MT-V82N

VHF FM Transceiver

User Manual

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INTRODUCTION

Thank you for purchasing this M-Tech product. The MT-V82N VHF Transceivers are designed and built with M-Tech's superior technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

This document is the operating guide for the MT-V82N VHF Transceiver.

1.1 Important

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL - This instruction manual contains important operating instructions for the MT-V82N.

1.2 Explicit definitions

Word	Definition
⚠ **WARNING!**	Personal injury, fire hazard or electric shock may occur.
ⓘ **CAUTION!**	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

1.3 Precautions

⚠ **WARNING! NEVER** hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the transceiver is vertical.

⚠ **WARNING! NEVER** operate the transceiver with a headset or other audio accessories at high volume levels.

Hearing experts advise against continuous high volume operation. If you experience a ringing in your ears, reduce the volume or discontinue use.

NEVER connect the transceiver to a power source that is DC fused at more than 5 A. Accidental reverse connection will be protected by this fuse, but higher fuse values will not give any protection against such accidents and the transceiver will be ruined.

NEVER attempt to charge alkaline or dry cell batteries. Be aware that external DC power connections will charge batteries inside the battery case. This will damage not only the battery case but also the transceiver.

DO NOT push the PTT when not actually desiring to transmit. Place the unit in a secure place to avoid inadvertent use by children.

DO NOT operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere.

AVOID using or placing the transceiver in direct sunlight or in areas with temperatures below -10°C (+14˚F) or above +60°C (+140˚F).
The use of non M-Tech battery packs/chargers may impair transceiver performance and invalidate the warranty.

Even when the transceiver power is OFF, a slight current still flows in the circuits. Remove the battery pack or case from the transceiver when not using it for a long time. Otherwise, the battery pack or installed rechargeable batteries will become exhausted.

For USA only:

Caution: Changes or modifications to this transceiver, not expressly approved by M-Tech Dynamic Corporation Limited, could void your authority to operate this transceiver under FCC regulations.

1.4 Safety training information

CAUTION

To ensure that your exposure to RF electromagnetic energy is within the FCC allowable limits, always adhere to the following guidelines:

• **DO NOT** operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio.

• **DO NOT** transmit for more than 50% of total radio use time ("50% duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the "Tx indicator" appears. You can cause the radio to transmit by pressing the "PTT" switch.

• **ALWAYS** use M-Tech authorized accessories (antennas, batteries, belt clips, speaker/mics, etc.). Use of unauthorized accessories can cause the FCC RF exposure compliance requirements to be exceeded.

• **ALWAYS** keep the antenna at least 2.5 cm (1 inch) away from the body when transmitting, and only use the M-Tech belt-clips which are listed in this manual when attaching the radio to your belt, etc. To provide the recipients of your transmission the best sound quality, hold the transceiver at least 5 cm (2 inches) from your mouth, and turned slightly to one side. The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to assure that this radio operates within the FCC RF exposure limits of this radio.

Electromagnetic Interference/Compatibility

During transmissions, your M-Tech radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such

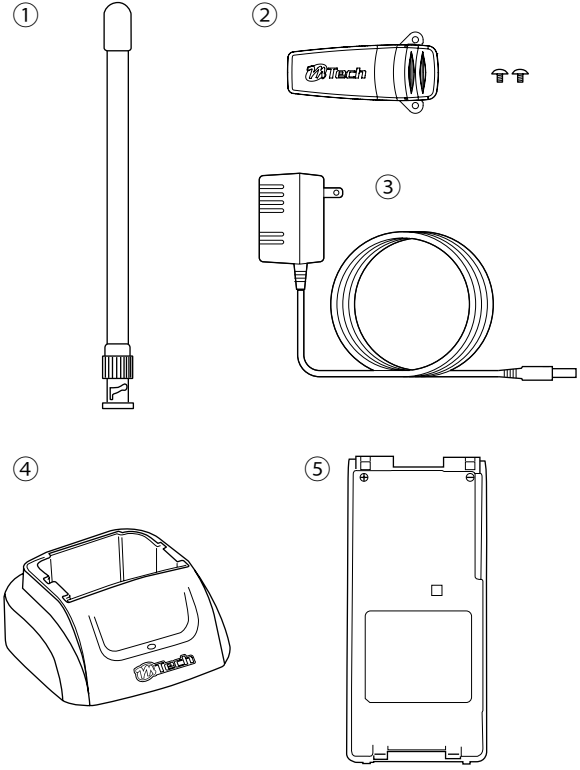
interference, turn off the radio in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

1.5 Included in your package

Supplied Accessories

1. Antenna x1
2. Belt clip (with screws) x1
3. AC adapter x1
4. Battery charger x1
5. Battery pack x1

If any of these items are missing or damaged, immediately contact your place of purchase.



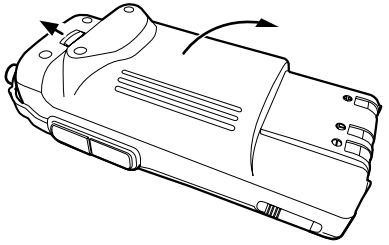
QUICK GUIDE

2.1 Preparation

Battery pack replacement

Before replacing the battery pack, push and hold **[PWR]** for 1 sec. to turn the power OFF.

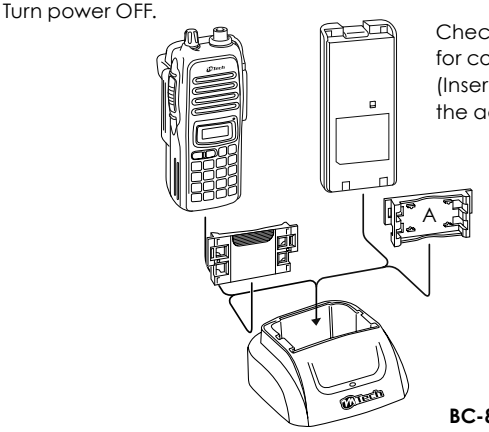
- Slide the battery release forward, then pull the battery pack upward with the transceiver facing away from you.



Charging with the BC-82S

The BC-82S provides rapid charging battery pack with or without a transceiver attached. The following is additionally required:

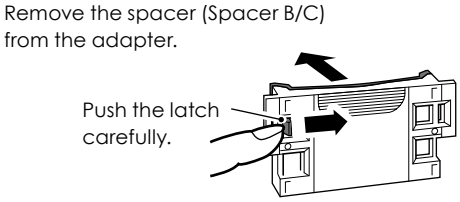
- An optional AC adapter PA-82E (the adapter/spacer is supplied with BC-82S).



BC-82S + adapter/spacer

About the adapter/spacer

The adapter (Spacer A) only is required for MT-V82N. When removing the spacer (Spacer B/C), push the latch carefully with your finger to remove the spacer (Spacer B/C) from the adapter (Spacer A).

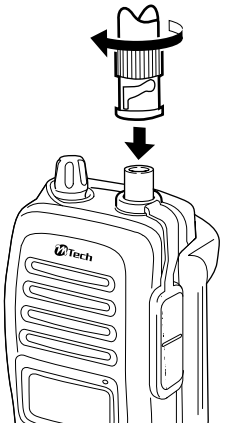


⚠ CAUTION!

- **DO NOT** push or force the latch with a screw driver, etc., to remove it.
- **DO NOT** bend the latch when the adapter and spacer are not joined together. This will cause weakening of the latch plastic.
- Both cases may break the latch and it may not be able to be reattached.

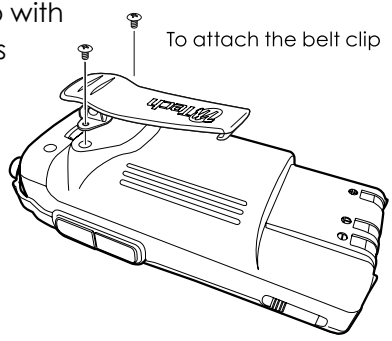
Antenna

Attach the antenna to the transceiver as illustrated at right.



Belt clip

Conveniently attaches to your belt. Attach the belt clip with the supplied screws using a phillips screwdriver.



2.2 Your first contact

Now that you have your MT-V82N ready, you are excited to get on the air. We would like to walk you through a few basic operational steps to make your first "On The Air" use an enjoyable experience.

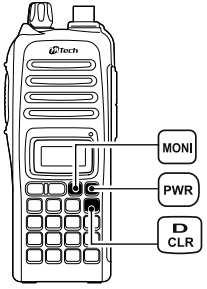
About default setting

The **[VOL]** control function can be exchanged with **[▲]/[▼]** keys function in **INITIAL SET MODE**. However, in this QUICK GUIDE, the factory default setting (**[VOL]** controls audio output level) is used to simplify instructions.

Basic operation

1. Turning ON the transceiver

Although you have purchased a brand new transceiver, some settings may be changed from the factory defaults because of the Quality Control process. Resetting the CPU is necessary to start from factory default.



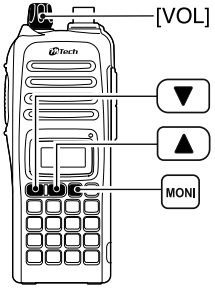
➥ While pushing **[MONI]** and **[D•CLR]**, push and hold **[PWR]** for 1 sec. to reset the CPU and turn power ON.

2. Adjusting audio output level

➥ Rotate **[VOL]** to set the desired audio level.

3. Adjusting the squelch level

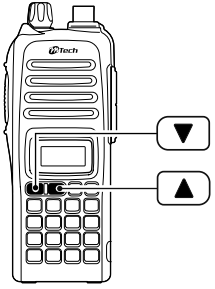
➥ While pushing and holding **[MONI]**, push **[▲]** or **[▼]** to set the squelch level.



4. Tune the desired frequency

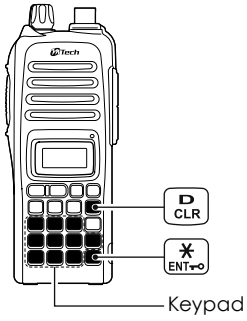
The up/down keys, **[▲]/[▼]**, will allow you to tune to the frequency that you want to operate on. Page 27 will instruct you on how to adjust the tuning step size.

➥ Push **[▲]** or **[▼]** to adjust the frequency.



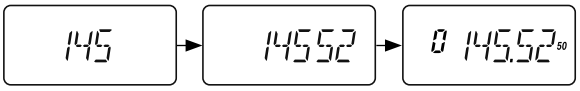
Direct frequency input from the keypad is also available.

↪ To enter the desired frequency, enter 6 digits starting from the 100 MHz digit.
- Entering three to five digits then pushing **[*•ENT]** will also set the frequency.
- When a digit is mistakenly input, push **[D.CLR]** to abort input.



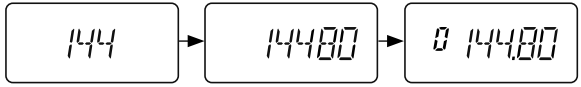
Example 1 - when entering 145.525 MHz

Push [1 TONE] [4 DUP] [5 SCAN] [5 SCAN] [2 P.BEEP] [5 SCAN]



Example 2 - when entering 144.800 MHz

Push [1 TONE] [4 DUP] [4 DUP] [8 SET] [0 OPT] [* ENT]



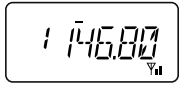
5. Transmit and receive

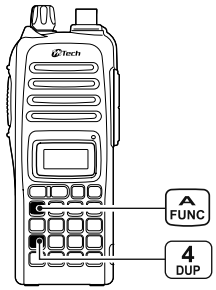
↪ Push and hold **[PTT]** to transmit, then speak into the microphone; release to receive.

2.3 Repeater operation

1. Setting duplex

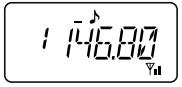
↪ Push **[A•FUNC]**, then **[4•DUP]** several times to select minus duplex or plus duplex.

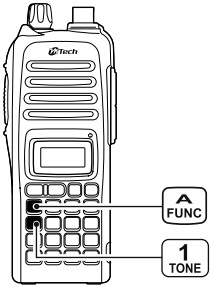




2. Repeater tone

↪ Push **[A•FUNC]**, then **[1•TONE]** several times until "♪" appears, if required.





2.4 Programming memory channels

The MT-V82N has a total of 207 memory channels (including 6 scan edges and 1 call channel) for storing often used operating frequency, repeater settings, etc.

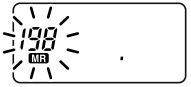
1. Setting frequency

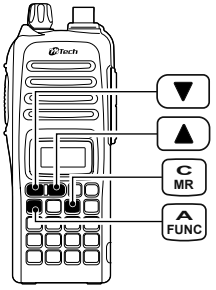
In VFO mode, set the desired operating frequency with other desired settings, such as repeater and subaudible tone.

2. Selecting a memory channel

↪ Push **[A•FUNC]** and **[C•MR]** then push **[▲]** or **[▼]** several times to select the desired memory channel.

• "MR" indicator and memory channel number blink.

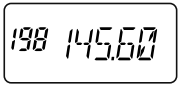


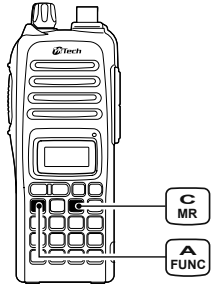


3. Writing a memory channel

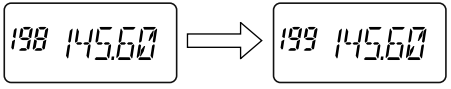
↪ Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec. to program.

• 3 beeps sound.





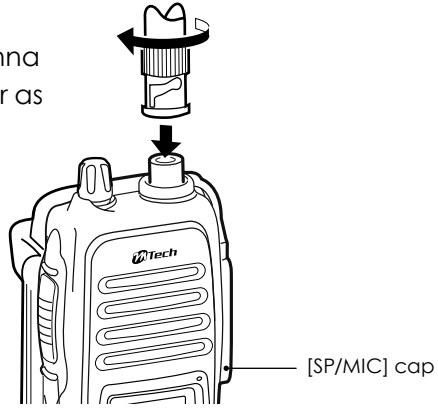
• Continue to push and hold **[C•MR]** for 1 sec. after 3 beeps are emitted, to increment the displayed memory channel number.



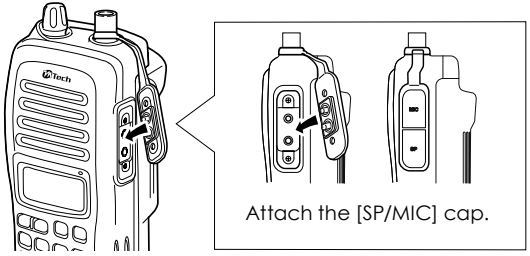
3.1 Accessory attachment

Antenna

Attach the antenna to the transceiver as illustrated below.

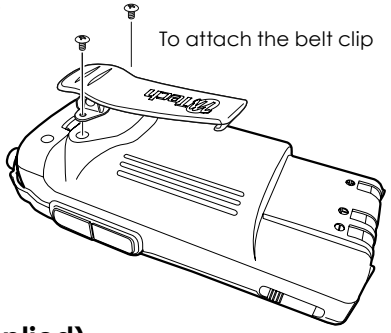


Keep the **[SP/MIC]** cap (SP/MIC jack cover) attached when jacks are not in use to keep the contacts clean.



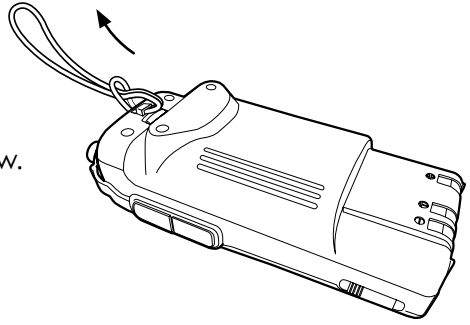
Belt Clip

Conveniently attaches to your belt.
Attach the belt clip with the supplied screws using a phillips screwdriver.



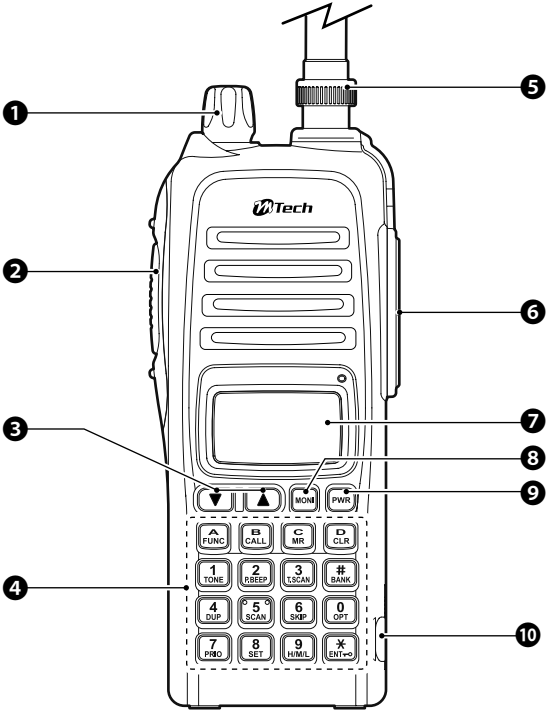
Handstrap (Not supplied)

Slide the hand strap through the loop on the top of the rear panel as illustrated below. Facilitates carrying.



CONTROLS AND PANEL

4.1 Switches, controls, keys and connectors



❶ CONTROL DIAL [VOL]
*Rotate to adjust the volume level.

❷ PTT SWITCH [PTT]
Push and hold to transmit; release to receive.

❸ UP/DOWN KEYS [▲]/[▼]
*Selects the operating frequency.

❹ KEYPAD
Used to enter operating frequency, the DTMF codes, etc.

❺ ANTENNA CONNECTOR
Connects the supplied antenna.

❻ [SP]/[MIC] JACK
Connect an optional speaker-microphone or headset, if desired. The internal microphone and speaker will not function when a connector is inserted.

❼ FUNCTION DISPLAY

❽ SQUELCH/MONITOR SWITCH [MONI]

Push and hold to force the squelch open, and set the squelch level, if required.

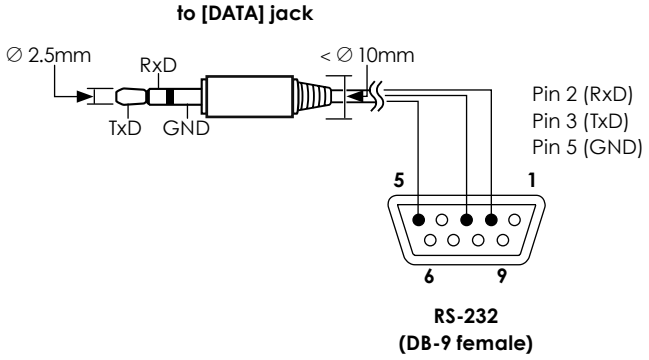
❾ POWER SWITCH [PWR]

Push and hold for 1 sec. to turn the power ON and OFF.

NOTE:
*The assigned function for **[VOL]** and **[▲]/[▼]** can be exchanged in **INITIAL SET MODE** (p.27, 61).

❿ [DATA] JACK

Connect to a PC or GPS receiver via the RS-232 cable (Dsub 9 pin) for data communication in the RS-232 format.



NOTE:
*When making the connection between your transceiver and PC or other device, ensure that the correct connections are made otherwise data communications may fail.

KEYPAD

[A•FUNC]
Access to secondary function.

[B•CALL]
Selects the call channel. (p.35)

[C•MR]
- ↪ Selects a memory mode. (p.35)
- ↪ After pushing **[A•FUNC]**, enter into memory programming/ editing mode. (p.36-39)
- ↪ After pushing **[A•FUNC]**, programs/ transfers VFO/memory or call channel contents into memory channel/VFO when pushed and held for 1 sec. (p.36-39)

[D•CLR]
Selects VFO mode, aborts direct frequency input, or cancels scanning, etc. (p.26, 46)

[1•TONE]
- ↪ Input digit "1" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, selects the subaudible tone function. (p.31, 51)

[2•P.BEEP]
- ↪ Input digit "2" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, turns the pocket beep function ON and OFF. (p.52)

[3•T.SCAN]
- ↪ Input digit "3" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, starts tone scanning. (p.33, 53)

[4•DUP]

- ↪ Input digit "4" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, selects duplex function (–duplex, +duplex, simplex). (p.31)

[5•SCAN]

- ↪ Input digit "5" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, starts scanning. (p.45)

[6•SKIP]

- ↪ Input digit "6" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, sets and cancels skip setting for memory scan during memory mode. (p.47)

[7•PRIO]

- ↪ Input digit "7" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, starts priority watch. (p.48)

[8•SET]

- ↪ Input digit "8" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, enters into **SET MODE**. (p. 55)

[9•H/M/L]

- ↪ Input digit "9" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, switches transmit power between high, middle and low output power. (p.28)

0 OPT

[0•OPT]

- ↪ Input digit "0" during frequency input, memory channel selection, etc. (p.26, 35)
- ↪ After pushing **[A•FUNC]**, selects an optional function mode.

BANK

[#•BANK]

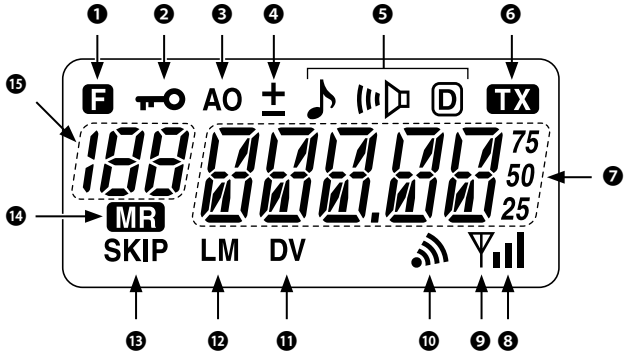
After pushing **[A•FUNC]**, enters a memory bank selection. (p.39)

✳ ENT

[✳•ENT]

- ↪ Sets the frequency even if the full 6 digits of frequency have not been entered. (p.26)
- ↪ After pushing **[A•FUNC]**, switches key lock function ON and OFF when pushed and held for 1 sec. Lock all keys, except **[PWR]**, **[PTT]**, **[MONI]** and audio level adjustment. (p.30)

4.2 Function display



❶ FUNCTION INDICATOR
Appears while a secondary function is being accessed.

❷ KEY LOCK INDICATOR (p.30)
Appears when the key lock function is ON.

❸ AUTO POWER OFF INDICATOR (p.60)
Appears while the auto power OFF function is activated.

❹ DUPLEX INDICATOR (p.31)
Either "–" or "+" appears during repeater operation.

❺ TONE INDICATOR
While in the analog (FM) mode operation
↪ "♪" appears while the subaudible tone encoder is in use. (p.31)
↪ "◺" appears while the tone (CTCSS) squelch function is in use. (p.50)
↪ "Ⓓ" appears while the tone (DTCS) squelch function is in use. (p.50)
↪ "ıllı" appears with the "◺" or "Ⓓ" indicator while the pocket beep function (CTCSS or DTCS) is in use. (p.52)

❻ TRANSMIT INDICATOR (p.28)
Appears during transmit.

❼ FREQUENCY READOUT
Shows operating frequency, channel number or channel names, depending on display type (p.29).

❽ SIGNAL INDICATOR
↪ Shows receiving signal strength as below.

Weak ⟸ **RX Signal level** ⟹ Strong

↪ Shows the output power level while transmitting.

Low Middle High

❾ BUSY INDICATOR
↪ Appears when a signal is being received or the squelch is open.
↪ Blinks while the monitor function is activated. (p.28)

❿ PAGER CALL INDICATOR
Blinks when a pager call is received.

⓫ LOW/MIDDLE POWER INDICATOR (p.28)

↪ "L" or "M" appears when the low or middle output power is selected, respectively.

↪ No indicator appears when high output power is selected.

⓬ SKIP CHANNEL INDICATOR (p.47)

Appears when the selected memory channel is specified as a skip channel.

⓭ MEMORY MODE INDICATOR (p.35)

Appears while in memory mode or channel number indication mode.

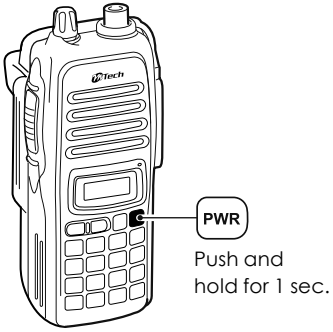
⓮ MEMORY CHANNEL INDICATOR (p.35)

↪ Shows the selected memory channel number.

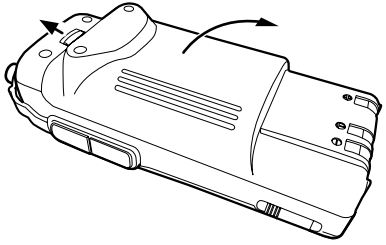
↪ "C" appears when the call channel is selected.

5.1 Battery pack replacement

① Before replacing the battery pack, push and hold **[PWR]** for 1 sec. to turn the power OFF.



② Slide the battery release forward, then pull the battery pack upward with the transceiver facing away from you.



Battery Packs

Battery pack	Voltage	Capacity	Battery life*1
BP-3100LI	7.2V	3100mAh	9 hrs.

*1 Operating periods are calculated under the following conditions; Tx : Rx : standby =1 : 1 : 8, power save function: auto setting is activated

5.2 Battery caution

⚠ **DANGER!** Use/Charge the specified M-Tech batteries only. Only tested and approved for use with genuine M-Tech batteries. Fire and/or explosion may occur when a third party battery pack or counterfeit product is used/charged.

⚠ **CAUTION! NEVER** short the terminals of the battery pack (or charging terminals of the transceiver). Also, current may flow into nearby metal objects such as a necklace, so be careful when placing battery packs (or the transceiver) in handbags, etc.
Simply carrying with or placing near metal objects such as a necklace, etc. causes shorting. This will damage not only the battery pack, but also the transceiver.

- **NEVER** incinerate used battery packs. Internal battery gas may cause an explosion.

- **NEVER** immerse the battery pack in water. If the battery pack becomes wet, be sure to wipe it dry **BEFORE** attaching it to the transceiver.

- **Clean** the battery terminals to avoid rust or poor contact.

- **Keep** battery contacts clean. It's a good idea to clean battery terminals once a week.

If your battery pack seems to have no capacity even after being charged, completely discharge it by leaving the power ON overnight. Then, fully charge the battery pack again. If the battery pack still does not retain a charge (or only very little charge), a new battery pack must be purchased.

5.3 Charging note

Prior to using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation.

- Recommended temperature range or charging: +10°C to +40°C (; +50˚F to 140˚F)
- Use the supplied charger BC-82S for rapid charging only. **NEVER** use other manufacturers' chargers.

The optional BP-2300LI or BP-3100LI can be charged approx. 300 times. Charge the battery pack before first operating the transceiver or when the battery pack becomes exhausted. If you want to charge the battery pack more than 300 times, the following points should be observed:

- Avoid over charging. The charging period should be less than 24 hours.
- Use the battery until it becomes almost completely exhausted under normal conditions. We recommend battery charging after transmitting becomes impossible.

Battery pack life

When the operating period becomes extremely short even after charging the battery pack fully, a new battery pack is needed.

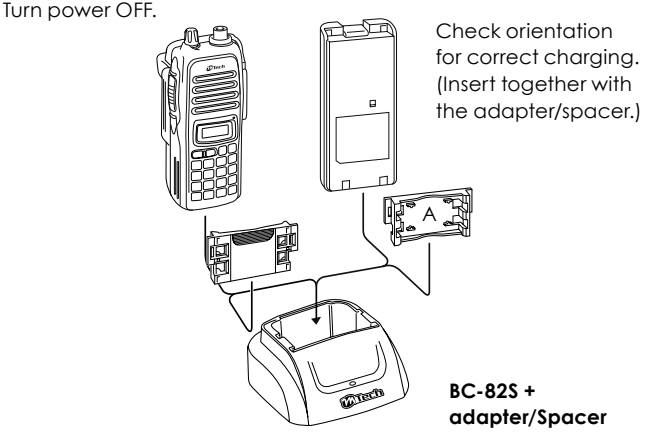
5.4 Battery charging

Recommendation:
Charge the BP-3100LI (Li-Ion) by BC-82S for 5 hours. Li-Ion batteries are different from Ni-Cd batteries in that it is not necessary to completely charge and discharge them to prolong the battery life. Therefore, charging the battery in intervals, and not for extended periods is recommended.

Charging with the BC-82S

The BC-82S provides rapid charging battery pack with or without a transceiver attached. The following is additionally required:

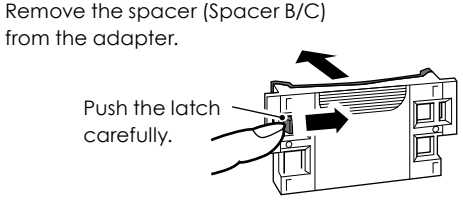
- An optional AC adapter PA-82E (the adapter/spacer is supplied with BC-82S).



- **Chargeable battery**
  BP-3100LI (Li-Ion battery)

About the adapter/spacer

The adapter (Spacer A) only is required for MT-V82N. When removing the spacer (Spacer B/C), push the latch carefully with your finger to remove the spacer (Spacer B/C) from the adapter (Spacer A).



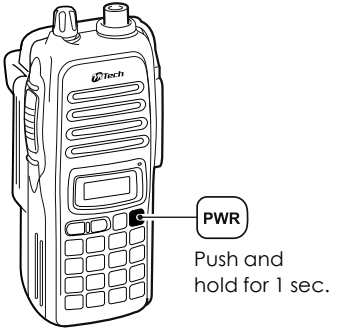
⚠ CAUTION!

- **DO NOT** push or force the latch with a screw driver, etc., to remove it.
- **DO NOT** bend the latch when the adapter and spacer are not joined together. This will cause weakening of the latch plastic.
- Both cases may break the latch and it may not be able to be reattached.

BASIC OPERATION

6.1 Power ON

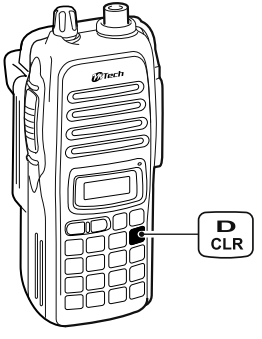
↪ Push and hold **[PWR]** for 1 sec. to turn power ON.



6.2 VFO mode selection

The transceiver has 2 basic operating modes: VFO mode and memory mode.

↪ Push **[D•CLR]** to select VFO mode.



6.3 Setting a frequency

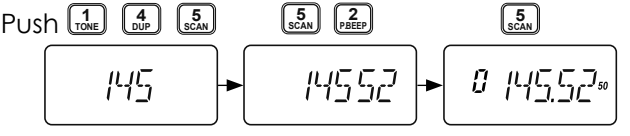
Via the keypad

① Push **[D•CLR]** to select VFO mode, if necessary.

② To enter the desired frequency, enter 6 digits starting from the 100 MHz digit.

- Entering three* to five digits then pushing **[*•ENT]** will also set the frequency.
- When a digit is mistakenly input, push **[D.CLR]** to abort input.

Example 1 - when entering 145.525 MHz



Example 2 - when entering 144.800 MHz

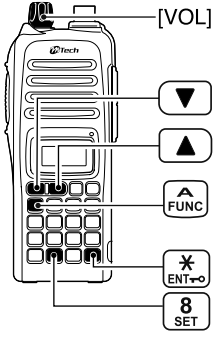
By other methods

Via the [▲]/[▼] keys

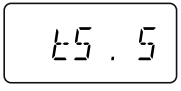
↪ Push **[▲]** or **[▼]** several times to set the desired frequency.
- Each push increases/decreases the frequency by the selected tuning step. See next set of instructions for setting tuning step size.

Tuning step selection

The MT-V82N has 8 tuning steps - 5, 10, 12.5, 15, 20, 25, 30 and 50 kHz. The tuning step is selectable in **SET MODE**.



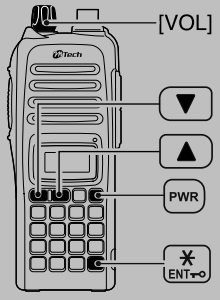
① Push **[A•FUNC]** then **[8•SET]** to enter **SET MODE**.
② Push **[▲]** or **[▼]** several times to select the tuning step item.



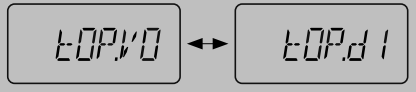
③ Rotate **[VOL]** to select the desired tuning step.
④ Push **[*•ENT]** to exit **SET MODE**.

For your information
[VOL] function assignment

The **[VOL]** control can be used as a tuning dial for frequency tuning instead of **[▲]/[▼]** keys. However, when **[VOL]** functions as tuning dial, **[▲]/[▼]** keys functions as volume control.



① While pushing **[▲]** and **[▼]**, turn power ON to enter **INITIAL SET MODE**.
② Push **[▲]** or **[▼]** several times to select the dial assignment item, "tOP."
③ Rotate **[VOL]** to select the condition.



[VOL] is assigned as AF volume control.

[VOL] is assigned as tuning dial.

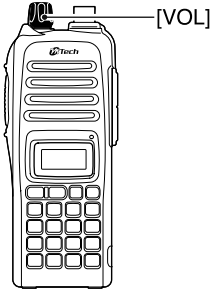
④ To exit **SET MODE**, push **[*•ENT]**.

6.4 Setting audio/squelch level

To set the audio level

Rotate **[VOL]** to set the desired audio level while receiving a signal.

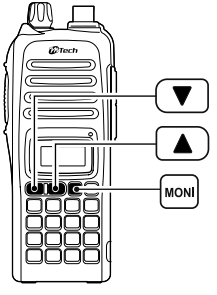
- When no signal is received, push and hold **[MONI]** while setting the audio level.
- When **[VOL]** is assigned as tuning dial, push **[▲]/[▼]** to adjust the audio output level. (p.27, 61)



To set the squelch level

While pushing **[MONI]**, push **[▲]/[▼]** to set the squelch level.

- The squelch level "1" is loose squelch, "10" is tight squelch.
- When **[VOL]** is assigned as tuning dial, rotate **[VOL]** while pressing **[MONI]**. (p.27, 61)



6.5 Receive and transmit

① Push and hold **[PWR]** for 1 sec. to turn the power ON.
② Adjust audio volume to the desired level.
③ Set the frequency.
When a signal is received:
- Squelch opens and audio is emitted from the speaker.
- Signal indicator shows the relative signal strength level.

④ Push **[A•FUNC]**, then **[9•H/M/L]** to select output power between high, middle and low.
- "L" appears when low power is selected.
- "M" appears when middle power is selected.
- No indication appears when high power is selected.

⑤ Push and hold **[PTT]** to transmit, then speak into the microphone.
- "TX" appears.
- **Do not** hold the microphone too close to your mouth or speak too loudly. This may distort the signal.

⑥ Release **[PTT]** to receive.

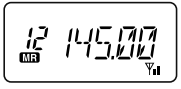
For your information
Monitor function:

Push and hold **[MONI]** to listen to weak signals that do not open the squelch.

6.6 Display type *(USING INITIAL SET MODE)*

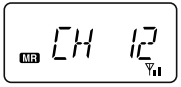
The transceiver has 3 display types to suit your operating style during memory mode operation. The display type is selected in **INITIAL SET MODE** (p.61).

"Frequency Indication" type



Displays operating frequency.

"Channel Number Indication" type

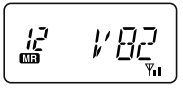


Displays memory channel number. In this type only preprogrammed memory channel numbers are displayed.

VFO mode cannot be selected.

- When the channel indication type is selected, only the following functions can be performed.
  - Scan function (p.45)
  - Output power setting (p.28)
  - DTMF memory function (p.42)
  - Key lock function (see next set of instructions)
  - Scan pause timer setting, function key timer setting and LCD backlight setting in **SET MODE** (p.57)

"Channel Name Indication" type



Displays memory channel name you have assigned. In this display pre-programmed memory channel names are displayed.

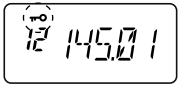
VFO mode is selectable.

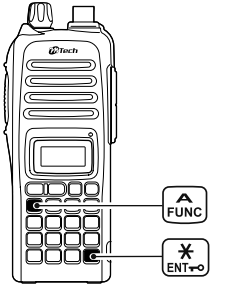
- Programmed frequencies are indicated when you have not preprogrammed the channel names in the selected memory channel.
- Push and hold **[MONI]** to display the operating frequency.

6.7 Key lock function

The key lock function prevents accidental frequency changes and function activation.

Push **[A•FUNC]** then push and hold **[✱•ENT]** for 1 sec. to toggle the function ON and OFF.





- "🔑" appears while the lock function is activated.
- **[PWR]**, **[PTT]**, **[VOL]** and **[MONI]** can be operated regardless of this setting.

7.1 General

When using a repeater, the transmit frequency is shifted from the receive frequency by the offset frequency. It is convenient to program repeater information into memory channels.

① Set the receive frequency (repeater output frequency).
② Push **[A•FUNC]** and **[4•DUP]** several times to select "–" or "+."
- "–" indicates the transmit frequency is shifted down; "+" indicates the transmit frequency is shifted up.
- Blinking "–" or "+" indicates the reversed duplex mode is selected in **SET MODE** (p.56).

③ Push **[A•FUNC]** and **[1•TONE]** several times to activate the subaudible tone encoder, if required.
- "♪" appears.
- Select the desired subaudible tone frequency, if necessary. (p.33)

④ Push and hold **[PTT]** to transmit.
- The displayed frequency automatically changes to the transmit frequency (repeater input frequency).
- If "OFF" appears, check the offset frequency (see next page for details) and direction.

⑤ Release **[PTT]** to receive.
⑥ Push and hold **[MONI]** to check whether the other station's transmit signal can be directly received.

7.2 Reversed duplex mode *(USING SET MODE)*

When the reversed duplex mode is selected, the receive frequency shifts. (Transmit frequency shifts in normal duplex mode). Each receive and transmit frequency is shown in the table below with the following conditions;

MT-V82N

Input frequency	: 145.30 MHz
Direction	: – (negative)
Offset frequency	: 0.6 MHz

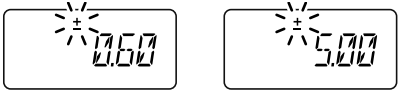
MT-V82N		
Reversed	**OFF**	**ON**
Rx freq.	145.30 MHz	144.70 MHz
Tx freq.	144.70 MHz	145.30 MHz

① Push **[A•FUNC]**, then push **[8•SET]** to enter **SET MODE**.
② Push **[▲]** or **[▼]** several times until "REV" appears.
③ Rotate **[VOL]** to turn the reversed duplex mode ON or OFF.
④ Push **[✱••ENT]** (or **[D•CLR]**) to exit **SET MODE**.

7.3 Offset frequency *(USING SET MODE)*

When communicating through a repeater, the transmit frequency is shifted from the receive frequency by an amount determined by the offset frequency.

① Push **[A•FUNC]**, then push **[8•SET]** to enter **SET MODE**.
② Push **[▲]** or **[▼]** several times until "±" and offset frequency appear.



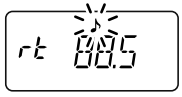
③ Rotate **[VOL]** to select the desired offset frequency.
- Selectable steps are the same as the pre-set tuning steps.
- The unit of the displayed offset frequency is "MHz."

④ Push **[✱••ENT]** (or **[D•CLR]**) to set the offset frequency and exit **SET MODE**.

7.4 Subaudible tones *(USING SET MODE)*

Some repeaters require subaudible tones to be accessed. Subaudible tones are added to your normal signal and must be set in advance.

① Push **[A•FUNC]**, then push **[8•SET]** to enter **SET MODE**.
② Push **[▲]** or **[▼]** one or more times until "rt" appears.



③ Rotate **[VOL]** to select the desired subaudible tone.
④ Push **[✱•ENT]** (or **[D•CLR]**) to set the selected tone and exit **SET MODE**.

• Available subaudible tone frequencies (unit: Hz)

67.0	85.4	107.2	136.5	165.5	186.2	210.7	254.1
69.3	88.5	110.9	141.3	167.9	189.9	218.1	
71.9	91.5	114.8	146.2	171.3	192.8	225.7	
74.4	94.8	118.8	151.4	173.8	196.6	229.1	
77.0	97.4	123.0	156.7	177.3	199.5	233.6	
79.7	100.0	127.3	159.8	179.9	203.5	241.8	
82.5	103.5	131.8	162.2	183.5	206.5	250.3	

Tone information

Some repeaters require different tone system to be accessed.

DTMF TONES

While pushing **[PTT]**, push the desired DTMF keys (0–9, **[A•FUNC]**, **[B•CALL]**, **[C•MR]**, **[D•CLR]**, **[#•BANK]** and **[✱•ENT]**) to transmit DTMF tones.

- **[✱•ENT]** transmits tone "E", **[#•BANK]** transmits tone "F."
- The transceiver has 16 DTMF memory channels (p.42).

1750 Hz TONE

While pushing **[PTT]**, push **[▲]** or **[▼]** to transmit a 1750 Hz tone signal.

Convenient Tone scan function:

When you don't know the subaudible tone used for a repeater, the tone scan is convenient for detecting the tone frequency.

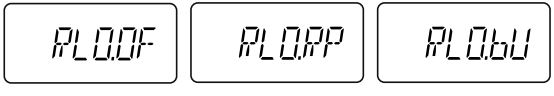
Push **[A•FUNC]**, then push **[3•T.SCAN]** to start the tone scan.

- Push **[D•CLR]** to cancel the scan.
- When the required tone frequency is detected, the scan pauses.

7.5 Repeater lockout *(USING INITIAL SET MODE)*

This function helps prevent interference to other stations by inhibiting your transmission when a signal is received. The transceiver has two inhibiting conditions, repeater and busy.

① While pushing and holding **[▲]** and **[▼]**, turn the power ON to enter **INITIAL SET MODE**.
② Push **[▲]** and **[▼]** several times until "RLO" appears.
③ Rotate **[VOL]** to select the repeater lockout function to "RP," "bU" or OFF.
- "RP": Transmit is inhibited when a signal with un-matched subaudible tone is received.
- "bU": Transmit is inhibited when a signal is received.



④ Push **[✱•ENT]** (or **[D•CLR]**) to exit **INITIAL SET MODE**.

8.1 General description

The transceiver has 207 memory channels including 6 scan edge memory channels (3 pairs), and 1 call channel. Each of these channels can be individually programmed with operating frequency (p.26, 27), duplex direction (p.31) and offset (p.32, 33), subaudible tone encoder or tone squelch and its tone frequency (p.33, 51) and skip information* (p.47).

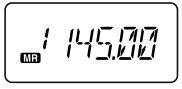
*except for scan edge memory channels.

In addition, a total of 10 memory banks, A to J, are available for usage by group, etc.

8.2 Selecting a memory channel

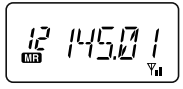
① Push **[C•MR]** to select memory mode.
- "MR" appears.

Push C MR



② Enter 2 digits to select the desired memory channel (or push the **[▲]/[▼]** keys).
- The memory channels 0-9 are proceeded by a "0".
- When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to select the memory channel. (p.27, 61)

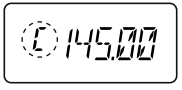
Push 1 TONE 2 P.BEEP



8.3 Selecting the call channel

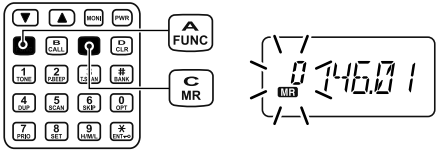
Push **[B•CALL]** to select the call channel.
- "C" is displayed instead of the memory channel number.
- Push **[D•CLR]** or **[C•MR]** to select VFO or memory mode, respectively.

Push B CALL

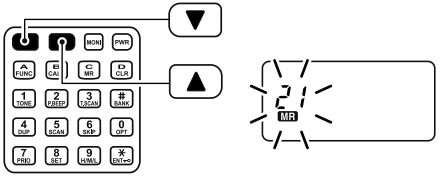


8.4 Programming the memory/call channels

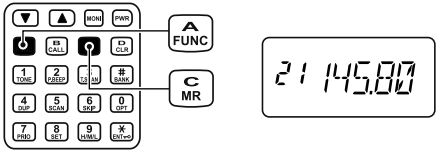
① Push **[D•CLR]** to select VFO mode, if necessary.
② Set the desired frequency.
③ Set other information, such as tone, duplex, as desired.
④ Push **[A•FUNC]**, then **[C•MR]** momentarily.
• "MR" and memory channel number blink.



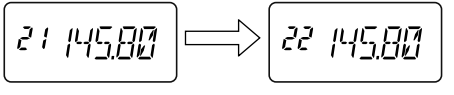
⑤ Push **[▲]** or **[▼]** to select the desired memory channel.
• When programming the call channel, select "C".
• When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to select the memory channel. (p.27, 61)

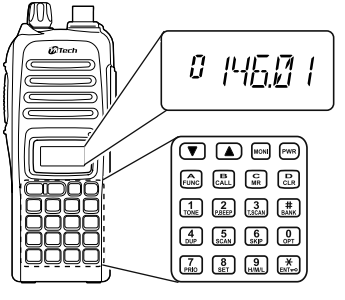


⑥ Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec., when 3 beeps will sound to program the information into the selected memory channel and return to VFO.



• After 3 beeps are emitted, continue to hold **[C•MR]** to increment the displayed memory channel number.





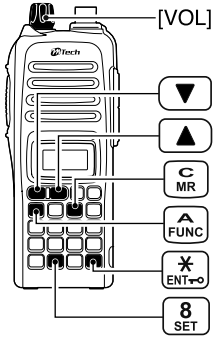
8.5 Channel name programming

① Select a "Channel Name Indication" type in **INITIAL SET MODE** (p.61).

② Push **[C•MR]** to select memory mode, if necessary.

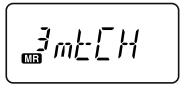
③ Push **[A•FUNC]**, then push **[8•SET]** to enter into the channel name programming mode.
- The character to be edited blinks.

④ Rotate **[VOL]** to select a character.



⑤ Push **[▲]** to move the cursor to right, **[▼]** to move the cursor to left.
- Up to 5 characters can be used for channel name.
- Usable characters are A–Z, 0–9, "space," +, –, =, *, /, [,] and :.

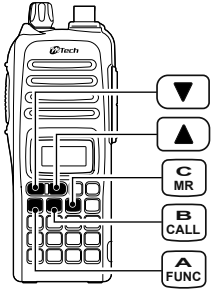
⑥ Push **[✱•ENT]** (or **[D•CLR]**) to set the name and exit the channel name programming mode.



8.6 Memory transfers

This function transfers a memory channel's contents to VFO (or another memory/call channel). This is useful when searching for signals around a memory channel frequency and for recalling the offset frequency, subaudible tone frequency etc.

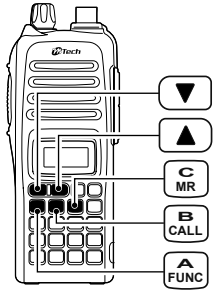
Memory/call ···› VFO



① Select the memory (call) channel to be transferred:
↳ Push **[C•MR]** (or **[B•CALL]**) to select memory (call) mode.
↳ Push **[▲]** or **[▼]** to select the memory channel.
• When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to select the memory channel. (p.27, 61)

② Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec. to transfer the selected memory contents to the VFO.
• VFO mode is selected automatically.

Memory/call ···› memory/call



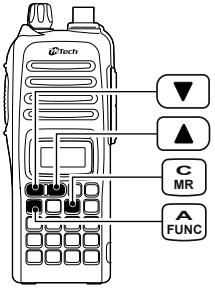
① Select the memory (call) channel to be transferred:
↳ Push **[C•MR]** (or **[B•CALL]**) to select the memory (call) mode.
↳ Push **[▲]** or **[▼]** to select the memory channel.
• When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to select the memory channel. (p.27, 61)

② Push **[A•FUNC]**, then push **[C•MR]** momentarily.
• "--" and "MR" blink.

③ Push **[▲]** or **[▼]** to select the target memory.
• When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to select the target channel. (p.27, 61)

④ Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec.
• Memory mode is selected and the contents are transferred to the target memory.

Clearing a memory



① Push **[A•FUNC]**, then push **[C•MR]** to enter the memory transfer mode.
- "MR" and a memory channel number blink.

② Push **[▲]** or **[▼]** to select the memory channel to be cleared.
- When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to select the memory channel. (p.27, 61)
- The call channel cannot be cleared.

③ Perform the following operation within 1.5 sec, otherwise the transceiver returns to the memory mode without clearing the memory.
↪ Push **[A•FUNC]**, then push **[C•MR]** momentarily.
↪ Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec.
- The contents of the selected memory are cleared.

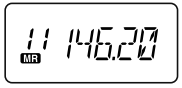
④ Push **[D•CLR]** to return to regular operation.

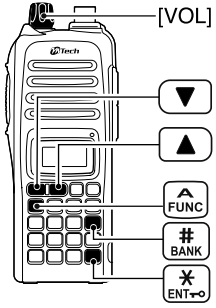
8.7 Memory bank selection

The MT-V82N has a total of 10 banks (A to J). Each memory channel, 0 to 199, may be assigned to one of the banks for easy memory management.

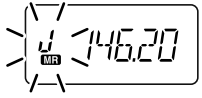
① Push **[C•MR]** to select memory mode.

Push C MR





② Push **[A•FUNC]** and **[#•BANK]** to enter memory bank selection.
- Bank indicator blinks.



③ Rotate **[VOL]** to select the desired bank, A to J.
- Banks that have no programmed contents are skipped.

④ Push **[*•ENT]** (or **[D•CLR]**) to select the bank.
- Indicator stops blinking.

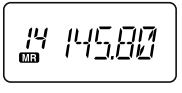
⑤ Push **[▲]** or **[▼]** to select the channel in the bank.
- No channel numbers are displayed for memory bank operation.

⑥ To return to regular memory condition, push **[A•FUNC]** and **[#•BANK]** to enter memory bank mode, then push **[✱•ENT]** (or **[D•CLR]**).

8.8 Memory bank setting

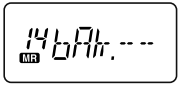
① Push **[C•MR]** to select memory mode, then select the desired memory channel via **[▲]** or **[▼]**.

Push [C MR]

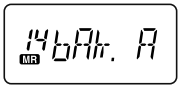


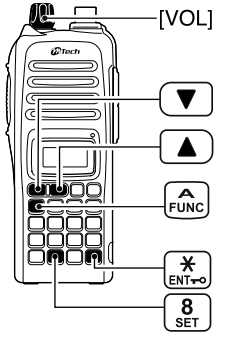
② Push **[A•FUNC]** and **[8•SET]** to enter **SET MODE**.

③ Push **[▲]** or **[▼]** several times until "bAk" appears.
- "– –" indication blinks as follows.



④ Rotate **[VOL]** to select the desired bank.





⑤ Push **[✱•ENT]** (or **[D•CLR]**) to assign the channel to the bank and return to regular memory condition.

⑥ Repeat steps ① to ⑤ to assign another memory channel to the same or another bank.

NOTE:
Display type setting (p.31, 61) in **INITIAL SET MODE** must be selected "FR", otherwise the memory bank operation cannot be performed.

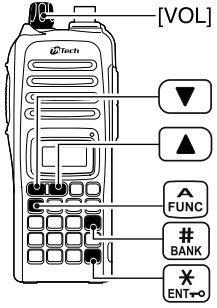
8.9 Transferring bank contents

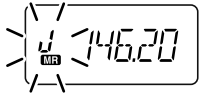
Contents of programmed memory banks can be cleared or transferred to another bank.

For your information

Even if the memory bank contents are cleared, the memory channel contents still remain programmed.

① Select the desired bank contents to be transferred or erased.
↳ Push **[C•MR]** to select memory mode.
↳ Push **[A•FUNC]** and **[#•BANK]**, then rotate **[VOL]** to select the desired memory bank.
• Bank indicator blinks.

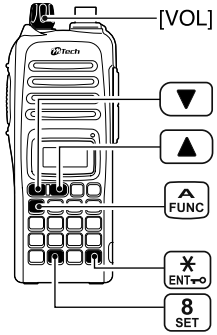


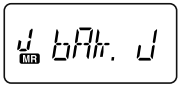


↳ Push **[✱•ENT]** (or **[D•CLR]**) to select the bank then push **[▲]** and **[▼]** to select the desired contents.
• Bank indicator stops blinking.

② Push **[A•FUNC]** and **[8•SET]** to enter **SET MODE**.

③ Push **[▲]** or **[▼]** several times until "bAk" appears.
• Bank indicator appears.





④ Rotate **[VOL]** to select the desired bank to receive the transferred information or erase the bank contents.
• Select "– –" indication when erasing the contents from the bank.

⑤ Push **[✱•ENT]** (or **[D•CLR]**) to transfer or erase, and return to regular memory mode.

⑥ Repeat steps ① to ⑤ for transferring or erasing an another bank's contents.

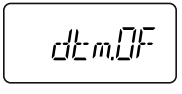
DTMF MEMORY

9.1 Programming a DTMF code sequence

The transceiver has 16 DTMF memory channels (d0 to dF) for storage of often-used DTMF code sequence of up to 24 digits. DTMF memories are used to store phone numbers or control codes.

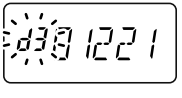
① Push **[A•FUNC]**, then push **[0•OPT]** to enter **OPTION SET MODE**.
- Rotate **[VOL]** to select "dtm.OF," if necessary.

Push [FUNC] [OPT]



② Push and hold **[0•OPT]** for 1 sec. to select the DTMF memory.
- One of "d0" to "dF" appears.

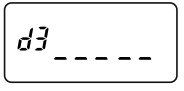
Push [OPT] for 1 sec.



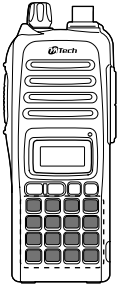
③ Rotate **[VOL]** to select the desired DTMF memory.

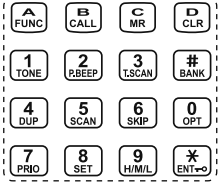
④ Push and hold **[0•OPT]** for 1 sec. to enter the DTMF programming mode.
- "_ _ _ _ _" appears.
- Programmed memories can be cleared in this way.

Push [OPT] for 1 sec.



⑤ Enter the desired DTMF code sequence by pushing the digit keys, **[A•FUNC]**, **[B•CALL]**, **[C•MR]**, **[D•CLR]**, **[#•BANK]** and **[∗•ENT]**, in the desired sequence.
- A maximum of 24 digits can be input.
- **[∗•ENT]** enters tone "E", **[#•BANK]** enters tone "F."
- If a digit is mistakenly input, push **[MONI]** or **[PTT]** momentarily then repeat from step ① .

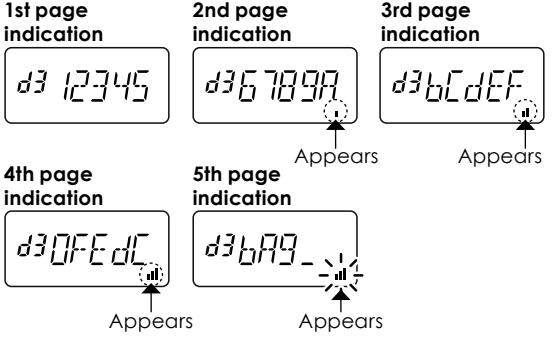




⑥ Push **[MONI]** or **[PTT]** to save the digits and exit the DTMF programming mode.
- Programmed DTMF code sequence sounds when **[MONI]** is pushed.
- Or after 24th digit is input, the transceiver automatically saves the digits and returns to step ② .

• DTMF memory indication

The DTMF memory consists of 5 pages that are 1st to 5th, 6th to 10th, 11th to 15th, 16th to 20th and 21st to 24th digits.

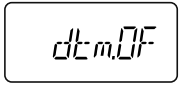


9.2 Transmitting a DTMF code sequence

Using a DTMF memory channel

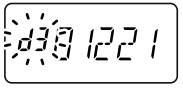
① Push **[A•FUNC]**, then push **[0•OPT]** to enter **OPTION SET MODE**.
- Rotate **[VOL]** to select "dtm.OF," if necessary.

Push [FUNC] [0 OPT]



② Push and hold **[0•OPT]** for 1 sec. to select the DTMF memory.

Push [0 OPT] for 1 sec.



③ Rotate **[VOL]** to select the desired memory.

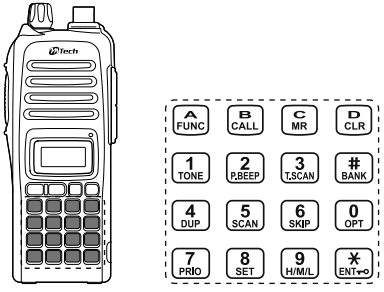
④ Push **[MONI]** or **[PTT]** to exit the DTMF memory mode.
- Selected DTMF code sequence sounds when **[MONI]** is pushed.

⑤ While pushing **[PTT]**, push **[MONI]** to transmit the selected DTMF memory.
- After the DTMF code sequence is transmitted, the transceiver returns to receive automatically.

Manual DTMF code transmission

While pushing **[PTT]**, push digit keys, **[A•FUNC]**, **[B•CALL]**, **[C•MR]**, **[D•CLR]**, **[#•BANK]** and **[∗•ENT]** to transmit a DTMF code sequence manually.

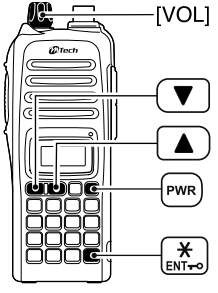
- **[∗•ENT]** transmits tone "E", **[#•BANK]** transmits tone "F."



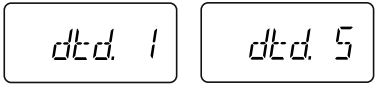
9.3 DTMF transmission rate

(USING INITIAL SET MODE)

When slow DTMF transmission rates are required with DTMF memory transmission (as for some repeaters), the transceiver's rate of DTMF transmission can be adjusted.



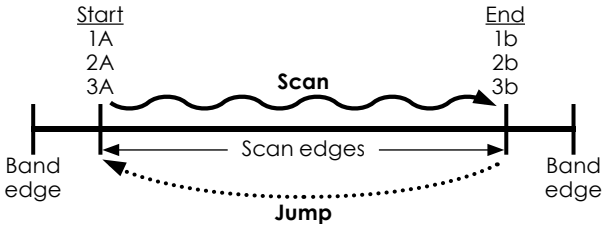
① While pushing and holding **[▲]** and **[▼]**, turn the power ON to enter **INITIAL SET MODE**.
② Push **[▲]** or **[▼]** several times until "dtd" appears.
③ Rotate **[VOL]** to select the desired DTMF transmission rate.
  • Four rates are available: "1" (100 msec. intervals) is the fastest; "5" (500 msec. intervals) is the slowest.



④ Push **[∗•ENT]** to exit **INITIAL SET MODE**.

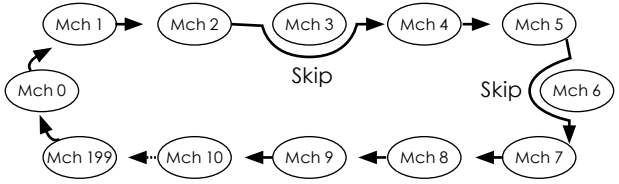
10.1 Scan types

PROGRAMMED SCAN



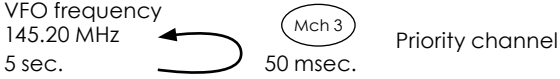
Programmed scan P1 scans between 1A and 1b, P2 scans between2A and 2b, and P3 scans between 3A and 3b frequencies.

MEMORY (SKIP) SCAN

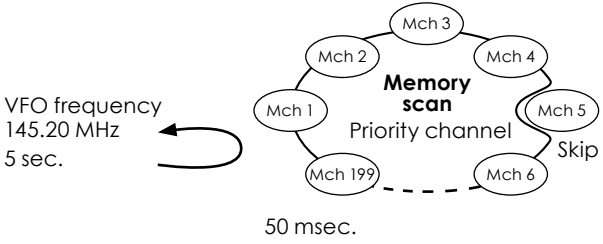


PRIORITY WATCH

Priority memory channel watch



Priority memory channel watch



10.2 Programmed scan

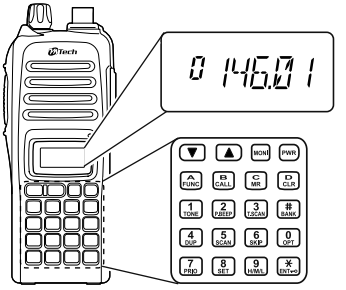
Programmed scan repeatedly scans between two user programmed frequencies (memory channels "1A–3A" and "1b–3b") or scans between upper and lower band edges. This scan is useful for checking for signals within a specific frequency range such as repeater output frequencies, etc. Scans between lower (start) and high (stop) frequency.

① Push **[D•CLR]** to select VFO mode, if necessary.
② Push **[A•FUNC]** and **[5•SCAN]** to start the scan, then a selected scan edge appears as "P1," "P2," "P3" or "AL."
- To change the scan edge, push **[A•FUNC]** and **[8•SET]** several times until the desired scan edge appears.
- "AL" for full scan, "P1", "P2" and "P3" for programmed scan between the programmed scan edge channels as "1A"–"1b," "2A"–"2b" and "3A"–"3b."
- To change the scan direction, push **[▲]** or **[▼]**.
- When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to change the scan direction. (p.27, 61)

Push [FUNC] [5 SCAN]

③ Push **[D•CLR]** to stop the scan.

NOTE: Scan edges, 1A–3A/1b–3b, must be programmed in advance. Program them in the same manner as regular memory channels. (p.36)
If identical frequencies are programmed into the scan edges, programmed scan will not proceed.



10.3 Memory scan

Memory scan repeatedly scans all programmed memory channels, except those set as skip channels.

① Push **[C•MR]** to select memory mode, if necessary.
- "MR" appears.
- See below to select bank scan.

② Push **[A•FUNC]** and **[5•SCAN]** to start the scan.
- To change the scan direction, push **[▲]** or **[▼]**.
- When **[VOL]** is assigned as tuning dial, rotate **[VOL]** to change the scan direction. (p.27, 61)

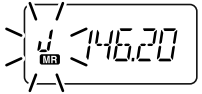
Push [FUNC] [5 SCAN]

③ Push **[D•CLR]** to stop the scan.

Bank scan

Select the desired bank in step ① above.

① Push **[A•FUNC]** and **[#•BANK]** to select memory bank mode.



② Rotate **[VOL]** to select the desired bank, A to J.

③ Push **[✱•ENT]** (or **[D•CLR]**) to select the bank.

10.4 Skip channels

In order to speed up the scan rate, you can select memory channels you don't wish to scan as skip channels.

① Push **[C•MR]** to select memory mode, if necessary.
- "MR" appears.

② Select a memory channel to set as a skip channel.

③ Push **[A•FUNC]** and **[6•SKIP]** to toggle the skip setting ON and OFF.
- "SKIP" appears when the channel is set as a skip channel.

Push [FUNC] [6 SKIP]

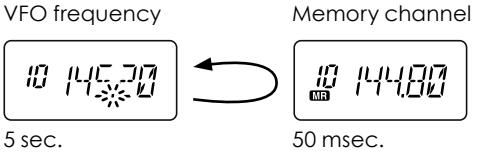
10.5 Priority watch

Priority watch checks for signals on "priority channels" while operating on a VFO frequency.

Memory or call channel watch

While operating on a VFO frequency, memory or call channel watch monitors for signals in the selected memory or call channel every 5 sec.

① Select the desired memory channel or the call channel.
② Push **[D•CLR]** to select VFO mode.
③ Push **[A•FUNC]**, then push **[7•PRIO]** to start watching.
- VFO is displayed, then the decimal point ".", on the frequency readout blinks.
- The priority channel is monitored every 5 sec.
- When the signal is detected on the priority channel, the watching is suspended according to the setting of the scan resume condition.



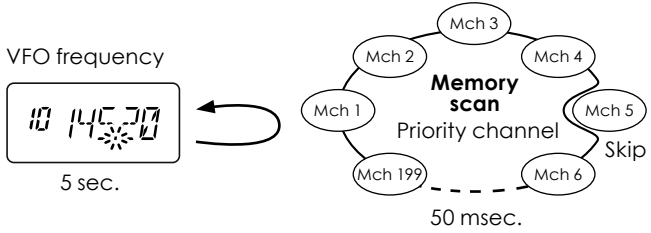
④ Push **[D•CLR]** to stop watching.

Memory scan watch

While operating on a VFO frequency, memory scan watch monitors for signals in each memory channel in sequence, every 5 sec.

① Push **[C•MR]** to select memory mode, if necessary.
- "MR" appears.

② Push **[A•FUNC]**, then push **[5•SCAN]** to start the memory scan.
③ Push **[A•FUNC]**, then push **[7•PRIO]** to start the watching.
- VFO is displayed, then the decimal point ".", on the frequency readout blinks.
- When the signal is detected on the priority channel, the watching is suspended according to the setting of the scan resume condition.



④ Push **[D•CLR]** to stop the watching.

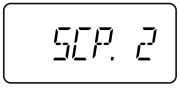
10.6 Scan resume condition
(USING INITIAL SET MODE)

When a signal is received during scanning, the scan resume condition determines what action the transceiver takes. The transceiver has 2 scan resume conditions available as illustrated below. Use **SET MODE** to select the one which best suits your needs.

① Push **[A•FUNC]**, then push **[8•SET]** to enter **SET MODE**.
② Push **[▲]** or **[▼]** several times until "SCP" or "SCt" appears.
③ Rotate **[VOL]** to select the desired scan resume condition.

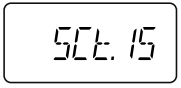
- **Pause scan:**
  When receiving a signal, scan pauses on the signal until it disappears. Resumes 2 sec. after the signal disappears.

Pause scan



- **Timer scan:**
  When receiving a signal, scan pauses on the signal for 5 sec., 10 sec. or 15 sec., then resumes.

Timer scan



④ Push **[✱•ENT⇢0]** (or **[D•CLR]**) to set and exit **SET MODE**.

SUBAUDIBLE TONES

11.1 Tone squelch

Operation

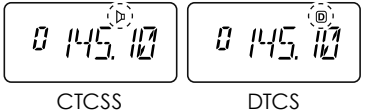
The tone squelch opens only when receiving a signal containing a matching subaudible tone. You can wait for calls from group members using the same tone and not hear other signals.

① Set the operating frequency.
- Set the volume and squelch to the desired level as the normal operation.

② Set the desired subaudible tone in **SET MODE**.
- See page 35 for programming.

③ Push **[A•FUNC]**, then push **[1•TONE]**.
- Repeat several times until "▷" appears when selecting CTCSS, or "Ⓓ" appears when selecting DTCS.

Push [FUNC] [1 TONE]



CTCSS DTCS

④ When the received signal includes a matching tone, squelch opens and the signal can be heard.
- When the received signal's tone does not match, tone squelch does not open, however, the S-indicator shows signal strength.
- To open the squelch manually, push and hold **[MONI]**.

⑤ Transmit in the normal way.

⑥ To cancel the tone squelch, push **[A•FUNC]** and **[1•TONE]**.
- Repeat several times until "▷" or "Ⓓ" disappears.

NOTE:
The transceiver has 50 tone frequencies and consequently their spacing is narrow compared to units having 38 tones. Therefore, some tone frequencies may receive interference from adjacent tone frequencies.
To prevent interference from adjacent tone frequencies, using the frequencies as in the following table, is recommended.

• Recommended CTCSS frequencies (unit: Hz)

67.0	79.7	94.8	110.9	131.8	156.7	186.2	225.7
69.3	82.5	97.4	114.8	136.5	162.2	192.8	233.6
71.9	85.4	100.0	118.8	141.3	167.9	203.5	241.8
74.4	88.5	103.5	123.0	146.2	173.8	210.7	250.3
77.0	91.5	107.2	127.3	151.4	179.9	218.1	

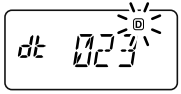
• Recommended DTCS codes

023	051	114	143	174	251	315	371	445	532	631	723
025	054	115	152	205	261	331	411	464	546	632	731
026	065	116	155	223	263	343	412	465	565	654	732
031	071	125	156	226	265	346	413	466	606	662	734
032	072	131	162	243	271	351	423	503	612	664	743
043	073	132	165	244	306	364	431	506	624	703	754
047	074	134	172	245	311	365	432	516	627	712	

Setting subaudible tones for tone squelch operation

Separate tone frequencies can be select for tone squelch operation rather than repeater operation (the same range of tones is available— see right below). Like the repeater tones, these are set in **SET MODE**.

① Select VFO or memory channel.
② Push **[A•FUNC]**, then push **[8•SET]** to enter SET MODE.
③ Push **[▲]** or **[▼]** several times until "Ct" appears when selecting CTCSS, or "dt" appears when selecting DTCS.
  • "▷" blinks when selecting CTCSS, or "Ⓓ" blinks when selecting DTCS.



④ Rotate **[VOL]** to select the desired subaudible tone.
⑤ Push **[✱•ENT]** (or **[D•CLR]**) to program the selected

tone and exit **SET MODE**.
- The recommended CTCSS frequencies or DTCS codes are shown at previous page.

When SET MODE is selected from memory mode.
The tone squelch frequency is not stored in the selected memory channel unless you follow steps ⑥ and ⑦.

⑥ Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec. to transfer the contents to VFO.
- 3 beeps are emitted.
- VFO mode is selected automatically.

⑦ Push **[A•FUNC]**, then push and hold **[C•MR]** for 1 sec.
- 3 beeps are emitted.

- **Available CTCSS tone frequency list (unit: Hz)**

67.0	85.4	107.2	136.5	165.5	186.2	210.7	254.1
69.3	88.5	110.9	141.3	167.9	189.9	218.1	
71.9	91.5	114.8	146.2	171.3	192.8	225.7	
74.4	94.8	118.8	151.4	173.8	196.6	229.1	
77.0	97.4	123.0	156.7	177.3	199.5	233.6	
79.7	100.0	127.3	159.8	179.9	203.5	241.8	
82.5	103.5	131.8	162.2	183.5	206.5	250.3	

11.2 Pocket beep operation

This function listens for subaudible tones and can be used as a "common pager" to inform you that someone has called when you were away from the transceiver.

Waiting for a call from a specific station

① Set the operating frequency.

② Set the desired CTCSS tone frequency or DTCS code in **SET MODE**.
- See p.51 for programming details.

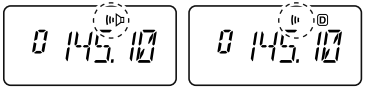
③ Push **[A•FUNC]**, then push **[1•TONE]**.
- Repeat several times until "▷" appears when CTCSS, or "Ⓓ" appears when DTCS is selected.

Push [FUNC] [1 TONE]

CTCSS DTCS

④ Push **[A•FUNC]**, then push **[2•P.BEEP]** to activate the pocket beep function.
- "((ı" appears.

Push [FUNC] [2 P.BEEP]



CTCSS DTCS

⑤ When a signal with the matching tone is received, the transceiver emits beep tones and blinks "((".

- Beep tones sound for 30 sec. and "((" blinks. To stop the beeps manually, push any key. "((" continues blinking until step is operated.

CTCSS DTCS

⑥ Push **[PTT]** to answer.

- "((" disappears and cancels the pocket beep function automatically.

11.3 Tone scan

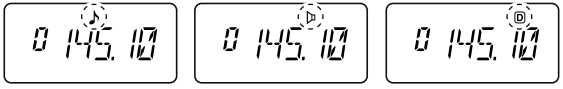
By monitoring a signal on a repeater, or using pocket beep or tone squelch function, you can determine the tone frequency necessary to access a repeater or open the squelch.

① Set the frequency to be checked for a tone frequency or code.

② Push **[A•FUNC]**, then push **[1•TONE]**.

- Repeat several times to select the type of tone to be scanned. (One of "♪", "▷" or "Ⓓ" appears)
- Tone scan may be used even if the tone condition or type is not selected.

Push [FUNC] [1 TONE]



③ Push **[A•FUNC]**, then push **[3•T.SCAN]** to start the tone scan.
- To change the scanning direction, push **[▲]** or **[▼]**.

Push [FUNC] [3 T.SCAN]

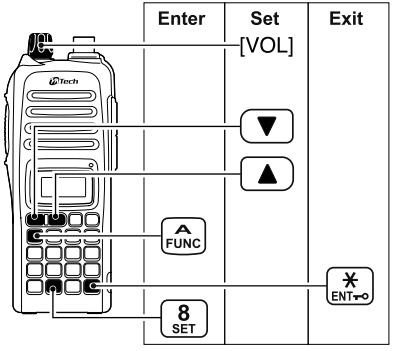
④ When the CTCSS tone frequency or DTCS code is matched, the squelch opens and the tone frequency or code is temporarily programmed into the selected mode such as memory or call channel.
- The tone scan pauses when a CTCSS tone frequency or 3-digit DTCS code is detected.
- The decoded CTCSS tone frequency or 3-digit DTCS code is used for the tone encoder or tone encoder/decoder depending on the selected tone condition or type in step ② .
  - No indication: Cannot be used for operation.
  - "♪" : CTCSS tone encoder
  - "♪" : CTCSS tone encoder/decoder
  - "D" : DTCS tone encoder/decoder

⑤ Push **[D•CLR]** to stop the scan.

12.1 SET MODE

Entering SET MODE

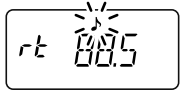
① Push **[A•FUNC]**, then push **[8•SET]** to enter **SET MODE**.
② Push **[▲]** or **[▼]** to select the desired item.
③ Rotate **[VOL]** to select the condition/value.
• To exit **SET MODE**, push **[✱•ENT]** (or **[D•CLR]**).



NOTE: When the display type setting (p.29, 61) in **INITIAL SET MODE** is selected other than "FR" ("CH" or "nm") and accessing **SET MODE** from memory mode, most of set mode items are restricted.

Repeater tone frequency

Selects tone encoder frequency for accessing a repeater, etc. from one of 50 available frequencies.
• 67.0–254.1 Hz (50 tones): 88.5 Hz (default)



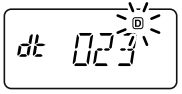
Tone squelch frequency

Selects frequency for tone squelch or pocket beep operation from one of 50 available frequencies.
• 67.0–254.1 Hz (50 tones): 88.5 Hz (default)

• Available subaudible tone frequencies

67.0	79.7	94.8	110.9	131.8	156.7	171.3	186.2	203.5	229.1
69.3	82.5	97.4	114.8	136.5	159.8	173.8	189.9	206.5	233.6
71.9	85.4	100.0	118.8	141.3	162.2	177.3	192.8	210.7	241.8
74.4	88.5	103.5	123.0	146.2	165.5	179.9	196.6	218.1	250.3
77.0	91.5	107.2	127.3	151.4	167.9	183.5	199.5	225.7	254.1

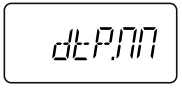
DTCS code



Selects DTCS (both encoder/ decoder code) for DTCS squelch operation. Total of 104 codes are available.

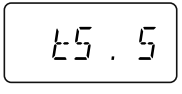
- 023–754: 023 (default)

DTCS polarity



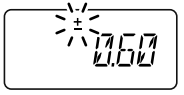
Selects DTCS polarities for transmission and reception from "nn (default)," "nR," "Rn" and "RR." (n: normal/R: reverse)

Tuning step



Selects tuning step from 5, 10, 12.5, 15, 20, 25, 30 and 50 kHz for **[▲]/[▼]** or **[VOL]** (When **[VOL]** is assigned as tuning dial) operation. (default value may differ depending on transceiver types and versions)

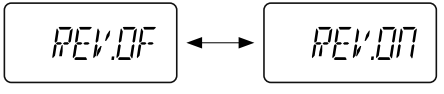
Offset frequency



Sets the duplex offset frequency within 0 to 20 MHz range. During duplex (repeater) operation, transmit frequency (or receive when reverse function is set to ON) shifts the set frequency. (default value may differ depending on transceiver types and versions)

Reverse function

Turns the reverse function ON and OFF (default).

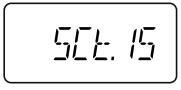


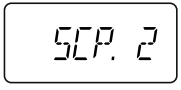
Reverse function OFF ↔ Reverse function ON

Scan pause timer

Selects the scan pause time from SCt.5, SCt.10, SCt.15 and SCP. 2. When receiving signals, the scan pauses according to the scan pause time.

- SCt. 5/10/15: Scan pauses for 5/10/15 sec.(default: SCt.15)
- SCP. 2: Scan pauses until the signal disappears. Resumes 2 sec. after the signal disappears.

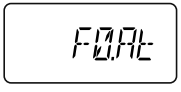


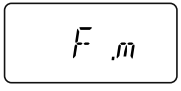


Function key timer

Selects the function indicator display timer (when pushed **[A•FUNC]**) from F0.At, F1.At, F2.At, F3.At and F .m.

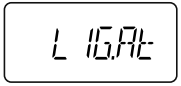
- F0.At: "F" disappears immediately after secondary function is operated. (default)
- F1/2/3.At: "F" disappears after 1/2/3 sec. after secondary function is operated.
- F .m: "F" appears until **[A•FUNC]** is pushed again.





LCD backlight

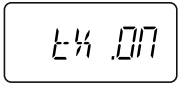
Selects LCD backlight lighting condition from auto, ON and OFF.



- LIG.At: Lights when any key except **[PTT]** is pushed. (default)
- LIG.ON: Lights continuously while the transceiver is powered ON.
- LIG.OF: Never lights.

Transmission permission

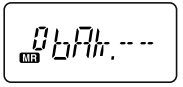
Turns transmission permission ON and OFF. This function can be set for each memory and call channel, independently.

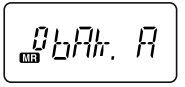


- tX .On : Transmission is permitted. (default)
- tX .OF : Transmission is inhibited.

Memory bank setting

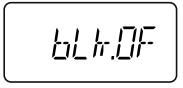
Sets the desired memory bank (A to J and OFF) to assign the regular memory channels.
This item appears when **SET MODE** is accessed from memory mode only.

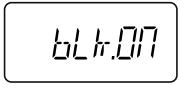




Memory bank link function

Sets the memory bank link function ON and OFF (default).
The link function provides continuous banks scan, scanning all contents in the selected banks during bank scan.
This item appears when **SET MODE** is accessed from memory mode only.

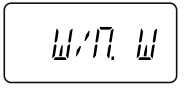


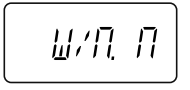


• Bank link setting
① Rotate **[VOL]** to select the memory bank link function ON.
② Push **[▲]** or **[▼]** to select the desired bank to be linked.
  • bLA: Bank A, bLb: Bank B, bLC: Bank C, bLd: Bank D, bLE: Bank E, bLF: Bank F, bLG: Bank G, bLH: Bank H, bLI: Bank I, bLJ: Bank J
③ Rotate **[VOL]** to "ON" to link the bank.
④ Repeat steps and to link other banks.

Wide/Narrow setting

Selects both the transmission and reception passband width from wide (default) and narrow. When narrow is selected, the transmission and reception passband width become half of the wide setting (approx.).
This setting can be set for each memory, call and VFO independently.



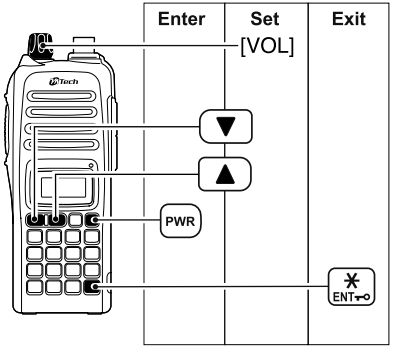


12.2 INITIAL SET MODE *AT POWER ON*

The **INITIAL SET MODE** is accessed at power on and allows you to set seldom-changed settings. In this way, you can "customize" transceiver operations to suit your preference and operating style.

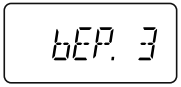
Entering INITIAL SET MODE

① While pushing and holding **[▲]** and **[▼]**, turn power ON.
② Push **[▲]** or **[▼]** to select the desired item.
③ Rotate **[VOL]** to select the condition or value.
• To exit **INITIAL SET MODE**, push **[✱•ENT]** (or **[D•CLR]**).



Key-touch beep

Turns key-touch beep emission ON (Beep level 1 to 3) or OFF. (default: 3)

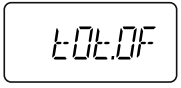


NOTE: The pocket beep level (Beep level 1 to 3 or OFF) also changes as this setting.

Time-out timer

To prevent accidental prolonged transmission, etc., the transceiver has a time-out timer. This function cuts a transmission OFF after 1–30 min. of continuous transmission. This timer can be cancelled.

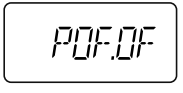
• tOt.OF: The time-out timer is turned OFF. (default)
• tOt. 1–30: The transmission is cut OFF after the set period elapses.

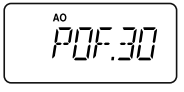


Auto power-off

The transceiver can be set to automatically turn OFF after a specified period with a beep when no key operations are performed.

- 30 min., 1 hour, 2 hours and OFF (default) can be specified. The specified period is retained even when the transceiver is turned OFF by the auto power-off function. To cancel the function, select "POF.OF" in this **SET MODE**.

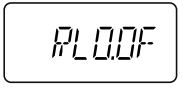


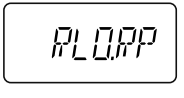


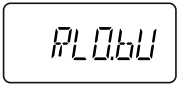
Repeater lock-out

Selects lockout type from repeater, busy and OFF.

- RLO.OF: No lockout is activated. (default)
- RLO.RP: The repeater lockout is turned ON.
- RLO.bU: The busy lockout is turned ON.



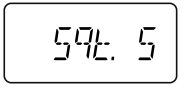


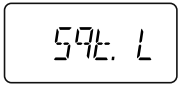


Squelch delay

Selects squelch delay from short and long to prevent repeated opening and closing of the squelch during reception of the same signal.

- Sqt. S: The squelch closes in short delay. (default)
- Sqt. L: The squelch closes in long delay.



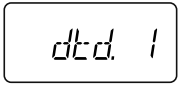


DTMF rate

The rate at which DTMF memories send individual DTMF characters can be set to accommodate operating needs.

- 1: 100 msec. interval; 5.0 cps rate (default)
- 2: 200 msec. interval; 2.5 cps rate
- 3: 300 msec. interval; 1.6 cps rate
- 5: 500 msec. interval; 1.0 cps rate

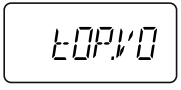
(cps=characters/sec.)

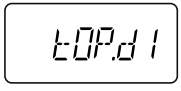


Dial assignment

Selects **[VOL]** control action from volume and tuning dial.

- tOP.VO: AF volume (default)
- tOP.dI : Tuning dial



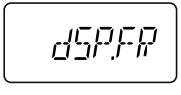


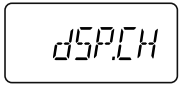
Display type

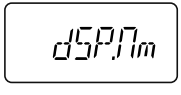
Selects LCD indication type from frequency, channel numberand channel names.

- dSP.FR : Shows frequency (default)
- dSP.CH : Shows channel number*
- dSP.nm : Shows channel names†

*Only memory channels can be selected.
†Frequency indication will be displayed when the selected memory channel has no programmed memory name.





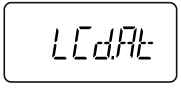


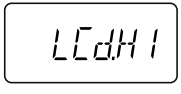
NOTE: When this setting is selected other than "FR" ("CH"or "nm") and accessing **SET MODE** from memory mode, most of set mode items are restricted.

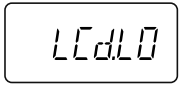
LCD contrast

Selects LCD contrast from auto, high and low.

- LCd.At : Automatic (default)
- LCd.HI : High contrast
- LCd.LO : Low contrast



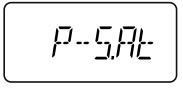


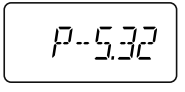


Power save

Selects duty cycle for power save function from auto, 1:32, 1:16, 1:8, 1:2 and OFF.

- P–S.At : Duty cycle changes automatically. (default)
- P–S.32 : 1:32 duty cycle
- P–S.16 : 1:16 duty cycle
- P–S. 8 : 1:8 duty cycle
- P–S. 2 : 1:2 duty cycle
- P–S.OF : The power save function is turned OFF.

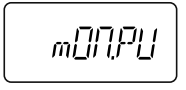


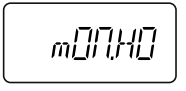


Monitor key action

The monitor key, **[MONI]**, can be set as a 'sticky' key. When set to the sticky condition, each push of **[MONI]** toggles the monitor function ON and OFF.

- PU (Push) : Pushing and holding **[MONI]** to monitor the frequency. (default)
- HO (Hold) : Push **[MONI]** to monitor the frequency and push again to cancel it.



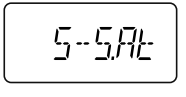


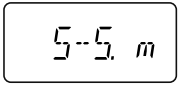
Tuning speed acceleration

The tuning speed acceleration automatically speeds up the tuning speed when pushing and holding **[▲]** or **[▼]**, or rotating **[VOL]** rapidly.*

- S–S.At: The tuning speed acceleration is activated. (default)
- S–S. m: The tuning speed acceleration is not activated.

*When tuning dial is assigned with [VOL].



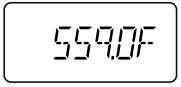


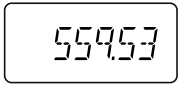
S-meter squelch

Sets S-meter squelch threshold level from OFF (default) and S1–S3.

This setting allows you to set a minimum signal level

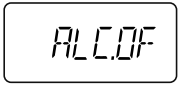
needs to open the squelch.

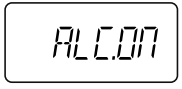




ALC function

Sets the ALC (automatic Level Control) function ON and OFF (default).
The ALC function reduces the microphone gain automatically when the transmission audio is distorted.





Battery protection function

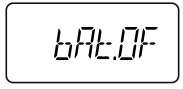
Sets the Battery protection function from LI (Li-Ion) and OFF (default).
LI(Li-Ion):

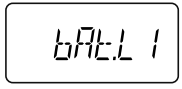
↪ The transceiver does not memorized the transceiver ON/OFF condition when battery is detached, and automatically returns to OFF condition even if you detach the battery with the transceiver ON condition. You are required to turn ON the transceiver by pushing **[PWR]** for every battery attach.

↪ Beep sounds when the attached battery is exhaustion.

• The battery must be charged presently.

OFF: The transceiver memorizes the transceiver ON/OFF condition when battery is detached.





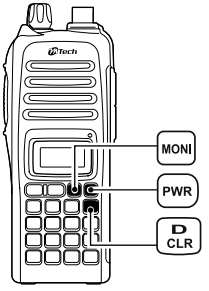
12.3 CPU reset *AT POWER ON*

The function display may occasionally display erroneous information (e.g. when first applying power). This may be caused externally by static electricity or by other factors.
If this problem occurs, turn power OFF. After waiting a few seconds, turn power ON again. If the problem persists, perform the following procedure.

- Partial resetting is also available. See right for details.

IMPORTANT!:
Resetting the transceiver **CLEARS** all memory information and initializes all values in the transceiver.

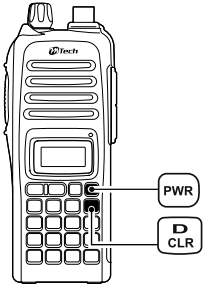
↪ While pushing **[MONI]** and **[D•CLR]**, push and hold **[PWR]** for 1 sec. to reset the CPU.
- "CLEAR" indicates, then initial display appears.



12.4 Partial reset *AT POWER ON*

If you want to initialize the operating conditions (VFO frequency, VFO settings, set mode contents) without clearing the memory contents, a partial resetting function is available for the transceiver.

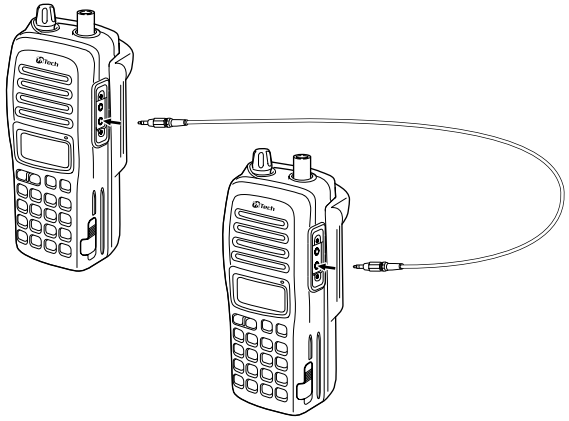
↪ While pushing **[D•CLR]**, push and hold **[PWR]** for 1 sec. to partially reset.



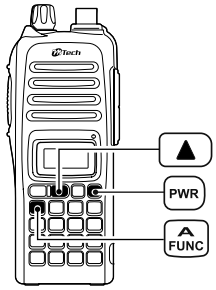
Cloning allows you to quickly and easily transfer the programmed contents from one transceiver to another transceiver.

13.1 Transceiver-to-transceiver cloning *AT POWER ON*

① Connect the PC-V82N CLONING CABLE to the **[SP]** jack of the master and sub-transceivers.
- The master transceiver is used to send data to the sub-transceiver.



② While pushing **[A•FUNC]** and **[▲]**, turn power ON to enter cloning mode (master transceiver only - power ON for sub-transceiver).
- "CLONE" appears and the transceivers enter the clone standby condition.



③ Push **[PTT]** on the master transceiver.
- "CL OU" appears in the master transceiver's display and S-meter indicator shows that data is being transferred to the sub-transceiver.
- "CL IN" appears automatically in the sub-transceiver's display and S-meter indicator

shows that data is being received from the master transceiver.

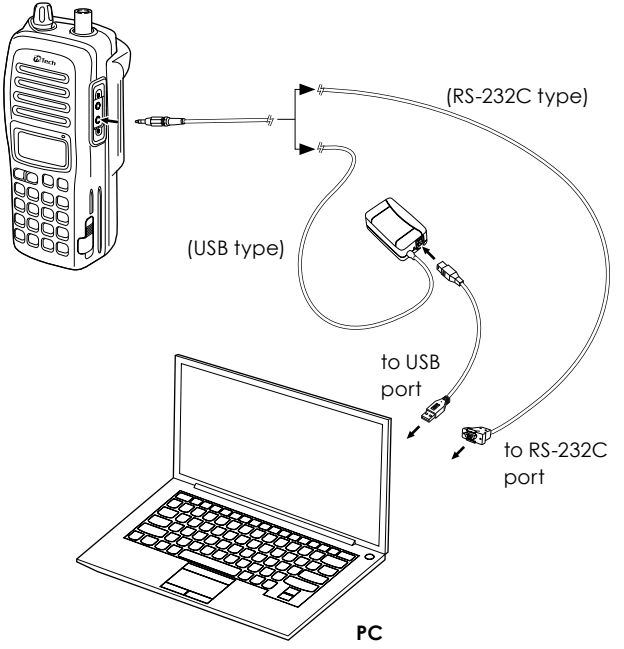
④ When cloning is finished, turn power OFF, then ON again to exit cloning mode.

NOTE: DO NOT push **[PTT]** on the sub-transceiver during cloning. This will cause a cloning error.

13.2 Cloning using a PC

Please refer to the HELP file that comes with MS-V82N CLONING SOFTWARE.

① Install the cloning software on your PC.
② Restart your PC after installing the software.
③ Connect the USB-to-serial cable to the PC.
④ Make sure the transceiver is turned OFF and connect the USB-to-serial cable to the transceiver.
⑤ Power ON the transceiver.
⑥ Open the cloning software on your PC.



SPECIFICATIONS

MT-V82N

General	
Frequency Range	136 - 174 MHz (guaranteed range: 144 - 148 MHz)
Modulation	FM
Number of Memory Ch.	207 (incl. 6 scan edges and 1 call)
Frequency Stability	±2.5ppm (-10˚C to +60˚C)
Input Voltage	7.2V DC (6.0 - 10.3V DC acceptable; M-Tech's battery pack only)
Current Drain (at 7.2V DC)	Tx - High (7W/5W): 2.6A / Rx - Max. audio: 250mA; Standby: 80mA; Power save: 30mA
Antenna Impedance	50Ω (BNC)
Operating Temperature Range	-10˚C to +60˚C; +14˚F to +140˚F
Dimensions (projections not incl.)	(W) 54 x (H) 139 x (D) 36.7 mm / (W) $2\,^{1}/_{8}$ x (H) $4\,^{15}/_{32}$ x (D) $1\,^{7}/_{16}$ in
Weight	Approx. 390g / 13.8oz (w/ant. and BP-3100LI)

Transmitter	
Power Output (at 7.2V DC)	7.0/4.0/0.5W (high/mid/low)
Max. Frequency Deviation	±5.0/±2.5kHz (wide/narrow)
Spurious Emissions	Less than -60dBc
Ext. Microphone Connector	3-conductor ⌀ 2.5mm ($^{1}/_{10}$ in)/ 2.2Ω

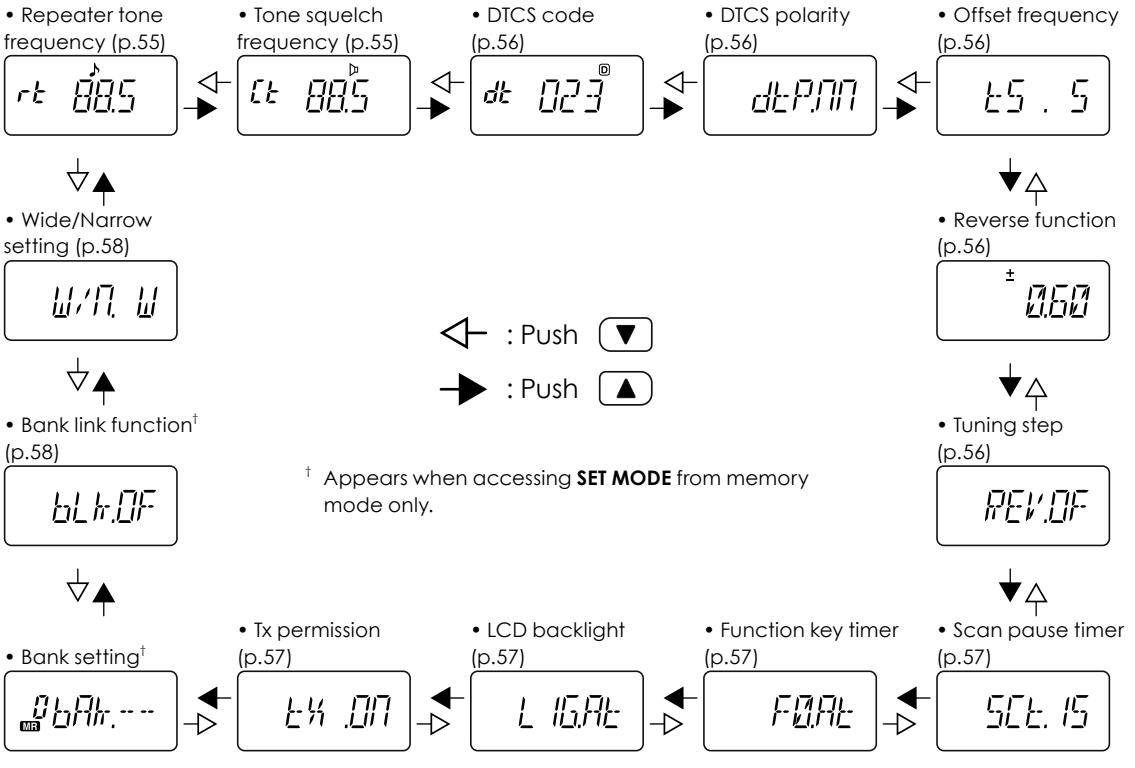
Receiver	
Intermediate Frequency	46.35MHz / 450kHz ($1^{st}/2^{nd}$)
Sensitivity	0.6μV (typ.: at 12dB SINAD)
Squelch Sensitivity	0.11μV (typ.: threshold)
Selectivity	More than 55/50dB (wide/narrow)
Intermodulation	65dB (typ.)
Spurious and Image Rejection	80dB
Audio Output Power	300mW with an 8Ω load
Ext. Speaker Connector	3-conductor ⌀ 3.5mm ($^{1}/_{8}$ in)/ 8Ω
Ext. Data Connector	3-conductor ⌀ 2.5mm ($^{1}/_{10}$ in)

All stated specifications are subject to change without notice or obligation.

MODE ARRANGEMENT

15.1 SET MODE

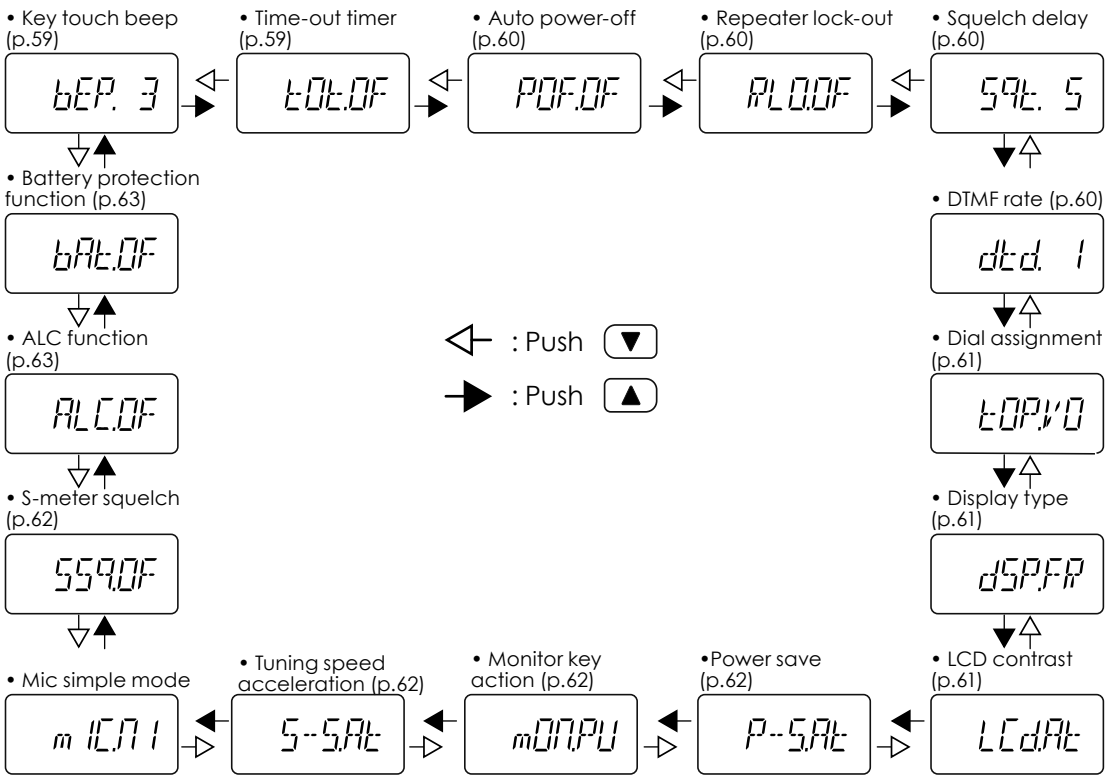
Push [FUNC], then push [8 SET] to enter SET MODE. (p.55)



† Appears when accessing **SET MODE** from memory mode only.

15.2 INITIAL SET MODE

While pushing and holding [▼] [▲], then push [PWR] to enter INITIAL SET MODE. (p.59)



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