Preface

Scope

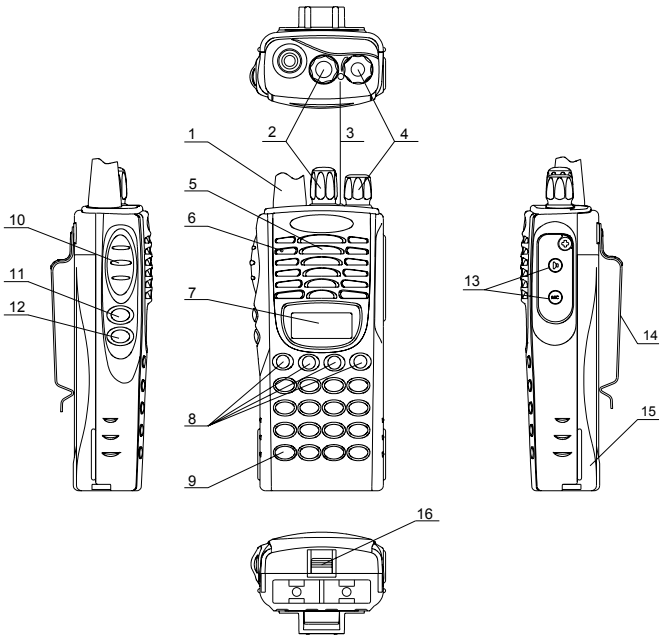
This manual is intended for use by qualified technicians familiar with similar types of communication equipment. It contains all service information and data required for the equipment.

Caution

The following precautions are recommended for personnel safety:

- DO NOT transmit until all RF connectors are verified secure and all connectors are properly terminated.
- SHUT OFF the power and DO NOT operate this equipment near electrical blasting caps or in a potential explosive atmosphere.
- This equipment should be serviced by qualified technicians only.

Brief Introduction



(1) ANTENNA

(2) CHANNEL SELECTOR KNOB

Used to select channel and squelch level. In addition, it can be programmed by the dealer to delete undesired channels from scan list or to select a CTCSS frequency.

(3) LED INDICATOR

- Is red when transmitting
- Is green when receiving
- Flashes red when the battery voltage is low and approaching the cut-off point
- Flashes orange, when the radio receives proper DTMF or Two Tone decode signals.

(4) ON-OFF/VOLUME KNOB

Rotate the volume control knob clockwise to turn the unit "on" and fully counter clockwise to turn the unit "off". Increase or decrease volume by adjusting the volume control accordingly.

(5) SPEAKER

(6) MICROPHONE

(7) LCD

Used to display channel and operation status.

(8) (●,○,■,□) PROGRAMMABLE SOFT KEYS

Used to enable auxiliary functions. Press each key to enable its corresponding function.

(9) KEYPAD

Used to enter, store or send DTMF codes.

(10)PTT **BUTTON**

Used to switch between transmit and receive mode.

(11)LAMP BUTTON

Used to turn on/off the LCD backlight. Press the **[LAMP]** button, the backlight will illuminate for about 5 seconds and then automatically turn off. Press any key other than **[LAMP]** button, the timer will retime. If you press the **[LAMP]** button, the backlight will light off.

(12)MONI BUTTON

Used to monitor the selected channels.

(13)EXTERNAL SPEAKER-MICROPHONE JACK

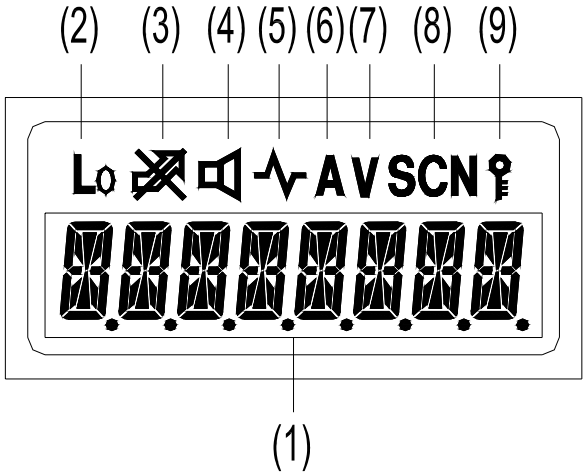
Used to connect with external speaker-microphone, programming cable, or cloning cable.

(14)BELT CLIP

(15)BATTERY

(16)BATTERY LATCH

LCD



(1) Displays the selected channel number, channel frequency, channel label, squelch level or DTMF code. When selective call is enabled, messages received are also displayed here.

Note: The “soft keys” can be programmed to toggle between display modes.

Channel Number– Displays channel number. Factory default.

Channel Frequency– Displays the channel frequency.

Channel Label– Displays characters of the channel label (up to 16 alphanumeric characters can be programmed. Any label over 8 characters will scroll across the display).

(2) Appears when Low Power is selected.

(3) Appears when selected channel is busy.

(4) Appears when MONI button is pressed to disable CTCSS, CDCSS, DTMF or 2-Tone.

(5) Appears when MONI button is pressed to switch the speaker on.

(6) Appears when current channel is in the scan list. Radio only scans channels in scan list.

(7) Appears when enter number during channel label programming. Appears when CDCSS decoder is reversed in destination set mode.

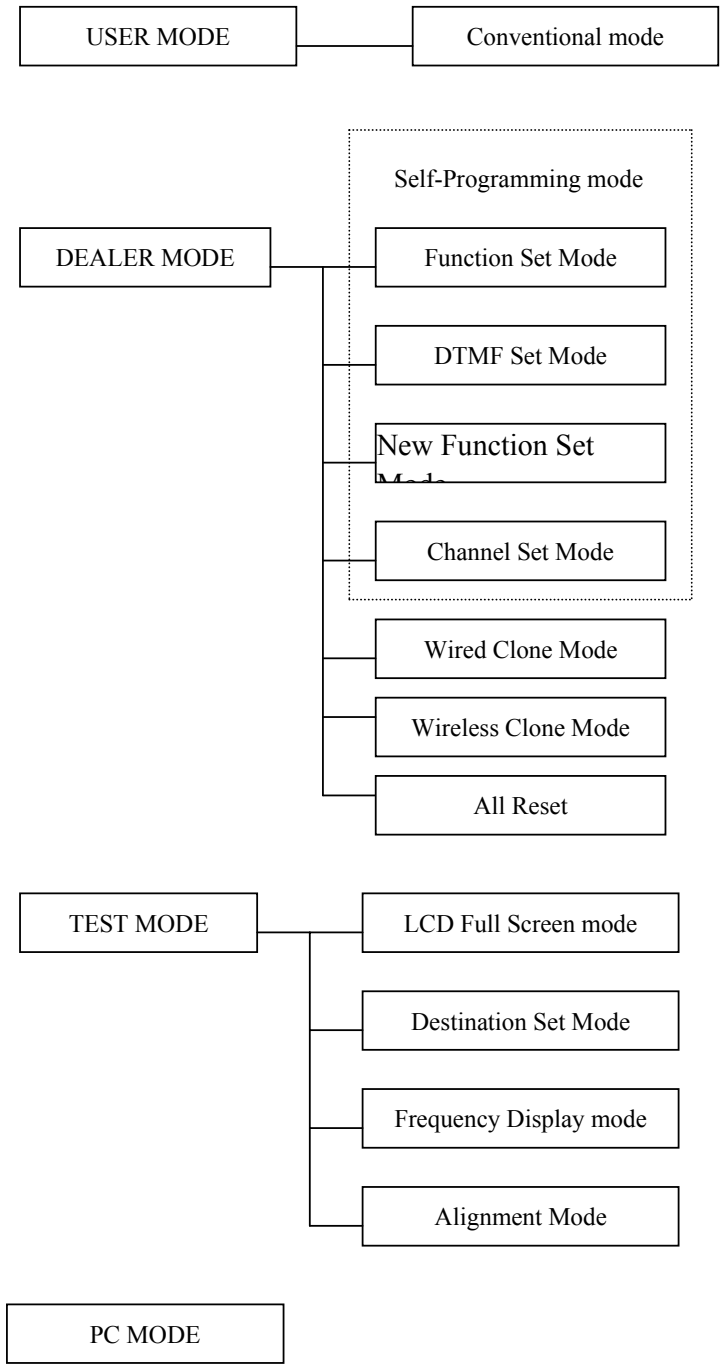
(8) Appears in scan mode.

(9) Appears when keypad lock is on.

Radio Modes

1. Frame of Radio Modes

Select the function you want from the modes and make the necessary settings.



2. Description of Mode Functions

MODE		FUNCTION
USER MODE		Conventional mode
DEALER MODE		Dealer set the below modes: Function set mode, DTMF set mode, Channel set mode, Wired clone mode, Wireless clone mode, All Reset
Self Programming (FUNCTION SET MODE)		The dealer set the following functions ON/OFF according to the user operating needs. 1.Monitor 2.Scan 3.Dial 4. Talk around 5.Low 6.Priority 7.Priority Channel 8.Look Back A 9.Look Back B 10.Revert Channel 11.TX Dwell time 12.Dropout Delay Time 13.Time out Timer 14.Tramsmit Warning 15.TOT Rekey Time 16.TOT Reset Time 17.Squelch Level 18.BEEP 19.Signalling 20.Battery Save 21.Selectable CTCSS 22.DELETE/ADD 23.Dealer Mode-Test Mode
Self Programming (DTMF SET MODE)		The dealer set the following functions ON/OFF according to the user operating needs. 24.Digit Time 25.Inter Digit Time 26.First Digit Time 27.Rise Time 28.Rise Time with CTCSS 29.PTT ID 30.Dial ID 31.Connect ID 32.Disconnect ID 33. NO. of DTMF key 34.DTMF Hold Time 35.Store & Send 36.D key Assignment 37.DTMF Signaling 38.Intermediate Code 39.Group Code 40 SQ. Auto Reset Time 41.Call Alert/ Transpond
Self Programming (CHANNEL SET MODE)		The dealers use this mode to set channel frequencies and signaling according to the user operating needs. 1.Channel Selection 2.RX Frequency 3.RX Signaling 4.TX Frequency 5.TX Signaling 6.DTMF/2-Tone signaling 7.PTT ID Enable 8.Scan DEL/ADD 9.Busy Channel Lockout 10.Clock Frequency Shift 11.TX Power 12.Wide/narrow Band 13. ID Code/RX 2-Tone 14. TX 2-Tone 15. Channel Label
Self Programming (NEW FUNCTION MODE)		45.group tone 46. group tone duration 47. channel label size 48. programmable key 1 [●] 49. programmable key 2 [○] 50. programmable key 3 [■] 51. programmable key 4 [□]
WIRED CLONE MODE		In this mode data is copied from one radio to another through a cable.
WIRELESS CLONE MODE		In this mode data is copied from one radio to another without cable by means of the DTMF signal.
ALL RESET		In this mode transmit/receive frequencies of each channel and function settings are initialized.
TEST MODE	MENU MODE	This mode is used to enter the following setting options.
	ADJUSTMENT MODE	This mode is for alignment of radio operation.
	FREQUENCY TEST MODE	This mode is for checking the frequencies and repairing the radio.
	ADJUSTMENT DATA CLONE MODE	This mode is used to clone adjustment data from one radio to another.
	LCD FULL SCREEN MODE	All characters and signs on the LCD are displayed.
	DESTINATION SET MODE	This mode sets radio destination.

3. Keypad Entry for Mode Startup

MODE		Key	Remarks
USER MODE	Conventional Mode	POWER ON	Turn on the power to enter Conventional Mode
DEALER MODE	Function Set Mode	While holding down [LAMP] and [○] key simultaneously, turn on the power (in 2 seconds)	Press [●] key to enter Function Set Mode.
	DTMF Set Mode	As above	Press [○] key to enter DTMF Set Mode.
	Channel Set Mode	As above	Press [■] key to enter Channel Set Mode.
	New function set mode	As above	Press [□] key to enter New Function Set Mode.
	Wired Clone Mode	As above	Press [LAMP] to enter Wired Clone Mode.
	Wireless Clone Mode	As above	Press [MONI] to enter Wireless Clone Mode.
	All Reset	As above	Press [□] key and [PTT] simultaneously.
TEST MODE	Menu Mode	While holding down [LAMP] and [■] key simultaneously, turn on the power (in 2 seconds).	Press [□] key to enter test mode and [■] key to return to Menu Mode.
	Adjustment Mode	Select "ADJUST" in menu mode.	Press [□] key to enter the mode and [■] key to exit.
	Frequency Test Mode	Select "FREQ TST" in menu mode.	
	Adjustment Data Clone Mode	Select "TUNE CLN" in menu mode.	
	LCD Full Screen Mode	Select "FULL LCD" in menu mode.	
	Destination Set Mode	Select "DEST SET" in menu mode.	

Prohibit entering dealer mode and test mode

□ Dealer mode and test mode can be prohibited by programming to prevent users from changing the parameters with self-programming feature or with external programmer.

□ Cancel the Prohibit

Short the dealer mode control point and the test mode control point and then the prohibit will be cancelled at POWER-ON. Or use the programming software to cancel.

Note:

The dealer mode control point and the test mode control point locate over LCD and marked with SELF.

DEALER MODE

Self-Programming (Function Setting)

1. Turn on the power while pressing [LAMP] and [○] key, in 2 seconds the radio enters the dealer mode, and "SEL" appears on LCD.

   Note: please refer to the notes of self-programming mode.

2. In dealer mode, press [●] key to enter function set mode.
3. Use Channel Selector knob to set functions ON or OFF or to select the setting.
4. After a function is set, press [PTT] to store the setting and the menu goes to the next function option.

5. Press [●] key to return to Dealer Mode from current option, and the current data shown on the display will not be stored.

6. Press [PTT] to store current function setting and a beep will sound to confirm the action.

7. END appears when settings in function mode are completed.

Function No.	Function Name	Settings (Defaults are underlined)	Display	Remarks
1	MONITOR	OFF	MONI OFF	Invalid
		Monitor Momentary	MONI 1	Signaling squelch is temporarily disabled while [MONI] button is held down.
		Monitor Lock	MONI 2	Signaling squelch is temporarily disabled while [MONI] button is pressed. Each time press can toggle between squelch disable and enable.
		SQ OFF Momentary	MONI 3	Squelch is disabled while [MONI] button is held down.
2	SCAN	OFF	SCAN OFF	Invalid
		CO	SCAN CO	"Carrier Operated" function
		TO	SCAN TO	"Time Operated" function
3	[DIAL]	Disable	DIAL OFF	Disables the [DIAL] key.
		Enable	DIAL ON	Enables the [DIAL] key.
4	TALK AROUND	Disable	TARE OFF	Invalid
		Talk Around	TARE TA	"Talk around" function is enabled
		Reverse	TARE RE	" Frequency Reverse" function is enabled
5	[LO]	Disable	LO OFF	Disables [LO] key.
		Enable	LO ON	Enables [LO] key.
6	PRIORITY	OFF	PRIO OFF	NO priority setting
		Fixed	PRIO FIX	Fixed priority channel
		Selected	PRIO SEL	Variable priority channel
7	PRIORITY CHANNEL	1 ~ 99 1	PRICH 1	Priority channel (Only valid when "fixed priority" is enabled)
			PRICH 99	
8	LOOK BACK A	0.3s ~1.5s 0.5s (0.1s/1STEP)	LBA 300	The period time between radio back scanning a priority channel from a normal channel when there is no activity on priority channel
			LBA 1500	
9	LOOK BACK B	0.5s ~ 5.0s 2.0s (0.5s/1STEP)	LBB 500	The period time between radio back scanning a priority channel from a normal channel when there is activity on priority channel but not matching its signaling.
10	REVERT CHANNEL	Selected	REV SEL	Channel where scan starts.
		Last Call	REV LSTC	During scanning, it's the latest channel at pause; during scan stopping, it's the channel stopped; if scan never stops, it's the start channel.
		Last Used	REV LSTU	During scanning, it's the latest transmit channel; during scan stopping, it's the channel stopped; if scan never stops, it's the start channel.
		Selected + Talk Back	SEL TALK	During scanning, it's the start channel; during scan stopping, it's the channel stopped.
		Priority	REV PRIO	Priority channel
		Priority + Talk Back	PRI TALK	During scanning, it's the priority channel; when scan stopping, it's the channel stopped.
11	TX-SCAN DWELL TIME	0.5s ~ 5.0s 3.0s (0.5s/1STEP)	TSDT 0.5	Duration before scan restarts when it stops by transmission.
			TSDT 5.0	
12	DROP OUT DELAY TIME	0.5s ~ 5.0s 3.0s (0.5s/1STEP)	DODT 0.5	Duration before scan restarts when it stops by signal input.
			DODT 5.0	

13	TIME OUT TIMER	OFF 30s~300s 60s (30s/1STEP)	TOT OFF	When OFF, in order to protect power amplifier, max. time of continuous transmission is set as 10 minutes.
			TOT 30	Maxi. time of continuous transmission
			TOT 300	
14	TOT ALERT TIME	OFF 1 ~ 60 (10s/1STEP)	TOTA OFF	TOT off.
			TOTA 1	When this feature is enabled, the radio will call an alert at the set time. Transmission will be prohibited by TOT after this time.
			TOTA 60	
15	TOT REKEY TIME	OFF 1s ~ 60s OFF (1s/1STEP)	TOTK OFF	Duration until transmission is allowed after radio returning to receive mode by TOT.
			TOTK 1	Transmit prohibited until preset time elapses.
			TOTK 60	
16	TOT RESET TIME	OFF 1s ~15s OFF (1s/1STEP)	TOTS OFF	TOT is immediately reset after transmission stops.
			TOTS 1	TOT won't reset until preset time elapses, even if transmission has stopped.
			TOTS 15	
17	SQUELCH LEVEL	0 ~9 5 (1s/1STEP)	SQL 0	Squelch level is set higher (tighter), as the figure increases.
			SQL 9	
18	BEEP	NO	BEEP OFF	No beep tone
		YES	BEEP ON	Beep tone sounds
19	SIGNALING	AND	SGNL AND	Squelch is opened when both match.
		OR	SGNL OR	Squelch is opened when either matches.
20	BATTERY SAVE	Disable	BATT OFF	No Battery Save function.
		Enable	BATT ON	Battery Save function.
21	SELECTABLE CTCSS	Disable	VQT OFF	Prohibit Selectable CTCSS
		Enable	VQT ON	Permit Selectable CTCSS
22	DELETE/ ADD ENABLE	Disable	SADD OFF	Prohibit Delete/Add
		Enable	SADD ON	Permit Delete/Add
23	DEALER MODE/ TEST MODE ENABLE	Disable	MODE OFF	Prohibit dealer mode and test mode
		Enable	MODE ON	Permit dealer mode and test mode
END			END	

When END is displayed, press [PTT] to return to Function Setting.

Note:

LOOK BACK: When radio is scanning a non-priority channel, the status of the priority channel will be detected periodically. The time interval for this detecting is as the following:

A is period when there is no activity on the priority channel.

B is period when there is activity on the priority channel, however not matching its signaling.

Self-Programming (DTMF setting)

1. Turn on the power while pressing [LAMP] and [○] key simultaneously, and in 2 seconds the radio enters the dealer mode.

2. In dealer mode, press [○] key to enter DTMF Set Mode.
3. Use Channel Selector knob and the 16 keys (0~9, *, #, A~D) to set DTMF function ON/OFF or select the setting.
4. Press [PTT] to store the selected settings, except functions 31 and 32, which are stored with the 16 keys, and the menu goes to next function option.
5. Press [○] key to return to Dealer Mode. The current setting displayed on LCD will not be stored.
6. Press [PTT] to store function settings and a Beep sounds to confirm the action.
7. END appears when all DTMF function settings are completed.
8. While pressing and holding [MONI], turn the channel selector to confirm the settings of each function option.

Function No.	Function Name	Setting (Defaults are underlined)	Display	Remarks	
24	DIGIT TIME	50ms ~ 200ms 50ms (10ms/1STEP)	DIGT 50 DIGT 200	One digit transmitting time during DTMF code transmission.	
25	INTER DIGIT TIME	50ms ~ 200ms 50ms (10ms/1STEP)	IDT 50 IDT 200	Interval time between digits during DTMF transmission.	
26	FIRST DIGIT TIME	50ms ~ 200ms 50ms (10ms/1STEP)	FDT 50 FDT 200	1st digit transmitting time during DTMF transmission.	
27	RISE TIME	100ms~1000ms 300ms (50ms/1STEP)	RISE 100 RISE1000	Set the time between unmodulated carrier transmission and the DTMF code transmission	Note: when DTMF function is enabled together with the Battery Save and CTCSS functions on, transmit delay time should be over 300 ms.
28	RISE TIME WITH CTCSS	100ms~1000ms 300ms (50ms/1STEP)	RTQT 100 RTQT1000	Set time	
29	PTT ID	OFF	P.ID OFF	Not send PTT ID.	
		Connect	P.IDBEGIN	Press [PTT], PTT ID is sent.	
		Disconnect	P.ID END	Release [PTT], PTT ID is sent.	
		Both	P.ID BOTH	Send PTT ID when both CONNECT and DISCONNECT.	
30	DIAL ID	OFF	D.ID OFF	Prohibit Dial ID	
		ON	D.ID ON	Permit Dial ID	
31	CONNECT ID	Blank 0 × 1 ~ # × 16	P.IDBEGIN	Display about one second when entering this setting.	
			--------	CONNECT ID is not set	
			0 FFFFFFFF	CONNECT ID is input (if more than 8, scroll it)	
32	DISCONNECT ID	Blank 0 × 1 ~ # × 16	P.ID END	Display about one second when entering this setting.	
			--------	Connect ID is not set.	
			0	CONNECT ID is input (if more than 8, scroll	

			FFFFFFFF	it)	
33	NO. of DTMF KEY	12keys (0 ~ 9,*,#)	DTMFK 12	Disable [A] [B] [C][D] keys.	
		16keys (0 ~ 9,*,#,A ~ D)	DTMFK 16	Enable [A] [B] [C][D] keys.	
34	DTMF HOLD TIME	Disable	DHT OFF	Do not Hold	Function that continues transmission for two seconds even if manual DIAL key is released.
		Enable	DHT ON	Hold	
35	STORE & SEND	OFF	STSD OFF	Prohibit Store & Send function.	
		ON	STSD ON	Permit Store & Send function.	
36	D KEY ASSIGNMENT	D Code	DKEYA D	Send the code for D.	
		1s ~ 16s (1s/1STEP)	DKEYA 1	Make unmodulated transmission for preset time.	
			DKEYA 16		
37	DTMF SIGNALING	OFF	DTMF OFF	NO DTMF signaling.	
		Code SQ	DTMF CSQ	Code Squelch	
		SEL CALL	DTMF SEL	Selective Call	
38	INTERMEDIATE CODE	0 ~ 9	IMC 0	Selected code is set as intermediate code.	
			IMC 9		
		A ~ D	IMC A		
			IMC D		
		*	IMC E		
		#	IMC F		
39	GROUP CODE	OFF	GRPC OFF	No group code	
		A ~ D	GRPC A	Selected code is set as group code.	
			GRPC D		
		*	GRPC E		
		#	GRPC F		
40	SQ AUTO RESET TIME	OFF	SART OFF	Do not perform Auto Reset.	Time until coincidence state is canceled after DTMF/2-Tone signaling coincides.
		1s ~ 15s 10s (1s/1STEP)	SART 1	Auto Reset is performed for preset time.	
			SART 15		
41	CALL ALERT/ TRANSPOND	OFF	CAT OFF	No operation	
		Call Alert (Ringing)	CAT RING	The Call Alert (Ringing) tone sounds.	
		Call Alert (Beep)	CAT BEEP	The Call Alert (Beep) tone sounds.	
		TRANSPOND (Call Alert)	CAT CALT	Responder of Call Alert.	
		TRANSPOND (ID Code)	CAT IDCD	Responder of ID Code.	
		TRANSPOND (Transpond Code)	CAT TRCD	Responder of code set in Auto Dial 0.	
End			End		

When END appears, press [PTT], the radio returns to setting of "24. DIGIT TIME".

Notes:

When changing and storing the new setting of “DTMF SIGNALING” (function No. 37), the ID CODE setting in channel mode will be reset to “000”. And in self-programming set, the two-tone in all the channels will be reset to “1”.

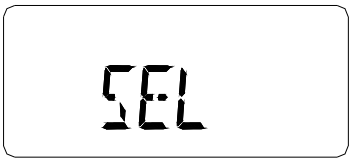
Notes in self-programming mode:

In self-programming set, when the basic function is OFF, corresponding settings in the below table can be set, but not valid.

Function name	Settings	Disable conditions
2-TONE/ DTMF	DTMF	37.DTMF signaling is OFF
2.[SCN]	TO	7.Priority is fixed or selected.
6.Priority	Fixed, Selected	2.[SCN] is OFF
7.Priority CH		6.Priority is OFF or fixed.
8.Look Back A		6.Priority is OFF
9.Look Back B		6.Priority is OFF
10.Revert CH	Priority, Priority + Selected	6.Priority is OFF
11.Dwell Time		2.[SCN] is OFF
12.Dropout Delay Time		2.[SCN] is OFF
14.TOT Pre-Alert		13.Time Out Time is OFF
15.TOT Rekey Time		13.Time Out Time is OFF
16.TOT Reset Time		13.Time Out Time is OFF
31.Connect ID		29.PTT ID is OFF or disconnected and 30. Dial ID is OFF
32.Disconnect ID		29.PTT ID is OFF or connected and 30. Dial ID is OFF.
38.Intermediate Code		37.DTMF/2-TONE signaling is OFF or is code SQ.
40.Unsquelch Time		37.DTMF/2-TONE signaling is OFF.
41.Call Alert/Transpond		37.DTMF/2-TONE signaling is OFF.

Self- Programming (New Functions Setting)

1. Turn on the power while pressing [LAMP] and [○] key, the radio enters the DEALER MODE in 2 seconds.



2. In dealer mode, press [□] key, radio enters “new function set mode”.

3. Rotate the channel selector knob to select the function setting.

4. Press [PTT], the setting is stored and the menu goes to the next function option.

5. Press [□] key again, display returns to “SEL” from current function setting, and the setting will not be stored.

6. When setting function options, press [PTT], the settings will be stored and a BEEP sounds to confirm the operation.

8. End is displayed when all new functions settings are completed.

Function No.	Function Name	Settings (Defaults are underlined)	Display	Remarks
45	Group Tone Type	NO GROUP TONE	GRPT OFF	2-tone group tone off.
		A TONE	GRPT A	Set 2-tone group tone as tone A.
		B TONE	GRPT B	Set 2-tone group tone as tone B.
46	Group Tone Duration	0.5~10s 0.5s □step: 0.1s□	GTDUR 0.5	Group tone time.
47	Channel Label Size	OFF	SIZE OFF	Channel label display mode is disabled.
		1~16 (step: 1)	SIZE 1 SIZE 16	
48	KEY1	No Function	K1 OFF	
		SCAN	K1 SCAN	<- Default
		DIAL	K1 DIAL	
		TA	K1 TARE	
		LO	K1 LO	
		Display Label	K1 DCHAR	
		Display Frequency	K1 DFREQ	
		Display Mode	K1 DMODE	
		Scan ADD/DEL	K1 SADD	
		Key Lock	K1 KLOCK	
		Variable QT	K1 VQT	
		SQL	K1 SQL	
49	KEY2	No Function	K2 OFF	
		SCAN	K2 SCAN	
		DIAL	K2 DIAL	<- Default
		TA	K2 TARE	
		LO	K2 LO	
		Display Label	K2 DCHAR	
		Display Frequency	K2 DFREQ	
		Display Mode	K2 DMODE	
		Scan ADD/DEL	K2 SADD	
		Key Lock	K2 KLOCK	
		Variable QT	K2 VQT	
		SQL	K2 SQL	
50	KEY3	No Function	K3 OFF	
		SCAN	K3 SCAN	
		DIAL	K3 DIAL	
		TA	K3 TARE	<- Default
		LO	K3 LO	
		Display Label	K3 DCHAR	
		Display Frequency	K3 DFREQ	
		Display Mode	K3 DMODE	
		Scan ADD/DEL	K3 SADD	

		Key Lock	K3 KLOCK	
		Variable QT	K3 VQT	
		SQL	K3 SQL	
51	KEY4	No Function	K4 OFF	
		SCAN	K4 SCAN	
		DIAL	K4 DIAL	
		TA	K4 TARE	
		LO	K4 LO	<- Default
		Display Label	K4 DCHAR	
		Display Frequency	K4 DFREQ	
		Display Mode	K4 DMODE	
		Scan ADD/DEL	K4 SADD	
		Key Lock	K4 KLOCK	
		Variable QT	K4 VQT	
		SQL	K4 SQL	

Self-programming (channel setting)

1. Turn on the power while pressing [LAMP] and [○] key, radio enters the dealer mode in 2 seconds.
2. In dealer mode, press [■] key, radio enters Channel Set Mode.
3. Using Channel Selector knob and 16 keys (0~9, *, #, A~D) to select channel functions or settings.
4. Press [PTT], the settings are stored and the menu moves to the next function set.
5. Press [■] key, radio returns to Dealer Mode from current function set. And current setting displayed on LCD will not be stored.
6. During functions setting, pressing [PTT] can store selected settings, which will be confirmed by a Beep.
7. END is displayed when all Channel settings are completed.

Function Name	**Settings (Defaults are underlined)**	**Display**	**Remarks**
Channel Select	1CH ~ 99CH 1CH	CH 1 CH 99	□ "RX FREQUENCY" setting follows this setting.
RX FREQUENCY	Blank	----------	□ frequency change→Channel Selector knob □Toggle between 6.25/2.5KHz steps→ [●] key (Dot means 6.25KHz) □ Toggle between blank/frequency→[□] key □ Change to 1MHz steps→[LAMP] + Channel Selector knob □ The initial value when changing from blank to frequency display is the initial value of the destination. □ Enter "RX Signaling" setting after each frequency is set.(If blank is set, setting returns to the option of " Channel Select")
	100.000MHz or more Under 550MHz (2.5KHz steps)	100.00000 549.99750	
	100.000MHz or more Under 550.000.MHz (6.25KHz steps)	100.00000 549.99375	

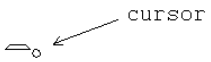
RX CTCSS SIGNALING	OFF	OFF	□ Code selection → Channel Selector knob □ CTCSS changes in 0.1 Hz step increment → [●] key □ CDCSS changes in 1 step increment,→ [●] key □ Toggle signaling between CDCSS and –CDCSS→[○]. □ Toggle among blank, CTCSS frequency and CDCSS→[□] key □"TX FREQUENCY" follows this setting.	
	CTCSS (standard) 67.0Hz ~ 250.3Hz	QT 67.0		
		QT 250.3		
	CTCSS (not standard) (0.1Hz step) 67.0Hz ~ 250.3 Hz	QT 67.0*		
		QT 250.3*		
	CDCSS (standard)	DQT023N		
		DQT754I		
	CDCSS (not standard) (step:1) 000.~777. (octonary)	DQT000N*		
		DQT777I*		
TX FREQUENCY	Blank	----------	□ frequency change → Channel Selector knob □Toggle between 6.25/2.5KHz step increment → [●] key □ Toggle between Blank/ CTCSS display→[□] key □Change to 1MHz step increment → [LAMP]+Channel Selector knob □ The initial value from blank to frequency display is the value set in RX FREQUENCY □ If blank is set, menu enters to the option of "DTMF SIGNALING".	
	100.000MHz or more Under 550MHz (2.5KHz steps)	100.00000		
		549.99750		
	100.000MHz or more Under 550.000MHz (6.25KHz steps)	100.00000		
		549.99375		
TX CTCSS SIGNALING	OFF	OFF	□select codes → Channel Selector knob □CTCSS changes in 0.1Hz step increment →[●] key. □CDCSS changes in 1 step increment→[●] key. □Toggle signaling between CDCSS and –CDCSS→[○] key. □Toggle among blank, CTCSS frequency and CDCSS→[□] key. □"DTMF SIGNALING/2-Tone" settings follow this setting	
	CTCSS (standard) 67.0 HZ ~ 250.3Hz	QT 67.0		
		QT 250.3		
	CTCSS (not standard) (0.1Hz step mode) 67.0Hz ~ 250.3Hz	QT 67.0*		
		QT 250.3*		
	CDCSS (standard)	DQT023N		
		DQT754I		
	CDCSS (not standard) (step:1) 000.~777. (octonary)	DQT000N*		
		DQT777I*		
DTMF/2-TONE SIGNALING	OFF	SIG OFF	No DTMF Signaling/2 Tones	[ANI] function setting follows this setting.
	DTMF	SIG DTMF	Use DTMF Signaling	
	2 Tones	SIG TTS	Use 2 Tones	
ANI	OFF	ANI OFF	Disable ANI	
	ON	ANI ON	Enable ANI	
SCAN DELETE/ADD	ADD	SCAN ADD	Set in scan list	
	DELETE	SCAN DEL	Delete from scan list	
BUSY CHANNEL LOCK OUT	OFF	B.C.L.O	Busy Channel lock out is disabled	
	ON	B.C.L.O ON	Busy Channel lock out is enabled	
CLOCK SHIFT	Disable	SHFT OFF	Do not shift clock frequency	
	Enable	SHFT ON	Shift clock frequency	
TX POWER	High	TXPWR H	Permit switching between High/Low Power	
	Low	TXPWR L	Permit only Low Power	

Wideband/Narrowband	Wide	WIDE	Wide mode
	Narrow	NARROW	Narrow mode
ID CODE (DTMF)		ID	Display about one seconds when entering this setting.
	000	-------0	ID is input, enter number→[10 digit keys(0-9)]
	9999999999	9999999999	If more than 8, scroll it
2-Tone signaling	RX 2-TONE 1-16 1	TTS_R 1	□Code selection→Channel selector knob □Return to "Channel Select" function when 99 channels are not all set. □When 99 channels are all set, END is displayed.
	TX 2-TONE 1-16 1	TTS_T 1	
Channel Label		CH LABEL	Display about one seconds when entering this setting.
	--------	-------	No channel label is input
	POLICE 1	POLICE 1	Maximum 16 characters (0-9,A-Z, symbols) (Refer to appendix 1: channel label programming)
END		END	Only appears in 99th channel

Note:

1. If DTMF or DTMF/2-Tone is disabled, "ID code" function option is automatically skipped.
2. DTMF and 2-Tone cannot be enabled simultaneously.

Appendix 1: Channel Label Programming

KEY	CHARACTER INPUT Number of times key is pressed						NUMBER INPUT	REMARKS
	1	2	3	4	5	6		
1	Space						1	 Cursor: current input position will toggle between char/num and cursor display. Each key can generate numeric and character information. Pressing a key will cause the first character of the key's character cycle to appear on the LCD; Subsequent pressing of the same key will cause subsequent characters in the cycle to appear. For example, to enter the character "S", press the "7" key four (4) times.
2	A	B	C				2	
3	D	E	F				3	
4	G	H	I				4	
5	J	K	L				5	
6	M	N	O				6	
7	P	Q	R	S			7	
8	T	U	V				8	
9	W	X	Y	Z			9	
0	A ~ Z						0	
A	@	#	$	%	^	*	A	
B	,	.	'	"	?	:	B	
C	+	-	\	/	=	_	C	
D	<	>	(	)	[	]	D	
* /T9	Press to toggle between Character and Number. "V" on LCD indicates number input.							
#	→ (Next alphanumeric)							
PTT	Enter (Complete programming and store channel label)							
Channel selector knob	←, → (Move cursor backward/forward)							

Appendix 2: CTCSS Frequency

No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]
1	67.0	11	94.8	21	131.8	31	186.2
2	69.3	12	97.4	22	136.5	32	192.8
3	71.9	13	100.0	23	141.3	33	203.5
4	74.4	14	103.5	24	146.2	34	210.7
5	77.0	15	107.2	25	151.4	35	218.1
6	79.7	16	110.9	26	156.7	36	225.7
7	82.5	17	114.8	27	162.2	37	233.6
8	85.4	18	118.8	28	167.9	38	241.8
9	88.5	19	123.0	29	173.8	39	250.3
10	91.5	20	127.3	30	179.9		

Appendix 3: 2-Tone frequency (Default)

No.	Tone A Freq [Hz]	Tone B Freq [Hz]	Tone A Dur. (s)	Tone B Dur. (s)	Gap Time (s)
1	400	1141	0.5	0.5	0.5
2	456	1301	0.5	0.5	0.5
3	520	1483	0.5	0.5	0.5
4	593	1690	0.5	0.5	0.5
5	675	1927	0.5	0.5	0.5
6	770	2197	0.5	0.5	0.5
7	878	2504	0.5	0.5	0.5
8	1001	2855	0.5	0.5	0.5
9	1141	400	0.5	0.5	0.5
10	1301	456	0.5	0.5	0.5
11	1483	520	0.5	0.5	0.5
12	1690	593	0.5	0.5	0.5
13	1927	675	0.5	0.5	0.5
14	2197	770	0.5	0.5	0.5
15	2504	878	0.5	0.5	0.5
16	2855	1001	0.5	0.5	0.5

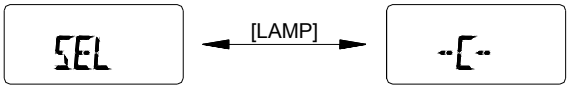
Wired Clone Mode

Connect the source radio and the target radio with an interface cable.

Source radio

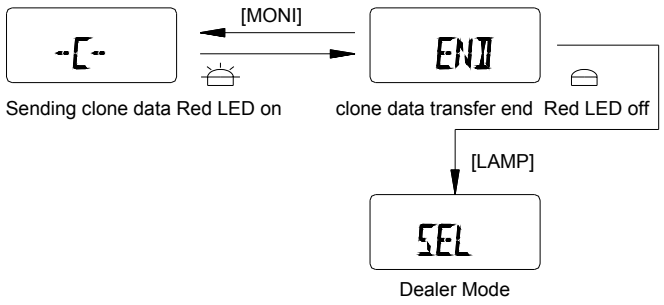
Operation

1. Turn POWER ON while holding down [LAMP] and [○] key, in about 2 seconds the radio enters the Dealer Mode. Then press [LAMP] to enter Clone Mode.



2. Transmit the clone data by pressing [MONI], red LED glows during data transfer. When data transfer is completed, “END” is displayed on LCD, and the red LED turns off.

3. When “End” is displayed, press [MONI] button to continue to clone another radio or press [LAMP] to return to Dealer Mode.



Target radio

Operation

1. Turn On the power. When data is being sent from the master, busy mark and "-PC-" appears on LCD.

2. When all data is received, “END” displays on LCD.

After the “END” appears, operation is same as the source radio operation 3.

Note:

During cloning, do not execute any action that might interrupt the cloning such as shutting off power.

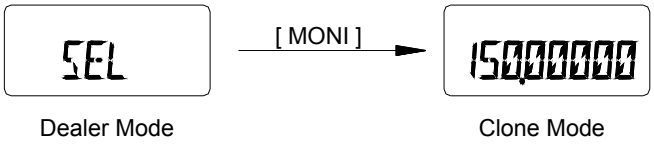
Wireless Clone Mode

Setup the source side and target side.

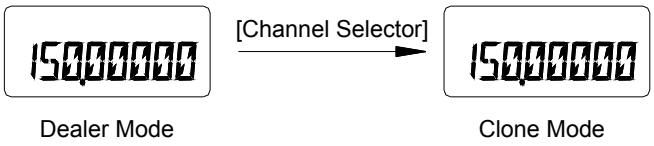
Source Side

Operation

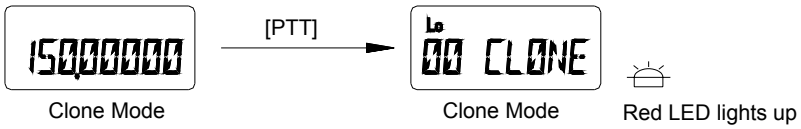
1. Turn POWER ON while holding down [LAMP] and [○] key, in about 2 seconds radio enters the Dealer Mode. Then press [MONI], radio enters Wireless Clone Mode, now the frequency displayed on LCD is the initial frequency matching the destination.



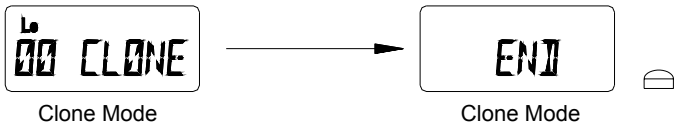
2. Turn Channel Selector knob to select the frequency used for the wireless clone.



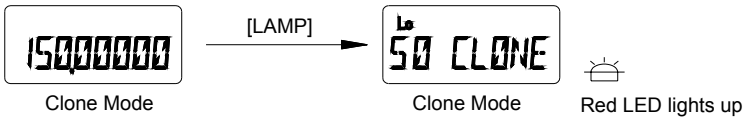
3. Start the first half (00-50%) data transmission by pressing [PTT]. “00 CLONE” is displayed on LCD and red LED glows. The leftmost digits (00) on LCD show data transfer rate, and as data transmission proceeds, the digits count upwards in increments of 1. Transmit power is set as LOW POWER.



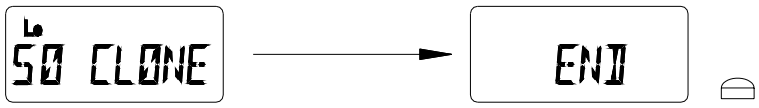
4. When the first half data transfer is completed, the LED turns off and “END” is displayed. Press [MONI], radio returns to Clone Mode and you can clone another half by pressing [LAMP] or return to Dealer Mode by pressing [MONI] key.



5. You can continue to clone another half (50-100%) data mainly about channel label after one minute to avoid long time transmission.
6. Start another half (50-100%) data transmission by pressing [LAMP]. “50 CLONE” is displayed on LCD and red LED glows. The leftmost digits (50) on LCD show data transfer rate, and as data transmission proceeds, the digits count upwards in increments of 1. Transmit power is set as LOW POWER.



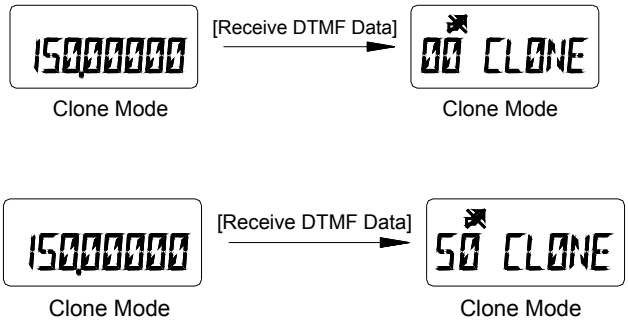
7. When the second half data transfer is completed, the LED turns off and “END” is displayed. Press [MONI], radio returns to Clone Mode and you can clone another radio or press [MONI] to return to Dealer Mode.



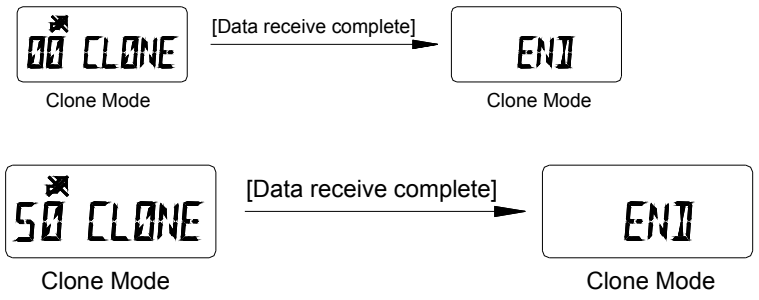
Target Side

Operation

1. Turn POWER ON while pressing [LAMP] and [○] key, in about 2 seconds radio enters the Dealer Mode. Then press [MONI] to enter Wireless Clone Mode. The frequency displayed on LCD is the initial frequency matching the destination.
2. The display changes to “00 CLONE” or “50 CLONE” correspondingly when the radio receives data from the master and the BUSY mark appears. The leftmost digits (00) or (50) on the LCD show the data transfer rate and as data reception proceeds, the digits count upwards in increments of 1.



3. When all data is received, “END” displays. The display of first half and second half transfer is shown as following respectively.



4. When “END” displays, the next operation is same as the source side operation 4.

Please confirm the following operations:

(1) Attach the antenna to the source radio.
(2) Remove the antenna from the target radio.
(3) Keep radios as close as possible.

Note:

During cloning do not execute any action that might interrupt the cloning such as shutting off power.

TEST MODE

Menu Mode

1. Turn the power ON while pressing [LAMP] and [■] key, in about 2 seconds the radio enters Test Mode and LCD displays "TEST". After two seconds, the first setting option "ADJUST" is displayed on LCD. Turn Channel Selector knob to select from the following menu:

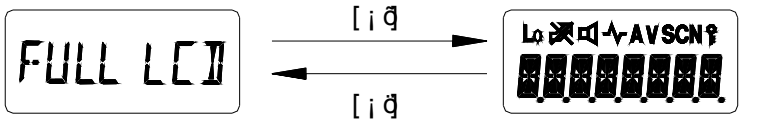
   ADJUST
   FREQ TST
   TUNE CLN
   FULL LCD
   DEST SET

2. Press [□] key to enter Adjustment Mode, Frequency Test Mode, Adjustment Data Clone Mode, LCD Full Screen Mode or Destination Set Mode.

3. Press [■] key to return to the Menu Mode.

LCD Full Screen Mode

1. Turn the power ON while pressing [LAMP] and [■] key simultaneously, in about 2 seconds the radio enters the menu of Test Mode.
2. Turn Channel Selector knob to select the setting option: "FULL LCD".
3. Now press [□] key to enter LCD Full Screen Mode.
4. Press [■] key to exit from LCD Full Screen Mode. LCD displays "FULL LCD".



Adjustment Data Clone Mode

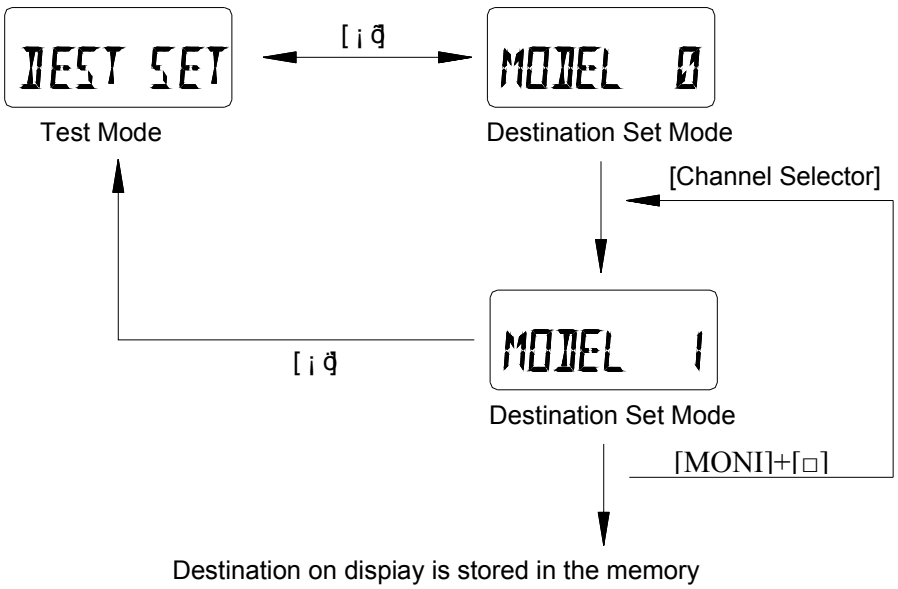
1. Turn the power ON while pressing [LAMP] and [■] key, in about 2 seconds the radio enters the menu of Test Mode.
2. Turn Channel Selector knob to select the setting option "TUNE CLN".

3. Connect the source radio and the target radio with an interface cable.
4. Turn the target radio on.
5. Now press [□] key to enter Adjustment Data Clone Mode. LCD displays "–C–".
6. Press [MONI] key to transmit the adjustment data.
7. Red LED glows during data transfer. When data transfer is completed, "END" is displayed on LCD and red LED turns off.
8. When "End" is displayed, press [MONI] to continue to clone another radio.
9. Press [■] key to exit from Adjustment Data Clone Mode. LCD displays "TUNE CLN".

Destination Set Mode

Operation

1. Turn the power ON while pressing [LAMP] and [■] key, in about 2 seconds the radio enters the menu of Test Mode.
2. Turn Channel Selector knob to select the setting option "DEST SET".
3. Now press [□] key to enter Destination Set Mode, LCD displays " MODEL X". (X=0~15)
4. Turn Channel Selector knob to change the destination number. (Display numbers change from 0 to 15).
5. Hold down [MONI] key and then press [□] key to select the display number that you need as the destination.
6. Press [LAMP] key to reverse CDCSS decoder and LCD displays "V". (For factory setting only).
7. Press [■] key to exit from Destination Set Mode. LCD displays "DEST SET".



Note:

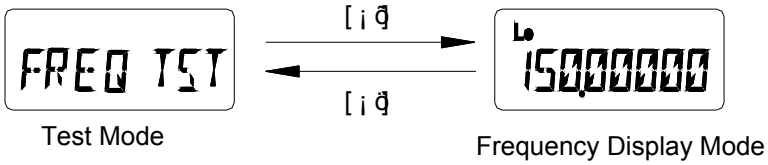
1. Once the destination is set, previous channel settings (frequencies, CTCSS and channel functions) will be deleted and some functions are also changed. Therefore, do not make destination set except when EEPROM is replaced or other unavoidable conditions happened.

2. Destination of RPV599APlus is set as 8, frequency is 148~174MHz. And destination of RPU499APlus is 11, frequency 450-470MHz.

Frequency Test Mode (for frequencies checking and radios repairing)

Operation

1. Turn POWER ON while pressing [LAMP] and [■] key, in about 2 seconds the radio enters the menu of Test Mode.
2. Turn Channel Selector knob to select the setting option “FREQ TST”.
3. Press [□] key to enter Frequency Display Mode. LCD displays frequency.
4. Turn Channel Selector knob to increase/decrease the frequency.
5. Press [○] key to switch the step increments.
6. Press [□] key to toggle between High and Low Power.
7. Press [●] key, the radio enters scan mode.
8. Press [PTT] to transmit and [MONI] to monitor.
9. Hold down [LAMP] and then press [○] key, the radio enters CTCSS set mode.
10. Press [■] key to exit from Frequency Display Mode, LCD displays “FREQ TST”.



Notes:

1. The reset (initial) frequency varies according to the destination.
2. Set initial transmit power to LO POWER.

Changing the Frequency

Operation

1. In Frequency Test Mode, turn Channel Selector knob clockwise, the frequency increases in step increments. Turn the knob counterclockwise, the frequency decreases in step increments.
2. Hold down the [LAMP] key, and then turn the Channel Selector knob to change the frequency in 1MHz step increments.
3. Press [○] key, the step increment is switched in the following order.

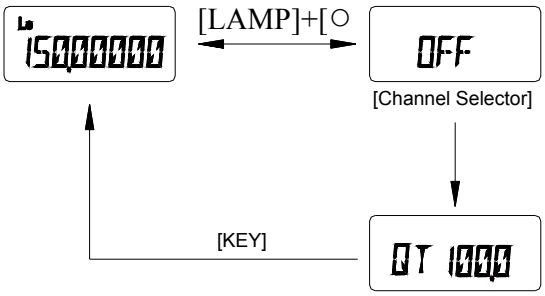
Notes:

1. The frequency display range is between 100MHz and 550MHz. When PLL is unlocked, “beeps” sound. The frequency should not be out of corresponding frequency spectrum.
2. Step increment is not displayed on LCD.

CTCSS

Operation

1. In Frequency Test Mode, hold down [LAMP] and then press [○] key, the radio enters CTCSS set mode. Turn Channel Selector knob to change the CTCSS frequency.
2. Press any key to select the CTCSS you need and the radio returns to frequency display mode.



Notes:

1. The selected CTCSS is set for both transmit and receive.
2. The selected CTCSS frequency cannot be changed in 0.1Hz step increments.
3. During test scan, even if [○] key and [LAMP] are simultaneously held down, the radio will not enter CTCSS set mode.

Adjustment Mode (Adjustment procedure used during radio repairing)

Menu Mode

1. Turn POWER ON while pressing [LAMP] and [■] key, in about 2 seconds, the radio enters the menu of Test Mode. LCD displays “TEST” for 2 seconds and then begins to display “ADJUST”.
2. Turn Channel Selector knob to select the setting option “ADJUST”.
3. Now press [□] key to enter Adjustment Mode, the first option “HI POWER” is displayed on LCD.
4. Turn Channel Selector knob to select a setting option from the following menu:
   - HI POWER
   - LO POWER
   - BATT REF
   - CTCSS W
   - CDCSS W

CTCSS N
CDCSS N
SQL CEN
SQL LOW
SQL HIGH

5. Press [☐] key to adjust the Transmit High Power, Transmit Low Power, Battery Reference Value, CTCSS Deviation (Wideband), CDCSS Deviation (Wideband), CTCSS Deviation (Narrowband), CDCSS Deviation (Narrowband), BUSY Reference Value (Center Frequency), BUSY Reference Value (Low Frequency) and BUSY Reference Value (High Frequency) individually.

6. Press [■] key to exit from the Adjustment Mode and return to the menu of Test Mode. LCD displays "ADJUST".

Adjusting Transmit High Power

Use this procedure to adjust the transmit High Power level.

1. Connect the power meter to the radio.
2. Turn Channel Selector knob to select the setting option "HI POWER".
3. Transmission is performed automatically at High Power when the [☐] key is pressed. After the frequency is displayed for one second, the display "HPWR XXX" now appears. (XXX=0 to 255)
4. Turn the channel selector knob while observing the power meter to obtain the transmit power needed. Turn the channel selector knob clockwise for an increase in power, and counterclockwise for a decrease in power.
5. Press [☐] key to store the alignment value into the memory and return to the "LO POWER" display. Press [■] key to cancel the alignment value and return to the "HI POWER" display.

Adjusting Transmit Low Power

Use this procedure to adjust the transmit Low Power level.

1. Connect the power meter to the radio.
2. Turn Channel Selector knob to select the setting option "LO POWER".
3. Transmission is performed automatically at Low Power when the [☐] key is pressed. After the frequency is displayed for one second, the display "LPWR XXX" now appears. (XXX=0 to 255)
4. Turn the channel selector knob while observing the power meter to obtain the transmit power needed. Turn the channel selector knob clockwise for an increase in power, and counterclockwise for a decrease in power.
5. Press [☐] key to store the alignment value into the memory and return to the "BATT REF" display. Press [■] key to cancel the alignment value and return to the "LO POWER" display.

Adjusting the Battery Reference Value

Use this procedure to adjust the reference value for issuing battery low voltage alarms.

1. Using an external power supply feed in the reference value at which you wish to trigger the alarm.
2. Turn Channel Selector knob to select the setting option "BATT REF".
3. Transmission is performed automatically at High Power when the [☐] key is pressed. After the frequency is displayed for one second, the display "BATT XXX" now appears. (XXX=1 to 255).
4. Adjust by turning the Channel Selector knob counterclockwise so that the red LED lights up and turning clockwise so

that the red LED flashes. The point where the red LED is flashing indicates detection of the low voltage.

5. Press [☐] key to store the alignment value into the memory and return to the "CTCSS W" display. Press [■] key to cancel the alignment value and return to the "BATT REF" display.

Adjusting CTCSS Deviation (Wideband)

Use this procedure to adjust the transmit CTCSS deviation (Wideband).

1. Connect the modulation analyzer to the radio.
2. Turn Channel Selector knob to select the setting option "CTCSS W".
3. Transmission is performed automatically at Low Power and the preset CTCSS is sent when the [☐] key is pressed. After the frequency is displayed for one second, the display "CTCW XXX" now appears (XXX=1 to 255). If the CTCSS is set OFF, then 67.0Hz is sent.
4. Hold down [LAMP] button to observe CTCSS and adjust CTCSS by turning Channel Selector knob.
5. While observing the modulation analyzer, adjust the deviation with the Channel Selector knob.
6. Press [☐] key to store the alignment value into the memory and return to the "CDCSS W" display. Press [MONI] to cancel the alignment value and return to the "CTCSS W" display.

Adjusting CDCSS Deviation (Wideband)

Use this procedure to adjust the transmit CDCSS deviation (Wideband).

1. Connect the modulation analyzer to the radio.
2. Turn Channel Selector knob to select the setting option "CDCSS W".
3. Transmission is performed automatically at Low Power and the preset CDCSS is sent when the [☐] key is pressed. After the frequency is displayed for one second, the display "CDCW XXX" now appears (XXX=1 to 255). If the CDCSS is set OFF, then 023 is sent.
4. While observing the modulation analyzer, adjust the deviation with the [CHANNEL SELECTOR].
5. Press [☐] key to store the alignment value into the memory and return to the "CTCSS N" display. Press [■] key to cancel the alignment value and return to the "CDCSS W" display.

Adjusting CTCSS Deviation (Narrowband)

Use this procedure to adjust the transmit CTCSS deviation (Narrowband).

1. Connect the modulation analyzer to the radio.
2. Turn Channel Selector knob to select the setting option "CTCSS N".
3. Transmission is performed automatically at Low Power and the preset CTCSS is sent when the [☐] key is pressed. After the frequency is displayed for one second, the display "CTCN XXX" now appears (XXX=1 to 255). If the CTCSS is set OFF, then 67.0Hz is sent.
4. Hold down [LAMP] button to observe CTCSS and adjust CTCSS by turning Channel Selector knob.
5. While observing the modulation analyzer, adjust the deviation with the Channel Selector knob.
6. Press [☐] key to store the alignment value into the memory and return to the "CDCSS N" display. Press [■] key to cancel the alignment value and return to the "CTCSS N" display.

Adjusting CDCSS Deviation (Narrowband)

Use this procedure to adjust the transmit CDCSS deviation (Narrowband).

1. Connect the modulation analyzer to the radio.
2. Turn Channel Selector knob to select the setting option “CDCSS N”.
3. Transmission is performed automatically at Low Power and the preset CDCSS is sent when the [PTT] key is pressed. After the frequency display for one second, the display “CDCN XXX” now appears (XXX=1 to 255). If the CDCSS is set OFF, then 023 is sent.
4. While observing the modulation analyzer, adjust the deviation with the Channel Selector knob.
5. Press [☐] key to store the alignment value into the memory and return to the “SQL CEN” display. Press [■] key to cancel the alignment value and return to the “CDCSS N” display.

Adjusting the BUSY Reference Value (Center Frequency)

Use this procedure to align squelch level 3 and 9 at center frequency.

1. Connect the signal generator to the radio.
2. Turn Channel Selector knob to select the setting option “SQL CEN”.
3. Input a signal at the level at which you want squelch 9 to open.
4. Press [☐] key to receive this signal. After the center frequency is displayed for one second, the display “SQL9 XXX” now appears. (XXX =1 to 255)
5. Turn Channel Selector knob to the position where you want the squelch to open. Rotate Channel Selector knob clockwise, the squelch is tightened.
6. Press and hold [LAMP] button to observe the center frequency and adjust the frequency by Channel Selector knob.
7. Press [■] key to cancel the setting and return to the “SQL CEN” display. Press [☐] key to save the alignment value into the memory and continue to the alignment of squelch 3, and now “SQL3 XXX” displays. (XXX=1 to 255)
8. Then output a signal from the signal generator at which you want squelch 3 to open. Adjust by using the Channel Selector knob just same as with squelch 9.
9. Press [☐] key to store the alignment value into the memory and return to the “SQL LOW” display. Press [■] key to cancel the alignment value and return to the “SQL CEN” display.

Adjusting the BUSY Reference Value (Low Frequency)

Use this procedure to align squelch level 3 and 9 at low frequency.

1. Connect the signal generator to the radio.
2. Turn Channel Selector knob to select the setting option “SQL LOW”.
3. Input a signal at the level at which you want squelch 9 to open.
4. Press [☐] key to receive this signal. After the low frequency is displayed for one second, the display “SQL9 XXX” now appears. (XXX =1 to 255)
5. Turn Channel Selector knob to the position where you want the squelch to open. Rotate Channel Selector knob clockwise, the squelch is tightened.
6. Press and hold [LAMP] button to observe the low frequency and adjust the frequency by Channel Selector knob.
7. Press [■] key to cancel the setting and return to the “SQL LOW” display. Press [☐] key to save the alignment value

into the memory and continue to the alignment of squelch 3, and now “SQL3 XXX” displays. (XXX=1 to 255)

8. Then output a signal from the signal generator at which you want squelch 3 to open. Adjust by using the Channel Selector knob just same as with squelch 9.
9. Press [☐] key to store the alignment value into the memory and return to the “SQL HIGH” display. Press [■] key to cancel the alignment value and return to the “SQL LOW” display.

Adjusting the BUSY Reference Value (High Frequency)

Use this procedure to align squelch level 3 and 9 at high frequency.

1. Connect the signal generator to the radio.
2. Turn Channel Selector knob to select the setting option “SQL HIGH”.
3. Input a signal at the level at which you want squelch 9 to open.
4. Press [☐] key to receive this signal. After the high frequency is displayed for one second, the display “SQL9 XXX” now appears. (XXX =1 to 255)
5. Turn Channel Selector knob to the position where you want the squelch to open. Rotate Channel Selector knob clockwise, the squelch is tightened.
6. Press and hold [LAMP] button to observe the high frequency and adjust the frequency by Channel Selector knob.
7. Press [■] key to cancel the setting and return to the “SQL HIGH” display. Press [☐] key to save the alignment value into the memory and continue to the alignment of squelch 3, and now “SQL3 XXX” displays. (XXX=1 to 255)
8. Then output a signal from the signal generator at which you want squelch 3 to open. Adjust by using the Channel Selector knob just same as with squelch 9.
9. Press [☐] key to store the alignment value into the memory and return to the “HI POWER” display. Press [■] key to cancel the alignment value and return to the “SQL HIGH” display.

Destination Set

Model	Default Frequency (MHz)	DTMF	CDCSS	CDCSS TX/RX with Same Phase	2-Tone	Busy Channel Lockout		First IF (MHz)	Busy Channel Lockout	Center (MHz)	Low (MHz)	High (MHz)	Remarks
						CTCSS/ CDCSS	DTMF/ 2-Tone						
0	143	√				√	√	45.05	*1□*2	143	136	150	
1	160	√				√	√	45.05	1□2	160	148	174	
2	410	√				√	√	46.35	1□2	410	400	420	
3	455	√				√	√	45.05	1□2	455	440	470	
4	460	√				√	√	45.05	1□2	460	450	470	
5	480	√				√	√	45.05	1□2	480	470	490	
6	490	√				√	√	46.35	1□2	490	480	500	
7	140	√	√		√	√		45.05	1	140	136	150	
8	160	√	√		√	√		45.05	1	160	148	174	
9	410	√	√	√	√	√		46.35	1	410	400	420	
10	455	√	√		√	√		45.05	1	455	440	470	
11	460	√	√		√	√		45.05	1	460	450	470	

12	480	√	√		√	√		45.05	1	480	470	490	
13	490	√	√	√	√	√		46.35	1	490	480	500	
14	360	√				√		46.35	1	360	350	370	
15	380	√				√		45.05	1	380	370	390	

Note: About busy channel lockout

*1: Transmission is prohibited if a signal appears with incompatible CTCSS/CDCSS;

*2: Transmission is prohibited if a signal appears with incompatible CTCSS/CDCSS or DTMF/2-Tone.

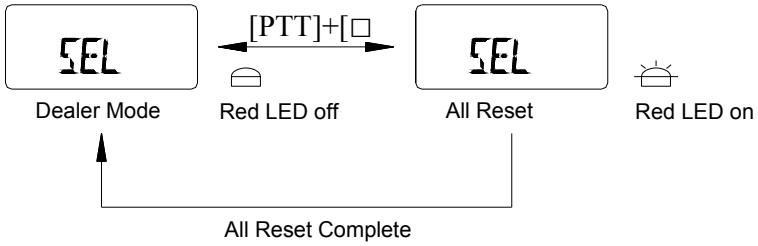
ALL RESET MODE

Operation

1. Turn POWER ON while pressing [LAMP] and [○] key, in about 2 seconds, the radio enters the Dealer Mode.

2. In dealer mode, press [PTT] and [□] key simultaneously to enter All Reset Mode. The EEPROM data is reset. No change displays on LCD, and red LED glows.

3. The LED turns off when All Reset is completed.



PC MODE

Connection procedures

1. Connect the radio of RPV599APlus/RPU499APlus to the personal computer with an interface cable.
2. Run the program on the computer and Turn ON the power of the radio.
3. You can read, programme or adjust the radio via RPV599APlus/RPU499APlus programming software.

Please refer to “RPV599APlus/RPU499APlus Editing Software User Manual” for details.