



MODEL
DT-22X

SERVICE MANUAL

Cellular Portable Telephone

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1. SYSTEM CONFIGURATION

1.1 General

The handheld cellular personal telephone system DiamondTel DT-22X with the 3W-Booster is designed to operate as the class 1 station and the system without 3W-Booster is designed to operate as the class 3 station under the domestic public cellular radio telecommunications service in the U.S.A. governed by 47 CFR 22 Subpart K, and cellular telecommunications service in Canada specified by RSS-118 issued 2 May 1990. The phone also conforms to 47 CFR 2, 47 CFR 15, OST bulletin No. 53 issued in July 1983 and EIA/TIA Standard Mobile - Land Station Compatibility Specification EIA/TIA-553 September 1989.

The DiamondTel DT-22X operates on 400 mAh or 950 mAh Ni-Cd battery packs and external power supply by using external interface connector. The phone consumes approximately 40 mA in standby mode (NO SVC indicator off) or 50 mA in search of a control channel (NO SVC indicator on), and the power drain at its maximum output transmission mode is 450 mA, however, if the receiving signal becomes more than -90 dBm in battery save mode the power drain reduces to 400 mA.

The DiamondTel DT-22X has the retractable whip type antenna. This antenna has 0 dB gain relative to the half wave dipole antenna at its peak lobe. This antenna operates even if it is retracted, though the antenna efficiency drops by several dB compared with pull-up state.

The DiamondTel DT-22X has a multi-purpose external connector which has terminals of power supply, audio signal, RF terminal and etc. The phone is connected to CLA-1 (CLA-22), CLA-2 (CLK-A22) and Hand-free adaptor (HFA-22X) through this connector without removing the battery pack.

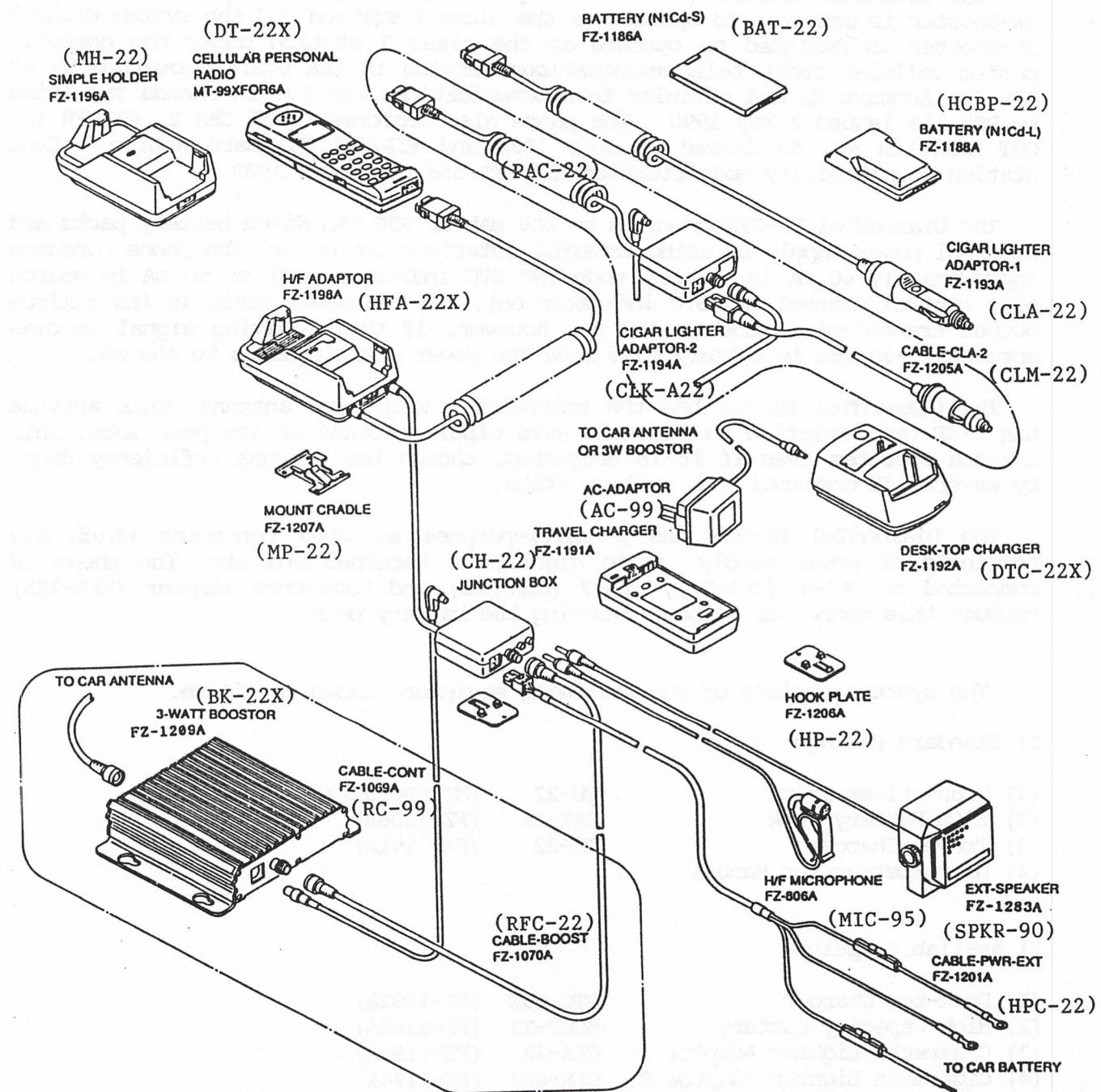
The system consists of the following equipment shown in Figure.

1) Standard Package

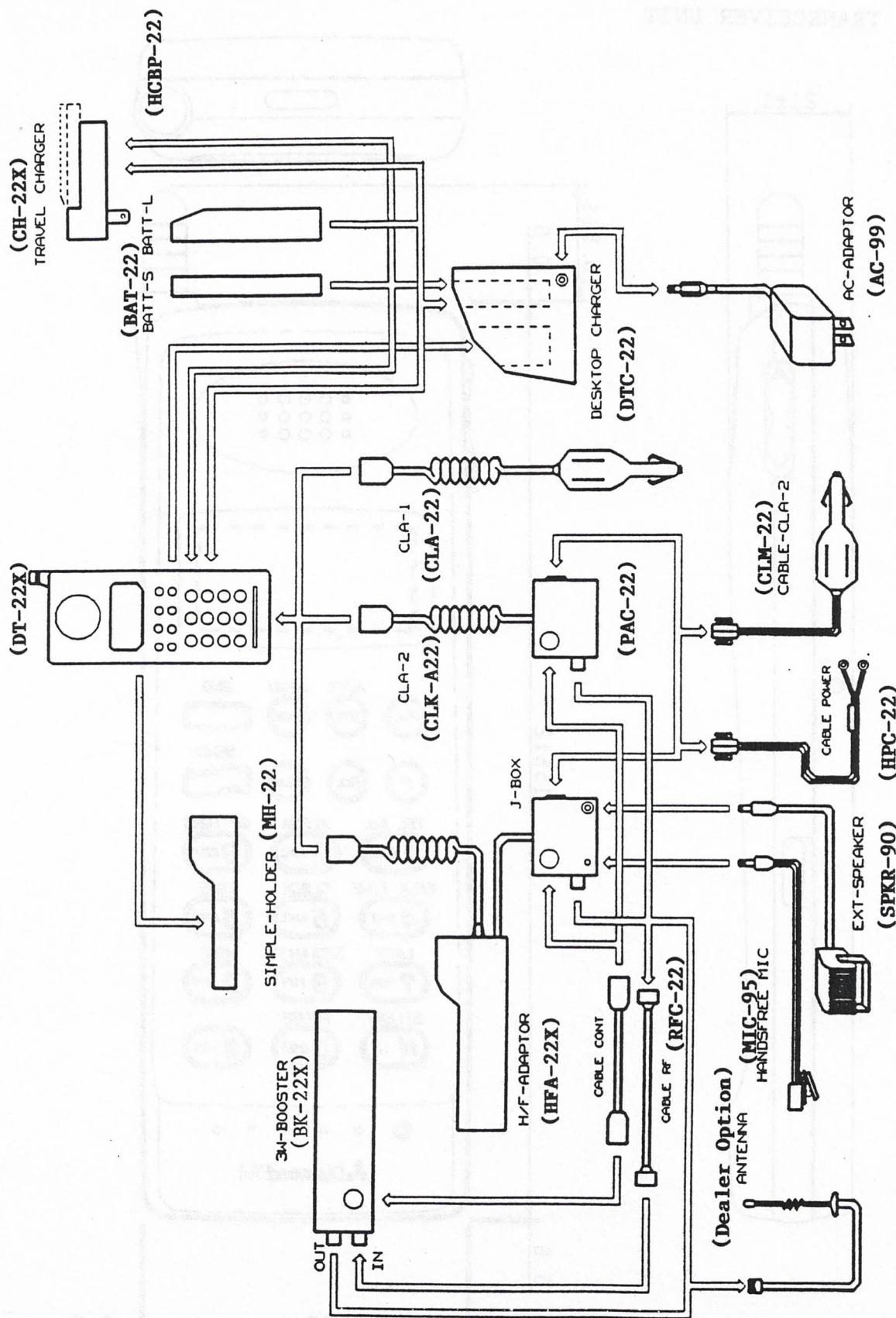
(1) Transceiver unit	TU-22	(MT-996F0R6A)
(2) Slim Battery Pack	BAT-22	(FZ-1186A)
(3) Travel Charger	CH-22	(FZ-1191A)
(4) User Instruction Manual		

2) Available Options

(1) Desk-top Charger	DTC-99X	(FZ-1192A)
(2) High Capacity Battery	HCBP-22	(FZ-1188A)
(3) Cigarette Lighter Adaptor 1	CLA-22	(FZ-1193A)
(4) Cigarette Lighter Adaptor 2	CLK-A22	(FZ-1194A)
(5) H/F Adaptor Kit	HFA-22X	(FZ-1198A)
(6) 3W Booster Kit	BK-22X	(FZ-1209A)
(7) Simple Holder	MH-22	(FZ-1196A)
(8) Carrying Case	LCC-22	

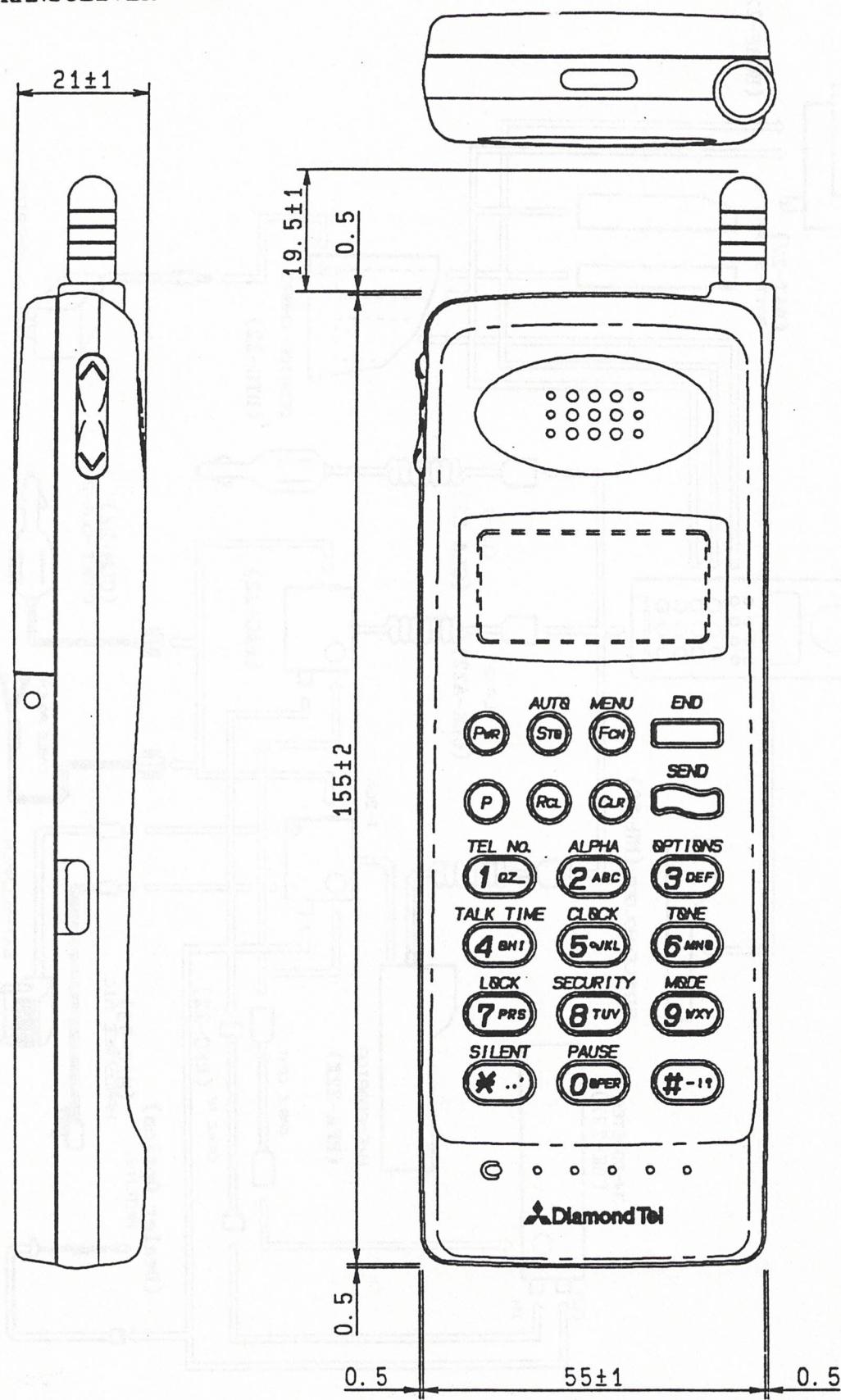


Handheld Cellular Personal Phone System



CONNECTIONS BETWEEN

TRANSCEIVER UNIT



Figure

Cellular Personal Phone

1.2 Vehicle Installation

There is no general rule which covers all vehicle installations. The phone should fit the particular vehicle and driver's taste. Much attention should be paid to the safety aspect of the installation. The phone is designed to give maximum freedom of installation.

The location of the antenna may be sensitive in some situations. Operational tests by originating and receiving calls after the installation is recommended. Though an antenna and RF cables are not supplied with the phone, a 3 dB gain antenna and 50 ohms RF coaxial double shielded cable are recommended for the phone. For the antenna, it is desirable to select a high location with a large ground plane. The roof top of vehicle is particularly good. The antenna may lose much of its gain and omni-directional characteristics if it is not mounted correctly. Much care is required in the installation of the antenna.

1.3 General Features

1) Frequency Channels	824.040 - 848.970 MHz (Transmitter) 869.040 - 893.970 MHz (Receiver)
2) Number of Channels	832
3) Channel Spacing	30 kHz
4) Power Supply	Ni-Cd battery 400 mAh E 6.3 V (STD Battery) Ni-Cd Battery 950 mAh E 6.3 V (EXD Battery) Nominal : 6.3 V Maximum : 6.9 V Minimum : 5.6 V
5) Standby Drain	"NO SVC" off Approx. 40 mA at 6.3 V "NO SVC" on Approx. 50 mA at 6.3 V
6) Transmit Mode Drain at Maximum Power	"Normal Mode" Approx. 450 mA at 6.3 V "Save Mode" Approx. 400 mA at 6.3 V
7) Dimensions	Height : 6 3/8" (156 mm) w/o antenna Width : 2 7/32" (56 mm) Depth : 11/16" (18 mm) Volume : 157 cc
8) Weight	Approx. 7.7 oz (230 grams)
9) Operating Temperature	-22 to +140°F (-30 to +60°C)

2. TRANSCEIVER SPECIFICATIONS

2.1 Transmitter

1) Power Output	Nominal -2 dBW ERP (.6W)
2) Power Control	6 levels, 4 dB apart (-2 to -22 dBW)
3) Frequency Stability	± 2.5 PPM
4) Maximum Frequency Deviation	± 12 KHz
5) RF Output Impedance	50 ohms unbalanced
6) Compressor Characteristics	2 : 1 Syllabic Compressor
7) Hum and Noise	Less than -32 dB
8) Audio Distortion	Less than 5 %
9) External Audio Input Impedance	100 K ohms
10) External Audio Standard Input Level	Compander ON : -26 dBV Compander OFF : -18 dBV

2.2 Receiver

1) Sensitivity	-116 dBm (12 dB SINAD)
2) The 1st IF	45 MHz (Upper Local)
3) The 2nd IF	455 kHz (Lower Local)
4) 2nd Local Oscillator Frequency Stability	1st. ; ± 2.5 ppm (fr+45 MHz) 2nd. ; ± 7.5 ppm (44.545 MHz)
5) RF Input Impedance	50 ohms Unbalanced
6) Expander Characteristics	1 : 2 Syllabic Expander
7) Signal to Noise Ratio	More than 40 dB
8) Audio Distortion	Less than 5 %
9) AM Suppression	Less than 5 %
10) External Audio Output Impedance	100 ohms
11) External Audio Standard Output Level	Expander ON : -21.0 dBV Expander OFF : -15.5 dBV

3. OPERATION

3.1 Operation Instruction

This operating instruction book describes the basic and extended features of the DiamondTel DT-22X handheld portable cellular telephone.

1) New Features

- * Multiple NAM(4).
- * Auto select NAM.
- * Call timer for each NAM.
- * Any key answer.
- * Talk time extender.
- * Resume function.
- * Clock function.
- * Date display.
- * Auto answer.
- * Escalating call alert.
- * Pager function (9 numbers).
- * Remote lock/turn off function.
- * Selectable battery refresher (desk top charger).

2) Easy Dialing Features

- * All functions listed above appropriate keys.
- * Repertory dialing for 99 phone numbers from memory.
- * One-touch dialing for two selected phone numbers.
- * Linked memory for simplified long distance calling.
- * Last number recall.
- * If system at capacity, will automatically re-attempt connection.
- * Programmable area code.
- * Credit card calling from memory.
- * Silent scratch pad enters into memory silently during conversation.
- * Last digit clear.
- * Separates multi-digit numbers with a pause to allow easier call placement.

3) LCD Readout Feature

- * 32 number/16 letter capacitor.
- * Display 30 alphanumeric character at a time.
- * Vertical adjustment positions for easy viewing.
- * Menu listing displays all 54 functions.
- * Automatically stores number in first available memory location.
- * Alphabetical memory scan.
- * Forward/reverse memory scan.
- * Displays user's phone number.
- * Message prompts to select auxiliary functions.
- * Volume display.
- * Signal level display.
- * Number scrolling to verify long number in memory.

3) Convenience Feature

- * Ten confidential memory locations for personal data.
- * 2 tier antenna system.
- * Call-in-absence indicator.
- * Audible status change.
- * Battery level indicator.
- * Status monitor.
- * Low battery alarm.
- * Voice muting.
- * Seven volume settings for ringing, key tones and conversational level.
- * Four selectable ring tones-short to continuous.
- * Standard and extended push button tone allows access to many service by phone answering machines, fax and portable PC etc.
- * Silent call alert.
- * Silent key tone.

4) Call Tracking Features

- * Call duration timer.
- * Cumulative call timer.
- * Call time beeper.
- * Resettable call timer.
- * 60/30 seconds programmable timer increments.

5) Safety/Security Features

- * Automatic lock with programmable unlock code.
- * 7 levels call restrictions.
- * 911 emergency override.
- * Optional hands-free car adaptor kit.
- * Illuminated key pad.

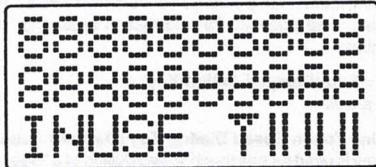
6) "Roaming" Aids for Travel between Cellular System.

- * ROAM system indicator.
- * System A/B select.
- * ROAM inhibit restricts unit for home system only.

OPERATING OVERVIEW

READING THE LIQUID CRYSTAL DISPLAY (LCD) - STATUS INDICATORS

The Display which the DT-22X uses is Liquid Crystal Display (LCD) and has the ability to show 3 lines of 10 digit characters in both alpha and numeric format. Each character is shown as a 5 x 7 dot matrix digit. Characters on the display are scrolled from right to left. Up to 32 digits can be entered, however, the first 12 digits will be scrolled off the display.



Except battery level indicator, the following information will be displayed on the bottom line of LCD from time to time as certain operations occur.

FCN

Indicates that the "FCN" key is pressed and the telephone is now ready to accept a digit (by pressing a Key on the DT-22X front panel) which selects the option to be performed.

ALPHA

Indicates that the keypad is being used for alphanumeric operations.

NO SVC

Indicates that DT-22X is out of the cellular service area.

INUSE

Displayed while call is in progress.

DISPLAY OPTIONS

If your DT-22X has been set up (by you or others) differently than the factory default settings you may see different information on the LCD.

- If your DT-22X is locked, your telephone number will not be displayed and "Locked" will show in the LCD (See FCN / 7,page 65).
- If "Personal Message" option was selected (during NAM programming), the selected "personal message" will be displayed instead of "-ON-".
- If the alarm function (FCN / 52) has been activated then "!" can be seen on the right side of the battery level indicator.

NOTE: If you wish to change the "personal message" you will have to visit your carrier, your dealer or whomever programmed your DT-22X. Reprogramming your "personal message" is not covered under the DiamondTel Limited Warranty. The party who changes your "personal message" may charge for this service, so please check in advance.

- If "Clock Display" is turned "ON", the time (current to what has been set) will be displayed.
- If "Automatic NAM selection" is turned "ON", "Auto. NAM" is briefly shown after turning on the DT-22X.

ROAM (1-4)

Will show when your DiamondTel DT-22X is in a system outside of your "home system" (A or B), and will blink when roaming in the alternate system (B or A). The number after "ROAM" indicates which NAM is being used (if you have multiple phone numbers) when outside your home system.

HOME (1-4)

HOME indicates that your DiamondTel DT-22X is in its system area and the number after "HOME" indicates which NAM is currently being used.

MUTE

Indicates that the DT-22X's microphone is turned off (during conversation) for privacy.

Y|||||

Indicates the received signal strength.

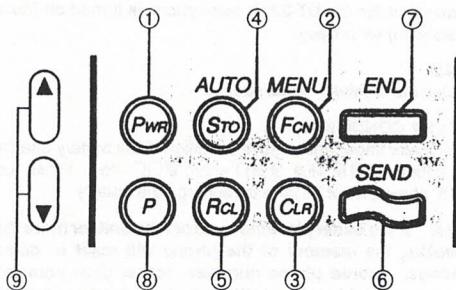
BATTERY CONDITION

This indicator shows the relative condition of the battery attached to the phone. **■■■** =full, **■■□** =half, **■□□** =low. When "Low BATT!!" shows, it will be time to recharge the battery.

Note: If the battery is removed from the unit for more than 2 weeks, the memory of the phone will reset to default settings. Stored phone numbers, (other than your telephone number) function settings and clock settings may be erased. Reprogramming of these features is not covered by DiamondTel's Limited Warranty. Dealers or service centers may charge for these services. Please check in advance of obtaining services.

CONTROL KEYS – WHAT DO THEY DO (KEYPAD FUNCTION)

The keypad is how you communicate with your cellular phone. The following descriptions are of the keys on the front of your DT-22X and their corresponding options. Some keys are quick action keys and some keys are delayed action keys. Quick action keys work immediately upon pressing. Delayed action keys are designed to prevent accidental operation and must be pressed for more than 1 second.



① PWR = Power (Delayed Action Key)

Turns your DiamondTel DT-22X on and off.

② FCN = Function

Various extended options can be engaged by entering specific key sequences. These options are described in more detail later in this manual.

③ CLR = Clear

Pressing momentarily to clear the last entered digit. To clear all digits, hold button down until display is cleared. If DT-22X is in a secondary menu mode, the CLR key can be used to return to the primary menu.

④ STO = Store

Used to store phone numbers of up to 32 digits in length in one of 99 memory locations. Press "STO" and a location number (01 through 99).

⑤ RCL = Recall

Recalls DT-22X numbers stored in one of the 99 memory locations. Press "RCL" and a location number (01 through 99).

⑥ SEND = Send (Delayed Action Key)

Press this key to place a call to the number shown in the LCD. Press this key to answer an incoming phone call when your unit rings.

Pressing momentarily during a conversation acts as "hookflash" request. See page 20 for information regarding "hookflash" operation.

⑦ END = End (Delayed Action Key)

Ends a call.

⑧ P = One Touch Speed Dialing Key (Delayed Action Key)

This key is used for one touch speed dialing of a "Special" phone number that you programmed in that memory location. The number which is programmed in the "P" memory location can be dialed and placed quickly by simply pressing this key for 1/2 second.

⑨ ▲/▼ = VOLUME KEY

When the ▲/▼ key is pressed, volume level adjusts down ▼ or up ▲ through 7 settings. Volume level is stored until you want to change the setting.

AUDIBLE STATUS INDICATORS

The following audible status indicators specify that certain operations are occurring within your DiamondTel DT-22X.

"WAKE UP"

A short high tone indicates your DT-22X has been turned on.

"POWER OFF"

A short high tone indicates your DT-22X has been turned off.

"RINGING"

Indicates a call has been received.

"INTERCEPT"

Alternating high / low tones (siren tones) indicate an incorrect keying sequence by the user.

"BATTERY WARNING"

A short high tone heard every 20 seconds that indicates the battery needs to be charged. This will continue until the battery voltage drops below operating requirements and the DT-22X turns off. To preserve battery condition and assure battery life, the battery should continue to be used until the unit turns itself off.

Please read the section on battery care (Page 94) prior to using your DT-22X.

"INCORRECT KEY"

An error tone sounds when a key is pressed out of sequence.

The volume setting of the following can be adjusted independently.

Alert Tone Volume

Indicates an incoming call and can be adjusted while the DT-22X is ringing (due to an incoming call) or when your unit is in the extended option mode (FCN/61). The lowest ALERT volume level is "OFF".

Reorder Tone Volume

Used while DT-22X is generating "Reorder or Intercept" tones, or can be adjusted when your DiamondTel DT-22X is in the extended option mode (FCN / 62).

Conversation Volume

Used to adjust earpiece volume during a phone conversation.

Keypad Tone Volume

Press "▲"/"▼" keys when your DT-22X is "ON" and a call is NOT in progress. Minimum Tone level "OFF".

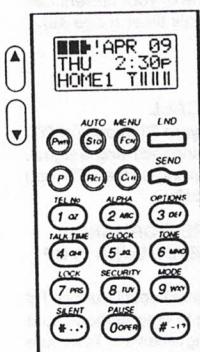
NOTE: If your unit is in an option (ie: FCN / 1, 2, 3, etc.), the volume "▲"/"▼" key can be used to move forward or backward through the menu.

FAST TRACK OPERATION OF YOUR DIAMONDTEL DT-22X

We suggest that you read this manual completely before using your DT-22X. However, if you just can't wait to start making calls, these are the basics.

PRIOR TO ANY OPERATION

1. THOROUGHLY CHARGE BATTERY PER INSTRUCTIONS.
2. APPLY TO YOUR CELLULAR CARRIER FOR A PHONE NUMBER.
3. PROFESSIONALLY PROGRAM YOUR DT-22X BY DEALER OR DEALER RECOMMENDED ALTERNATIVE.



TO TURN YOUR DT-22X ON:

Press the PWR key for at least 1/2 second.

The LCD will briefly check all fields in the display. Illumination will come on, followed by a tone. Your telephone number will momentarily be displayed (unless other options were selected during phone programming or you changed user options. See Page 9 for further details).

"-ON-" will be displayed to indicate that your DT-22X is ON. However, if your DT-22X has been set up (by you or others) differently than established factory settings, you may see different information appearing on the Display. A complete listing of this type of information can be found under "Display Options" on Page 9 in this manual.

If the alarm function (FCN / 52) has been activated, "!" can be seen on the display.

Emergency calls to "911" can be placed while the unit is locked or in any call restriction mode.

If after turning on DT-22X, "NO SVC" remains on the LCD or returns at any time, it indicates that you are out of the cellular system service area or that you are not receiving any signal. Calls cannot be placed or received when "NO SVC" is displayed.

If an error message, like "CHECK 3", appears in the display DT-22X should be taken to an authorized DiamondTel Service Center for service. Please see Page 115 for service information.

PLACING A CALL:

To place a call, simply pull up the antenna, dial the desired phone number (include the area code if necessary) and press the SEND key.

ENDING A CALL:

Press the END key to end the call.

ANSWERING A CALL:

When your DT-22X rings, Press SEND to answer your call.

TURNING YOUR DT-22X OFF:

Press the PWR key for 1/2 second and the phone will turn off.

LOCKING/UNLOCKING YOUR PHONE:

To LOCK press FCN / 71.

To UNLOCK enter your three digit UNLOCK code.

STORING NUMBERS TO MEMORY:

Enter number. Press STO + the memory location number you wish (ie: STO / 09).

RECALLING NUMBERS FROM MEMORY:

Press RCL + memory location number you wish to recall.

ERASING NUMBERS FROM MEMORY:

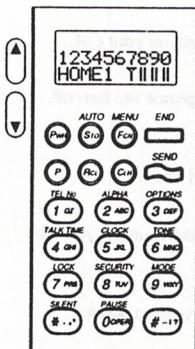
Press "CLR" for about 1/2 second to clear the display. Then press the "STO" key + the memory location number you wish to erase. You are storing a "blank" in that selected memory location.

ADDITIONAL INFORMATION:

If "Low BATT!!" appears in the LCD, it indicates that the battery needs to be charged. If the unit is left on despite this warning, DT-22X will automatically turn itself off to protect the battery from excessive discharge. Change the battery only when the unit turns itself off. This is the proper time to recharge the battery. See Page 94 for more information on battery safety and operations.

If "Locked" appears on the display, this indicates that the phone's electronic lock is on. To unlock your DiamondTel DT-22X enter your (3-digit) unlock code. If your DiamondTel DT-22X is locked, you cannot make or receive calls. See Page 65 for more information on unlocking your phone.

DETAILED OPERATING INSTRUCTIONS FOR YOUR DiamondTel DT-22X PERSONAL CELLULAR PHONE



PLACING A CALL

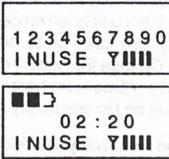
Turn your DT-22X on by pressing the "PWR" key. If "Locked" appears in the display, unlock your DiamondTel DT-22X by using your 3-digit unlock code. If other display options have been selected you will see other messages. For more information on "Display Options" see (Page 8).

Dial the desired telephone number. Each digit dialed will appear on the display. Up to 32 digits may be dialed (but only the last twenty digits will be displayed).

FOR OPTIMUM PERFORMANCE MAKE SURE THE ANTENNA IS UP ALL THE WAY!

Press the "SEND" key to start your call. The display will show "INUSE". When the call is established, the number you dialed will disappear from the LCD, and be replaced by the talk timer.

EX.



If a "busy" tone is heard, press the "END" key for more than 1/2 second to end the call.

An incoming call will cause your DiamondTel DT-22X to ring and blink "CALL" in the LCD. Press any key except "PWR" or "▲/▼" to answer the call.

ENDING A CALL

To end a call, press the "END" key.

TURNING YOUR DIAMONDTel DT-22X OFF.

To turn OFF your DiamondTel DT-22X, press the "PWR" key for more than 1/2 second. You will hear a short "beep" and DT-22X will turn off.

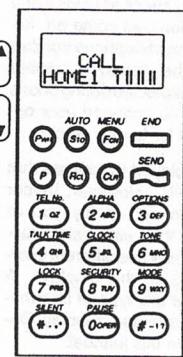
If you dialed an incorrect phone number, press the "CLR" key to clear the last digit you entered. To clear more digits, press "CLR" continuously. If you wish to clear the entire number (display), hold the "CLR" key down for more than 1/2 second.

If a reorder (fast busy) tone is heard, press the "END" key and then try the call again by pressing the "SEND" key. A "reorder" signal may indicate that the cellular system is temporarily at capacity.

An "intercept" tone (a high-low tone which sounds like a siren) indicates that an unnecessary key was pressed or a key was pressed out of sequence. This is a user error. Please try again.

When the party you called answers, proceed with your conversation as you would on any phone.

The "TALK" timer indicates the elapsed time of your current call. See FCN + 4 for more information on the talk timer (page 48).



RECEIVING A CALL

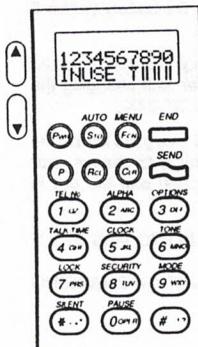
To receive a call your DiamondTel DT-22X must be ON and receiving a signal. If "NO SVC" is showing on the LCD, you cannot receive a call.

FOR OPTIMUM PERFORMANCE MAKE SURE THE ANTENNA IS UP ALL THE WAY!

It is a good idea to check your DiamondTel DT-22X from time to time to make sure that a signal is being received. To assure that sufficient signal is present, check the LCD and see how many signal strength bars are on the LCD. For best results, three or more bars should be showing.

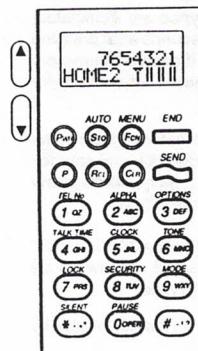
Physical location, position and direction of DT-22X will affect reception and operation.

FREQUENTLY USED FEATURES



HOOK-FLASH

Your system operator may provide various system options which require "Hook-Flash" operation. Pressing "SEND" briefly, initiates a hook flash. For more details regarding "Hook-Flash" options, please contact your local cellular service carrier.

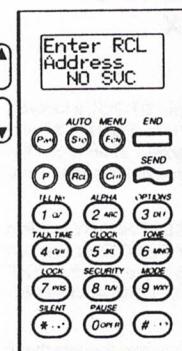


STORING NUMBERS IN MEMORY

A maximum of 99 telephone numbers, of up to 32 digits each, may be stored in your unit's memory. The 99 memory locations are numbered 01 to 99. To only store phone number, follow the instructions below. To store names and phone numbers see (FCN / 2) "ALPHA" directory (page 33).

Using the keypad, enter the telephone number you wish to store.

Press the "STO" (STORE) key, followed by any two-digits from 01 to 99.



LAST NUMBER RECALL (Last Three Numbers Dialed)

When you dial a number it is stored in a temporary memory when you press the "SEND" key.

Here is an example. You make a call, and it is busy. You turn OFF your DT-22X. Later, you turn your DT-22X back ON to try the call again. Pressing the "RCL" key twice "recalls" the last number you dialed.

Then if wish, you may use the "▲" / "▼" key to scroll through the last two numbers which you dialed.

User Action	Display
RCL	Enter RCL Address
RCL	1 st : 9 6 5 3 4 6 5
▲	2 nd : 2 2 3 3 4 4 2
▲	3 rd : Empty

It is possible to add extra digits to a recalled phone number.

If the same number is called twice or three times, that number will only be stored once.

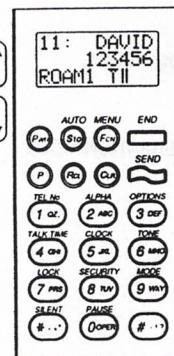
Enter STO Address → Enter STO Address 01

The display will then appear (as indicated below) to confirm that the telephone number is stored in the selected memory position.

Stored Address 01

IMPORTANT!

If a telephone number already exists in a selected memory location, the new number will automatically replace the existing number, and if a corresponding alpha-name was also stored, it will also be deleted.

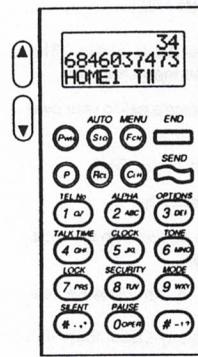


RECALLING A NUMBER FROM MEMORY

To recall a number from memory, Press "RCL" + the memory location number you wish to recall. Once recalled, Press "SEND" to start your call.

TO DELETE A NUMBER STORED IN MEMORY

If you want to delete a phone number and/or an alpha-name, press the "CLR" key for 1/2 second to clear the LCD. Then, press the "STO" key and the corresponding memory location address (from 01-99) that you want to delete. Essentially what you are doing is storing a blank in that selected memory.



CHECKING THE NUMBER YOU DIALED

The "RCL" key is used to review remaining (not displayed) digits of a telephone number which exceed 20 digits, in a memory location.

Press and hold the "RCL" key. The first-entered digits of the telephone number will be displayed.

User Action	Display
RCL (hold down)	8 7 4 6 7 4 8 7 4 9 7 3 6 8 9 3 3 4 4 2 3 4 6 8 4 6 0 3 7 4 7 3

AUTOMATIC RETRY

The DiamondTel DT-22X will attempt to access the CELLULAR SYSTEM every 3 seconds for a total of 10 times when it's unable to access the cellular system. When the system is accessed, a short beep sounds.

During this automatic retry procedure, the retry message is displayed, as shown below. This procedure can be cancelled by pressing the "END" key.

NOTE: THIS IS NOT AN AUTOMATIC REDIAL FUNCTION. If the number you are calling is "busy" and you hear a "busy signal", this feature WILL NOT continue to try that number until it is not busy.

EX.

Pause
Retry
ROAM1 TIII

**INDEX OF PRIMARY AND SECONDARY
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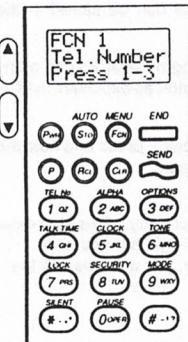
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Functions which are marked with an asterisk (*) are available during a conversation. All other functions can only be entered or have the setting changed while phone is "ON", and not during a conversation.

During STANDBY, "STO" or "END" can be used to exit these functions but ONLY "STO" can be used during conversation.

PHONE NUMBER FUNCTIONS [FCN / 1]



AVAILABLE DURING STANDBY & CONVERSATION

To access this option, press "FCN / 1". This PRIMARY option has 3 SECONDARY options:

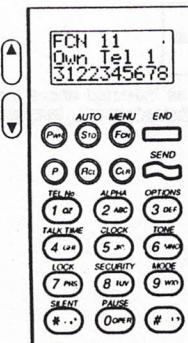
FCN / 11 - Display Telephone Number of UNIT

FCN / 12 - Automatic NAM Select ON/OFF

FCN / 13 - Manual NAM Select

NOTE: FCN / 12 and FCN / 13 are inoperative if only one NAM is programmed.

DISPLAY TELEPHONE NUMBER OF UNIT [FCN / 11]



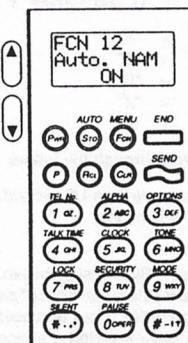
AVAILABLE DURING STANDBY & CONVERSATION

If your unit is locked, this operation will not work.

If Automatic NAM selection is active during NO SERVICE mode, NAM1 will be shown.

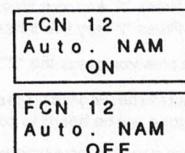
When you enter FCN / 11, you will see the telephone number for the NAM currently selected. If Multiple NAMs are programmed, the phone number for the selected NAM will be shown.

AUTOMATIC NAM SELECTION ON/OFF [FCN / 12]



STANDBY OPERATION ONLY

If your phone is programmed with only ONE phone number, this option is not available.



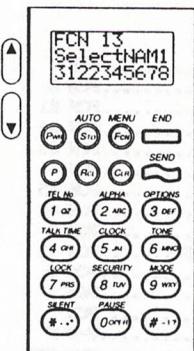
When you press FCN / 12, the current status of "NAM Auto Select ON / OFF" is shown.

To turn this feature ON or OFF, press the "*" or "#" key.

When this option is activated, system A/B selection (set by "FCN + 32") is cancelled and automatically set to "Home Only Mode". Also, when this option is activated, the DT-22X monitors the System ID Number (SID) of the cellular system and automatically selects the NAM that has same SID as that of the system's. For this feature to work you must have multiple NAM selected, programmed and activated by your cellular carrier.

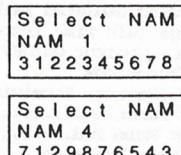
When this option is deactivated the system A/B select is automatically set to "Preferred System" in accordance with current NAM programming.

NAM SELECTION [FCN / 13]



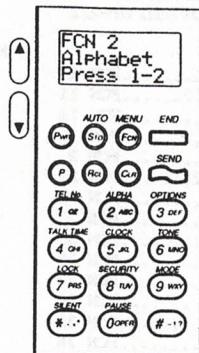
STANDBY OPERATION ONLY

During your unit's programming, either Single or Multi NAM was selected depending if one or more phone numbers were programmed in your phone. If "Single NAM" or "Auto NAM" is activated, this option can not be accessed.



By entering "FCN" / "13" the DT-22X enters "Multi NAM Selection Mode" and the LCD shows the current setting. If other NAM(s) have been programmed into your phone, each may be selected by pressing the "*" or "#" keys to move between NAMs.

ALPHA (NAME) FUNCTIONS [FCN / 2]



STANDBY OPERATION ONLY

Press FCN / 2 to enter the PRIMARY mode of the ALPHABET FUNCTION features. The LCD will show "Alphabet".

This PRIMARY option has 2 SECONDARY OPTIONS:

FCN / 21 - Alpha (Name) and Number Store / Edit

FCN / 22 - Alpha (Name) Memory Scan

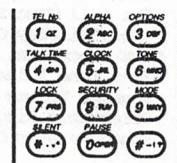
These options are explained in detail at each option.

HOW TO USE THE KEYPAD TO ENTER NAMES AND NUMBERS

It is easy to enter Names and Corresponding phone numbers. While in this option, the 1 thru 9 digit keys are used for LETTER entry much like a typewriter. The NUMBER to LETTER cross reference table is as follows:

Press key 1 2 3 4 times.

Key No. 1	= Q	Z (space)	1
Key No. 2	= A	B C	2
Key No. 3	= D	E F	3
Key No. 4	= G	H I	4
Key No. 5	= J	K L	5
Key No. 6	= M	N O	6
Key No. 7	= P	R S	7
Key No. 8	= T	U V	8
Key No. 9	= W	X Y	9
Key "*" =	.	.	
Key "#" =	-	!	?



EXAMPLE:

The No. 2 key corresponds to letters "A", "B", "C" and Number "2".

- | | |
|-----------------------------------|-------|
| Press "2" key once | = "A" |
| Press "2" key twice | = "B" |
| Press "2" key three times | = "C" |
| Press "2" key four times | = "2" |
| Press "2" key five times, back to | = "A" |

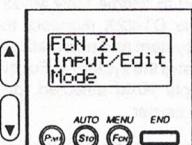
Each time you press the "2" key you cycle through the letters.

To select the desired letter press the key for more than 1/2 second. A high tone will be heard to confirm letter selection.

HOW TO INSERT SPACES IN NAMES

As shown above, Key No. 1 = Q Z (space). By pressing the No. 1 key 3 times, you will come to a space. Just select the "space" as you would select one of the letters. Press the No. 1 key and hold that key for more than 1/2 second. You have inserted a space between letters.

STORING / EDITING NAMES AND PHONE NUMBERS TO MEMORY [FCN / 21]



STANDBY OPERATION ONLY

1. TO STORE PHONE NUMBER AND NAME:

Press "FCN" / "21" / (name) / "STO" / (phone number) / "FCN" / "STO".

The phone number and name have been saved in the first available memory location (Not in a location selected by the user).

If you wish to assign a memory location to this particular name/number:

Press "FCN" / "21" / (name) / "STO" / (phone number) / "STO" / user selects location "01 thru 99".

DETAILS:

A maximum of 16 alpha or numeric characters can be stored in the Alpha area and a maximum of 32 digits can be stored in the numeric area.

To select a letter press the corresponding number key as many times as required to cycle to the desired letter as explained in FCN / 2, (Page 33).

When you have reached the letter you desire, press and hold the key for 1/2 second until a high beep is heard.

TO EDIT YOUR SELECTION:

The clear key ("CLR") is used to clear your entry. Press the clear key momentarily to edit a single letter or digit that you have entered. If you hold down the "CLR" key, you will erase all the characters in the LCD.

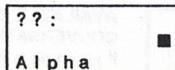
TRY THIS EXERCISE:

Try to enter the following:

DIAMONDTEL_PHONE (and the phone number) 7082989223

Press "FCN" / 21

The LCD will show:



Press the number key as many times as indicated above the corresponding letters to spell out the name DIAMONDTEL_PHONE.

Press 3	ONCE	= D
Press 4	THREE TIMES	= I
Press 2	ONCE	= A
Press 6	ONCE	= M
Press 6	THREE TIMES	= O
Press 6	TWICE	= N
Press 3	ONCE	= D
Press 8	ONCE	= T
Press 3	TWICE	= E
Press 5	THREE TIMES	= L
Press 1	THREE TIMES	= _ (SPACE)

Press 7 ONCE = P
 Press 4 TWICE = H
 Press 6 THREE TIMES = O
 Press 6 TWICE = N
 Press 3 TWICE = E

Press "STO"

The LCD will show "Number". Now, input the phone number associated with the name already stored.

Enter: 17082989223 followed by "FCN" / "STO".

This name and number will be automatically assigned the first empty memory location.

NOTE: If you want to assign a specific memory location to the name and number you have just entered, press "STO" followed by the desired memory location (01 thru 99) and it will be stored in that location.

If a name / number were already assigned to location the previous assignment would be erased and replaced with the newly assigned number.

2. TO EDIT PHONE NUMBER AND / OR NAME:

If you wish to edit name and / or number which has been stored in the memory:

Select memory location by "RCL" / "nn" or ("FCN" / "22") / "CLR" / "FCN" / "21" / (edit name) / "STO" / (edit number) / "STO"

DETAILS:

You can edit name and number by deleting / inserting alpha or numeric characters of the selected memory.

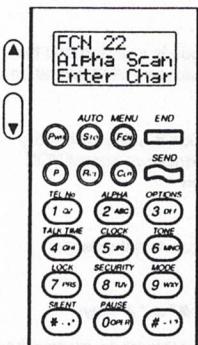
TRY THIS EXERCISE:

Try to enter the following:

Change "DIAMOND_PHONE/17082989223" to "DIAMOND-TEL/7082989223" of the memory location 02.

Press "RCL" / "02" following by "CLR" / "FCN" / "21".

ALPHA MEMORY SCAN [FCN / 22]



STANDBY OPERATION ONLY

You can scan the ALPHA directory by using any of the alphabet characters from the keypad. After selecting the first character, scan that letter's memory, forward or backward, by using the "▲"/"▼" key. By continuously pressing the "▲"/"▼" key, the display will change every second (see FCN / 2, Page 33).

When you reach the desired letter, hold that key down for 1/2 second. A high tone confirms the selection of the letter chosen. Using the "▲"/"▼" key control, you may scroll through the names assigned to that letter.

If you scroll further, you will see names assigned to other letters. If no names are assigned, "EMPTY" will show in the LCD.

Once a name is selected, you can press the "SEND" key to place a call to the name selected.

The LCD will show:
FCN 21
I n p u t / E d i t
M o d e

then
02 : DIA
M O N D P H O N E
A l p h a

Press "▼" and "CLR" five times to delete "PHONE".

The LCD will show:
D I A M O N D _
A l p h a

Press the pound (#) key to enter "-TEL".

Press # ONCE = - (hyphen)
 Press 8 ONCE = T
 Press 3 TWICE = E
 Press 5 THREE TIMES = L

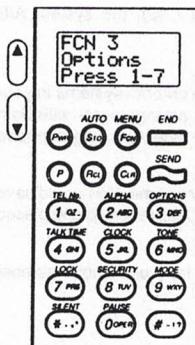
Press "STO".

The LCD will show:
1
7 0 8 2 9 8 9 2 2 3
N u m b e r

Press "▲" ten times / "CLR" / "STO" to delete "1".

NOTE: To move the cursor, press "▲/▼".
 To delete a character on the cursor, press CLR.
 You can insert a character in front of the cursor.
 To append a character, press "▼" until a space appears after the last character, then select alpha or numeric character.

OPTION SETTINGS [FCN / 3]



STANDBY OPERATION ONLY

Press "FCN" / "3" to enter the OPTION menu.
 The LCD will appear as illustrated.

This PRIMARY option has Seven (7) SECONDARY options.

FCN / 31 = Automatic Retry ON / OFF

FCN / 32 = System A / B Selection

FCN / 33 = VOX ON / OFF

FCN / 34 = Back Light 10 sec. / ON / OFF

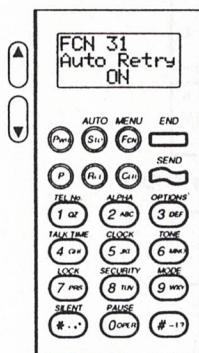
FCN / 35 = Automatic Answer ON / OFF

FCN / 36 = Programmable Area Code

FCN / 37 = Economy Mode ON/OFF

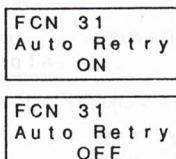
Press "FCN" then ▼/▲ repeatedly to move through the secondary options or simply press the appropriate number selection (1 thru 7) at this time.

AUTOMATIC RETRY ON / OFF [FCN / 31]



STANDBY OPERATION ONLY

This feature is convenient when operating in a busy cellular area. When the cellular system is very busy or at capacity, this feature will automatically try to access the cellular system. This feature will save you time and effort in attempting to access a busy cellular system.



To turn this feature on or off, press either "*" or "#".

If you select Automatic Retry "ON", the unit will try to access the cellular system. The unit will attempt "retry" ten (10) times every three (3) seconds.

Pressing the "CLR" key at this time will return to the "FCN 3" display of the Primary menu.

If "ROAM INHIBIT" was selected during NAM programming, FCN / 32 will not be active.

If Auto "NAM" selection is "ON" (FCN / 12), the system A/B selection is not active.

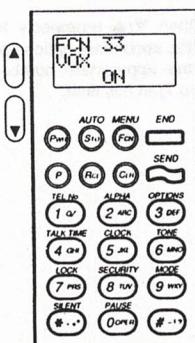
OPERATING WITHIN TWO SYSTEMS

It is possible for your DT-22X to operate on both systems in your HOME area. You would have to make arrangements with both Cellular System operators. You would have two unique phone numbers, and pay two separate bills.

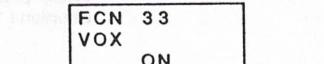
Only one phone number would be active at a time. You would have to switch from one number to the other. Calls received and placed would be on the active number only.

See FCN / 13 to explain how to switch from one phone number (NAM) to another (page 32).

VOX (Voice Activated Transmission) ON/OFF [FCN / 33]

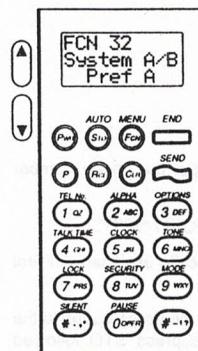


AVAILABLE DURING STANDBY AND DURING CONVERSATION
Press FCN / 33 to enter this mode.



Press "*" or "#" keys to change setting
"VOX" can be used (if it is a system option) to save battery life.
When ON, the unit's transmitter works only when you are talking. The "VOXON" message will appear in the LCD when "VOX" is selected.

SELECT SYSTEM A or B [FCN / 32]



STANDBY OPERATION ONLY

Each cellular service area usually has two cellular service providers. One being the "A" system and the other being the "B" system. You should check with your cellular service provider to find out if they are an A or a B system.

Press "FCN" / "32", to access the "System A/B Selection" mode. The LCD will show the current system selected. Press the "*" OR "#" key to switch to the alternate system.

Brief System Definitions:

"Preferred System A"

Seeks service in the A system (when either in your home system area or roaming in another) before searching the B system for service.

"Preferred System B"

Seeks service in the B system (when either in your home system area or roaming in another) before searching the A system for service.

"HOME ONLY"

Operates only in your home system, regardless if it is an "A" or a "B" system. Roaming into any other system will not be allowed.

"ONLY SYSTEM A"

Operates only in the "A" system (when in your home system or roaming in another). Operation on the "B" system will NOT be allowed.

"ONLY SYSTEM B"

Operates only in the "B" system (when in your home system or roaming in another). Operation on the "A" system will NOT be allowed.

HOWEVER, If "VOX NA" is displayed on the LCD, this indicates that "VOX" is not available from your carrier.

During conversation, "VOX" status and talk time are displayed simultaneously, as illustrated below:

(1)	VOX ON MM : SS	VOX mode is selected and the system accepts VOX operation
(2)	VOX NA MM : SS	VOX mode is selected but the system does not accept VOX operation
(3)	MM : SS	VOX mode is not selected

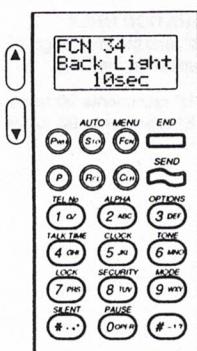
ON or OFF is selected by pressing the "*" or "#" keys.

To complete your selection and to exit from this mode, press either the "STO" or the "END" key.

NOTE:

- (1) Operates only when the DT-22X is used with the battery.
- (2) When DT-22X is used with an external power source such as a cigarette lighter adaptor, handsfree adaptor, etc. this option is not available.
- (3) During conversation you can only turn off this function if enabled.

KEYPAD ILLUMINATION ON / OFF [FCN / 34]



STANDBY OPERATION ONLY

Press "FCN / 34" to activate the illumination "ON/OFF" mode. You will see the current setting in the LCD.

FCN 34
Back Light
10 sec

Press "*" or "#" keys to change setting

FCN 34
Back Light
ON

Press "*" or "#" keys to change setting

FCN 34
Back Light
OFF

The "10sec", "ON" or "OFF" setting is selected by pressing the "*" or "#" keys.

When illumination "10 sec" is selected, the LCD and Keypad will illuminate for 10 seconds after pressing any key on the keypad (except for the "PWR" key).

When illumination "OFF" is selected, the unit will not be illuminated.

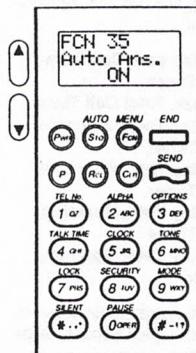
When illumination "ON" is selected, the LCD and keypad will be illuminated continuously.

To complete your selection and exit from this mode, press the "STO" or "END" key.

NOTE 1: Backlight "ON"/"OFF" is used to save the battery. The more you turn the backlighting "ON", the more power is used up from your battery. Extended use of backlighting will reduce your expected standby and talk time.

NOTE 2: If you charge the attached battery pack, "Back Light ON" must not be selected.

AUTOMATIC ANSWER ON/OFF [FCN / 35]



STANDBY OPERATION ONLY

Press "FCN / 35" to activate the "Automatic Answer ON/OFF" mode. You will see the current setting in the LCD.

FCN 35
Auto Ans.
ON

Press "*" or "#" keys to change setting

FCN 35
Auto Ans.
OFF

When this option is "ON" and there is an incoming call, the DT-22X automatically answers the call after 3 rings.

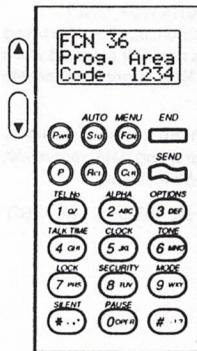
NOTE: This is not an answering machine feature. It is an automatic method of pressing the "SEND" key to answer the phone.

The Auto Answer option must be "ON" to operate any of the remote access features any time. Refer to "Remote Access" (Page 26).

This is a safety feature when using the Hands Free Adaptor.

CAUTION: If the unit is "ON" (standby mode) and this feature is "ON", incoming calls will be received as if someone was present to answer the call, resulting in accrued air time charges.

PROGRAMMABLE AREA CODE [FCN / 36]



STANDBY OPERATION ONLY

Press "FCN / 36" to activate the "Programmable Area Code" mode. You will see the currently programmed Area code in the LCD.

To change the area code enter the area code and press "STO" or "END" key to save your choice.

FEATURE:

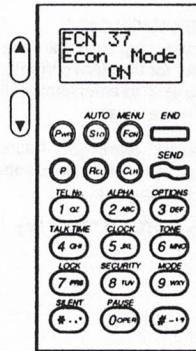
When the length of a called telephone number is seven digits and the unit is in "ROAM" (i.e. when the roaming indicator either flashes or remains on all the time), this area code is sent with the phone number when the call is placed.

In the case that no area code is programmed, "----" will be displayed.

In order to cancel the programmed area code (i.e. when no area code is desired) press "FCN" / "CLR" after the programmed area code is deleted.

NOTE: This option does not work in the "Local Only" mode. See section on "System A/B Selection" FCN / 32 (Page 41).

ECONOMY (BATTERY SAVING) MODE [FCN / 37]



STANDBY OPERATION ONLY

Press "FCN / 37" to access the "Economy (battery saving)" Mode". To turn this mode ON or OFF, press the "*" or "#" key.

FCN 37
Econ Mode
ON

FCN 37
Econ Mode
OFF

When this function is ON and the following conditions exist:

- 1) Strong signal is received.
- 2) Strong signal is present for a few seconds.

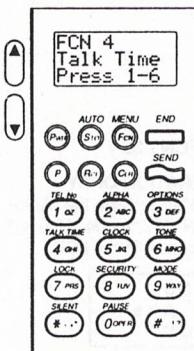
The economy mode will engage, reducing the transmit power slightly, resulting in slightly reduced battery consumption.

However, if the received signal strength drops below required operational levels, the unit will return to full power returning the battery consumption to normal operation levels.

If the unit receives a "strong" signal for more than a couple of seconds, and if the unit is transmitting at "full power", the unit's transmit power will be slightly reduced. In this case, ONLY the talk time listed on page 94 will be expected.

However, if the received signal drops below the nominal operation level for more than a couple of seconds, the unit will return to full power.

CALL TIMER OPTION [FCN / 4]



STANDBY OPERATION ONLY

Press "FCN" and "4".

Press "FCN" then ▲/▼ repeatedly to move through the secondary options or simply press the appropriate number selection (1 thru 6) at this time.

This PRIMARY option has SIX (6) SECONDARY options

FCN / 41 = Display Last Call Duration Timer

FCN / 42 = Display Total Call Timer

FCN / 43 = Display Total Originated Call Timer

FCN / 44 = Display Total Received Call Timer

FCN / 45 = Display Total Roaming Call Timer

FCN / 46 = Display Total Operating Timer

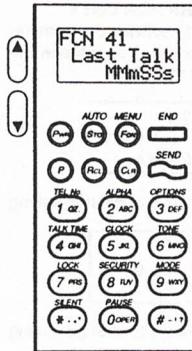
To reset all timers simultaneously (except operating timer which cannot be reset) to ZERO "0", press FCN/8/4-Digit Security Code / 4. Call timers cannot be reset individually.

Once reset, timer readings cannot be restored.

If you select "Auto NAM ON" and the phone is in "NO SERVICE" mode, you can only see parameters which are related to NAM1.

Each value on the LCD is apt to become slightly longer than actually used.

DISPLAY LAST CALL TIME [FCN / 41]

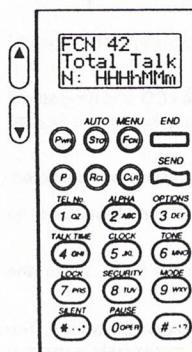


STANDBY OPERATION ONLY

Enter "FCN" / "41", and the total length of your last call is shown in the LCD.

To illustrate, "MM" represents 00 to 59 minutes and "SS" represents 00 to 59 seconds.

DISPLAY TOTAL CALL TIME [FCN / 42]



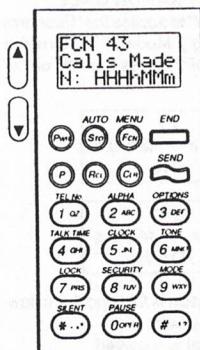
STANDBY OPERATION ONLY

Press "FCN" / "42", the Total Call Time will be shown for the NAM currently in use (N= 1 thru 4). This timer totals call time when you make or receive a call.

To illustrate, "HHH" represents 000 to 999 hours and "MM" represents 00 to 59 minutes.

To exit, press "STO" or "END" key.

DISPLAY TOTAL TIME OF CALLS PLACED [FCN / 43]



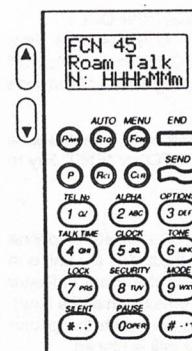
STANDBY OPERATION ONLY

Press FCN/43 to display Total Call Time of all "calls made" for the NAM currently in use (N= 1 thru 4). This timer totals call time when you make a call.

To illustrate, "HHH" represents hours (000 to 999 hours) and "MM" represents minutes (00 to 59 minutes).

To exit press the "STO" or the "END" key.

DISPLAY TOTAL ROAMING CALL TIME [FCN / 45]



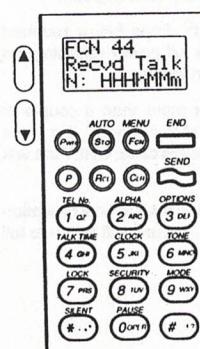
STANDBY OPERATION ONLY

Press FCN / 45 to display Total Roaming Time of all calls made or received while roaming for the NAM currently in use (N= 1 thru 4).

To illustrate, "HHH" represents hours (000 to 999 hours) and "MM" represents minutes (00 to 59 minutes).

To exit, press the "STO" or the "END" key.

DISPLAY TOTAL TALK TIME OF CALLS RECEIVED [FCN / 44]



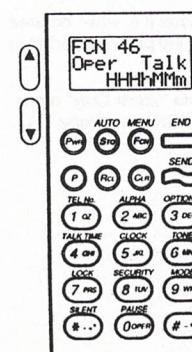
STANDBY OPERATION ONLY

Press FCN/44 to display Total Call Time of all "calls received" for the NAM currently in use (N= 1 thru 4). This timer totals call time when you receive a call.

To illustrate, "HHH" represents hours (000 to 999 hours) and "MM" represents minutes (00 to 59 minutes).

To exit, press the "STO" or the "END" key.

DISPLAY TOTAL UNIT OPERATION TIME [FCN / 46]



STANDBY OPERATION ONLY

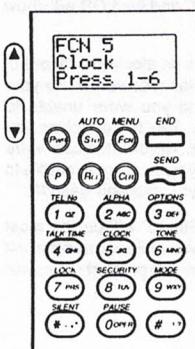
Press FCN / 46 to display Total Operation Time for all the NAMs active in the unit.

To illustrate this point, "HHH" represents hours (000 to 999 hours) and "MM" represents minutes (00 to 59 minutes).

To exit, press the "STO" or the "END" key.

NOTE: This timer cannot be reset by the user.

CLOCK [FCN / 5]



STANDBY OPERATION ONLY

Press FCN / 5 to access the Primary Clock option.

The LCD will appear as illustrated.

Press "FCN" then ▲/▼ repeatedly to move through the secondary options or simply press the appropriate number selection (1 thru 5) at this time.

This PRIMARY option has FIVE (5) SECONDARY options.

FCN / 51 = Set Clock Time

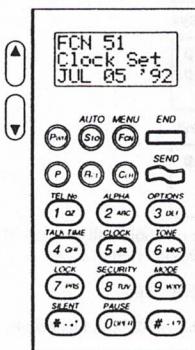
FCN / 52 = Set Alarm Clock

FCN / 53 = Turn Alarm ON / OFF

FCN / 54 = Call Time Stamp

FCN / 55 = Turn Clock Display ON / OFF

SET CLOCK TIME [FCN / 51]



STANDBY OPERATION ONLY

Press "FCN" / "51" to set the clock. You will set the MONTH, DATE, YEAR, DAY OF WEEK, HOURS, MINUTES, A.M. or P.M. (in that order).

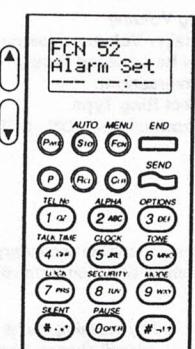
(1) Select the MONTH by using the "*" or "#" keys. By continuously holding either the "*" or "#" keys, the month is changed every 1/2 sec. After selecting the desired month, press the "STO" key to set the month.

EX) # : JUL AUG SEP ...
* : JUL JUN MAY ...

After selecting all items, press "STO" or "END" to exit from the clock mode.

NOTE: Pressing "CLR" at this time will return to "FCN 5" (CLOCK FUNCTIONS) of the primary menu.

SET ALARM CLOCK [FCN / 52]



STANDBY OPERATION ONLY

Press "FCN/52" to set the "Clock Alarm".

You will set the DAY, HOUR, MINUTES, A.M. or P.M. (in that order) when you want the alarm to ring.

(1) Select the DAY OF THE WEEK by pressing the "*" or "#" keys. By continuously holding either the "*" or "#" key down, the day of the week is changed every 1/2 sec. After selecting the day of the week, press the "STO" key to set the day desired.

EX) # : SUN MON ... ALL SUN
* : SUN ALL SAT ...

(2) Select the HOUR by pressing the "*" or "#" keys. By continuously holding the "*" or "#" keys, the hour is changed every 1/2 sec. After selecting the hour desired, press "STO" key to set the hour desired.

EX) # : 7 8 9 ...
* : 7 6 5 ...

(3) Select the MINUTE of the hour by pressing the "*" or "#" keys. By continuously holding the "*" or "#" keys, the minute changes every 1/2 sec. After selection, press "STO" key to set the minute desired.

EX) # : 30 31 32 ...
* : 30 29 28 ...

(2) Select the DATE OF THE MONTH by pressing the "*" or "#" keys. By continuously holding either the "*" or "#" keys, the date is changed every 1/2 sec. After selecting the desired date, press the "STO" key to set the date.

EX) # : 05 06 07 ...
* : 05 04 03 ...

(3) Select the YEAR by pressing the "*" or "#" keys. By continuously holding either the "*" or "#" keys, the year is changed every 1/2 sec. After selecting the year, press "STO" key to set the year.

EX) # : 91 92 93 ...
* : 91 90 89 ...

(4) Select the DAY OF THE WEEK by pressing the "*" or "#" keys. By continuously holding either the "*" or "#" key down, the day of the week is changed every 1/2 sec. After selecting the day of the week, press the "STO" key to set the day desired.

EX) # : FRI SAT SUN ...
* : FRI THU WED ...

(5) Select the HOUR by pressing the "*" or "#" keys. By continuously holding the "*" or "#" keys, the hour is changed every 1/2 sec. After selecting the hour desired, press "STO" key to set the hour desired.

EX) # : 7 8 9 ...
* : 7 6 5 ...

(6) Select the MINUTE of the hour by pressing the "*" or "#" keys. By continuously holding the "*" or "#" keys, the minute changes every 1/2 sec. After selection, press "STO" key to set the minute desired.

EX) # : 30 31 32 ...
* : 30 29 28 ...

(7) Select AM or PM by pressing the "*" or "#" keys.

EX) # / * : AM display area will be "a"
* / # : PM display area will show "p"

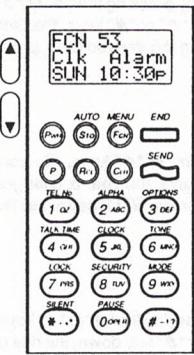
(4) Select AM or PM by pressing the "*" or "#" keys.

EX) # / * : AM display will show "a"
* / # : PM display will show "p"

After selecting all items, press "STO" or "END" to exit from the alarm setting mode.

When all of these settings have been completed, the "Alarm ON / OFF" status automatically turns to "ON" and will be saved even if the unit is turned off.

TURN ALARM ON/OFF [FCN / 53]



STANDBY OPERATION ONLY

Press "FCN / 53" to set the Clock Alarm ON or OFF. "ON" or "OFF" is selected by pressing "*" or "#" keys.

FCN 53
C1k Alarm
SUN 10:30p

FCN 53
C1k Alarm
--- : ---
(No Alarm clock setting)

Press "*" or "#" keys to turn the alarm ON / OFF

FCN 53
C1k Alarm
OFF

If the Clock Alarm is "ON", the alarm will sound at the time chosen. (The power must be ON for the alarm to sound). **To stop the alarm, press any key.**

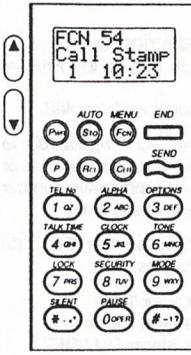
To complete your selection and exit, press "STO" or "END" key. "ON" / "OFF" selection is saved even if the DT-22X is turned off.

NOTE 1: Pressing the "CLR" key will return you to "FCN 5" PRIMARY menu.

NOTE 2: Before activating this function, "SET ALARM CLOCK (FCN / 52)" must be done.

NOTE 3: If you turn alarm ON, "!" can be seen on the right side of the battery indicator.

CALL TIME STAMP [FCN / 54]



STANDBY OPERATION ONLY

Press "FCN / 54" and the LCD will show "Call Stamp"

A "Call Stamp" is an electronic record of the time a call was received, while your unit was on and you were unable to answer the call. This feature gives you five (5) visual records of when calls were received (while you were not available to answer a call) and your unit was ON.

The first "Call Stamp" will be the most recent call received while you had the unit ON and you were not present to answer the phone.

FCN 54
Call Stamp
1 10:23

Press "*" or "#" keys

Call Stamp
2 9:50p
3 Empty

Press "*" or "#" keys

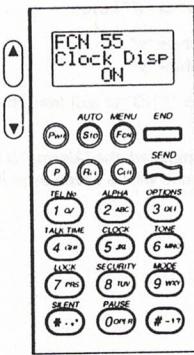
Call Stamp
4 Empty
5 Empty

Use the "*" or "#" keys to review the five possible call stamps. If a call stamp is empty, "EMPTY" will be shown in the LCD.

To exit from this mode press "STO" or "END" key.

Call Stamp time IS NOT SAVED when the DT-22X is turned off.

TURN CLOCK DISPLAY ON/OFF [FCN / 55]



STANDBY OPERATION ONLY

Press "FCN / 55" to view the LCD the current status of the clock display (ON or OFF). Press the "*" or "#" key to turn the clock display ON or OFF.

FCN 55
Clock Disp
ON

Press "*" or "#" keys to change the status

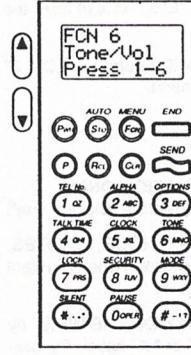
FCN 55
Clock Disp
OFF

When Clock Display "ON" is selected, the clock is shown instead of the "ON-" message.

To save your selection and exit, press "STO" or "END" key.

The "ON" / "OFF" selection is saved when the DT-22X is turned off.

VOLUME ADJUSTMENTS [FCN / 6]



STANDBY OPERATION ONLY

Press "FCN"/"6" to make volume adjustments.

The LCD will appear as illustrated.

This PRIMARY option has SIX (6) SECONDARY options.

FCN / 61 = Ring Volume

FCN / 62 = Speaker Volume (Volume may be adjusted during conversation).

FCN / 63 = Select Ring Type

FCN / 64 = Announce Beep ON / OFF

Press "FCN" then ▲ / ▼ repeatedly to move through the secondary options or simply press the appropriate number selection (1 thru 6) at this time.

Volume levels can be changed from 0 or 1 to 7 by pressing the "*" or "#". If you hold either key down, the volume will change from the present level (every half second) and will stop at the maximum level (7) or minimum level (0 volume off in case of Ringing or Key Pad Tone Volume) depending on whether you press "*" or "#".

There are FOUR (4) independent volume adjustments available.

1. Ringing Volume
2. Key Pad Tone Volume
3. Reorder/Intercept Tone Volume
4. Conversation (EARPIECE) Volume.

Selected volume levels are stored in memory for each of the settings, and are saved even if the battery pack is removed from the DT-22X.

If the phone is used with the hands free adaptor "HFA-22X", "Ringing Volume", "Reorder/Intercept Volume" and "Key Volume" come from the H/F speaker. "Conversation Volume" is also heard from H/F speaker, and you adjust the conversation volume with the volume control on the side of the HFA-22X.

Volume levels are saved when your DT-22X is turned off.

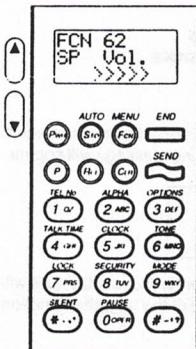


When the hands-free adaptor (HFA-22X) is connected to the telephone, the handset volume control is disabled. The handset volume control is replaced by the volume control on the hands-free adaptor (HFA-22X).

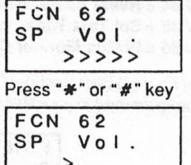
For hands-free operation, the handset volume control is disabled and the handset volume control is replaced by the hands-free adaptor (HFA-22X) volume control.

When the hands-free adaptor (HFA-22X) is connected to the telephone, the handset volume control is disabled and the handset volume control is replaced by the hands-free adaptor (HFA-22X) volume control.

VOLUME CONTROL OF TONES [FCN / 62]



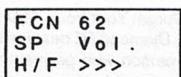
STANDBY OPERATION ONLY
Press "FCN / 62" to access this feature.



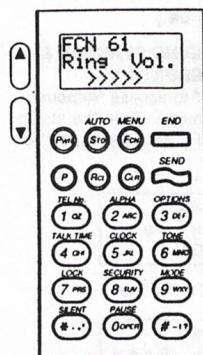
Reorder/Intercept volume can be adjusted thru seven (7) steps (max=7, min=1) by pressing "*" or "#" key the desired number of times. While making this adjustment a reorder tone is generated.

To exit press "STO" or "END" key.

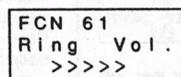
If phone is used with "H/F ADAPTOR" display is as follows:



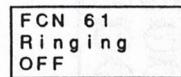
HOW TO ADJUST RINGING VOLUME [FCN / 61]



STANDBY OPERATION ONLY
Press "FCN / 61" to adjust the ringing volume.



Press "*" or "#" key

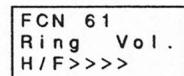


Ringing volume is adjusted by pressing "*" or "#" key. While making this adjustment a ringing tone is generated.

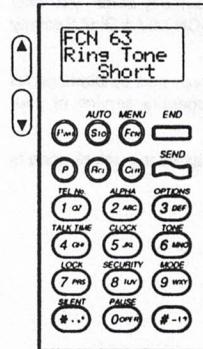
If you press the ▲ / ▼ key you will go to the "FCN / 62" or "FCN / 64".

To exit press "STO" or "END" key.

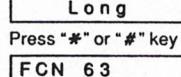
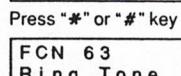
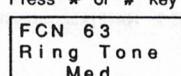
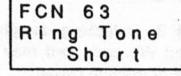
If phone is used with Hands Free Adaptor (HFA-22X) the display will look as follows:



SELECTING THE DESIRED RINGING LENGTH [FCN / 63]



STANDBY OPERATION ONLY
Press "FCN / 63" to access this feature.



The Ring mode is selected by pressing "*" or "#" key.

The following is a brief description of each ring mode:

Short:

Alert tone generated for 1 sec. / time interval is 3 sec.

Med.:

Alert tone generated for 2 sec. / time interval is 2 sec.

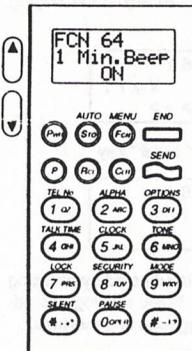
Long:

Alert tone generated for 3 sec. / time interval is 1 sec.

Cont.:

Alert tone is generated continuously.

ANNOUNCE BEEP ON/OFF [FCN / 64]



AVAILABLE DURING STANDBY & DURING CONVERSATION

Press "FCN / 64" to access "Announce Beep ON/OFF" mode. Turn the status beep "ON" or "OFF" by pressing "*" or "#" key.

FCN 64
1 Min. Beep
ON

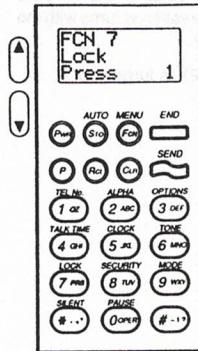
press "*" or "#" key

FCN 64
1 Min. Beep
OFF

When this option is "ON" a short beep sounds 10 seconds before each completed minute of conversation.

This function allows the user to audibly track each minute of talk time.

LOCK FUNCTION [FCN / 7]



STANDBY OPERATION ONLY
Press "FCN / 7" and the LCD will display "LOCK".

LOCKING YOUR UNIT

FCN 7
Lock
Press 1

Then, if you press "1" the unit will lock.

Locked

NOTE: When locked, calls can neither be placed nor received. The only call that can be placed is an emergency call to "911". (Press 911/SEND).

UNLOCKING YOUR UNIT

To unlock your unit, enter your 3 digit unlock code. If a 3 digit unlock code has not been programmed, Try entering "000" which is the factory default code. If "000" does not unlock your phone, a three digit unlock code exists in your phone.

To avoid confusion, the number "911" should not be used as an unlock code.

PLEASE KEEP IN MIND THAT "911" emergency service may not be available in all areas. Please check with local authorities for availability.

If the unlock code you try does not work, please check with your DiamondTel dealer, the person who programmed your phone or an authorized DiamondTel service center.

NOTE 1: If you know your four digit "security code", you may recall your "unlock code" by entering FCN / 8 / 4-Digit Security Code / 3.

NOTE 2: Unlocking your phone is not covered by DiamondTel Limited Warranty and may be a chargeable service of your dealer or service center.

NOTE 3: NAM programming always resets the unlock code to "000".

FCN / 81 = Set Call Restrictions

FCN / 82 = Automatic Lock ON / OFF

FCN / 83 = Program Your Unlock Code

FCN / 84 = Reset Accumulated Talk Timers

FCN / 85 = Set Talk Timer Increment

FCN / 86 = Status Monitor ON / OFF

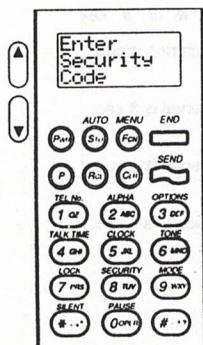
If Your Four (4) Digit Security Code entered matches the one which was programmed in your NAM, the following message will appear.

FCN 8
Security
Press 1-6

Otherwise, if the wrong security code is entered, your DT-22X will show the following message and WILL exit the security Function mode.

**Incorrect
Code!!**

SECURITY FUNCTIONS [FCN / 8]



STANDBY OPERATION ONLY

Press "FCN / 8" to access the "Enter Security Code" mode. Enter your FOUR DIGIT Security Code at this time.

At the time your unit was programmed by your dealer or phone service carrier, a Four (4) Digit Security Code may have been assigned to your phone. Please check with whomever programmed your phone to obtain your security code.

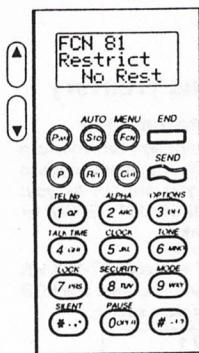
This PRIMARY option has SIX (6) SEC-ONDARY options.

You must enter your Four (4) Digit Security Code at this time to continue with the SECONDARY Security options.

NOTE 1: If you forget Your Four (4) Digit Security Code, please check with your DiamondTel dealer where you purchased your DT-22X or the person who programmed your unit. This code should have been provided to you at the time you received your cellular phone.

Determining your Four (4) Digit Security Code is not covered by the DiamondTel Limited Warranty and a service charge may be incurred.

CALL RESTRICTION [FCN / 8 / 4-Digit Security Code / 1]



STANDBY OPERATION ONLY

Press "FCN / 8 / Your 4-Digit Security Code / 1".

The following SEVEN levels can be selected by pressing "*" or "#" keys.

No Restriction:

All calling procedures are available.

Local Only:

Long distance calls and operator calls are restricted. Only local calls (7 digit telephone number) and toll free calls (1-800+XXX...) can be made.

Recall 1-99:

You can only make calls by "recalling" numbers from any of the 99 memory locations.

Recall 1-9:

You can only make calls by "recalling" numbers from memory locations 1 thru 9.

Last Number Only:

You may only make calls to the three last numbers that were dialed.

P Only:

You may only make a call to the number in the "P" memory location.

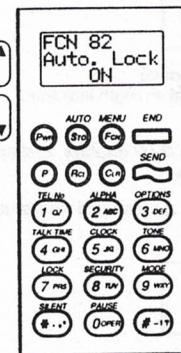
Receive Only:

You may not make calls. You may only receive calls.

To exit press "STO" or "END" key.

Emergency calls to "911" are always allowed during any restriction level (even when the unit is locked). Please check with your local authorities for 911 availability.

AUTOMATIC LOCK "ON" / "OFF" [FCN / 8 / 4-Digit Security Code / 2]



STANDBY OPERATION ONLY

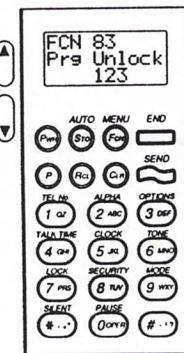
Press "FCN / 8 / Your 4-Digit Security Code / 2" to access the "AutomaticLOCK "ON" / "OFF" mode and to see the current setting.

"ON" / "OFF" is selected by pressing "*" or "#" keys.

When this option is "ON", it will be necessary for you to enter your three (3) digit unlock code to unlock your cellular phone, each time you turn the power on.

Pressing the "CLR" key at this time will return you to the "FCN 8" display of the PRIMARY menu.

SET YOUR UNLOCK CODE [FCN / 8 / 4-Digit Security Code / 3]



STANDBY OPERATION ONLY

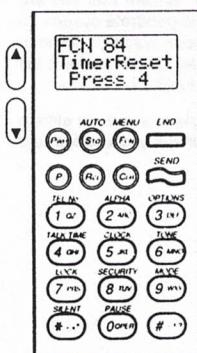
Press "FCN / 8 / Your 4-Digit Security Code / 3". Your DiamondTel DT-22X accesses the "Programmable Unlock Code" mode and shows your current unlock code.

If you want to change the unit's unlock code, enter a new 3 digit code at this time and press "STO" or "END" key.

The unlock code can be changed even if the phone is locked.

To avoid confusion, the number "911" should not be used as an unlock code.

TALK TIMER RESET [FCN / 8 / 4-Digit Security Code / 4]



STANDBY OPERATION ONLY

Press "FCN / 8 / Your 4-Digit Security Code / 4". Your DT-22X will access the "Accumulated Talk Timer Reset" mode.

ALL TIMERS WILL BE RESET TO ZERO WITH THIS OPERATION.

To clear all timers, press the "4" key. The following timers will be reset to 0.

1. Total call timer.
2. Total initiated call timer.
3. Total received call timer
4. Total roaming call timer.

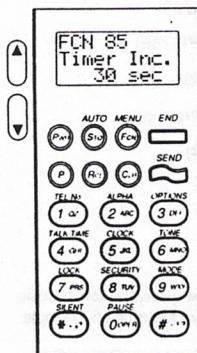
If any key other than "4" is pressed the DT-22X will exit this mode.

To complete your selection, press the "STO" or the "END" key.

Pressing "CLR" key at this time will return you to the "FCN 8" display of the main scroll menu.

This option operates only when call restriction level is set to "No Restriction" (see FCN / 81).

SET CALL TIMER INCREMENT [FCN / 8 / 4-Digit Security Code / 5]



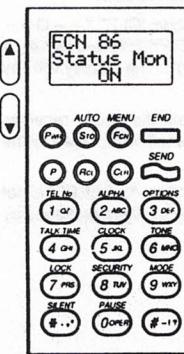
STANDBY OPERATION ONLY

Press "FCN / 8 / Your 4-Digit Security Code / 5". Your unit will access the "Programmable Talk Time Increment" mode and you will see the current setting.

The talk timer can be set to 30 or 60 second increments, allowing you to more accurately track your monthly call charges. The 30sec/60sec setting can be selected by pressing "*" or "#" keys.

You should check with your local carrier to determine which increment is appropriate for the carrier's billing cycle rate.

STATUS MONITOR "ON" / "OFF" [FCN / 8 / 4-Digit Security Code / 6]



STANDBY OPERATION ONLY

Press "FCN / 8 / Your 4-Digit Security Code / 6". Your unit will access "Status Monitor "ON"/"OFF"" mode and you will see the current setting.

Select "ON" / "OFF" by pressing "*" or "#" Keys.

NOTE: This feature is useful in viewing the status of the system or in troubleshooting equipment problems by qualified and authorized servicers.

When this option is "ON":

(1) Your DT-22X displays the cellular system status information instead of "ON" message during STANDBY (non-conversation).

The following example is used to illustrate the format of the status monitor during the STANDBY mode

CCCC RRR
AAAAA

CCCC: Control Channel (received channel)
RRR: Received RSSI (received signal strength indicator)
AAAAA: Received SID (system ID)

(2) During conversation mode your DT-22X displays system status information instead of the Call Timer.

The following example is used to illustrate the format of the status monitor during a CONVERSATION.

CCCC RRR
PS AAAAA

CCCC: Voice Channel (received channel)
RRR: Received RSSI (received signal strength indicator)
P: Transmit Power Level (0 thru 8; 8 = power off)
S: Received SAT Frequency
0 = 5970 Hz, 1 = 6000 Hz,
2 = 6030 Hz, 3 = No SAT
AAAAA: Received SID (system ID)

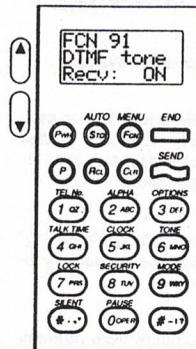
To exit, press "STO" or "END" key.

"ON" / "OFF" selection is saved when your DT-22X is turned off.

DTMF MODE [FCN / 9]

(COMBINED WITH FCN / 91)

PAGER FEATURE -DTMF- RECEIVING [FCN / 91]



STANDBY OPERATION ONLY

This section explains how someone can call and leave a phone number for you to call back when you are not by your phone. The DT-22X MUST BE "ON" for this feature to work.

Press "FCN / 91" and your DT-22X will access "DTMF Tone Receive". The LCD will indicate the current setting.

FCN 91
DTMF Tone
Recv: ON

Press "*" or "#" key

FCN 91
DTMF Tone
Recv: OFF

OPERATION:

The unit's power must be ON. When FCN / 91 is "ON", FCN / 35 (auto answer) is engaged and the unit will accept a call automatically. "Accepting a call" means the unit becomes active on the cellular system. It will not "answer" a call as would an answering machine (however you will be billed for airtime).

As the phone accepts the call, the caller will hear "3-BEEPS". This indicates that the caller may enter a phone number. The caller would press "#" / enter phone number / "#".

EXAMPLE: #7082989223#

If the caller does not leave a number within 60 seconds the call is terminated. If you answer the call before or during the SECOND RING, the 60 second time limit will not apply. If you hear the "3-

"BEEPS", you will not be able to talk to the calling party because the microphone is muted automatically.

If FCN / 91 is not engaged, "3-BEEPS" will not be heard by the person calling. Whoever you are in conversation with can leave a phone number, eliminating the need to write the number down. The phone number must begin and end with a "#" (pound sign).

EXAMPLE: #7082989223#

When the unit receives a phone number, "MESSAGE!" will appear on the LCD. The received phone number is stored in one of 9 memory locations. These locations can store up to 32 digits each and can be recalled by pressing "RCL / #" and any for the number 1 thru 9.

To SEE the time, date and day of the week the message was received, press "FCN". Pressing "FCN" a second time will return the display to the phone number which was received.

To CLEAR a received phone number, hold down "CLR". "--ON--" or the clock will be displayed. Press "STO" followed by "#" / 1 (or the memory location you wish to erase)". The display will say "ERASED ADDRESS #1".

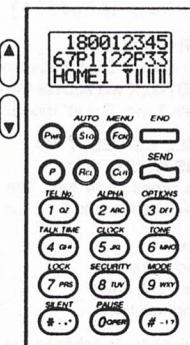
If memory locations #1 thru #9 are full and the phone receives more than 9 messages, the oldest message will be replaced by the newest incoming message.

NOTE : If you do not turn this function "ON", "3-BEEPS" is not generated but still the DTMF sequences of digits enclosed by "#" can be received by DT-22X.

THE PAUSE OPTION [FCN / 0]

STANDBY OPERATION ONLY

Sometimes, when using special features such as voice mail, long distance calling cards, etc., it is necessary to wait for a system generated tone prior to entering long distance numbers, authorization numbers, etc. This function allows you to put a string of numbers with pauses between specific sets of numbers. The maximum number of digits that can be entered is 32. This includes the "P" (pause digits).



Pauses allow the system that you are calling into, time to generate system indicator tones. These system tones indicate when the user should perform the next appropriate function.

Here is an example of someone storing a long distance number and a calling card number.

SYSTEM ACCESS

1. 1-800-AVAILABLE DURING CONVERSATION
2. FCN / 0 (PAUSE)

Long Distance

3. 708-298-9223
4. FCN / 0 (PAUSE)

YOUR CALLING CARD

5. 1234567890

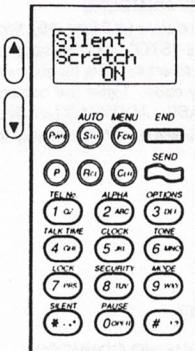
These are the usual steps taken to complete a call:

1. Press SEND (sends system access #)
2. Listen for tone.
3. Press SEND (sends long distance #)
4. Listen for tone.
5. Press SEND (sends authorization #)
6. Call will be connected.

You should check with your long distance provider for specific instructions. The instructions indicated above are only an example.

You may wish to "hide" your Authorization Number in a private location. Please see "FCN / RCL" option for more information. On page 79.

SILENT SCRATCH PAD OPTION [FCN / #]



AVAILABLE DURING CONVERSATION

During a conversation, press "FCN" / "#" to turn the silent scratch pad "ON" or "OFF".

When this option is engaged, numbers which you enter on the keypad are not heard from your earpiece, nor are they heard by the person you are talking to. They are only shown in the LCD.

The display will say "Silent Scratch ON" or "Silent Scratch OFF".

FEATURE:

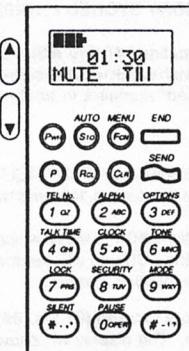
This feature allows you to enter the digits of a phone number while your are engaged in a conversation.

Once you have ended the first call, you may then press SEND to call the number which you entered in the display. This option operates only during conversation and is turned off after the call has ended.

To return to the normal display mode press any key.

A phone number which you enter during silent scratch pad operation will not be saved when you turn your DT-22X off.

CALL MUTE OPTION [FCN (HOLD KEY FOR 1 SECOND)]



AVAILABLE DURING CONVERSATION

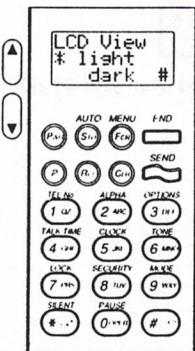
Hold "FCN" for more than 1 second to turn call mute ON. If call mute is ON, holding "FCN" again for more than 1 second will turn call mute OFF.

Hold the "FCN" key for more than 1 sec. (during a conversation).

During the conversation, if you wish to place your call on "hold" so that you can talk to someone without the party on the phone hearing you. The call mute feature disables the microphone of the unit, but maintains the call. To restore the call to normal conversation mode, press "FCN" key again for more than 1 sec.

This option works only during a phone conversation and will be turned off after the call is ended.

SELECT LCD VIEW ANGLE [FCN (HOLD KEY FOR 1 SECOND)]



STANDBY OPERATION ONLY

Hold the "FCN" key down for more than 1 second, and your unit accesses the "LCD View Angle Control" mode. You will see the current setting in the LCD.

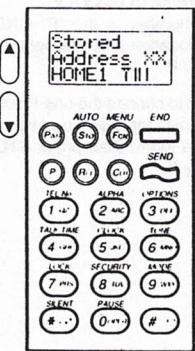
The LCD View Angle can be controlled from level 1 to 4 by pressing "*" or "#" key.

Temperature changes may require you to adjust the viewing angle of the LCD and may affect the LCD color. This is normal.

To exit, press "STO" or "END" key.

View angle selection is saved when your DT-22X is turned off.

STORE PHONE NUMBERS AUTOMATICALLY [FCN / STO]

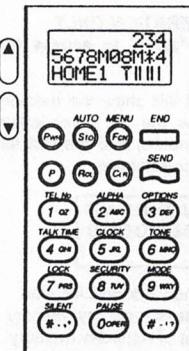


AVAILABLE DURING STANDBY & DURING CONVERSATION

To quickly store a phone number in memory, enter a telephone number then press "FCN" / "STO".

This feature automatically searches for the first free memory location and stores the telephone number there. The display will read "Stored Address XX" (XX represents a memory location). If the memory is full, the display will read "Memory Full".

LINKING LONG DISTANCE CALLING CARD NUMBERS AND PHONE NUMBERS FROM MEMORY [FCN / RCL]



This option allows you to "hide" your calling card number or credit card number in a private memory location. This option is only applicable when the phone number you are calling must be dialed before your long distance service calling card.

STORING CALLING CARD NUMBERS

To Store calling card numbers, enter the calling card number, press "STO" followed by the special memory location (#0 thru #9). The display will read "Security Code".

At this time you must enter your correct FOUR (4) digit security code.

If an incorrect security code is entered, the display will change back to the calling card number. If the correct security code is entered, the display will read "Stored Address" with a number (#0 thru #9) indicating the memory location to which it is stored. The last sixteen (16) digits on the LCD can be stored.

RECALLING CALLING CARD NUMBERS

To Recall a calling card number press "RCL" and the special memory location (#0 thru #9). The display will read "Security Code". At this time you must enter your correct FOUR (4) digit security code.

If an incorrect security code is entered, the display will change back to "-ON-". If the correct security code is entered, the display will show the calling card number associated with that address.

LINKING CALLING CARDS AND MEMORY STORED PHONE NUMBERS

Once a calling card number is stored in location (#0 thru #9), you must determine the phone numbers you wish to link with the calling card numbers and then store both "linked" numbers in another memory location (01 thru 99).

PROCEDURE

Dial the phone number you wish to link, followed by "FCN / RCL". The number you just dialed will appear on the screen, followed by "M*".

You will now enter the private memory location (#0 thru #9) in which you stored your calling card number. In the LCD you will see the number you dialed, "M*" and the private location number.

Next, press "STO" and the regular memory location (01 thru 99) you wish to store both linked numbers in. The display will show "Stored Address" and the chosen memory location.

Here is an example of making calls by combining memory locations together. Dial a number (2345678) and you want to link it to a credit card number (111222333555333) which is stored in memory location "08".

Then you want to link it with an authorization number of some kind which is in the hidden memory location **4".

Here is how you do it: DISPLAY

Enter 2345678 2345678
Press FCN / RCL 2345678M08
Enter 08 2345678M08M08
Press FCN / RCL 2345678M08M**4

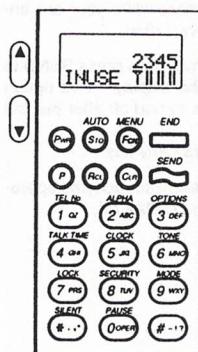
Press SEND - the first time - The call to 2345678 is made.
Press SEND - a second time - Number in memory location "08" is sent.
Press SEND - a third time - Number in memory location "4" is sent.

Again this is only an example. The numbers, stored memory numbers and memory locations used are provided as examples. You must store the appropriate numbers in the memory locations which you choose.

ERASE NUMBERS SPECIAL MEMORY NUMBERS

To erase a number in a special memory location (#0 thru #9), first your unit must be "-ON-". Next, press "STO" and the special memory location (#0 thru #9) you wish to erase. The display will ask you for your FOUR (4) digit security code. Enter the correct security code and the LCD will show "ERASED ADDRESS (#0 thru #9)". Entering an incorrect security code will revert the display to the "-ON-" message.

AUTOMATIC DTMF [FCN / SEND]



AVAILABLE DURING CONVERSATION

Pressing digit keys during conversation transmits the corresponding DTMF tones. Pressing of "FCN" and "SEND" during conversation sends the numbers on the display in DTMF form.

This function is not a stand-alone feature. It is used in conjunction with functions such as recalling phone numbers from memory and sending the numbers while in a conversation.

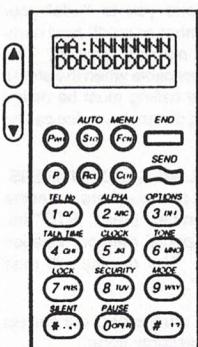
BENEFIT - to access your voice mail or answering machines or to dial calling or credit card numbers by hand.

EXAMPLE:

Your access number to your answering machine is 2345.

Dial 2345 and press FCN / SEND. The numbers will be sent in extended DTMF to access your answering machine.

MEMORY SCAN [RCL / "▲/▼"]



STANDBY OPERATION ONLY

Press RCL / "▲/▼" to access the memory scan.

The unit's LCD will show the memory location address, the first seven letters of a name (if stored) and the last ten digits of the phone number.

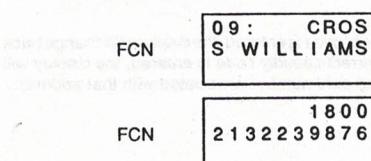
AA : NNNNNNNN
DDDDDDDDDD

AAAA: Memory address location
NNNN: Name of repertory memory
DDDD: Digits of repertory memory

When RCL / "▲/▼" are pressed the last recalled memory location is displayed. Continuously pressing the "▲/▼" key will scan forward or backward through the memory, changing every second. Empty memory locations are skipped.

Once you locate the number which you wish to place a call to, simply press the "SEND" key and your DT-22X will initiate a call.

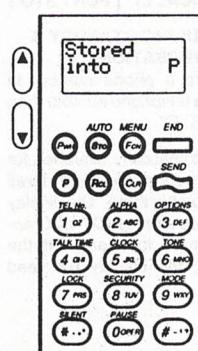
NOTE: (1) When using the memory scan option, display mode can be changed, as shown below, by pressing FCN key (same as alpha scan mode).



Last recalled memory location is saved when your DT-22X is turned off.

09 : CROSS W
2132239876

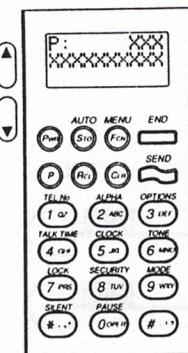
ONE TOUCH DIAL NUMBER STORE / RECALL



STANDBY OPERATION ONLY

To STORE a number in the "P" ONE TOUCH DIAL location enter Telephone number / STO / P

If you ever want to change the one-touch dial number, enter the telephone number you wish to store, then press STO / P.

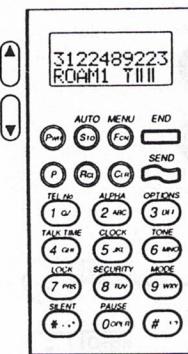


To RECALL a number in the "P" ONE TOUCH DIAL location, enter "RCL"/"P".

To place a "one touch" call, simply press the "P" key for 1 second.

It is not necessary to press any other key.

DISPLAY LAST NUMBER DIALED [RCL / RCL]



STANDBY OPERATION ONLY

If you turn off your unit but want to see the last number you dialed, simply press "RCL" twice to see the last number you dialed.

Then if you wish to see the previous two numbers which you dialed press the volume control "▲" or "▼". The display will show each of the numbers, one at a time.

FUNCTION DEFAULT SETTINGS

If the battery is removed from the unit for more than 2 weeks, the memory of the phone except your telephone number will reset to default settings. Programming, Stored phone numbers, function settings and clock settings may be erased. Functions will default to original "factory" settings. Those default settings are as follows:

- 1) Auto NAM Selection (FCN 12) OFF
- 2) Manual NAM Selection (FCN 13) NAM 1
- 3) Automatic Retry (FCN 31) OFF
- 4) System Selection (FCN 32) PS in NAM 1
- 5) VOX Mode (FCN 33) OFF
- 6) Illumination Duration (FCN 34) 10 Sec.
- 7) Auto Answer Mode (FCN 35) OFF
- 8) Programmed Area Code (FCN 36) No Code
- 9) Economy Mode (FCN 37) OFF
- 10) All Resettable Timers (FCN 41 thru 46) 00h00m00s
- 11) Clock Alarm (FCN 53) OFF
- 12) Clock Display (FCN 55) OFF
- 13) Ring Volume/Tone Select (FCN 63) Short
- 14) 1 Minute Beep (FCN 64) OFF
- 15) Restriction Level (FCN 81) No Restriction
- 16) Automatic Lock (FCN 82) OFF
- 17) Unlock Code (FCN 83) 000
- 18) Talk Timer Increment (FCN 85) 30 Seconds

Items which were set into memory may need to be reprogrammed to restore the use of your unit. Reprogramming of these features are not covered by DiamondTel's Limited Warranty. Dealers or service centers may charge for these services. Please check in advance of obtaining service.

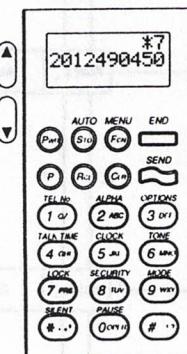
USING CELLULAR SYSTEM OPTION CODES WITH STORED NUMBERS

Your cellular service provider may offer special features or options for regular cellular service such as voice mail, call forwarding, call waiting, etc. To access these services, it may be necessary to use the "*" or "#" key at the beginning of a particular code number.

The following is a brief explanation of how you could use these features. However, we suggest that you check with your cellular service provider for exact details concerning operation.

Stored telephone numbers can be prefixed by special option codes to be sent as a command to the network. (For instance: Call Forwarding Service option etc. provided by your cellular carrier) Carrier special option numbers usually begin with either a "*" or "#" character.

Dial the desired option followed by RCL and the memory location number to form a single number string. This is shown in the display and the number string is sent by pressing the SEND key during each pause.



As an example, lets say your cellular carrier has a voice mail option. To access this option you first dial *72 then you must dial your phone number. You have stored your phone number in memory location "05".

Press *72 / RCL / 05 / SEND.

In this example you might access a system's voice mail option and then would access your particular voice mail "mail box". You should check with your cellular service provider to obtain exact instructions on how to use specific features. Some extra features offered require additional monthly charges.

ANTENNA SYSTEM

The DT-22X has a single antenna which retracts into the unit case for convenience of size. The antenna will operate only when it is fully extended or fully retracted. The antenna will not operate if the antenna is between these positions. The operation of your DT-22X is (in part) dependent on how you care for the antenna.

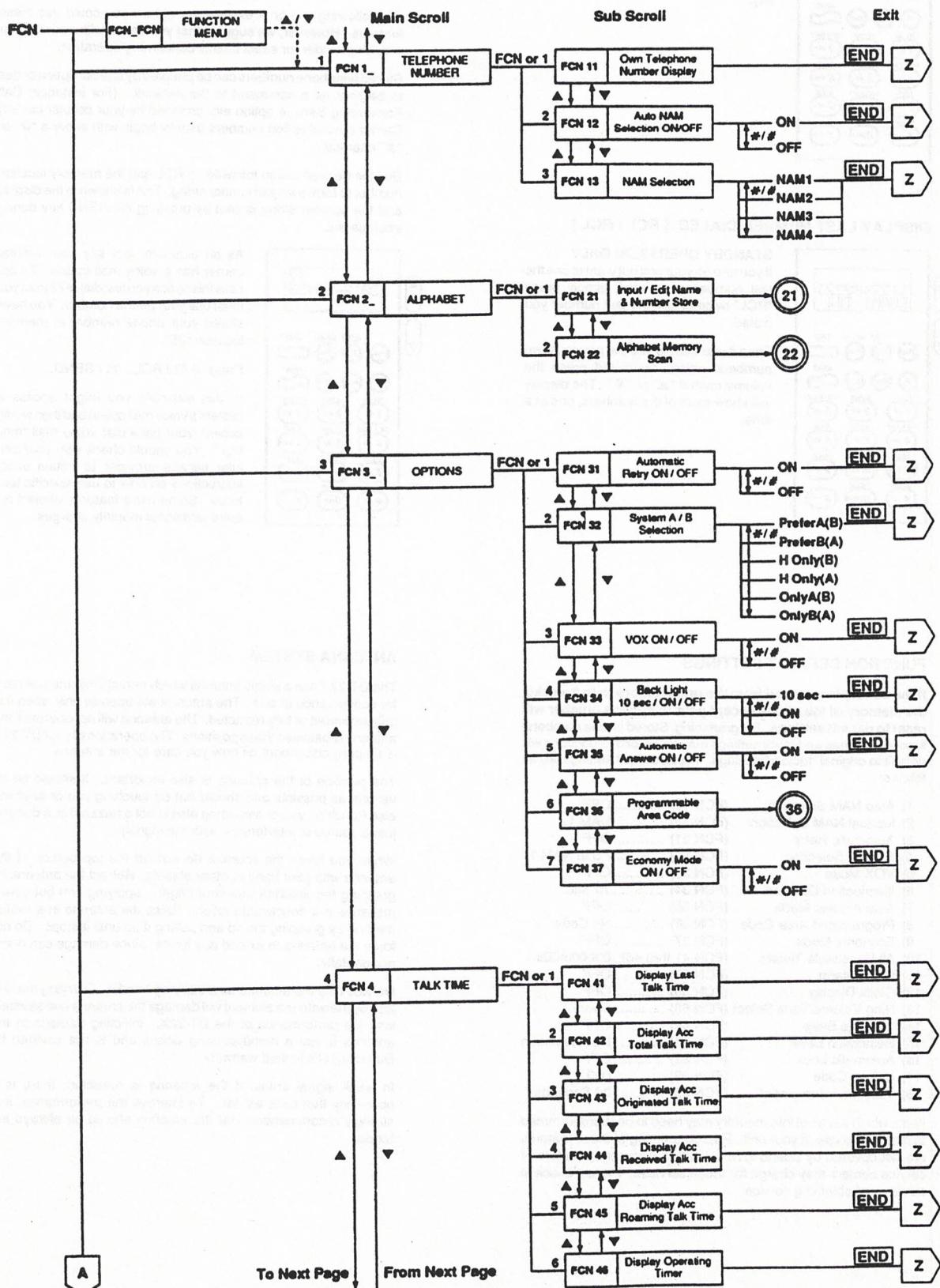
The position of the antenna is also important. It should be as vertical as possible and should not be touching you or anything else (touching you or something else is not a hazard or a danger, just a source of interference with the signal).

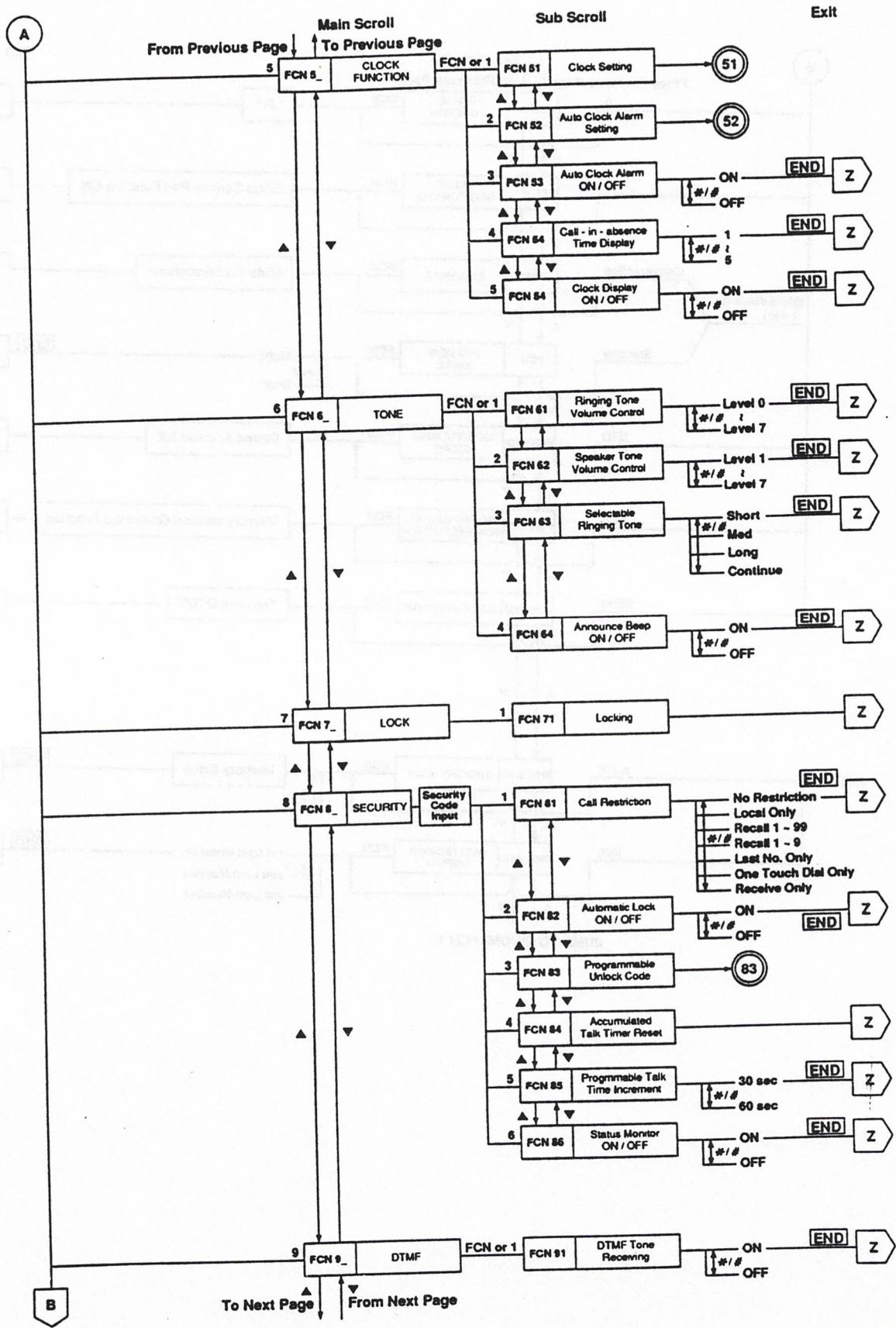
When you lower the antenna do not hit the top portion of the antenna with your hand or other objects. Retract the antenna by grasping the antenna with your fingers, applying firm but gentle pressure in a downward motion. Raise the antenna in a similar method by grasping the tip and pulling it up until it stops. Do not force the antenna to extend any further since damage can occur accidentally.

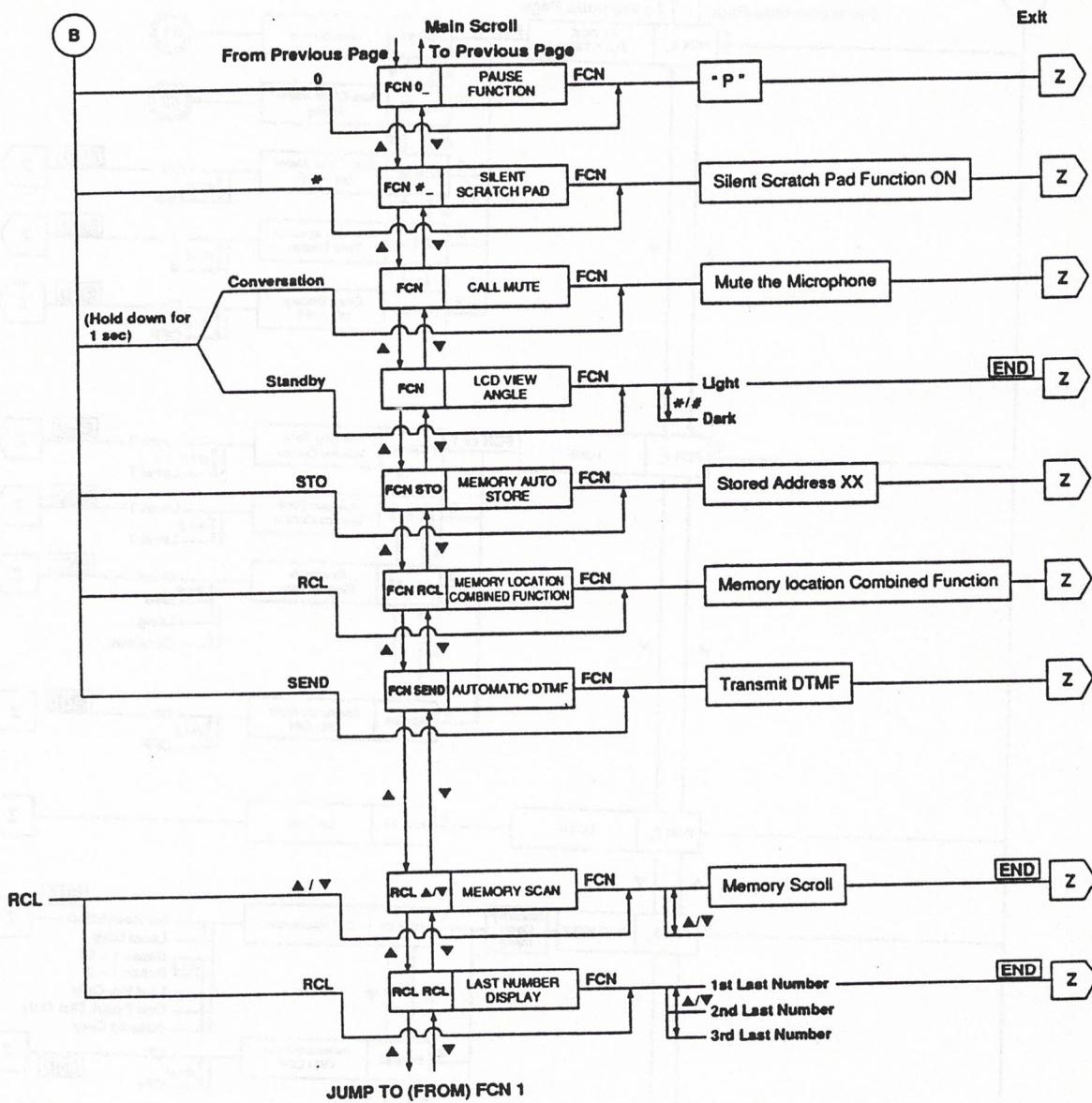
Do Not Use the antenna as a carrying handle. Carrying the DT-22X by the antenna element will damage the antenna and severely limit the performance of the DT-22X. Inflicting damage to the antenna is not a manufacturing defect and is not covered by DiamondTel's limited warranty.

In weak signal areas, if the antenna is retracted, there is a possibility that calls will fail. To improve the performance, it is strongly recommended that the antenna should be always extended.

ADVANCED FUNCTION FLOW CHART







4. NAM PROGRAMMING

The DiamondTel 22X has two entering codes which can be used for NAM programming. One code "5132920" is restrictive and another code "6972814" is non-restrictive. Restrictive code is accepted only 10 times and non-Restrictive code has no restriction.

NAM is programmed by using keyboard.

Following are the NAM programming procedures.

a) **BATTERY MUST BE CHARGED BEFORE PROGRAMMING.**

b) Press "PWR" to turn unit on. Allow wake-up cycle to finish.

c) Press "END" and hold down while inputting 6972814.

d) Release "END".

Note: The above step must be done within 10 seconds of power up.

e) You are now ready to input programming data.

f) You must press "SND" to commit data to program and cycle to next step.

g) A * indicates cellular system supplied data.

- 1)

MULTI NAM
X

 Enter 1/2/3/4 for multi NAM then SEND
1: single NAM; 2: dual NAM; ... 4: 4th NAM
- 2)

PHONE 1
XXXXXXXXXX

 * Enter 10 digits for MIN then SEND
- 3)

SYSTEM ID
1 XXXXX

 * Enter 5 digits for SID then SEND; 00000 to 32767
- 4)

LOCAL USE
1 X

 Enter 0 or 1 for Local Use then SEND
- 5)

MIN MARK 1
X

 Enter 0 or 1 for Min Mark then SEND
- 6)

IPCH 1
XXXX

 * Enter 4 digits for IPCH then SEND; 0333 or 0334
0333 for Non wire; 0334 for wire
- 7)

ACCOLC 1
XX

 * Enter 2 digits for ACCOLC then SEND; 00 to 15
- 8)

GROUP ID
MARK 1 XX

 * Enter 2 digits for GIM then SEND; 00 to 15

- 9) **ROAM INHIB**
IT 1 X Enter 0 or 1 for Roam Inhibit then SEND
- 10) **SID LOCK**
OUT1 XXXXX Enter 5 digit for SID LOCK OUT then SEND
00000 to 32767

Note: If multi NAM is selected at beginning of the programming, the above procedure from step 2) to step 10) must be repeated for each NAM.
The following is an example if the program was selected "2" at step 1).

- 11) **PHONE 2**
XXXXXXXXXXXX * Enter 10 digits for MIN then SEND
- 12) **SYSTEM ID**
2 XXXXX * Enter 5 digits for SID then SEND; 00000 to 32767
- 13) **LOCAL USE**
2 X Enter 0 or 1 for Local Use then SEND
- 14) **MIN MARK 2**
X Enter 0 or 1 for Min Mark then SEND
- 15) **IPCH 2**
XXXX * Enter 4 digits for ICPH then SEND; 0333 or 0334
0333 for Non wire; 0334 for wire
- 16) **ACCOLC 2**
XX * Enter 2 digits for ACCOLC then SEND; 00 to 15
- 17) **GROUP ID**
MARK 2 XX * Enter 2 digits for GIM then SEND; 00 to 15
- 18) **ROAM INHIB**
IT 2 X Enter 0 or 1 for Roam Inhibit then SEND
- 19) **SID LOCK**
OUT2 XXXXX Enter 5 digit for SID LOCK OUT then SEND
00000 to 32767

Note: If 3 or 4 is selected at step 1), step 11) true step 19) must be repeated for each NAM.

38) **SECURITY
CODE XXXX**

Enter 4 digits for SECURITY code then SEND
; 0000 to 9999

39) **BOOSTER
X**

Enter 0 or 1 for Booster then SEND

40) **PERSONAL
MESSAGE X**

Enter 0 or 1 for PERSONAL MESSAGE then SEND
0 : Personal message not used
1 : Personal message used

Note: To set the personal message (maximum 10 characters), the standard alphanumeric input method as in the "Input/Edit Mode" function is used.
(Refer to FCN 21 in chapter 3)

After entering the characters, press the SEND, then go to step 1).

41) Go to step 1)

- Note 1) When single NAM is selected, step 11) thru 37) are skipped.
2) In order to exit programming at any time or to complete programming
press "END".
Not pressing "END" will result in "CHECK 2".
3) In case of "CHECK 2", go back to step beginning of NAM programming.
Programming must be restarted.

5. DIAGNOSTIC MODE

A service facility is provided to enable the transceiver to be tested manually, independent of the call processing software.

To put a phone into the test mode, carry out the following instructions:

- a) Press "PWR" to turn the radio on.
- b) Press "END" and hold down.
- c) Enter the 7 digit test code "0944635" within 10 seconds after power up, then release "END" key.
- d) The programmed ROM version and date will be displayed.
The phone will now accept commands as follows;

KEY OPERATION	COMMAND
00 SEND	TX on
01 SEND	TX Carrier on
02 SEND	TX Carrier off
03 SEND	RX Audio unmute
04 SEND	RX Audio mute
05 SEND	TX Audio unmute
06 SEND	TX Audio mute
07 SEND	Signalling Tone on
08 SEND	Signalling Tone off
09 SEND	High Tone on
10 SEND	High Tone off
11 SEND	Low Tone on
12 SEND	Low Tone off
13 SEND	External Audio on
14 SEND	External Audio off
15 SEND	Display Unlock Code
16 SEND	Comander on
17 SEND	Comander off
18 SEND	Display ESN in hex
19 SEND	NVM clear
21 SEND	DIMF decoder (DIMF path)
23 SEND	Wide-Band on
24 SEND	Wide-Band off

25 SEND	Synth save on
26 SEND	Synth save off
27 SEND	AP power save on
28 SEND	AP power save off
29 SEND	Monitor speaker mode
30 SEND	DIMF off
33 SEND	Read out DTMF decoded data (Max. 20 letters)
34 SEND	Erase DTMF decoded data
35 SEND	Setting Clock mode
36 SEND	Read out clock
38 SEND	Country code display
4n SEND	DTMF on (n = 0 to 9)
51 SEND	AP Normal path
52 SEND	WB DATA Volume control (L.M.H)
53 SEND	TX Audio Volume control (L.M.H)
54 SEND	TX DTMF Volume control (L.M.H)
55 SEND	SAT Volume control (L.M.H)
56 SEND	DISC volume control
57 SEND	RX DTMF Volume control
58 SEND	VOX level set
60 SEND	Change TX-volume1 (L.M.H)
61 SEND	Change TX-volume2 (L.M.H)
62 SEND	Change TX RF output power (L.M.H)
69 SEND	LCD and Backlight on
7n SEND	Booster power control (n= 0 to 7)
80 SEND	SAT off
81 SEND	SAT 5970 Hz on
82 SEND	SAT 6000 Hz on
83 SEND	SAT 6030 Hz on
90 SEND	Set RF output power level (full power)
91 SEND	Set RF output power level (full power)
92 SEND	Set RF output power level (full power -2dB)
9n SEND	Set RF output power level (n = 3 to 7)
nnnn END	Set a channel to nnnn
RCL	Rotate a channel 0991-0384-0799
FCN	Indicate RSSI

STO	Rotate Volume (Min-Mid-Max)	0000 00 0000 00 0000 00 0000 00 0000 00 0000 00
*	Channel decrement (down)	0000 00 0000 00 0000 00 0000 00 0000 00 0000 00
#	Channel increment (up)	0000 00 0000 00 0000 00 0000 00 0000 00 0000 00
VR UP/DOWN	Change conversation volume level	0000 00 0000 00 0000 00 0000 00 0000 00 0000 00
CLR	Clear display and backlight off	0000 00 0000 00 0000 00 0000 00 0000 00 0000 00
e) Turn off the phone to exit the test mode.		0000 00 0000 00 0000 00 0000 00 0000 00 0000 00

6. CHECK CODES (SELF-DIAGNOSIS)

Each time the DiamondTel DT-22X is turned on, it performs a self-check. In case of DiamondTel DT-22X shows any of the "CHECK" code on its LCD display after being switched on, refer to applicable trouble condition below.

- CHECK 0 Booster Mark is not enabled in NAM program.
- CHECK 1 ESN check sum is incorrect.
- CHECK 2 NAM check sum is incorrect.
- CHECK 3 Synthesizer did not achieve lock.
- CHECK 4 RF power status did not indicate an on condition.
- CHECK 5 No software program loaded.
- CHECK 6 Illegal software program loaded.

- Note:
- 1) The digital display will show "CHECK" and the appropriate number.
 - 2) DiamondTel DT-22X does not use any CHECK code other than the ones described above.
 - 3) A "Check 2" problem can be solved by reprogram the NAM.
(refer to programming guide in this service manual)
 - 4) Electronic repairs to the PCB are performed by exchange of the complete PCB assembly. Components located on the PCB are not available for replacement. Parts such as speakers, push button, plastic covers, etc. available for replacement. Refer to the spare parts list for future information.

7. SERVICE INFORMATION

A cellular radio tester (such as Marconi 2955) and assorted bench tools are needed along with test jig (TF-22X) to service DiamondTel DT-22X.

7.1 Disassemble the Unit

- 1) Remove the battery.
- 2) Remove the 4 phillips screws on the back cover.
- 3) Insert fingertips in notches on side of front cover, pull unit apart.
Caution 1) Do not pull back cover too far apart. Pull only about an inch apart to prevent brake clips on back cover.
- 2) Make sure not to lose bracket which falls off from unit when removing back cover.
- 4) Remove the back cover.
- 5) Remove the 4 phillips screws on the board.
- 6) Pull the antenna all the way up.
- 7) Remove board assembly from top.

Note 1) Now, your DiamondTel DT-22X is in 3 main pieces to replace, front cover assembly, board assembly, and back cover.
2) Front cover assembly consists of keypad, interconnecting PCB, antenna and VR control knob.

7.2 Reassemble the Unit

- 1) Pull the antenna on front cover all the way up.
- 2) Put board assembly into front cover bottom side of board first.
- 3) Fasten 4 phillips screws on the board assembly.
- 4) Replace board bracket in its place. (it will only fit one way)
- 5) Put back cover onto front cover from top clips first in.
- 6) Fasten 4 black phillips screws on back cover.
- 7) Replace the battery pack.

8. ALIGNMENT

The DiamondTel DT-22X has External Interface Connector (Ext I/F Connector) and the battery terminal. Ext I/F Connector is normally used as the connection of accessories (CIA-22, CLK-A22, HFA-22X) and it can be also used for testing by using Ext RF terminal, audio I/O terminals and data I/O terminals at the Ext I/F Connector.

The DiamondTel DT-22X has no mechanical adjustment points on Printed Circuit Boards to align RF power level, SAT, DIMF, ST, and Voice deviation etc. But has electrical alignment points. The DiamondTel DT-22X has adapted a newly developed audio processor which contains electronics variable resistors. Therefore all alignment procedures are done by the keypad while in diagnostic mode.

Read the following information before proceeding.

- 1) Connect test unit as indicated in the block diagram.
- 2) All alignment use the Test Commands provided in this service manual.
- 3) Factory approved test jig (TF-22X) must be used to perform any alignments.

Block Diagram of Measurement

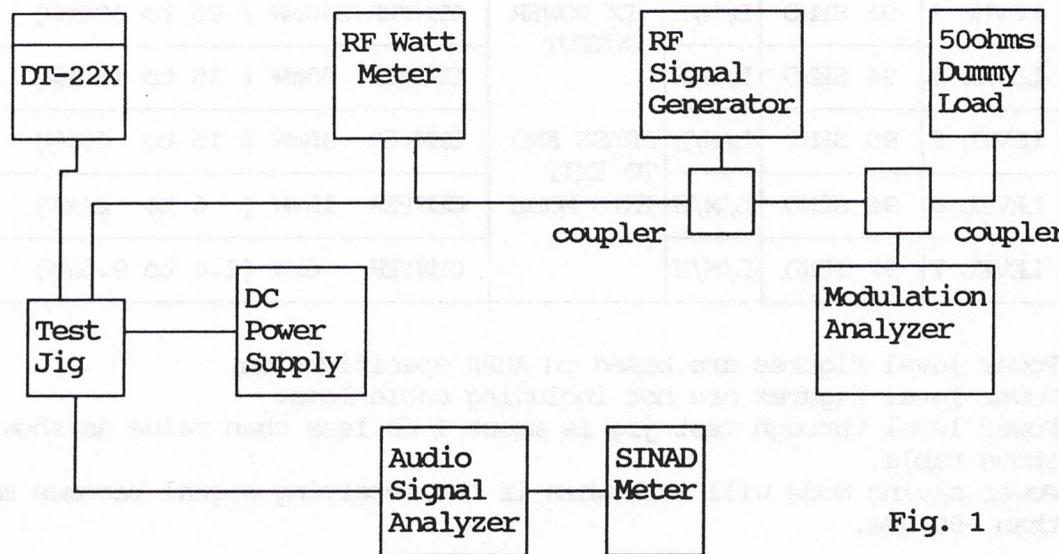


Fig. 1

Note: A Cellular Tester can substitute the above equipment as shown in fig 2.

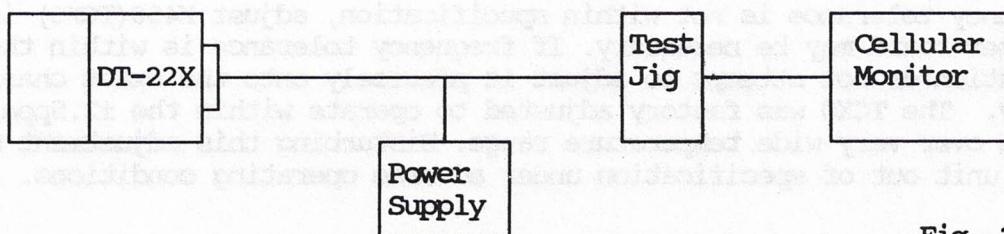


Fig. 2

8.1 TX RF Output Alignment

- 1) Apply +6.3V DC to the unit using EXT I/F Connector.
- 2) Press "PWR" to turn unit on and go into self-diagnostic mode.
- 3) Set the channel by press "0384 END".
- 4) Turn carrier on by press "01 SEND".
- 5) Select power level by press "91 SEND" to see they are in the specification.
- 6) If power level is out of specification, enter "62 SEND" to align power level by using volume keys. (you will see the numbers on the display)
- 7) After align the correct power level then press "END" to set the value.
- 8) Power level 3,4,5,6, and 7 by same method, and confirm RF power output as shown in table.

Table.

ITEM	COMMAND	CH	ADJUSTMENT	SPECIFICATION
POWER LEVEL	90 SEND	L/M/H	62 SEND USE VOLUME UP/DOWN KEY TO ADJ TX POWER OUTPUT	CENTER 600mW (240 to 950mW)
POWER LEVEL 2	91 SEND	L/M/H		CENTER 600mW (240 to 950mW)
POWER SAVING	92 SEND	L/M/H		CENTER 380mW (150 to 600mW)
POWER LEVEL 3	93 SEND	L/M/H		CENTER 240mW (95 to 380mW)
POWER LEVEL 4	94 SEND	L/M/H		CENTER 95mW (38 to 150mW)
POWER LEVEL 5	95 SEND	L/M/H		CENTER 38mW (15 to 60mW)
POWER LEVEL 6	96 SEND	L/M/H		CENTER 15mW (6 to 24mW)
POWER LEVEL 7	97 SEND	L/M/H		CENTER 6mW (2.4 to 9.5mW)

Note: 1) Power level figures are based on AMPS specification.
2) Power level figures are not including cable loss.
3) Power level through test jig is about 1 dB less than value as shown on above table.
4) Power saving mode will work when if the receiving signal becomes more than -90 dBm.

8.2 TX RF Frequency Alignment

while alignment of TX RF power level.

- 1) Read the frequency 836.520MHz $\pm 2.5\text{ppm}$ ($\pm 2091\text{Hz}$).
- 2) If frequency tolerance is not within specification, adjust X450(TCXO) in synthesizer board may be necessary. If frequency tolerance is within the specification do not attempt to adjust it precisely onto the exact channel frequency. The TCXO was factory adjusted to operate within the $\pm 2.5\text{ppm}$ tolerance over very wide temperature range. Disturbing this adjustment may make the unit out of specification under adverse operating conditions.

8.3 TX Maximum Deviation Alignment

- 1) Apply +6.3V DC to the unit using EXT I/F Connector.
- 2) Press "PWR" to turn unit and go into self-diagnostic mode.
- 3) Set the channel by press "0384 END".
- 4) Turn carrier on by press "01 SEND".
- 5) Enter "05 SEND" for TX audio unmute.
- 6) Enter "13 SEND" for external audio on.
- 7) Apply 800Hz 2.5V (8dBV) signal tone from audio signal generator to TX audio terminal and ground. (use 15kHz LPF)
- 8) Check for TX maximum deviation level is less than $\pm 11.5\text{KHz}$.
Note: When 1KHz tone is used instead of 800Hz tone, deviation level will be less value.
- 9) If not, set alignment mode by entering "60 or 61 SEND".
- 10) Use VR up/down key to align TX maximum deviation level.
- 11) Depress "END" key to set the value.
- 12) Enter "06 SEND" for TX audio mute.

8.4 TX Standard Deviation Alignment

- 1) thru 6) Do the same step as 8.3 TX Maximum Deviation Alignment.
- 7) Apply 1KHz 25mV (-32dBV) signal tone from audio signal generator to TX audio terminal and ground. (decrease audio level and uses 1KHz tone)
- 8) Check for TX standard deviation level is $\pm 2.9 \text{ KHz}$ deviation $\pm 10\%$.
- 9) If not, set alignment mode by entering "53 SEND".
- 10) Use VR up/down key to align TX standard deviation level.
- 11) Depress "END" key to set the value.
- 12) Enter "06 SEND" for TX audio mute.

8.5 DTMF Deviation Alignment

- 1) thru 4) Do the same step as 8.3 TX Maximum Deviation Alignment.
- 5) Enter "06 SEND" for TX audio mute.
- 6) Enter "45 SEND" for DTMF on.
- 7) Check for DTMF deviation level is $\pm 8.5\text{KHz} \pm 10\%$.
- 8) If not, set alignment mode by entering "54 SEND".
- 9) Use VR up/down key to align DTMF deviation level.
- 10) Depress "END" key to set the value.
- 11) Enter "30 SEND" for DTMF off.

8.5 WB Data Deviation Alignment

- 1) thru 4) Do the same step as 8.3 TX Maximum Deviation Alignment.
- 5) Enter "23 SEND" for WB data on.
- 6) Check for WB data deviation level is $\pm 8.0\text{KHz} \pm 10\%$.
- 7) If not, set alignment mode by entering "52 SEND".
- 8) Use VR up/down key to align WB data deviation level.
- 9) Depress "END" key to set the value.
- 10) Enter "24 SEND" for WB data off.

8.6 ST Deviation Test

- 1) thru 4) Do the same step as 8.3 TX Maximum Deviation Alignment.
- 2) Enter "07 SEND" for ST on.
- 3) Check for ST deviation level is $\pm 8\text{KHz}$ deviation $\pm 10\%$.
- 4) Enter "08 SEND" for ST off.

Note: ST is not adjustable.

8.7 SAT Deviation Alignment

- 1) thru 4) Do the same step as 8.3 TX Maximum Deviation Alignment.
 - 2) Set your test equipment to generate SAT on the same channel as test unit.
ex) Marconi 2955 must see letter "SAT" on RX screen next of audio level and
Marconi 2955A must see letter "2T" on RX screen next of audio level.
 - 3) Enter "82 SEND" for SAT on. (this is 6000 Hz)
 - 4) Check SAT frequency for 6KHz $\pm 100\text{Hz}$.
- Note: When SAT is lock, SAT frequency error is within 5Hz and display will show SAT OK.
- 5) Check for SAT deviation level is $\pm 2\text{KHz} \pm 10\%$.
 - 6) If not, set alignment mode by entering "55 SEND".
 - 7) Use VR up/down key to align SAT deviation level.
 - 8) Depress "END" key to set the value.
 - 9) Enter "80 SEND" for SAT off.
 - 10) Enter "02 SEND" for TX off.
 - 11) Turn unit off to complete TX audio level alignment.

8.8 Receiver Audio Level Alignment

- 1) thru 6) Do the same step as 8.3 TX Maximum Deviation Alignment.
- 7) Apply RF signal strength -60dBm , frequency 881.520MHz, modulated with 1KHz tone $\pm 8\text{KHz}$ deviation signal from a test equipment to the antenna connector of test jig.
- 5) Check for discriminator output level(pin #11 of J101) is $670\text{mV} \pm 150\text{mV}$.
- 6) If not, set alignment mode by entering "56 SEND".
- 7) Use VR up/down key to align RX audio level.
- 8) Depress "END" key to set the value.

8.9 Receiver Sensitivity Test

- 1) thru 6) Do the same step as 8.3 TX Maximum Deviation Alignment.
 - 7) Apply RF signal strength -116dBm , frequency 881.520MHz, modulated with 1KHz tone $\pm 8\text{KHz}$ deviation signal from a test equipment to the antenna connector of test jig.
 - 8) Check for RX sensitivity is better than 12dB SINAD.
 - 9) SINAD should be better than 12dB.
 - 10) If not, replace the RM-22 module and return to MELA service.
 - 11) Check for SINAD on Low channel. (channel 991, frequency 869.04MHz)
 - 12) Check for SINAD on high channel. (channel 799, frequency 893.97MHz)
- Note: 1) Must use Psophometric weighted SINAD meter to measure SINAD.
- 2) Loss of test jig is approximate 1dB.
- 13) Turn unit off to complete receiver test.

9. SCHEMATIC DIAGRAM AND PARTS LOCATION

9.1 General Block Diagram

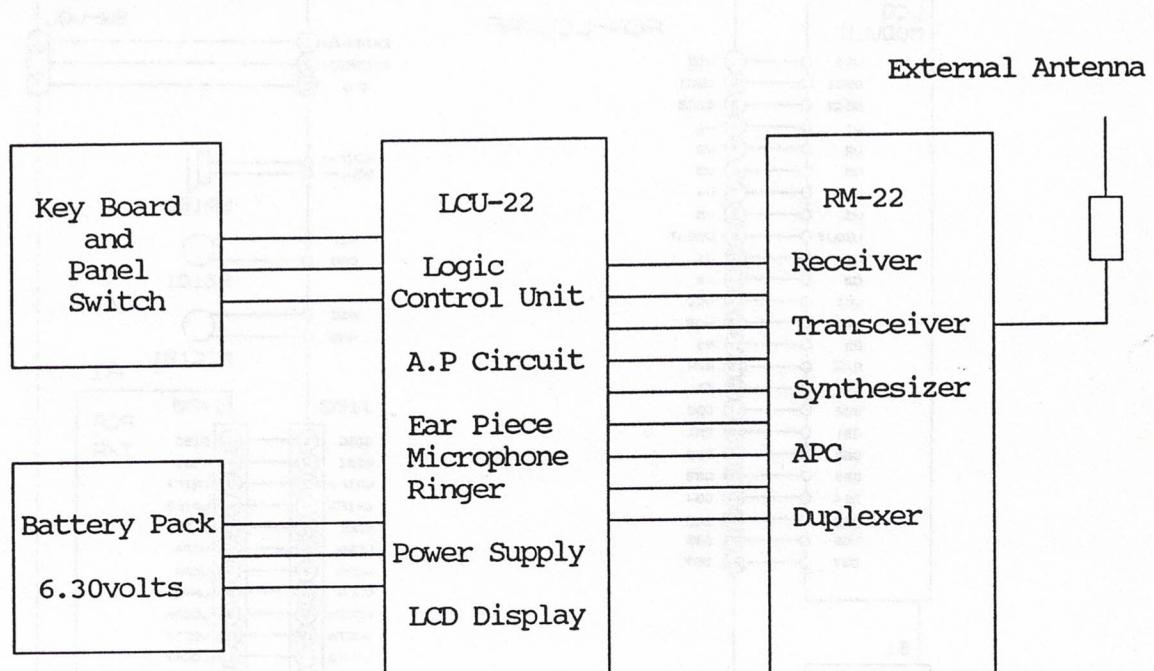
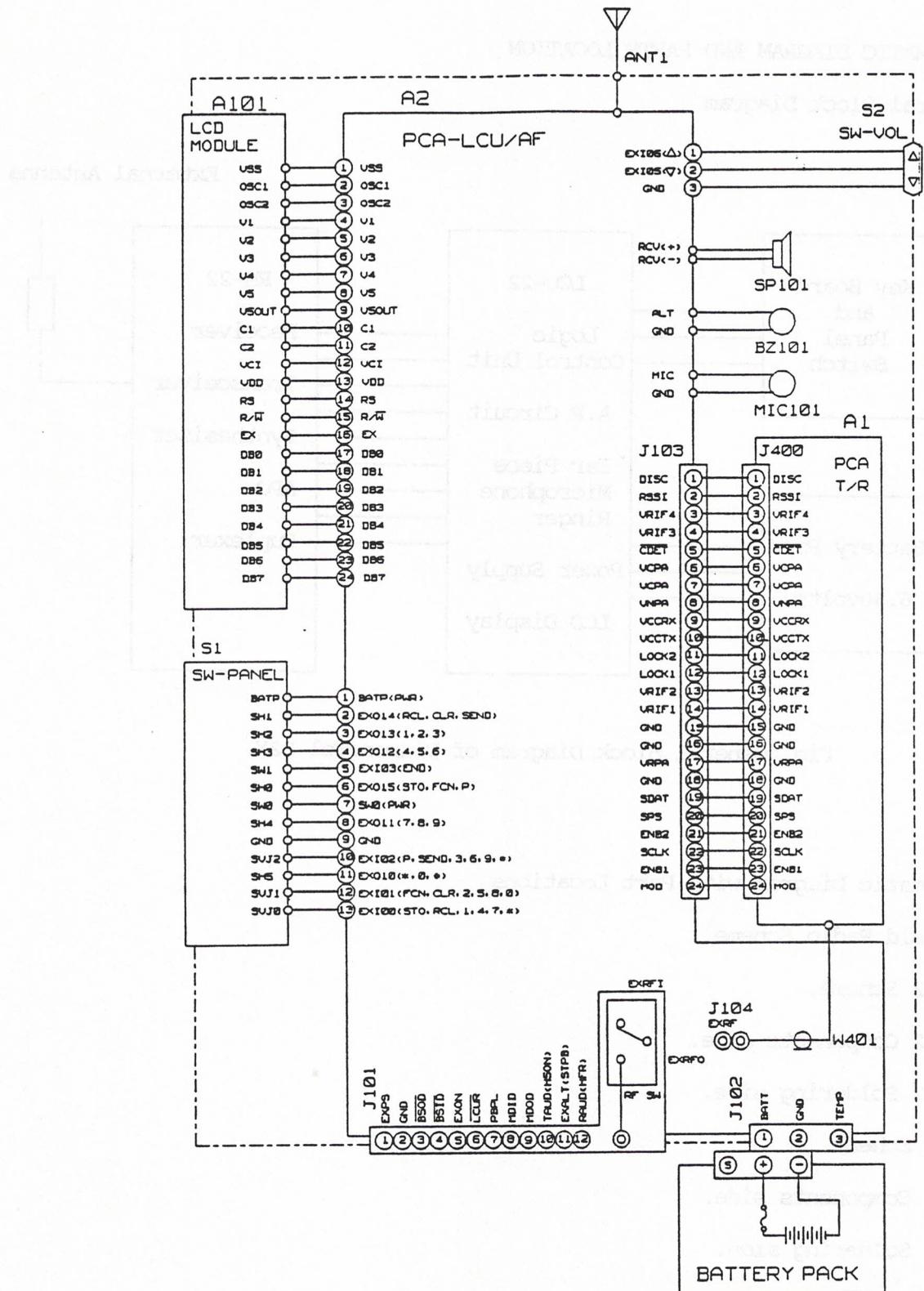


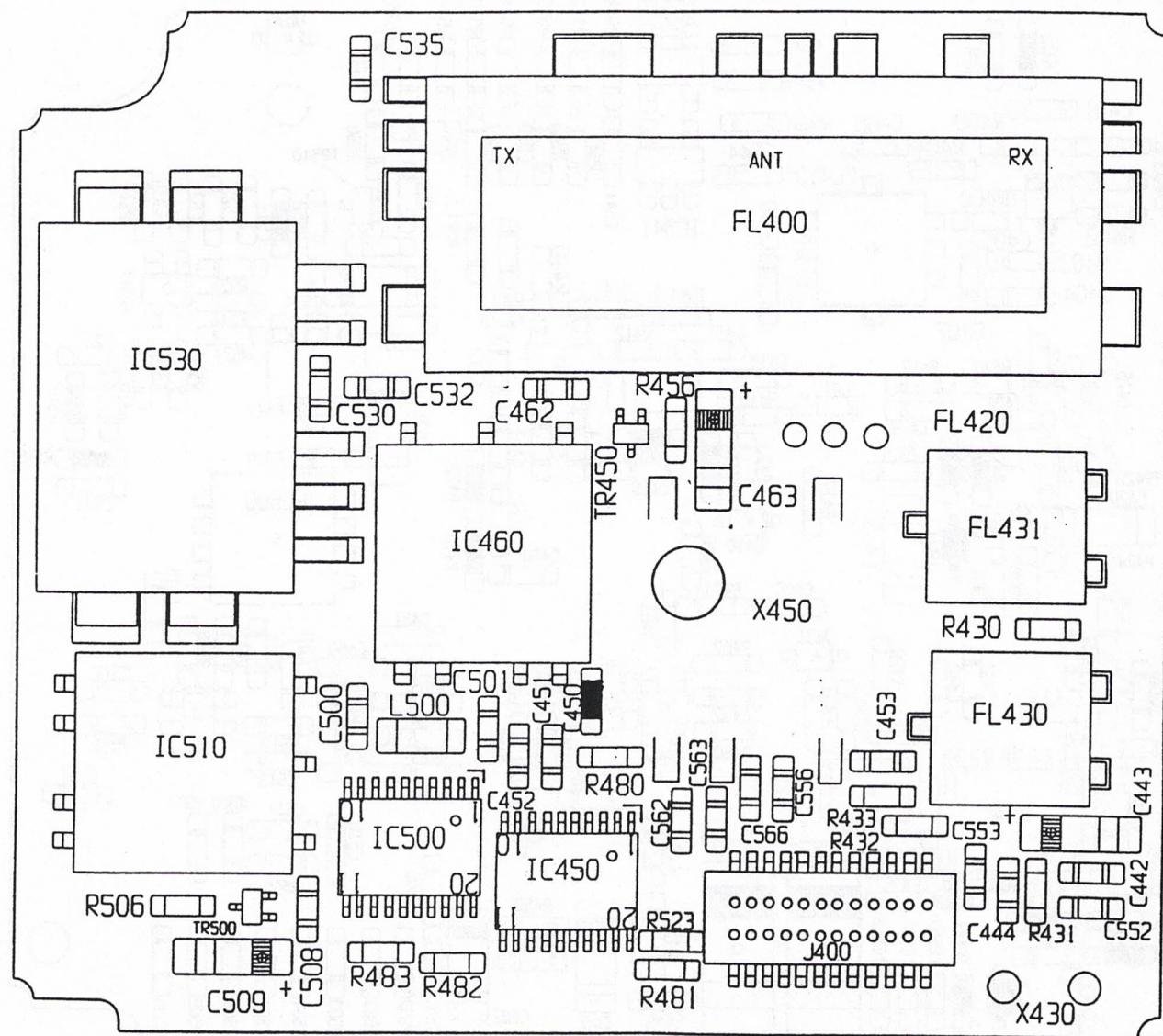
Fig. General Block Diagram of DiamondTel 22X

9.2 Schematic Diagram with Part Locations

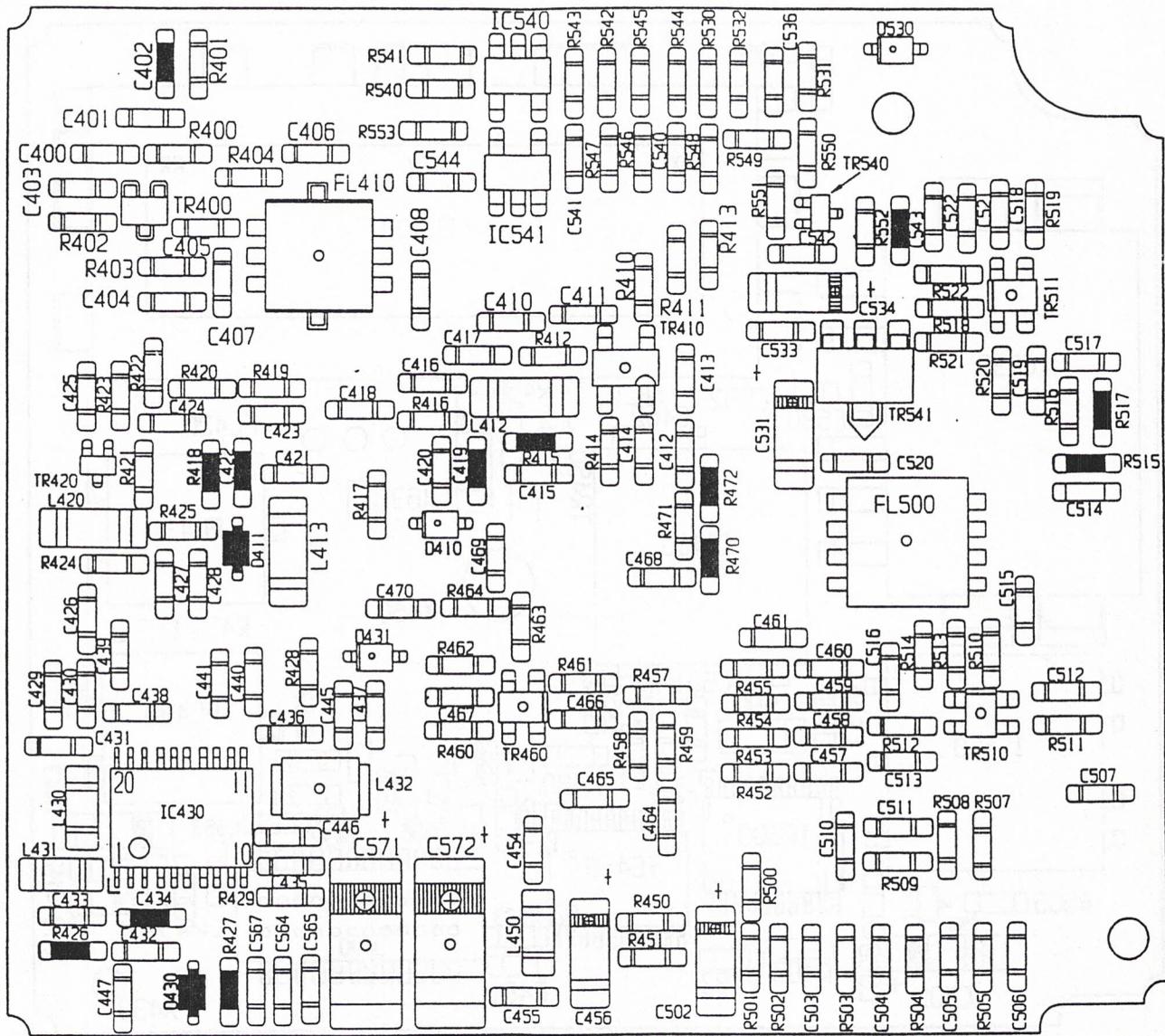
- 1) Handheld Radio Scheme.
- 2) LCU-22 Scheme.
- 3) LCU-22 Components side.
- 4) LCU-22 Soldering side.
- 5) RM-22 Scheme.
- 6) RM-22 Components side.
- 7) RM-22 Soldering side.



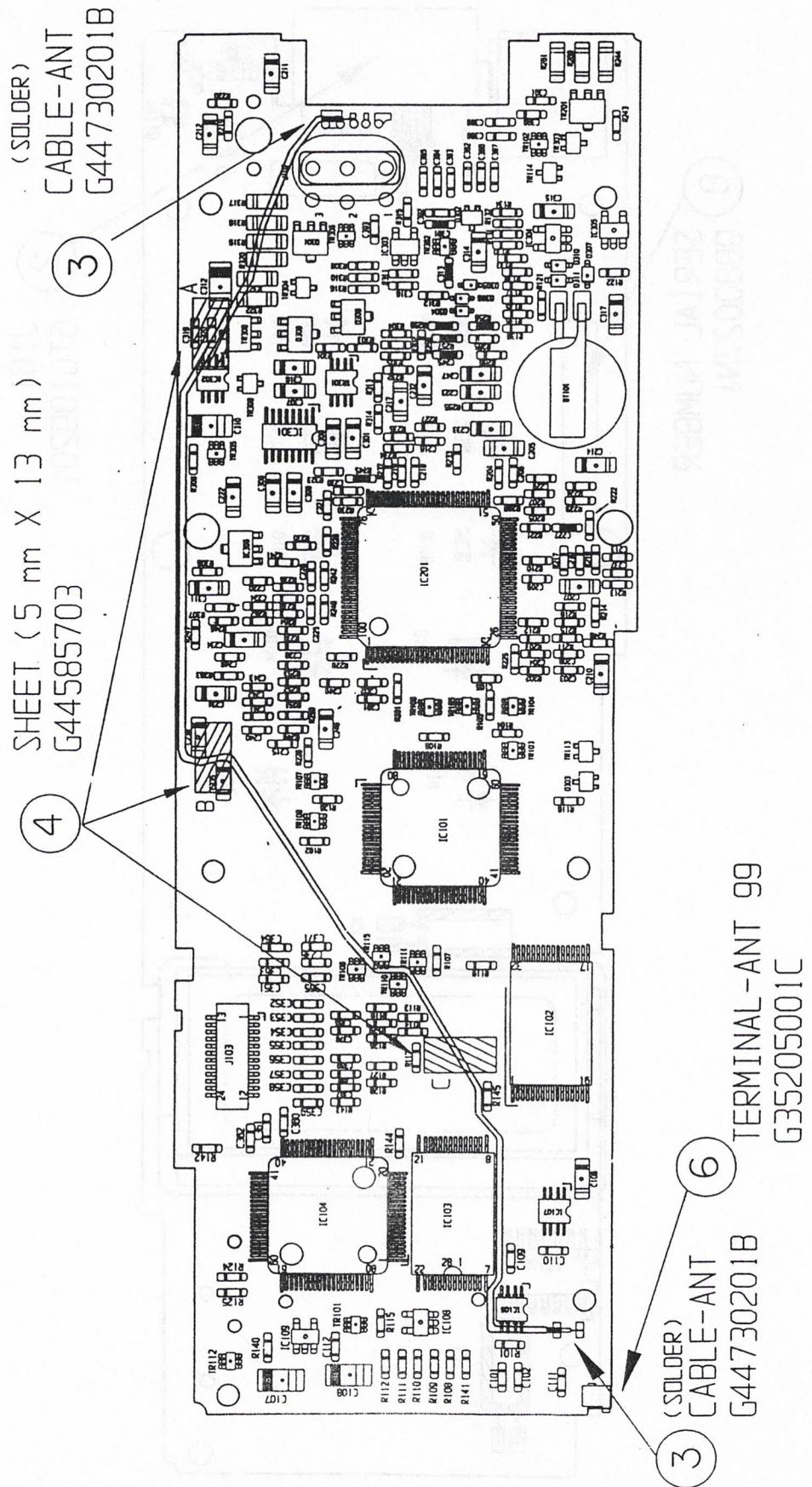
HANDHELD RADIO SCHEME

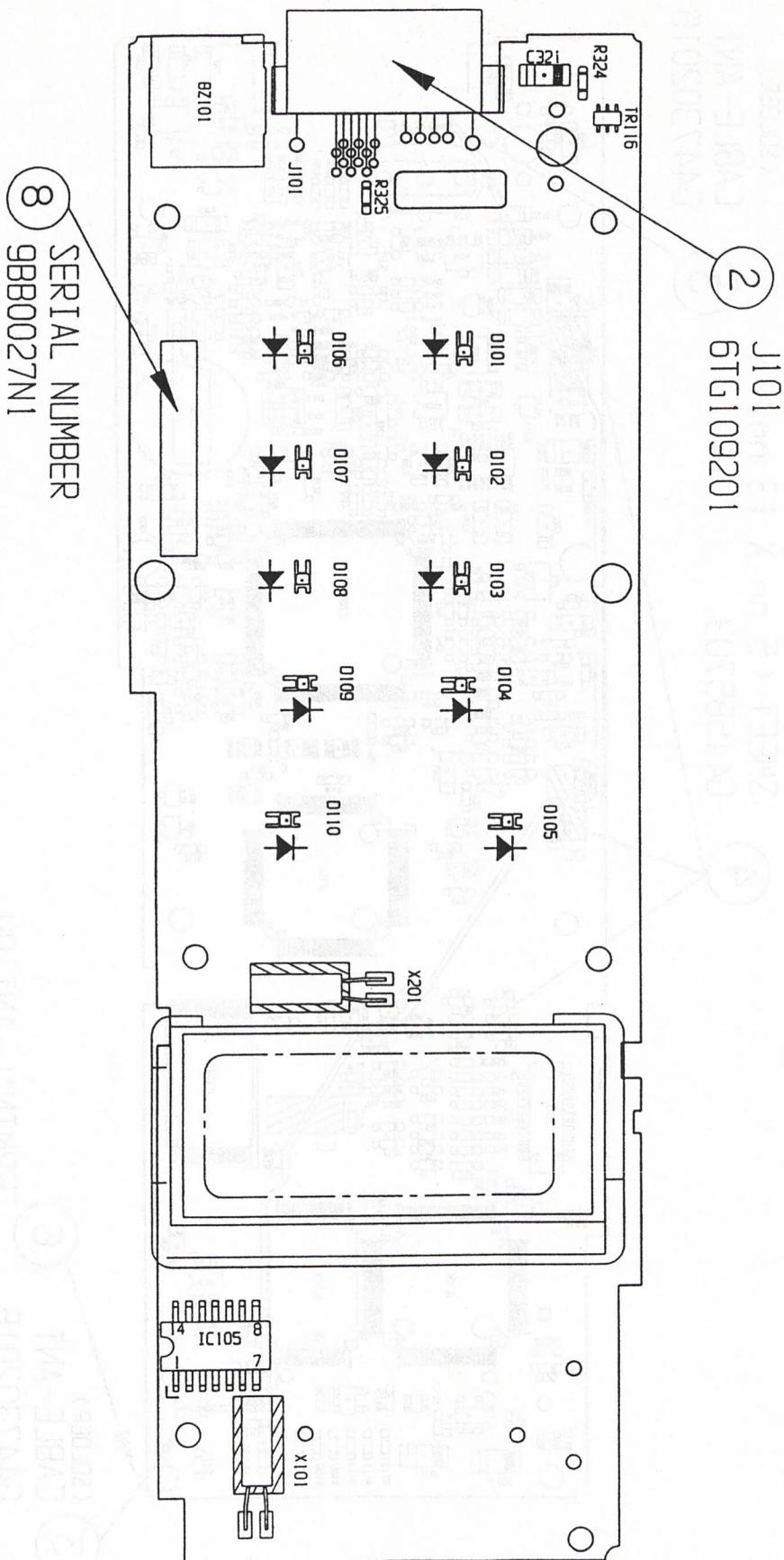


RM-22 COMPONENT SIDE



RM-22 SOLDERING SIDE





10. OPTIONAL ACCESSORIES

These accessories have been designed and tested for proper compatibility. Accessories from other manufacturers may not have been tested by Mitsubishi Electronics America, Inc. for compatibility. Damage to your DiamondTel DT-22X due to failure of non-authorized accessories is not covered by DiamondTel's limited warranty.

	DiamondTel Part No.
10.1 Standard Battery (FZ-1186A: NiCad)	BAT-22
10.2 High Capacity Battery (FZ-1188A: NiCad)	HCBP-22
10.3 Travel Charger (FZ-1191A)	CH-22
10.4 Desk Top Charger Kit..... contains:	DTC-22X
Desk Top Charger (FZ-1192A)	DTC-22
A/C Adaptor.....	AC-99
10.5 Cigarette Lighter Adaptor-1 (FZ-1193A)	CLA-22
10.6 Cigarette Lighter Adaptor-2 Kit..... contains:	CLK-A22
Cigarette Lighter Cord (FZ-1194A)	CLM-22
Cable Power/Antenna (FZ-1205A)	PAC-22
Hook Plate (FZ-1206A)	HP-22
10.7 Basic Holder (FZ-1196A)	MH-22
10.8 Hands Free Adaptor Kit..... contains:	HFA-22X
Hands Free Adaptor (FZ-1198A)	HFA-22
Hands Free Microphone (FZ-806A)	MIC-95
Power Cable (FZ-1201A)	HPC-22
Mounting Plate (FZ-1207A)	MP-22
Hook Plate (FZ-1206A)	HP-22
Optional - not included in kit - External Speaker (FZ-1283A)	SPRK-22
10.9 3 Watt Booster Kit..... contains:	BK-22X
3 Watt Booster (FZ-1209A)	BK-22
Control Cable (FZ-1069A)	RC-99
RF Cable (FZ-1070A)	RFC-22

10.1 STANDARD BATTERY PACK

1) General

The Standard Battery Pack (type FZ-1186A) is specially made as the dedicated d.c. source for the phone, and includes 5 rechargeable nickel-cadmium battery unit with output short protection by the thermal switch.
Be sure to use genuine chargers when charging this type of battery pack.

2) Electrical Specifications

(1) Output Voltage	6.30 V
(2) Capacity	400 mAh
(3) Charging Temperature	0 to +45°C
(4) Discharging Temperature	-20 to +60°C
(5) Storage temperature	-30 to +50°C 3 month Max.
(6) Life Time	300 Cycles (0.1C charging rate at 25°C)

3) Mechanical Specifications

Dimensions

Height	3 11/16"	(95 mm)
Width	2 1/8"	(55 mm)
Depth	5/16"	(9 mm)

10.2 EXTENDED BATTERY PACK

1) General

The Extended Battery Pack (type FZ-1188A) is specially made as the dedicated d.c. source for the phone, and includes 5 rechargeable nickel-cadmium battery unit with output short protection by the thermal switch.

Be sure to use genuine chargers when charging this type of battery pack.

2) Electrical Specifications

(1) Output Voltage	6.30 V
(2) Capacity	950 mAh
(3) Charging Temperature	0 to +45°C
(4) Discharging Temperature	-20 to +60°C
(5) Storage Temperature	-30 to +50°C 3 month Max.
(6) Life Time	300 Cycles (0.1C charging rate at 25°C)

3) Mechanical Specifications

Dimensions

Height	3 11/16" (95 mm)
Width	2 1/8" (55 mm)
Depth	11/16" (17.5mm)

IMPORTANT INFORMATION FOR NI-CAD BATTERIES.

Proper care of Ni-Cd batteries can extend their life. So following should be observed.

- a) The battery which comes with the transceiver unit is NOT charged completed. Prior to using the transceiver, the battery should be conditioned. A battery self-discharged during storage, and may be inactivated after long-term storage. It is recommended that they be stored in their chemically stable, discharged state. Though the capacity is less at the 1st charging after long-term storage, it will be recovered within some couples of slow rate charge/discharge cycles.
- b) The battery should be charged only with a genuine charger.
- c) Batteries must be charged COMPLETELY and discharged COMPLETELY for the best results. OVERCHARGING a battery will greatly reduce the life and use time of the battery.
- d) Charge batteries within a specified temperature range. The advisable temperature range is from 0 to 45°C, for ordinary charging, or 10 to 45°C for quick charging. Charging at low temperatures, below 0°C, increases the gas pressure in the cell and sometimes operates the safety vent. The charge efficiency decrease at high temperature, over 45°C, and the cell materials may deteriorate.
- e) Overdischarge over a prolonged period may deteriorate the charge efficiency, temporarily, due to the inactivation of the cell.
- f) Use a battery until the phone shuts off. If the battery capacity does not recover due to memory effect, then refresh it by using the Desk Top Charger (type FZ-1192A).
- g) Batteries should be stored in normal, dry, ambient condition, in temperatures ranging from -10 to 35°C for long-term storage.
- h) Do not dispose ANY batteries in a fire. They can explode. Do not attempt to repair or open the battery pack. If the battery become damaged, it should be replaced with only a genuine DiamondTel battery.
- i) Do not disassembly the battery pack.
- j) If the battery case breaks accidentally, AVOID contact with the battery's internal chemicals. If chemicals contact the skin, wash immediately with water. Seek immediate medical assistance if chemical gets into the eyes or on other sensitive parts of the body.
- k) The life time of battery is approximately 300 cycles with recharge cycles at 0.1 C/25°C charging rate.

10.3 TRAVEL CHARGER

1) General

A travel battery charger (type FZ-1191A) can charge the standard battery (Slim Battery Pack) at an 8 hours charging rate or the high capacity battery pack (Extended Battery Pack) at 18 hours, respectively. Flip up the blades on the back side of the charger and plug into AC outlet.

Red LED indicates charging is in progress for the battery pack. This LED indicator does not change to off after charging. Take off the battery pack after charging has been completed so as not to reduce the life and capacity of the battery pack.

2) Electrical Specifications

(1) Power Supply Voltage	120 V A.C. ±10% (50 / 60 Hz)
(2) Charging Time	Standard Battery Pack Extended Battery Pack
	8 Hours 18 Hours
(3) Operating Temperature	0 to +40°C
(4) Storage Temperature	-30 to +70°C

3) Mechanical Specifications

Dimensions	Height	4 1/2" (114 mm)
	Width	2 1/4" (57 mm)
	Depth	1 3/16" (30 mm)

10.4 DESK-TOP CHARGER

1) General

The Desk-top Charger (type FZ-1192A) can charge one battery pack at a fast rate and can also charge the attached battery of the phone for slow rate. The charging time of the spare battery pack is 1 hour for standard (Slim Battery Pack) and 2.5 hours for the high capacity battery pack (Extended Battery Pack), respectively. The power is supplied through the attached AC/DC adapter from the 120 volt AC outlet.

The spare battery side of Desk-top Charger has built-in discharge function for protection of the memory effect. This function operates by pressing the discharging button. Rapid charge starts to charge the battery pack after the discharging is completely automatically.

During rapid charging, the LED turn to red. After finishing rapid charging, the color of the LED changes from red to green. During the discharging of the battery pack, the LED flashing by green. Charging of the battery attached to the phone is indicated by the LED being red. This LED does not switch in color as the unit continues with trickle charging.

2) Electrical Specifications

(1) Power Supply 13.8 V D.C. $\pm 10\%$
 750 mA

(2) Charging Time

	Slim battery	Extended battery
Spare Slot	1 Hour	2.5 Hours
Radio Slot	8 Hours	8 Hours

(3) Operating Temperature 0 to +40°C

(4) Storage Temperature -30 to +70°C

3) Mechanical Specifications

Dimensions

Height	2"	(50.0mm)
Width	3"	(76.0mm)
Depth	4 3/8"	(115.0mm)

10.5 CIGARETTE LIGHTER ADAPTER-1 (CLA-22)

1) General

The Cigarette Lighter Adapter-1 (type FZ-1193A) allows the user to operate the phone, saving the power consumption of the attached battery by connecting the car's cigarette lighter socket. Unplug the cigarette lighter adapter when you leave the car. This prevents unnecessary car battery consumption.

2) Electrical Specifications

(1) Power Supply Voltage	13.7 V D.C. $\pm 10\%$ 600 mA Max.
(2) Output Voltage	8.5 V $\pm 10\%$
(3) Output Current	600 mA Max.
(4) Operating Temperature	-30 to +60°C
(5) Storage Temperature	-30 to +70°C

3) Mechanical Specifications

Cable Length Coiled Cord approximately 1 ft. 10 1/2" (570mm)

10.6 CIGARETTE LIGHTER ADAPTER-2 (CLK-A22)

1) General

The Cigarette Lighter Adapter-2 (type FZ-1194A) allows the user to operate the phone, saving the power consumption of the attached battery by connecting the car's cigarette lighter socket or car's battery using by Cable-CLA-2. The 3W-Booster and the car mount type antenna connection is available by using the CLA-2. Unplug the cigarette lighter adapter-2 when you leave the car. This prevents unnecessary car battery consumption.

The CLA-2 kit consists of the following equipments.

a) CLA-2	FZ-1194A
b) Cable-CLA-2	FZ-1205A
c) Hook Plate	FZ-1206A

2) Electrical Specifications

(1) Power Supply Voltage	13.7 V D.C. ±10%
(2) Output Voltage (for phone)	8.5 V ±10%
(3) Output Current (for phone)	600 mA Max.
(4) Operating Temperature	-30 to +60°C
(5) Storage Temperature	-30 to +70°C

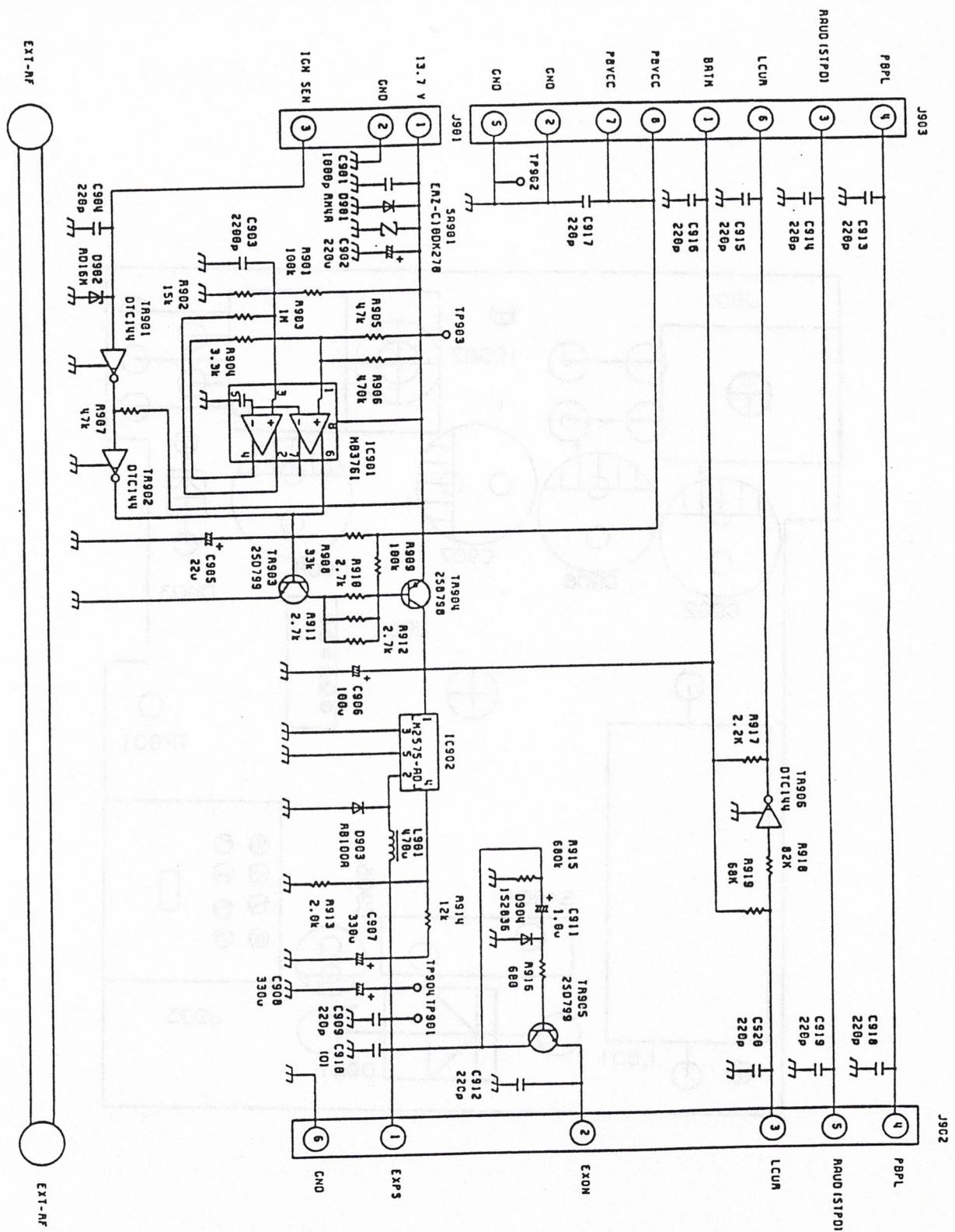
3) Mechanical Specifications

(1) Cable Length Coiled Cord	approximately 1 ft. 10 1/2" (570mm)
(2) Cable-CLA-2	approximately 6 ft. 7" (2000 mm)

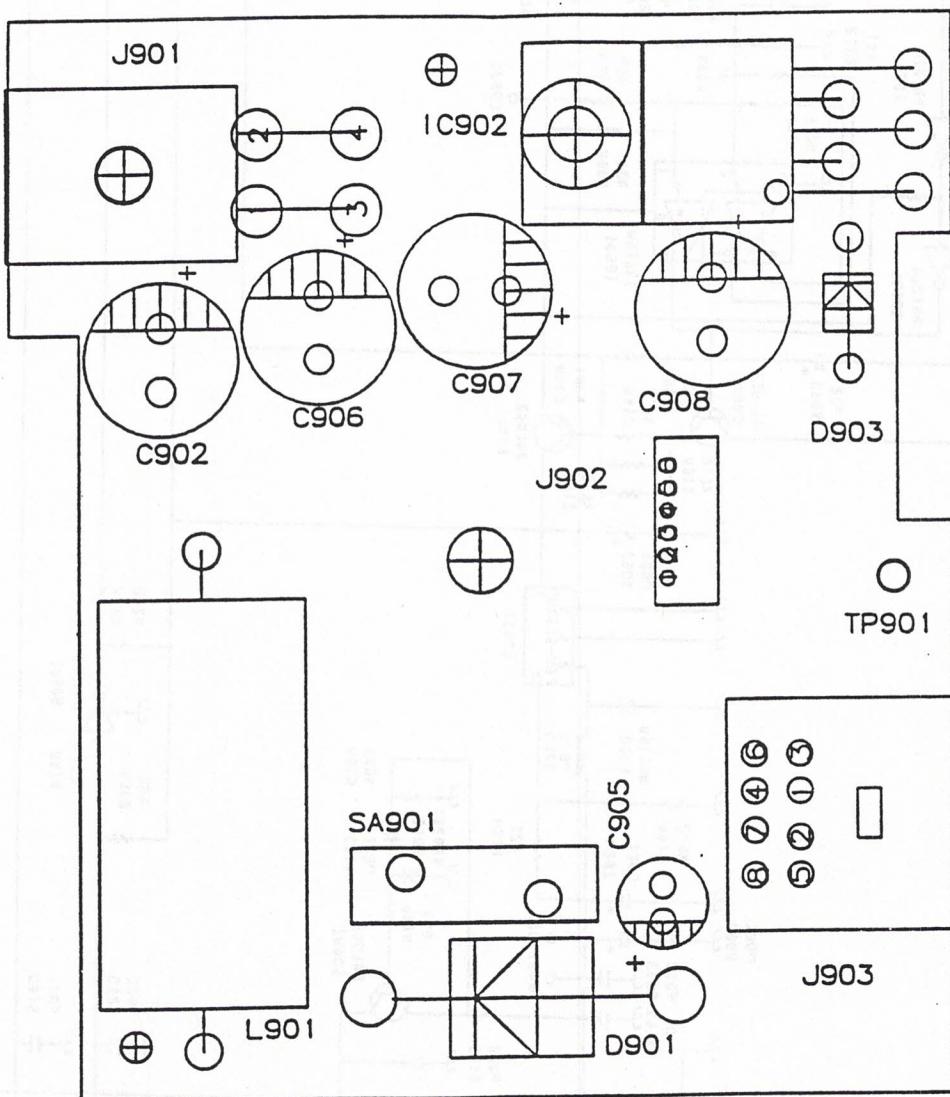
4) CLK-A22 Scheme

5) CLK-A22 Component side

6) CLK-A22 Soldering side



CLK-A22 SCHEME



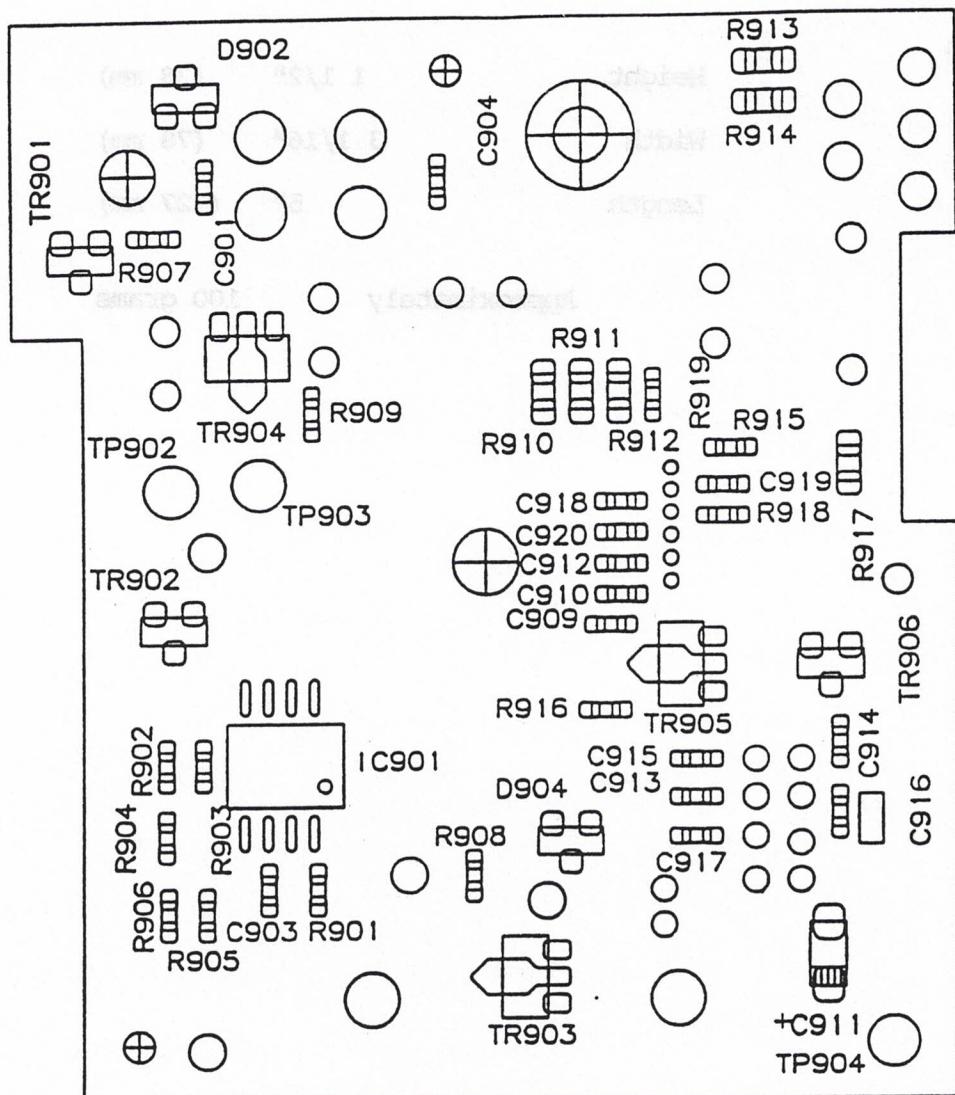
CLK-A22 COMPONENT SIDE

SECTION DRAWING A.01

Internal (I)

Locating X22-A22 Reference to solder pattern see a at bottom right cell
marked with a circle.

ENCLOSURE DRAWING (S)



CLK-A22 SOLDERING SIDE

10.7 SIMPLE HOLDER

1) General

The Simple Holder is a car mounting holder for DiamondTel DT-22X personal phone system.

2) Mechanical Specifications

Dimensions

Height	1 1/2"	(38 mm)
Width	3 1/16"	(78 mm)
Length	5"	(127 mm)

3) Weight

Approximately 100 grams

10.8 HANDS-FREE ADAPTER

1) General

By using the H/F Adapter (HFA-22X) kit, the users can receive the following services:

- (1) Handsfree operation with H/F speaker and external microphone or normal handheld operation with handheld microphone and speaker.
- (2) DC power supply for radio operation.
- (3) Car antenna connection.

The H/F Adapter (HFA-22X) includes all the necessary circuit for proper operation, and its construction allows easy installation next to the seat of most vehicles. By providing the necessary interfaces for the car antenna, car battery, car ignition sense, Handsfree Microphone and the phone, it is possible to operate the DiamondTel DT-22X phone in a car, as a mobile unit with the handsfree feature.

The phone is connected with the external interface connector installed in the H/F Adapter. The handsfree speaker and a hook switch are included in the H/F Adapter. When the phone is connected in the H/F Adapter, the handsfree circuit operates and the user can communicate by using the handsfree microphone and the handsfree speaker. When the phone is picked up from the H/F Adapter, the audio paths are automatically switched to the internal (the handsfree operation is disabled) and the phone can be used as a handset with the speaker and the microphone of the phone active. User can choose either communication mode. When external speaker is connected to the H/F Adapter, the speaker path is automatically switched to the external speaker from internal handsfree speaker.

The H/F Adapter has an adjustable volume for receiving audio level. In this case, volume of the phone is used for ringing tone and DTMF tone.

A RF coaxial Cable(TNC type) is provided with the H/F Adapter for connection with the external car antenna. When using a car antenna, RF power is diverted from the retractable antenna in a car.

H/F Adapter System consists of the following equipments,

(1) H/F Adapter	FZ-1198A
(2) Cable-Power	FZ-1201A
(3) Handsfree Microphone	FZ-806A
(4) Mounting Cradle	FZ-1207A
(5) External Speaker	FZ-1283A
(6) Hook Plate	FZ-1206A
(7) 3-dB Gain Car Mount Antenna	
(8) 50-ohms RF Cable	

The items (7) and (8) are not provided by DiamondTel.

2) Electrical Specifications

(1) Supply Battery Voltage Range	11.0 - 16.0 V
Nominal	13.8 V
(2) Charging Current	80 mA
(3) Charging Time	Slim Battery Pack Extended Battery Pack
	8 hours 15 hours
(4) Short Circuit Current	< 200 mA
(5) RF Output Power (at connector)	0.3 Watts
(6) RF Sensitivity (at connector)	12 dB SINAD -116 dBm
(7) Operating Temperature Range	+5 to +45°C (41°F to 113°F for charging)
(8) H/F Microphone Sensitivity	Standard deviation at 75 ±3 dBspl
(9) Voice Communication Mode	i) Handheld Mode (when the radio is picked up from H/F Adapter) ii) Handsfree Mode (when the radio is installed in H/F Adapter)
(10) Speaker	Rated maximum input 2 watts

3) Mechanical Specifications

(1) Cable Length

Cable-POW-EXT	approximately	8 ft.	(2500mm)
Cable-POW-H/F	approximately	2 1/2 ft.	(750mm)
Dummy Battery-Adapter-Cable	approximately	1 1/2 ft.	(500mm)
Antenna Cable	approximately	2 1/3 ft.	(730mm)
Handsfree Microphone	approximately	14 ft.	(4500mm)

(2) Dimensions

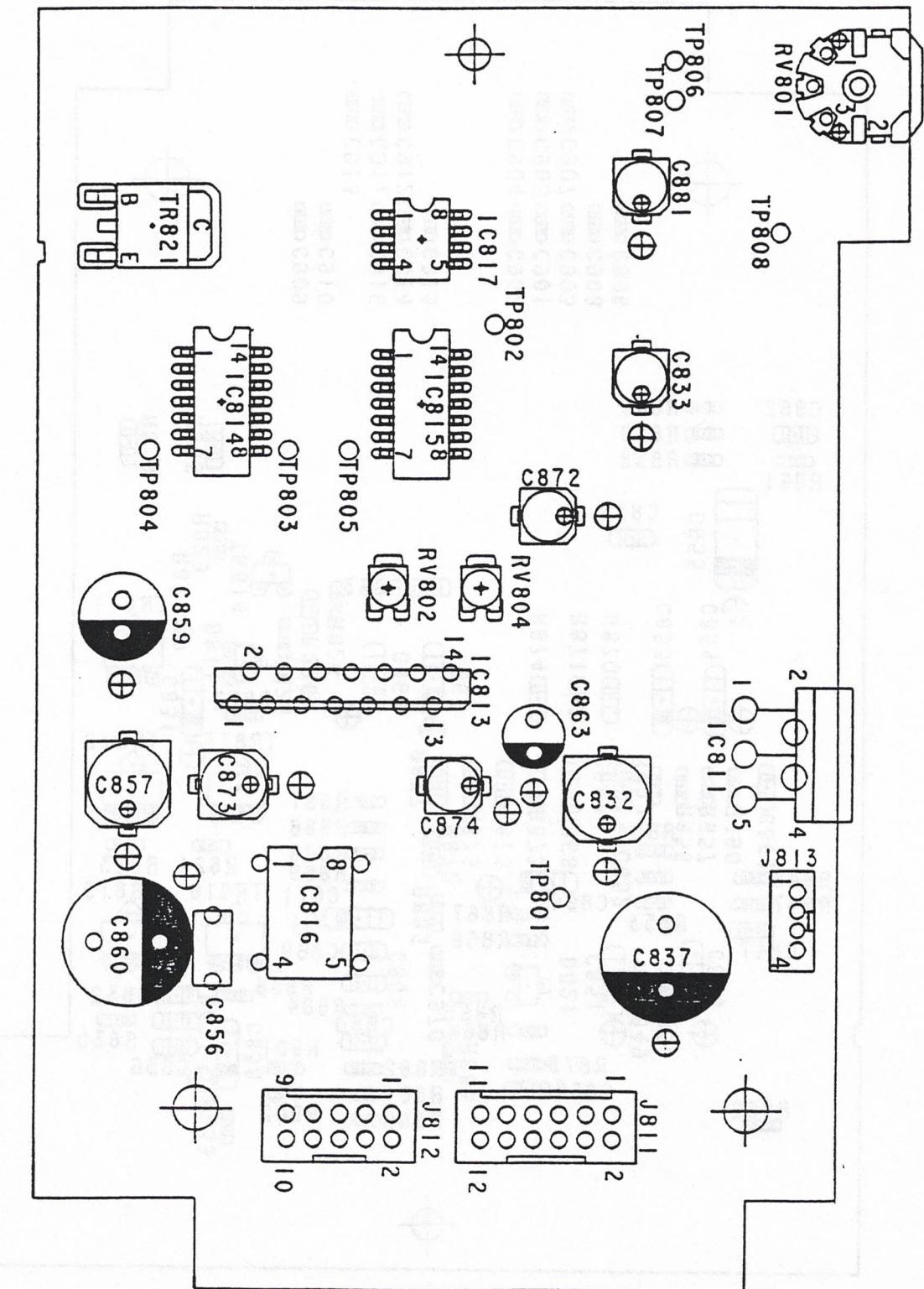
H/F Adapter

Height	2 19/32"	(65.5mm)
Width	3 3/32"	(78.0mm)
Depth	5 3/16"	(131.5mm)

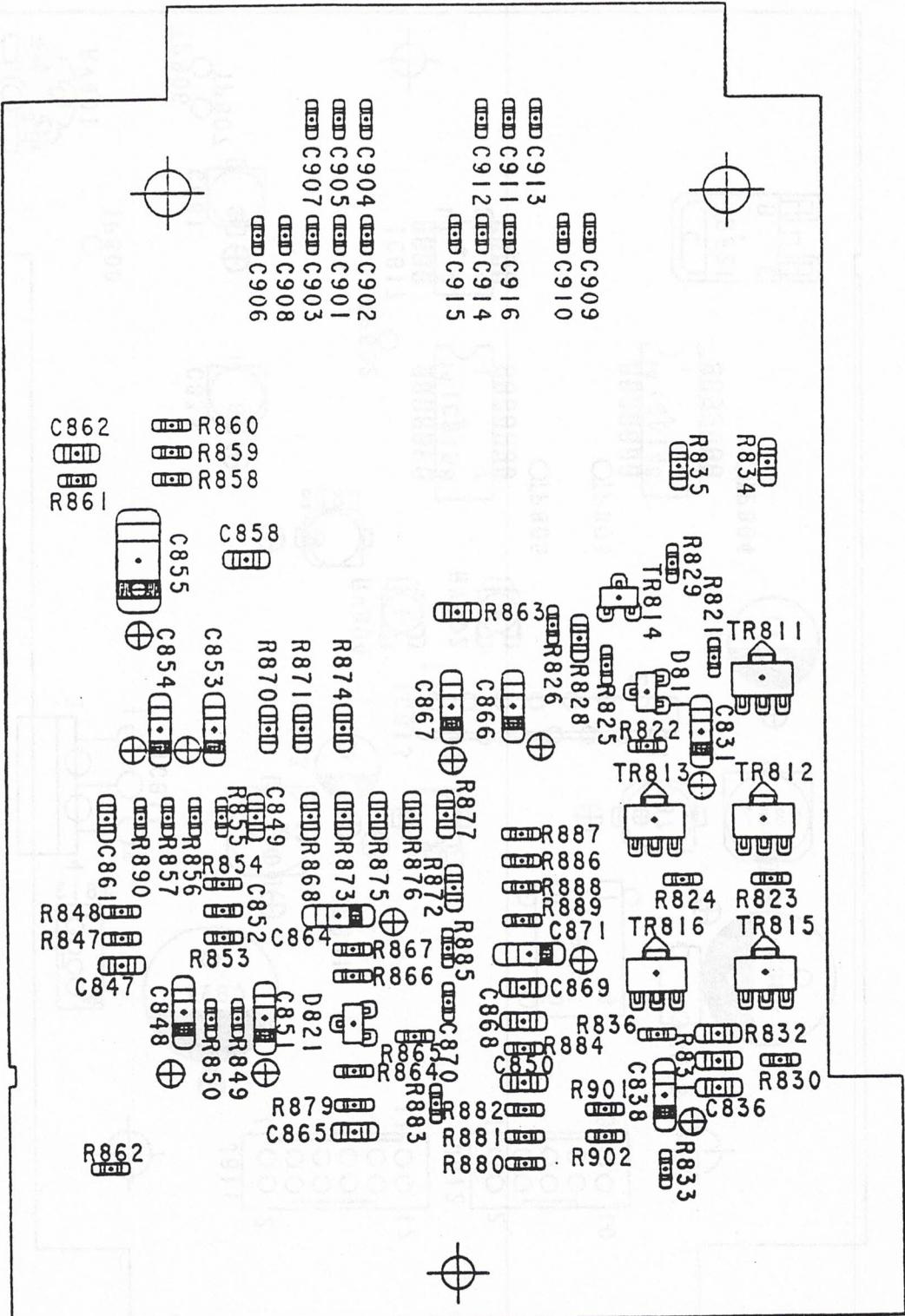
4) HFA-22X Scheme

5) HFA-22X Component side

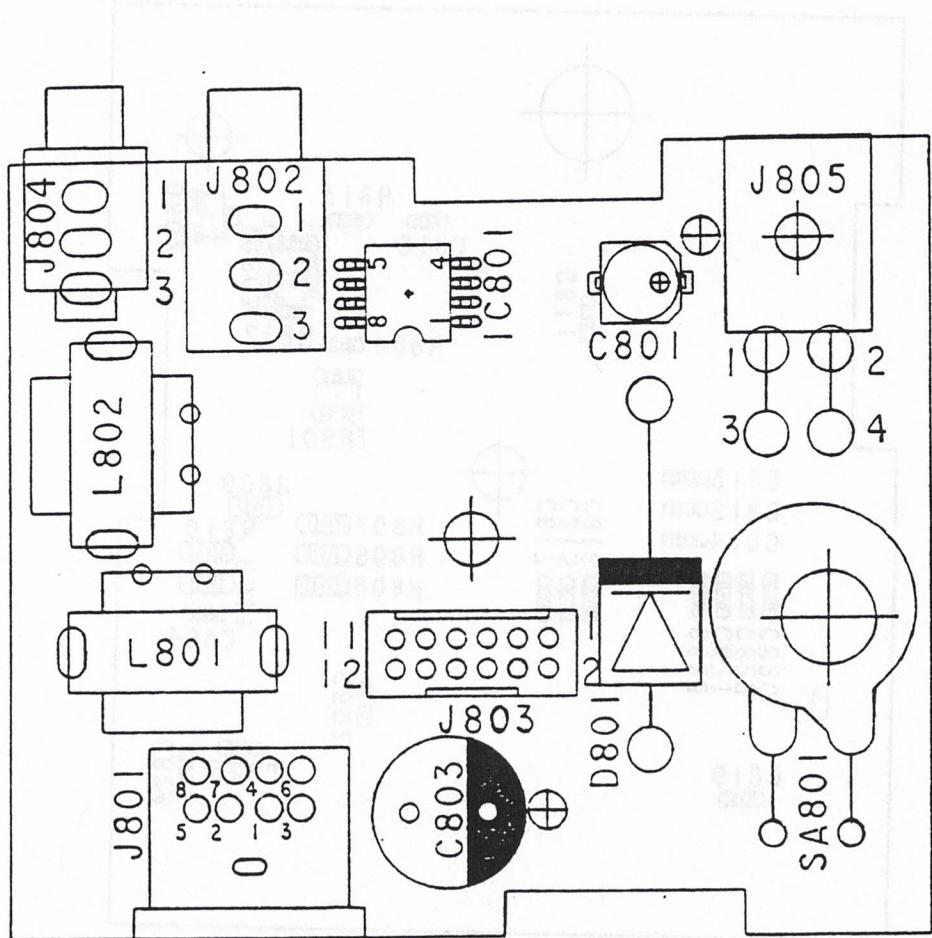
6) HFA-22X Soldering side



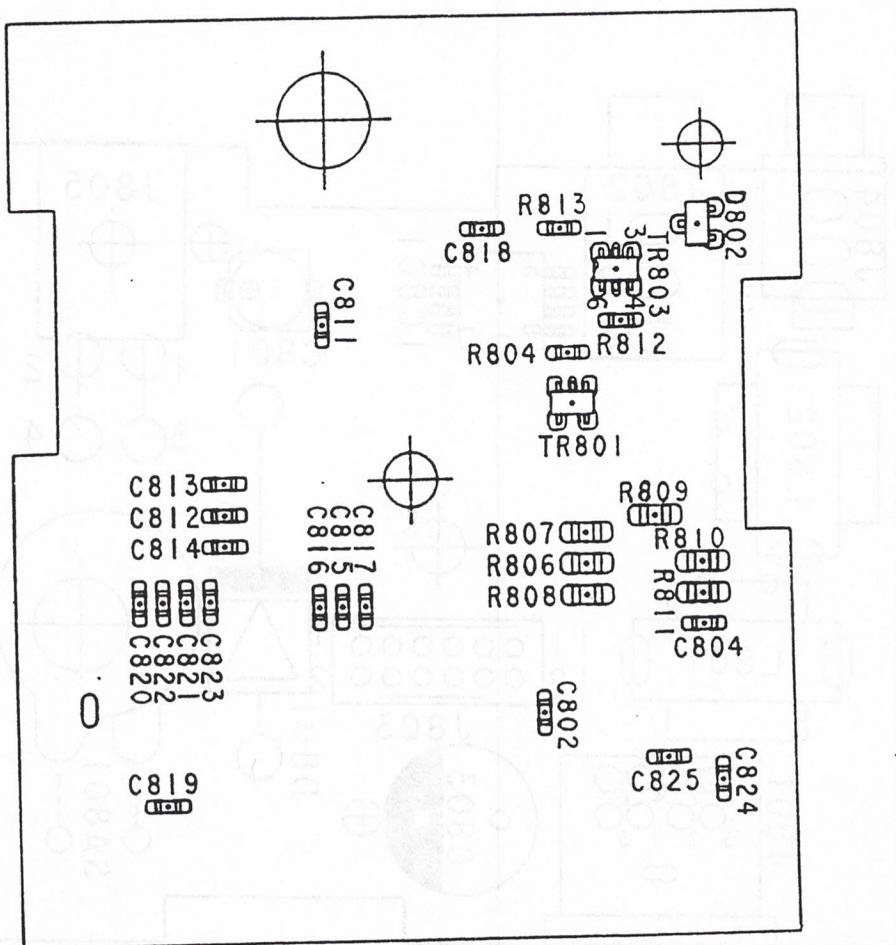
HFA-22X COMPONENT SIDE



HFA-22X SOLDERING SIDE



JUNCTION BOX COMPONENT SIDE



JUNCTION BOX SOLDERING SIDE

10.9 3 WATT BOOSTER

1) General

The 3 watt booster increases the RF output power of a class 3 mobile station from 0.6 watts to 3 watts. This output power level is equivalent to power output

of a class 1 mobile station. This booster has been designed to be connected to a 3-dB gain car antenna. The booster also maintains the receiver sensitivity of the unit by the use of two receiver amplifiers in its circuitry. This amplifier will compensate for any losses in coaxial cables between the mobile station and the car antenna.

The booster connection to the mobile station is done through the hands free adapter. Coaxial cable and TNC type connectors are used for RF connection, and a 8-wire cable (control cable) and DIN type connectors provide DC power supply and other control signals to the booster. The booster is generally installed in the vehicle's trunk area using a mounting bracket. The connecting cables are 5 meters long. The length of these cables should not be altered since this might affect the satisfactory operation of the booster.

The power level control is accomplished by employing a constant gain power amplifier design. The output power level of the booster is determined by detection of the output power of the mobile station. A switching analog signal from the mobile station will change the gain of the power amplifier to provide the two additional power output levels required for class 1 operation.

Taking into account the gains and losses of antenna, cables and other equipments, the RF output power of the booster is set for a maximum of 3 watts. This will fulfill the requirement for the effective radiated power of the class 1 mobile station.

3W-Booster System consists of the following equipments,

- | | |
|---------------------------------|----------|
| (1) 3W- Booster | FZ-990A |
| (2) Cable-RF | FZ-1070A |
| (3) Cable-Control | FZ-1069A |
| (4) Mounting Bracket | FZ-1034A |
| (5) 3-dB Gain Car Mount Antenna | |

The item (5) is not provided by DiamondTel.

2) Booster Operation

Since there is no CPU in the booster, the software associated with power level control is implemented in the mobile station's CPU. The booster simply acts as a power amplifier with constant gain factor. As it may be seen from schematic diagram, the RF signal from the mobile station is first detected and then is fed to the power amplifier. The output of the power amplifier is once again detected and then, through an isolator and a duplexer filter, is sent to the car antenna. By comparing the signal level at the input and the output of the power module the gain of the power module is kept constant. To provide the

two extra power levels for the Class 1 operation, the IC 704 is used to change the gain of power amplifier. This IC detects the presence of an analog signal on PBPL line and after comparing it with some reference signal sets the gain of the power amplifier. If the RF output power is to be from level 2 to level 7 then the mobile station output is its normal output power for these levels. In this case the booster simply amplifies this signal only to compensate for the losses occurring between the mobile station and the antenna. If RF output level 0 or level 1 is specified by the base station then the mobile station will provide output power level of 3 or level 4 respectively. And in this case the booster will amplify this signal to level 0 or level 1. By using four switching transistors it is possible to turn off the DC power supply to the power module if battery voltage is out of specified range, or the mobile station is off, or the transmitter is off.

3) Electrical Specifications

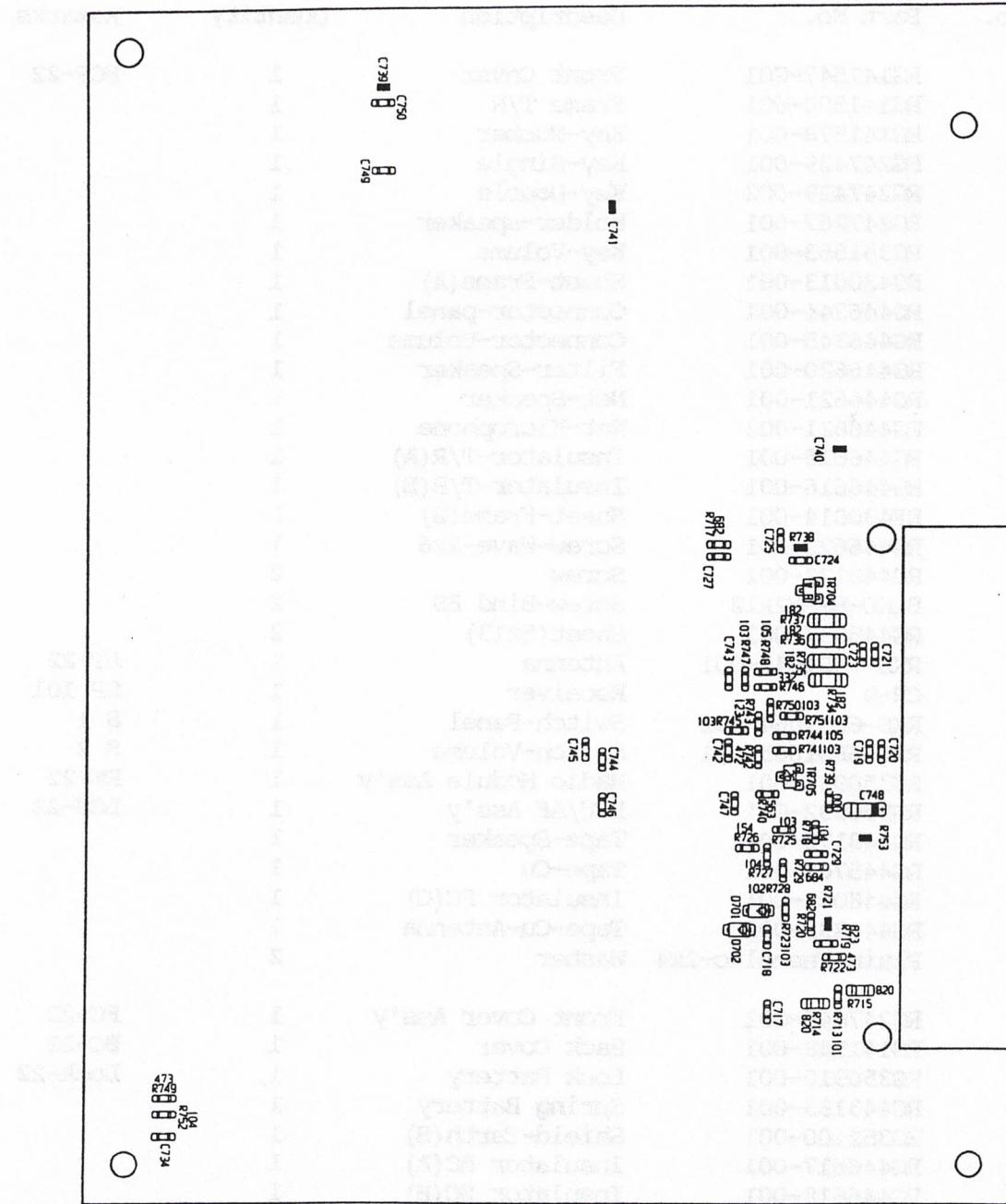
(1) Operating Frequency Range	Transmit	824.040 - 849.970 MHz
	Receive	869.040 - 893.970 MHz
(2) Maximum RF Power		3 W
(3) Power Supply Voltage Range		11.0 - 16.0 Volts
(4) Operating Temperature Range		-30 - +60°C
(5) Current Drain	Stand by	50 mA
	Maximum Power	1.5 A
(6) RF Sensitivity (12 dB SINAD)		- 116 dBm

4) Mechanical Specifications

(1) Cable Length	Cable-RF Cable-Control	Approx.	16 ft. (5 M)
(2) Dimensions		Height	1 3/32" (28 mm)
		Width	5 1/2" (140 mm)
		Length	8 5/32" (207 mm)
(3) Weight		Approx.	900 grams

5) BK-22X Scheme

6) BK-22X Soldering side

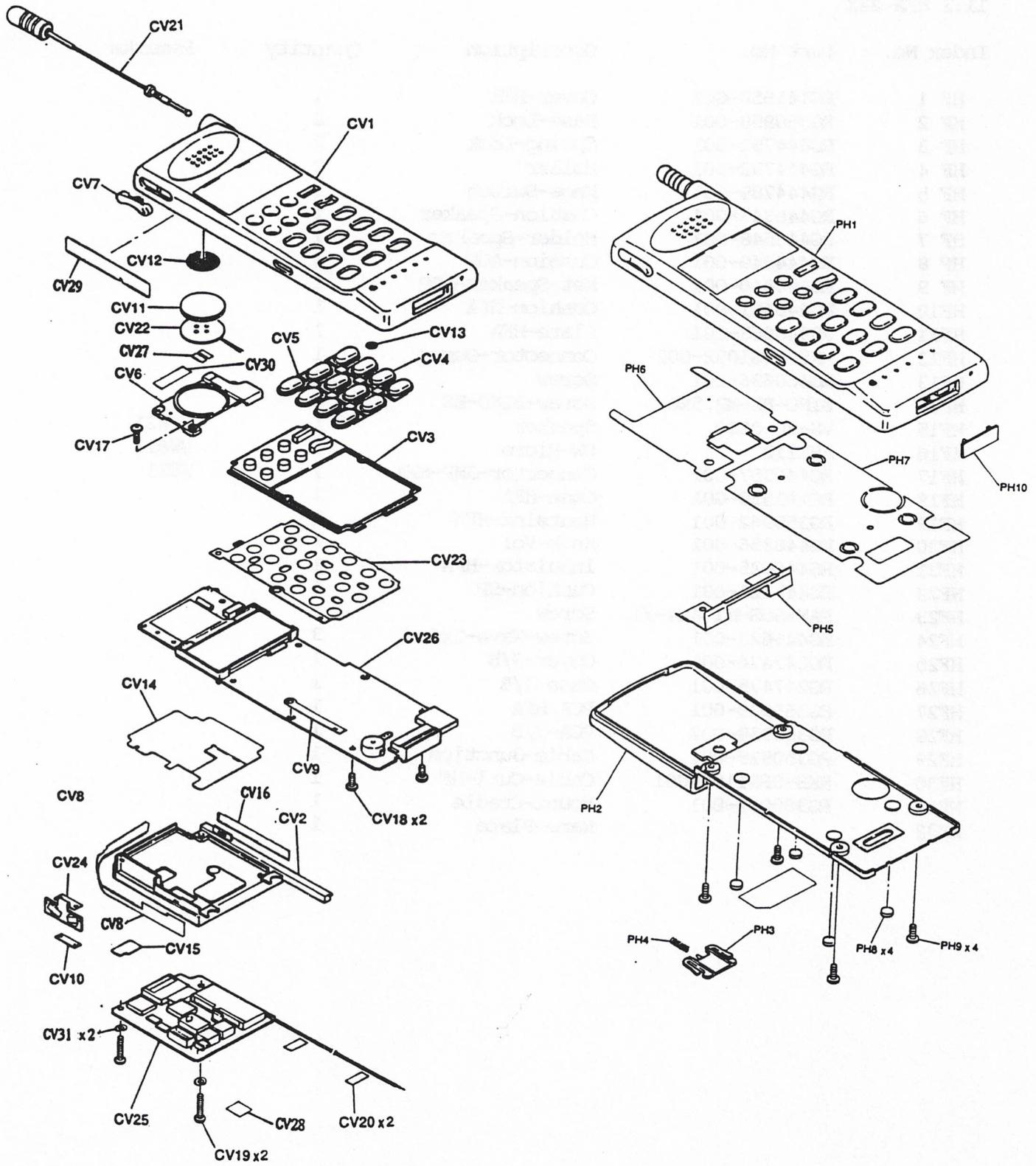


BK-22X SOLDERING SIDE

11. OVERVIEW WITH PART NUMBERS LISTED

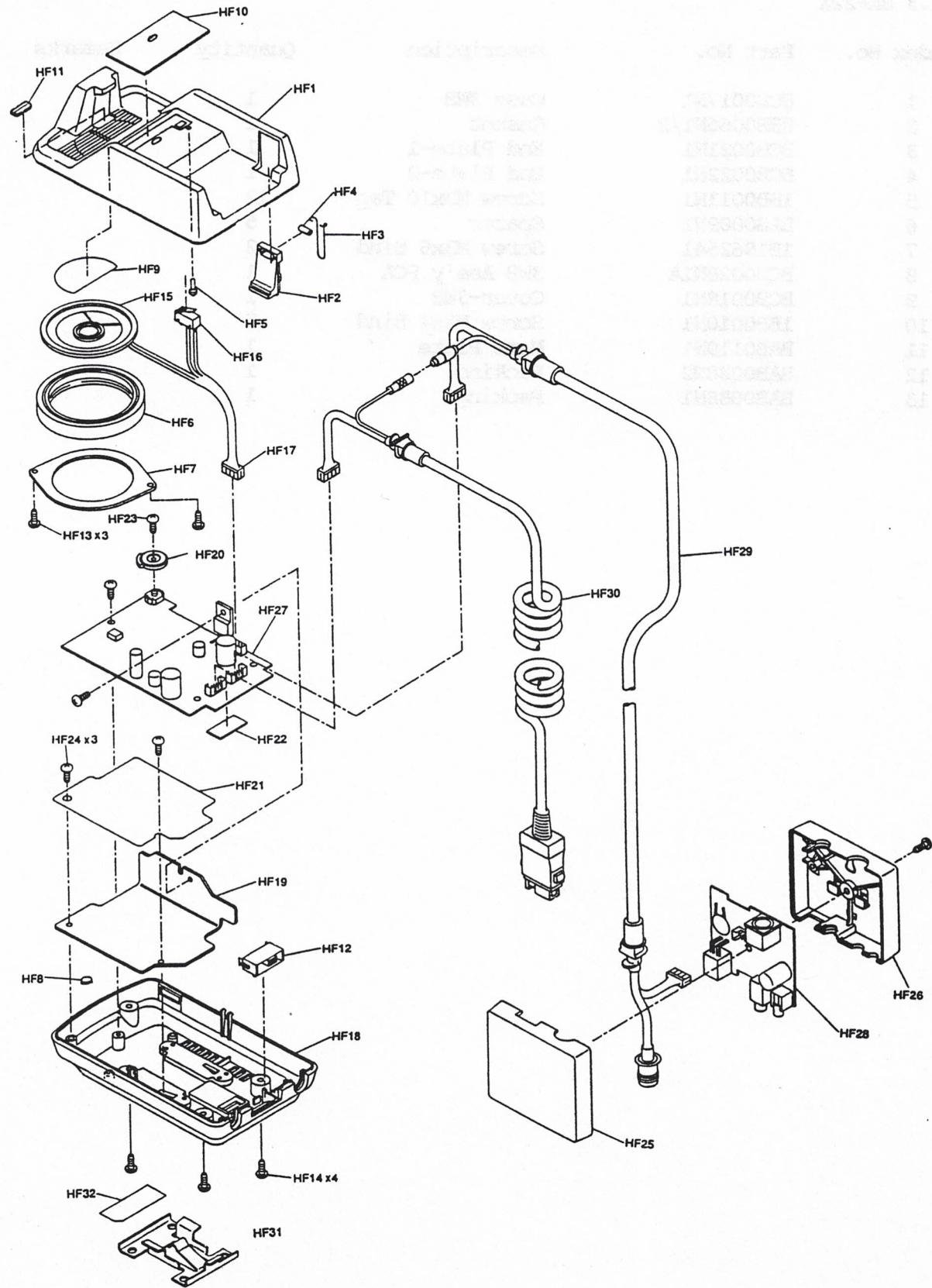
11.1 TU-22X

Index No.	Part No.	Description	Quantity	Remarks
CV 1	RG141547-G01	Front Cover	1	FCP-22
CV 2	RG141580-001	Frame T/R	1	
CV 3	RG141578-001	Key-Rubber	1	
CV 4	RG247429-001	Key-Single	1	
CV 5	RG247429-002	Key-Double	1	
CV 6	RG247267-001	Holder-speaker	1	
CV 7	RG351553-001	Key-Volume	1	
CV 8	RG430013-001	Sheet-Frame(A)	1	
CV 9	RG446344-001	Connector-panel	1	
CV10	RG446345-001	Connector-Volume	1	
CV11	RG446620-001	Filter-Speaker	1	
CV12	RG446621-001	Net-Speaker	1	
CV13	RG446621-002	Net-Microphone	1	
CV14	RG446615-001	Insulator-T/R(A)	1	
CV15	RG446616-001	Insulator-T/R(B)	1	
CV16	RF430014-001	Sheet-Frame(B)	1	
CV17	RG446622-001	Screw-Wave-2x6	1	
CV18	RG448173-001	Screw	2	
CV19	BIND-BS-M2x12	Screw-Bind BS	2	
CV20	RG445857-003	Sheet(5x13)	2	
CV21	RKS-7NG1046-001	Antenna	1	AT-22
CV22	CR-9	Receiver	1	SP 101
CV23	RKS-6RG1064-001	Switch-Panel	1	S 1
CV24	RKS-6RG1065-001	Switch-Volume	1	S 2
CV25	RG350931-G01	Radio Module Ass'y	1	RM-22
CV26	RG350932-G01	LCU/AF Ass'y	1	LCU-22
CV27	RG448173-001	Tape-Speaker	1	
CV28	RG445703-001	Tape-Cu	1	
CV29	RG448062-001	Insulator FC(C)	1	
CV30	RG444833-002	Tape-Cu-Antenna	1	
CV31	Plain-Phenolic-2x4	Washer	2	
PH 1	RG247445-G01	Front Cover Ass'y	1	FC-22
PH 2	RG141548-001	Back Cover	1	BC-22
PH 3	RG350910-001	Lock Battery	1	Lock-22
PH 4	RG443183-001	Spring Battery	1	
PH 5	RG352100-001	Shield-Earth(B)	1	
PH 6	RG446617-001	Insulator BC(A)	1	
PH 7	RG446618-001	Insulator BC(B)	1	
PH 8	RG447223-001	Cushion-Battery	1	
PH 9	BIND-BS-M2x4	Screw-Bind-BS	1	
PH10	RG351566-001	Cap-Connector	1	
PH11		Name Plate	1	



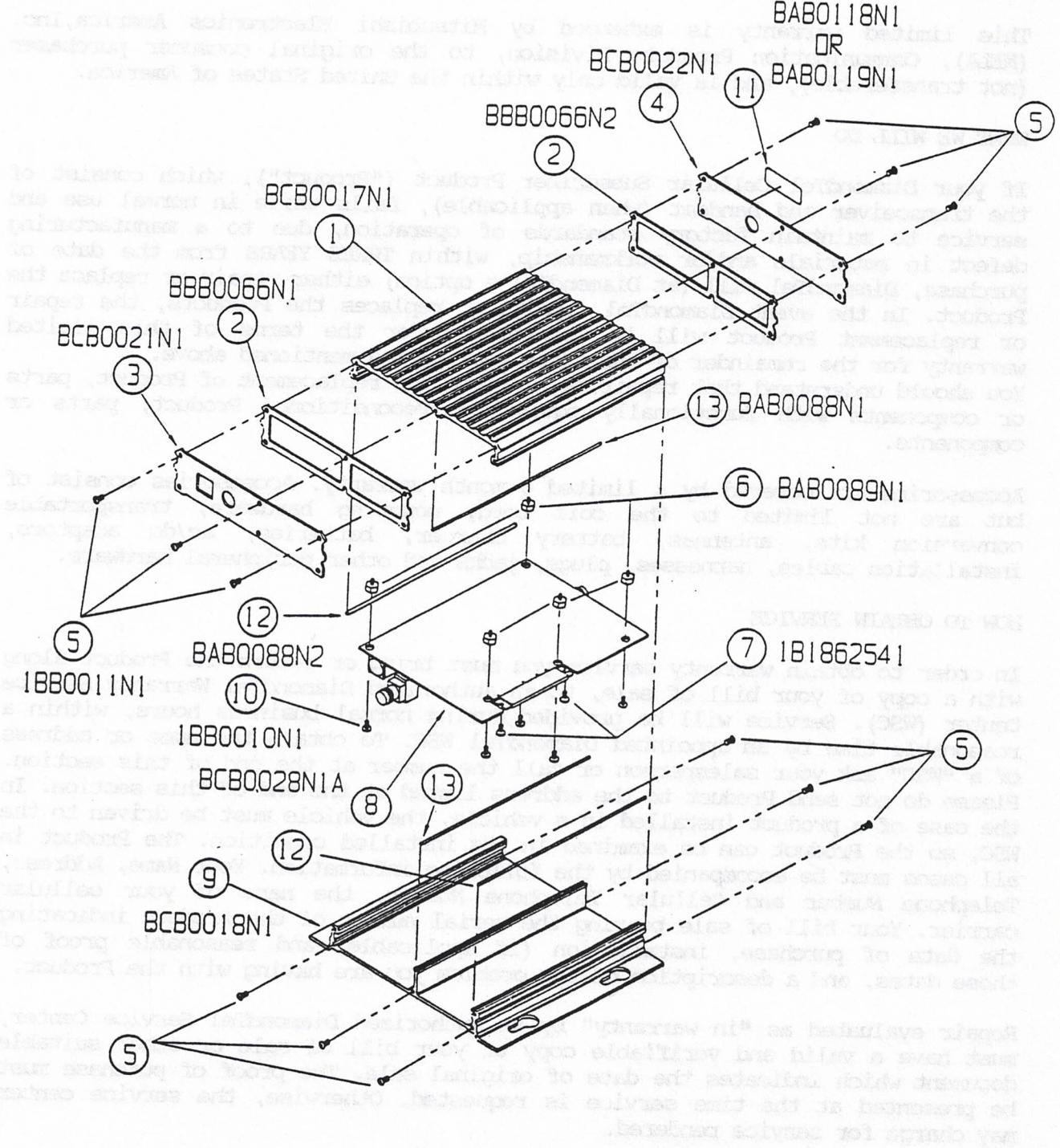
11.2 HFA-22X

Index No.	Part No.	Description	Quantity	Remarks
HF 1	RG141558-G01	Cover-HFA	1	
HF 2	RG350958-001	Base-Lock	2	
HF 3	RG444793-001	Spring-Lock	2	
HF 4	RG444792-001	Roller	2	
HF 5	RG444789-001	Know-Switch	1	
HF 6	RG446343-001	Cushion-Speaker	1	
HF 7	RG446548-001	Holder-Speaker	1	
HF 8	RG444849-001	Cushion-ADP	1	
HF 9	RG444840-001	Net-Speaker-ADP	1	
HF10	RG446681-001	Cushion-HFA	1	
HF11	RG448063-001	Plate-HFA	1	
HF12	RKS-6TG1092-002	Connector-Dummy	1	
HF13	RG460636-001	Screw	3	
HF14	BIND-BS-M2.5x6	Screw-BIND-BS	4	
HF15	VS-50-0820	Speaker	1	SP821
HF16	AH1112	SW-Micro	1	SW811
HF17	RG446357-001	Connector-JMP-HFA	1	W821
HF18	RG141559-G01	Case-HFA	1	
HF19	RG350962-001	Heatsink-HFA	1	
HF20	RG446356-001	Knob-Vol	1	
HF21	RG446625-001	Insulator-HFA	1	
HF22	RG447121-001	Cushion-SP	1	
HF23	PAN-SUS-M1.4x4-#1	Screw	1	
HF24	RG446622-001	Screw-Wave-2x6	3	
HF25	RG247474-001	Cover-J/B	1	
HF26	RG247475-001	Case-J/B	1	
HF27	RG365938-001	PCA-HFA	1	
HF28	RG365938-002	PCA-J/B	1	
HF29	RG350929-001	Cable-Junction	1	
HF30	RKS-0FG1100-001	Cable-Curl-HF	1	
HF31	RG360042-001	Mount-Cradle	1	
HF32		Name-Plate	1	



11.3 BK-22X

Index No.	Part No.	Description	Quantity	Remarks
1	BCB0017N1	Case 3WB	1	
2	BBB0066N1/2	Gasket	1	
3	BCB0021N1	End Plate-1	1	
4	BCB0022N1	End Plate-2	1	
5	1BB0011N1	Screw M3x10 Tap	12	
6	BAB0089N1	Spacer	5	
7	1B1862541	Screw M3x6 Bind	2	
8	BCB0028N1A	3WB Ass'y PCA	1	
9	BCB0018N1	Cover-3WB	1	
10	1BB0010N1	Screw M3x4 Bind	5	
11	BAB0119N1	Name Plate	1	
12	BAB0088N2	Packing	1	
13	BAB0088N1	Packing	1	



LIMITED THREE YEAR WARRANTY DIAMONDTel CELLULAR SUBSCRIBER PRODUCTS

WHO GETS THE WARRANTY

This limited warranty is extended by Mitsubishi Electronics America, Inc. (MELA), Communication Products Division, to the original consumer purchaser (not transferable), and is valid only within the United States of America.

WHAT WE WILL DO

If your DiamondTel Cellular Subscriber Product ("Product"), which consist of the transceiver and handset (when applicable), fails while in normal use and service to maintain factory standards of operation, due to a manufacturing defect in materials and/or workmanship, within THREE YEARS from the date of purchase, DiamondTel will (at DiamondTel's option) either repair or replace the Product. In the event DiamondTel repairs or replaces the Products, the repair or replacement Product will be warranted under the terms of this limited warranty for the remainder of the three year period mentioned above. You should understand that repair may include the replacement of Product, parts or components with functionally equivalent reconditioned Product, parts or components.

Accessories are covered by a limited 6 month warranty. Accessories consist of but are not limited to the coil cord, mounting hardware, transportable conversion kits, antennas, battery charger, batteries, ac/dc adaptors, installation cables, harnesses, plugs, jacks and other peripheral hardware.

HOW TO OBTAIN SERVICE

In order to obtain warranty service you must bring or return the Product along with a copy of your bill of sale, to an authorized DiamondTel Warranty Service Center (WSC). Service will be provided during normal business hours, within a reasonable time by an appointed DiamondTel WSC. To obtain the name or address of a "WSC" ask your salesperson or call the number at the end of this section. Please do not send Product to the address listed at the end of this section. In the case of a product installed in a vehicle, the vehicle must be driven to the WSC, so the Product can be examined in its installed condition. The Product in all cases must be accompanied by the following information. Your Name, Address, Telephone Number and Cellular Telephone Number, the name of your cellular carrier. Your bill of sale bearing the serial number of the Product indicating the date of purchase, installation (if applicable) and reasonable proof of those dates, and a description of the problem you are having with the Product.

Repair evaluated as "in warranty" by an authorized DiamondTel Service Center, must have a valid and verifiable copy of your bill of sale or other suitable document which indicates the date of original sale. The proof of purchase must be presented at the time service is requested. Otherwise, the service center may charge for service rendered.

WHAT IS NOT COVERED

This warranty does not cover Product programming, reconfiguration of lock codes, security code, call restrictions, removal, reinstallation, installed system analysis, failure of equipment not supplied by DiamondTel, nor does it cover failures of the Product due to misuse as determined by DiamondTel (including use in other than the normal and customary manner), neglect, accident, improper installation, improper repair, any alteration, modification or adjustment. Since the cellular system on which the Product is to operate is provided by a carrier independent from DiamondTel, we will not be responsible for the operation, availability, loss of air time, coverage or the range and clarity of the system.

Warranty periods on "previously owned" phones begin at the original date of purchase by the first original owner or will begin six (6) months after the production date encoded in the unit's serial number. Removal of the serial number label will automatically void the warranty.

THERE ARE NO OTHER EXPRESS WARRANTIES, WHETHER WRITTEN OR ORAL, OTHER THAN THIS PRINTED LIMITED WARRANTY. ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL DIAMONDTEL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFIT OR COMMERCIAL LOSS, TO THE FULL EXTENT THOSE DAMAGES CAN BE DISCLAIMED BY LAW.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations of the duration of implied warranties, so the preceding limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

MITSUBISHI ELECTRONICS AMERICA, INC.
COMMUNICATIONS PRODUCTS DIVISION
DIAMONDTEL CELLULAR REPAIR SERVICE
800 BIERMANN COURT
MOUNT PROSPECT, ILLINOIS 60056-2173
1-708-298-9223

CELESTE YOUNG

Abil de a distingui între o jocătoare bună și una slabă chiar și înainte de a începe să joace. În plus, este capabil să distingă cu mare ușurință ceva care să nu fie deloc similar cu cea pe care o poate crea un alt jucător. Deși poate să nu fie foarte bine să poată să distingă ceea ce este similar cu cea pe care o poate crea un alt jucător, este totuși capabil să distingă ceea ce este similar cu cea pe care o poate crea un alt jucător. Deși poate să nu fie foarte bine să poată să distingă ceea ce este similar cu cea pe care o poate crea un alt jucător, este totuși capabil să distingă ceea ce este similar cu cea pe care o poate crea un alt jucător.

De altfel, jocătorul său nu răspunde la "Pentru că suntem său" nu este singurul lucru pe care îl poate să răspundă. El poate să răspundă și la "Pentru că suntem său" și la "Pentru că suntem său" și la "Pentru că suntem său". De asemenea, el poate să răspundă și la "Pentru că suntem său" și la "Pentru că suntem său" și la "Pentru că suntem său".

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ÎNTRU
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