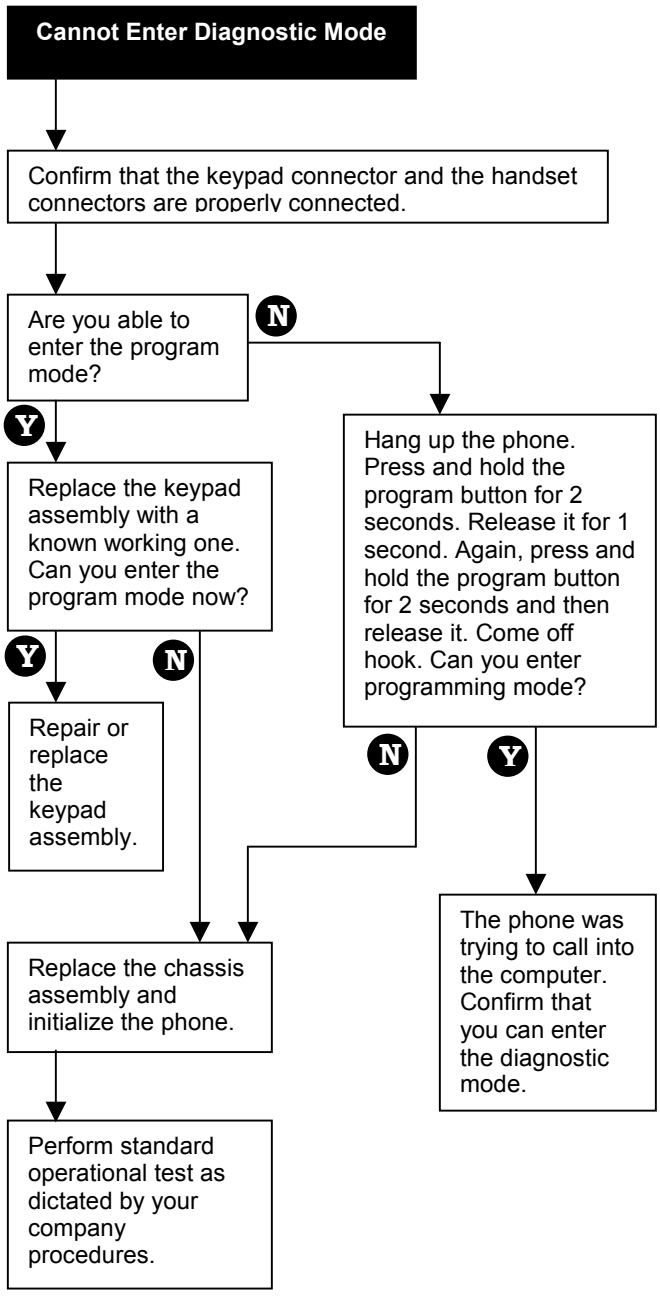
The following test procedure checks for correct operation of the components of the phone. Always use this test procedure to ensure that the phone is working properly before leaving the phone site. The following test should be done with the coin box removed to allow for easy retrieval of deposited coins during the test.

Operational Test Procedure:

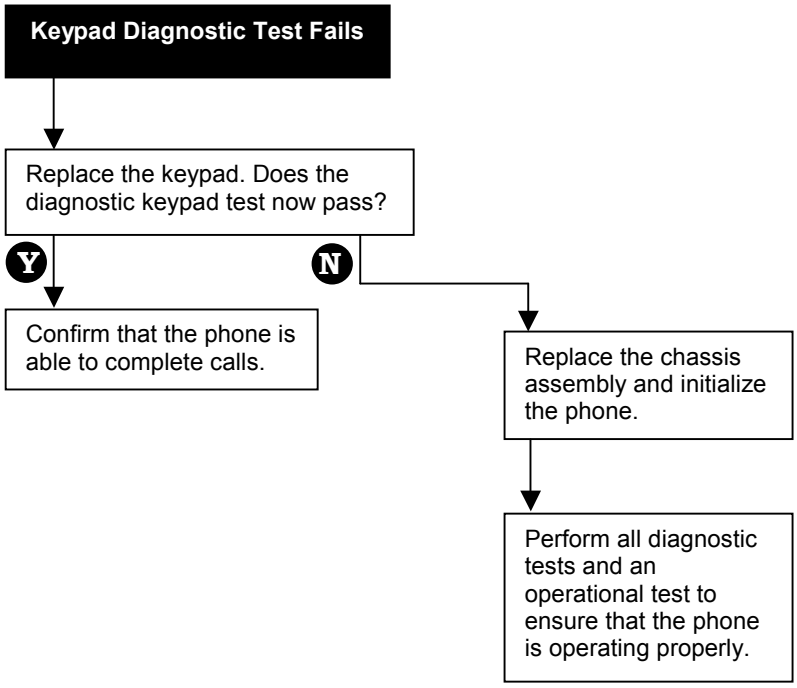
- Take the handset off hook and listen for dial tone in the receiver.
- If the phone is equipped with a volume control button, press the button three times. You should hear the dial tone level change on the first two presses. On the third press, the volume should return to the original level. If the phone is not equipped with a volume control button, press the "#" key three times. The dial tone level should change on the first two presses. On the third press, the volume should return to the original level.
- Press the program button. While continuing to hold the button, listen for a single beep in the handset. After the beep is heard, release the program button.
- Dial **[9]** **(pause)** **[0]** **(pause)** **[2]** **(pause)** to place the phone into diagnostic mode.
- Refer to **Appendix H** to perform the following tests: Keypad Test, Coin Recognition Test, Loop Current Test, Alarm Switch Test (if installed), Escrow Relay Test, Coin Ground Test (if phone is installed on a coin line), and then exit the diagnostic mode.
- Place the handset on hook.
- Go off hook and dial a local phone number (must be a 7-digit call). Deposit the required amount of money less 10¢. Wait for the voice prompt for 10¢ more. Deposit 10¢. Wait for the call to be answered. Hang up and the money should be collected by the phone.
- Go off hook and dial a local phone number (must be a 7-digit call). Deposit the required amount of money. Immediately hang up and the deposited coins should be refunded.
- Dial a series of calls to check that the phone is charging the correct rates for the type of call dialed. For example, dial a local number, a 1+ 7-digit number and a 1+ 10-digit phone number.
- Dial a 0 (zero) + 10-digit call and verify that the call goes to the correct operator service provider (OSP).
- From another phone, call the paystation and verify that modem tone is heard after a specified number of rings (Verify the number of rings with the computer operator.)

Troubleshooting

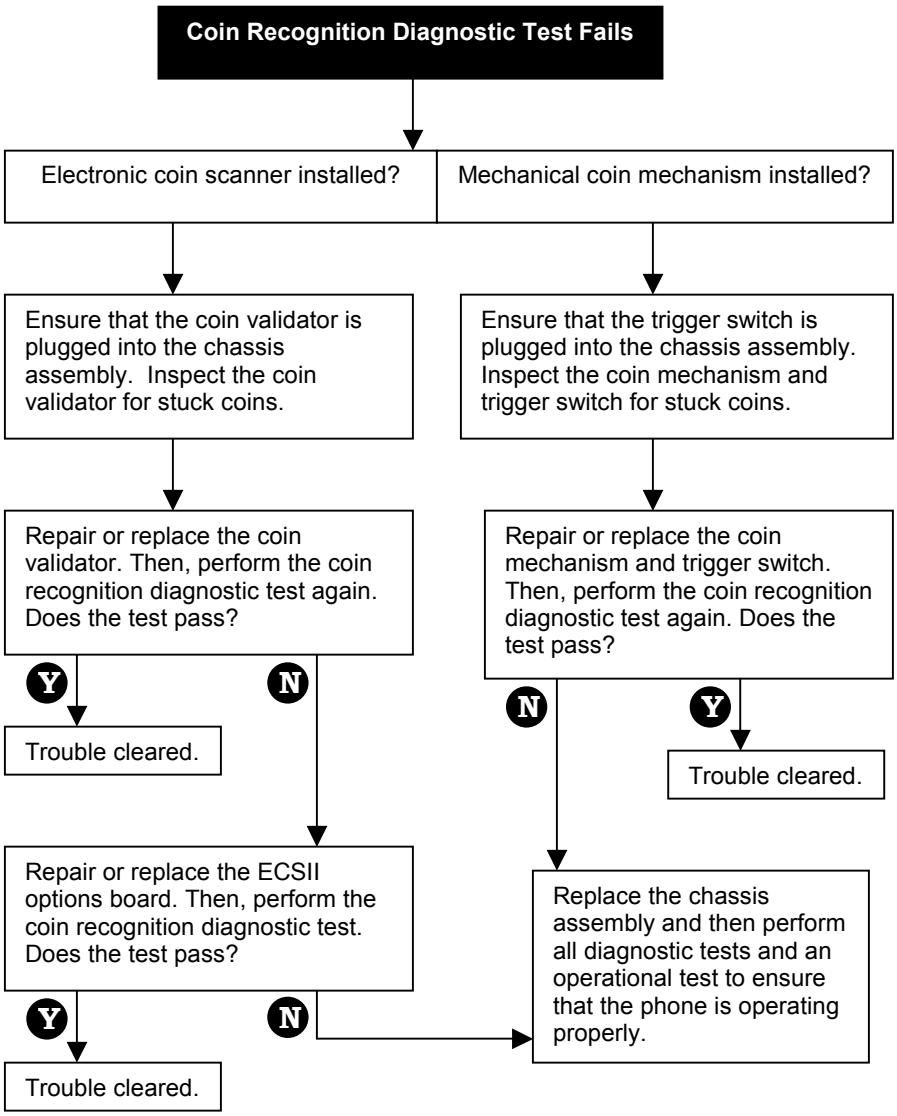
Cannot Enter Diagnostics Mode



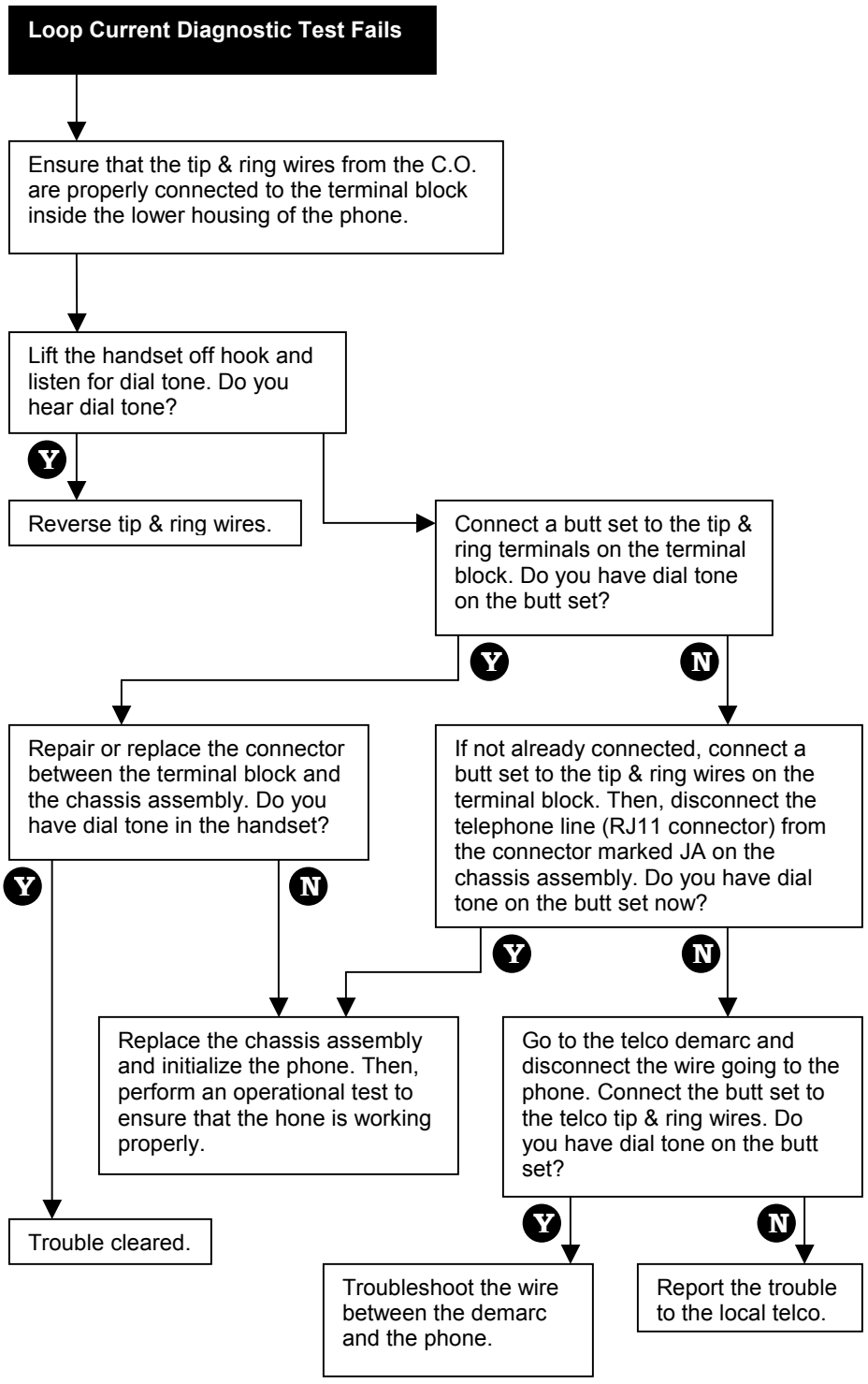
Keypad Diagnostic test Fails



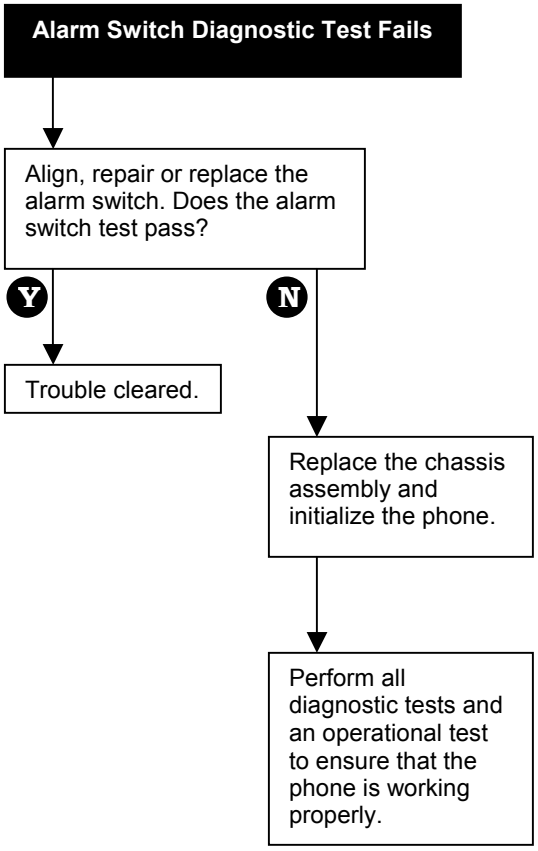
Coin Recognition Diagnostic test Fails



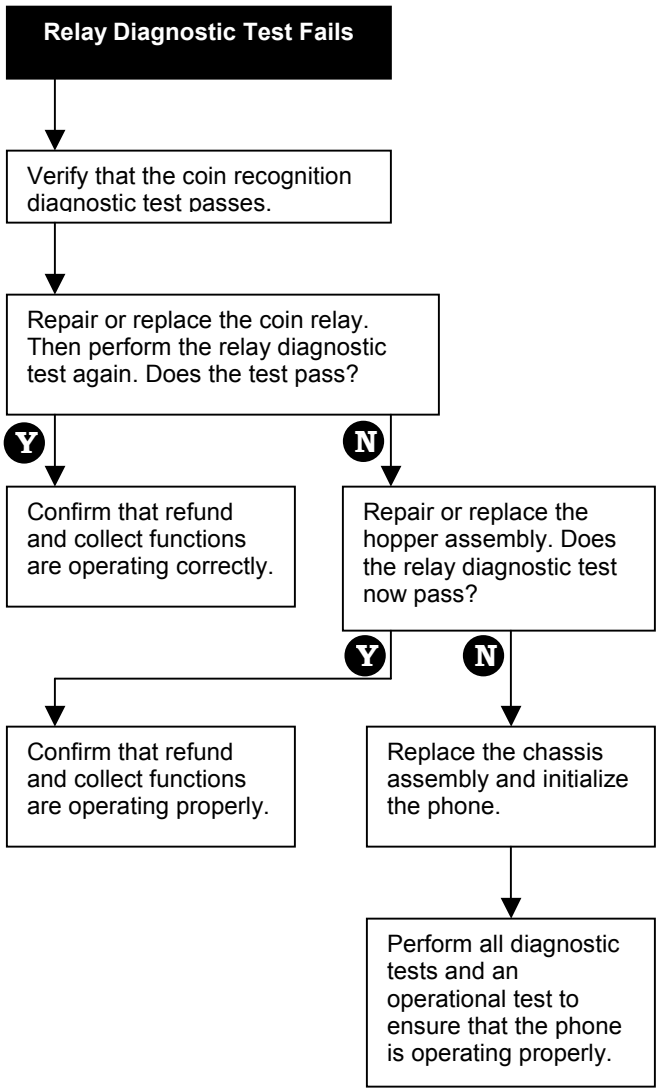
Loop Current Diagnostic Test Fails



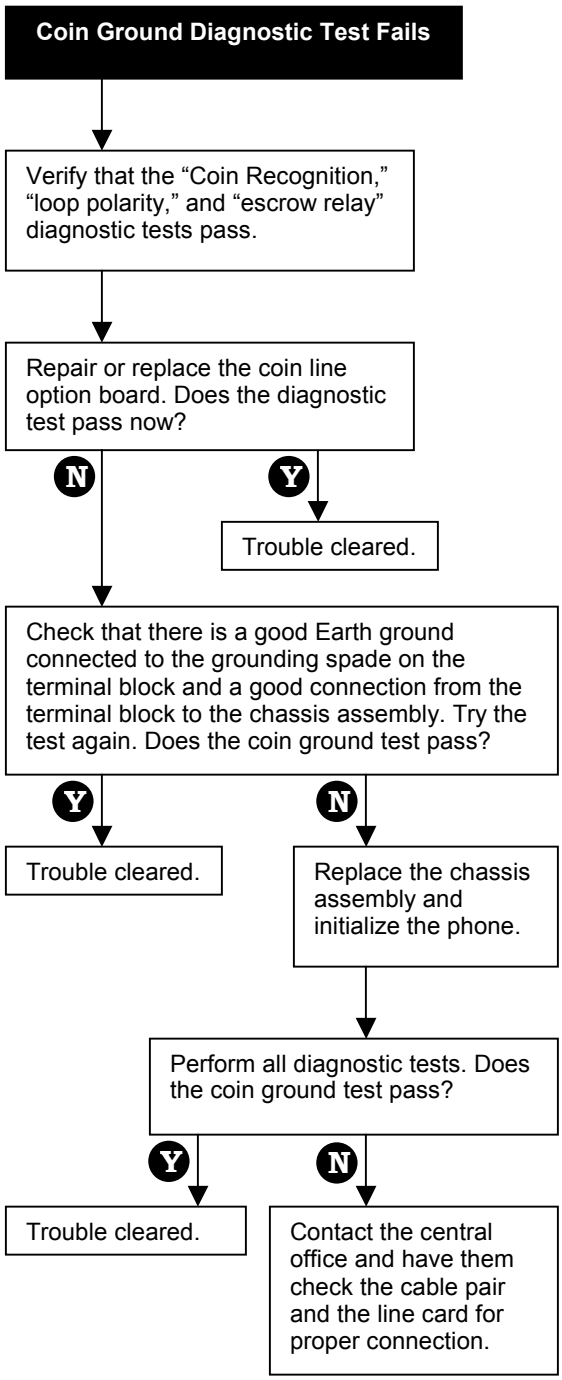
Alarm Switch Diagnostic Test Fails



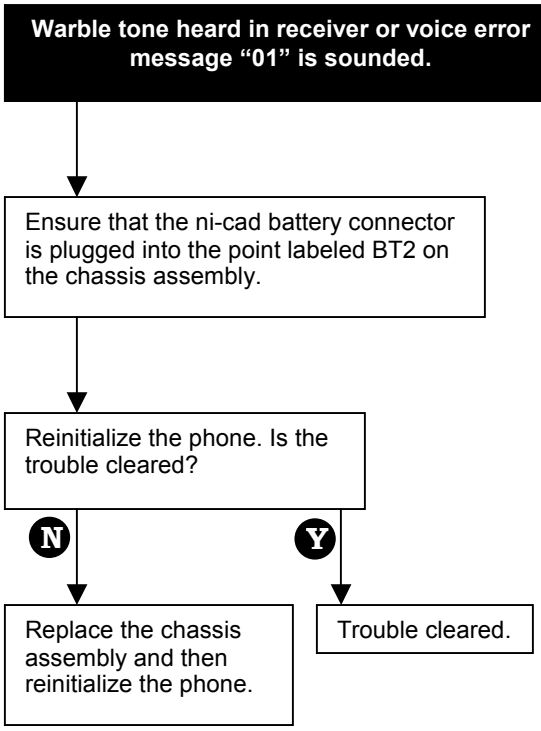
Relay Diagnostic Test Fails



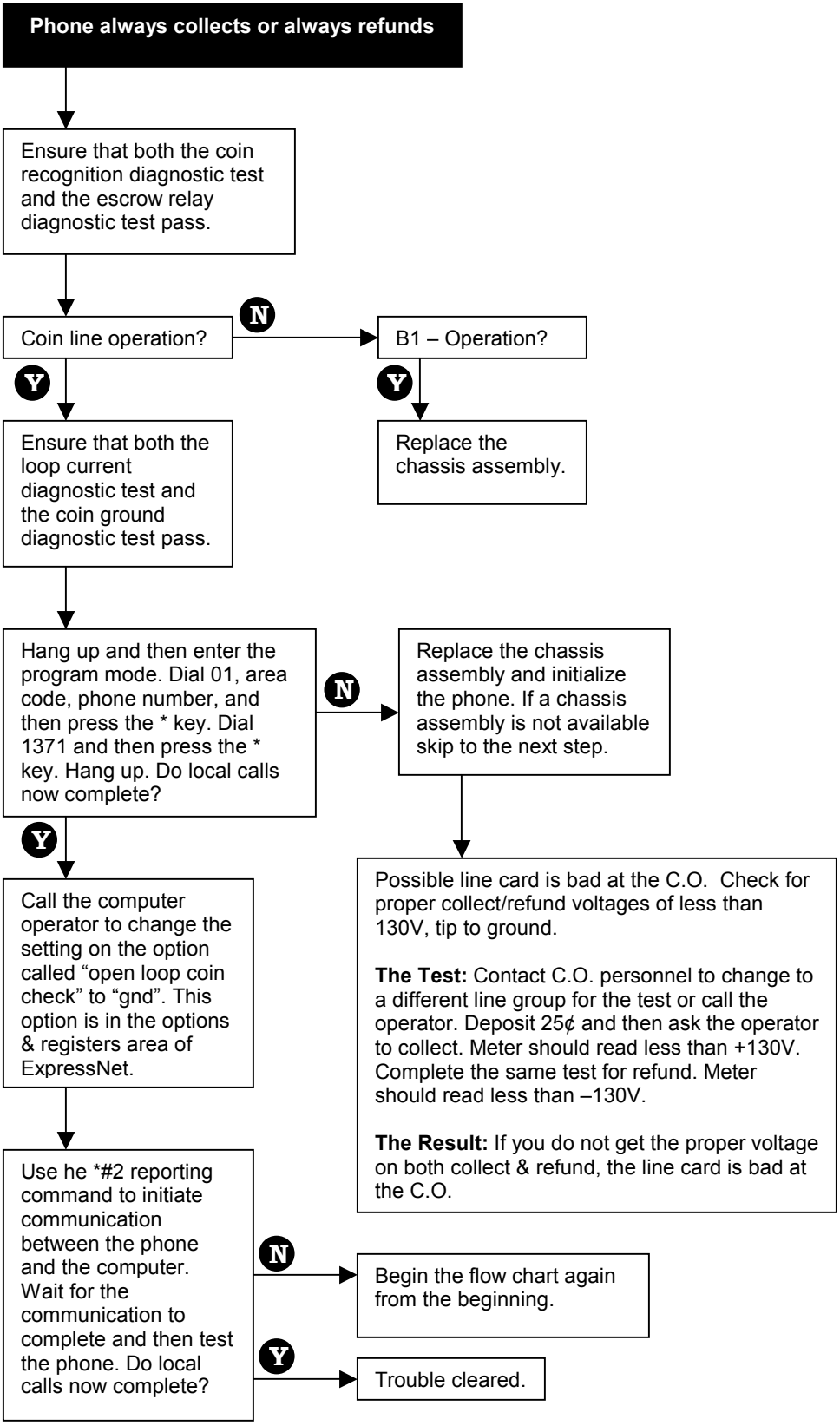
Coin Ground Diagnostic Test Fails



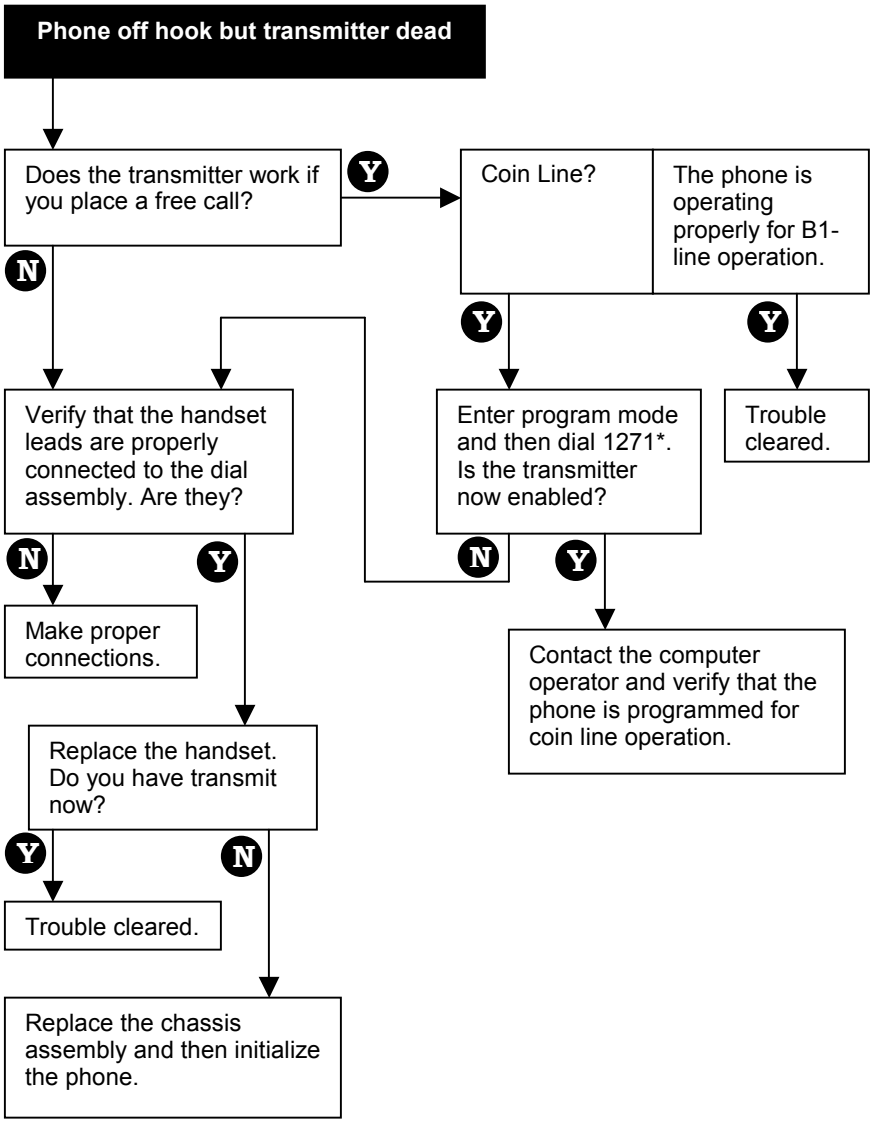
Warble Tone or Voice Error Code “01” In Receiver



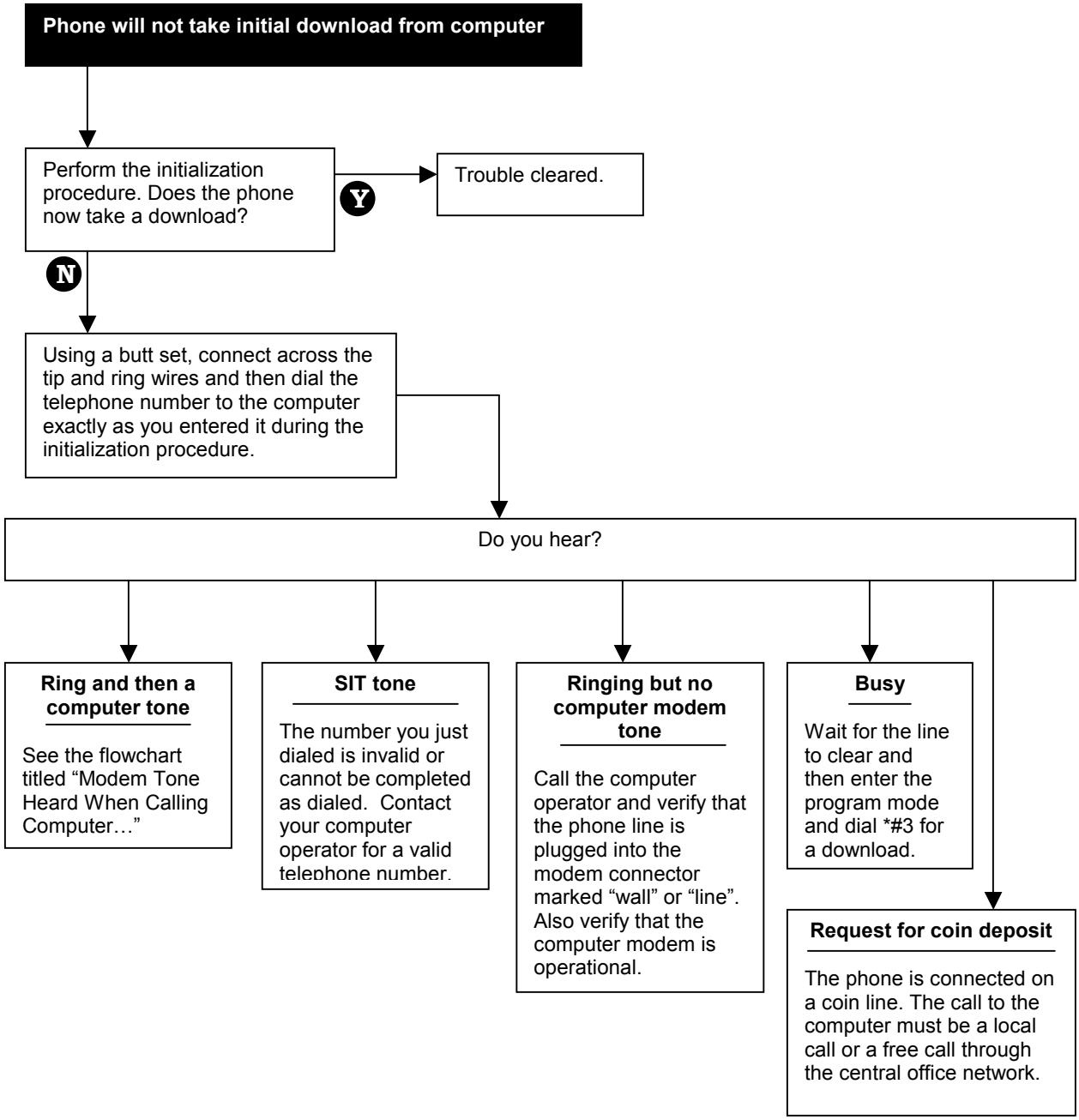
Phone Always Collects or Refunds



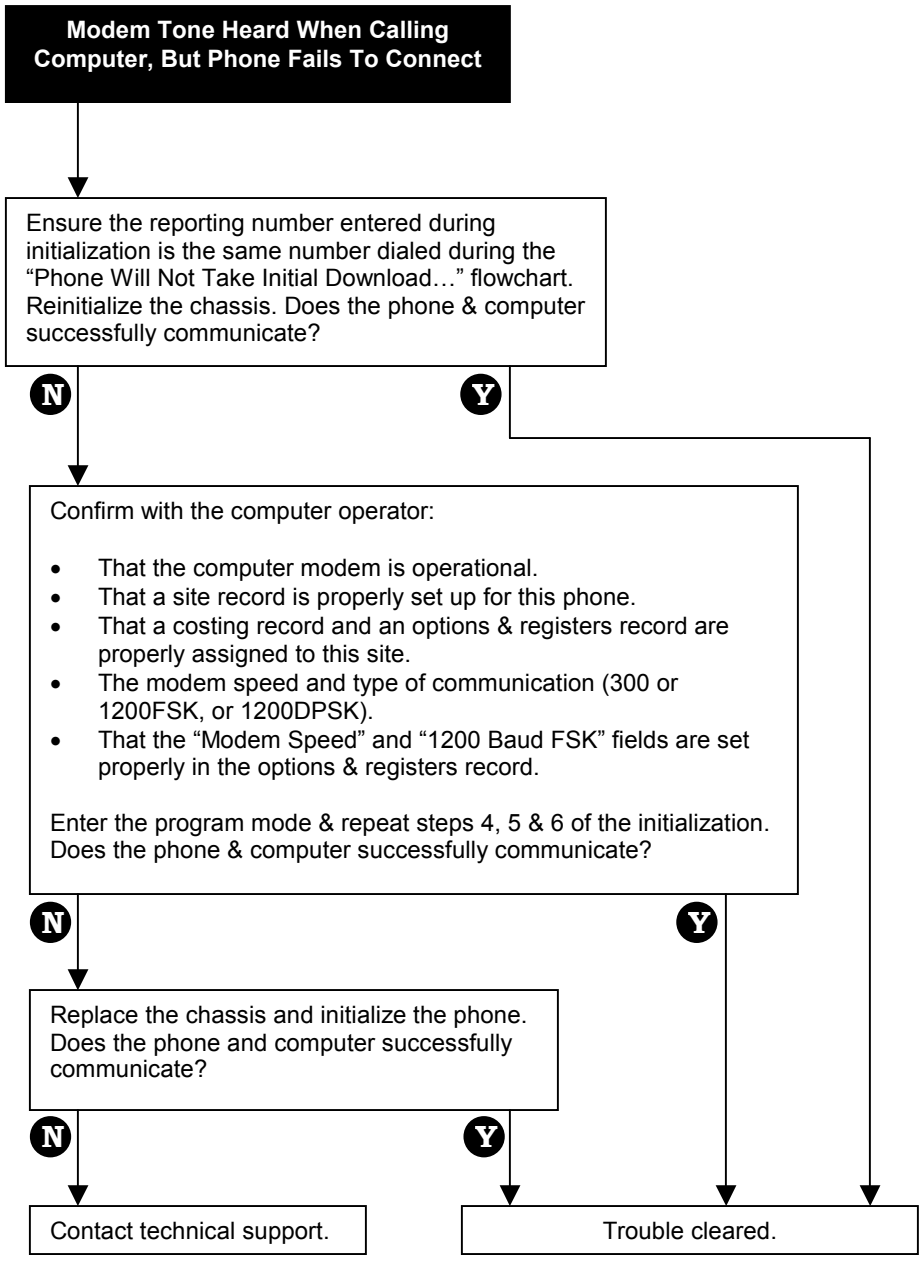
Transmitter Dead



Phone Will Not Take Initial Download



Modem Tone Heard When Calling Computer, But Phone Fails To Connect



Symptoms & Probable Causes of Problems on a B1 Line

Below are nine sets of trouble symptoms that may occur with a Protel phone operating on a B1 Line. Use the guide below to identify the possible causes for each problem and to pinpoint the cause of the trouble.

- **PROBLEM TYPE I SYMPTOMS**

- No dial tone heard in the receiver.
- Keypad is active (DTMF tones heard).
- Keypad is still active after being off hook for 6 seconds.
- Reporting command "∗#64" results in error code 56 (dial inactivity) to be sounded in handset.

Remarks

a. The chassis assembly detects central office loop current.
b. The handset receiver works properly.
c. The keypad works properly.

MOST PROBABLE CAUSES

1. The central office has taken the line out of service.
2. Faulty chassis assembly.

- **PROBLEM TYPE II SYMPTOMS**

- No dial tone,
- Keypad goes dead 6 seconds after the phone is taken off hook.
- "∗#64" may cause the phone to sound error code 56 (dial inactivity) in the handset.

Remarks

a. The chassis assembly does not detect loop current.

MOST PROBABLE CAUSES

1. Central office tip and ring are shorted or open.
2. Faulty chassis assembly.
3. Handset or hookswitch is disconnected, faulty, or incorrectly wired.

- **PROBLEM TYPE III SYMPTOMS**

- No dial tone in receiver.
- No response from the keypad.
- No side tone.
- After disconnecting, and then reconnecting the keypad/hookswitch ribbon cable, the phone works properly.
- The phone may have reported the "HO" flag (handset off hook) to the computer.

Remarks

a. Something in the upper housing is making the chassis assembly produce an off hook condition.
b. After two minutes, the chassis assembly automatically powers down.
c. When the keypad/hookswitch cable is disconnected and then reconnected, the phone powers up and operates correctly.

MOST PROBABLE CAUSES

1. Faulty keypad/hookswitch assembly.
2. Pinched wire in upper housing.

- **PROBLEM TYPE IV SYMPTOMS**

- No dial tone.
- No response from keypad.
- No side tone.
- The phone still does not respond after disconnecting then reconnecting the keypad/hookswitch ribbon cable.

Remarks

a. Chassis assembly is dead.

MOST PROBABLE CAUSES

1. The volume control button is shorted to the upper housing.
2. The coin box alarm switch is shorted to lower housing.
3. Both the ni-cad and lithium batteries are dead.
4. Faulty chassis assembly.
5. Faulty keypad/hookswitch assembly.

- **PROBLEM TYPE V SYMPTOMS**

- Cannot break dial tone when digits are pressed.
- Can enter program mode.
- Passes diagnostic keypad test.

Remarks

a. Chassis is not muting receiver after the first digit is dialed.

MOST PROBABLE CAUSE

1. Faulty chassis.

- **PROBLEM TYPE VI SYMPTOMS**

- Dial tone is not broken when digits are pressed on the keypad.
- Cannot enter program mode.
- Cannot hear DTMF tones in the receiver.

MOST PROBABLE CAUSE

1. Faulty keypad assembly.
2. Faulty chassis assembly.

- **PROBLEM TYPE VII SYMPTOMS**

- Coins default to collect/refund (18-second delay) after making a local call.
- Passes diagnostic relay test.

Remarks

a. Chassis assembly may be programmed for coin line operation (check with the computer operator.)

MOST PROBABLE CAUSE

1. Chassis assembly is programmed incorrectly.
2. Chassis assembly is bad.

- **PROBLEM TYPE VIII SYMPTOMS**

  - The phone reported the “RJ” flag (relay jam) to the computer.
  - The coin relay refunds and collects coins.
  - A beep is heard in the handset each time the phone fires the relay.
  - The relay always operates twice.
  - The reporting command “*#64” sounds error code “06” (relay jam) in the handset.
  - The diagnostic relay test fails (fires twice).
  - The relay fires with each on-hook condition.

  MOST PROBABLE CAUSE

  1. Damaged coin relay.
  2. Faulty chassis assembly.
  3. Coin present contacts stay closed.

- **PROBLEM TYPE IX SYMPTOMS**

  - The coin relay does not operate correctly.
  - The coin relay diagnostic test fails.
  - The phone sounds the message “Please wait two minutes” and then restricts calls after each attempt to fire the relay.

  MOST PROBABLE CAUSES

  1. Low central office loop current.
  2. Faulty ni-cad battery.
  3. Faulty chassis assembly.

Appendix A - Chassis Assembly (Front View)

Handset Transmitter Level Switch
Allows adjustment of transmit level for optimum performance of the attached handset.

Up = Low Transmit Level
Center = High Transmit Level
Down = Medium Transmit Level

A

Program Button
Provides access into the program mode of the phone.

B

Ni-Cad Battery Compartment

C

Ni-Cad Battery Connection
Interconnect for attachment of ni-cad battery to the chassis assembly.

D

Telephone Line
Interconnect for attachment of telephone line (via RJ11 connector) to the chassis assembly.

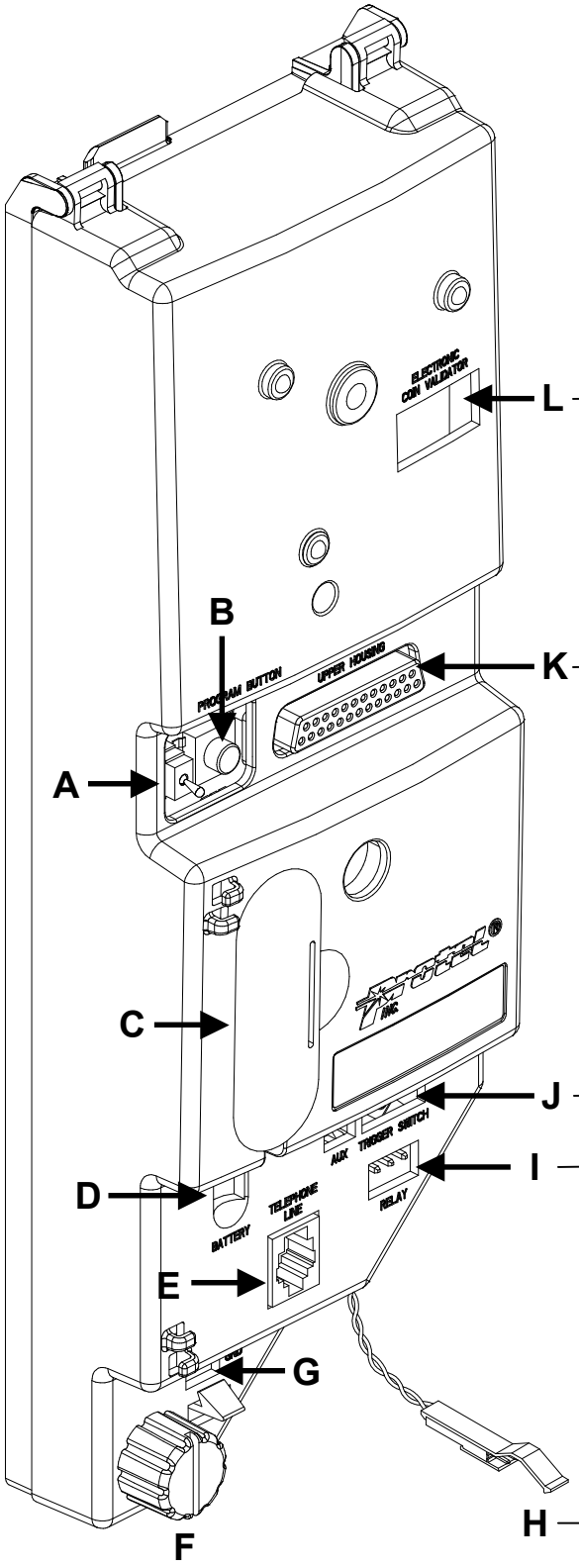
E

Captive Nut
When tightened, secures chassis assembly into lower housing.

F

Grounding Tab
Provides for connection of ground wire to the chassis assembly.

G



Electronic Coin Validator
Interconnect for attachment of an Electronic Coin Validator to the chassis assembly. (Only present if optional ECS II interface or Mars Electronics® MS-16 interface is installed.)

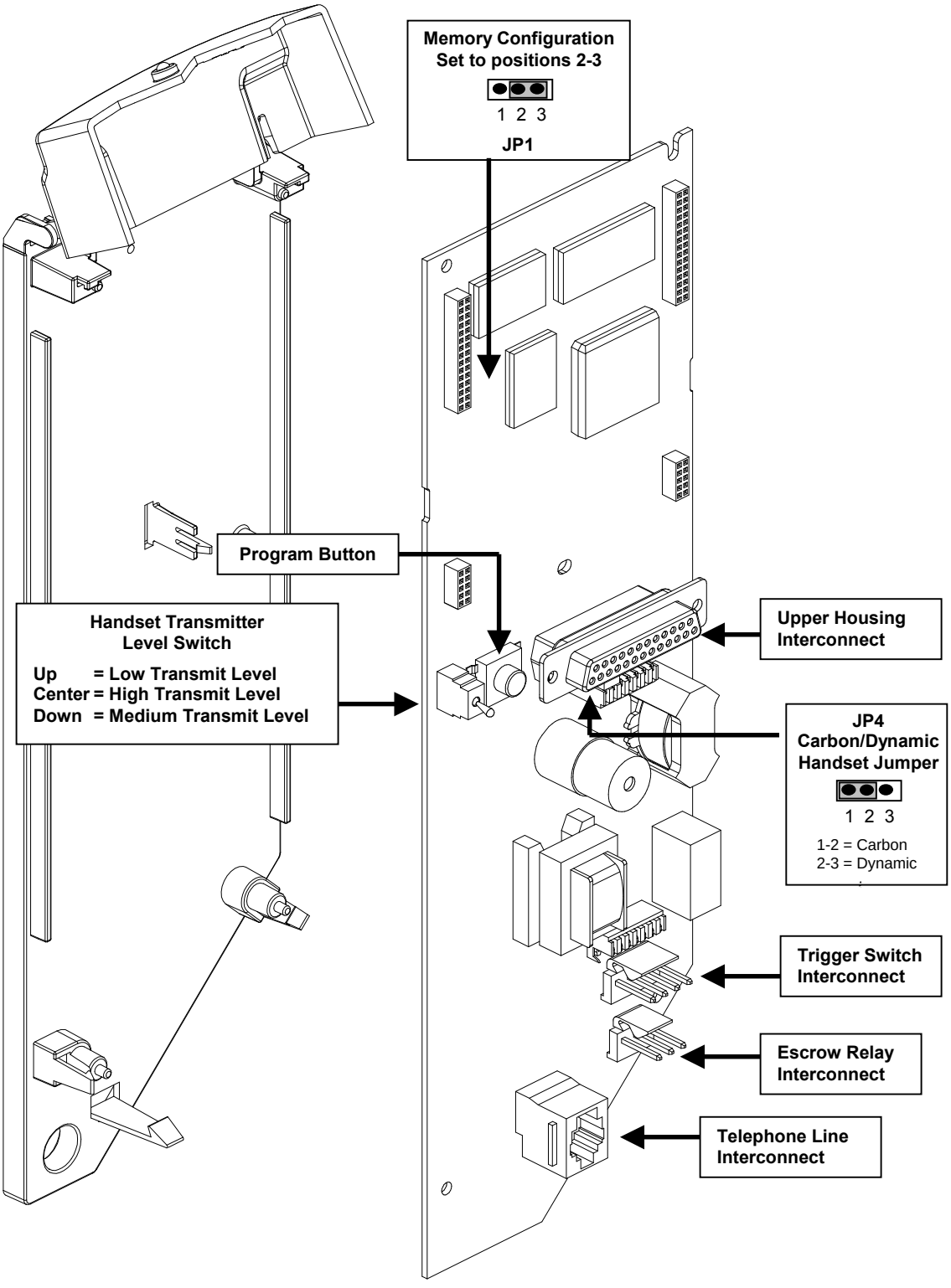
Upper Housing Interconnect
Interconnect for attachment of upper housing dial/hookswitch assembly to the chassis assembly.

Trigger Switch
Interconnect for attachment of trigger switch to the chassis assembly.

Relay
Interconnect for attachment of escrow relay to the chassis

Optional Coin Box Alarm Switch Cable
Only present if optional coin box alarm switch is used.

Appendix B -Chassis Assembly (Inside View)



Appendix C - Reporting Commands

Reporting commands are commands that are entered at the paystation keypad to instruct the phone to report certain information to the paystation handset or to a remote computer. Reporting commands are entered at the paystation keypad after the handset comes off hook. Listed below are the reporting commands that the phone will accept from the keypad. A complete listing of voice codes can be found in Appendix I.

✱#1 XXXX. **Coin Box Emptied:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#1XXXX**, where XXXX = the "Coin Collection Security Code" provided to you by the computer operator. This command will reset the coin box totalizer (in the remote PC) and cause the phone to report to the computer that the coin box is empty. ***For ExpressNet®*** and ***ExpressNet III® users***: When the computer sees this flag it will update the paystation's coin history, reset the "Amount in Box" to $0.00 and reset the "Coin Box Full flag." The "Coin History" screen will then display the amount which is currently in the coin box.

✱#2..... **General Reporting Status: (Sets Status Check Flag (ST))** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#2**. This causes the phone to call in to the remote computer and report the details of the calls that have been made on the phone since the last time that the phone reported this information to the computer. Information such as destination numbers dialed, call charges, etc., will be sent to the computer for record keeping purposes. The phone will also verify with the computer that call rates and operating parameters (rates/options) of the phone are correct and up to date. If there is a discrepancy between the rates/options information in the computer and the rates/options information stored in the phone, the computer will automatically send updated rates/options information to the phone.

✱#3..... **Program Update: (Generally Called Phone Repair (PR))** (***This command should only be used when performing a new installation, when replacing the firmware on the chassis assembly or when replacing the chassis assembly.***) This command will only be accepted if it is entered while the phone is in the program mode (See the "Initializing the Phone" section for information on entering the program mode.) This command (**✱#3)** causes the phone to sound (in the handset) the ANI number of the phone, and then cause the phone to call in to the remote computer and request a complete download of rates/options information. If necessary the phone will send general call status information to the computer before accepting a rates/options download.

✱#4XXXX.. **Coin Box Totalizer by Voice:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#4XXXX**, where XXXX = the "Coin Box Amount Security Code" provided to you by the computer operator. This reporting command causes the phone to report the value of the coin box totalizer (by voice) to the phone's handset.

✱#5XXXX.. **Reset Coin Box Totalizer:** This reporting command is entered by taking the handset off hook and then pressing the following keys: **✱#5XXXX**, where XXXX = the "Coin Box Amount Security Code" provided to you by the computer operator. This reporting command resets the *voice* coin box totalizer in the phone.

✱#6.....**Time and Date of Last Update:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#6**. This causes the phone to sound a voice message (in the handset) indicating the date and time of the last rates/options update that was received from the computer.

✱#61.....**ANI Verification:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#61**. This will cause the phone to sound a voice prompt in the handset indicating the telephone number that the phone is initialized to.

✱#62.....**Firmware/Software Revision:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#62**. If the phone's operating program is in EPROM, a voice prompt should sound the firmware revision number followed by the message "***Number One.***" If the phone's operating program in downloadable memory, a voice prompt should sound the software revision number followed by the message "***Number Two.***"

✱#64.....**Flags Currently Set in Phone's Memory:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#64**. This will cause the phone to sound a voice code in the handset indicating any flags that are currently set in the phone. Reference Appendix I for listing of voice flag codes.

✱#65.....**Reporting Number:** This command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#65**. This command causes the phone to sound the telephone number that the phone will dial to reach the computer.

✱#66.....**Option Boards:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#66**. This command causes the phone to sound a voice message in the handset indicating the option boards installed in the phone. Each option board code is preceded by a beep.

Option Board Codes

2 - 1200 Baud DPSK Modem
3 - Electronic Coin Scanner ECS II Interface
4 - Mars Electronics® MS-16 Interface
5 - Coin Line Board

✱#67.....**Battery Test:** This command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#67**. This command causes the phone to test the condition of the battery. The phone will reply with one of three responses:

- A single beep indicates that the battery is good
- Two beeps indicate a marginal battery
- Three beeps indicate a weak battery

✱#68.....**Manual Battery Charge:** This reporting command is entered by taking the handset off hook and then pressing the following keys on the keypad: **✱#68**. This command causes the phone to immediately charge the battery. It is important to note that the service tech must wait for the "please wait two minutes" prompt before placing the handset on-hook. This "manual battery charge" is recommended for phones that have a marginal or weak battery as indicated from the battery test. Once the manual battery charge routine has been invoked, it cannot be interrupted.

Assigning a security code for ∗#6 options.

The ∗#6 reporting options may be programmed to be blocked if the user does not enter the proper security code to access these options.

- If a security code is assigned for ∗#6 commands and the user does not enter the correct security code, the phone sounds the following message: "***ERROR 32***"
- If a security code is not assigned for ∗#6 commands in the Options & Registers record used by the phone, access to these reporting commands is always enabled.

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Follow the steps below to assign a security code for the ∗#6 reporting commands.

a. Press "3" from the main menu of ExpressNet®: ***[Edit Options & Registers].***
b. Use arrow keys to highlight the record to be edited and then press ***[ENTER].***
c. Use arrow keys to highlight the option labeled "Credit Express® Security Code" (under the "Security Codes" section).
d. Enter the 4-digit security code.

Appendix D - Battery Replacement Procedures

If it becomes necessary to replace one of the batteries in the chassis assembly, use caution and proceed with the steps outlined below. (Reference Appendix A and C for battery locations.)

NOTE 1: The ni-cad battery is NOT connected to the chassis assembly when shipped from the factory. During installation, it is necessary to connect the ni-cad battery to the point labeled “Battery” on the chassis assembly.

NOTE 2: The design of the Flash 7000 allows the chassis assembly to seize dial tone even if the ni-cad battery is disconnected or the voltage is low. However, the chassis assembly may not be capable of properly performing all functions under these conditions.

If the voltage of the ni-cad battery is suspected to be at a low level, it is recommended that the battery be recharged by placing a free call or by using the battery charge command as outlined in Appendix D. Placing a free call allows current supplied by the central office to charge the ni-cad battery. Typically, two minutes of off-hook time is sufficient to provide enough line current to charge the battery.

Ni-Cad Battery Replacement

CAUTION
Dispose of used batteries according to the manufactures instructions

Before replacing the battery, have the phone call the computer to report the details of the calls that have been made on the phone since the last time that the phone reported this information. The procedure for phone reporting and replacement of the battery is as follows.

- If the phone is operational, lift the receiver off hook and then dial the reporting command **✱#2.** When the computer answers, hang up. The reporting process is complete when dial tone can be heard in the receiver.
- Separate the upper housing from the lower housing and then disconnect the 25-pin dial assembly connector from the point labeled “**UPPER HOUSING**” on the chassis.
- Disconnect the ni-cad battery cable from the point labeled “**BATTERY**” on the chassis.
- Open the battery access cover and then remove the ni-cad battery pack from the battery compartment.
- Install the new ni-cad battery pack where the old battery pack was removed and then secure the battery access cover in place.
- Connect the ni-cad battery to the point labeled “**BATTERY**” on the chassis cover.
- Rest the upper housing of the phone on the ledge of the lower housing and then connect the dial assembly connector to the connector labeled “**UPPER HOUSING**” on the chassis.
- If necessary, follow the “Initializing the Phone” procedure earlier in this manual to reinitialize the phone and then secure the upper and lower housings of the phone together.

This completes the steps necessary to replace the ni-cad battery.

Appendix E - Replacing the Chassis Assembly

If it becomes necessary to replace the chassis assembly, after it has been installed and operating, use caution and proceed with the following steps.

Reference Appendix A for connector locations on the chassis assembly.

Before replacing the chassis assembly, have the phone call the computer to report the details of the calls that have been made on the phone since the last time that the phone reported this information. The procedure for phone reporting and replacement of the chassis assembly is as follows.

Reporting to the Computer

- If the phone is operational, lift the receiver off hook and then dial the reporting command ✱**#2.** When the computer answers, hang up. The reporting process is complete when dial tone can be heard in the receiver.

Removing the Chassis Assembly

- Separate the upper housing from the lower housing and then disconnect the 25-pin dial assembly connector from the point labeled “UPPER HOUSING” on the chassis assembly.
- Disconnect the escrow relay from the point labeled “**RELAY**” on the chassis assembly.
- Disconnect the electronic coin scanner (if installed) from the point labeled “**ELECTRONIC COIN VALIDATOR**” on the chassis assembly.
- Disconnect the trigger switch (if mechanical coin mechanism is installed) from the point labeled “**TRIGGER SWITCH**” on the chassis assembly.
- Disconnect the connector from the point labeled “ **TELEPHONE LINE**” on the chassis.
- Disconnect the ground wire from the quick disconnect terminal on the chassis.
- Disconnect the coin box alarm connector (if installed).
- Loosen the captive nut at the bottom of the chassis assembly.
- Remove the chassis assembly from the lower housing by lifting the board upward and then pulling out on the lower edge of the board.

Installing the New Chassis Assembly

- Connect the ni-cad battery connector to the point labeled "**BATTERY**" on the chassis.
- Install the chassis assembly into the lower housing by guiding the tab at the top rear of the chassis assembly into the slot located at the top left corner inside the phone's lower housing. Then, slide the chassis assembly upward until the captive nut at the bottom left of the chassis assembly is aligned with the mounting stud. Tighten the captive nut.
- Connect the ground wire attached to the middle terminal of the terminal block to the ground quick disconnect terminal on the chassis.
- Connect the RJ11 plug from the terminal block to the point labeled "**TELEPHONE LINE**" on the chassis assembly.
- Connect the electronic coin validator connector (if installed) to the point labeled "**ELECTRONIC COIN VALIDATOR**" on the chassis assembly.
- Connect the trigger switch connector (if mechanical coin mechanism is installed) to the point labeled "**TRIGGER SWITCH**" on the chassis assembly.
- Connect the coin relay connector to the point labeled "**RELAY**" on the chassis assembly. Ensure that the **green** wire is toward the **left** of the connector when plugging it into the board.
- Connect the vault door alarm connector (if installed).
- Rest the upper housing of the phone on the ledge of the lower housing and then connect the dial assembly connector to the 25-pin connector labeled "**UPPER HOUSING**" on the chassis assembly.
- Follow the procedure titled "Initializing the Phone" earlier in this manual, and then secure the upper and lower housings of the phone together.

This completes the steps necessary to replace the chassis assembly.

Appendix F - Voice Error Messages

The phone is capable of sounding either a beep code or a voice error message to indicate that an error has occurred with the operation of the phone. The listing below shows the possible voice error messages that can be heard in the handset of the phone.

● ▲ ■ **See next page for legend guide**

●	**Error 1**	**Ram Error**	Phone detected a discrepancy in the calculated RAM checksum. Phone must be reinitialized.
●	**Error 2**	**Relay Jam**	Phone detected an error with the operation of the escrow relay.
●	**Error 3**	**ESC I Failure**	Phone detected an error with the operation of the ECS I.
●	**Error 4**	**ECS II Failure**	Phone detected an error with the operation of the ECS II.
●	**Error 5**	**ECS II Gate Failure**	Phone detected an error with the operation of the coin accept/reject gate of the ECS II.
●	**Error 6**	**Key/Card Inactivity**	Handset off hook more than 25 sec. and phone did not see any keypad or card reader activity
▲	**Error 7**	**Invalid Speed Dial**	User pressed an unprogrammed speed dial button.
■	**Error 8**	**Invalid Key Press**	Phone detected a key press that is invalid in the sequence of pressed keys.
▲	**Error 9**	**Invalid Speed Dial**	The number programmed for the speed dial key pressed is not a valid number.
▲	**Error 10**	**Volume Control Error**	Volume control (Option 117) is turned off and user pressed "#" key to adjust volume.
■	**Error 11**	**Dialed Digits "11"**	The first two digits of the dialed number are "11." This is an invalid sequence of dialed digits.
■	**Error 12**	**Equal Access # NG**	User dialed a 10XXX number for an Alternate Operator Service and then dialed "1."
▲	**Error 13**	**Coin Call Denied**	User dialed a number denied on a coin line. The "Over Time Period" in the Rate Band = "0."
■	**Error 14**	**User Didn't Pre-Pay**	Phone on continuous ground line and user didn't deposit enough coins before dialing local No.
▲	**Error 15**	**Card Route NG**	The intralata route to be used for this type of call is not configured (Mode 8).
■	**Error 16**	**No Answer or Busy**	Call was not answered or busy and handset stayed off hook longer than the phone expected.
▲	**Error 17**	**Store & Forward Limit**	User made a Store & Forward or a Super Collect call and the time limit for the call expired.
▲	**Error 18**	**Initial Period Time Out**	The initial time period for the call has expired and no over time has been granted (Mode 6).
▲	**Error 19**	**Over Time Expired**	The over time period set up for the call has expired (Mode 6).
▲	**Error 20**	**Insufficient Deposit**	The user has not deposited the required amount of money for over time.
●	**Error 21**	**Over Time Rate Error**	The phone has detected an error in the calculated overtime rate for the call.
●	**Error 22**	**Call Rate Error**	The phone has detected an error in the calculated rate for an operator assisted call.
●	**Error 23**	**Answer Not detected**	The phone did not detect loop reversal as an indication of answer when it expected to.
■	**Error 24**	**Collect Call Refused**	Called party did not accept the Super Collect call.
▲	**Error 25**	**Route Not Programmed**	The alternate route to be used for this type of call is not configured (Mode 8).
▲	**Error 26**	**Call Denied**	Card call or international number was dialed and the phone is set up to deny this type of call.
■	**Error 27**	**Program Mode Error**	The program mode access code "100001XXXX" was not entered correctly at the keypad.
●	**Error 28**	**EPROM Error**	The phone detected a discrepancy in the calculated checksum of the EPROM.
▲	**Error 29**	**Invalid Speed Dial**	The user pressed an unprogrammed speed dial button.
●	**Error 30**	**Stuck Key**	The keypad has a stuck key or the user pressed a key for too long.
▲	**Error 31**	**IXC Not Selected**	IXC button not pressed when phone expected it or button is not set up with an IXC code.
●	**Error 32**	**Reporting Error**	The phone has detected one of the following conditions during a "*#X" reporting attempt. a. Program button was down during attempt to report. b. Too much time passed before "Reporting" security code entry. c. The "Reporting" security code is not programmed in phone. d. 4-digit security code entered at keypad did not match the code programmed in the phone.
■	**Error 33**	**Keypress Time-out**	The phone expected a keypress and a keypress did not occur.
■	**Error 34**	**Invalid Number Dialed**	The user dialed an invalid PBX code ("0" or "1") or a ten-digit 976-XXXX number was dialed.
■	**Error 35**	**Invalid Number Dialed**	The user dialed either a 1-900 phone number or an invalid area code.
▲	**Error 36**	**Invalid Number Dialed**	The office code of the 0+ or 1+ 7 digit number dialed is not found in the NXX table (Mode 5).
▲	**Error 37**	**Card Group Denied**	The rate band used to process the call does not have a route number programmed (Mode 6).
▲	**Error 38**	**Card Group Denied**	The rate band used for the call has been set up to deny this call. ["Subsequent Period = 0"]
●	**Error 39**	**Coin Mech/Relay NG**	Attempted coin call denied due to coin scanner failure or relay failure [ECS II Only].
■	**Error 40**	**No Coin Deposit**	The phone did not detect deposited coins when it expected to.
▲	**Error 41**	**IXC Button NG**	The interexchange button pressed by the user has not been programmed.
▲	**Error 42**	**International No. NG**	The user has dialed an invalid international phone number.
■	**Error 43**	**No IXC Button Pressed**	User did not press and IXC button when the phone expected one to be pressed.
■	**Error 44**	**End of the Price Quote**	User pressed V0 for price quote of last call and user did not hang up after the quote ended.
●	**Error 45**	**Coin Gate Failure**	ECS II coin gate failed 3 times in a row. This error message is sounded immediately after the third attempt to accept or reject deposited coins.

●	**Error 46**	**Coin Track Failure**	Phone detected an error with the ECS's coin track.
●	**Error 47**	**ECS Failure**	Phone detected error with the operation of the ECS. May be coin track or chassis assembly.
▲	**Error 48**	**Incoming Call Denied**	The phone has been set up to deny incoming calls.
▲	**Error 49**	**Call Denied**	Phone is set up to deny calls placed to this destination number.
▲	**Error 50**	**Call Denied**	Incoming call or coin call was made during a time that the phone is set to deny these calls.
●	**Error 51**	**Coin Mech Failure**	Phone is not correctly detecting deposited coins (Incorrect coin frequencies).
■	**Error 52**	**Feature Group D Rest.**	The Feature Group D code (10XXX) entered is invalid.
●	**Error 53**	**Debit Card Error**	Unable to debit the required amount from the debit card.
●	**Error 54**	**Loop Reversal Restrict**	Phone detected loop reversal and is programmed to restrict local and 1+ coin calls.
●	**Error 55**	**Opto Coupler Defective**	Phone detected an opto coupler hardware failure and will restrict local and 1+ coin calls.
▲	**Error 56**	**Destination Number NG.**	Phone did not find a match in the valid destination number table.
▲	**Error 57**	**Too Few NPA Tables**	The phone could not find enough tables to properly assign a cost band number (NANP).
▲	**Error 58**	**Too many NPA Tables**	The phone has determined that there are too many 100 byte tables assigned (NANP).
▲	**Error 59**	**No NPA located in tables**	The phone could not locate the desired NPA in its database (NANP).
▲	**Error 60**	**Range outside limit**	The calculated range is outside of the NPA/NXX limit (NANP).
■	**Error 61**	**Coin Tone Fraud**	The phone detected DTMF generated outside the payphone.
●	**Error 62**	**Signal Unit Stuck**	The phone detected a stuck coin (continuous nickel, dime or quarter signal.)

Legend:

- ● This error message is hardware related to the components of the phone. A technician is required to troubleshoot the problem.
- ▲ This error message is software related. If possible, the problem should be recreated and the computer operator should be contacted to determine if the phone has been purposely set up to cause the error message.
- ■ This error message is a result of an improper or invalid action being performed by the phone user. If possible, the problem should be recreated and the computer operator should be contacted to determine if the phone has been purposely set up to deny the action that is causing the error.

Appendix G - Voice Flag Codes

Below is a listing of flag code and alarm code descriptions for the Ascension Series Model 7000 phone. Flag are listed in alphabetical order using the two character flag code.

Note: The phone can be set to report error flags to the computer immediately, as they occur, by setting each flag to "immediately report" in the Options & Registers Record used by the phone (See the "Programmable Reporting Flags" in the Options & Registers Record.) If a flag is not set to immediately report, the flag remains set in the phone and is reported to the computer during the polling process. A service person entering the *#64 reporting command at the payphone keypad will receive a voice code for the flags set in the chassis.

FLAG CODE (E$)	COIN BOX EMPTIED (*#1)	VOICE CODE (0, 0)

Cause
This flag is set if the phone detects that a repair person entered the reporting command *#1 (Coin box emptied), followed by the security code, at the payphone keypad. This command causes the phone to report this information to the computer. Activating the vault door or coin box alarm switch also sets this flag. When this flag is set, coin box totals and coin box volume counters are reset.

Reporting Time
The phone reports this flag to the computer immediately after a *#1 command is entered at the keypad or it is reported two minutes after the coin box alarm is set. After successful communication with the computer, the flag is reset, and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

Corrective Action: N/A

FLAG CODE (ST)	STATUS CHECK (*#2)	VOICE CODE (0, 1)

Cause
This flag is set if the phone detects that a repair person entered the reporting command *#2 (General Reporting Status) at the payphone keypad. This command causes the phone to call the computer and report the details of the calls that have been made on the phone since the last time that the phone reported this information to the computer. The phone also verifies that the costing/options information stored in the phone is up to date and if necessary requests a download of costing/options information from the computer.

Reporting Time
The phone reports this flag to the computer immediately after it is set. After successful communication with the computer, the flag is reset and the phone does not report it again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action: N/A

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

FLAG CODE (PR)	PHONE REPAIR (*#3)	VOICE CODE (0, 2)

Cause
This flag is set if the phone detects that a repair person entered the reporting command *#3 (Program Update) at the payphone keypad. This reporting command causes the phone to call in to the computer and request a download of costing/options information to program or reprogram the phone.

Reporting Time
The phone reports this flag to the computer immediately after it is set. After successful communication with the computer, the flag is reset and the phone does not report it again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful. **Note:** This flag is set when the reporting command *#3 is entered at the payphone keypad during initialization.

Corrective Action: N/A

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

FLAG CODE (PC)	PEG COUNT REACHED	VOICE CODE (0, 3)

Cause
This flag is set if the phone detects that the number of calls made on the phone is equal to the number specified in the field labeled "Peg Count/Inactivity" in the options & registers record used by the phone.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action: N/A

Resetting the Flag
The computer resets this flag in the phone when successful communication occurs between the computer and the phone. The Audit CDR counter is also reset to zero (0) when this flag is reset.

FLAG CODE ($V)	COIN BOX VOLUME REACHED	VOICE CODE (0, 4)

Cause
This flag is set when the volume of coins in the cash box reaches the percentage (%) full programmed for the phone to report. The percentage full value is programmed in the field labeled "cash box volume" in the Options & Registers record used by the phone.

Reporting Time
The phone reports in to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report this flag to the computer again, but the flag remains set until the condition is cleared. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until it is successful.

Corrective Action: Dispatch a service tech to empty the coin box.

Resetting the Flag
Empty the coin box and then use the *#1 reporting command to report in to the computer. If the phone is equipped with a vault door or coin box switch, empty the coin box and replace it.

FLAG CODE (RE)	RAM ERROR	VOICE CODE (0, 5)

Cause
This flag is set if the phone detects an error in the RAM used for storing costing/options information in the phone. Possible causes include lightning surges or low ni-cad and lithium batteries. An "EE" flag may also be reported with this flag.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. During the time that the phone and the computer communicate with each other, the phone receives a costing data/options update to restore the RAM. If the update is successful, the phone does not report this flag again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
If this flag reoccurs, have the service technician label the chassis with RE, and replace the chassis assembly.

Resetting the Flag
Enter program mode, dial 2, and then hang up. This flag is reset after the computer updates costing/options information in the phone.

FLAG CODE (RJ)	RELAY JAM	VOICE CODE (0, 6)

Cause
Coin relay jammed. This flag is set after 12 consecutive failed attempts to collect and/or refund coins.

Reporting Time
The phone reports in to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report in again, but the flag remains set until the condition is cleared. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Verify that there has been no "trouble gone" flag (TG) set in the phone since the relay jam was reported. If the relay jam condition still exists, dispatch a service tech immediately. Have the service tech check for a faulty relay connection, stuck coins, and proper relay function using diagnostic procedures.

Resetting the Flag
Enter the phone's program mode, press 2 and then hang up.
Clear the escrow relay, and perform complete diagnostic tests.
The escrow relay clears itself if a successful collect or refund occurs.

FLAG CODE (LR)	LOOP REVERSAL	VOICE CODE (0, 7)

Cause
This flag is set if tip & ring are determined to be reversed on three consecutive regulated coin calls. The loop reversal check is performed after the last digit of the destination number is dialed by the user.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report in again, but the flag remains set until the condition is cleared. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until it is successful.

Corrective Action
Dispatch a service tech, or have the Central Office technician reverse the tip & ring pair.

Resetting the Flag
Enter program mode, press 2, and then hang up or the flag is reset when the phone detects normal loop polarity on a call.

FLAG CODE ($E)	**NON-RESETTABLE COIN TOTALIZER ERROR**	VOICE CODE (1,1)

Cause
This flag is set if the phone detects an error in the calculated checksum for the non-resettable coin totalizer amount. Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored cash box amount is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with $E, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (VE)	**CASH BOX VOLUME ERROR**	VOICE CODE (1,0)

Cause
This flag is set if the phone detects an error in the calculated checksum for the cash box volume percentage. Possible causes include electrical surges or low Ni-cad or lithium battery voltages. This flag generally indicates that the stored cash box amount is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with VE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (TE)	**RESETTABLE COIN TOTALIZER ERROR**	VOICE CODE (1,2)

Cause
This flag is set if the phone detects an error in the calculated checksum for the resettable coin totalizer amount (amount to date). Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored cash box amount is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with TE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (BE)	**CASH BOX AMOUNT ERROR**	VOICE CODE (1,3)

Cause
This flag is set if the phone detects an error in the calculated checksum for the cash box amount. Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored cash box amount is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with BE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (OE)	**OVERAGE ERROR**	VOICE CODE (1,4)

Cause
This flag is set if the phone detects an error in the calculated checksum for the overage amount (the actual amount deposited over the amount charged). Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored overage amount is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with OE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (AE)	**CALL ACCOUNTING ERROR**	VOICE CODE (1,5)

Cause
This flag is set if the phone detects an error in the calculated checksum for the call accounting data. Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored call accounting data is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If the call accounting error condition remains within the phone, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours until the error condition is corrected.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with AE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up.
This flag is reset after successful communications with the computer.

FLAG CODE (CL)	BILLING CDR LIMIT REACHED	VOICE CODE (1, 6)

Cause
This flag is set if the phone detects that the number of Store & Forward calls made on the phone is one more than the number of calls specified in the field labeled "Number of Billable CDR Records before Reporting" in the Options & Registers record used by the phone.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
N/A

Resetting the Flag
The computer resets this flag when successful communication occurs with the phone.

FLAG CODE (CF)	BILLING CDR FULL	VOICE CODE (1, 7)

Cause
This flag is set if the phone detects that there have been 52 Store & Forward calls made on the phone and the call detail records for these calls have not yet been transferred to the computer. The Store & Forward records must be reported to the computer and the Store & Forward call counter must be reset before the phone allows any more Store & Forward calls.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
N/A

Resetting the Flag
The computer resets this flag when successful communication occurs with the phone.

FLAG CODE ($F)	COIN BOX FULL	VOICE CODE (2, 1)

Cause
This flag is set when the volume of coins in the coin box reaches 100 percent.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report in again, but the flag remains set until the condition is cleared. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Dispatch a service tech to empty the coin box.

Resetting the Flag
Empty the coin box and then use the *#1 reporting command to report in to the computer. If the phone is equipped with a vault door or coin box switch, then simply empty the coin box and replace it.

FLAG CODE (CG)	**COIN GATE FAILURE**	VOICE CODE (2,2)

Cause
This flag is set if the phone detects an error in the operation of the coin gate in the ECS II. Possible causes include a damaged, jammed or defective ECS coin gate.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the phone does not report in again, but the flag remains set until the cause of the failure is corrected. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
Dispatch a service technician. Have the service technician perform the coin recognition diagnostic test on the phone. If the test fails, follow the procedures outlined in the Coin Recognition Diagnostic Test Fails flow chart.

Resetting the Flag
Enter the program mode, dial 2, and then hang up.

FLAG CODE (DE)	**DEFECTIVE ESCROW**	**VOICE CODE (2, 3)**

Cause
This flag is set if the phone does not detect deposited coins on 10 consecutive attempts to process a coin call.

Reporting Time
The phone reports this flag two minutes after the flag is set. After successful communication with the computer, the flag is cleared and the phone does not report in again even if the condition remains uncorrected. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until it is successful.

Corrective Action
Dispatch a service tech. Have the service tech perform a coin recognition diagnostic test on the phone.

Resetting the Flag
This flag is reset when the phone recognizes a good coin deposit.

FLAG CODE (ME)	**ELECTRONIC COIN MECH (ECS) ERROR**	**VOICE CODE (2, 4)**

Cause
This flag is set if the phone detects an error in the Electronic Coin Scanner (ECS) or associated electronic circuitry. Possible causes include a damaged or defective ECS, interconnect cable, ECS option board or chassis.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the phone does not report in again, but the flag remains set until the cause of the failure is corrected. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
Dispatch a service technician. Have the service technician perform the coin recognition diagnostic test on the phone. If the test fails, follow the procedures outlined in the Coin Recognition Diagnostic Test Fails flow chart.

Resetting the Flag
Enter the program mode, dial 2, and then hang up.

FLAG CODE (TR)	TIME REPORT	VOICE CODE (2, 5)

Cause
This flag is set when the phone detects that it has reached the scheduled time to report. The scheduled time for the phone to report in to the computer is specified in the "Reporting Options" of the Options & Registers record used by the phone.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action: N/A

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

FLAG CODE (NE)	AUDIT CDR ERROR	VOICE CODE (2,6)

Cause
This flag is set if the phone detects an error in the calculated checksum for the audit CDR. Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored cash box amount is invalid.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If the audit CDR error condition remains within the phone, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours until the error condition is corrected.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with NE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (CE)	BILLABLE CDR ERROR	VOICE CODE (2,7)

Cause
This flag is set if the phone detects an error in the calculated checksum for the store & forward billable CDR. Possible causes include electrical surges or low ni-cad or lithium battery voltages. This flag generally indicates that the stored cash box amount is invalid.

Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If the billable CDR error condition remains within the phone, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours until the error condition is corrected.

Corrective Action
If this flag reoccurs, have the service technician verify that the ground is properly connected and that the battery voltage levels are correct. If ground and battery voltages are good, label the chassis with CE, and replace the chassis assembly.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (LB)	LOW BATTERY	VOICE CODE (3, 0)

Cause
This flag is set if the phone detects that the ni-cad battery voltage in the phone is too low. If this condition occurs, the phone attempts to recharge the battery.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
If this flag is repeated, have the service tech verify that the battery voltage and line current are at proper levels.

Resetting the Flag
Enter program mode, press 2, and then hang up.

FLAG CODE (HO)	HANDSET OFFHOOK	VOICE CODE (3, 4)

Cause
This flag is set if the phone detects that the handset is off hook with no hookswitch activity for approximately 15 minutes.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is cleared and the phone does not report this flag again even if the condition remains uncorrected. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Make sure that the handset is hung up in the cradle. Verify proper operation of the hookswitch.

Resetting the Flag
This flag is reset when the phone goes on hook and the hookswitch is determined to be operating properly. Enter the program mode, press 2, and then hang up.

FLAG CODE (LA)	LOWER ALARM	VOICE CODE (3, 6)

Cause
This flag is set if the phone detects that the lower housing (coin box) door is removed or the inside vault switch is activated. This flag is in conjunction with the E$ flag (Cash Box Emptied) flag.

Reporting Time
The phone reports this flag to the computer 2 minutes after the coin box is removed from the phone. After successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action: N/A

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

FLAG CODE (HG)	HANDSET GONE	VOICE CODE (3, 7)

Cause
This flag is set if the phone detects improper resistance in the handset receiver. The handset may be missing or have defective/incorrect wiring.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report in again, but the flag remains set until the condition is cleared. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until it is successful.

Corrective Action
Have the computer poll the phone approximately 8 hours after the alarm is reported. Check for an increase in the number of calls by checking the call counters. If there is no increase in the number of calls made from the phone, dispatch a service tech. Have the service tech check for a faulty handset and/or dial pad connection.

Resetting the Flag
This flag is reset when the phone detects that the handset is operating properly.

FLAG CODE (NF)	AUDIT CDR FULL	VOICE CODE (4, 0)

Cause
This flag is set if the phone reaches the maximum number of audit CDR that can be stored. Once the Audit CDR buffer has reached the maximum, the phone will overwrite call records beginning from the oldest record in the buffer.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag will be cleared. If communication with the computer is not successful, the phone reports in to the computer again in 2, 4 and 8 hours.

Corrective Action
Initiate a communication with the computer. If audit CDR is not retrieved by the computer, inform the computer operator to disable this flag in the options and registers file for the phone.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. This flag is reset after successful communications with the computer.

FLAG CODE (BG)	BAD GROUND (Coin Line Phones Only!)	VOICE CODE (4, 4)

Cause
This flag is set if the phone fails to detect a refund or collect signal from the Central Office on four successive calls and has been forced to the auto default condition.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Dispatch a service tech. Have the service tech perform a coin ground diagnostic test (*4). Also verify that local and long distance coin calls are properly collecting and refunding coins.

Resetting the Flag
The flag is reset when the phone detects a good collect or refund signal from the C.O. or when the program mode is entered and a digit is pressed.

FLAG CODE (CR)	CLOCK RESET	VOICE CODE (4, 5)

Cause
This flag is set if the date and time setting in the phone has been reset due to a power-on reset condition. This condition can occur if the ni-cad or lithium battery supply voltage is low voltage.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
If this flag occurs 8 times over a 30-day period dispatch a service tech. Have the service tech replace either the battery or the Chassis Assembly.

Resetting the Flag
The computer resets this flag when successful communication occurs with the phone.

FLAG CODE (EE)	EEPROM ERROR	VOICE CODE (4, 6)

Cause
This flag is set if the phone detects that the program stored in the downloadable chip in the phone is corrupt. If this situation occurs, the phone defaults to operating out of EPROM instead.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset, and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Verify that the firmware installed at the phone matches the firmware specified in the site record used by the phone. If so, review a 30-day history of flags that were reported from the phone. If the EE flag was reported, dispatch a service tech to mark and replace the chassis assembly. If the firmware installed in the phone does not match the firmware specified in the site record, poll the phone and force a firmware download to the phone. If the firmware download is unsuccessful, dispatch a service tech. Have the service tech check for noisy phone line conditions or replace the chassis assembly.

Resetting the Flag
The flag is reset when the phone and the computer successfully communicate with each other.

FLAG CODE (TG)	TROUBLE GONE	VOICE CODE (4, 7)

Cause
This flag is set if the phone detects that a previously reported relay jam condition (RJ, RR, RC) is cleared.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action: N/A

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

FLAG CODE (OC)	OPTO COUPLER (Coin Line Phones Only!)	VOICE CODE (5, 0)

Cause
This flag is set if the phone detects a collect/refund signal immediately after coming off hook.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the flag is reset . If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Dispatch a service tech. Have the service tech replace the chassis assembly.

Resetting the Flag
The computer resets this flag when successful communication occurs between the computer and the phone.

FLAG CODE (BR)	BOX REMOVED	VOICE CODE (5, 1)

Cause
This flag is set if the phone detects that the coin box is removed from the phone during a time that is other than when the coin box removal window is active.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report in again and the flag is reset. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Monitor the phone to determine if the box is returned.

Resetting the Flag
The computer resets this flag when successful communication occurs with the phone.

FLAG CODE (RR)	RELAY REFUND	VOICE CODE (5, 2)

Cause
This flag is set if there have been six consecutive coin refund failures. A relay jam flag (RJ) may be reported in conjunction with this flag.

Reporting Time
The phone reports in to the computer two minutes after the flag is set. After successful communication with the computer, the alarm is cleared. The relay jam flag (RJ) reported along with this flag remains set until the condition is corrected. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until it is successful.

Corrective Action
Verify that there has been no "trouble gone" flag (TG) since the relay jam and relay refund flags were reported. If the condition still exists, dispatch a service tech immediately. Have the tech check for stuck coins, and proper relay function using diagnostic tests to thoroughly test the refund function.

Resetting the Flag
* Enter the phone's program mode, press 2 and then hang up.
* Clear the condition manually and perform complete diagnostic tests.
* This flag is cleared if a successful refund and collect occurs.

FLAG CODE (RC)	RELAY COLLECT	VOICE CODE (5, 3)

Cause
This flag is set if there are six consecutive coin collection failures. A relay jam flag (RJ) may be reported along with this flag.

Reporting Time
The phone reports in to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report this flag to the computer again. The relay jam flag (RJ) reported along with this flag remains set until the condition is corrected. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Verify that there has not been a "trouble gone" flag (TG) reported since the relay jam and relay collect flags were reported. If the condition still exists, dispatch a service tech immediately. Have the tech check for a faulty relay connection, stuck coins, and proper relay function using diagnostic tests to thoroughly test the collect function.

Resetting the Flag
Enter the phone's program mode, press 2 and then hang up.
Clear the escrow relay and perform complete diagnostic tests.
This flag is reset if a successful collect and refund occurs.

FLAG CODE (SN)	SERIAL NUMBER	VOICE CODE (5, 4)

Cause
This flag is set if the electronic serial number of an option board has changed or if a *#3 phone repair has been initiated at the telephone.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the flag is reset and the phone does not report in again. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Initiate a communication with the computer.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. The flag is reset after a successful communication with the computer.

FLAG CODE (BM)	BOX MISSING	VOICE CODE (5, 5)

Cause
This flag is set if the phone detects that the coin box has been missing from the phone for 15 minutes. This flag only occurs in phones that are equipped with a coin box alarm switch.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After successful communication with the computer, the phone does not report this flag again but the flag remains set. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Dispatch a service tech. Have the tech replace the coin box or check for a faulty coin box alarm switch.

Resetting the Flag
Replace the coin box, the faulty switch or enter program mode, press 2, and then hang up.

FLAG CODE (DI)	DIAL INACTIVITY	VOICE CODE (5, 6)

Cause
This flag is set when the handset comes off hook "X" number of times without the call ever getting to the cut-through point (phone dials out and the transmitter/receiver turns on). The value of "X" is specified in the field labeled "Peg Coin/Inactivity" in the Options & Registers record used by the phone.

Reporting Time
The phone reports this flag to the computer two minutes after the dial inactivity counter reaches the specified value. After successful communication with the computer, the phone does not report in again, but the flag remains set until the condition is cleared. If communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Have the computer poll the phone approximately 8 hours after the alarm is reported. Check for an increase in the number of calls by checking the call counters. If there is no increase in the number of calls made from the phone, dispatch a service tech. Have the tech test for proper keypad activity.

Resetting the Flag
This flag is reset when the phone dials a successfully completed call.

FLAG CODE (SU)	SIGNAL UNIT BAD	VOICE CODE (5, 7)

Cause
This flag is set if the phone detects a continuous signal from the coin signal unit (trigger switch). This indicates a defective signal unit or a stuck coin in the signal unit.

Reporting Time
The phone reports this flag to the computer two minutes after the flag is set. After a successful communication with the computer, the does not report this flag to the computer again. The flag will remain set until the condition is corrected. If the communication is not successful, the phone attempts communication with the computer again in 2 hours, then 4 hours, then in 8 hours. If communication is successful at any of these points or if the phone is polled, the reporting attempts stop. If communication is not successful, the phone continues to try to report the flag every 8 hours until communication is successful.

Corrective Action
Dispatch a service technician. Have the service technician perform the coin recognition diagnostic test on the phone. If the test fails, follow the procedures outlined in the Coin Recognition Diagnostic Test Fails flow chart.

Resetting the Flag
Enter the program mode, dial 2, and then hang up. The flag is reset if the condition is cleared.

Appendix H - Diagnostic Test Procedure

This appendix outlines a diagnostic test procedure for the Flash 7000 chassis. This procedure can be used to test for proper operation of the hardware components of the phone and should be performed during installation of the paystation, after the phone has been initialized.

- **Entering the diagnostic mode**. Enter program mode and then dial **[9]** (pause) **[0]** (pause) **[2]** (pause).
- **Exiting the diagnostic mode**. .. Dial **[✱] [#]** to exit diagnostic mode. Three beeps are sounded in the handset.
- **Keypad Test** ..... Each key press except **[✱]** results in voice verification to handset.
- **Coin Recognition Test**..... Each coin deposit results in voice verification to handset.
- **Escrow Relay Test** (Refund)..... Deposit coin, dial **[✱] [1]**, voice =“Refunding”, coin returns.
  (Collect) ..... Deposit coin, dial **[✱] [2]**, coin is collected by phone.
  (Failed) ..... Two beeps sound in handset.
- **Alarm Switch Test**..... Coin box, vault door or upper housing removal result in tone to handset.
- **Loop Current Test**..... Dial **[✱] [3]**, if tip/ring properly connected, Voice =“Thank You”.
  (Failed) ..... Warble tone in receiver = tip/ring are reversed or loop current from C.O. not detected by phone.
- **Coin Ground Test**..... Deposit coin, dial **[✱] [4],** money in escrow is collected or refunded.
  (Failed) ..... Two beeps sounded in handset.

ENTERING THE DIAGNOSTIC MODE

The phone must be in the diagnostic mode in order to perform any of the diagnostic tests. Use the procedure below to enter the diagnostic mode.

1. If necessary, open the phone's housing to gain access to the program button on the chassis assembly.
2. With the phone on hook, press and hold the program button.
3. While holding the program button, lift the receiver off hook.
4. Listen in the receiver for a single beep.
5. Release the program button.
6. Key in **[9]** (pause) **[0]** (pause) **[2]** (pause) to enter diagnostic mode. Note: If three beeps are sounded immediately after dialing the [9], the phone has not yet been initialized. Initialize the phone and then enter diagnostic mode.

KEYPAD TEST

- Press each key on the keypad and listen for the voice response acknowledging the key that is pressed. Shown below are the voice responses to be sounded in the handset. **Note:** *The* [∗] *key must not be pressed during this test as this will result in the phone exiting from the keypad test.*

KEY PRESS	VOICE RESPONSE
1	ONE
2	TWO
3	THREE
4	FOUR
5	FIVE
6	SIX
7	SEVEN
8	EIGHT
9	NINE
0	ZERO
∗	*Do Not Press*
#	TWELVE
Volume Button	THIRTEEN

COIN RECOGNITION TEST

This test checks to ensure that the phone is correctly identifying deposited coins.

- Deposit a **nickel** and listen for the following voice response in the handset: "FIVE CENTS"
- Deposit a **dime** and listen for the following voice response in the handset: "TEN CENTS"
- Deposit a **quarter** and listen for the following voice response in the handset: "TWENTY-FIVE CENTS"

ESCROW RELAY TEST

This test checks to ensure that the escrow relay collects and refunds deposited coins.

Refunding Coins

- Deposit a coin (nickel, dime or quarter).
- Press **[∗] [1]** on the keypad.
- Phone should sound "REFUNDING" in the handset and the deposited coin should be refunded.

  Note: If the escrow relay fails to operate correctly, two beeps will be sounded in the handset.

Collecting Coins

- Deposit a coin (nickel, dime or quarter).
- Press **[∗] [2]** on the keypad.
- The deposited coin should be collected by the phone.

  Note: If the escrow relay fails to operate correctly, two beeps will be sounded in the handset.

ALARM SWITCH TEST (Only applicable if alarm switch is installed)

This test checks to ensure that the coin box alarm switch and/or vault door alarm switch is operating correctly. During this test, if the coin box or vault door switch is activated, a tone should be sounded in the handset. Use the appropriate test(s) below to verify the operation of the alarm switches.

Coin Box Alarm Switch (If installed)

- Turn the lower housing lock to the unlock position.
- Turn the vault door T-wrench lock to the unlock position and then remove the vault door.
- . While listening in the handset, remove the coin box from the vault.
- A bong tone should be heard in the handset.

Vault Door Alarm Switch (If installed)

- Turn the lower housing lock to the unlock position.
- While listening in the handset, turn the lock at the front of the vault door to the unlock position.
- A bong tone should be heard in the handset.

LOOP CURRENT TEST

This test checks to ensure that the phone is able to detect the presence of loop current.

- Press **[*] [3]** on the keypad.
- Phone should sound “THANK YOU” in the handset

  Note: If a warble tone is heard in the handset, either tip and ring are reversed, or the phone does not detect loop current from the central office.

COIN GROUND TEST (Coin Line Only!)

This test is used to ensure that the phone detects refund signals from the central office. This test causes the phone to drop loop current, apply a coin ground and then look for a refund signal from the C.O.

- Deposit a coin (nickel, dime or quarter).
- Press **[*] [4]** on the keypad.
- Phone should sound “REFUNDING” in the handset and the deposited coin should be refunded.

  Note 1: If the phone detects a refund signal from the C.O. but confirms a failure with the escrow relay to refund, two beeps will be heard in the handset.

  Note 2: If the phone does not detect a refund signal from the C.O., the phone will enable loop current and sound the message “PLEASE WAIT” in the handset. The phone will then wait 1.5 seconds and automatically repeat the coin ground test. If the phone does not detect a refund signal for the second time, the phone will enable loop current and sound the following message in the handset: “ERROR”.

  If this situation occurs, tip, ring and ground should be verified for proper connection to the phone.

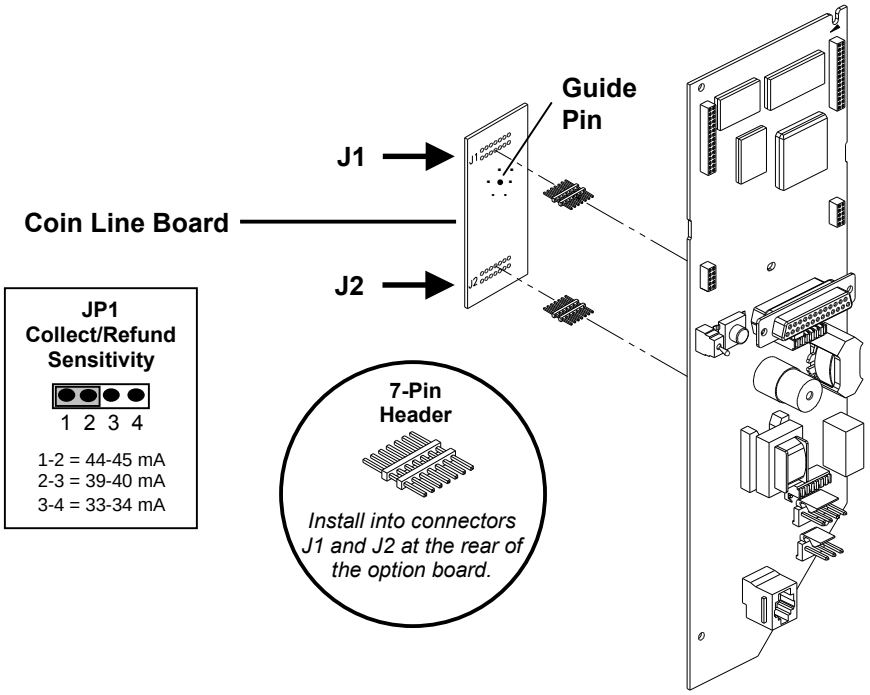
EXITING THE DIAGNOSTIC MODE

1. Press **[*] [#]** on the keypad.
2. Three beeps will be sounded in the handset, indicating exit from the diagnostic mode.

Appendix I - Installing the Coin Line Option Board

Outlined below are the steps necessary to install the optional coin line board.

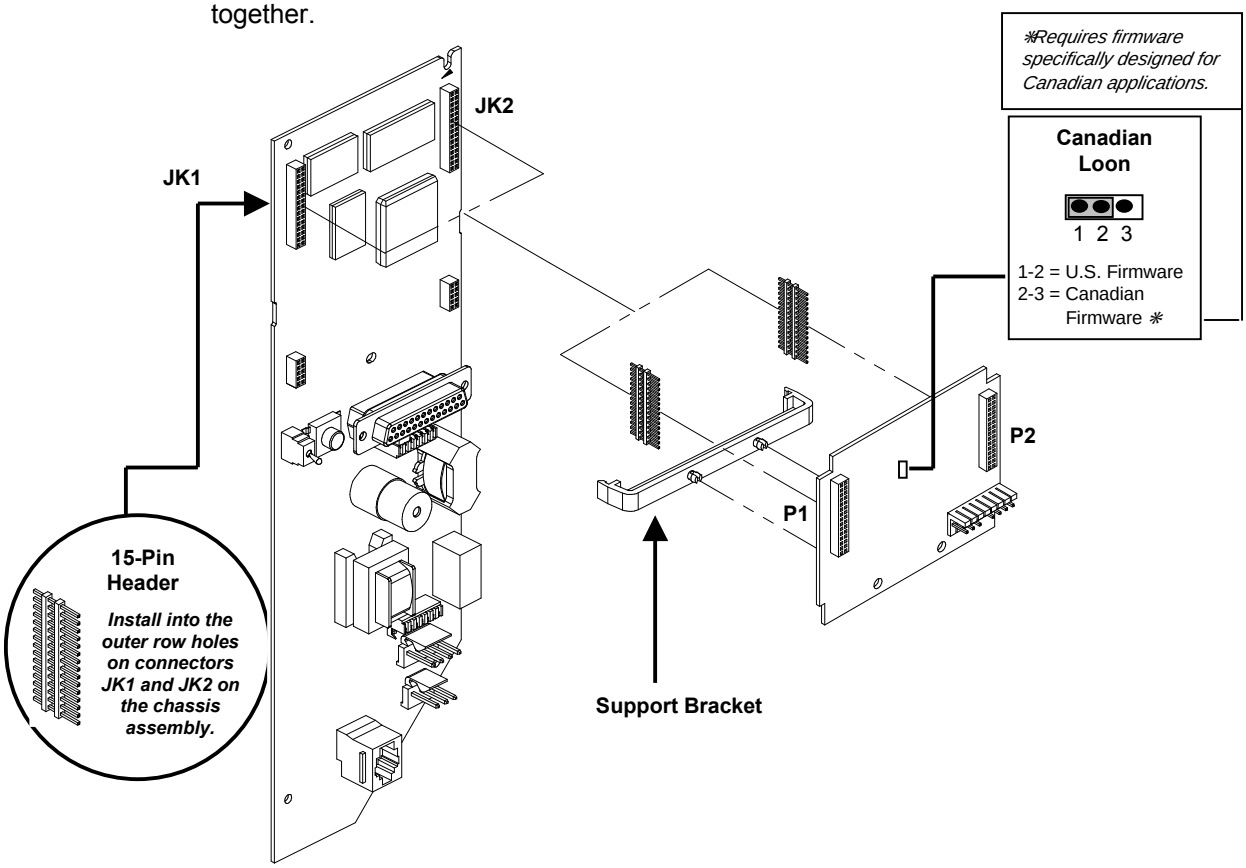
1. If the phone is operational, lift the receiver off hook and then dial the reporting command ✱**#2.** When the computer answers, hang up. The reporting process is complete when dial tone can be heard in the receiver. Dial ✱**#6 to confirm the download.**
2. Remove the chassis assembly from the lower housing Then, remove the chassis pcb from the chassis housing by releasing the two locking mechanisms located to the left and right side of the bottom of the chassis pcb along with the latch located approximately at the center of the PCB.
3. Locate the coin line option board.
4. Locate connectors **J1** and **J2** on the option board.
5. Locate two 7-pin headers.
6. Install one of the 7-pin headers to the rear of the option board, into the holes that correspond to connector **J1**. Then, install the other 7-pin header into the holes that correspond to connector **J2** at the rear of the board.
7. Mount the coin line option board to the rear of the chassis assembly such that the 7-pin header attached to connector **J1** of the option board installs into the holes that correspond to connector **JD1** at the rear of the chassis assembly (the letter designation **JD1** can only be viewed from the front of the chassis assembly.) The 7-pin header attached to connector **J2** on the option board should align into the holes that correspond to connector **JD2** at the rear of the chassis assembly. The guide pin attached to the rear of the coin line board should align into the guide hole at the rear of the chassis.
8. Secure chassis PCB to the chassis housing.
9. Reinstall the chassis assembly into the lower housing.
10. Reinitialize the phone. Then, secure the upper and lower housings of the phone together.



Appendix J - Installing the ECS Option Board

Outlined below are the steps necessary to install the optional ECS board.

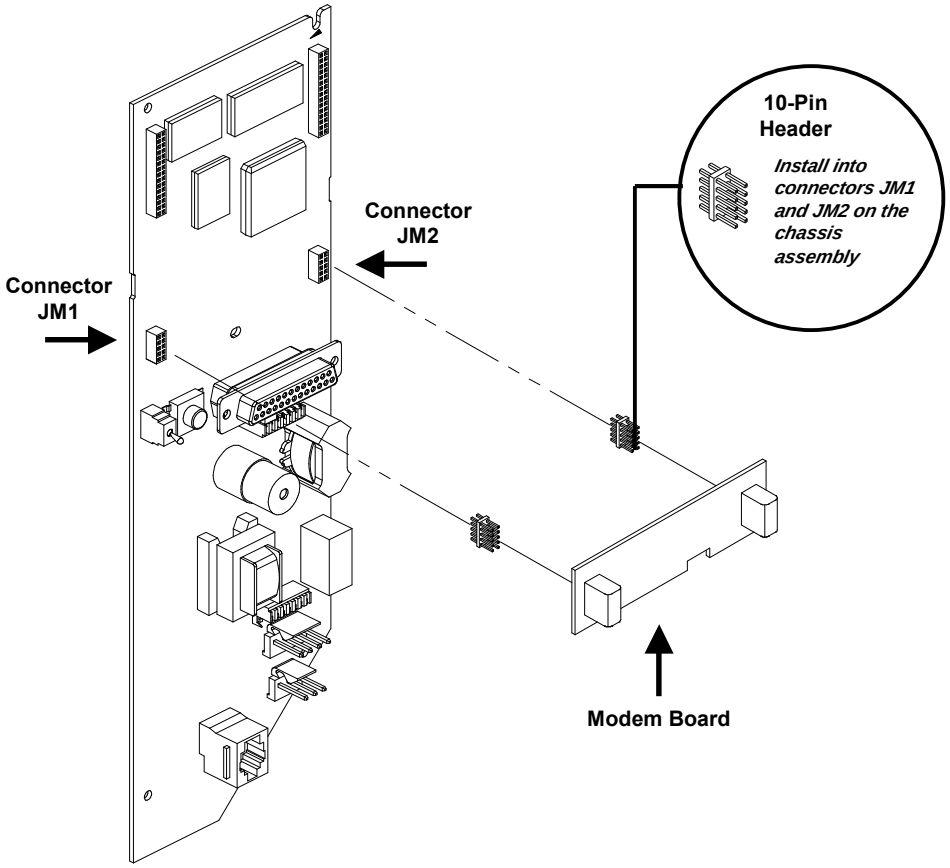
1. If the phone is operational, lift the receiver off hook and then dial the reporting command ✱**#2.** When the computer answers, hang up. The reporting process is complete when dial tone can be heard in the receiver. Dial ✱**#6 to confirm the download.**
2. Remove the chassis assembly from the lower housing. Then, open the chassis assembly cover by releasing the locking lever hook latch located just below the ground tab at the bottom of the chassis assembly.
3. Locate the ECS option board and the support bracket for the board.
4. With the component side of the ECS board facing upward, mount the bracket to the bottom of the board such that the ends of the bracket are facing downward. Align the two holes in the bracket with the two holes on the ECS board (reference diagram below).
5. Install the ***short end*** of one of the 15-pin headers into the outer most holes of connector **JK1** on the chassis assembly. Then, install the ***short end*** of the other header into the outer most holes of connector **JK2** on the chassis assembly.
6. Mount the ECS option board to the front of the chassis assembly such that the headers attached at connectors **JK1** and **JK2** install into the outer most holes of connectors **P1** and **P2** of the option board. Then, secure the option board support bracket to the chassis assembly.
7. Reinstall the chassis.
8. Reinitialize the phone. Then, secure the upper and lower housings of the phone together.



Appendix K - Installing the Modem Board Option Board

Outlined below are the steps necessary to install the optional BELL 212A modem board.

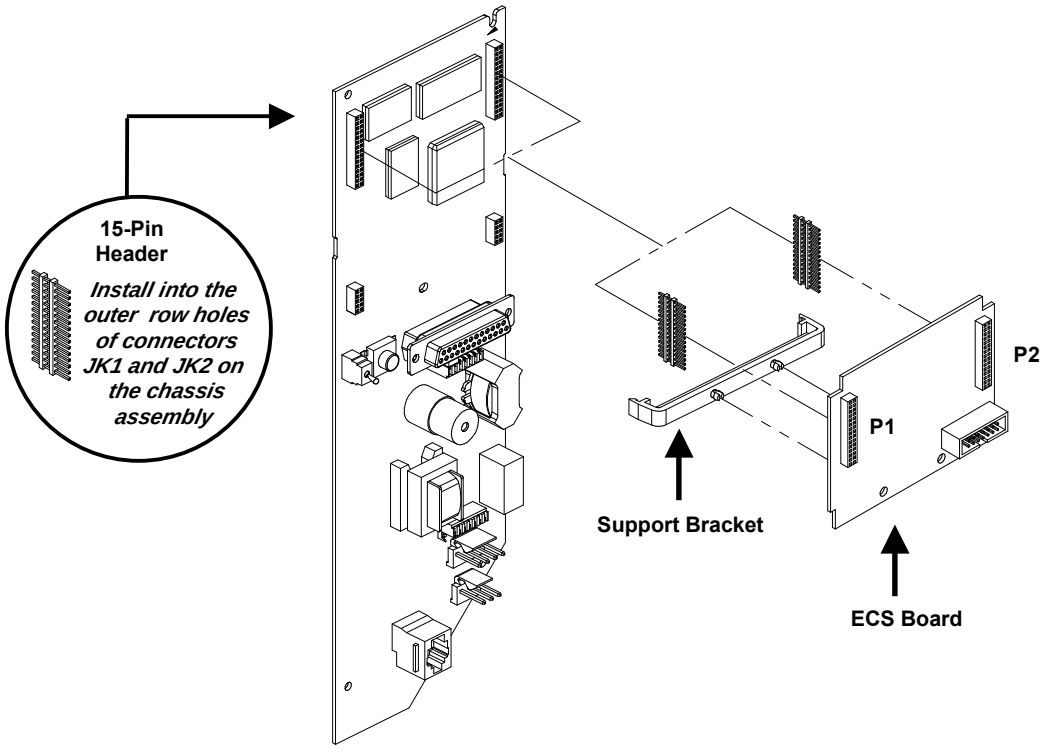
1. If the phone is operational, lift the receiver off hook and then dial the reporting command ✱**#2.** When the computer answers, hang up. The reporting process is complete when dial tone can be heard in the receiver. Dial ✱**#6 to confirm the download.**
2. Remove the chassis assembly from the lower housing.
3. Locate the modem option board.
4. Locate connectors **JM1** and **JM2** at either side of the option board, and locate the two supplied 10-pin headers.
5. Install the ***long end*** of one of the headers into connector**JM1** on the option board. Then, install the other header into connector **JM2** on the option board.
6. Mount the modem option board to the front of the chassis PCB such that the headers attached to connectors **JM1**and **JM2** at the rear of the option board install into the holes that correspond to connectors **JM1** and **JM2** on top of the chassis PCB assembly.
7. Reinstall the chassis housing.
8. Reinitialize the phone. Then, secure the upper and lower housings of the phone together.



Appendix L - Installing the MS-16 ECS Option Board

Outlined below are the steps necessary to install the optional MS-16 ECS board.

1. If the phone is operational, lift the receiver off hook and then dial the reporting command ✱**#2.** When the computer answers, hang up. The reporting process is complete when dial tone can be heard in the receiver. Dial ✱**#6 to confirm the download.**
2. Remove the chassis assembly from the lower housing. Then, open the chassis assembly cover by releasing the locking lever hook latch located just below the ground tab at the bottom of the chassis assembly.
3. Locate the MS-16 option board and the support bracket for the board.
4. With the component side of the MS-16 board facing upward, mount the bracket to the bottom of the board such that the ends of the bracket are facing downward. Align the two holes in the bracket with the two holes on the MS-16 board (reference diagram below).
5. Install the ***short end*** of one of the 15-pin headers into the outer most holes of connector **JK1** on the chassis assembly. Then, install the ***short end*** of the other header into the outer most holes of connector **JK2** on the chassis assembly.
6. Mount the ECS option board to the front of the chassis assembly such that the headers attached at connectors **JK1** and **JK2** install into the outer most holes of connectors **P1** and **P2** of the option board. Then, secure the option board support bracket to the chassis assembly.
7. Reinstall the chassis.
8. Reinitialize the phone. Then, secure the upper and lower housings of the phone together.

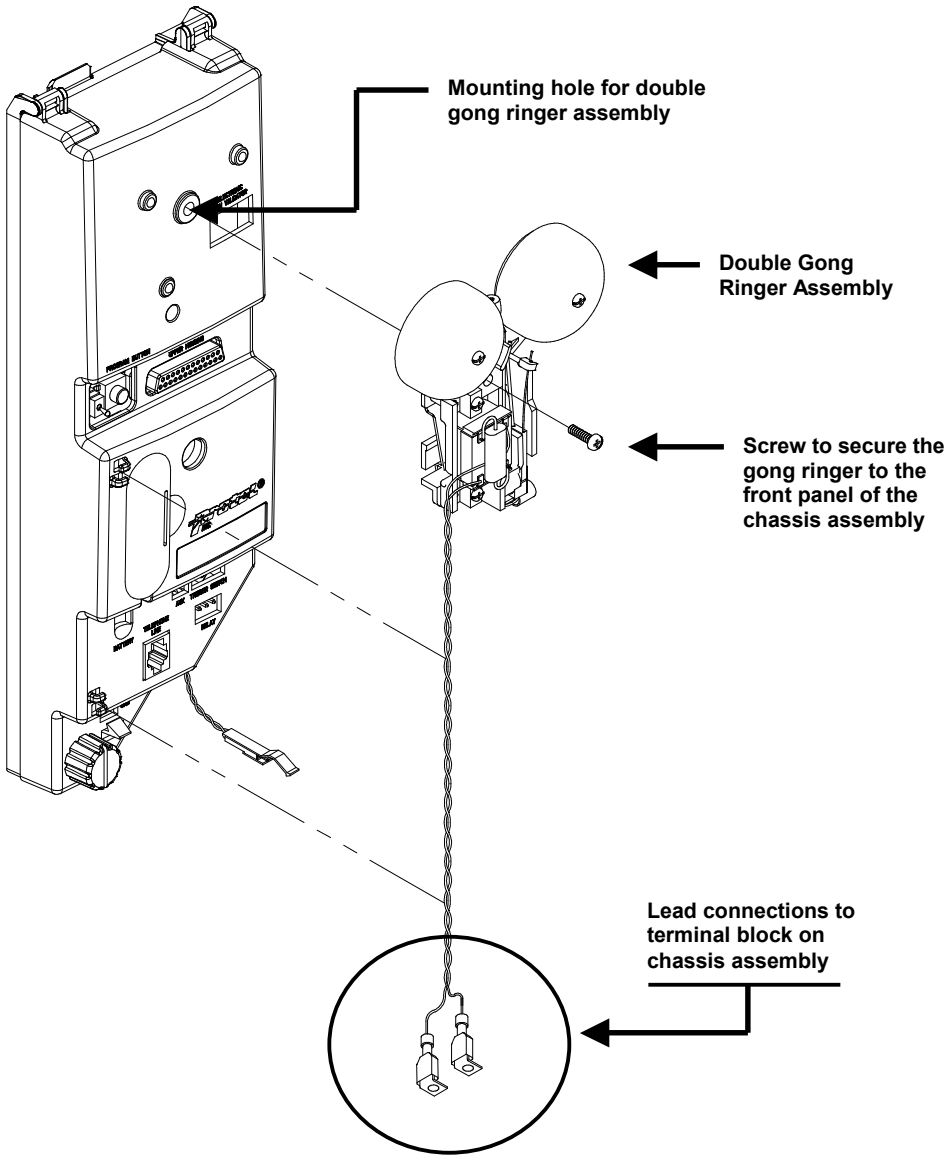


Appendix M - Installing the Double Gong Ringer

Outlined below are the steps necessary to install the optional double gong ringer.

NOTE
The double gong ringer may not be compatible with the MARS electronic MS-16 coin mechanism

1. Mount the double gong ringer assembly to the front cover of the chassis assembly such that the ringer assembly mounting screw is aligned with the ringer mounting hole on the front cover of the chassis assembly.
2. Secure the gong ringer to the front of the chassis assembly.
3. Connect the RED lead extending from the gong ringer to the "ring" connection on the lower housing's terminal block.
4. Connect the GREEN lead extending from the gong ringer to the "tip" connection on the lower housing's terminal block.
5. Disable the original piezo electric ringer by having the computer operator set the option labeled "Disable Piezo Ringer" to YES in the Options & Registers record used by the phone. The next time the phone is polled, the piezo ringer will be disabled.



Appendix N - Custom Calling Features

Note:

Custom calling features, such as call waiting and call forwarding may be indiscriminately supplied on B-1 phone lines. These features are activated by a hookswitch flash. Due to the nature of these features, the potential for problems or fraud exist.

To reduce the possibility of problems or fraud, it is recommended that the phone be tested for these features on your pay telephone lines. If a problem occurs, contact your telephone company immediately to have these custom calling features disabled.

Appendix O - Specifications

Electrical

Input Power.....Line powered, loop start
Minimum Loop - Basic + ECSII + Credit/Chip Card Reader + LCD (Console Version)...20mA
Dialing.....Dial pulse or touch-tone

DTMF Power Level (LOW Group).....-10.5 dBm (min) into 600 ohms
DTMF Power Level (HIGH Group).....-8.5 dBm (min) into 600 ohms
DTMF Power Level (per pair).....+1.0 dBm (max) into 600 ohms
DTMF Frequency Tolerance..... ±0.5% per frequency
DTMF Twist .....< 3 dB
Modem.....1200 bit/s DPSK generator, 8 data bits, 2 stop bits and no parity
1200 bit/s FSK generator, 8 data bits, 2 stop bits and no parity
300 bit/s FSK generator, 8 data bits, 2 stop bits and no parity
* (1200 bps DPSK capability requires use of an option board)
* (1200 bps FSK capability requires use of a Protel modem)

Modem Transmit Level (FSK).....-12.5dBm ±2 dB (per frequency)
Modem Transmit Level (DPSK).....-11dBm ±2 dB (per frequency)
Modem Receive Level .....0 to -40 dBm (per frequency)
Coin Tone Frequencies .....1700 and 2200 Hz ±1.5%
Coin Tone Power Level (per frequency).....-4 to -10 dBm into 600 ohms
Coin Tone Twist.....-4 dB

Mechanical

Weight .....Approx. 1.1 lbs.
Housing Compatibility.....Protel Housings
Palco/Quadrum Housing
Coin Validator Compatibility.....GTE-style mechanical industry standard
Mars Electronics® MS-16 [See Note 1]
Note: MS-16 requires 21ma current
Protel ECS II [See Note 1]

NOTE 1: Requires a Protel designed option interface circuit board

Handset Compatibility.....Bektel 54LX, 25LX, LX32LY, and Protel's

WARNING
General handset compatibility must NOT be assumed. Any handsets not listed above have NOT been approved by Protel.

Dial/Hookswitch Compatibility.....Protel standard w/25 pin interface
Coin Relay Compatibility.....Industry standard (48V, 3-wire relay)

Environmental

Temperature .....40° to +150° F (-40° to +65° C)
Humidity.....0 to 95% relative, non -condensing

Software

Computer Software.....ExpressNet®, ExpressNet III® or Panorama® Payphone Management software (Required for communications between the phone and a computer)

FCC Registration

This equipment complies with Part 68 of the FCC rules. On the chassis bracket of this equipment is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of the devices, which may be connected to the telephone line. Excessive REN's on the telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total REN's, contact the telephone company to determine the maximum REN for the calling area.

If the terminal equipment (Ascension Series Flash 7000) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the Customer as soon as possible. You will also be advised of your right to file a complaint with the FCC if you believe it is necessary.

Direct connection of the equipment to the telephone line may be made only through the use of the furnished standard plug ended cord, to the proper modular jack (i.e. USOC RJ11C).

This equipment (Flash 7000) cannot be used on Public Coin Services provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state Public Utility Commission, Public Service Commission or Corporate Commission for more information.)

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment (Ascension Series Flash 7000). In this case, the telephone company will provide advance notification in order for you to make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment (Ascension Series Flash 7000), please contact your authorized Protel distributor for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is corrected.

This equipment is hearing aid compatible (HAC) per section 68.316, FCC Rules and Regulations.

For compliance with state tariffs, the telephone company must be notified prior to connection of the equipment (Ascension Series Flash 7000) to the telephone line. In some states, approval for equipment connection must be obtained from the Public Utility Commission, Public Service Commission, or Corporate Commission prior to connection.

FCC Registration No. F2LUSA-20852-CX-E

Ringer Equivalency No. 0.0B

This device complies with Part 15 of the FCC Rules.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ETL Listing

This equipment (Flash 7000) is in compliance with the requirements of the **Standard for Telephone Equipment (UL-1459, Second Edition**). This equipment is listed by ETL Testing Laboratories in compliance with the above standard.