MARTI Electronics
Digital Cellcast
GSM and CDMA
Quick Installation Guide

597-2111 Revision A

8/23/07

MARTI Electronics

Digital Cellcast
GSM and CDMA
Quick Installation Guide

WARNING

NOTE: THERE ARE NO USER SERVICABLE PARTS IN THE DIGITAL CELLCAST. OPENING THE DIGITAL CELLCAST CASE WILL VOID THE WARRANTY.

LIMITED WARRANTY

The Seller warrants that, at the time of shipment, the products manufactured by the Seller are free from defects in material and workmanship. The Seller's obligation, under this warranty, is limited to replacement or repair of such products which are returned to Marti at its factory, transportation prepaid and properly insured, provided:

a. Notice of the claimed defect is given to Marti within one (1) year from date of original shipment and goods are returned in accordance with Marti instructions.

b. Equipment, accessories, tubes and batteries not manufactured by Marti are subject to only such adjustments as Marti may obtain from the supplier thereof.

c. This warranty does not apply to equipment which has been altered, improperly handled, or damaged in any way. The Seller is in no event liable for consequential damages, installation cost or other costs of any nature as a result of the use of the products manufactured or supplied by the Seller, whether used in accordance with instructions or not.

This warranty is in lieu of all others, either expressed or implied. No representative is authorized to assume for the Seller any other liability in connection with Seller's products.

Seller is not responsible for problems caused by cellular providers.

UNIT INFORMATION SHEET

UNIT SERIAL NUMBER   _____

ELECTRONIC SERIAL NUMBER (ESN)   _____

SYSTEM IDENTIFIER NUMBER (A)   _____

MOBILE IDENTIFICATION NUMBER (A)   _____

SYSTEM IDENTIFIER NUMBER (B)   _____

MOBILE IDENTIFICATION NUMBER (B)   _____

SOFTWARE VERSION NUMBER   _____

TYPE OF PHONE   _____

SAFETY INFORMATION

IMPORTANT!

To ensure safe and efficient operation, please read the following information and follow the guidelines whenever using your DIGITAL CELLCAST.

Your DIGITAL CELLCAST functions as both a radio transmitter and receiver. When it is ON, the DIGITAL CELLCAST receives and sends out radio frequency (RF) energy. Depending upon the model the DIGITAL CELLCAST operates in the frequency range between 824 and 960 MHz, and between 1710 and 1990 MHz. The DIGITAL CELLCAST employs commonly used phase/frequency modulation techniques. When you use your Unit, the cellular system handling your call controls the power level at which your unit transmits. Nominal power output is up to 2 Watts.

EXPOSURE TO RF ENERGY
In 1991, the institute of Electrical and Electronics Engineers (IEEE), and in 1992, the American National Standards Institute (ANSI), updated the 1982 ANSI standard for safety levels with respect to human exposure to RF Energy. After reviewing the available body of research, more that 120 scientists, engineers, and physicians from universities, government health agencies and industry developed this updated Standard. In March 1993 the U.S. Federal Communications Commission (FCC) proposed the adoption of this updated Standard.

The design of your DIGITAL CELLCAST complies with this updated Standard. Of course, if you want to limit RF exposure even further than the updated ANSI Standard, you may choose to control the duration of your calls and your proximity to the antenna and operate your phone in the most power-efficient manner.

SAFE OPERATION REQUIREMENT
Do not operate your DIGITAL CELLCAST when any person is within 12 inches (30 cm) of the Antenna.

ANTENNA CARE AND REPLACEMENT
Do not use your DIGITAL CELLCAST without an antenna or with a damaged antenna. If a damaged antenna comes into contact with the skin, a minor burn may result. Use only a manufactured-approved antenna. Contact Marti Electronics for the replacement antennas available for your type of DIGITAL CELLCAST. Unauthorized antennas, modifications, or attachments could damage your DIGITAL CELLCAST Unit and void any warranty or the Grant of Type Acceptance.

ELECTRONIC DEVICES
Most modern electronic equipment is shielded from RF energy. However, RF energy from cellular devices may affect inadequately shielded electronic equipment.

RF energy may affect improperly installed or inadequately shielded electronic operating and entertainment systems in motor vehicles. Check with the manufacturer of its representative to determine if these systems are adequately shielded from external RF energy. You should also check with the manufacturer of any equipment that has been added to your vehicle.

Consult the manufacturer of any personal medical devices (such as pacemakers, hearing aids, etc.) to determine if they are adequately shielded from external RF energy.

AIRCRAFT
A DIGITAL CELLCAST unit is not to be operated aboard an aircraft. FCC regulations prohibit using any cellular system while a plane is in the air.

CHILDREN
Do not let children play with your DIGITAL CELLCAST system to avoid damage to the unit.

BLASTING AREAS
Construction crews often use remote control RF devices to set off explosives. Therefore, to avoid interfering with blasting operation, turn off your DIGITAL CELLCAST unit when in a "Blasting Area" or in areas posted: "Turn off two-way radio".

POTENTIALLY EXPLOSIVE ATMOSPHERES
Turn your DIGITAL CELLCAST unit OFF when in any area with a potentially explosive atmosphere. It is rare, but your DIGITAL CELLCAST unit or accessories could generate sparks. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Areas with a potentially explosive atmosphere are often, but not always, clearly marked. They include fueling areas such as gas stations: below deck on boats: fuel or chemical transfer or storage facilities: areas where the air contains chemicals or particles, such as grain, dust, or metal powers: and any other area where you would normally be advised to your turn off your vehicle engine.

Vehicles using liquefied petroleum gas (such as propane or butane) must comply with the National Fire Protection Standard (FPA-58). For a copy of this standard, contact the National Fire Protection Association, One Batterymarch Park, Quincy MA 02269, Attn: Publications Sales Division.

FCC PART COMPLIANCE
PART 15: This DIGITAL CELLCAST unit has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, use and can radiate radio frequency energy and, If not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee against interference to radio or television reception, which can be determined by turning the equipment OFF and ON. The user is encouraged to try and correct the interference by one or more of the following measures.

1. Reorient the receiving antenna
2. Relocate the DIGITAL CELLCAST with respect to the radio or television
3. Plug the DIGITAL CELLCAST into a different outlet so the other devices are on a different circuit.

NOTE: The manufacture is not responsible for any radio or TV interference caused by the unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment and warranty.

PART 68This equipment complies with Part 68 of the Federal Communications Commission Rules. On the outside surface of this equipment is a label that contains, among other information, the FCC registration number, Facility Interface Code (FIC), and Service Order Code (SOC). This information must be provided to the telephone company.

FCC Registration No: US:DDEOT16BDCL
FIC: O2LS2
SOC: 9.OF
USOC Jack: RJ11C

An FCC-complaint telephone and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 Compliant. See installation instructions for details.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But, if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with the Digital Cellcast, please contact Broadcast Electronics at 217-224-9600. If the equipment is causing harm to the network, the telephone company may request you to remove the equipment from the network until the problem is resolved.

No repairs are to be made by the customer. Repairs are to be made only by Broadcast Electronics or its licensees. Unauthorized repairs void the registration and warranty.

This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs (contact the state public utility commission, public service commission or corporation commission for information).

DOC INFORMATION.
This equipment meets telecommunications network protective, operational, and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). This is confirmed by marking the equipment with the Industry Canada certification number. The Department does not guarantee the equipment will operation to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.
CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combinations of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

Table of Contents

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1 Purpose of this Document

The purpose of this document is to provide the user with the basic setup and activation of the GSM and CDMA versions of the Marti Digital Cellcast.

The DIGITAL CELLCAST is a family of cellular based remote broadcasting products from Marti Electronics. This unit is designed for use in the field as a remote mixer plus it has digital cellular telephone capability and landline capability for remote broadcasts. The DIGITAL CELLCAST takes advantages of the changing cellular technology landscape for CDMA and GSM networks. This guide covers these types of phones. Where appropriate, there are different sections that pertain to the type of system/network you are using. For the most part, however, the DIGITAL CELLCAST operation is the same for any of the systems.

The DIGITAL CELLCAST is equipped with a four-channel mixer, four stereo headphone receptacles, a line out and a line in connection. The system operates from a 12V dc power supply generated by a modular 110/240V ac 50/60 Hz wall outlet supply. The system can also operate with a 12V battery supply system that comes standard with the DIGITAL CELLCAST unit. The battery supply system consists of a 12V re-chargeable battery that is the same battery used on several other Marti remote products.

Figure 1 - Digital Cellcast

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INDICATOR	ACTIVITY	DESCRIPTION
RECEIVED SIGNAL STRENGTH	CONTINUOUS FLASH	BEST VERY GOOD
RECEIVED SIGNAL STRENGTH	CONTINUOUS FLASH	GOOD FAIR
RECEIVED SIGNAL STRENGTH	CONTINUOUS FLASH	POOR VERY POOR
SERVICE INDICATOR	GREEN CONTINOUS AMBER CONTINOUS RED CONTINOUS RED FLASH	FULL SERVICE LIMITED SERVICE NO SERVICE SIM ERROR
HOOK INDICATOR	GREEN FLASH GREEN CONTINOUS GREEN FAST FLASH GREEN SLOW FLASH	INCOMING CALL FWT IS OFF HOOK DATA CALL CALL ON HOLD
MESSAGE INDICATOR	GREEN SLOW FLASH	VOICE MAIL
AC POWER	GREEN CONTINOUS	DC ON
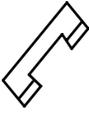
CELL-4

Figure 1A - Digital Cellcast Status Indicators

1.1 FEATURE SET

Each DIGITAL CELLCAST is equipped with several features designed to provide good solid cell phone or telephone quality audio suitable for broadcast purposes. The DIGITAL CELLCAST is not a Codec and as such the sound quality is limited by the telephone provider. The following text presents the primary features.

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1.1.1 AUDIO MIXER

The DIGITAL CELLCAST is equipped with 4 microphone level inputs, 4 headphone outputs and one line level input and one line level output. Each headphone and microphone has its own separate level control.

1.1.2 MONITORING OPERATIONS

The unit contains the ability to monitor the program audio or return audio from the studio using headphones or a speaker via the line out.

1.1.3 20 TELEPHONE NUMBER MEMORY

Up to 20 "speed dial" numbers can be programmed into the DIGITAL CELLCAST memory. Each number can be up to 39 characters long.

1.1.4 CUE - INTERCOM OPERATION

Each of the 4 mixer channels is equipped with a program/cue button. When the button is in the cue position, that channel can be used as an intercom channel with the audio being available only to the other channel headphones but not going on the air.
NOTE: The Line In audio will always be live to the headphones and the program bus.

1.1.5 ANTENNA OPTIONS

Your DIGITAL CELLCAST comes with two antennas, a short "Stub" antenna and a magnetic mount antenna with an integral 12' cable. If additional gain is required or an auxiliary antenna is necessary to reach the closest cell site, a tripod mounted Yagi antenna is available.

1.1.6 BATTERY SUPPLY SYSTEM

The DIGITAL CELLCAST comes equipped with a 12V dc battery supply system. The system consists of a re-chargeable external 12V battery, a modular wall outlet dc power supply, and a soft-side carrying case. Both the battery and the DIGITAL CELLCAST power supply can be used simultaneously to provide automatic power supply backup operation.

1.1.7 MULTIPLE ACTIVATION FEATURE

The memory positions can be used to store the activation codes (Password, MIN, and SID) for easy transition from one cellular provider system to another. Note that due to the uniqueness of Cellular carrier systems your Digital Cellcast will not operate on all carrier systems. Also carriers using GSM technology will not operate on CDMA networks and visa versa.

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2 Prepare the Digital Cellcast for Operation

2.1 Verify Contents of Shipment

- ☐ 903-2111-00X, Digital Cellcast (Note number in X position determines carrier).
  - ☐ 597-9111, Digital Cellcast, Quick Install Guide (this document)
- ☐ 803-8000, Aluminum Carry Case
  - ☐ 809-3258, Magnetic Mount, Dual band antenna and cable
  - ☐ Short Rubber Ducky Antenna
  - ☐ Power module with AC cord
  - ☐ 040-009, Soft pack External battery with charger
  - ☐ 580-116, Power cord
  - ☐ 585-129, Auxiliary (Cigarette Lighter) power cord

2.2 Tools / Items Needed For Installation (not supplied)

- ☐ Cellular Provider account, Activation codes and telephone number.
- ☐ Adequate Cellular signal
- ☐ XLR (Male, 3 pin) audio connectors and audio cable
- ☐ ¼" Male connectors and audio cable
- ☐ MIC(s)

2.3 Mounting Considerations

The Digital Cellcast is designed for portable table top operation.   There is a folding leg located underneath the unit.   This leg can be used to elevate the unit for a more comfortable viewing position if desired.   The folding leg may seem stiff and hard to operate, but this should become easier the more you use it.

2.4 Estimated Time for Installation / Setup

Providing that you have the proper materials, activation codes and tools listed above, the installation and setup of the of the Digital Cellcast will take less than 30 minutes.

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3 Controls and Connections
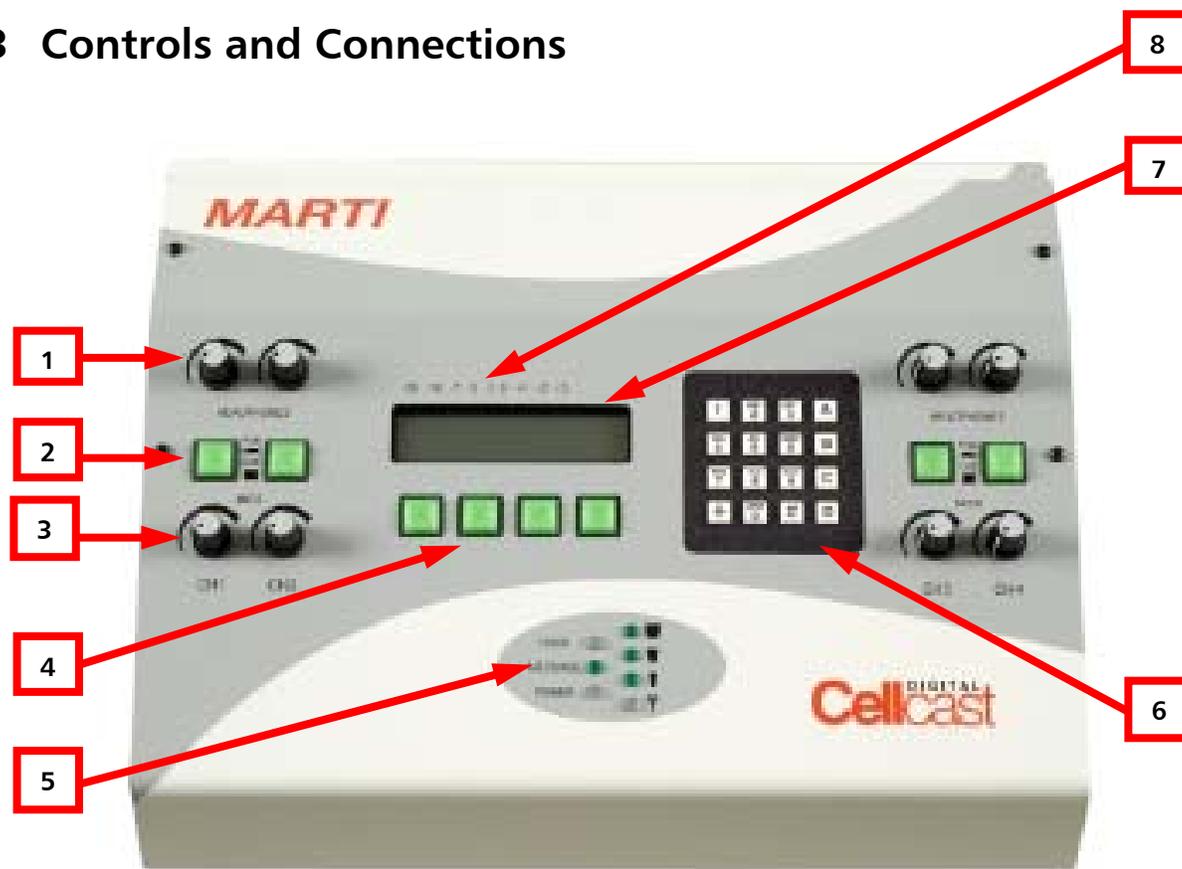
Figure 2 - Digital Cellcast Front Panel Controls

3.1 FRONT PANEL CONTROLS

3.1.1 1. HEADPHONE VOLUME CONTROL

Adjusts the level of the headphone. Each channel has a separate volume control.

3.1.2 2. PROGRAM/CUE SWITCH

Routes input audio to either program or intercom. When the switch is in the PROG (for PROGRAM) mode (switch will be lighted), audio will be routed over the cellular connection. When the switch is in CUE mode (switch will be unlighted), the audio will be routed to all headphones that are connected. The Line In audio is always live to the program bus and to the headphones.

3.1.3 3. CHANNEL LEVEL CONTROL

Microphone level audio input. Each input channel has its own separate level control. The audio can be routed to the program bus or to the intercom bus using the PROG/CUE switch. The Intercom or CUE bus will only send audio from the mic inputs to the headphones and not go on the air.

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3.1.4   4.   MENU SELECTION BUTTONS

There are 4 menu selection buttons that will be used for different functions associated to the different screens that are presented on the LCD screen. These buttons are explained in the operations section. These buttons are momentary contact push switches – each time one is pressed, it sends another command.

3.1.5   5.   OPERATION/FAULT INDICATORS

Each of the different types of DIGITAL CELLCAST models (GSM, CDMA) has three OPERATION/FAULT indicators. They show different information depending on the type of system (different flashing modes or different colors). There are LEDs for the following categories:

   a.   POWER STATUS INDICATOR
   b.   CELLULAR STATUS INDICATOR
   c.   PHONE MODULE INDICATOR

3.1.6   6.   TELEPHONE KEYPAD
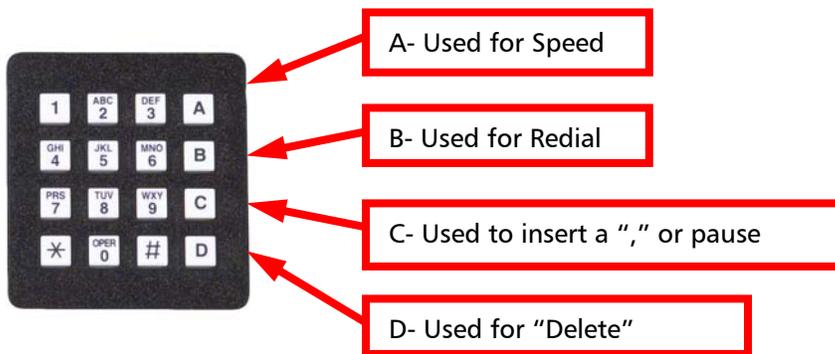
Figure 3 – Keypad

The telephone keypad consists of 16 keys. Twelve of these keys are a standard telephone keypad with 0-9, *, and #. The other keys are A, B, C, and D and they provide tones and do other functions for dialing as shown in the text in Figure 3 above. See the section on OPERATIONS for details on these special keys.

3.1.7   7.   LCD MENU SCREEN

The LCD MENU SCREEN consists of a 2 line 20-character display. Menu, set-up functions, call information, and audio level status are presented on this display.

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3.1.8   8.   VU Meter Scale

This scale will be used once a call is connected and there is audio being transmitted from the DIGITAL CELLCAST and is useful in setting levels for the broadcast.

```
-20  -10 -7 -3 -1 0 +1 +2 +3
```

Figure 4 - VU Meter Scale

For more information on the VU scale and operation of the meter see the section for SETTING AUDIO.

Figure 5 – Rear Panel Connections

3.2   REAR PANEL CONNECTIONS

3.2.1   1. CHANNEL AUDIO INPUT

The DIGITAL CELLCAST is equipped with (4) XLR receptacles for audio inputs (refer to Figure 5). Figure 6 presents the XLR receptacle pin descriptions. Refer to Figure 6 below for a description of wiring the XLR connectors using a cable such as Belden 8441 for microphone inputs and 8451 or 8762 for line level inputs. Once the connector is attached to the cable, connect the input to the desired XLR input receptacle.

The DIGITAL CELLCAST has a built-in AGC (Automatic Gain Control) function. Changing a jumper on the motherboard can disable this function. However, unless the DIGITAL CELLCAST is to be used only as a high performance quality mixer, you should operate the unit with AGC enabled. The difference in the S/N with and without the AGC is 20 db. Since the Telco systems only have a signal to noise ratio of about 40 there is nothing to be gained by disabling the AGC for most DIGITAL CELLCAST operations. Note: AGC is set to enabled during factory test.

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There is no provision for phantom power for microphones.

Pin Description
1 Ground
2 Signal –
3 Signal +
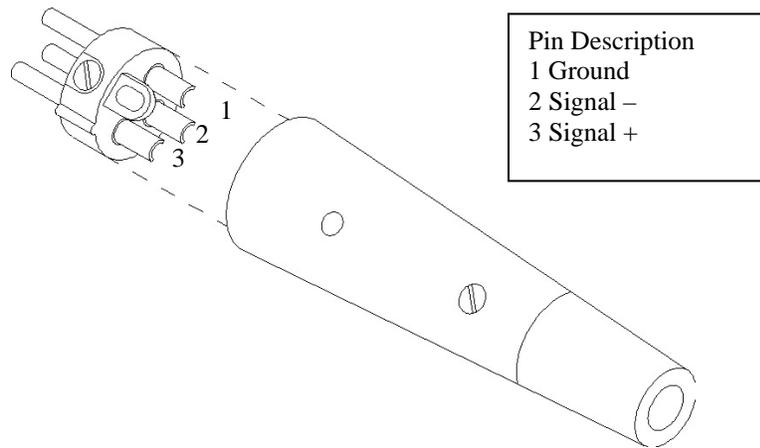
Figure 6 – XLR Pin Descriptions

3.2.2   2. HEADPHONE CONNECTOR

The DIGITAL CELLCAST is equipped with four ¼" headphone receptacles (Refer to Figure 5). The headphone connector must be stereo. These receptacles are designed to accept any type of headphone with a minimum impedance of 8 Ohms. Optimum performance is obtained from the system with 40 Ohm or greater headphones. Refer to Figure 5 and connect the headphones to a HEADPHONE receptacle.

3.2.3   3. LINE IN

The Line-In connector is an XLR - Female connector. The input is a monophonic, active balanced, High Impedance, -30 dBu to +10 dBu.

3.2.4   4. FOLD DOWN LEG

There is a folding leg located underneath the unit. This can be used to elevate the unit for a more comfortable viewing position if desired (refer to Figure 5). Initially, the leg may seem stiff and hard to operate, but this should become easier the more you use it.

3.2.5   5. LINE OUT

The line out connector is a ¼" monophonic phono connector. The line out is monophonic, Unbalanced, -10 dBu Output when a nominal microphone input is present at one of the microphone inputs. A nominal microphone input is –60 dBu.

3.2.6   6. TELEPHONE RJ-11 CONNECTOR

A DIGITAL CELLCAST is designed to use a standard telephone line (POTS – Plain Old Telephone System) for communication when the unit is not used in the Cellular mode. The telephone line connects to the PHONE LINE receptacle on the rear panel (refer to Figure 5).

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3.2.7 7. And 8. POWER CONNECTORS DC1 and DC2

There are two power supply input connectors on the back of the DIGITAL CELLCAST unit. They are both for DC power. Because the AC Power adapter converts 100V to 240V 50/60 Hz AC to a 12 VDC supply, either DC1 or DC2 can be used for the battery or AC to DC converter. This feature allows you to have the AC connected and use the battery as a backup (see Figure 8 for the components of the AC and DC power options).

The AC power adapter is designed to operate from a 100V to 240V AC 50/60 Hz power source without voltage or fuse reconfiguration. Connect the unit AC power receptacle to any 100V to 240V AC 50/60 Hz power source.

3.2.8 9. ANTENNA CONNECTOR AND OPERATION

The antennas shipped with the DIGITAL CELLCAST will work in most areas without problem. There are two antennas shipped with the unit. (1)The short "Stub" antenna and (2) A magnetic mount antenna with a 12' cable. The antennas should be mounted in a vertical position regardless of the position of the DIGITAL CELLCAST unit. If you experience a problem making a call, dropping calls, or hear excessive noise, moving the unit or the magnetic mount antenna unit slightly can make a difference.

If you are going to use the DIGITAL CELLCAST in a fringe area of cellular coverage or in a building not conducive to RF transmission, you can use a variety of other antennas. MARTI Electronics offers an auxiliary Yagi antenna and stand for that purpose (see Figure 7 below or the parts list in Appendix A).

Keep in mind that antennas are frequency specific and may be different for different models of Cellcast.

Figure 7 – Auxiliary Yagi Antenna and Stand

When using an antenna with a cable, use a low loss transmission cable such as LDF 4-50, SFX, RG-214/U Etc. Also avoid splices and in-line cable adapters, all of which can cause signal loss.

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3.2.9 10. POWER SWITCH

The DIGITAL CELLCAST has a two-position ON/OFF power switch located on the rear of the unit. The power switch will turn the unit off for either AC/DC or Battery operation. (Or both if you are using the battery as a backup).

4   POWER SUPPLY AND BATTERY SYSTEM
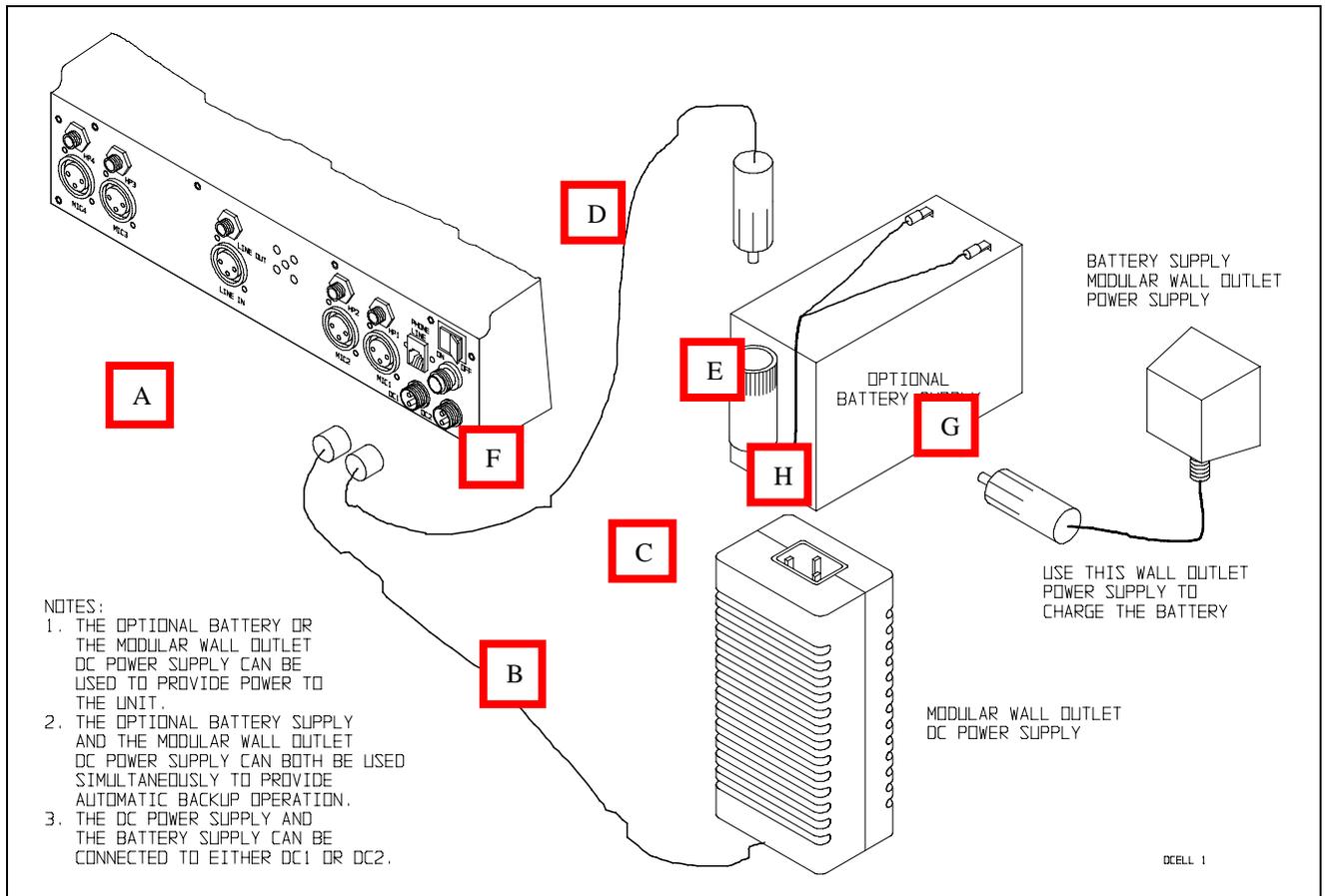
Figure 8 – Power Supply and Battery System

4.1   POWER SUPPLY SYSTEM

The DIGITAL CELLCAST is equipped with two power options as mentioned above. Figure 8 illustrates the components in the power supply system. The system consists of the following components:

A.   The rear of the DIGITAL CELLCAST has two DC connectors. It does not make any   difference which one is used.
B.   Modular Wall Outlet DC Power supply.
C.   AC Power Cord (not shown)
D.   Battery to CELLCAST cable.
E.   12-volt re-chargeable battery
F.   Connector Receptacle for cable from the Battery to the unit (part of the Battery Assembly).
G.   Battery Supply Modular Wall Outlet Power Supply.
H.   Plug for attaching to the Battery Connector Receptacle (part of G. above).

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To extend the life of the battery, avoid charging and storing in extreme temperatures. Use, charge and store the battery in a dry area at normal room temperatures. Don't subject the battery to long periods of extreme heat or cold or operate the unit in the rain. Don't drop or subject the battery to rough handling or excessive vibration. When a replacement battery is required, a new battery can be purchased from Marti Electronics.

4.2   BATTERY CHARGING PROCEEDURE

1.   Refer to Figure 8 and connect the battery modular wall outlet DC power supply cable to the battery.

2.   Connect the wall outlet DC power supply to an 110V or 220 VAC 60 Hz power source. Allow the battery to charge. The Battery will require approximately 8 hours to fully charge.

3.   The unit will operate approximately 4 hours from a full battery charge.

4.3   BATTERY CABLE IN-LINE FUSE

The battery cable is equipped with a 5-Ampere in-line fuse. If the fuse is to be replaced, ensure a 5-Ampere fuse is installed in the fuse holder. The fuse is located inside the battery cover and is not shown in the drawing.

4.4   AUTOMOTIVE AUXILARY POWER SUPPLY OPERATION

With the battery supply system, a cable is provided to allow the DIGITAL CELLCAST to be connected to a auxiliary power supply receptacle in an automobile. (See Figure 8, component D above) If operation from an automobile is required, connect the battery cable between the DC receptacle on the rear panel and the auxiliary power receptacle in the vehicle.

5   OPERATION OF THE MENU SYSTEM

5.1   GENERAL

For better understanding of this section of the Operations Manual, please refer to the FLOW CHART, Figure 37, at the rear of the manual. Follow this flow chart as you move through the menu system. Each symbol on the flow chart has a corresponding number. This number is referred to in the figures that represent the various menu screens. Note: there may be more than one menu screen that will occur at a single menu reference number, depending on the options selected.

The DIGITAL CELLCAST is designed to operate in two different modes, CELLULAR Mode and POTS Mode. The user interface (other than the audio controls) consists of an LCD screen of 2 lines by 20 characters and 4 momentary push buttons plus the A, B, C and D key on the keypad (see Figure 3) for a comma or for a Delete function. Refer to Figure 2 for the location of the keypad on the DIGITAL CELLCAST. The 4 buttons under the LCD are only active or have a function if they are lighted. With one exception for menu reference 4, (see Figure 13) if they are lighted, there will be text just above the button in the LCD screen that tells what the function is.

 NOTE: For the purpose of this manual, lighted and unlighted menu buttons are illustrated above.

Figure 9 – Menu Selections Buttons

The buttons are numbered 1 to 4 from left to right as shown in Figure 10 below. Please take a few minutes and follow through this section of the manual with the DIGITAL CELLCAST in front of you. It should not take long to understand the operation of the menu system.

There is a power switch on the rear of the DIGITAL CELLCAST that will turn ON the unit. This switch operates the same for either battery or AC operations. After applying power to the DIGITAL CELLCAST, the first screen will display the version number. This version number will be important if your unit should ever need service. Figure No. 10 below is an illustration of the VERSION SCREEN. The software version number is also written on the Unit Test Sheet located in the front of the manual.

CELLCAST   V.1.0
STATUS OK

1   2   3   4
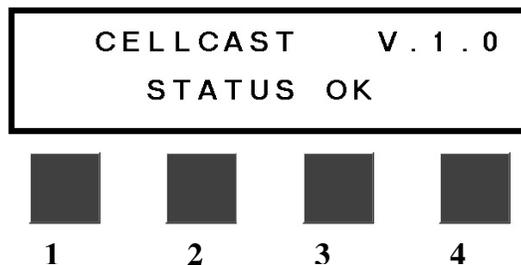
Figure 10 - Software Version Screen Menu Reference 1

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Figure 10 illustrates what is seen at power on. There are no selections to be made here, as this is an automatic function. After 2 seconds this screen will disappear and will be replaced with the screen in Figure 11.

```
SET      PHONE     SYSTEM
AUDIO MODE        SET-UP
```
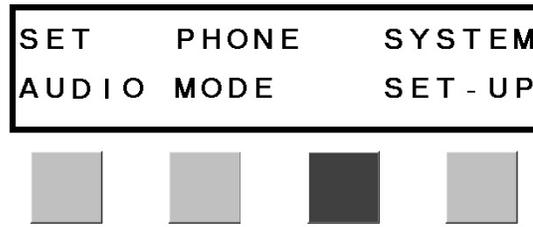
Figure 11 – Start Up Screen, Menu Reference 2

From this screen you can set the audio level, proceed with setting up the calling options of the DIGITAL CELLCAST, go into the technical setup of the interface with the cellular provider or immediately "speed dial" a stored number. Notice the "LIGHTED" buttons that indicate that there are functions associated with buttons 1, 2 and 4.

1.   Button number 1 will change the display to the SET AUDIO screen button.
2.   Button number 2 will change the display to the SET MODE option screen
3.   Button number 3 is not functional for this menu – notice it is dark
4.   Button number 4 will change the display to the Technical set-up screen.

See the Technical Phone Setup information for the type phone you have.

5.2 SET AUDIO LEVEL

```
-20  -10   -7  -3     -1     0  +1 +2 +3
```

```
SET  PROG  AUDIO   EXIT
```

Figure 12 – Set Audio Screen, Menu Reference 3

Connect all of the audio sources that you plan to use for the broadcast. Then use the Channel Level Controls to adjust the audio until the VU meter is on 0. The VU meter will only register audio inputs that are on the program bus. This includes channel audio when the PROGRAM button is lit, and the Line In Audio.

Note: After setting the audio level, press EXIT and the previous menu will be displayed, the Mode Selection – see Figure 11 - Menu Reference 2.

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5.3 SELECTING DIALING MODES

Select "PHONE MODE" to select the dialing mode.

This is the screen to select the dialing and operational modes for the unit. There are 2 major modes for the unit, CELLULAR and POTS (Plain Old Telephone System – for standard telephone operation).
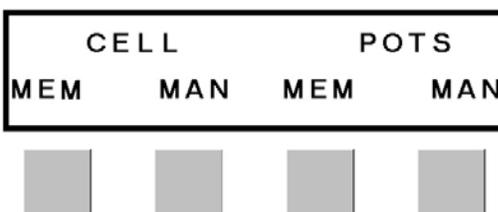
Figure 13 – Mode Selection Screen, Menu Reference 4

The DIGITAL CELLCAST will operate basically the same way for either a standard telephone line (POTS) or when connected to the CELLULAR network. There are also two different dialing modes, MEM (For MEMORY - Provides access to the editing functions before dialing and access to the memory location for editing) and MAN (For MANUAL). Figure 13 above is the setup screen to select which modes you want to use.

To proceed, press any of the 4 buttons. The choices are:

1. CELL MEM - CELLULAR MEMORY MODE.
This is the default mode. A dial tone will not be heard until a number is completely dialed and SEND (shown in the next menu) is pressed or a speed dial number is selected. You have the opportunity to edit the number before dialing.

2. CELL MAN – CELLULAR MANUAL MODE.
This mode will give you a dial tone from the cellular module in DIGITAL CELLCAST and you will dial it like a regular telephone, or use speed dial. When a valid phone number is entered, the phone will connect – no other buttons need to be pressed.

3. POTS MEM - PLAIN OLD TELEPHONE SYSTEM MEMORY MODE.
NOTE: Make sure that you have a phone line connected to the RJ-11 receptacle on the rear of the unit. This is similar to CELL MEM, but you will be dialing via the wired telephone network. A dial tone will not be heard until a number is completely dialed and SEND is pressed or a speed dial number is selected. You have the opportunity to edit the number before dialing.

4. POTS MAN – PLAIN OLD TELEPHONE SYSTEM MANUAL MODE.
NOTE: Make sure that you have a phone line connected to the RJ-11 receptacle on the rear of the unit. This mode will give you a dial tone from the wired telephone network and you will dial it like a regular telephone, or use speed dial. . When a valid phone number is entered, the phone will connect.

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5.4 MEMORY (MEM) DIALING

When you press CELL MEM or POTS MEM, the menu in Figure 14 below will appear. Notice that only 3 of the buttons are lighted, as there are only 3 choices. ENTER NUM will move you to a screen to input/edit a number for dialing. EDIT NUM will take you to a menu for editing the preset or speed dial numbers stored in memory. (There are 10 preset number positions available).

The Exit key will take you back to the Mode Selection menu – see Figure 13 above.

```
ENTER  EDIT
NUM       NUM            EXIT
```

Figure 14 - Enter/Edit Select Screen, Menu Reference 5

EXIT will move you back one level in the Menu system, in this case, back to the selection of the MODES (see Figure 13).

```
 _
SEND     <-        ->     EXIT
```

Figure 15 – Standard Entry Screen, Menu Reference 6

This menu allows you to enter a number and correct or edit it before starting the dialing process. (This operation is in contrast to the MANUAL dialing process where dialing is done after a dial tone is obtained – see section on manual dialing below).

The Buttons for Figure 15 operate as follows:

1.   Get dial tone and immediately dial the number on the screen.
2.   Move Left one position for editing
3.   Move Right one position for editing
4.   Exit back to the previous menu screen.

NOTE: Although all of the buttons are lighted, only 1 and 4 will take you to another menu. The two center buttons operate on this menu screen. This function will be seen at several other menu locations as well.

You can view up to 14 numbers on this screen. Once you enter 14 characters (including commas), overflow indicators on each end will let you know that the window is full and any additional characters will cause the display to shift left. You can shift back to the right using the arrow key buttons.

Long Dialing Example:

If you were dialing a long distance number with a credit card using a long distance carrier access number (like 1-800-CALLATT) you may have to enter a string of numbers like this. (A maximum of 39 characters can be entered – this example uses 39). Unless you do a lot of credit card dialing, it is easier to use the manual dialing mode just like you would on a standard telephone.

Long Distance Carrier Access	Long Distance Phone No. With AC	Credit Card No.
1 800 225 5288 ,,	1 123 555 5555,	123 456 7890 5555 Total 39

(Spaces have been placed between some numbers for clarity but there are no spaces in the actually dialing operation)

The commas are entered using the "C" key on the keypad (see Figure 3). The commas are used as a "Pause" and may be needed to for dialing timing. The DIGITAL CELLCAST can take a number up to 39 characters. (If you have a number of over 39 characters, you will need to use the MANUAL dialing modes for CELLULAR or POTS).

After entering the first 13 numbers, here is what the screen will look like.

Figure 16 – Standard Entry Screen, Menu Reference 6

Notice that the cursor is to the right of the 1 (A). As you enter numbers, the cursor will move to the right after each entry until you have reached the 14th position – it will remain there as you enter numbers unless you move it with the arrow keys. At anytime, you can use the arrows (B and C) to move the cursor to correct a mistake. Simply press button 2 or 3 to move the cursor left or right and then type in the new number or comma from the keypad, or, you can delete a digit with the "D" key of the keypad. (See next page – Deleting A Number) The cursor will then move to the right. If this is not where you want it, move it again with the buttons.

Entering another digit, (the 14th) the screen will look like Figure 17 below.

Figure 17 - Standard Entry Screen, Menu Reference 6

Notice that the 14th digit appeared where the cursor was, and the cursor did not move.

Adding one more digit will shift all of the digits one space to the left. The new digit will appear in the far right and cursor will remain. The display will look like the one shown below.

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```
< 8 0 0 2 2 5 5 2 8 8 , , 1 9 >
S E N D      <       >      E X I T
```
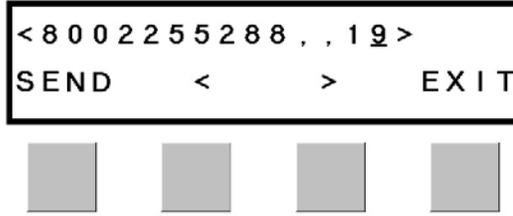
Figure 18 – Standard Entry Screen, Menu Reference 6

All of the numbers have shifted left. Notice that the left and right overflow indicators (< >) are still present.

```
< 1 2 3 4 5 6 7 8 9 0 5 5 5 5 >
S E N D    < -        - >     E X I T
```
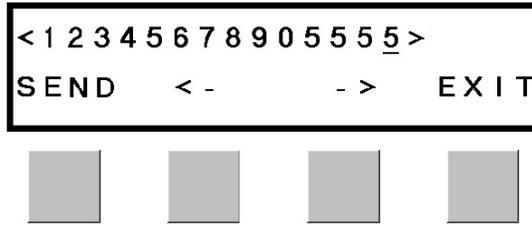
Figure 19 - Standard Entry Screen, Menu Reference 6

After all of the numbers are entered the LCD screen will look like Figure 19 above. If all of the numbers are correct you can immediately push SEND and start the call. If you want to review the number prior to actually starting the call, you can use the arrow keys (Buttons 2 and 3) to move left or right. Once the cursor has moved past the left-most position show above (the "1" at the left), the numbers will start shifting to the right each time you push the left arrow. For example, if you have moved the cursor all the way to the left and then three more positions left, the LCD would like this.

```
< 5 5 , 1 2 3 4 5 6 7 8 9 0 5 >
S E N D    < -        - >     E X I T
```

Figure 20 - Standard Entry Screen, Menu Reference 6

18002255288,,19035555|555,12345678905|555

The numbers in the box above represent the numbers displayed in Figure No. 20 from the whole 39-character string. Most of the time you will probably be only entering the area code and 7 digits or just the 7-digit phone number, but by pressing CLEAR you can add more numbers.

If editing is required, use buttons 2 and 3 to move the cursor and use the keypad to overwrite the characters as desired. You can overwrite any character by moving the cursor to that character and typing in the new character. This will overwrite the character and move the cursor one position to the right unless you are replacing the 39th character in the location. If you continue to enter characters at the 39th position, it will continue to change that character. Pressing CLEAR will allow additional numbers with no editing.

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5.5 DELETING A NUMBER

You can also delete characters using the "D" on the keypad. Each time you push the "D" key you will delete the character that is above the cursor and the cursor will shift one space to the right unless you are deleting the 39th character. Because you can overwrite characters, using the DELETE function is not necessary before entering the new character. The DELETE function is normally used to clear out a memory location or the remaining unwanted characters after you have edited a location. Most of your editing needs can be accomplished with the overwrite function.

If you need to delete some characters in the middle of a memory position or when you are dialing in the MEM mode, you will have to start at the position leftmost position that you want to delete and start entering the characters that will fill out the total stream. This will overwrite the positions that you wanted to delete and, in effect, move the numbers to the left. If there were any numbers at the end of the sting, the DELETE key would be appropriate.

DELETE EXAMPLE

Here is an example of how the DELETE key works. Assume you wanted to enter 903-586-9334 but made a mistake. You need to delete one of the 8s in the string.

```
9 0 3 5 8 8 6 9 3 3 4 _
SEND    < -      - >    EXIT
```

Figure 21 - Standard Entry Screen, Menu Reference 6

First you will have to move the cursor to the left until it is under the right-most 8 characters and then reenter the rest of the number. At the end, you would have to enter the D key from the keypad for DELETE and delete the 4 at the end of the string.

Before deleting the 4, the screen will look like the Figure 22 below.

```
9 0 3 5 8 6 9 3 3 4 4
SEND    < -      - >    EXIT
```

Figure 22 - Standard Entry Screen, Menu Reference 6

Now, pressing the D key on the keypad will give the desired result 9035689334

NOTE: There is no function for inserting a character in the DIGITAL CELLCAST menu system.
 If you enter a Character from the keypad while the cursor is under an existing Character, the new Character will replace the existing Character.

If the entire number is correct, the system is ready to dial the number stream. Press the SEND button and the process will begin.

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5.6 MANUAL (MAN) DIALING

If you press MAN for either CELL or POTS, the menus shown in Figure 23 will appear.

Enter Number Here

```
 _                              H A N G

ENTER  #          V U              U P
```

Figure 23 – Manual Dialing Screen, Menu Reference 9

There are only two actions that can be taken at this point, either start entering a number or exit. The "VU" button will be active but you will not want to press it until the dialing is complete and the call has connected. Once a call is connected, press the VU button and you will see the LCD screen shown below (Figure 24). NOTE: If you select the VU button before the call is connected or before you finish entering the number, you will have to "HANG-UP" and select MAN once again and reenter the number. REMEMBER: There is no EDIT function here as you are dialing "Live" with an active dial tone – just like a standard telephone call.

EXIT can be used at any time to move back to the SELECT MODE menu of Figure 13.

5.7   CONNECTING

After dialing the number and connecting in any mode, CELLULLAR, POTS, MEM or MAN, the unit will attempt the call. In the MEM Mode, when you push SEND from Menu Reference 6, you will see the VU Screen below in Figure 24. If you are Manually dialing, you have to push the button associated with VU - See Menu Reference 9. The VU indications, along with the VU Meter Scale that is printed above the LCD screen, will be useful in setting or changing the audio levels of the broadcast. As levels are adjusted or as input values change, there will be a change in the screen bar, left or right.

Figure 24 - VU Meter Screen, Menu Reference 10

A.   VU Scale
B.   Moving VU Bar reference
C.   Menu option for ending the call
D.   Hang-up Function button

The option for the menu buttons is number 4, HANG UP. Pressing this button will disconnect the call and return the LCD screen to Figure 13, the basic MODE SELECTION screen.

5.8   RECEIVING A PHONE CALL

The DIGITAL CELLCAST is setup to AUTO ANSWER. This feature will work for either CELL or POTS. There is no menu option or controls to setup for the AUTO ANSWER. The DIGITAL CELLCAST will answer a call and automatically connect after 3 rings. Because the default setting for the unit is CELL, if you are expecting a call on a POTS line, the system must be set up in POTS MEM mode. (See previous section on mode selection.)

If your studio is calling you at the remote site, all you have to do to after the AUTO ANSWER is complete is to start talking after the auto answer. The system will display the VU screen after connection.

The DIGITAL CELLCAST has 20 memory locations for storing frequently used phone numbers.   If numbers are stored in the memory, they can be used immediately after startup. The SPEED DIAL function is active only at Menu References 2, 3, 4 and 5. It is important to remember that the system is set up to default to CELLULAR, therefore, if you speed dial from Menu Reference 2, 3, or 4 - you will speed dial in CELL MODE. To speed dial in POTS mode, you have to select POTS MEM mode from the Select Mode Screen (see Menu reference 4) – this will change to Menu Reference 5, the ENTER/EDIT Select Screen, and you can enter your speed dial numbers there.

To speed dial at these locations, input the number of the speed dial location (same as memory location) from 01 - 20 and then the letter A on the keypad.

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NOTE: For numbers 1 to 9, it is necessary to put a "0" in front of the number. Example, for location #
8, dial 08 and then the letter A on the keypad.

Dial   08A

5.9   MEMORY AND EDITING NUMBERS

The 20 memory locations can contain up to 39 characters. The numbers are entered just like the MEM
Mode method of entering a number as illustrated in an earlier section. A comma will be interpreted by
the phone system as a "pause" and may be used when an access number or credit card number is part
of the dialing stream. See the example of a long dialing stream.

An example of the first Menu display that you will see when you move to the MEMORY EDIT screen –
Menu reference 7 - is shown below.
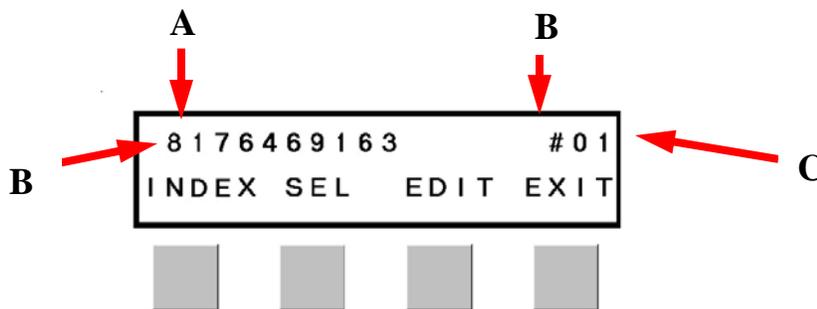
Figure 25 – Memory Index Screen, Menu Reference 7

Several things should be pointed about editing numbers.

B.   Only 14 numbers or commas can be displayed at a time. They will start at the 2nd   position
        from the left and go 14 spaces to the right.
C.   The first and 15th positions of the LCD screen may contain left or right overflow arrows ($<$ $>$).
        When present, they indicate that there are more than 14 characters in this   memory location.
        When in the edit mode, you can see all of the number using the   scrolling function arrow
        keys.
D.   The memory positions (#01 to #20) are shown in the upper right hand corner of the LCD
        screen.
E.   If the position is empty, (as shown below in Figure 26), the word EMPTY will appear.

The Buttons have the following functions:

1.   INDEX – this will move through the memory stack, showing all 20 memory positions, starting
        at position 1 and go to 10 and the start over again at 1.
2.   SEL – SELECT Selecting this option will result in the start of a Cell or POTS connection using the
        number that was currently displayed in the menu position.
3.   EDIT – Press this button when you want to change the contents of the memory location
        displayed. You can add, edit, or delete a number from the menu displayed after pressin
        button 3.
4.   EXIT - This will move back to menu reference 5. (See Figure 14)

5.9.1   EMPTY MEMORY LOCATION

```
EMPTY              #08
INDEX SEL   EDIT EXIT
```

Figure 26 – Memory Index Screen, Menu Reference 7

5.9.2   INDEX

This is the INDEX screen showing memory position number 8 is empty. To enter a number here, select edit and the following screen will be displayed.

```
EMPTY              #08
SAVE   <-      ->  EXIT
```

Figure 27 - Memory Edit Screen, Menu Reference 8

If any number is entered, it will replace the "EMPTY" with that number. The $<$ and $>$ keys can be used to edit the digits as previously described in the MEM Dialing section (Page 14). Remember, if the EXIT is pressed before SAVE, then the memory position will remain empty – no changes will be made to the memory location. Once the number is saved, press exit to continue. This will you back to the EDIT menu and the number you entered will be stored.

5.10 SEL – FOR SELECT

If you press the button under SEL, (for SELECT), the number in the memory location that is currently displayed will be dialed and the when the connection is made, the VU meter will appear (see Figure 24 above).

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5.11 EDIT

If you select EDIT on one of the memory positions, a screen similar to the one below will appear. (Note: it could have a number in it already and you will be able to edit that number) This is an empty location.

Figure 28 – Memory Edit Screen, Menu Reference 8

This should look familiar, as it is the same procedure for editing with one exception. Instead of SEND for button 1, the option has changed to SAVE. Button 1 will save any changes that are made to the memory location shown in the upper right hand corner of the screen. After saving the number, the display will not change, so if you are finished, the EXIT button will take you back to the previous menu screen shown in Figure 25. You can always use the EXIT to get out of this menu even if you have not used the save function.

5.12 EXIT

Any call that is terminated will take you back to the SELECT MODE menu (see Figure 13).

5.13 DISCONNECTING (HANG-UP) CELLCAST

There are two menus that have a "HANG-UP" option. These are shown in Figures 23 and 24 (See Menu references 9 and 10 in the flow chart). When HANG-UP is selected, the call in progress is terminated and you will be taken back to the MODE Screen. Notice that there is no "EXIT" from the MODE screen. If you need to get to the Programming Screen, Menu Reference 11, you will have to turn the unit off and then back on, then go to the PROGRAMMING SCREEN from the SETUP screen. The Programming screen can only be reached from the Setup Menu.

See the appendix section for your type of Cellphone for operation of the SETUP functions.

5.14 TURNING OFF CELLCAST

When you are through using the DIGITAL CELLCAST, terminate any call in progress and simply turn off the power switch in the rear of the unit. It is always advisable to have both parties of a connection disconnect prior to powering off the DIGITAL CELLCAST.

NOTE: Turning off your DIGITAL CELLCAST during an edit of a stored memory location will result in the loss of your editing work.

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6 DIGITAL CELLCAST ACTIVATION AND SET-UP

> **WARNING: SOME OF THE PROCEEDURES THAT ARE DESCRIBED IN THE FOLLOWING SECTION SHOULD NOT BE DONE UNLESS YOU ARE TOLD TO DO SO BY MARTI TECHNICAL SERVICE OR YOUR CELLULAR PROVIDER.**
>
> **READ AND BECOME FAMILIAR WITH THE INFORMATION AND PRIOR TO CONTACTING YOUR CELLULAR PROVIDER.**
>
> **MAKE SURE THAT YOU ARE USING THE CORRECT INSTRUCTIONS BASED ON THE TYPE OF PHONE THAT YOU ARE USING.**

Locate the appropriate instructions for your specific type of phone.   Note that activation of a GSM Digital Cellcast is very different from activating a CDMA Digital Cellcast. The next section will describe the activation process for a GSM Digital Cellcast.   If you have a CDMA Digital Cellcast skip to section 8.

7 GSM Digital Cellcast Activation

Use the following instructions to activate and program your new GSM DIGITAL CELLCAST. It is not necessary to take the unit into your cellular company service center. Here are the steps to take and the information needed.

Call or visit the desired provider. Establish a new account, or transfer service from one of your existing cellphones. Make sure that your provider supports the type of Digital Cellcast you plan to use. Your provider will issue a SIM Card that will be installed in your DIGITAL CELLCAST. If you are transferring an account, you should be able to just swap the SIM from your existing phone to the DIGITAL CELLCAST.

Inform your provider that you will be using an existing phone and tell them what type of phone you have. You will find the information for your specific type of phone listed in the front of the manual.

Generally, your GSM phone should be quite easy to set up, as all of the information needed should be included in the SIM card. If programming is needed, first do the programming, then, when the account is active, the provider will interrogate your system and confirm the type of phone that is installed.

7.1 SIM CARD INSTALLATION and SETUP

How to install the Mini-SIM Card.

The GSM module within the DIGITAL CELLCAST requires a Subscriber Identifier Module (SIM) for normal operation. The service provider supplies a SIM card, which carries the account information needed to operate the system. The mini-SIM compartment is located on the bottom of the DIGITAL CELLCAST unit near the front.

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Remove these screws to gain access to the SIM Module compartment.

Fold Down Leg.
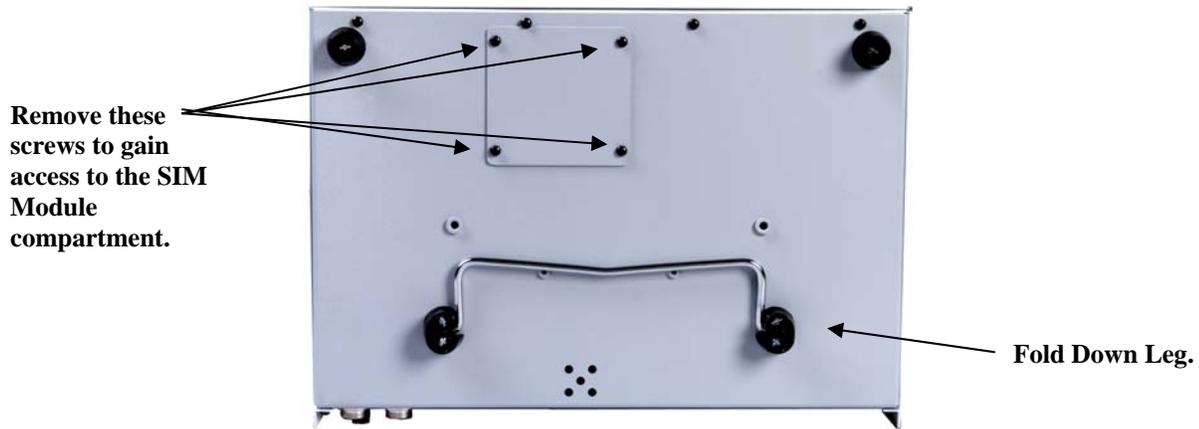
Figure 29 - SIM Compartment

If your mini-SIM card is already installed, skip to the SIM PIN programming section. If you don't have a mini-SIM card, contact your network service provider.

7.2 Access to the SIM Card

1.   Remove all power from the unit.

2.   Unscrew the 4 screws of the SIM compartment door. There is an additional panel underneath the first one that must also be removed. Once this second panel is removed you will have access to the SIM card compartment. (See figure 29 above)

3.   Slide the SIMLOCK down. (See Figure below)

4.   Raise the SIMLOCK up to receive the SIM Card.

5.   Line up the mini-SIM card with the arrows on the SIM compartment.

6.   Gently insert the mini-SIM card in the Slot. See Figure 30 below.

7.   Close the SIM LOCK and gently push it up to lock it in place. The SIMLOCK should close fairly easily, so do not force it. Recheck the alignment if you are having difficulty.

8.   Close both compartment door(s) replace the screws

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| 1)Typical SIM Card. This is the side that must face the PCB when you insert it in the Digital Cellcast. | 2) Line up the SIM Card as shown. | 3) SIM Card installation complete with the SIMLOCK closed. |
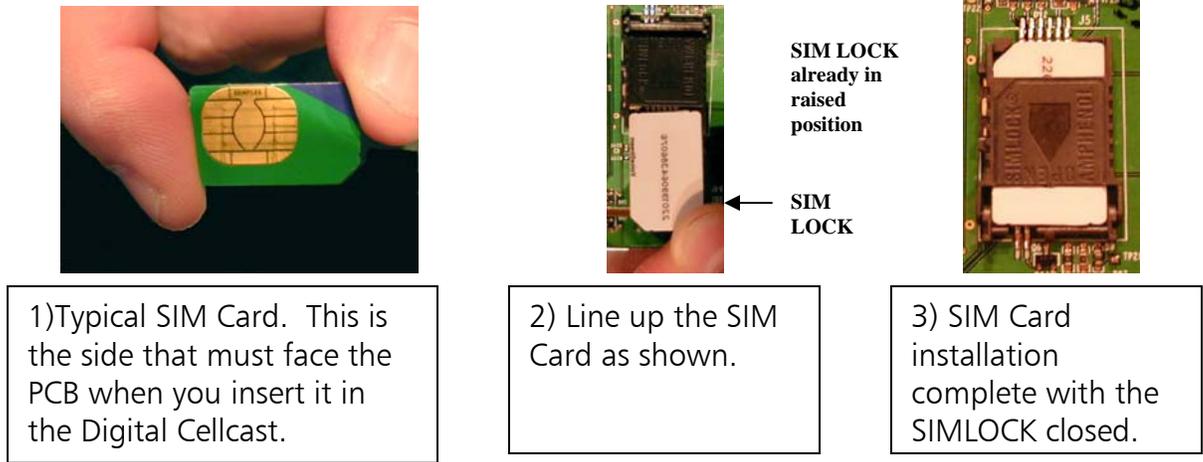
Figure 30 - SIM Card Installation

7.3 Preparing the Digital Cellcast

Before you are able to program your DIGITAL CELLCAST you need to do the following steps.

1.   Attach the antenna. (Always attach the antenna before using your DIGITAL CELLCAST or you can damage the unit – it is a good habit to always attach the antenna so if you switch from landline to cellular, the unit is ready.)

2.   Attach the power cables. If you are using battery power, make sure the battery is fully charged.

3.   Attach a headset or speaker and microphone to the line out so you will be able to monitor the system.

4.   Turn the unit on. See Figure 5 for the location of the power switch. After the unit powers up and the Version Number screen has been displayed. Check the three Operation/Fault indicators. (See Figure 5.) All three lights should be steady green. If they are not, check the troubleshooting section of the manual for a solution before proceeding.

5.   If all of the lights are steady green, you are ready to program the system. (It is not necessary to have a good Cellular connection to program, but you will need one before the provider can activate the phone)

After the initial startup and version number screen (see Figure 10) you will see the following screen.

```
SET     PHONE     SYSTEM
AUDIO  SET-UP   SET-UP
```

Figure 31 – Start Up Screen, Menu Reference 2

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To enter SET-UP, push button number 4. You should hear a dial tone (either a steady dial tone or a beeping no-service tone) and the following menu will appear.

Figure 32 – Programming Screen, Menu Reference 11

From this menu, there are three choices.

1.   Enter a programming code using the DIGITAL CELLCAST keypad
2.   Press the EXIT button and return to the previous menu, Figure 32.

NOTE: This screen offers no editing capability so a mistake cannot be corrected. If you make a mistake, push EXIT. This will take you back to the menu show in Figure 35. Then reenter the set-up screen and start over. Clear the screen. (THIS DOES NOT ERASE ERRORS, IF YOU MAKE AN ERROR, YOU WILL HAVE TO EXIT AND SELECT SETUP AGAIN)

The next step is to enter the system password. This is standard and cannot be changed.

7.4 ENTERING THE PASSWORD

ENTER: # * 0 * 1 2 3 4 5 6 7 8 #

The dial tone will change to a different steady "Programming" tone and the bottom LED indicator on the DIGITAL CELLCAST will blink alternately RED and GREEN to indicate that you're in programming mode. Once the password has been entered correctly, a timer of two minutes starts and additional programming must start within that two-minute period. If no command is entered in this two-minute period, the system will revert back to normal operation.

7.5 SIM PROGRAMMING

The mini-SIM may require entry of a Personal Identification Number (PIN). The PIN is a four- to eight-digit number provided with the SIM card. If the service provider has set the SIM to require a PIN entry, the DIGITAL CELLCAST will request the PIN each time it is powered ON or the SIM is removed or replaced. The PIN can be stored within the DIGITAL CELLCAST for automatic entry when required. To use the automatic PIN entry feature, the PIN must be correctly programmed and automatic PIN entry must be enabled.

IF PIN entry is requested while automatic PIN entry is disabled, the DIGITAL CELLCAST emits a SIM Inactive tone. The SIM PIN can be manually entered at that time by dialing the PIN and pressing #. If entry is successful, the SIM Inactive tone will be replaced by service dial tone.

IMPORTANT!

Automatic PIN entry must be disabled before the SIM is changed (including initial entry) so that the PIN for the new SIM card can be entered correctly before the GSM module requests the PIN.

7.6 HOW TO ENABLE/DISABLE THE AUTOMATIC PIN ENTRY FEATURE

ENTER:
| # * 6 5 * <auto PIN> * <PIN> # |

- To disable automatic PIN entry, set the "auto PIN" value to 0
- To enable automatic PIN entry, set the "auto PIN" value to 1

You must enter either 0 or 1, otherwise, the DIGITAL CELLCAST will not update or store this value and the existing stored parameter will remain. The factory default value is 0 (disabled). The factory default PIN setting within the DIGITAL CELLCAST's non-volatile memory is "1234".
Correct entry will be confirmed by the return of the programming tone, which signifies that the unit is ready to accept the next entry. Incorrect entry will result in a short, 3 tone sequence of rising frequencies, followed by the return of the programming tone, which again signifies that the unit is ready to accept the corrected entry.

Hang up the system. (Push EXIT)

Example: To enable automatic PIN entry for PIN "1234"

ENTER:
| # * 6 5 * 1 * 1 2 3 4 # |

IMPORTANT: You must enter the PIN correctly. After three attempts to load an incorrect PIN, the SIM will be blocked and the SIM card will have to be unblocked. If you do not have the unblocking key, the SIM will have to be returned to the service provider for reactivation. See How to Unblock a SIM PIN to unblock a SIM card.

How to Change a PIN Value Entered by the Automatic PIN entry Feature

REMINDER: Automatic PIN entry must be disabled before and while the automatic PIN entry value is changed – until programming of the new pin and Auto PIN entry is completed.

ENTER THE PASSWORD (IF YOU ARE NOT IN PROGRAM MODE ALREADY):

ENTER:
| # * 0 * 1 2 3 4 5 6 7 8 # |

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The dial tone will cease upon entry of the first digit. If you enter the access code correctly, the dial tone should change to a different, steady Programming tone and the bottom LED indicator on the front of the DIGITAL CELLCAST (see Figure no. 2 and also Table 6 to blink alternately RED and GREEN to indicate that you're in the programming mode.

CHANGE THE PIN VALUE

ENTER: | # * 6 4 * <old PIN> * <new PIN> <new PIN> # |

The service provider will supply the new SIM PIN. IF the SIM card is changed, the PIN must be preprogrammed using the above command with the correct new PIN for the new SIM.

NOTE: The factory default PIN setting within the DIGITAL CELLCAST's non-volatile memory is "1234"

Correct entry will be confirmed by the return of the programming tone, which signifies that the unit is ready to accept the next entry. Incorrect entry will result in a short, 3 tone sequence of rising frequencies, followed by the return of the programming tone, which again signifies that the unit is ready to accept the corrected entry.

Hang up the DIGITAL CELLCAST. (Push EXIT)

EXAMPLE: To set up a new SIM with PIN "5678",

ENTER: | # * 6 4 * 1 2 3 4 * 5 6 7 8 * 5 6 7 8 # |

NOTE: This procedure will not change the PIN encoded on the SIM. It will only change the PIN stored in the DIGITAL CELLCAST for automatic entry of the PIN when requested by the GSM module.
If the SIM card in use has SIM PIN Entry enabled, it is strongly recommended that AUTOMATIC PIN ENTRY be selected.

7.7 HOW TO SET A NEW PIN IN THE SIM

REMINDER: Automatic PIN entry must be disabled – before and while the SIM PIN is changed – until programming of the new PIN and Auto PIN Entry (See previous section) is completed.

Enter the Set-Up screen as you did for enabling the PIN. (See Figure 11)

ENTER: | # * 64 * <old PIN > * <new PIN> * <New PIN> # |

NOTE: You must know the old PIN to change it and the new PIN must be 4 to 8 digits (0-9) in length.

Incorrect entry of the old PIN will be indicated by a short, three-tone sequence of rising frequencies. Hang up the telephone handset and start over at step 1 with the correct old PIN.

Incorrect length (less than 4 or more than 8 digits) of the new PIN or not entering the same value in both new PIN entries will result in silence. Hang up the DIGITAL CELLCAST and start over at step one above.

Correct entry will be confirmed by a short beep. Hang up the unit. (Push EXIT)

For Example: To set up a new SIM with PIN "5678" where the old PIN is "1234",

ENTER:

$$* * 0 4 * 1 2 3 4 * 5 6 7 8 * 5 6 7 8 \#$$

NOTE: in the case of PIN2 substitute the following STEP.

ENTER:

$$* * 0 4 2 * 1 2 3 4 * 5 6 7 8 * 5 6 7 8 \#$$

Note: You must know the old PIN2 to change it and the new PIN2 must be 4 to 8 digits (0-9) in length.

NOTE: This procedure will change the PIN encoded on the SIM. It will not change the PIN stored in the DIGITAL CELLCAST for automatic entry when requested by the GSM module. (See previous section for instructions on how to enter the auto-entry PIN Value).

7.8 HOW TO UNBLOCK a SIM PIN

Use the following key sequence to unblock a SIM card:

ENTER: * * 0 5 * <PIN unblocking key> * <new PIN> * <new PIN>*

ENTER: * * 0 5 2 * <PIN2 unblocking key> * <new PIN2> * <new PIN2>*

NOTE: This procedure will change the PIN encoded on the SIM. It will not change the PIN stored in the DIGITAL CELLCAST for automatic entry of the PIN when requested by the GSM module. (See previous section for instructions on how to enter the auto-entry PIN value).

7.9 GSM MULTIPLE SYSTEM ACTIVATION

If you desire to use your DIGITAL CELLCAST with more than one cellular provider, you can. You should be able to easily change the SIM from the different provider and turn the unit back on. Keep in mind that there are 2 different frequency ranges for GSM. Make sure that your 2nd provider is compatible.

8 CDMA Digital Cellcast Activation

Use the following instructions to activate and program your new CDMA DIGITAL CELLCAST. It is not necessary to take the unit into your cellular company service center. Here are the steps to take and the information needed.

Call or visit the desired provider. Establish a new account, or transfer service from one of your existing cellphones. Make sure that your provider supports the type of Digital Cellcast you plan to use. Your provider will provide you with the necessary information to activate your DIGITAL CELLCAST.

Generally, your CDMA phone should be quite easy to set up. If you provided information to Marti Electronics at the time of order your Digitial Cellcast may already be activated. If activation is needed just follow the following steps.

Note that there are some slight variations between CDMA carriers.   These differences are noted in the following steps.

8.1 Activating your account

Make note of the ESN number that is printed on a label attached to your Digital Cellcast. Contact your wireless Representative and provide them with the ESN.   You will be required to select a monthly service plan, and then they will activate the phone.   When the unit is activated ask them for the following information:

MDN (10 Digit Phone Number)
MIN (10 Digit Number- may be the same as the MDN, sometimes called a MSID)
SID (5 Digit code)
LOCK CODE (6 Digit code, not all suppliers use a lock code)

Once you have been provided this information you are ready to program your Digital Cellcast.

8.2 Programming your Digital Cellcast

Attach the antenna. (Always attach the antenna before using your DIGITAL CELLCAST or you can damage the unit – it is a good habit to always attach the antenna so if you switch from landline to cellular, the unit is ready.)

Attach the power cables. If you are using battery power, make sure the battery is fully charged.

Attach a headset or speaker and microphone to the line out so you will be able to monitor the system.

Turn the unit on. See Figure 5 for the location of the power switch. After the unit powers up and the Version Number screen has been displayed. Check the three Operation/Fault indicators. (See Figure 5.) All three lights should be steady green. If they are not, check the troubleshooting section of the manual for a solution before proceeding.

If all of the lights are steady green, you are ready to program the system.

Place your Digital Cellcast in an area that will allow connection to your wireless provider.

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After initial startup and version number screen you will see the following screen.

```
SET      PHONE     SYSTEM
AUDIO  SET-UP    SET-UP
```

Figure 31 – Start Up Screen, Menu Reference 2

To enter setup, push button number 4. You should hear a beeping no-service tone and the following menu will appear.

```
_
CLEAR                    EXIT
```
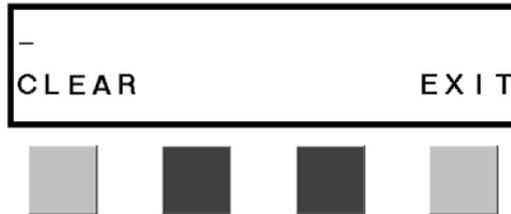
Figure 32 – Programming Screen, Menu Reference 11

Note: If you have not been provided a 6 digit lock code by your provider enter 6 zeros, IE: 000000

If you make a keystroke mistake there is no backing up!   Disconnect the call, reset the power on the Digital Cellcast and try again.   It is sometime helpful to right our all of the keystokes and wireless provider codes on a sheet of paper to assist with this process.

Enter Service mode by dialing on the keypad: #*0*(6-digit lock code)# - You should now hear a continuous high-pitched tone.

Press CLEAR on the setup screen (button number 1).

Enter MIN (or MSID) code by dialing on the keypad: #*34*(10-digit MIN or MSID code)# - You should now hear a continuous high-pitched tone.

Press CLEAR on the setup screen (button number 1).

Enter MDN code by dialing on the keypad: #*36*(10-digit MDN code)# - You should now hear a continuous high-pitched tone.

Press CLEAR on the setup screen (button number 1).

Enter SID code by dialing on the keypad: #*40*(5-digit SID code)# - You should now hear a continuous high-pitched tone.

Hang up the phone and reset the power on the Digital Cellcast. Make a test call.

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8.3   Setting Vocoder Sensitivity for DTMF tones- CDMA Only.

Your CDMA Digital Cellcast incorporates the addition of a new POT's command that can control the maximum relative speech energy that may be detected, and still receive DTMF signals. This POT's command will control the vocoder sensitivity and in-turn prevents false DTMF detection during speech mode.   To change this configuration please do the following:

Enter setup mode on the Digital Cellcast and dial #*0*000000# and listen for a high- pitched continuous tone.

Dial #*161*(value)# and listen for a high pitched continuous tome.

Hang up the phone and make a test call.

Valid numbers for (Value) range noted above is between 0-32767 and the default value is 1305. Entering a lower value such as 500 or 1000 will make the vocoder less sensitive and less likely to false DTMF tones.

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9 SPECIFICATIONS:

TABLE 1. DIGITAL CELLCAST SPECIFICATIONS

| PARAMETER	SPECIFICATION
ELECTRICAL/FUNCTIONAL	
MICROPHONE SYSTEM	
Mixing Channels	4 Channels, Monophonic, Rotary Controls.
Inputs	4 Inputs, Active Balanced, -50 dBu to -65 dBu Input Level.
Connectors	XLR - Female.
HEADPHONE SYSTEM	
Outputs	4 Outputs. Monophonic. Requires a 20-Ohm Minimum Headphone Impedance.
Connectors	1/4-Inch Phone Jack.
LINE INPUT/OUTPUT SYSTEM	
Line Input	Monophonic, Active Balanced, -30 dBu to +10 dBu. -24 dBu Input Required For Nominal Output Level.
Line Input Connector	XLR - Female.
Line Output	Monophonic, Unbalanced, -10 dBu Output With A Nominal Microphone Input Level.
Line Output Connector	1/4-Inch Phono Jack.
PROGRAM AUDIO	Note these specifications are for the Digital Cellcast audio mixer. Cellular Carrier networks typically limit the upper end audio to 3500 Hz.
Signal-To-Noise Ratio	
*AGC Disabled	-70 dB, 50 Hz to 10 kHz, -35 dBu Input Level. Measured at Input of Telephone Speech Network.
*AGC Enabled	-63 dB, 20 Hz to 10 kHz, -35 dBu Input Level. Measured at Input of Telephone Speech Network.
Frequency Response	
*AGC Disabled	+-0.75 dB, 100 Hz to 10 kHz, -35 dBu Input Level. Measured at Input of Telephone Speech Network.
*AGC Enabled	+-0.5 dB, 100 Hz to 10 kHz, -35 dBu Input Level. Measured at Input of Telephone Speech Network.
Distortion	
*AGC Disabled	0.05% or Less, 100 Hz to 10 kHz, -35 dBu Input Level. Measured at Input of Telephone Speech Network.
*AGC Enabled	+-0.3% or Less, 100 Hz to 10 kHz, -35 dBu Input Level. Measured at Input of Telephone Speech Network.
TELEPHONE/CELLULAR SYSTEM	
POTS Line	Electronic Hybrid Powered By Telephone Line.
Cellular System	OEM Cellular Telephone. CDMA, GSM Formats.
Dialing Pad	12 Standard Keys, 4 Remote Control Keys, DTMF Burst.
POTS Line Connector	RJ11 Jack.
Cellular Antenna Connector	Male TNC.
Cellular Antenna	External, Magnetic Mount With 12 Feet Of Cable.
AUTOMATIC GAIN CONTROL	Enabled/Disabled By An Internal Jumper. (Unit ships with AGC enabled)
POWER SUPPLY SYSTEM	
Power Supply	External. AC Input - 100 to 240V ac 50/60 Hz. DC Output - 15 Volts @ 2.7 A. Unit Requires 15 Volts dc @ 1 A Nominal. 1.5A Peak.
Fuse	Two Internal Fuses, Auto resetting.
Connector	Two 2-Pin DIN-Type Connectors.
BATTERY SYSTEM	
Battery	1 Sealed Gel Battery, 12V 7AH, External. Connects To The Unit Using One Of The Power Supply System Connectors.
Battery Usage	Up To 4 Hours Of Operation With an 8-hour charge.
Battery Charging Time	Approximately 8 Hrs.
VU METER SYSTEM	16 Segment LED Bargraph, 0 VU = -60 dBu Input. Range -80 dBu to -57 dBu.

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TABLE 1. DIGITAL CELLCAST SPECIFICATIONS

PARAMETER	*SPECIFICATION*		
PGM/CUE AUDIO CONTROL	Controlled At Each Mixing Channel By Illuminated Front-Panel Switches.		
USER INTERFACE	2-Line 20 Segment LCD Display. Control Provided By 4 Illuminated Front-Panel Switches.		

PHYSICAL
       Dimensions
       Width
       Depth
       Height
       Weight
	
	13.3 inches (33.8 cm).
	10.5 inches (26.7 cm).
	4.6 inches (11.7 cm).
	Approximate 6 Lbs (2.7 kgs).		

ENVIRONMENTAL
       Operating temperature
 	
       Regulatory
	
	+32°F to +110°F (0°C to +43°C).
	FCC Part 68
	FCC Part 15
	DOC		

Service Type	Transmit Freq (MHz)	Receive Freq (MHz)	Max output power
GSM 850	824-849 MHz	869-894 MHz	33 dBm (2 watt)
GSM 900	890-915 MHz	935-960 MHz	33 dBm (2 watt)
GSM 1800	1710-1785 MHz	1805-1880 MHz	30 dBm (1 watt)
GSM 1900	1850-1910 MHz	1930-1990 MHz	30 dBm (1 watt)
CDMA 800	824-849 MHz	869-894 MHz	23 dBm
CDMA 1900	1850-1910 MHz	1930-1990 MHz	23 dBm

*AGC Enabled - Typically used for remote telephone broadcast applications. AGC Disabled - Typically used for mixer applications.

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Software Version Screen

Menu Reference Numbers → 1

```
CELLCAST    V.1.0
   STATUS OK
```

3 — Set Audio Screen

```
▓▓▓▓▓▓▓
SET PROG AUDIO  EXIT
```

2 — Startup Screen

```
SET   PHONE   SYSTEM
AUDIO  MODE   SET-UP
```

11 — Programming Screen

```
_
CLEAR DUAL      EXIT
```

4 — Select Mode Screen

```
   CELL        POTS
MEM   MAN   MEM   MAN
```

12 — Dual Mode Screen

```
8176469163      #01
INDEX SEL   EDIT EXIT
```

No Action on edit, just return to screen

5 — Enter/Edit Select Screen

```
ENTER|EDIT
NUM  INUM       EXIT
```

9 — Manual Dialing Screen

```
_               HANG
ENTER #   VU      UP
```

6 — Standard Entry Screen

```
_
SEND  <-    ->  EXIT
```

LEFT/RIGHT EDIT KEYS

10 — VU Meter Screen

```
▓▓▓▓▓▓▓▓         HANG
PROG AUDIO         UP
```

7 — Memory Index Screen

```
8176469163      #01
INDEX SEL   EDIT EXIT
```

8 — Memory Edit Screen

```
EMPTY           #08
SAVE  <-    ->  EXIT
```

LEFT/RIGHT EDIT KEYS

Menu Flow Chart

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10 Parts list

Digital Cellcast

Part number	Carrier	Service type
903-2111-001	Cingular, ATT, TMobile	GSM 850/1900
903-2111-002	Euro	GSM 900/1800
903-2111-003	Verizon	CDMA 800/1900
903-2111-004	Alltel	CDMA 800/1900
903-2111-005	US Cellular	CDMA 800/1900
903-2111-006	Specify Regional Carrier	CDMA 800/1900
903-2111-007	Sprint	CDMA 800/1900

11   RF Customer Service Contact Information

RF Customer Service -

Telephone: (217) 224-9617
E-Mail: rfservice@bdcast.com
Fax: (217) 224-6258

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