7-22-02

*i*2021 Series ISDN Teleset User's Guide

Mandatory Customer Information
Federal Communications Commission (FCC) Requirements
This equipment complies with Part 68 of the FCC Rules. The FCC registration information is located on a label affixed to the bottom of the Teleset. If requested, you must provide the telephone company with the following information: Facilities interface Code (FIC) 02IS5, Service Order Code 6.0Y, and Registered Jack RJ-49C*.

FCC regulations require an FCC Registered NT1 device be used when connecting this Teleset to the network.

If your telephone equipment causes harm to the network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be informed of your right to file a complaint with the FCC.

Your telephone company may change its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact your telephone equipment distributor for repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected.

Federal Communications Commission (FCC) Requirements, Part 15
This equipment has been tested and found to comply with the limits for a Class B digital device as specified in Part 15 of the FCC rules. These rules are designed to provide against radio-frequency interference in a residential installation. However, there is no guarantee that harmful interference will not occur in a particular installation.

* The RJ-49C refers to the network jack provided by the telephone company. This is the jack that interfaces to the FCC registered NT1 device, not the jack on the bottom of the *i*2021.

Trademark Acknowledgment
5ESS is a registered trademark of Lucent Technologies.
DMS-100 is a registered trademark of NORTEL, Inc.
EWSD and Siemens are registered trademarks of Siemens Information and Communication Networks
GTD-5 is a registered trademark of AG Communications Systems

IMPORTANT SAFETY INSTRUCTIONS

When using your telephone equipment, basic safety precautions should be followed to reduce the risk of fire, electric shock, and personal injury.

- Read and follow all instructions.
- Follow all warnings and instructions marked on the product.
- Disconnect the telephone from the telephone line before cleaning. Do not use aerosol or liquid cleaners. Use a damp cloth only.
- Do not use this equipment near water, for example, a bathtub, pool, sink or laundry tub.
- Do not use this equipment in a wet basement.
- If this equipment accidentally falls into water, do not retrieve it until you have disconnected it from the telephone line. Disconnect it at the wall jack only.
- This product should not be placed near or over a radiator or heat register.
- Do not place this product in such a way as to cause the cord to be a tripping hazard.
- To avoid the risk of electrical shock, never push objects of any kind through slots or openings in the product.
- Do not disassemble this product. Opening the product can expose hazardous voltage, which may cause an electrical shock.
- Unplug this equipment and refer to a qualified technician if:
  1. The cord is damaged or frayed.
  2. Liquid has been spilled on this equipment.
  3. This equipment has been exposed to water or rain.
  4. If this equipment does not operate properly.
  5. If this equipment has been dropped or appears damaged.
- Avoid using this equipment during an electrical storm.
- Do not use this equipment to report a gas leak if it is in the vicinity of the leak.
- This product should not be placed on an unstable table, stand or cart. The product may fall, causing serious damage to it.
- Do not overload wall outlets and extension cords as this can result in risk of fire and electrical shock.
- This product should only be operated from the type of power source indicated on the label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.

SAVE THESE INSTRUCTIONS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF FIGURES

INTRODUCTION

ISDN *i*2021 S/T Telesets

Thank you for purchasing the *i*2021 voice only Integrated Services Digital Network (ISDN) Teleset. This Teleset meets the highest standards of quality to give you years of excellent service. The *i*2021 works with your local service provider to give you advanced, easy-to-use features. It is compliant with National ISDN 1,2 and 3 standards.

About This Manual

This manual contains the following information about your new ISDN Teleset:

- Features
- Installation
- Setup
- Voice User Operations
- Troubleshooting

*i*2021 S/T TELESET

This Teleset connects to an ISDN Basic Rate S/T interface, which may require an external NT1 (Network Terminator). Your local telephone equipment provider may furnish this device.

FEATURES

The *i*2021 Teleset offers an extensive list of features. They include the following:

- **CROSS-COMPATIBILITY**
  The Telesets work with several different switches: the Lucent Technologies 5ESS[®] (National ISDN), the Nortel DMS-100[®] (National ISDN), the Siemens EWSD[®] (National ISDN), and the AG Communication Systems GTD-5[®].
- **PROGRAMMABLE FEATURES AND OPTIONS**
  An extensive array of options/features may be provisioned via menus.
- **PROGRAMMABLE HARDKEYS**
  These keys are used for Call Appearances, access to Speed Dialing lists, and Dial Access Codes. The *i*2021 has 16 programmable hardkeys.
- **FIRMWARE UPGRADES**
  Your Teleset can always have the latest software features. The *i*2021 Teleset uses flash memory to download the current firmware. This is done through the SIM connector, via a local server.

- **TILTING DISPLAY (BACKLIT)**
  Your Teleset has a Liquid Crystal Display (LCD) with 9 settings for the optimum-viewing angle. It displays Caller ID information, CalLog entries, and is used to set up and manage Teleset operation.
- **CLOCK AND ALARM**
  The display includes a time-of-day clock, and a timer that shows how long you are on a call. A separate timer is kept for each Call Appearance. You can also program the clock to operate as an alarm clock, with up to eight different alarm times.
- **PASSWORD PROTECTION**
  A password can be used to safeguard your programmed options and features.
- **NON-VOLATILE MEMORY**
  Any options you program into the Teleset are protected from accidental loss by power failures. This allows you to move the Teleset to another location without worry.

Voice Operation Features

- **FEATURE KEYS**
  Such features as Hold, Transfer, Drop, and Conference, are supported on the Teleset.
- **CALL STATUS LAMPS**
  Each programmable hardkey contains a two-state (red/green) lamp to show the status of Call Appearance or Feature Keys.
- **LOCAL FEATURES**
  These keys include: MUTE, MENU, REDIAL, SPEAKER, VOLUME (Down) / VOLUME (Up) .
- **MESSAGE WAITING LAMPS**
  These indicators flash (red) to alert you to a message (held) at your message center. Contact your service provider for this service.
- **AUTOMATIC HOLD**
  During a call, you can answer an incoming call or initiate another call by pressing a Call Appearance (CA) key. Your first call is automatically placed on hold.
- **SPEAKERPHONE**
  A base-mounted speaker and microphone allow hands-free operation. The speaker is automatically turned off when the far-end party terminates the call.
- **VOLUME CONTROL**
  This key controls the loudness of the handset, headset, speakerphone, and the ringer intensity.
- **RINGER CONTROLS**
  Up to ten different ringing patterns and five separate alarm patterns may be chosen.

- **CALL RECORD**
  Your Teleset stores the information from the last 40 unanswered calls, the last 30 answered calls, and the last 30 outgoing calls.
- **CALL TIMER**
  On each new call, the timer displays the elapsed time of the call. Placing a new call resets the timer for the new call.
- **HEADSET JACK**
  Inserting the headset plug into this jack <u>enables</u> the headset, and <u>disables</u> the speakerphone. The *i*2021 Teleset contains an amplifier controlled by the volume key.
- **NETWORK FEATURES**
  Your Teleset can provide advanced network features. Such features as Call Forwarding, Auto-Callback and Call Pickup, may be available through your service provider.
- **MULTI-LANGUAGE**
  Replaceable keycaps, along with display options, allow the Teleset to support English, French and Spanish.
- **TOUCHTONE KEYPAD**
  A standard telephone keypad is used to enter alpha-numeric characters as well as the "Feature" (Star * and Pound #) keys. These keys are used to dial telephone numbers, and to enter names and numbers into the directory. Certain other features or options may include the use of the two feature keys.
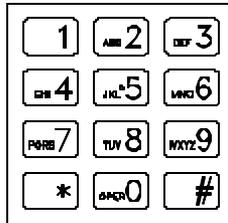
Fig. 1: Touchtone Keypad

Accessories

Earset, Model 2030B	Comcode 300294790
Headset, Model 2030A	Comcode 300130432
Designation Card, Black	Comcode 300294808
Designation Card, MC	Comcode 300294824
Headset Holder	Piece Part
Headset Adapter	Comcode 300316668

INSTALLATION

Before installing your phone, review the Safety Instructions located at the front of this manual. Make sure you have the correct model Teleset and associated parts for your applications. Choose a flat work surface with good lighting and easy access to cords and jacks. Avoid placing the Teleset where it is exposed to sunlight or heat sources.

Parts List

Check the box for the following:
>Teleset
>Handset and Handset Cord
>Mounting Cord (8-pin, round)
>Designation Card and Faceplate
>Wall-Mount /Desk Stand Base
>Handset Holder
>Logo Plate

As you unpack the box, inspect each part carefully for damage. Report any damage to your dealer or shipping company. Keep the box and packing material should a return be necessary.

ISDN Interfaces

A little background information sometimes helps. Your ISDN service comes to you over ordinary telephone line wiring. That makes it less expensive and simple to install.

The service provider (telephone company) usually provides a 2-wire interface, called a U interface to the customer. The *i*2021 is a Basic Rate ISDN, S/T interface device. An NT1 device is required to convert the 2-wire U interface from the service provider to a 4-wire S/T interface. See Fig. 2.

The S/T interface and power connection cable is connected to the "Line-In" jack located on the bottom of the Teleset. The *i*2021 S Teleset must be connected through a network interface device (NT1). This device presents the 2-wire U interface to the line, and to the 4-wire S/T interface to the Teleset. The Teleset is usually powered from the NT1 or separate transformer.

i2021 Teleset

U With Power

S/T With Power
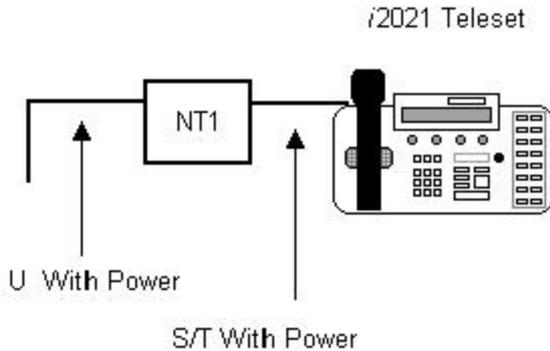
Fig. 2: Line and Power Jacks

Line and Power Connections – *i*2021 Teleset

The *i*2021 Teleset must be connected to the line through an NT1 device.
This device presents the 2-wire U interface to the line, and the 4-wire S/T
interface to the Teleset. The Teleset is powered over the phone line. This
method conforms to a standard using one of two different powering
methods: PS1or PS2. Powering method PS2 is preferred. Check with
your equipment provider or system administrator for guidance in setting
the PS1/PS2 switch. Your equipment provider should also be asked about
using or disabling the Teleset terminating resistors (TR).

SWITCH SETTINGS:
- **POWER SWITCH**
  The PS1/PS2 power switch is located on the bottom of the *i*2021.

- **TR SWITCH**
  When the *i*2021 Teleset is connected to the NT1 it acts as Terminal
  Equipment (TE). Terminal Equipment is any (ISDN) device that
  terminates directly on the ISDN line without a Terminal Adaptor.

If your Teleset is the last, or only, piece of TE on the ISDN line, set the TR
to <u>ON</u>, otherwise it is set to <u>OFF</u>. This is determined by the local
equipment provider's policy. It is suggested that you check with the ISDN
provider or your system administrator. Most companies allow up to eight
TE units in the loop.

*i*2021 ISDN Teleset

Pin Numbers

U Interface

NT1

S/T Interface

1. Not Used
2. Not Used
3. RCV+
4. XMIT+
5. XMIT-
6. RCV-
7. -48V
8. 48V Return

To Teleset
Line In
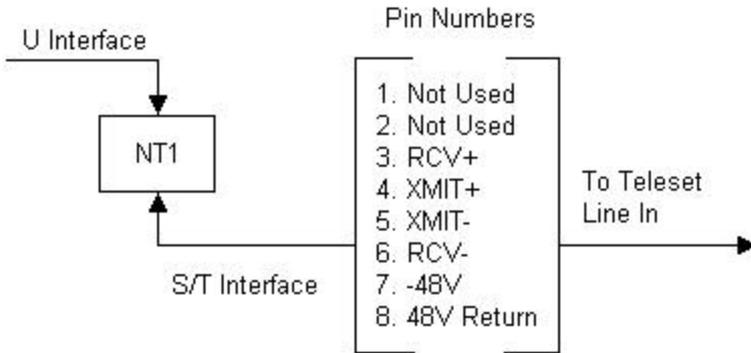
Fig. 3: NT1 Leads

PS1/PS2 Switch Settings

- If power is supplied on pins 7&8, set the PS1/PS2 switch to PS2.
- If power is supplied on pins 3&6, 4&5 only, set the PS1/PS2 switch to PS1.
- If power is supplied on pins 3&6,4&5,7&8, set PS1/PS2switch to PS2.
- If your NT1 does not supply power, you must use an external 48-volt DC power supply. Contact your service provider or system administrator if an external power supply is required. Connect as follows (Figure 4) and set the PS1/PS2 switch to PS2.

Line In

Line Out

S/T Interface

(Unpowered)

3. RCV
4. XMIT+
5. XMIT-
6. RCV-

48 VDC Power

Supply

To AC Power

To Line In
on *i*2021
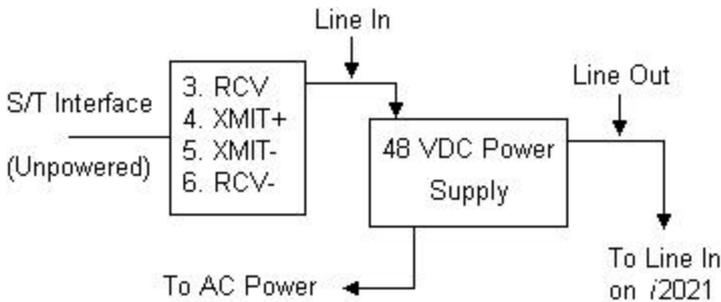
Fig. 4: Powering a Teleset (S/T) with an External Power Supply

Terminating Resistors

The *i*2021Teleset has built-in Terminating Resistors. The Terminating Resistor switches are located on the bottom of the Teleset. When the switches are in the **On** position, the Terminating Resistors are installed. The value of the resistors is 100 Ohms.

6

Point-to-Point Circuits

A point-to-point application typically has the Terminating Resistors "On" at both ends of the interface.
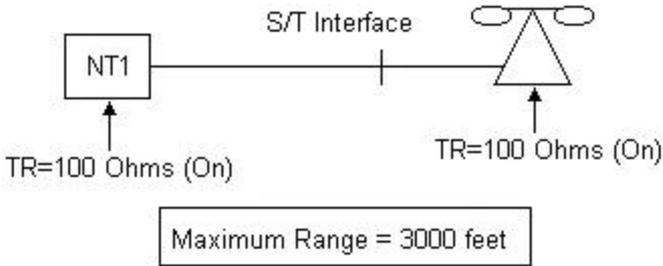

Fig. 5: Terminating Resistor Range

Passive-Bus or Multipoint

These may be new terms to you, so we will define them so you can better understand their meaning. Passive Bus means that you can connect several devices to the same Basic Rate Interface (ISDN line). Improperly set Terminating Resistors account for many of the problems with ISDN service. The "short version" of this explanation is that both ends of a bus or circuit must be terminated.

Your choices of terminating resistance are two: none or 100 Ohms. The idea is to terminate both ends of the bus. Set the resistors to ON at both ends of the bus.

The best advice is to follow the instructions given by the NT1 manufacturer and those of your terminating devices.

In the following configuration, the Terminating Resistors are "On" at both ends of the interface. The resistors are on at the NT1 and "On" at the farthest *i*2021 from the NT1.
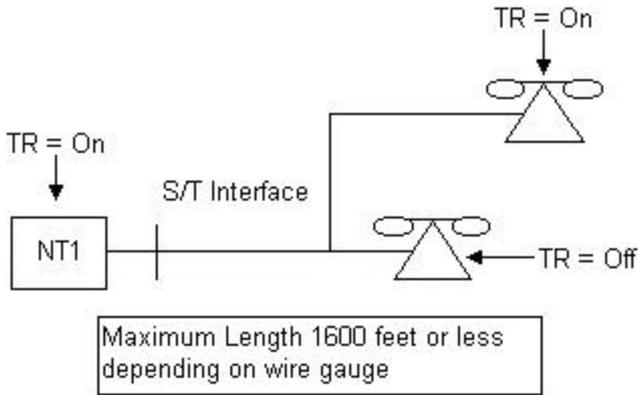
Fig. 6: Terminating Resistor Settings for Farthest Teleset

In the following application, the NT1 is equal in distance to both *i*2021 phones. The Terminating Resistors are set to "On" at one of the phones and at the NT1.
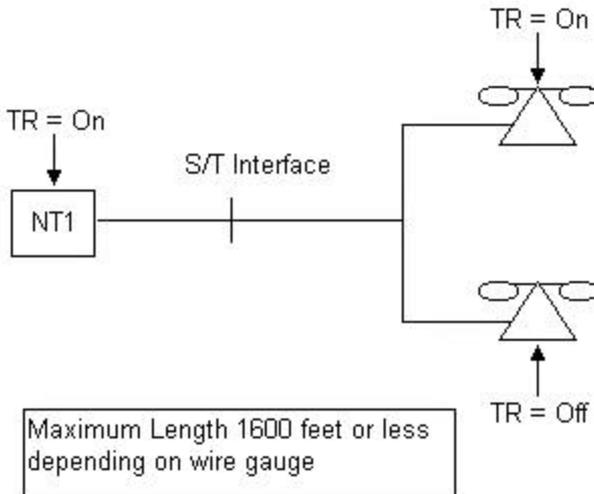

Fig. 7: Terminating Resistor Settings for Equal Distance Telesets

Line Configuration

To ensure the proper operation of your Teleset, several operating parameters must be met. This information can be provided by your system administrator or service provider.

■ **SERVICE PROFILE IDENTIFIER (SPID)**
  A service profile for your Teleset that is recognized by the switch.
  Some switches support AutoSPID. If your switch supports AutoSPID,

the teleset will display the SPIDs for you. Simply choose the correct SPID. If the switch does not support AutoSPID, you will have to manually enter the SPID. Check with your service provider or system administrator for the correct information.

- **DIRECTORY NUMBER**
  The telephone numbers appearing on your line.
- **CALL APPEARANCE KEYS**
  These are configured at the switch and at your phone. You may have more than one Call Appearance of a Directory Number. Check with the system administrator or service provider for information and multiple Directory Numbers. With National 2 and 3 ISDN, many of the required settings can be automatically downloaded from the switch – see your system administrator or service provider for details.
- **FEATURES**
  Conference, Drop, Transfer, Call Forwarding, and others may need to be programmed in the Teleset.
- **SWITCH TYPE**
  The type of switch used by the service provider. The *i*2021 will operate with the Lucent Technologies 5ESS® (National ISDN), Nortel DMS-100® the Siemens EWSD®, and the AG Communications System GTD-5®.

# Installing the Logo Plate

Assembling the i2021

Teleset

SIM

LINE IN

Headset Jack

Handset Holder

Handset

Base

Headset Holder
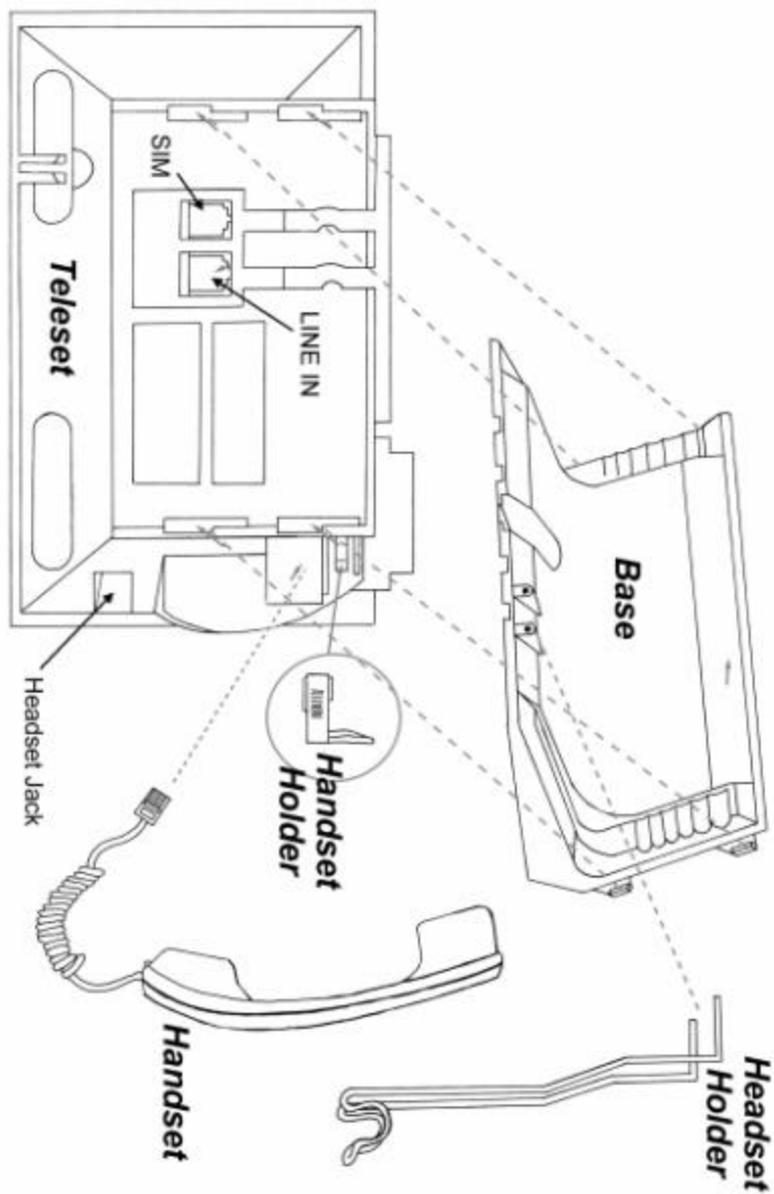
Softkeys

An understanding of softkey operation is required in order to install and operate the *i2021* Teleset. Directly below the display are four softkeys, vertically-oriented to the display. The location of these keys corresponds to menu choices that appear directly above them in the LCD window. For example, pressing the softkey below the "clock" menu reveals the options for setting the time of day and date. They are called softkeys because their function changes according to the menu. In one menu a key may set the time, while in another menu the same key is used to choose a feature. This will become clearer as you begin using the softkeys. See the following example.

Example:
Press the softkey under Directory — shown below by highlighting (**bold type)** the word "**DIR**" and highlighting the softkey below that menu item.

CalLog   **DIR**
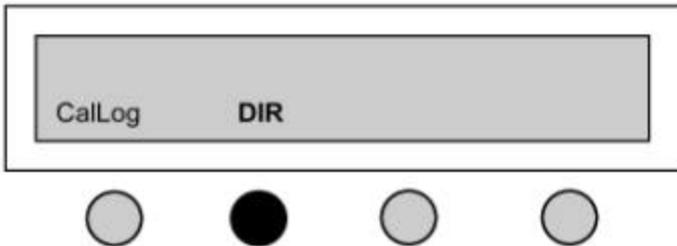
Pressing the Directory softkey brings up the second menu with additional choices. In our example we chose **Search** next — shown in **bold** type. The selected menu items are shown in **bold** type for emphasis. The softkey under **Search** is highlighted to indicate the chosen softkey.

Search   Add   Del

MORE is *flashing*
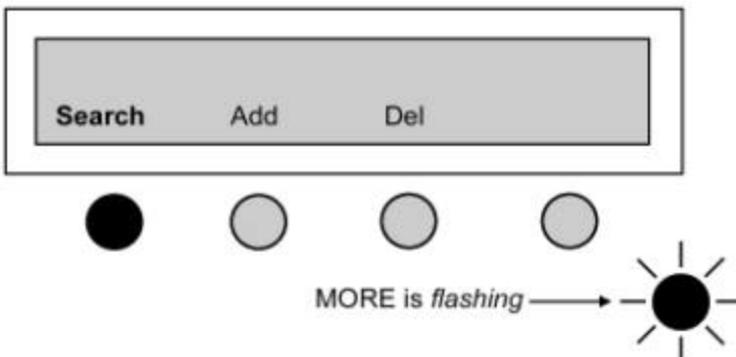
Choosing Search returns the next screen, assuming the Directory is empty.

Directory is Empty !

Search   Add   Del

MORE is *flashing*
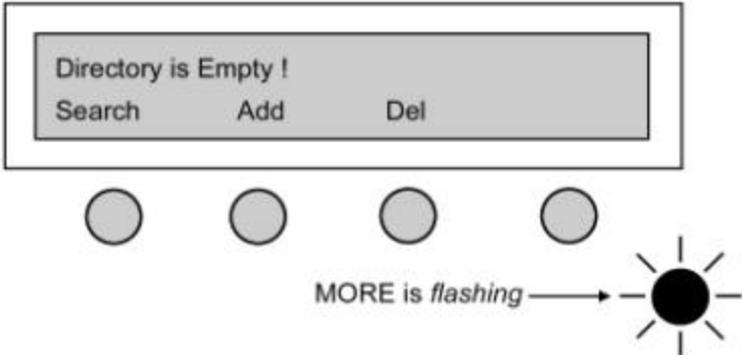
Connecting THE *i*2021- AUTO-INSTALL

1. Assemble the *i*2021

NOTE: Make sure the logo plate is installed

2. Verify the PS1/PS2 switch located on the bottom of the Teleset is set correctly. See page 6 for further information on setting the PS1/PS2 switch.
3. Verify the Terminating Resistor (TR) switch is set correctly. See page 6 for further information on setting the TR switch.
4. Connect one end of the eight-pin mounting cord to the ISDN Line-In jack on the bottom of the Teleset. Connect the other end of the cord to the S/T jack on your NT1 or ISDN telephone wall jack.
5. Remove the protective film on the display.
6. Label and install the designation card

AUTO-INSTALL
The *i*2021 is equipped with an Auto-Install feature. The purpose of Auto-INSTALL is to ensure a complete and painless installation. In this mode, the *i*2021 will first detect the type of switch the *i*2021 is connected to, and then will attempt to Auto-SPID. The switch will automatically download the features. The *i*2021 will then step through each of its programming choices and give you the opportunity to make a selection. After you have made the selection press the "MORE" key to continue.

NOTE: You may abort the **Auto-Install** by pressing the Menu
        key at any time

> NOTE: You can abort the T-Wait countdown timer at any time by pressing the Speaker key or any touchtone keypad digit.

The **Auto-Install** programming choices are:
- Adjust Contrast – Select Yes or No.
- SPID – If the switch supports Auto-SPID you will be prompted to choose a SPID. If your switch does not support Auto-SPID, press the "Change" softkey and enter the SPID. After entering the SPID press "Save".
- The Teleset will attempt to initialize. If there is a problem the Teleset will prompt you to correct the SPID and/or switch type.
- The Teleset will download its configuration from the switch. If Parameter Downloading is not available, you will be prompted to program the Teleset manually.
- Backlight – Select On, Off, or Dynamic.
- Enter the Date and Time.
- Adjust the Ring Pattern – Select Yes or No.
- Set the 2nd ring Option – Select Continuous, Partial, or No Ring.
- Set Primary Call Appearances.
- Set Priority Call Appearances.
- Set Terminate Only Call Appearance.
- Set an Intercom Key.
- Set Speed Dial Keys.
- Set the Alarm Clock.
- Set a Password.

> NOTE: Auto-Install will only run when the *i*2021 is in the default mode.

> NOTE: To default the *i*2021 press **MENU** and enter 91 from the dial keypad. Press the "**YES**" softkey to complete the default.
>
> **WARNING: DEFAULTING THE *i*2021 WILL ERASE ALL OF THE MEMORY.**

AUTO-SWITCH
With Auto-Switch detection, the *i*2021 determines the type of switch to which you are connected. Should you decide to manually program the switch type, Auto-Switch detect will tell you if a different type of switch is found. You will then be given the opportunity to correct the switch type.

AUTO-SPID
Auto-SPID is a National 2 and National 3 ISDN feature. Not all switch types and not all service providers support the Auto-SPID feature. If Auto-SPID is supported, follow the procedure shown below.

AUTO-SPID PROCEDURES
When the countdown timer stops, or is aborted, the Teleset automatically sends the Auto-SPID code to the switch. Upon receipt of the Auto-SPID code, the switch will download all of the SPID's that are supported on that line.

> NOTE: If the SPID is not accepted for any reason - including the SPID being used at another location - the phone displays: "Invalid SPID," and allows correction of the SPID.

If the switch supports Auto-SPID, the *i*2021 will display all of the SPIDs available on the line in the following format:
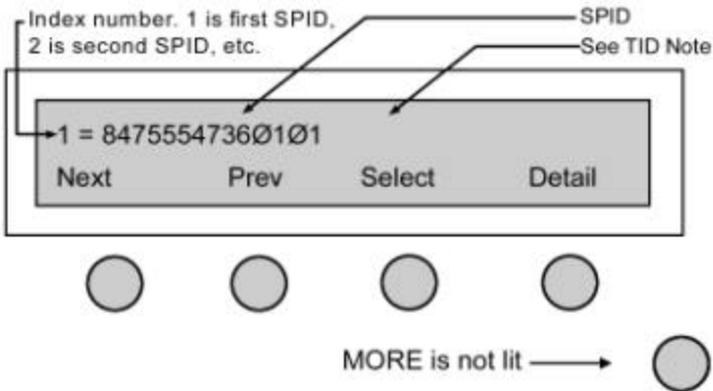
If the SPID displayed is not the correct SPID for your application, press the **Next** key.

Pressing the Detail softkey will display the SPID, the Primary Directory Number, and the Bearer Services assigned to the SPID. The detail information will scroll across the top line of the display.

When the correct SPID is displayed, press the **Select** softkey to choose it.

> NOTE: The last 2 digits of the SPID are known as the TID (Terminal IDentifier). The *i*2021 automatically inserts the TID at the end of the SPID. The TID is displayed as part of the SPID.

AUTO-DOWNLOAD

After the SPID has been accepted by the switch, the *i*2021 will download the Call Appearance and Feature information from the switch. On completion of the download, the display will momentarily show the following and then continue with the Auto-Install.

```
DnLoad in Progress
```

○   ○   ○   ○

MORE is not lit ────▶ ○
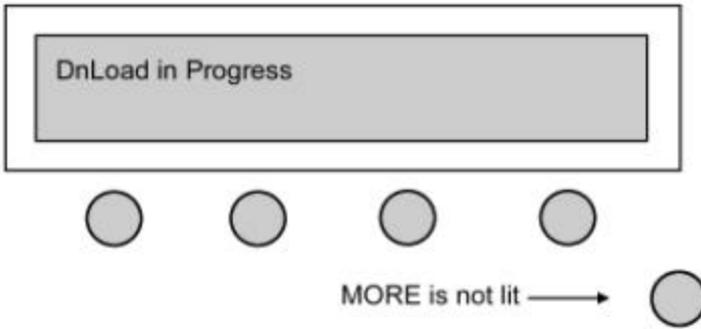
Connecting the *i*2021- MANUAL-INSTALL

1. Assemble the *i*2021

NOTE: Make sure the logo plate is installed

2. Verify the PS1/PS2 switch located on the bottom of the Teleset is set correctly. See page 6 for further information on setting the PS1/PS2 switch.
3. Verify the Terminating Resistor (TR) switch is set correctly. See page 6 for further information on setting the TR switch.
4. Connect one end of the eight-pin mounting cord to the ISDN Line-In jack on the bottom of the Teleset. Connect the other end of the cord to the S/T jack on your NT1 or ISDN telephone wall jack.
5. Remove the protective film on the display.
6. Label and install the designation card

**MANUALLY CHOOSING THE SWITCH TYPE**

NOTE: Your Teleset has a factory default setting of "AUTO" which adjusts for the switch type. An incorrect switch type results in a warning message from the Teleset. The correct switch, as detected by the Teleset, is displayed as a prompt to change your switch selection.

To manually choose the switch type, press **MENU**, **MORE**, **MORE**, **Config**, **Switch**. The display will show the current selection and the choices available.

```
Current Switch:AUTO
5E-NI        DMS-NI        EWSD        AUTO
```

MORE is *flashing*
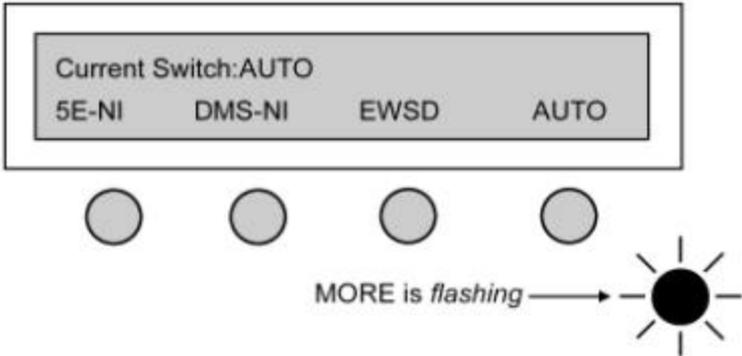
MANUALLY ENTERING THE SPID
1. Press **MENU**, **MORE**, **MORE**, **Config, MORE**, **MORE**, **SPID**.
2. Press **Change** if you want to edit the SPID. Pressing Change will not erase the displayed SPID until the new SPID is entered from the keypad.   Press **Clear** if you want to erase the entire existing SPID. Press **Bkspc**, to erase SPID digits one at a time.

```
SPID=8475551234Ø1Ø1
                        Change        Clear
```

MORE is *flashing*
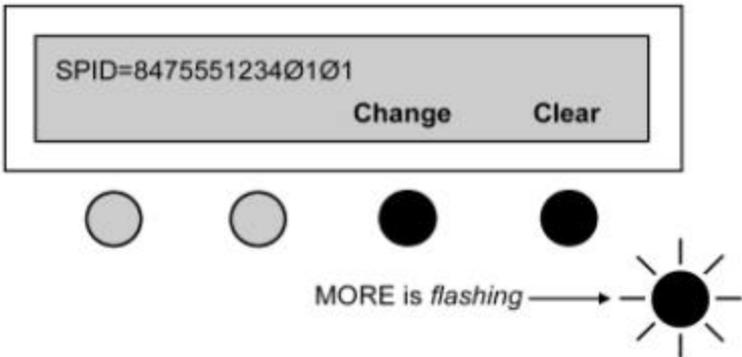
3. Up to twenty digits can be entered as the SPID. After entering the digits, press **Save** to enter into non-volatile memory. If an error is made use the **Bkspc** (backspace) key to edit. Enter the corrected digits and press **Save**. Press **MENU** to return to the idle screen.
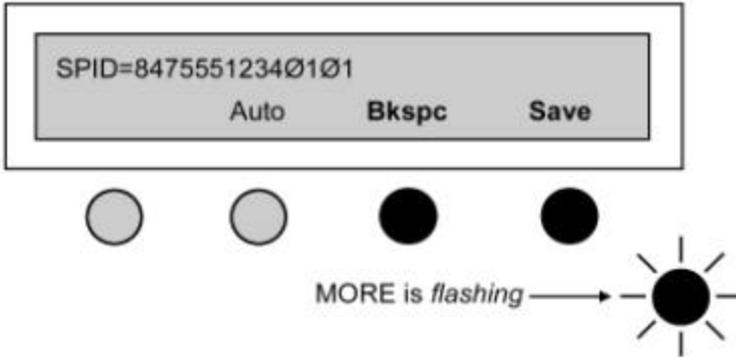
When the SPID entry is complete, the Teleset must be programmed. The *i*2021Teleset can download the switch parameters, and/or can be manually programmed.

> NOTE: If the SPID is greater than 19 digits, an < will appear to the left of the SPID digits. Use the volume control key to view the entire SPID.

MANUAL SWITCH DOWNLOADING
Switch parameters may be downloaded from the switch to the Teleset over the ISDN line. A download can be requested up to three times in a five-minute period. To download proceed as follows:
1. Press **MENU**, **MORE**, **MORE**, **Config, MORE**, **MORE**, and **ReqParam/RunSPM** (depending on the switch) in order. A message indicates a successful or failed download. If successful, the remainder of the setup parameters need not be entered. These setup characteristics include conference, drop, transfer and Call Appearances. You must enter these parameters manually if the download fails. Press **MENU** to return to the idle (power-up) screen.

> NOTE: If the Teleset detects a DMS-100® or the switch is programmed as a DMS-100®, the ReqParam softkey will be displayed as RunSPM.

> NOTE: If the Teleset has not linked with the switch, the display will show "Layer 3 Not Initialized", "Data Link Down" or "Line Not Ready".

**MANUALLY PROGRAMMING CALL APPEARANCES**
Take a look at the layout of the Line and Call Appearance keys. These (16) keys are located on the far-right hand side of the phone. The upper-left-hand

key is the default or primary key.   This key must remain a Call Appearance key. All of the other 15 keys are programmable.

It is important to check with your system administrator to see how your Teleset is provisioned at the switch. You will have at least one Directory Number (DN) and at least one, or more, Call Appearances (CA). Both the Directory Numbers and the Call Appearances must mirror the provisioning at the switch.

To configure the DN/CA:

1.   Press **MENU**, **MORE**, **MORE**, **Config**, **MORE**, **MORE**, **DN/CA**. The following is displayed:
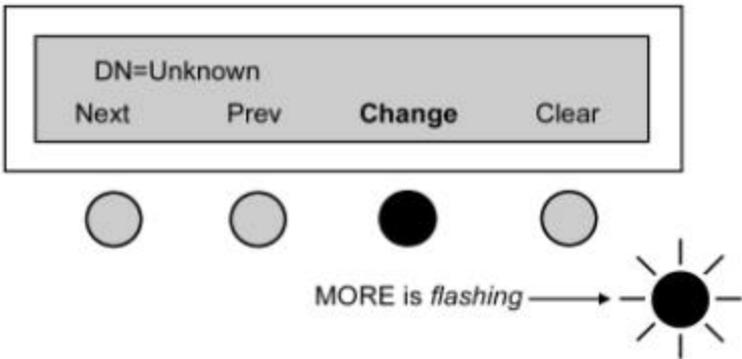
The first three programmable keys should be lit. These three keys are the default CA keys.
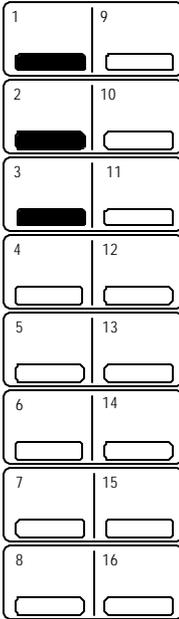
NOTE: The first three CA keys lit is default. If the first three CA keys are not lit, or there is a DN displayed, the Teleset is not in the default condition.

In our example, we will enter DN 847-555-4736 with two CAs, DN 847-555-1234 with 4 CAs, and DN 847-555-4321 with one CA. The first two DNs will have a Bearer Service of Speech and the third will have a Bearer Service of Audio.

To enter the first DN, press **Change**, and enter the first DN. Enter the DN in a seven-digit format (no area code).
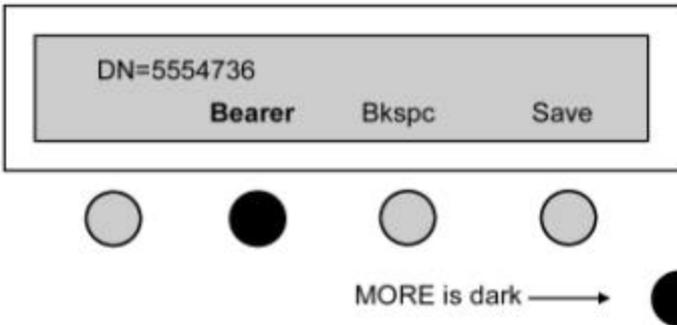

After the DN has been entered, press the **Beare**r softkey until the Bearer Service of Speech is displayed.

Since the first DN, 847-555-4736 has only two Call Appearances and there are three Call Appearances lit, press the third CA key to turn that CA off.

After you completed the DN/CA selections, press **Save**. The display will now allow you to move to the second DN.

Press the **Next** softkey. All of the Call Appearance keys will be unlit. The display will now show
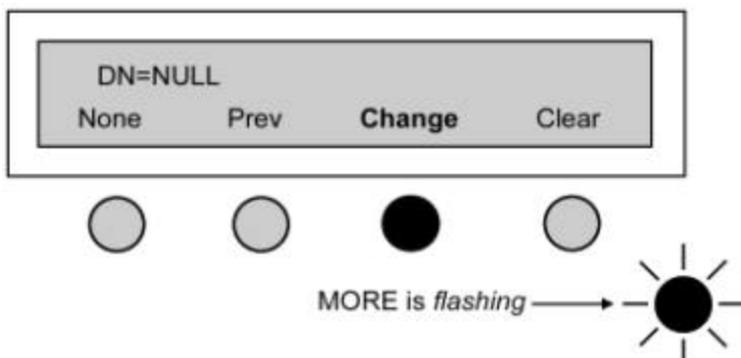
The second DN has four Call Appearances. To enter them, first select the CA keys. Press **Change**. Since the first DN had two Call Appearances, select keys 3, 4, 5, and 6. They will light as you press them.

Enter the second DN as a seven-digit number. Enter the Bearer Service as Speech, and then press **Save**.

The third DN in the example has only one CA. That DN/CA will be assigned to key 7. Press the **Next** softkey until there are no Call Appearances lit. Press **Change**, select CA key 7, it will light. Enter the third DN, 5554321.

In the example, DN three has a Bearer Service of Audio. Press the **Bearer** softkey until the display shows Audio. Press the **Save** softkey to save the entries. Press **MENU** to exit.

### MANUALLY PROGRAMMING FEATURE KEYS

Most ISDN Teleset installations will have a number of switch features. Common features are Conference, Drop, Transfer, Call Pickup, and Call Forwarding. These features are usually assigned to the softkeys. Other features may be assigned to the programmable hardkeys. As long as a programmable hardkey is "Unassigned" it will work as a feature key.

To verify a key is "Unassigned", press **MENU, View**, **Key**. Select the key you wish to verify. If the key is programmed as a Speed Dial, simply clear it. If the key is programmed as a Call Appearance, go to DN/CA and clear it.

ASSIGNING THE CONFERENCE/TRANSFER/DROP/CALL FORWARD/CALL PICKUP FEATURES MANUALLY

The following sections describe how you assign these features.

1. Press **MENU**, **MORE**, **MORE**, **Config**, **SetKey**, **SetFA**. The display shows as follows:
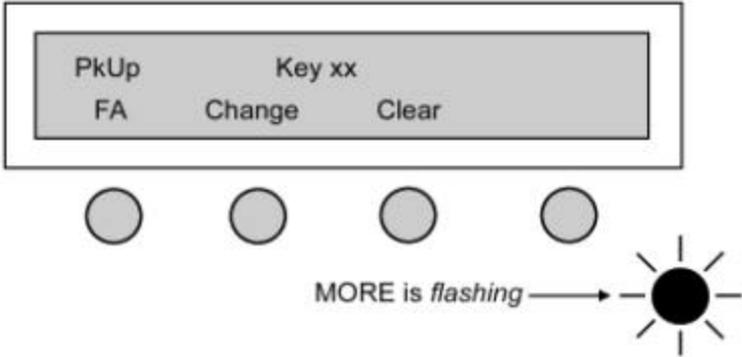
2. Press **FA** to scroll the features on the display.

3. The following features: **PkUp** (Call Pickup), **FwdOn** (Call Forwarding), **Confr** (Conference), **Transfer**, **Drop**, and **MsgWait** (Message Waiting) are enabled as you scroll though them. If the switch is set for EWSD® the **Transfer** key may not be present.

4. To change or set the **Conf** key, scroll to the conference key, press **Change** and enter the feature number using the touchtone keypad.
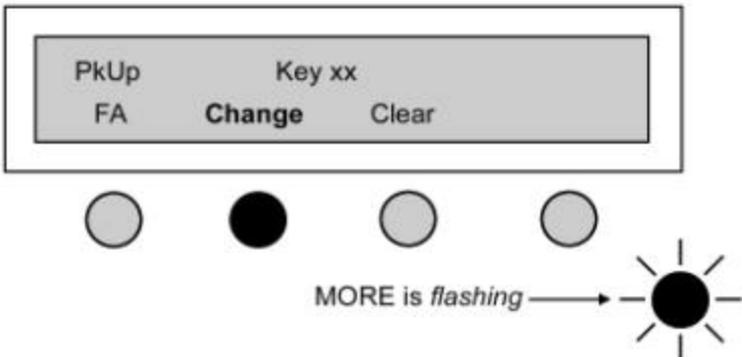
5. Press **Save**. Repeat this procedure for Transfer and Drop and other features.

Setting Up the Teleset

ADJUSTING THE DISPLAY VIEWING ANGLE

The display module on the *i*2021 Teleset tilts for ease of viewing. This is a handy feature when reflections from room lighting or instrument placement make the display less readable. Select any of nine angle settings by lifting the display from the rear with your finger. Return the display to a lower position by pressing down on the top of the display case, not the display window.

SETTING THE CONTRAST

The display contrast is adjusted by pressing **MENU**, then **MORE**. The following display appears.
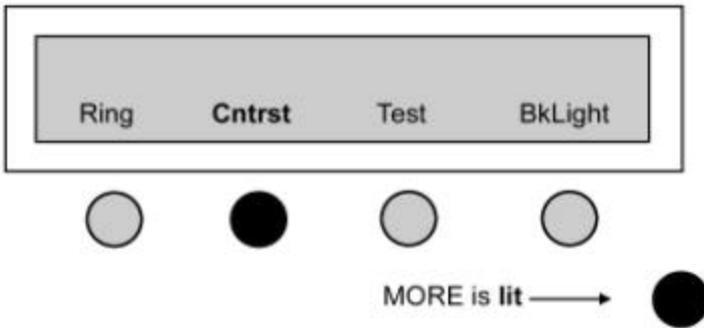

Press the **Cntrst** softkey.
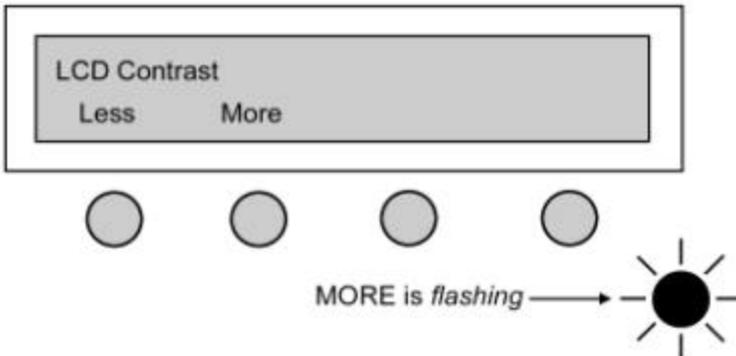
Adjust the contrast by pressing the **Less** and **More** softkeys. If the display characters appear faded, pressing the **More** softkey will darken the characters by increasing the contrast. Similarly, pressing the **Less** softkey decreases contrast (lightens the characters) for comfortable viewing and better clarity. Exit by pressing the **MENU** key.

SETTING THE BACKLIGHTING OPTIONS

The *i*2021 Teleset incorporates a two-line, 24 character, adjustable, backlit display. There are three settings for the backlight feature: off, on, and dynamic.

OFF – When the backlight feature is set to off, no backlighting is present.

ON – When the backlight feature is on, the backlighting is continuous.

DYNAMIC – When the dynamic backlighting feature is enabled, the display is backlit whenever the handset is off-hook or the Teleset is ringing. In the dynamic setting, the display is backlit for a period of 30 seconds after the ringing ceases or the handset goes on-hook.

To return to the main menu at any time, press the MENU hardkey.
To set these options, first press the **MENU** key and then the **MORE** key. The display appears as shown below.

| Ring | Cntrst | Test | **BkLight** |

MORE is **lit** ⟶
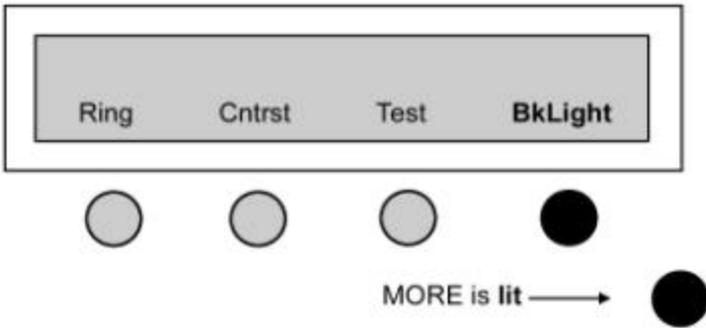
Press the BkLight "softkey". The display will show the current setting on the top line. To change the option, press the appropriate softkey.

BackLight: Always Off
On   Dynamic

MORE is *flashing* ⟶
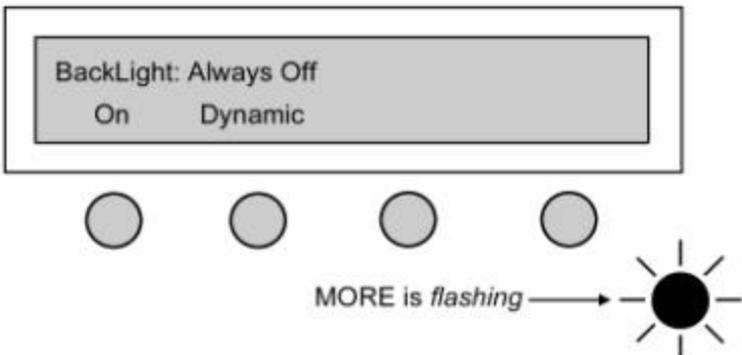
Press **MENU** to exit.

> NOTE: An explanation of the options provided by the MORE key is found in the Basic Operation section found in Chapter 2.

SETTING THE DATE AND TIME CLOCK
Setting the time and date are important to the accuracy of your Teleset. This is important because the alarm clock and the Call Log features are dependent on setting the correct time and date. The graphic flowchart may be useful in setting the time. Set the time as follows:

1. Press the **MENU** hardkey.

| View | SpDial | **Clock** | Alarm |

MORE is *flashing*
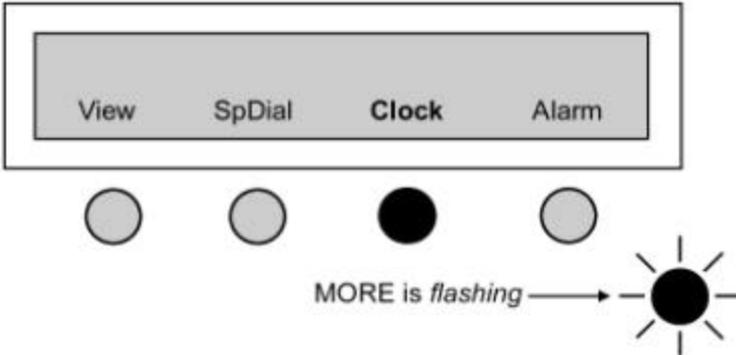
2. Pressing **Clock** returns the next screen. The digit set is two characters long (hour-minute-second). Use the touchtone keypad to enter the digits, using a zero for numbers below 10 as in the example. Then press **Save**.

Ø2-28-ØØ (Enter Date)

| | | Bkspc | **Save** |

MORE is *flashing*
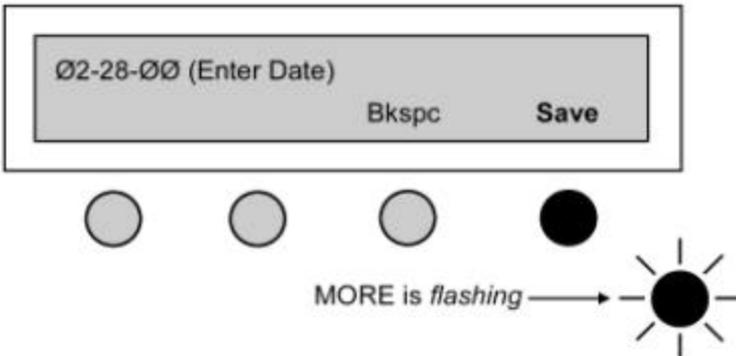
3. The next screen is used to edit the clock functions.

    Example:

    ```
    Ø2:19:Ø4 AM
      AM/PM    24/12      Bkspc       Save
    ```

    MORE is *flashing* ⟶
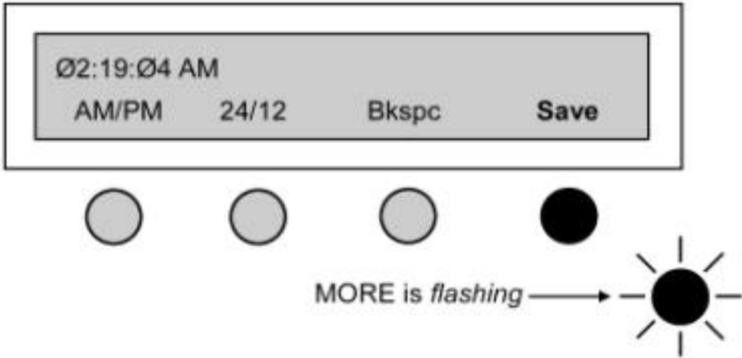
4. Enter the clock digits and press **Save**. Pressing **Save** returns the following screen.

    ```
      View      SpDial      Clock       Alarm
    ```

    MORE is **lit** ⟶
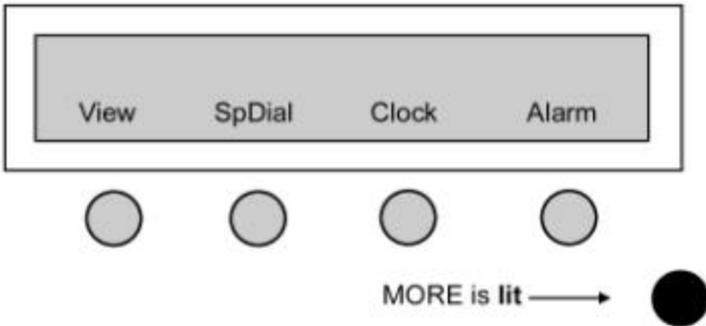
RINGING PATTERNS

Your Teleset has up to ten different ringing patterns to signal incoming calls. Set the pattern as shown below.

1. Press **MENU**, then **MORE**. When the screen below is returned, press **Ring**.

*i*2021 ISDN Teleset
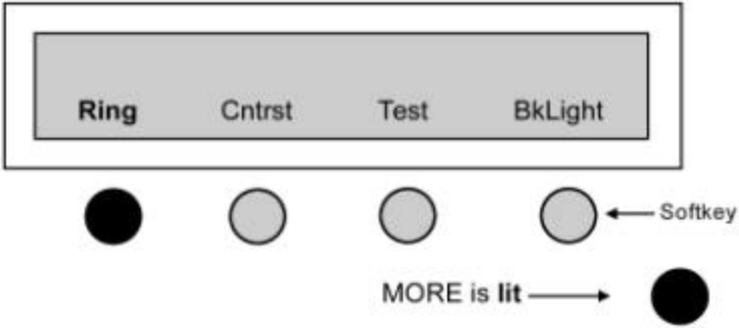
2. On this screen you choose the ringing pattern (**RingPattern**).
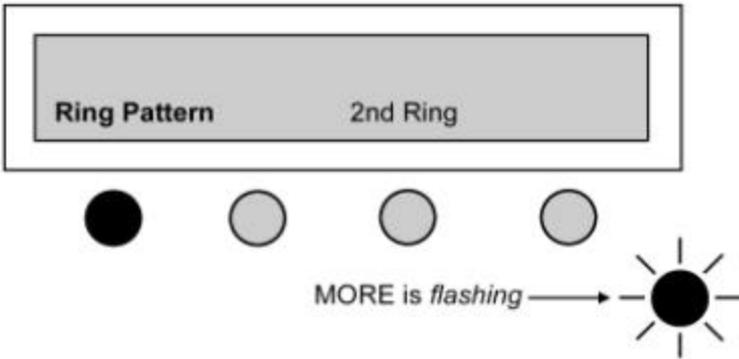
This selection returns a screen prompting you to select a ringing pattern
(0-9). As an example, we press the digit **3** on the keypad. We confirm **3**
on the following screen and press **Accept** to enter your choice.
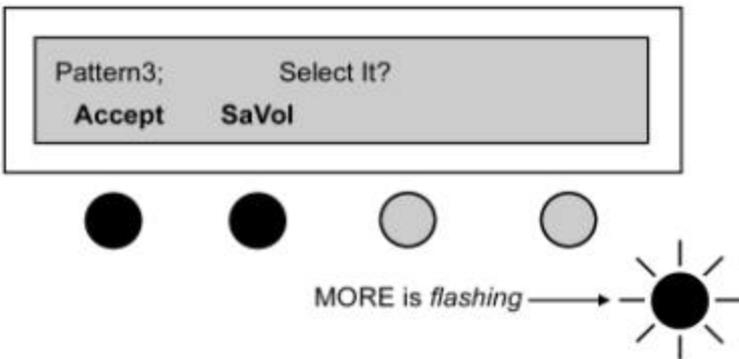
NOTE: Before accepting, the ring volume can be adjusted by
         using the volume key and saved by pressing **SaVol**.

Press **MENU** to return to the startup screen. The **SaVol** key sets the default level of the ringing pattern. The Ring Pattern level returns to this volume setting if the Teleset power is reset. The Ringing Pattern volume may be adjusted at any time by pressing the volume keys while the Teleset is ringing. The Teleset will remember the volume setting until power is reset.

$$\text{||◁⊓ VOL ⊓▷||}$$
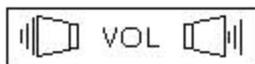
2ND RING
The 2nd Ring option controls how the Teleset audibly reacts to an incoming call on another Call Appearance when you are already off-hook on an active call. The choices are Continuous Ring, Partial Ring, and No Ring.

With Continuous Ring, the Teleset will sound the 2nd Ring "beep" with every ring cycle.

With Partial Ring, the Teleset will sound the 2nd Ring "beep" with a shorter duration every other ring cycle.

With No Ring, there will be no audible ring during the ringing cycle.

> NOTE   In all cases the Call Appearance LED will flash, and the display will continue to show the Calling Line ID if available.

To set the 2nd Ring option press **MENU**, **MORE**, **Ring**, **2ndRing**

```
2nd Ring:Continue Ring
No Ring      Partial
```

  ◯   ◯   ◯   ◯

MORE is *flashing* ⟶ ●
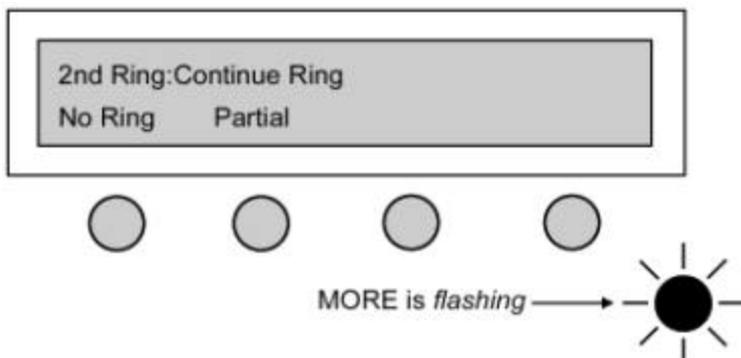
PRIMCA (PRIMARY CALL APPEARANCE)
Primary Call Appearances are Call Appearance locations you consider to be your own. Do not confuse PrimCA locations with Primary Directory

Numbers (PDN), which are used by your service provider to identify a particular phone. Some other attributes of PrimCA:
- Executive/secretarial applications.
- Conjunction with RLP (Ringing Line Preference).
- User line identification.

The Primary Line feature works in conjunction with Ringing Line Preference. Ringing Line Preference allows the Teleset to automatically go off-hook on the oldest ringing Call Appearance when the handset is lifted. This may be a problem if the Teleset is sharing telephone numbers with another phone, such as in a manager/assistant application. In this arrangement, the secretary receives an incoming call and the phone starts to ring. A fraction of a second later, the manager receives an incoming call. If the manager and secretary both have each other's telephone number appearing on their phone, the oldest call will be answered first. This is no problem if the secretary answers first. But if the manager answers first, the manager will get the secretary's call.

This problem is easily avoided if the manager and the secretary set their respective Call Appearances as Primary.

> NOTE: PrimCA gives the phone Ringing Line Preference only on the Primary keys.

To set Primary Call Appearances:
1. Press **MENU**, **MORE**, **MORE**, **Config**, **MORE**, **PrimCA**. The Teleset will display the following message and a number of Call Appearances will light.
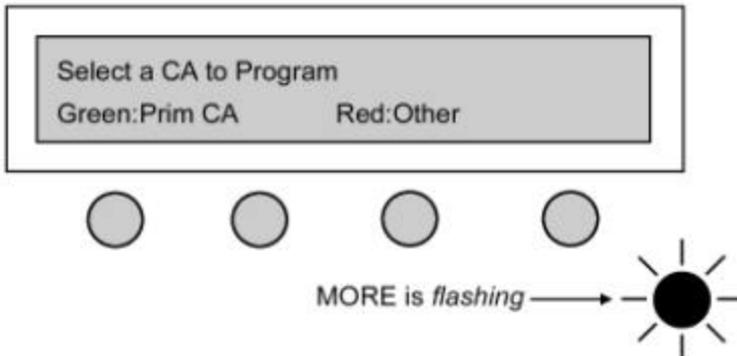
2. The Teleset defaults to all Call Appearances are Primary. Therefore, all of the Call Appearances will light green.
3. One at a time, select the Call Appearances that are not Primary to your Teleset. The Teleset will prompt you to press the key twice to confirm your selection.

4. If you encounter a red Call Appearance key, the Teleset will display the message, "Invalid-Not a General CA". This means the Call Appearance has previously been programmed as a Conference, Priority, or a Terminate Only Call Appearance. If this is the case, you must first go to the Conference, Priority, or Terminate Only Call Appearance screen and change the key back to a General Call Appearance.

PRIORT CA (PRIORITY CALL APPEARANCE)

Priority Call Appearance is a feature offered by some switches. Priority Call Appearances are not widely available today. To set a Priority Call Appearance, press **MENU**, **MORE**, **MORE**, **Config**, **MORE**, **PriortCA** in order. Select the Call Appearance to be used for Priority – it will light green.

> NOTE: Only Non-PrimCA keys can be programmed as a PriortCA. You must first change a PrimCA key to a General CA key.

CONFCA (CONFERENCE CALL APPEARANCE)

To perform a conference or transfer, you need a second Call Appearance. Your Teleset automatically selects the next available Call Appearance when the **Conf/TR** or **Confr** key is pressed.

A word of caution is appropriate here. The next available Call Appearance may be someone else's (Shared) Primary Call Appearance. To avoid this problem, press **MENU**, **MORE**, **MORE**, **Config**, **MORE**, **ConfCA** in order. Select the Call Appearance to be used for conference – it will light green.

> NOTE: Only Non-PrimCA keys can be programmed as a ConfCA. You must first change a PrimCA key to a General CA key.

It is also recommended that the service provider option this Call Appearance for <u>outgoing calls only</u>. Only one Call Appearance can be designated as ConfCA.

TERM ONLYCA (TERMINATE ONLY CALL APPEARANCE)

Terminate Only Call Appearance is a feature offered by some switches and is not widely available today. To set a Terminate Only Call Appearance, press **MENU**, **MORE**, **MORE**, **Config**, **MORE**, **TermOnlyCA** in order. Select the Call Appearance to be used for Terminate Only – it will light green.

> NOTE: Only Non-PrimCA keys can be programmed as a Terminate Only CA. You must first change a PrimCA key to a General CA key.

INTERCOM
Intercom is a Call Appearance assigned by the telephone company switch to be used as an intercom. To manually program a hardkey as an intercom, press **MENU**, **MORE**, **MORE**, **Config**, **ICOM**.

```
┌─────────────────────────────────────────┐
│  ┌───────────────────────────────────┐   │
│  │ <Select Intercom Key>             │   │
│  │                                   │   │
│  └───────────────────────────────────┘   │
└─────────────────────────────────────────┘
      ○        ○        ○        ○

              MORE is flashing ──→ ─☀─
```
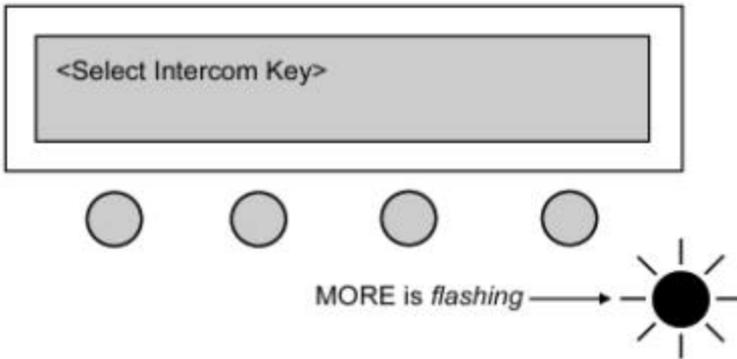
Select the Call Appearance to be used as an Intercom, by pressing it. In our example, Key 16 was pressed.

```
┌─────────────────────────────────────────┐
│  ┌───────────────────────────────────┐   │
│  │ Intercom Key: 16      Auto        │   │
│  │                       Answer      │   │
│  └───────────────────────────────────┘   │
└─────────────────────────────────────────┘
      ○        ○        ○        ○

              MORE is flashing ──→ ─☀─
```
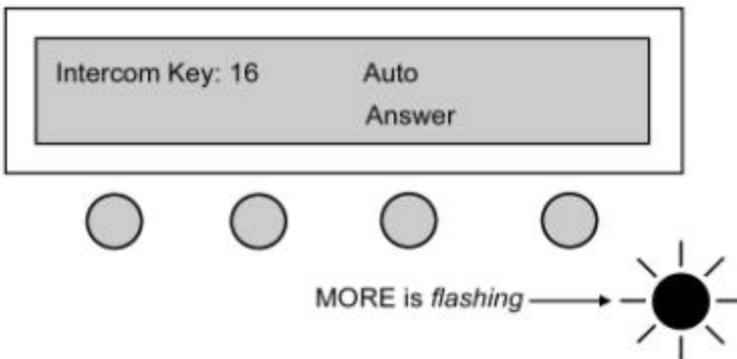
If the Key chosen is available as an Intercom Call Appearance it will light green.

The Intercom is available as either an Automatic Answer or as a Manual Answer Intercom. With Automatic Answer, the Intercom will ring once and the Teleset will automatically go off hook with the speakerphone turned on.

When set to Manual Answer, the Teleset will ring with a distinctive ringing pattern and must be manually answered.

The default setting for Intercom is Manual Answer. To change to Automatic Answer, press the **Auto Answer** key.
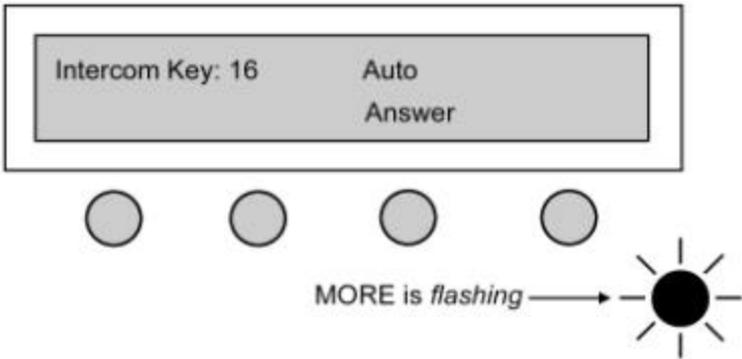
To return to Manual Answer, press the **Manual Answer** key.
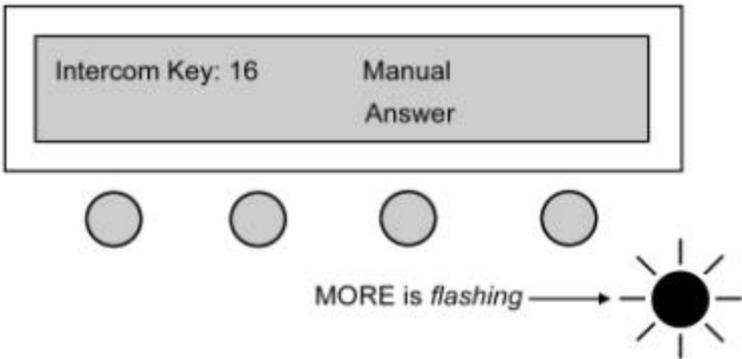
SPEED DIAL KEY ASSIGNMENT
You can assign Speed Dial numbers to individual hardkeys.
Programmable hardkeys may only be assigned to a single
function/feature. If a hardkey is already assigned, it cannot also be used
for a Speed Dial key. This activity should be coordinated with your system
administrator or service provider.

1.   Press **MENU** to bring up the menu shown next. When it appears
     press the **SpDial** key.

| View | SpDial | Clock | Alarm |

○ ● ○ ○

MORE is **lit** ⟶ ●
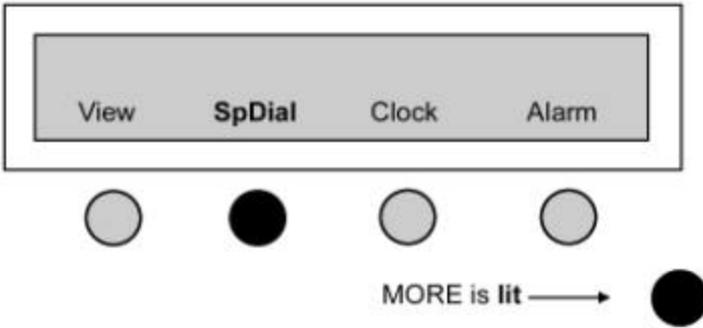
2. If a hardkey lights, it means that key is already assigned a Speed Dial number. Press the hardkey you wish to program as a Speed Dial key. Each Speed Dial key will store 32 digits. The display will only show 21 digits of the number. The complete number can be viewed by using the volume control key.

No=918475551212
| Pause | Clear | Bkspc | **Save** |

○ ○ ○ ●

MORE is *flashing* ⟶ ●
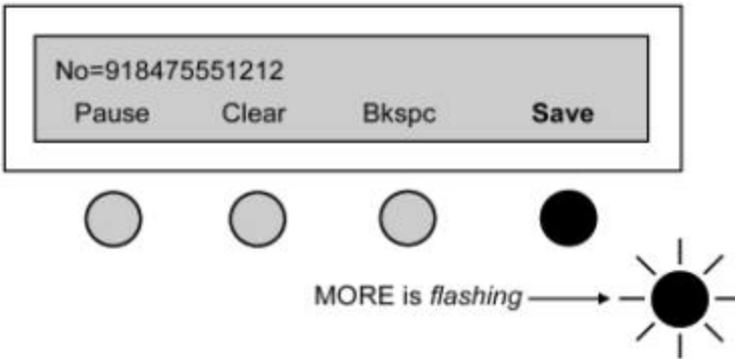
NOTE: If you select an unlit key that is not available, a Call Appearance for example, the display will show "<Try Another Key>". After a few seconds the phone will select the first available key automatically. If this key is satisfactory, proceed with the programming. If this key is not satisfactory, press the **MORE** key to abort the selection. You will then be given the opportunity to select another key.

If a number is entered that exceeds the 21 digits displayed, the display scrolls to the left and show the last 21 digits entered. The first of the digits will be scrolled off of the display.

For example, if the number 91010xxx01188x01234567890,,98765 is entered as a speed dial the number would be shown as:

No<Ø11,88x,Ø,Ø1234567890,,98765

| AM/PM | 24/12 | Bkspc | **Save** |

MORE is *flashing* ⟶
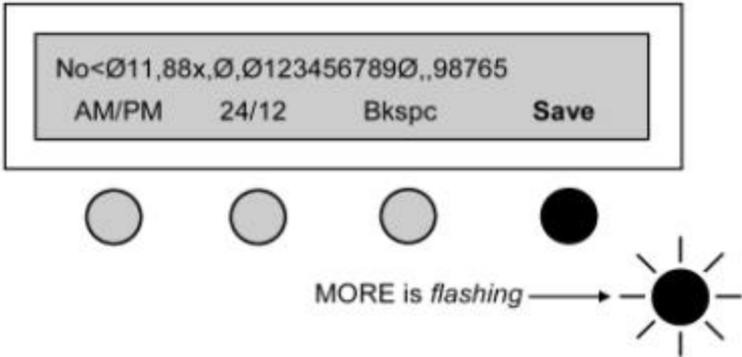
In this display:

"No" Means the number being entered

"<" Means there is hidden digits to the left of the number

"," Is a pause entered in the dialing string

The first few digits displayed are 7890. This means that the beginning of the number has scrolled off of the screen. The VOL key can be used to view the complete number. Pressing the LEFT side of the VOL key will cause the display to shift to the FRONT or left most digit of the telephone number. Pressing the RIGHT side of the VOL key will cause the display to shift to the END or the right most digit of the telephone number.

The character < will change to > depending on where the hidden digits are located.

< = Digits are hidden at the front of the number

> = Digits are hidden at the end of the number

3. After entering the number press **Save**.

EDITING A SPEED DIAL NUMBER
To edit an existing Speed Dial number, press **MENU**, **SpDial**, then select a key to edit. Use the **Bkspc** key to edit the number.

```
No=95554736
   Pause      Clear      Bkspc      Save
```

MORE is *flashing*
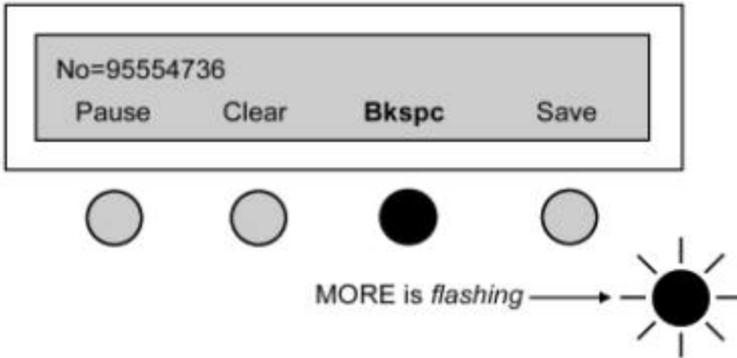
> NOTE: If the telephone number to be edited is longer than 24
>   digits, arrows will indicate there are more digits to
>   display. Use the volume control key to view the entire
>   number before editing.

After the entire number is viewed, press the edit key and edit the number
as above.

> NOTE: If you dial "9" for a Centrex or PBX outside line, or a "1"
>   to access long distance, include that digit.

To originate a call using the Speed Dial key, press the button that has
been programmed with the number to be dialed. The Teleset will
automatically select a line and dial the number. An alternate operation is
to go off-hook on the handset and then press the Speed Dial key.

> NOTE: Speed Dial keys can be programmed to send
>   touchtones after a call has been connected. This is
>   useful for programming voice mail passwords or pager
>   numbers. After entering the voice mail telephone
>   number, insert 2 or 3 pauses and enter you password.

SETTING THE ALARM TIME

Five different alarm clock ring patterns can be set. Setting the alarm is
done as shown below. You may also wish to look at the flowchart for a
graphic representation of the programming sequence. You can set an
alarm to sound at a specific time, or at the same time every day. A
maximum of ten alarms may be set.

1. Press **MENU**, **Alarm**

```
┌─────────────────────────────────────────────┐
│  ┌───────────────────────────────────────┐  │
│  │                                       │  │
│  │   View     SpDial     Clock    Alarm  │  │
│  └───────────────────────────────────────┘  │
└─────────────────────────────────────────────┘
      ◯         ◯         ◯         ●

                        MORE is lit ────────▶    ●
```

2. Press **Change**.

```
          Alarm Index Number
          ┌
┌─────────┼───────────────────────────────────┐
│  ┌──────▼────────────────────────────────┐  │
│  │  Ø1  ------  --:--                     │  │
│  │   Next    AlmPtn     Change     Clear  │  │
│  └───────────────────────────────────────┘  │
└─────────────────────────────────────────────┘
      ◯         ◯         ●         ◯

                 MORE is flashing ────────▶  ☀●☀
```
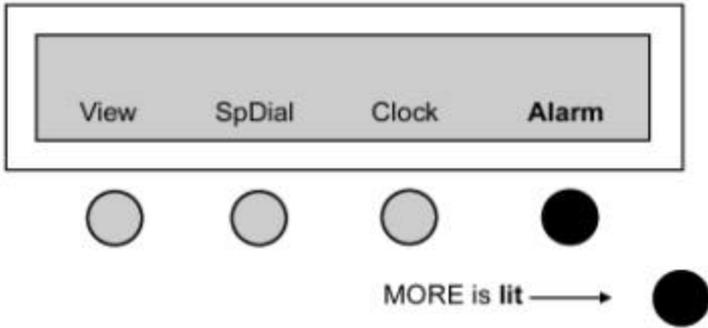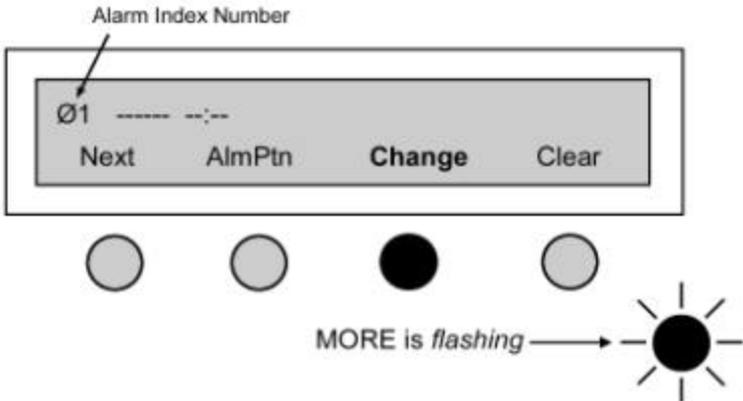
3. Enter the date you want the alarm to sound, or press **Daily**, then press
    Save.

```
┌─────────────────────────────────────────────┐
│  ┌───────────────────────────────────────┐  │
│  │  MM-YY-DD  (Enter Date)               │  │
│  │   Daily              Bkspc      Save   │  │
│  └───────────────────────────────────────┘  │
└─────────────────────────────────────────────┘
      ◯         ◯         ◯         ◯

                 MORE is flashing ────────▶  ☀●☀
```
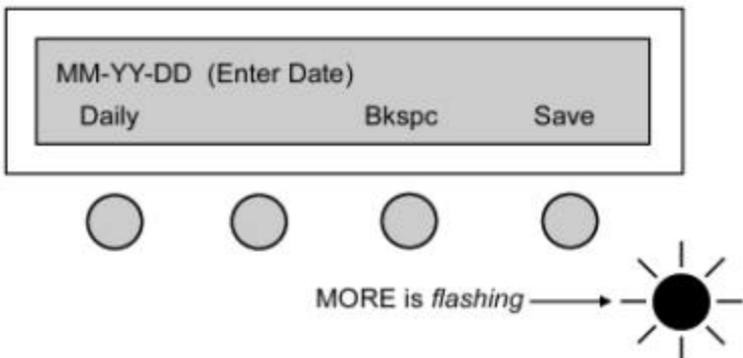
4. Enter the time (hour, minute), then press **Save**. If you wish to enter additional alarms press **Next** and repeat the above.

Password Selection

A password (numeric) can safeguard your directory entries and programming. Forgetting your password may mean resetting the Teleset to the manufacturer's initial settings. *You may lose* all of your call records, directory entries and programmed features/functions. If you are still interested in a password, read on. But first, choose a password that you won't forget. Don't write it down in an obvious place and **NEVER** share it! The flowchart can show you a graphic view of programming.

**THERE ARE THREE LEVELS OF PASSWORD PROTECTION:**
1. LEVEL 1 – No password protection (default). All menus are available to anyone - without a password.
2. LEVEL 2 – User information, such as directory and call logs, and user settings (clock and alarm) are available without a password. Access to configuration options require a password before access is allowed.
3. LEVEL 3 – The third (highest) level of protection gives total menu protection.

SETTING PROTECTION LEVELS
1. LEVEL 1 – has no password protection
2. LEVEL 2 – password protection is set by pressing the following keys: **MENU**, **MORE**, **MORE**, and **Pswrd** (softkey). The display is shown below.
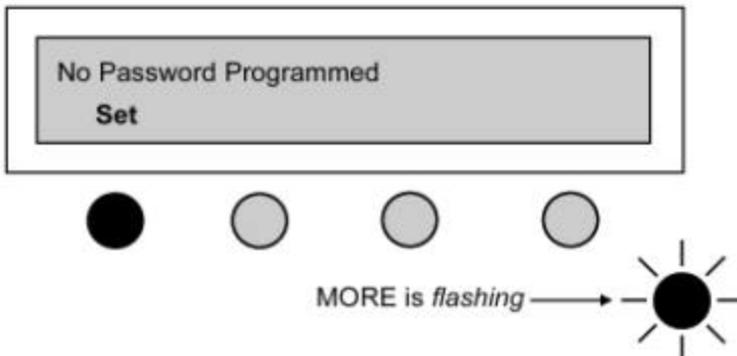

3. Press **Set**.

4. Enter your six-digit password number using the keypad.

Enter the Password

••••••   Bkspc

MORE is *flashing* ⟶
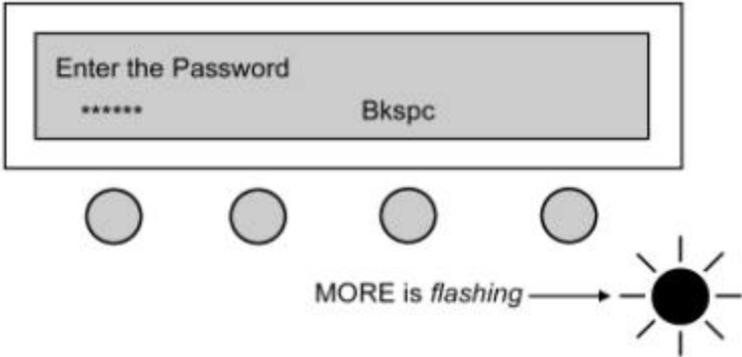
5. This number is your password. Write it down. You are prompted to confirm the password.

Enter the Password Again

••••••   Bkspc

MORE is *flashing* ⟶
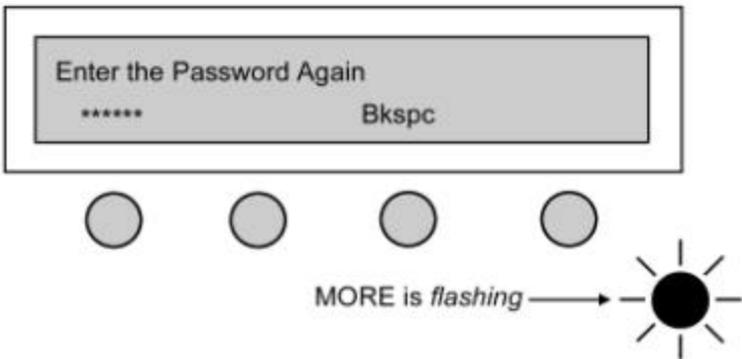
6. To begin Level 2 protection, press the **MENU** key now.

7. To begin Level 3 protection, press the **LockAll** softkey. Level 3 protects the Teleset's entire menu system.

Lock All Menus?

  ChngPW   CLRPW   **LockAll**
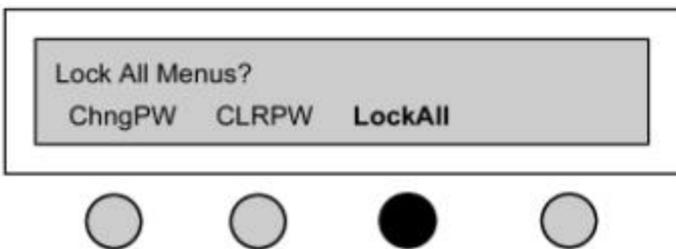
8. Press **LockAll**.

9. Press **MENU** to exit.

Changing the Language on Keycaps and Display

Certain keycaps are available in three languages. These user changeable keycaps are shown below. The Teleset will also allow the user to choose a display language.

English	French	Spanish
MENU	MENU	MENU
MUTE	SOUR	MUTE
HOLD	ATTENT	ESPERA
REDIAL	RECOMP	VOL.LL

CHANGING THE KEYCAPS
Using a small screwdriver or similar flat blade (unsharpened), carefully pry-up the existing keycap by the indentation on the side. Remove the keycap and gently press the new cap down until it locks in place. You may now change the language displayed.

CHANGING THE DISPLAY LANGUAGE
Press the following keys in order: **MENU**, **MORE**, **MORE**, **Config**, **LANG**. The Teleset will then prompt you to choose the desired language.

OPERATIONS

Voice Operation

Most of the operations described to this point are switch related or controlled. Voice Operation consists of features/options controlled by the Teleset.

Terms and Nomenclature

Of all the terms used in basic telephony, none is more widely used than "On-Hook and Off-Hook." They refer to placing or removing the handset, or receiver, in the cradle (usually on the top or in the front) of the instrument. The button protruding up from the cradle is the "On and Off" switch, or switch hook, of the phone. Pressing the Speaker key and requesting dial tone is also considered going "Off-Hook". This background is helpful in understanding the instructions that follow.

Call Appearance LED's

The various states of the Call Appearance indicators (hardkeys) are described in the following table.

LED State	Meaning
Off	Idle State
Red – Flashing Slow	Incoming Call
Red – Flashing Fast	Call on Hold (Local)
Green – Flashing Fast	Call on Hold (Shared)
Green - Steady	Call in Progress

Non-Programmable Hardkeys and Indicators

Non-programmable Hardkeys and Indicators are found to the right of the touchtone keypad. Some of the keys in this group perform important calling and answering functions.

- **MSG**
  If your line service includes the Message Waiting feature, the MSG1 (and MSG2, when available) indicator will flash (red) when someone has left a call at your message center.
- **MENU**
  The MENU key provides additional menu items and is used to exit from the menus. A steady light (red) lights the key when active.
- **MORE**
  The MORE key lights to indicate that there are choices available for current menus. If the MORE key is lit continuously, it indicates there are additional menu items available by pressing the key. When the

MORE key flashes, you can press the key to return to the previous menu.

- **MUTE**
  The MUTE button toggles the microphone - on and off - for the handset, headset, and speakerphone. A steady light (red) lights the key when active.
- **REDIAL**
  This key is handy for calling frequently busy numbers. Press this key to redial the last (manually dialed, or Speed Dialed) number.
- **VOLUME / RINGER**
  Press the right side of this key to incrementally raise the volume/ringer intensity. You incrementally lower the volume, or ringer intensity, by pressing on the left side of the volume key. A bar graph displays as the level increases or decreases. This setting (volume or ringer) is saved until changed again.
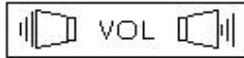
- **HOLD**
  The HOLD key lets you answer or place a second call without losing the original connection. This is <u>not</u> the key used when transferring or making conference calls – other keys are used.
- **SPEAKER**
  The SPEAKER hardkey turns the speakerphone, or the headset if used, On and Off. A steady light (red) lights the key when active.
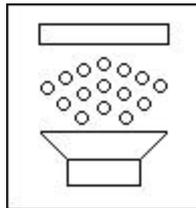
(Speaker Hardkey)

The Display Window and Menus

The display window contains information used to configure the Teleset's options and features. The liquid crystal display (LCD) also shows the Caller ID information, call timer, current time /date and the menus for phone setup. Throughout this manual you will be prompted to make decisions and choose features that are displayed in the LCD window.

The menu system allows you to program all of the features/options of your Teleset easily and accurately. The "On-Hook" idle screen is shown below.

The time/date entry flashes until it is set. The menus for the CallLog and Directory are accessed by pressing the softkey directly below the word.

```
FRI MAY 12 11:27:25A

NewLog      DIR              PkUp
```
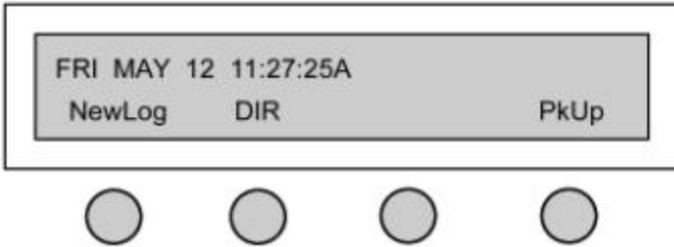
Placing Calls

The two methods of placing calls are On-Hook and Off-Hook dialing.

DIALING OFF-HOOK
1. Lift the handset (go Off-Hook), listen for dial tone and note the steady, green Call Appearance key.
2. Using the touchtone keypad, dial the number and observe the call timing feature. When the called party answers the call timer begins operation.
3. Return the handset to the switch hook cradle (go On-Hook) to disconnect.

DIALING ON-HOOK
1. The handset remains On-Hook while you dial the number. Note that the dialed digits appear on the screen as they are dialed.
2. Press **Cancel** to abort the dialing process, or use **Bkspc** to correct the dialed number – one digit at a time.
3. When you are sure that your dialed number is correct, go Off-Hook. The number is dialed and the call timer begins as the call is answered.
4. When the call is over, go On-Hook.

Answering Incoming Calls

LINE PREFERENCE
There are four options for answering incoming calls: **Ringing Line Preference, Idle Line Preference, Key 1 Preference, and No Preference.** In all cases, the Call Appearance hardkey flashes (red) and the Caller ID data, if sent by the switch, is displayed on the screen.
1. **Idle Line Preference**, the user goes Off-Hook and presses the ringing Call Appearance key to answer the call. Idle Line Preference seeks the first available idle line and returns dial tone.
2. **Ringing Line Preference,** the user goes Off-Hook to answer the call. Pressing the ringing key is not required. In the case of multiple ringing

calls the oldest ringing Prime Call Appearance is answered (See PrimCA Primary Call Appearance). This is the most common operation.

3. **Key 1 Preference**, the Teleset will always go off-hook on Key 1 regardless if the Call Appearance is ringing or idle.

4. **No Preference**, the user must select a Call Appearance key every time it is ringing or dial tone is requested. The phone will not automatically select a Call Appearance.

DISPLAY INFORMATION

Incoming calls will display Calling Line ID as a Calling Party Number or a Calling Party Name and Number, depending on the configuration of the serving telephone company switch. Figure 8 is an answered, incoming call with Calling Party Number only.
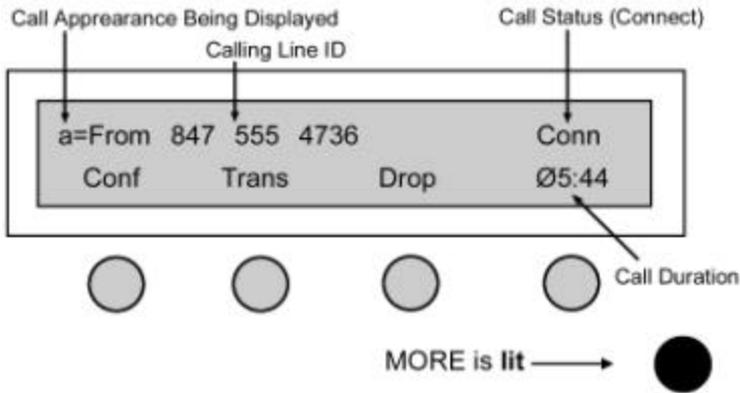
Fig. 8: Calling Party Number

Figure 9 is an answered, incoming call with Calling Party Name and Number. The complete Calling Party Name and number will scroll across the top line of the display once.
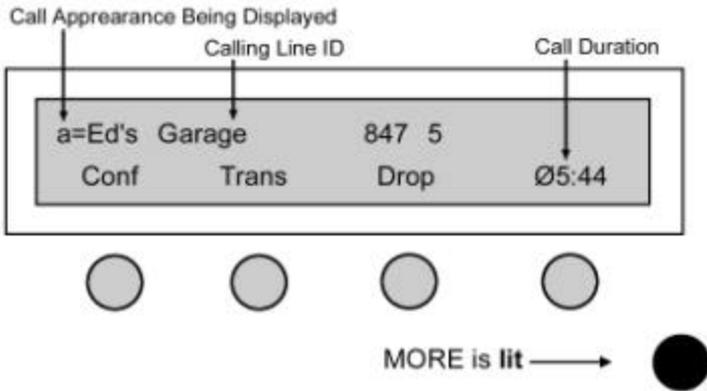
Fig. 9: Calling Party Name

NOTE: The complete top line of the display (Calling Line ID) can
be viewed on any "Off-Hook" Call Appearance by
pressing the Call Appearance key. Pressing an Off-Hook
Call Appearance key will cause the display to scroll.

Hold Key

During a call, you can answer an incoming call or initiate another call by
pressing the **Hold** key. The original call is held until you return to it.
Automatic Hold is a standard feature of National ISDN. This operates by
pressing another Call Appearance key while on a call. Your call is
automatically placed on hold and the Call Appearance flashes to indicate
the held conversation.

1.   During a call, press **Hold** or a new Call Appearance key.
2.   If you selected **Hold**, press a Call Appearance key and complete the
      call.
3.   Return to the original call by pressing the flashing hardkey.
4.   Go On-Hook after the call is complete.

Transfer, Conference and Drop

These very useful features are available on your Teleset. Transfer,
Conference and Drop are actually switch features and must programmed
both in the switch and in the Teleset.

The Conference key can give you access to 3-way and/or 6-way
conferencing, depending upon which features are administered by your
service provider.

TRANSFERRING INCOMING CALLS
1. Answer the incoming call.
2. Press the **Conf/TR**, or the **Transfer** key, which ever key applies to your service.
3. Place an outgoing call. When you hear ringing – press **Transfer**.

> NOTE: You may announce the transferred call before completing the transfer or abort the transfer by pressing the original, held Call Appearance. **Always complete the transfer by either pressing the transfer key or by returning to the original call before answering another call.**

3–WAY CONFERENCING
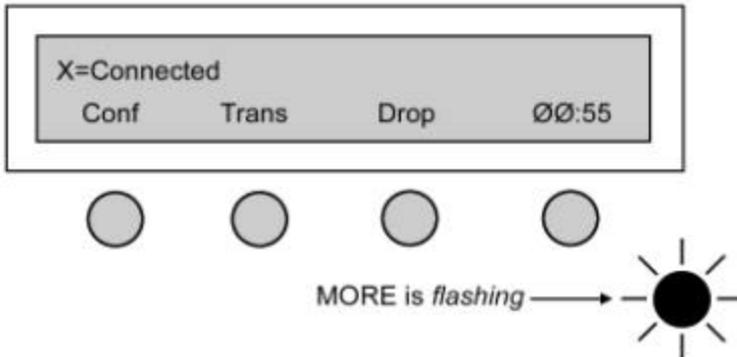
> NOTE: On the Nortel DMS-100® and Siemens EWSD® switches, the **Conf** key is displayed as **Conf/Tr**. On the Lucent Technologies 5ESS® switch it is displayed as **Conf** and **Trans** keys.

CONFERENCING TWO OUTGOING CALLS
1. Place the first call.
2. Press the **Conf** or the **Conf/Tr** softkey, the phone automatically provides dial tone from another Call Appearance.
3. Dial the number of the second party.
4. Press the **Join** key to complete the conference.

This display is shown after the second call is ringing.
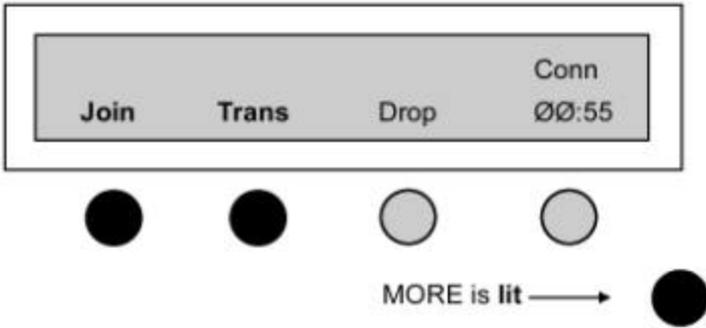
> NOTE: You may press the **Join** key after the second party
>   answers or while it is ringing.

The **Conf** key will always change to **AdNext**. If you only subscribe to 3-Way Conferencing, you cannot add any more to the conference.

> NOTE: When you attempt to join a 4th party, you will receive a
>   "Service Option Violated" message.

CONFERENCING AN INCOMING CALL TO AN OUTGOING CALL
1.   Answer the incoming call.
2.   Press **Conf** and proceed as explained above.

CONFERENCING AN OUTGOING CALL TO AN INCOMING CALL
1.   Place the outgoing call on Hold by using the Hold key.
2.   The outgoing Call Appearance will flash red.
3.   Answer the incoming call.
4.   Press the **Conf** (conference) softkey and the phone adds dial tone from another Call Appearance. Ignore the dial tone!
5.   Press the first (outgoing) Call Appearance and the dial tone stops.
6.   Press the **Join** key and the conference is completed.

CONFERENCING TWO INCOMING CALLS
1.   Place the first incoming call on Hold – the first Call Appearance flashes red.
2.   Answer the second incoming call.
3.   Press the **Conf** softkey. As above, ignore the dial tone you hear from another Call Appearance.
4.   Press the first Call Appearance, then press **Join** - the conference is completed.

The Drop Feature

The Drop softkey will be available whenever the Teleset is off hook. The function of the Drop feature varies depending on the call state.

- When off hook to dial tone or a partially dialed number, or a ringing number, pressing the **Drop** key will disconnect the current call and cause the *i*2021 to revert back to dial tone
- When on an active single party (non-conferenced) call, pressing the **Drop** key will disconnect the current call and cause the *i*2021 to revert back to dial tone
- When on an active conference call and the controller of the conference, pressing the **Drop** key will disconnect the last party added to the conference call. Subsequent pressings of the **Drop** key will disconnect the call and the *i*2021 will revert back to dial tone.
- When on an active conference call and NOT the controller of the conference, pressing the **Drop** key will disconnect the current call and cause the *i*2021 to revert back to dial tone

NOTE: Some switches may have multiple drop keys. These drop keys, if available, will be found as one or more of the Programmable Hardkeys.

TELESET FEATURES

Redial

Press this key to automatically dial the last <u>manually dialed</u>, or Speed Dialed number. This is especially handy when trying to connect to a frequently busy number.
1.   Go Off-Hook.
2.   When dial tone is received, press the **REDIAL** key. Pressing this key without going Off-Hook enables the speakerphone. The last manually dialed number is dialed for you.
3.   Go On-Hook when the call is completed.

Directory

The following characteristics apply to entries placed in the Directory:
- A name may be up to 20 characters in length.
- A Directory Number (DN) can be 32 digits long.
- The directory capacity is 100 entries - stored in alphabetical order.
- Search hint: If you forget the name you are looking for, press "Find/Next" and you can scroll through the entries.

> NOTE: The VOL key can be used to view the complete number. Pressing the LEFT side of the VOL key will cause the display to shift to the FRONT or left most digit of the telephone number. Pressing the RIGHT side of the VOL key will cause the display to shift to the END or the right most digit of the telephone number.

DIRECTORY CHANGES
When Directory (**DIR**) is pressed, the following is displayed.
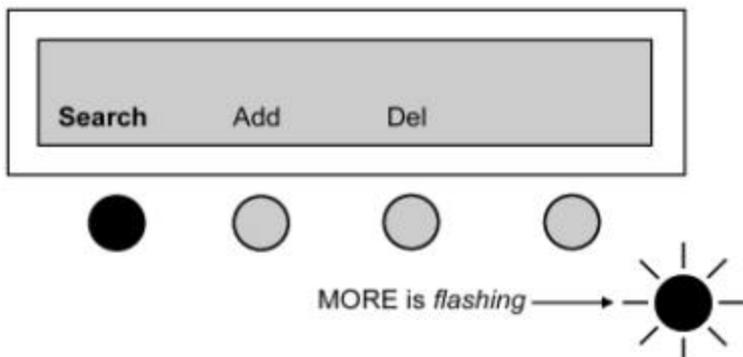
Press **Search** to display the following screen.

```
┌─────────────────────────────────────────────┐
│  ┌─────────────────────────────────────────┐ │
│  │ Name=ISDN                               │ │
│  │   Next      Prev       Dial      Edit   │ │
│  └─────────────────────────────────────────┘ │
└─────────────────────────────────────────────┘
      ◯         ◯          ◯         ◯

              MORE is *flashing* ──────▶ ☀
```
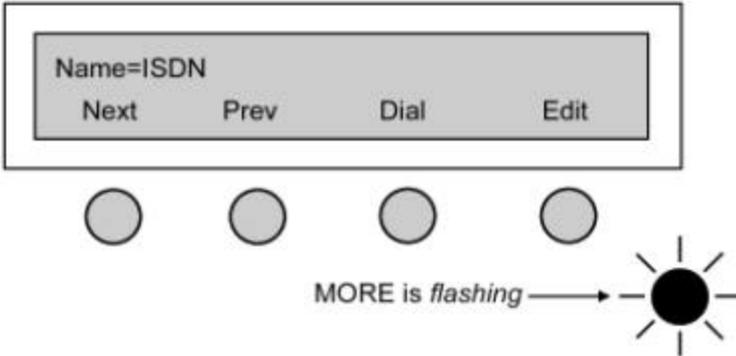
If the directory is empty, the next screen appears.

```
┌─────────────────────────────────────────────┐
│  ┌─────────────────────────────────────────┐ │
│  │ Directory is Empty !                    │ │
│  │   Search        Add        Del          │ │
│  └─────────────────────────────────────────┘ │
└─────────────────────────────────────────────┘
      ◯         ◯          ◯         ◯

              MORE is *flashing* ──────▶ ☀
```
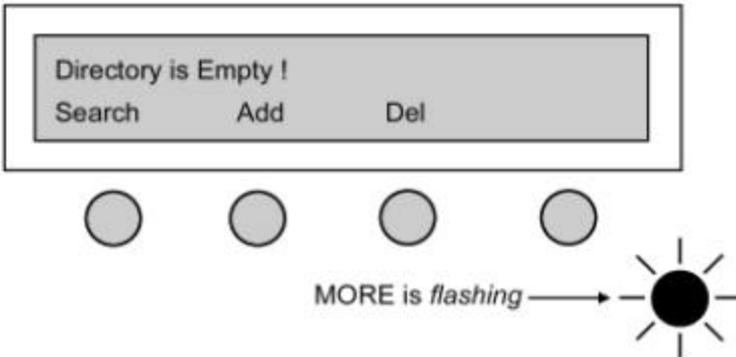
At this point, the user may either press **Next** or **Prev** to scroll through the entries or press Add to enter a name from the keypad. When the keypad is pressed, the display will change as shown below.

```
┌─────────────────────────────────────────────┐
│  ┌─────────────────────────────────────────┐ │
│  │ Name=D                                  │ │
│  │               -->       Del       Find  │ │
│  └─────────────────────────────────────────┘ │
└─────────────────────────────────────────────┘
      ◯         ◯          ◯         ◯

              MORE is *flashing* ──────▶ ☀
```
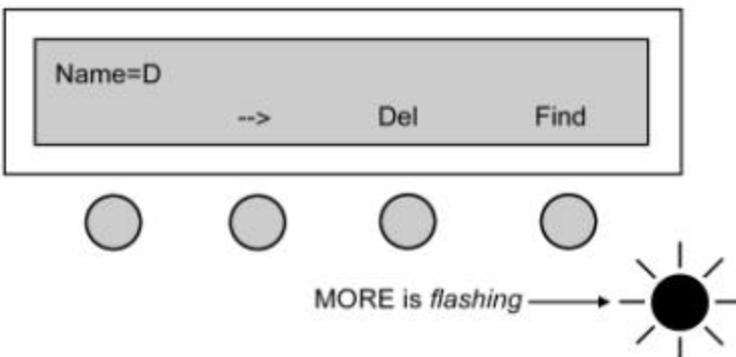
NOTE: The rightmost softkey will be Find if searching for a name or will be Save if entering a name.

To enter the name, press the same keys that are used to dial numbers on the touchtone keypad.

(Keypad - Numeric Key)

For example: the name E̲D̲ is entered by pressing the letters **E** and **D** which are found, along with **F**, on the numeric key (**3**)on the keypad. Press the key once and D̲ is entered. Press it twice for E̲, three times for F̲ and a fourth time for the number 3̲ . After entering E̲, press the softkeyunder the right hand arrow. This indexes the cursor one space to the right of E̲ to accept the next digit; in this case D̲.

Use the same method to enter subsequent letters – then press **Find**. The directory will be empty until you add names to it. To return to the previous screen where Directory was chosen, press the flashing **MORE** key. The arrow key will move the cursor two spaces to the right and then "wrap." The **Del** softkey deletes the character over the cursor. **Find** will search for the entry. If no matches are found, the display shown will be as shown below.

No Match Found !!!

MORE is *flashing*
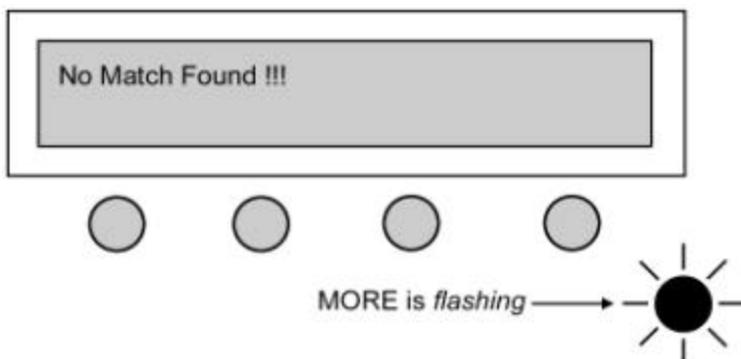
Call Records

Your Teleset stores call activity records in electronic memory. The softkey **CalLog** will change to **NewLog** upon receipt of an unanswered incoming

call. To access the call records, press the **CalLog** or **NewLog** softkey on the startup screen. Among the calls stored are:

- Incoming calls.
- Outgoing calls.
- Unanswered calls.

Forty call records are saved in the Unanswered log, and thirty call records are saved in the Answered and Outgoing logs.

VIEWING THE CALL LOGS WITH CALLING PARTY NAME AND NUMBER

To access the call records observe the following directions. From the startup screen press the **CalLog**, or **NewLog** softkey. Choose **Unans** to view the unanswered calls, **Answer** to view calls that were answered, or **Outgoing** to view calls that were originated.

Press **CalLog**, **Unans**. If a call has been logged with a Name, the display will show
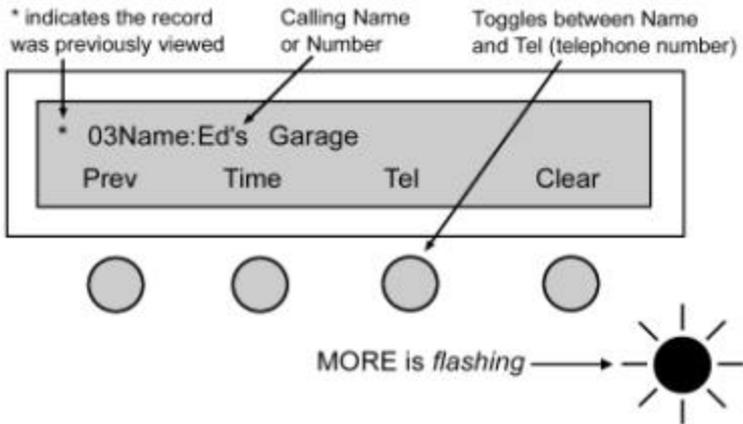
The **Prev** key is used to scroll through the entries.

Pressing the **Time** key will display the date and time the call was logged.

> NOTE: In order for the logged call's Time to be correct, the Clock must be set correctly in the *i*2021 Teleset.

The **Tel** softkey allows toggling between the Name and Telephone Number.

To delete a logged call, press **Clear**.

VIEWING THE CALL LOGS WITH CALLING PARTY NUMBER ONLY
To access the call records observe the following directions. From the
startup screen press the **CalLog**, or **NewLog** softkey.

Choose **Unans** to view the unanswered calls, **Answer** to view calls that
were answered, or **Outgoing** to view calls that were originated.

Press **CalLog**, **Unans**. If a call has been logged with a Name, the display
will show
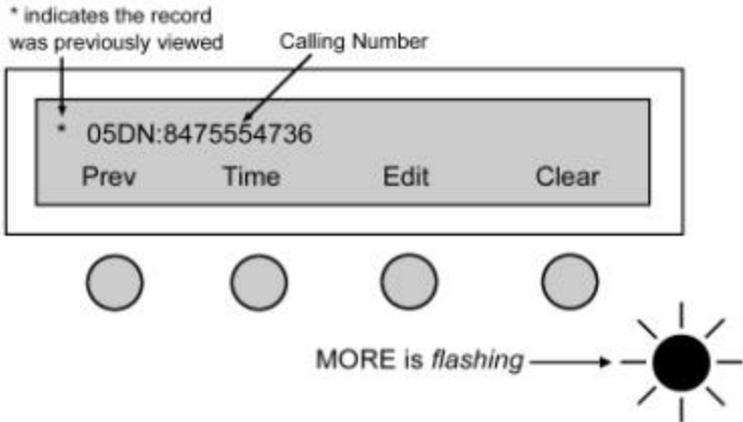
The **Prev** key is used to scroll through the entries.

Pressing the **Time** key will display the date and time the call was logged.

> NOTE: In order for the logged call's Time to be correct, the
> Clock must be set correctly in the *i*2021 Teleset.

The **Edit** softkey allows modifying the telephone number for dialing.

To delete a logged call, press **Clear**.

DIALING FROM THE CALL LOG
Outgoing calls can be dialed directly from the Call Logs. This is handy
when you want to return a missed call.

In most cases, with unanswered and answered logs, it will be necessary to
edit the telephone number before dialing. Editing includes, removing an
area code or adding prefix digits such as a 9 or a 1.

To dial from the Call Log press **Tel** if the Calling Party Name is being displayed. Then press **Edit**.

```
Ø8DN:847  5554736
   Prev        Time        Edit        Clear
```

○   ○   ○   ○

MORE is *flashing* ──────➤ ──☀──
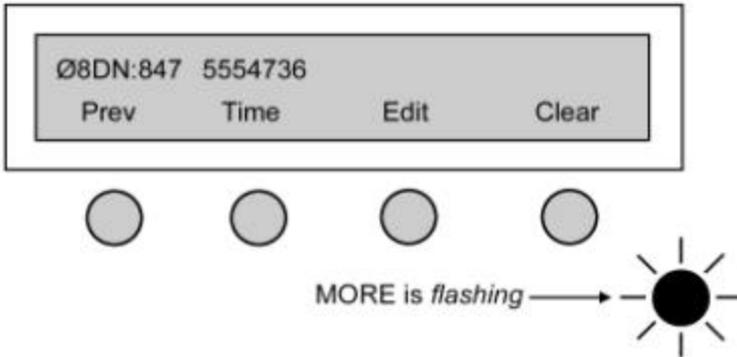
To add a prefix to the telephone number, simply add the digits using the dial keypad.

Use the **--->** key to position the cursor over the number to delete or change. The **--->** key will go one space past the last digit of the telephone number and then wrap back to the front of the number.

Use the **Del** key to delete digits.

Press the **Dial** softkey to dial the number. The *i*2021 will automatically go off hook and dial the number.

SAVING A CALLOG ENTRY TO THE DIRECTORY
1.   Press the **CalLog** or **NewLog** softkey.
2.   Press the **Unans**, **Answer**, or **Outgoing** softkey.
3.   Locate the record you wish to save in the Directory.
4.   Press the **Tel** softkey if required and then press the **Edit** softkey.
5.   Edit the number as required.
6.   Press **Save**, see the display below.
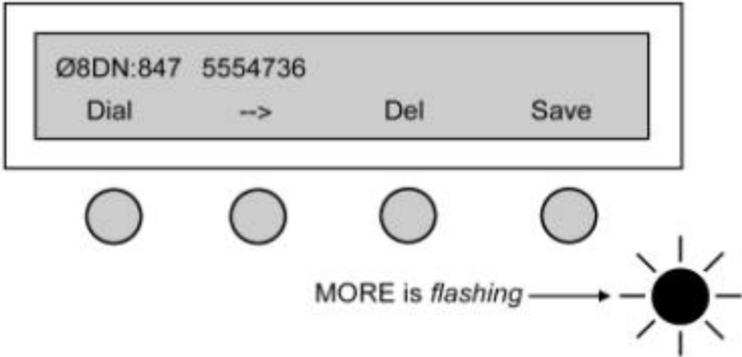
When the number is transferred to the Directory, you have an opportunity to edit the name.

- Use the ∗ key to enter an asterisk or a hyphen.
- Use the # key to enter a pound sign or apostrophe.
- Use the 0 key to enter a space
- Use the **DN** softkey to toggle between the name and the telephone number.

ADVANCED FEATURES

DSS/BLF (Direct Station Select, Busy Lamp Field)

DSS – This feature allows calls to be transferred to a station without dialing the station on the keypad.

BLF – For use by attendant consoles - When an incoming call rings the main number, an attendant can use this feature to check the status of a line for a busy condition. If inactive, a call may then be transferred by using the DSS key.

> NOTE: Only Non-PrimCA keys can be programmed as a DSS key. You must first change a PrimCA key to a General CA key.

PROGRAMMING A DSS/BLF (DIRECT STATION SELECT / BUSY LAMP FIELD) FEATURE

TO PROGRAM A DSS/BLF
1. Ensure the Call Appearances to be used for the BLF are set to General Call Appearances.
2. Press MENU, MORE, MORE, MORE, DSS/BLF
3. Select a Call Appearance. Press it a second time to confirm your selection.
4. Press the SetAddr softkey.   If your line is a Centrex line, the DN must be edited. For convenience, 4-digit, 5-digit, and 7-digit dialing options are provided. Use the edit key to effect the changes.

DSS/BLF OPERATION
After you answer the incoming call, press the Transfer Key. You will receive dial tone. Press the appropriate DSS key and then Transfer. The call will be transferred.

> NOTE: When a Call Appearance is programmed as a DSS/BLF, the user cannot bridge onto an active call. The key no longer operates as a Shared Call Appearance.

TSMS Not Available in this Release

Disabling Softkeys

Sometimes a softkey feature will appear on the display and not be available to the user. For example, the PkUp key appears on the display but the Call Pick-Up feature is not available to the user. Other times a user may prefer to have a hardkey and an LED indicator for a feature. Many users prefer moving Call Forward to a hardkey.

To disable a softkey:

Press **MENU**, **MORE**, **MORE**, **Config**, **SetKey**, **SetFA**. The display will show the softkeys and the Feature Activator/Indicator assigned to the feature.

NOTE: The SetKey feature list is local to the Teleset. It will only reflect the current programming of the Teleset. To ensure accuracy, run a Parameter Download before using **SetKey**.   See 62 for information on Parameter Downloading

Softkey Feature   Feature Activator/Indicator

PkUp   KEY_56
FA   Change   Clear

MORE is *flashing*
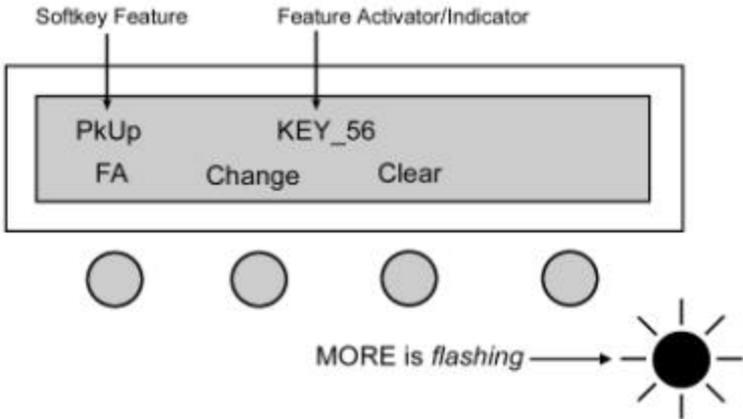
Press the **FA** softkey to scroll through the list of features.

When the feature softkey to be removed is displayed, press **Clear**. In the following display FwdOn (Call Forward) was cleared.

FwdOn   KEY_███
FA   Change   Clear

MORE is *flashing*
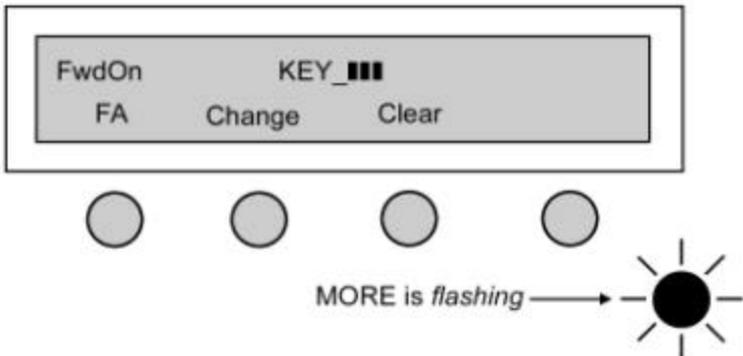
Key Mapping

The *i*2021supports a local feature called Key Mapping. The purpose of the Key Mapping feature is to allow features that have Feature Activators higher than Key 16 to appear on a hardkey.

For example, the North American ISDN Users Forum (NIUF) recommends using Key 57 as a Call Forward key. Key 57 defaults as a softkey on the *i*2021 Teleset. Key Mapping will allow Feature Key 57 to be "mapped" to a hardkey on the *i*2021. This may be useful, since the Teleset would now light the hardkey's adjacent LED when Call Forward Feature Key is active.

To remap a hardkey press **MENU**, **MORE**, **MORE**, **Config, SetKey**. The display will now be:
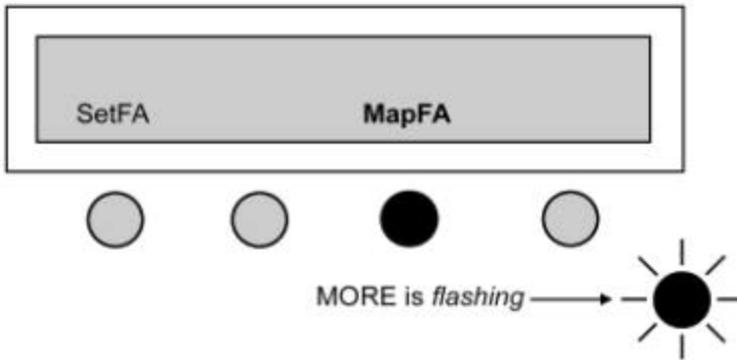
Press **MapFA** and the display will be as shown below.
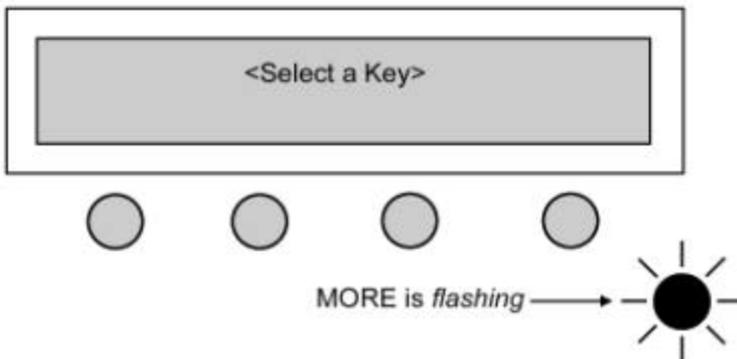
Press the hardkey that you would like to remap. If you select a key that is not available you will be prompted to "Try Another Key." When you select an available key the display will show:
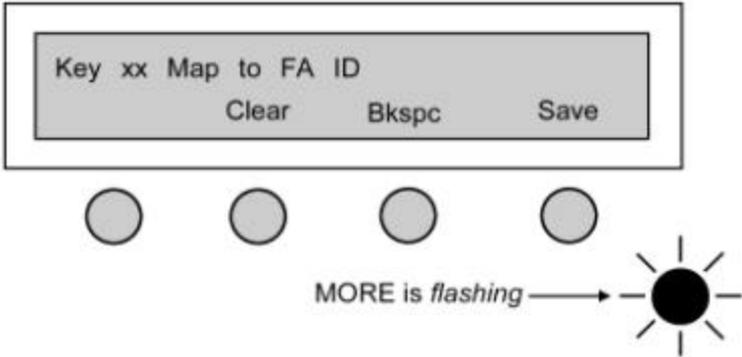
NOTE: Key (xx) will be the number of the hardkey you select. At this point, use the dial keypad to enter the Feature Number (Activator/Identifier) that you want to appear on the key you selected. In our example, we entered 57. Press **Save** to remap the key.

Press **MENU** to exit the idle menu. At this point the hardkey you selected will be the Feature you entered. Pressing that key will activate or deactivate (toggles) the feature. For a complete list of the NIUF recommended Feature Keys contact your service provider.

NOTE: Only feature keys can be mapped to a different key. Call Appearances cannot be remapped.

Inspect

Inspect is a National ISDN feature. Check with your local service provider regarding the availability of the Inspect feature. If available, your service provider will assign this feature to one of the keys on your Teleset.

NOTE: In order for the Inspect feature to work, it must be assigned to one of the programmable hardkeys (designated 1 through 16). Choose a key after your Call Appearance keys are designated. For example, if we designate keys 1 through 5 as Call Appearance keys, we can then select any key between 6 and 16 as our Inspect key.

The purpose of the Inspect key is to allow the user to query the serving switch as to what features or Call Appearances are assigned to a particular key on the Teleset.

The *i*2021 Teleset contains feature keys up to key 96. Feature keys above key 16 are automatically assigned to softkeys. However, all keys may be mapped to hardkeys if desired. For further information, refer to the paragraph that explains "key mapping."

To Use the Inspect feature, press the Inspect Feature key.

Inspect is on
Enter Digits; # to end
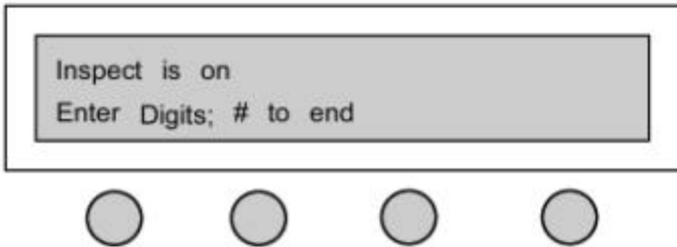
You can then either press one of the hardkeys (1-16), or enter a number on the dial keypad. For example, suppose you wish to inspect key 2. First press the Inspect key, then press key 2. The switch then displays the Call Appearance, or feature, assigned to key 2. Perhaps you wonder what is assigned to key 60? To find out we must remember that keys over 16 are automatically assigned to a softkey. Since key 60 is a softkey, you must enter 60 followed by a # sign, on the keypad. The switch then displays the Call Appearance or feature assigned to key 60.

> NOTE: Inspect is a timed feature in the switch. After pressing the Inspect key, you are given about ten seconds to enter the key number that you wish to inspect.

INSPECT OR VIEW?
The *i*2021 Teleset has a "local inspect" feature built into the Teleset. The local inspect feature is called "View Key". Refer to the paragraph that explains View for additional information. What is the difference between Inspect and View? *View* shows the user the Teleset information about a specific key. *Inspect* displays what the switch has actually assigned to that key.

View

View is a feature that is local to the phone. It will only reflect the current programming of the phone. To ensure accuracy, perform a Parameter download before using View Key.

Key assignments should be checked if features/options do not seem to work correctly. Often the Teleset is blamed for incorrect or missing key

assignments. This results in returned instruments, unnecessary expense
and loss of use.

Press **MENU**, **View**, **Key**. The Teleset will now display each key and the
feature assigned to that key.
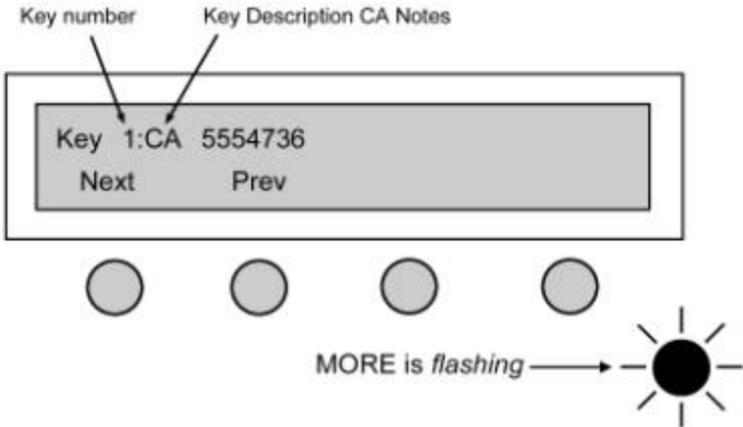
Press the **Next** or **Prev** softkey to step through each key.

Or

Press the hardkey that you wish to view

Or

Dial the key number using the touchtone keypad
The Directory Numbers assigned to the Teleset are easily viewed by
pressing **MENU**, **View**, **DN**.

The Teleset will light the appropriate Call Appearance keys and display the
DN assigned to them. This is helpful when checking Multiple Call
Appearances or labeling the Teleset.

Protecting Keys from Being Overwritten

Once the Teleset has been completely programmed, it is possible for the
serving switch to change the Teleset's programming.   This feature is
called Auto-Parameter Downloading. Like all features, there are pluses
and minuses to it. On the plus side, the Teleset will always be in
agreement with the switch. On the minus side, the switch can erase
Speed Dial keys, remapped keys, etc. without the user's knowledge.

There are two different methods for protecting the Programmable
Hardkeys. The first is to disable the automatic download. The second is
to allow the automatic download but protect the keys on a key-by-key
basis.

Disabling the Automatic Download

To prevent the switch from changing any keys by preventing an Automatic
Parameter Download, press **MENU** and then dial 99 on the touchtone keypad.
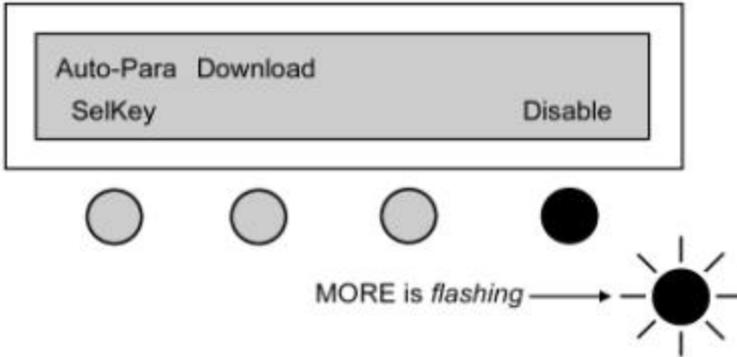
Press **Disable**.

Protecting Specific Keys from an Automatic Download

To prevent the switch from changing any keys on a key-by-key basis,
press **MENU** and then dial 99 on the touchtone keypad.
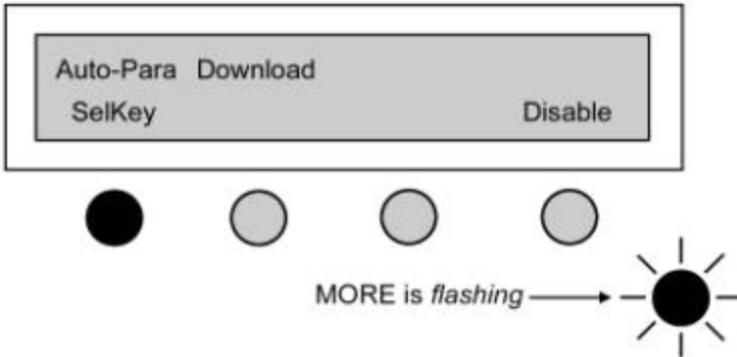
Press **SelKey**. The display prompts you to "Select Keys to Protect".

Select the Programmable Hardkeys to protect by pressing each of them.
When selected, they will light green.

Press **Save**.

To unprotect the keys, press them again and the key will go dark.

> NOTE: Protecting the keys does not prevent Speed dial keys
> from being changed locally using **Menu**, **SpDial**.

Key Clicks

Key clicks can be enabled or disabled by pressing **MENU**, and dialing 96 on the touchtone keypad.

Disable Logging

Call logs can be disabled completely so that no calls will log, or, they can be disabled so "shared" Call Appearances will not log.

DISABLING CALL LOGS COMPLETELY
To disable Call Logging so NO calls will log, press **MENU** and dial 97 on the touchtone keypad. Press **Yes** to disable call logging. Press **No** to enable call logging.

DISABLE CALL LOGS ON SHARED CALL APPEARANCE
Call Logs can be disabled on Shared Call Appearances by changing the Shared Call Appearances from Prime Call Appearances to General Call Appearances.

To change Prime Call Appearances to General Call Appearances, press **MENU**, **MORE**, **MORE**, **Config**, **MORE**, **PrimCA**. For further information, see "PrimCA (Primary Call Appearance)".

> NOTE: Remember, changing a Prime CA to a General CA, removes it from the Call Appearances that will be answered by Ringing Line Preference.

Testing

You can test the operation of your Teleset by using a simple, built-in diagnostic procedure. To begin, follow these steps.
1. Press **MENU**, **MORE**, **Test**
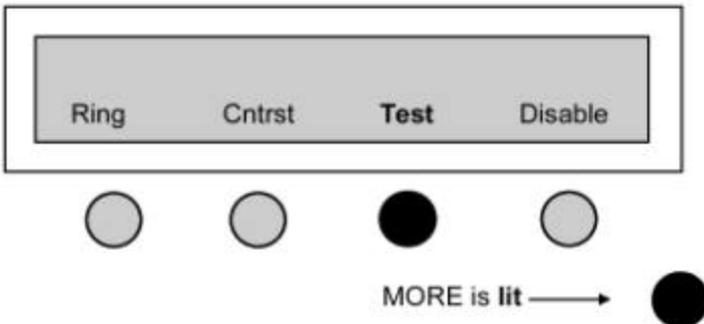
2. Select the test you wish to run.
3. Press the **MENU** key to exit.

CODE	ERROR TYPE	MEANING
01	RAM Error	Failure in RAM or associated circuits
04	RTC Error	Failure in the clock or associated circuits
08	FLASH Error	Failure in memory or associated circuits
10	S Error	Failure detected on the S Interface
20	E Error	Failure detected on the U Interface
40	F Error	Failure detected in FW Download

Error Types have "or bit relation". This means the code being displayed may be a combination of more than one error code. For example, if the error code displayed is "10", it would mean an "S-Interface" has error has occurred in self-test. If the error code displayed is "1C", it would mean a "Flash", "RTC" and an "S Interface" error has occurred in self-test.

MAINTAINING THE TELESET

Checking the FW Version

If you experience a problem with the *i*2021you may be asked to verify the firmware version. To check the FW version of the *i*2021, press **MENU**, **View**, **Version**. The display will show the version number.

Loading FW

Firmware can be replaced and the *i*2021 can be updated using the FWLoader. See your distributor or service provider for information on this product.

Troubleshooting Problems

CLOCK FLASHES
- The Teleset lost power and the clock flashes when power is restored. To stop the flash, press **MENU**, **Clock**, **Save**. The clock maintains the correct time even though power has been lost.

NO DISPLAY
- Contrast control is improperly adjusted.
- The Teleset has no power.
    1. Check the power source.
    2. Check the position of the PS1/PS2 switch.

SPEAKERPHONE DOES NOT WORK/NO SOUND FROM SPEAKER
- Volume control set too low.
- Teleset in headset mode.
- Line not initialized.
- Headset plugged into headset jack.

MISSING FEATURE KEYS
- Teleset improperly programmed.
    1. ReqParam/RunSPM download not performed.
    2. Manual programming not performed.

MISSING CALL APPEARANCES SAME AS "MISSING FEATURE KEYS."

NO TRANSMIT FROM HEADSET, RECEIVES OK
- Mute Key - ON.

LINE NOT READY
- No S/T synchronization from NT1.

CAN'T SET DSS/BLF, CONFCA, OR OTHER CA TYPES
- The Teleset defaults all Call Appearances to PrimCA types. Only General Call Appearances can be changed.
    1. Go to PrimCA and set the desired Call Appearances to General Call Appearances.
    2. Set the new CA Type.

CAN'T SET CALL APPEARANCES BACK TO PRIMCA
- The Call Appearance is probably not a General CA.
    1. Check ConfCA.
    2. DSS/BLF.
    3. Term OnlyCA.
    4. Priort CA.
    5. Set them to General as required.

GLOSSARY

The definitions in this Glossary refer to the *i*2021 Teleset only.

Bearer Service - also known as Bearer Capability. The type of service that can be accessed on the "B" channel. Typical Bearer Services are voice, data, and audio,

Call Appearance (CA) - A hardkey on the Teleset that is programmed for voice communication. A CA may have a unique Directory Number, or it may be the same telephone number that appears on other keys or other Telesets.

Call Appearance Call Handling (CACH) - Pronounced "cash"- Refers to a translation in the Central Office switch. CACH is the recommended setting for the *i*2021.

Customer Premises Equipment (CPE) - Devices residing at or on the customers' premises. The *i*2021 Teleset is CPE.

CENTREX - A business telephone service offered by the local telephone company. CENTREX offers many Electronic Key Telephone features to enhance the operation of the *i*2021.

Directory Number (DN) - Also known as a telephone number.

Electronic Key Telephone Service (EKTS) - A feature that allows the Teleset to have Multiple Call Appearances (MCA) and Shared Call Appearances (SCA).

Feature Activator/Indicator - A softkey or a programmable hardkey used to access a specific switch feature, i.e., Conference, Drop, Transfer, Call Forward, Call Park, Inspect, etc.

ISDN Ordering Code (IOC) - This is a code supplied by a terminal manufacturer to be used by the telephone company in provisioning the ISDN service. (See TP Packages)

Multiple Call Appearance (MCA) - Additional Call Appearances of the same Directory Number.

Network Termination 1 (NT1) - A piece of CPE required to interface "S" interface devices with the "U" interface from the telephone company.

Non-Volatile (memory) - Information that is stored in the telephone that will

not be lost if memory power is removed from the telephone.

On/Off-Hook - When a Call Appearance LED is lit and the user is listening to dial tone, is communicating, or has an active call on hold. A handset removed from the cradle does not necessarily mean the Teleset is off-hook. The *i*2021 can be on-hook with the handset removed from the cradle.

Primary Directory Number (PDN) - The telephone number of a particular telephone. Some telephone companies require the PDN to be Key 1. It is recommended that key 1 be the PDN.

"S" Interface - The 4-wire interface between the ISDN telephone and the NT1. In the *i*2021 it is the same point as the "T" interface.

Shared Call Appearance (SCA) - A Call Appearance that appears on more than one ISDN telephone. Similar to an extension phone in an analog telephone application.

Service Profile IDentifier (SPID) - A code programmed into the telephone and used by the switch to identify the configuration used by the telephone. The SPID is usually the PDN plus 0101.

"T" Interface -See "S" interface.

TP Packages - A set of translations that the telephone company may offer. The TP packages offer a variety of commonly used features in an easy order package.

Terminal Endpoint Identifier (TEI)- A code used by the telephone to identify it to the switch. The *i*2021 uses Automatic (Dynamic) TEIs.

"U" Interface - The 2-Wire interface between the NT1 and the telephone company line.

Volatile (memory) - Information which is stored in the telephone which will be lost when power is removed from the Teleset.

INDEX

T

V