THE FREEDOM SYSTEM ™

OWNER'S OPERATIONS MANUAL

RAIN BIRD *Sales, Inc. – Golf Division*
870 West Sierra Madre Avenue
Azusa, CA 91702-1873
Phone: 800-984-2255 FAX: 800-446-5309

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THE FREEDOM SYSTEM ™

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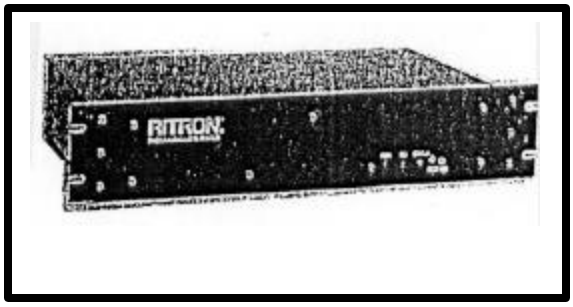
INTRODUCTION:

The **FREEDOM SYSTEM Ô** for use with the various RAIN BIRD CENTRAL CONTROL SYSTEMS is a radio operated system that integrates with the Computerized Central Control system to provide control of it from remote locations and also provides voice communication to and from the field or remote locations. The system consists of the following:

a) A Central Multifunction Telephone Interconnect and Repeater Paging Terminal **MODEL FRX-452**, which is located at the Central location.

In conjunction with the central paging terminal there is;



CENTRAL REPEATER/PAGING TERMINAL

b) A FREEDOM HANDHELD Radio Unit **MODEL FTX-454-011K** with **DTMF** pad or a **MODEL FTX-454** without key pad, which is used to provide two-way radio communication to the Rain Bird Central equipment from the field.

The **FREEDOM HANDHELD RADIO** Unit provides the operating capability of remotely performing a number of functions through the Central Freedom Repeater terminal to the Rain Bird Central Control System.

The **FREEDOM Repeater, Model FRX-452** is a synthesized rack-mount or table top **UHF** Repeater that operates in the **450** to **470 MHz FM** communications band. The unit receives messages originating at the **HANDHELD RADIO** Unit, mobile unit or fixed station unit on one frequency, and simultaneously retransmits the message on a second frequency. The unit contains a duplexer, which allows a single antenna to be used for simultaneous transmission and reception. This full-duplex operation enables mobile and handheld units to communicate over much greater distances than is possible without the Repeater.

The **FREEDOM SYSTEM Ô** can also be used for control of the **Rain Bird Central Control System** via telephone from a remote location. The **HANDHELD RADIO** Unit can be used for receiving and making telephone calls in the field, when the **FREEDOM SYSTEM Ô** is configured and installed for telephone operation.

FREEDOM SYSTEM Ô - OPERATING CAPABILITIES:

The **FREEDOM HANDHELD RADIO** Unit or **REMOTE TELEPHONE** provides the operating capability of remotely performing the following functions, through the Central Freedom Repeater/Paging Terminal, to the Rain Bird Central Control system.

The functions that can be performed are as follows:

1. Turn "**ON**" ***SPECIFIC STATIONS*** of any satellite, or turn "**ON**" **SPECIFIC *DECODERS*** for a specific designated time.
2. Turn "**ON**" a ***CONTIGUOUS BLOCK*** of stations, on any specific satellite, (e.g. stations #1 through #8), and **TIME** them.
3. Turn "**ON**" a ***SPECIFIC SCHEDULE*** of the Rain Bird Central Control System.
4. Turn "**ON**" ***FLO-MANAGED STATION(S)*** for a specified operating time.
5. Turn "**ON**" a ***CONTIGUOUS BLOCK of FLO-MANAGED STATION(S).***
6. Within a given Schedule – ***TO ADVANCE TO THE NEXT STATION*** in the Schedule.
7. **ADVANCE** a ***SPECIFIC "STEP" TYPE SCHEDULE***.
8. **PAUSE** the ***ENTIRE SYSTEM.***
9. **PAUSE** a ***SPECIFIC GROUP*** (all satellites on a specific wire path).
10. **PAUSE** a ***SPECIFIC CHANNEL*** (Satellite).
11. **PAUSE** a ***SPSECIFIC STATION(S)*** on a satellite.
12. **PAUSE** a ***SPECIFIC "STEP" TYPE SCHEDULE***.
13. **RESUME** the ***ENTIRE SYSTEM.***
14. **RESUME** a ***SPECIFIC STATION***.
15. **RESUME** a ***SPECIFIC GROUP*** (all satellites on a specific wire path).
16. **RESUME** a ***SPECIFIC CHANNEL*** (satellite).
17. **RESUME** a ***SPECIFIC "STEP" TYPE SCHEDULE***.
18. Turn "**OFF**" the ***ENTIRE SYSTEM.***
19. Turn "**OFF**" a ***SPECIFIC GROUP*** (all satellites on a specific wire path).
20. Turn "**OFF**" a ***SPECIFIC CHANNEL*** (satellite).
21. Turn "**OFF**" ***SPECIFIC STATION(S)*** of any satellite.
22. Turn "**OFF**" a ***SPECIFIC SCHEDULE*** of the Rain Bird Central Control System.

The FREEDOM SYSTEM ™ can also be used for control of the Rain Bird Central Control system via TELEPHONE from a remote location. The HANDHELD RADIO unit can be used for receiving and making telephone calls in the field, when the FREEDOM SYSTEM ™ is configured and installed for telephone operation.

CENTRAL REPEATER/PAGING TERMINAL INDICATING "LED" LIGHTS FUNCTIONS:

Upon "power-up" of the **FRX-452** Central Repeater/Paging Terminal Unit the ***RED*** **"POWER" LED** (light emitting diode) on the front panel **WILL LIGHT** indicating the Repeater is ready for operation.

A signal on the Repeater receive frequency activates the GREEN "CARRIER DETECT" (CD) LED (light emitting diode), regardless of tone. A proper tone signal will cause the Repeater to TRANSMIT, confirmed by the RED "STATUS" LED lighting.

GENERAL OPERATION OF HANDHELD RADIO:

To use the **HANDHELD** Radio unit - first turn the **"ON-OFF" VOLUME CONTROL** knob to the **"ON"** position.

Select the proper channel with the **"CHANNEL SELECT"** knob.

- ***Press*** and ***Hold*** the **"PUSH-TO-TALK"** (PTT) button in order to enter commands by use of the **"TOUCH TONE KEYPAD"** or to talk into the **"MICROPHONE".**
- All instructions that are entered into the HANDHELD radio unit by means of the **"TOUCH TONE KEYPAD"** – ***START*** with the **< ## >** sign and also ***END*** with the **< ## >** sign. This allows you to ***ACCESS*** the FREEDOM SYSTEM ™ and then to ***TERMINATE*** the command.
- Each individual bit of information, that is entered for a given command string, is separated by entering the **< # >** sign.

FREEDOM RADIO COMMANDS:

The following are the various **FREEDOM SYSTEM Ô *COMMANDS*** that must be used with the handheld radio (telephone) - in remote operation of the Irrigation System.

System MODE Commands: (Manually Turn OFF or ON the entire Irrigation System)

Auto OFF = ## 20 # 0 ##
Auto ON = ## 20 # 1 ##

Individual Station(s) Operation Commands:

NORMAL SEQUENCE ENTRY:

Command # Hole # Area # Stations # Time

Commands	***Hole Areas***	***Other Areas (Hole 19)***
1 = Turn "ON"	**1 = Green**	**Handle 1**
2 = Turn "OFF"	**2 = Tee**	**Handle 2**
3 = Block Turn "ON"	**3 = Fairway**	**Handle 3**
4 = Block "ADVANCE"	**4 = Approach**	**Handle 4**
5 = PAUSE Station	**5 = Perimeter**	**Handle 5**
6 = RESUME Station	**6 = Rough**	**Handle 6**
	7 = Misc	**Handle 7**

EXAMPLE: ***Turn "ON" (command) – Stations #5 & #6 (Stations) – on the TEE (Area) – on Hole #3 (Hole) and operate them for 12 minutes (Time).***

ENTRY: ***## 1 # 3 # 2 # 5,6 #12 ##***

Program/Schedule Operation Commands:

NORMAL SEQUENCE ENTRY:

Command # Program # Schedules

Commands

71 = Turn Schedules "ON"
72 = Turn Schedules "OFF"
74 = ADVANCE Schedules
75 = PAUSE Schedules
76 = RESUME Schedules

EXAMPLE: **Advance Schedule (Command) – Schedule Number 3 (Schedule) – which is in Program Number 1 (Program).**

ENTRY: **## 74 # 1 # 3 ##**

Access Window Security Commands:

NORMAL SEQUENCE ENTRY:

Command # Password # Hour # AM/PM

Commands	***AM/PM***
91 = OPEN Access Window	**1 = AM**
92 = CLOSE Access Window	**2 = PM**

EXAMPLE: **Open Access Window (Command) – 4321 (Password) – at 6 (Hour) – AM (AM/PM).**

ENTRY: **## 91 # 4321 # 6 # 1 ##**

EXAMPLE: **Close Access Window (Command) – 4321 (Password) – at 3 (Hour) – PM (AM/PM).**

ENTRY: **## 92 # 4321 # 3 # 2 ##**

Course Designation:

NORMAL SEQUENCE ENTRY:

Command # Course Number

Commands ***Course Number***

Default is Course #1 (No entry required)
8 = Course Designation 2 = Course #2
8 = Course Designation 3 = Course #3

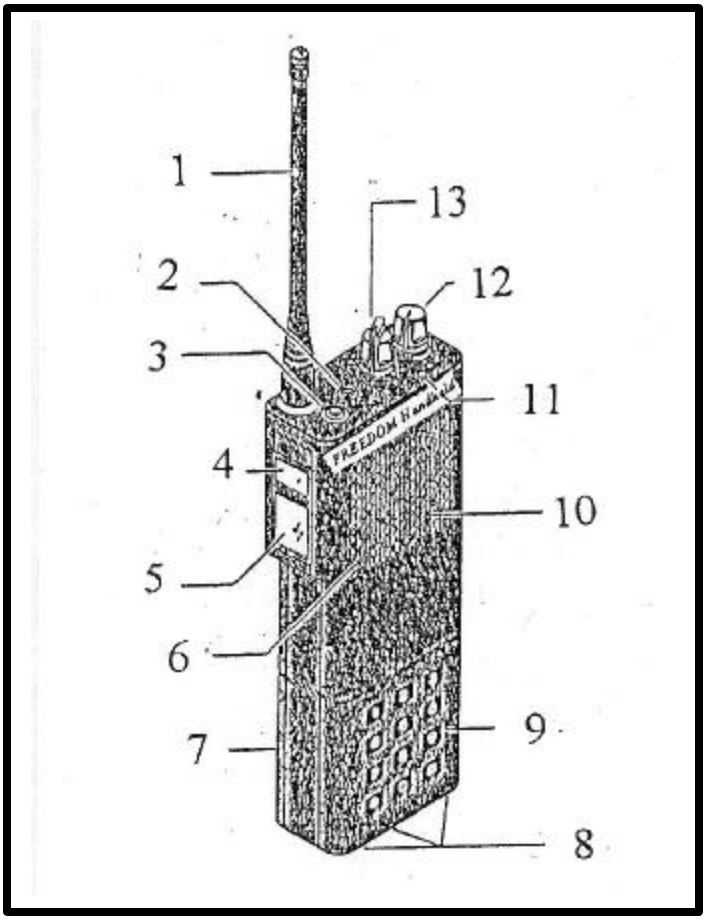
EXAMPLE: **Designate (Command) - Course Number 2 (Course Number)**

ENTRY: **## 8 # 2 ##**

FEATURES OF PORTABLE HANDHELD RADIO:

Furnished as part of the FREEDOM SYSTEM ™ is a ***FREEDOM HANDHELD RADIO UNIT – MODEL FTX-454-011K,*** for remote field operation of the Rain Bird Central Control System. The ***FREEDOM HANDHELD RADIO*** unit can access the Central Control system Computer command functions, from the field, providing direct access to the Central Control system Software. You have field control for any given individual station, group of stations, individual satellite, individual area, individual schedule or group of schedules, up to and including total system control. The FREEDOM HANDHELD RADIO unit is also useful to provide communications access to other radios used on your course and can be used to receive and make telephone calls from the field.

The various features of the FREEDOM HANDHELD RADIO Unit are shown below.



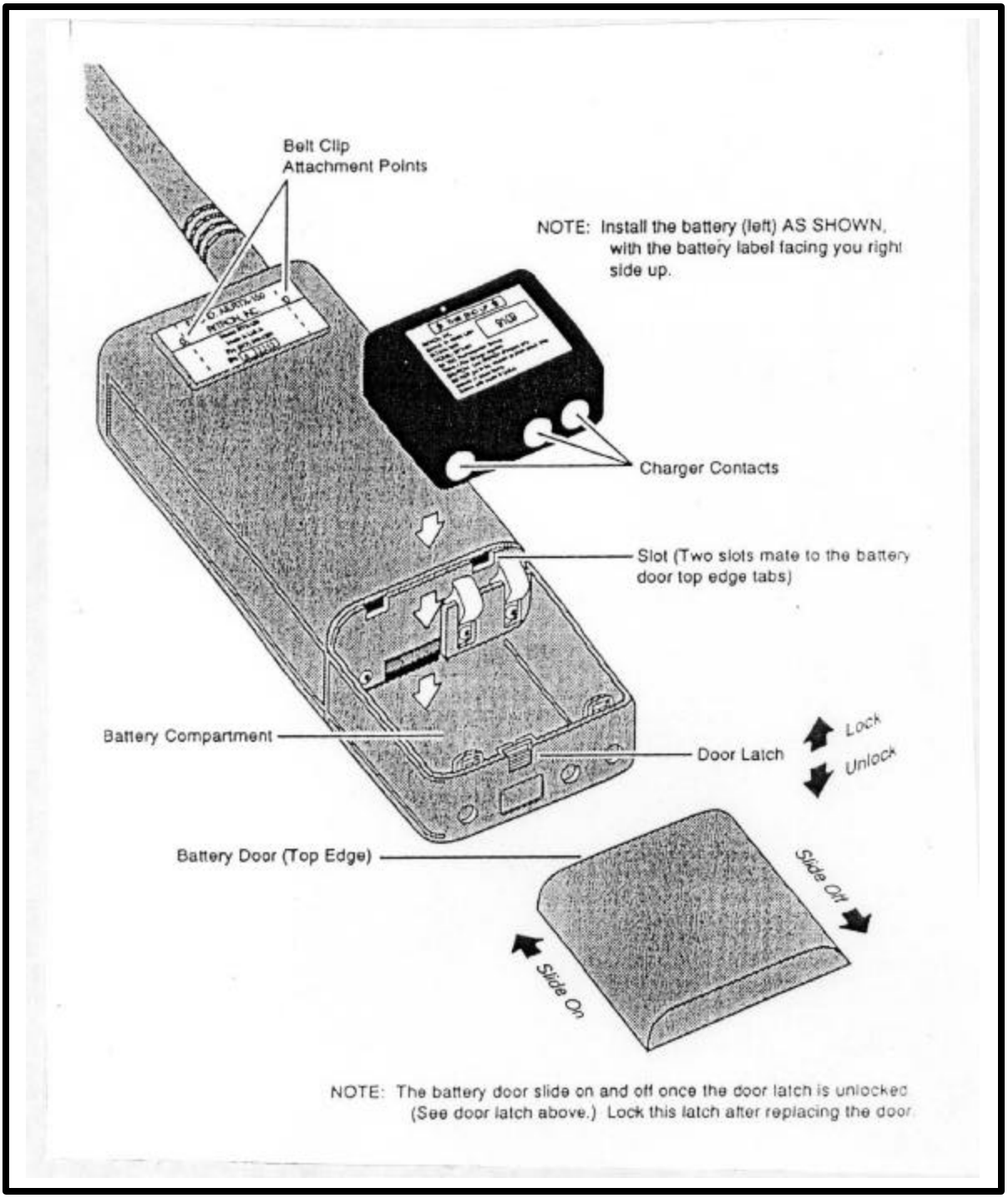
MODEL FTX-454-011K
FREEDOM HANDHELD RADIO

1 – UHF Antenna
2 – Charge Jack (Not Used)
3 – Audio Jack used for Custom Programming
4 – Monitor Button
5 – Push-To-Talk (PTT) Button
6 – Microphone
7 – Battery Door
8 – Drop-In Charger Contacts
9 – Touch Tone Keypad
10 – Speaker
11 – Transmit/Busy Lamp
12 – "ON-OFF" Volume Control
13 – Channel Select Knob

The FREEDOM HANDHELD RADIO features top-mounted controls for ON-OFF/VOLUME and CHANNEL selection. Transmit and monitor push-button are built into the portable's side. Each channel can be programmed to contain a unique set of operating frequencies and options. These options include communications industry standard signaling formats. Quiet-Call, Digital Quiet-Call and Paging Quiet-Call.

RADIO – RECHARGEABLE BATTERY:

The FTX-454 portable handheld radio is powered by a rechargeable battery, which fits into the radio case battery compartment (refer to diagram below). A battery door and latch hold the battery pack in place.



FTX-454 HANDHELD RADIO – BATTERY INSTALLATION

BATTERY CHARGING:

The battery can lose its charge during storage and shipment, and should be fully charged before the radio is used. Thereafter, the battery should be charged overnight after each day of use, to ensure peak radio performance for the next day. Using the cube battery charger (furnished with the radio) or the optional Drop-In Charger, the standard battery should charge completely in 12 hours. The optional high capacity battery takes about 16 hours to completely charge.

Typically, a battery's service life is one year. To ensure maximum service life, follow these guidelines:

- DO NOT discharge a battery that is already "run down". If the battery cannot power your radio, recharge the battery.

- DO NOT overcharge a battery. The battery should not be charged for more than 48 hours at a time.

With daily use and recharging, a battery's service life is about one year. It is time to purchase a new battery when:

- The radio's transmitter coverage decreases or does not work at all.

- The radio quits working after just a few hours of use, despite a full overnight charge.

- The battery is more than two years old. The date of manufacture is stamped on every battery. The first two digits indicate the year, the last two digits the week. For example "9206" means that the battery was made in the sixth week of 1992.

BATTERY REMOVAL:

To remove the battery, first unlock the door latch (refer to the previous figure). Then press down on the door and slide it off the radio. Turn the portable radio over and tap the battery compartment against the palm of your free hand until the battery pack drops into your hand.

PRECAUTIONS:

- Use only the cube charger, supplied with the radio, or the optional "drop-in" charger. Other chargers might cause a fire, explosion, or otherwise damage the radio.

- DO NOT ***"fast-charge"*** a new battery pack. Otherwise the battery might be damaged.

  Once the battery has been charged completely, using the slow rate, the fast rate may be used thereafter.

- DO NOT ***"fast-charge"*** a battery pack that is fully charged. Doing so can shorten the battery life.

- DO NOT charge or replace batteries in an explosive atmosphere. Contact sparking can ignite an explosion.

- DO NOT dispose of batteries in the fire. An explosion might result.

- DO NOT charge the battery pack in temperatures colder than about 45°F. Electrolyte leakage can occur and ruin the battery.

  Charging a battery in temperatures above approximately 95°F will not harm the battery, but reduces its charge capacity.

CONTROLS on the HANDHELD RADIO:

REFER TO THE FIGURE ON PAGE 7 FOR LOCATION OF EACH OF THE FOLLOWING CONTROLS ON THE HANDHELD RADIO.

ANTENNA:

The flexible antenna radiates and receives radio signals. Before using the radio, make sure the antenna base is threaded fully into the radio's antenna bushing.

VHF and **UHF** antennas are **NOT** interchangeable. Use only the antenna supplied with the radio unit. The ***FTX-454*** radio uses the **UHF** antenna, which is smaller in diameter than the **VHF** antenna.

ON-OFF/VOLUME CONTROL:

To switch **ON** the unit, rotate this **ON-OFF/VOLUME** control knob ***CLOCKWISE*** out of the "Click" position. Further rotation increases the **VOLUME**. Rotate this control knob ***COUNTER CLOCKWISE*** into the **OFF** position (as far counter clockwise as possible) if the radio is not being used.

CHANNEL SELECT KNOB:

To select a channel, rotate the **"CHANNEL"** knob. If the channel knob is positioned to a channel position that has been left "blank", the radio's micro-controller automatically seeks the next lowest ***programmed*** channel. A short tone sounds with each click of the knob.

MONITOR BUTTON:

Monitoring a channel lets you listen to all broadcasts on the frequency. Pressing and releasing the monitor button toggles the unit between monitor and normal modes and sounds a tone. In the **MONITOR** mode you hear all broadcasts on the channel **NORMAL MODE** means that the radio is in receive and Quiet-Call squelch (if programmed for the channel) when activated. In **NORMAL MODE,** you hear only radios that transmit your Quiet-Call code.

The **MODE** "***monitor***" or "***normal***" that is in effect when the radio unit is switched **OFF**, will resume when the radio is again turned **ON**. This is true regardless of which channel you select while the radio is turned **OFF**.

After monitoring, restore Quiet-Call squelch. You can do this by pressing and releasing the monitor button or, by switching to another channel and then back again.

SPEAKER:

The SPEAKER allows you to hear incoming calls. Note that you can toggle the monitor button to mute broadcasts from users outside of your Quiet-Call group.

TRANSMIT/BUSY BUTTON:

The **TRANSMIT/BUSY** lamp flashes **GREEN** if the channel is in use, and lights **RED** while the transmitter is activated.

PUSH-TO-TALK BUTTON:

The Push-To-Talk, push button switch activates the transmitter, and **MUST** be held **DOWN** while you talk into the radio speaker. Release the Push-To-Talk button to receive.

MICROPHONE:

The MICROPHONE converts your voice into electrical impulses, which are carried with your broadcast to receiving radios. Hold the portable about two inches away while talking into the front grille. Shouting does not improve the listener's reception.

OPERATING CHARACTERISTICS of the FREEDOM HANDHELD RADIO UNIT:

TONES:

Programmable radios respond to certain instructions by sounding a tone or series of tones. These tones can tell you whether a radio is working as you expect.

POWER ON/SELF CHECK "O.K.":

When you first switch "**ON**" the radio by rotating the **ON-OFF/VOLUME** control knob clockwise out of the "***click***" position, the unit then runs a quick ***"self test".*** When the internal system checks confirm basic functions, the radio sounds a brief ***"confirmation tone"*** to indicate that the unit is in **OPERATING MODE** and ready for use.

ERROR TONES:

However, if the "***self test***" detects a diagnostic error, and error tone sounds. ***One low-pitched tone*** means that the radio **micro-controller** is not working as it should. ***Alternating tones*** (the second is lower pitched) indicates that the radio **frequency synthesizer** is malfunctioning. If you get one of these messages, turn **OFF** the radio and try again. If you cannot correct the problem, consult your Rain Bird Distributor for assistance.

Repeating ***error tones*** occur if you press the Push-To-Talk button while a **"Receive Only"** channel is selected. This is because a "Receive Only" channel **DOES NOT** contain a ***transmit frequency***, which must be present for the radio to broadcast. The error tone repeats until you release the Push-To-Talk button.

One low tone sounds and the transmitter automatically shuts **OFF** if you hold the Push-To-Talk button down ***continuously*** for a specified time (normally about 30 seconds).

BATTERY "LOW" ALERT:

Once the portable radio's battery charge drops below a certain level, a ***short warning tone*** sounds every 15 seconds (while the radio is turned **ON**). You should then charge the battery. A final, ***longer tone*** means that the battery is discharged and the radio has shut itself **OFF**.

CHANNEL SELECTION (IN OPERATING MODE):

Rotating the channel select knob switches between channels. Each knob position is marked with a channel number (1 through B). ***The radio produces a brief confirmation tone each time you select a new channel***. Note that this knob cannot move directly from channel #1 to Channel B (or vice versa), but must be advanced through the other channels.

If the channel you select has not been programmed, the radio automatically operates on the next previous channel that has been programmed. If all previous channels are blank, the radio then checks channel B. If B is also blank, A is next, and so on, downward through the remaining channels.

SQUELCH:

Squelch is the function that mutes interference from other licensees and/or background noise.

There are two types of squelch used in the programmable portable handheld radio.

First, is ***carrier squelch***. This lets you hear all broadcasts on your channel strong enough for the radio to detect, and silences noise.

Second, is ***Quiet-Call (coded) squelch.*** This allows you to screen out "on-channel" broadcasts that do not carry the Quiet-Call code programmed for your unit.

When a radio frequency is shared by several licensees in an area, ***coded squelch keeps other licensees' broadcasts from disturbing you and others in your radio network***. When you select monitor mode (by toggling the monitor button), ***coded squelch is turned OFF*** and you can hear all communications on the channel, similar to a telephone "party-line".

HOW TO ADJUST SQUELCH:

SQUELCH NOISE; - The portable handheld radio automatically squelches noise - no adjustment is necessary.

SQUELCH ALL BROADCASTS; - To squelch all broadcasts on the channel except those carrying your Quiet-Call Code – switch to another channel and then back again to the original channel.

OPERATING MODE:

You can hear calls with the handheld radio in the receive mode, and broadcast your voice with the radio in transmit mode. ***NOTE ! - The handheld radio automatically goes into "battery saver" mode if left idle.***

RECEIVE MODE:

The radio can receive broadcasts while the Push-To-Talk button is **NOT** being ***pressed***. Whether or not you hear these broadcasts depends upon the volume and squelch settings.

VOLUME ADJUSTMENT:

You can adjust the **VOLUME** as follows: Rotate the **ON-OFF/VOLUME** control clockwise about one third (1/3). Then ***press*** and ***hold*** the **monitor button**. After about four (4) seconds, you should hear a rushing sound (noise) and any broadcasts on the channel. Squelch is now turned **OFF**. ***Set the volume as desired***, then ***press*** and ***release*** the monitor button to restore squelch.

MONITORING A CHANNEL:

Monitoring a channel lets you listen to all broadcasts on the frequency. ***Pressing*** and ***releasing*** the monitor button toggles the radio between **normal** and **monitor** modes. ***"Normal Mode"*** means that the radio is in receive and Quiet-Call squelch, (if programmed for the channel), is activated. In ***Normal Mode***, you hear only radios that transmit your Quiet-Call code. In the ***Monitor Mode***, you hear all broadcasts on the channel.

HOW TO HEAR ALL ON-CHANNEL BROADCASTS:

To hear **ALL** on-channel broadcasts that are within range – ***press*** and ***release*** the monitor button.

BATTERY SAVER MODE:

The **FTX-454** Handheld Portable Radio has a "battery saver" feature that conserves battery power. The battery saver constantly monitors the radio's transmitter, receiver and controls for activity. If ten (10) seconds pass without the receiver detecting a call, and without the user operating a control, this feature removes power from most of the radio.

During the "OFF-TIME", any activity restores full power to the entire radio. Every few fractions of a second, the battery saver applies power to the receiver, checking for broadcasts. It is possible that the first part of an incoming call might go unheard before activity is detected and power restored. If this happens, the caller can repeat his message. Once "radio contact" is made, normal unhurried conversation will allow uninterrupted reception.

NOTE ! ***Scanning prevents the radio from going into the "battery saver" mode.***

The battery saver cycle can only be altered by the Ritron Factory. Increasing the time that the radio can remain idle (before power is removed) exhausts the battery sooner. Decreasing this time conserves the battery, but slightly raises the chance that the firs part of a call might be missed.

TRANSMIT MODE:

Before transmitting, ,make sure the channel is not in use. Check the transmit/busy lamp, which flashes if the channel is busy. This occurs regardless of any code signaling programmed. Normally, you should not transmit until the channel is clear.

To transmit with the handheld radio, ***press*** and ***hold*** the "Push-To-Talk" button and talk, with the radio being held two to three inches away from your mouth. Speak in a normal tone of voice, since talking louder will not improve the listener's reception. Pressing the "Push-To-Talk" button activates the transmitter and lights the "transmit/busy" lamp only if the channel contains a transmit frequency. The transmitter will not come on for a "Receive Only" channel. Instead, the radio speaker emits an error tone.

The handheld radio has a transmitter "Time-Out" function, which automatically terminates a continuous transmission that lasts for a specified time. (This time period may be adjusted only by the Ritron Factory). The radio sounds a tone when the transmitter shuts OFF.

PROGRAMMABLE OPTIONS:

The FTX-454 handheld portable radio may be operated with options that are programmed on a per channel basis, including Quiet-Call code signaling, Scanning and other special features.

CODE SIGNALING: - Code signaling allows you to screen out broadcasts from other systems on the channel. The FTX-454 handheld radios come from the factory ready to operate with three (3) communications industry standard signaling formats, including Quiet-Call (QC), Digital Quiet-Call (DQC) and Paging Quiet-Call (PQC). Generally, "Quiet-Call" refers to the entire family of signaling formats (QC, DQC, and PQC), unless specified otherwise.

QUIET-CALL (QC): - Quiet-Call is a trade name for what the communication industry calls "sub-audible tone, tone squelch" or CTCSS (Continuous Tone Coded Squelch System). A group can use a unique Quiet-Call to avoid the bother of "radio traffic" from other licensees. Radios with Quiet-Call squelch turned ON stay quiet unless they detect the appropriate code on a broadcast.

Channels programmed with Quiet-Call automatically transmit a code with your voice when you press the "Push-To-Talk" button. This allows your message to be heard. Note that other nearby licensees on your channel can hear your transmissions unless they have another code enabled.

DIGITAL QUIET-CALL: - Digital Quiet-Call is a trade name for "digital coded squelch". Digital Quiet-Call works the same as Quiet-Call, except that a digital code is broadcast with your call. Radios programmed with the correct code "recognize" the call and allow the message to be heard.

PAGING QUIET-CALL: - Paging Quiet-Call is a trade name for its selective paging system. Each radio or group of radios may have a unique Paging Quiet-Call code. Any channel that contains an operating frequency can be programmed with one of these codes.
(A channel programmed with Paging Quiet-Call may also contain a Quiet-Call code). With a Paging Quiet-Call channel selected and coded squelch activated, the radio speaker stays quiet until the programmed Paging Quiet-Call code is received. A ringing tone announces an incoming call.

Each Paging Quiet-Call code is broadcast as a unique pair of audible tones, with the first tone sent for one (1) second, and the second tone for two (2) seconds. Paging Quiet-Call codes can be originated by a base station paging encoder, a telephone through the FREEDOM base repeater unit, or a programmable radio equipped with a Touch Tone encoder keypad.

THE ALL-CALL CODE: - Radios operated with Paging Quiet-Call respond to a special All-Call code, as well as to their individual codes. This allows one page to be heard by all "Paging Quiet-Call" units on the channel. The standard FTX-454 handheld radio can transmit an All-Call page.

NOTE ! The radio cannot transmit an All Call–Page through a repeater unless the handheld is equipped with a Touch Tone keypad, and the repeater includes a Telephone Paging interconnect. This is because the standard programmable radio is not capable of simultaneously transmitting the Quiet-Call code required to activate the repeater and the All-Call code. All-Call pages can be transmitted directly to other nearby units when the handheld radio is switched to the "talk-around" frequency, which bypasses the repeater.

HOW TO SEND AN ALL-CALL PAGE:

1st – *Select* a channel programmed with Paging Quiet-Call.

2nd – *Turn OFF* the radio.

3rd - *Press* and ***hold*** the "Push-To-Talk" button while switching ***ON*** the radio.
Continue to ***Hold Down*** the "Push-To-Talk" button for **six (6) seconds.**

4th – *Release* the "Push-To-Talk" button.

5th – *Hold Down* the "Push-To-Talk" button and **deliver** your message.

SCANNING - NORMAL & PRIORITY:

GENERAL – Scanning automatically lets you listen to broadcasts on different radio channels (frequencies). You may choose the channels to be scanned by creating a ***"scan list".*** This list of channel numbers is stored in a radio channel. **A CHANNEL CANNOT HOLD BOTH A "SCAN LIST" AND A RADIO FREQUENCY.**

HOW SCANNING WORKS:

NORMAL SCANNING - When you select a channel that contains a "scan list", the radio pauses, sounds a tone, and then repeatedly checks each channel of the "scan list' in turn. Channels are scanned in the order that they were programmed into the list.

When a broadcast is received on a channel being scanned, scanning stops to let you hear communications on that channel. Scanning resumes when the transmission ends.

Using the monitor button does not interrupt scanning. Additionally, scanning automatically continues after you make a call and release the "Push-To-Talk" button.

NOTE ! When you call another unit, say which channel you are using. Then other users can determine on which channel to reply.

PRIORITY SCANNING: - Priority scanning lets you monitor other channels without missing a call on your priority channel, which the radio periodically checks for activity even when scanning has stopped on another channel. Priority scanning works only if the scan list programmed is a ***Priority Scan List,*** not a Normal Scan List. (You can find out which kind of scan list is programmed for a channel by doing a "Channel Contents Readout". Refer to Addendum for instructions on how to do a Channel Contents Readout.)

NOTE ! If the "Channel Readout Allowed" feature has been programmed ***OFF***, you will be unable to readout any channel data with the radio in the **"Operating Mode".** You can however, readout scan list data and other channel data with the radio in the **"Programming Mode".**

BUSY CHANNEL DELETE: - If one of the first eight channels in the "scan list" is so busy that you want to temporarily delete that channel from the list, ***press*** the monitor button while scanning is stopped on the channel to be deleted. (The Priority Scan List is an exception, and cannot be removed). The monitor status will not change. The deleted channel will be skipped in the scan list until you switch channels. You may delete more than one channel in the list.

HOW TO SCAN:

To Scan - Select the channel that contains your "scan list".

To Stop Scanning - Change channels.

RE-CONFIGURING the MODE of OPERATION of the FRX-452 FREEDOM SYSTEM Ô BASE REPEATER UNIT:

NOTE ! **THE BASE REPEATER UNIT will acknowledge receipt of ALL 6xx* commands with four (4) short "BEEPS". If no "BEEPS" are heard, then re-enter the command.**

INITIAL "POWER-UP" OF FREEDOM BASE REPEATER UNIT:

When the FREEDOM SYSTEM ™ Base Repeater Unit is first ***"POWERED-UP"*** the system is placed in a ***"READY"*** mode (the **671*** Mode) to receive commands from the FREEDOM HANDHELD Radio Unit or from a touch-tone telephone.

FUNCTIONS THE BASE REPEATER UNIT CAN DO:

- OUTGOING telephone call ***may be made*** from the FREEDOM HANDHELD Radio Unit.
- INCOMING telephone calls ***are received*** by the FREEDOM SYSTEM ™ Base Repeater Unit to link to the Rain Bird Central Control System Computer.
- It ***can receive*** commands from the FREEDOM HANDHELD Radio Unit.

- It ***can receive*** commands from a touch-tone telephone.

- An ***alerting ring is sent*** to the FREEDOM HANDHELD Radio Unit for all incoming telephone calls received by the Base Repeater Unit.

NOTE ! The FREEDOM SYSTEM ™ **BASE REPEATER UNIT** may be placed in this original **MODE** (as if first "powered – up") at any time by making the following entry with the HANDHELD Radio Unit or from a touch-tone telephone..

ENTER 671* - this will **RESET** the Base Repeater Unit and place it in the same **MODE** as when the unit is first **"powered-up"** and provide the same functions as outlined above.

PASS *INCOMING* TELEPHONE CALLS TO HANDHELD RADIO UNIT – BUT WITH ONLY *ONE (1) RING* AT THE HANDHELD RADIO UNIT:

ENTER 675* - this MODE places the Base Repeater Unit so that ***INCOMING*** telephone calls will be ***"passed through"*** to the HANDHELD Radio Unit.

FUNCTIONS THE HANDHELD WILL DO:

- The HANDHELD Radio Unit ***can transmit*** commands to the Base Repeater Unit.

- OUTGOING telephone call ***may be made*** from the HANDHELD Radio unit.

- INCOMING telephone calls ***will be "passed through"*** to the HANDHELD Radio Unit but with **ONLY ONE (1) RING** at the HANDHELD Radio Unit. [The Caller may leave the phone continue ringing (although it will not be heard at the HANDHELD Radio Unit after the first ring) and therefore it would be possible to answer the call by the HANDHELD Radio Unit anytime before the caller hangs up – even though there has only been one ring.]

RUNCTIONS THE BASE REPEATER UNIT WILL NOT DO:

- Base Repeater Unit ***will not answer*** INCOMING telephone calls.

PASS *INCOMING* TELEPHONE CALLS TO HANDHELD RADIO UNIT - BUT WITH *MULTIPLE RINGS* AT HANDHELD UNIT:

ENTER 673* - this MODE places the Base Repeater Unit so that INCOMING telephone calls will be ***"passed through"*** to the HANDHELD Radio Unit but will give ***MULTIPLE RINGS*** at the HANDHELD Radio Unit rather than just one (1) ring.

FUNCTIONS THE HANDHELD RADIO UNIT CAN DO:

- The HANDHELD Radio Unit ***can transmit*** commands to the Base Repeater Unit.
- OUTGOING telephone calls ***may be made*** from the HANDHELD Radio Unit.
- INCOMING telephone calls ***will be "passed through"*** to the HANDHELD Radio Unit but with ***MULTIPLE RINGS*** at the HANDHELD Radio Unit.

FUNCTIONS THE BASE REPEATER WILL NOT DO:

- Base Repeater Unit ***will not answer*** INCOMING telephone calls.

SET FREEDOM BASE REPEATER UNIT TO ANSWER INCOMING TELEPHONE CALLS:

ENTER 672* - this MODE enables the FREEDOM SYSTEM ™ Base Repeater Unit to ***answer ALL INCOMING*** telephone calls.

FUNCTIONS THAT THIS FEATURE CAN DO:

- Remote telephone calls ***will be answered*** by the FREEDOM SYSTME ™ Base Repeater Unit - thus allowing remote operation of the Rain Bird Central Control System by remote telephone.
- OUTGOING calls ***may be made*** from the HANDHELD Radio Unit.

- The HANDHELD Radio Unit ***can transmit*** commands to the Base Repeater Unit.

FUNCTIONS THAT THIS FEATURE CAN NOT DO:

- There will be ***no ring through*** to the HANDHELD Radio Unit.
- If there is a telephone connected to the same line as the FREEDOM SYSTEM ™, it will ***only ring once*** and then the FREEDOM Base Repeater Unit will answer the call. The telephone itself will remain operational.

DISABLE REMOTE TELEPHONE CALLS TO FREEDOM BASE REPEATER UNIT:

ENTER 674* - this MODE disables the FREEDOM SYSTEM ™ Base Repeater Unit from answering any INCOMING telephone calls.

FUNCTIONS THAT THIS FEATURE CAN DO:

- The HANDHELD Radio Unit ***can transmit commands*** to the Base Repeater Unit.
- OUTGOING telephone calls ***may be made*** from the HANDHELD Radio Unit.
- If a telephone is connected to the same line that is going to the FREEDOM SYSTEM ™ Base Repeater Unit, this telephone will now ***be back to normal operation.***

FUNCTIONS THAT THIS FEATURE CAN NOT DO:

- FREEDOM SYSTEM ™ Base Repeater Unit ***will not answer*** INCOMING telephone calls.

NOTE ! The **674*** command ***DISABLES*** the FREEDOM SYSTEM ™ Base Repeater Unit from answering any INCOMING telephone calls therefore ***NO remote operation*** of the Rain Bird Central Control system is possible by remote telephone.

It is recommended that you enter the **672*** command when you are finished with the **674*** MODE if you wish to re-establish remote telephone contact with the FREEDOM SYSTEM ™ Base Repeater Unit and be able to control the Rain Bird Central Control System from a remote telephone.

If you forget to do this however, it is possible to "***CALL IN"*** and by letting it ring for ***30 RINGS*** (which is a long time) the FREEDOM SYSTEM ™ Base Repeater Unit will then **ANSWER** the call.

You must remember that this **DOES NOT CHANGE THE MODE** – therefore you will still need to enter the **672*** command to change the MODE.

⇨ RESET THE BASE REPEATER UNIT TO ITS NORMAL 671* MODE:

ENTER 674* - this is the same as an ***initial "Power-Up".*** The Base Repeater Unit will terminate any action (including a telephone connection) that is in progress and reverts to the Normal Mode of **671*** and returns all features and options to their ***default settings***.

⇨ PLACE TELEPHONE CALLER DIRECTLY TO THE FREEDOM HANDHELD RADIO UNIT:

This ***command must be sent via telephone*** when the FREEDOM SYSTEM ™ Base Repeater Unit has answered the call . . .

ENTER 679* - this will place the caller on the air so that he/she can talk directly to the FREEDOM HANDHELD Radio Unit.

HOW TO USE THE HANDHELD RADIO FOR TELEPHONE OPERATION:

ANSWERING A TELEPHONE CALL:

When a telephone call ring is received at the HANDHELD Radio Unit > > >

PRESS and **HOLD** the **"PUSH-TO-TALK" (PTT)** button and **PRESS** the * key - then answer the call as you would with a normal telephone, speaking into the **"MICROPHONE".**

Remember that during the telephone conversation you ***MUST*** - **PRESS** and **HOLD** the **"PUSH-TO-TALK" (PTT)** button on the HANDHELD Radio Unit ***at ALL times*** that you are ***"talking".***

You ***MUST*** - **RELEASE** the **"PUSH-TO-TALK" (PTT)** button in order to listen to the other person when he/she ***is talking***.

The FREEDOM SYSTEM ™ provides a **"CUTOVER - BEEP"** when the HANDHELD Radio operator ***releases*** the **"PUSH-TO-TALK" (PTT)** button. This allows the HANDHELD operator to tell the party on the telephone to - ***"WAIT for the beep before you talk or I won't be able to hear you".***

TERMINATING A TELEPHONE CALL:

At the end of the telephone conversation you ***MUST*** - **"HAND-UP"** by > > >

PRESS and **HOLD** the **"PUSH-TO-TALK" (PTT)** button and then . . .

ENTER #* - even though the other part has ***already "hung-up".***

If you fail to **"HANG-UP"** - ***after 10 seconds*** you will get the **"DIAL TONE"** and ***10 seconds later*** you will get the **"HIGH/LOW" WARBLE BEEP** indicating you need to **"HANG-UP".**

NOTE ! It should be noted that the ***length*** of a telephone call is ***LIMITED TO 5 MINUTES***. ***Twenty (20) Seconds*** before the five (5) minutes are up there will be a **WARNING** of ***TWO (2) "SHORT BEEPS".***

MAKING A TELEPHONE CALL:

In order to make a telephone call from the HANDHELD Radio Unit you must first get a **"DIAL TONE"** by . . .

PRESS and **HOLD** the **"PUSH-TO-TALK" (PTT)** button and then **PRESS** the * key – this will get you a ***dial tone***.

Then enter the **TELEPHONE NUMBER** - just as you would on a normal telephone. Remember that you ***MUST*** - **PRESS** and **HOLD** the **"PUSH-TO-TALK" (PTT)** button ***as you enter*** the telephone number.

Release the **"PUSH-TO-TALK" (PTT)** button and wait for the call to go through and the other party to answer.

Remember that during the telephone conversation you ***MUST*** - **PRESS** and **HOLD** the **"PUSH-TO-TALK" (PTT)** button the HANDHELD Radio Unit at ***ALL times*** that you are ***"talking".***

You **MUST** - **RELEASE** the **" PUSH-TO-TALK" (PTT)** button in order to listen to the other person when he/she is ***"talking".***

At the end of the telephone conversation you ***MUST*** - **"HANG-UP"** -
(Refer to **"Terminating a Telephone Call"** on **Page 23**).

ADDENDUM

HANDHELD RADIO UNIT - CHANNEL CONTENTS READOUT:

(HANDHELD RADIO MUST BE IN THE PROGRAMMING MODE:)

The HANDHELD Radio Unit ***conveys*** the readout data ***by sounding tones***. There is **NO DISPLAY** or **PRINTOUT** of the programmed data.

DETERMINING DATA ALREADY PROGRAMMED INTO THE RADIO:

To get a ***"readout"*** of the data already programmed into the radio unit – proceed with the following steps:

1st – ***Select*** the channel you want to ***readout***.

2nd – PRESS and **RELEASE** the ***monitor*** button.

The radio will then respond in one of two ways.

Condition #1 - When the monitor button is ***pressed*** and ***released*** and the channel is **EMPTY**, the unit signals with ***a triple (3) TONE.*** The channel is then ready to be programmed.

Condition #2 – When the monitor button is ***pressed*** and ***released*** and the **CHANNEL IS ALREADY PROGRAMMED**, the readout begins. A channel may contain radio frequency/Quiet-Call data, or it may hold a "scan list". However, a channel may **NOT** contain both.

RADIO FREQUENCIES AND QUIET-CALL CODES:

Radio frequencies and codes always appear in the following order:

1st – The ***Receive*** (RX) frequency.

2nd – The ***Transmit*** (TX) frequency.

3rd – Any ***Quiet-Call*** code.

4th – Then a ***triple (3) tone*** sounds, ending the readout.

The ***Receive*** (RX) and ***Transmit*** (TX) frequencies are ***six (6) digits*** each. ***Quiet-Call*** codes (QC) are ***two digits,*** and ***Digital Quiet-Call*** codes (DQC) are ***three digits***. ***Paging Quiet-Call*** codes (PQC), are also ***three digits*** – with a ***Quiet-Call*** code(QC) ***prefix*** for a total of ***five digits.***

Each frequency or code emits a tone, one digit at a time. The radio speaker emits a number of short tones equal to a digit of the receive (RX) frequency, or transmit (TX) frequency, or the code. A pause in the tones separates digits, one from the other. A longer pause between tones separates the receive (RX) frequency from the transmit (TX) frequency, and the TX frequency from the code.

EXAMPLE: A channel is already programmed with **151.775 MHz** for both the receive (RX) and transmit (TX) frequencies, and with "12" for the Quiet-Call code. When the monitor button is ***pressed*** and ***released***:

1st – The radio sounds ***one*** short tone to represent the ***first*** digit **("1").**

2nd – After a ***pause*** of about one (1) second, the radio speaker emits ***five (5)*** more tones, for the ***second*** digit **("5").**

3rd – This process continues, one digit of the frequency at a time, until the ***last*** digit of 151.775, **("5")** is given.

4th – A longer pause follows the last digit of the receive (RX) frequency.

5th – The transmit (TX) frequency is then indicated in the same manner as the receive (RX) frequency.

6th – A longer pause follows the last digit of the transmit (TX) frequency.

7th – Next, the Quiet-Call code is represented in the same way as the receive (RX) and the transmit (TX) frequencies: a short tone (for the "1"), a pause, then two (2) more tones (for the "2")

8th – After the frequencies and code programmed for the channel have been indicated, the radio sounds a triple (3) tone..

SCAN LISTS:

If the channel holds a scan list, an **"8"** will be the ***first*** (1st) digit, followed by a **"1"** or a **"2".** The ***first*** (1st) digit **"8"** means that the channel contains a ***scan list.*** The ***second*** (2nd) digit (a "1" or a "2") identifies the list as a **Priority** ("1") or a **Normal** ("2") ***Scan List.*** The ***next*** digits are **channel numbers** in the scan list.

The first two digits and the channels of the scan list are indicated by the speaker ***"beeping"*** a number of times ***equal to*** the digit number of each. A pause after the tones indicates the next digit number of a channel in the scan list.

RECEIVE ONLY CHANNELS:

If the channel is ***"Receive Only",*** the channel transmit frequency will be indicated by **six** (6) ones ("1"), each accompanied by a tone.

QUIET-CALL CODES:

- If no Quiet-Call code is programmed, only the channel number follows the receive (RX) and transmit (TX) frequencies.

- Quiet-Call codes may include an optional extra digit that conveys a special instruction to the radio's microcontroller:

  A **"9"** added to the end of a Quiet-Call (QC) or a Digital Quiet-Call (DQC) entry turns **OFF** Quiet-Call ***squelch*** during receive and makes the channel ***"encode only".***

  A **"1"** added to the end of a Digital Quiet-Call (DQC) entry ***"inverts" the code*** when the radio ***receives***. A **"2"** ***inverts*** the Digital Quiet-Call (DQC) ***code*** when the radio ***transmits.***

  Two separate Quiet-Call codes can be stored on one channel. One Quiet-Call code is for receive mode, the other for transmit.

  During a channel readout, the ***two*** Quiet-Call codes ***follow*** the ***receive*** and ***transmit*** frequencies. The ***first*** (1st) two-digit Quiet-Call code is the ***decode***, the second the ***encode.*** An **"8"** comes ***after the second code*** to identify the entry for the radio's microcontroller.

SPECIAL FEATURES:

A channel contents readout does not indicate any special features programmed, such as the receiver squelch tightner factor, etc.

NOTE ! Special features may be read using the optional PC programming Kit – **Model RPT-PCPS-3.OR16** – or later version software and a PC compatible computer. The programming software included in the kit allows you to print out a complete list of each channel's data.

HOW TO STOP A CONTENTS READOUT:

Press and **release** the *monitor button* during the readout or **change channels**. The channel contents readout sequence then halts and the speaker sounds a triple (3) tone. The radio is ready for any further instructions.

TROUBLESHOOTING:

FREEDOM SYSTEM Ô BASE REPEATER UNIT:

Should you experience a problem with the FREEDOM SYSTEM ™ BASE REPEATER Unit not working correctly or not responding properly or not responding at all, follow the procedure given below.

1. Check the **"POWER ON"** light on the Base Unit to be sure you have **POWER** to the Base Repeater Unit.

2. Try to "**RESET**" the Base Unit by entering the **676*** command with the FREEDOM HANDHELD Portable Radio Unit.

3. While doing the "**RESET**" above – observe the "**TRANSMIT**" light on the Base Unit. It ***should light*** to indicate that the signal from the FREEDOM HANDHELD Portable Radio Unit is being ***received***.

4. If you still are not getting response from the Base Unit – check to see if there is a **PASSWORD** that you need to be using to gain access to the system.

CAUTION ! **BEFORE PROCEEDING FURTHER WITH ANY OF THE REMAINING TESTS – UNPLUG THE POWER CORD TO THE BASE REPEATER UNIT.**

5. If the FREEDOM SYSTEM ™ is subjected to an AC Power Line ***Brown-Out*** or a similar disturbance and it "***locks up"***, both the Repeater Unit and the associated PC ***MUST*** be completely powered "**OFF**" and then back "**ON**".

6. A simple PC based diagnostic program is available to confirm that the FREEDOM system's Repeater, radios, PC, cables and telephone interface are properly functioning.

If you are unsuccessful in correcting the problem by following the above, then contact your Rain Bird distributor and/or return the unit to Ritron for service.

FREEDOM HANDHELD PORTABLE RADIO UNIT:

The FREEDOM HANDHELD Portable Radio Unit, when first turned **"ON",** runs a quick ***"self test".*** When the internal basic functions are confirmed to operate properly a brief ***"confirmation tone"*** is sounded by the unit to indicate the HANDHELD Radio Unit is **READY** for use.

If a diagnostic error is detected, a diagnostic error tone is sounded.

a) One ***LOW-PITCHED TONE*** means that the radio microcon troller is not working as it should.

b) ***ALTERNATING TONES*** (the second is lower pitched) indicates that the radio frequency synthesizer is malfunctioning.

If you get one or both of these error messages, turn **"OFF"** the HANDHELD Radio Unit and ***try again***. If the ***problem still persists***, the unit needs to be sent in for repair.

Once the battery charge drops below a certain level, a short warning tone sounds every 15 seconds (while the radio unit is turned "ON"). You should then recharge the battery pack.

A final, longer tone means that the battery is discharged and the radio has turned itself "OFF".

SOME HELPFUL TROUBLESHOOTING METHODS

PROBLEM	POSSIBLE SOLUTION
The HANDHELD Radio Unit does not work at all.	Make sure the battery is installed correctly.
	Recharge or replace the battery. (See Note #1)
Reception is poor.	Move to a different location. (See Note #2)
Noise or "HISS" sounds in the unit.	Press and release the monitor button. (See Note #3)
You cannot hear calls from other Ratios.	Press and release the monitor button (See Note #3)
	Be certain that your radio receives on the same frequency as the caller transmits. (See Note #4)
	Recharge the battery. (See Note #1)
Your calls cannot be heard in other radios.	Make sure that your radio transmits on the Receive frequency of the radios you wish to call. (See Note #4)
	Recharge the battery. (See Note #1)
An error tone sounds when the radio is first switched "ON".	See Page 12 – for "Error Tones".
Repeating tones occur when you press the "Push-To-Talk" (PTT) button.	The channel is "Receive Only", or the TX inhibit feature is ON. (See Note #5)
An error tone sounds while you are talking (and the transmitter shuts OFF).	See Page 12 – for "Error Tones".
The Transmit/Busy lamp does not light or is dim when you transmit.	Recharge the battery. (See Note #1)

The battery loses its charge sooner than expected.	Conserve the battery. (See Notes #7 & #8)
	Did NOT have a "FULL" battery charge.
	Replace the battery. (See Note #1)
You cannot screen out calls from users outside of your Quiet-Call group	Make sure that the channel is programmed with Quiet-Call.
	Toggle the monitor button to select Quiet-Call (coded) squelch. (See Note #3)
You cannot hear Quiet-Call messages While in Quiet-Call (coded) squelch.	Confirm that the channel is programmed to detect the same code as the calling Radio(s) transmits. (See Note #6)
Others in your Quiet-Call group cannot hear your Quiet-Call messages.	Verify that you transmit the same code as the radio(s) you call are programmed to detect. (See Note #6)

GENERAL NOTES:

1. Try a battery pack from a working radio. If the radio in question works with that battery pack, the original battery is suspect. Charge the suspect battery as recommended. If it still will not power the HANDHELD Radio Unit, try a different charger if available. If the battery still doesn't hold a charge, the battery pack should probably be replaced. However, if the battery appears to be "good" after you try the second charger, the first charger might be faulty. If you think that an accessory is not operating properly, contact Rain Bird or RITRON's repair Department.

   The chart below gives typical performance and charging times for RITRON battery models.

BATTERY LIFE - 90-5-5 DUTY CYCLE

Model: **Capacity:** **Type:**	**BPX-8N** **650 mAh** **NiCad**	**BPX-8N-HC** **800 mAh** **NiCad**	**BPX-8N-MH** **1100 mAh** **NiMh**
5 Watts			
Battery Saver Enabled	**8 hours**	**9.8 hours**	**15.8 hours**
Battery Saver Disabled	**4.7 hours**	**5.8 hours**	**8.7 hours**
90% duty Cycle	**7.2 hours**	**8.8 hours**	**14.2 hours**
5% Duty Cycle]	**24 mins.**	**29 mins.**	**47.0 mins.**
2 Watts			
Battery Saver Enabled	**13.3 hours**	**16.4 hours**	**24.6 hours**
Battery Saver Disabled	**6.2 hours**	**7.6 hours**	**11.4 hours**
90% duty Cycle	**12,0 hours**	**14.8 hours**	**22.1 hours**
5% Duty Cycle	**40 mins.**	**49 mins.**	**1.2 hours**

BATTERY CHARGING TIME

Model: Capacity: Type:	BPX-8N 650 mAh NiCad	BPX-8N-HC 800 mAh NiCad	BPX-8N-MH 1100 mAh NiMh
Standard Rate Charge Time	12 – 14 hours	* 16 – 18 hours	* 20 – 24 hours
Fast Rate Charge Time	2.5 hours	1.5 hours	1.5 hours
* Strongly recommend that the Fast Rate Chargers be used with these batteries.			

2. Reception can often be improved by moving a short distance. This effect is more noticeable inside of buildings. The strength of a radio broadcast and therefore its coverage is decreased by distance and obstructions (natural and man-made). This includes hills, valleys, foliage, buildings, basements and other metal or concrete structures. The best range and coverage is obtained across flat terrain, with line-of-sight visibility and no obstructions. The range of the FREEDOM HANDHELD Portable Radio Unit with a standard battery pack is several miles line-of-sight.

3. If noise sounds in the radio speaker, press and release the monitor button to activate carrier squelch. Otherwise, this button toggles Quiet-Call (coded) squelch ON and OFF.

4. If you want to hear a call, you must select a channel that is programmed to receive the caller's transmit frequency. If you want to call another unit, you must select a channel that is programmed to transmit the other radio's receive frequency. However, if you use a repeater, your channel must be programmed to work with the repeater's transmit and receive frequencies. (A channel can hold two separate radio frequencies, one for receive, the other for transmit).

5. If you get repeating error tones when you press the "Push-To-Talk" (PTT) button, the channel might be programmed for "Receive Only". If so, the channel does not contain a transmit frequency, and cannot be used to transmit. Repeating tones also sound if the busy Channel Transmit Inhibit feature is activated and another user's radio signal is present on the channel.

6. In order for radios to communicate using Quiet-Call, they must be programmed with the same Quiet-Call code. Each code is unique, and your radio will respond only to

the code programmed for the channel selected. Note that a channel may have been programmed to transmit one code, and receive (detect) another code.

7. Maximum power drain occurs while the radio transmits, so don't hold down the "Push-To-Talk" button more than necessary. Battery power is used while the handheld radio is left "ON" to receive calls. If practical, switch "OFF" the radio unit.

8. In extreme cold, a battery's charge capacity is greatly reduced. If you use the radio in very cold weather, periodically warm the Portable Radio underneath your coat if possible. An optional remote speaker/microphone would allow you to keep the radio under your coat while transmitting and receiving.

SERVICE AND REPAIR:

If your FREEDOM SYSTEM ™ equipment – either the FREEDOM SYSTEM ™ BASE REPEATER UNIT or the FREEDOM HANDHELD Portable Radio Unit or any of the other auxiliary equipment of the FREEDOM SYSTEM ™ - fail to operate properly and need to be repaired, take the following action.

Contact your **RAIN BIRD DISTRIBUTOR** from Whom you purchased the equipment.

In most cases the Rain Bird distributor will be able to determine the cause of the problem and take the necessary action to correct it. If he is unable to correct the problem he will then contact the Rain Bird Golf Technical Services department for assistance.