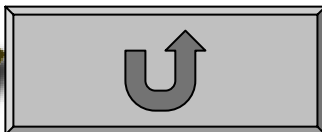




IC-746PRO

- Thank you for checking the interactive view of the IC-746PRO.
 - Use your mouse to navigate through the presentation by clicking the desired control or function.
 - To start this tour click either the [Front Panel](#) or [Rear Panel](#) view.
 - Use the arrow button at the bottom of each page to return to the previous slide.

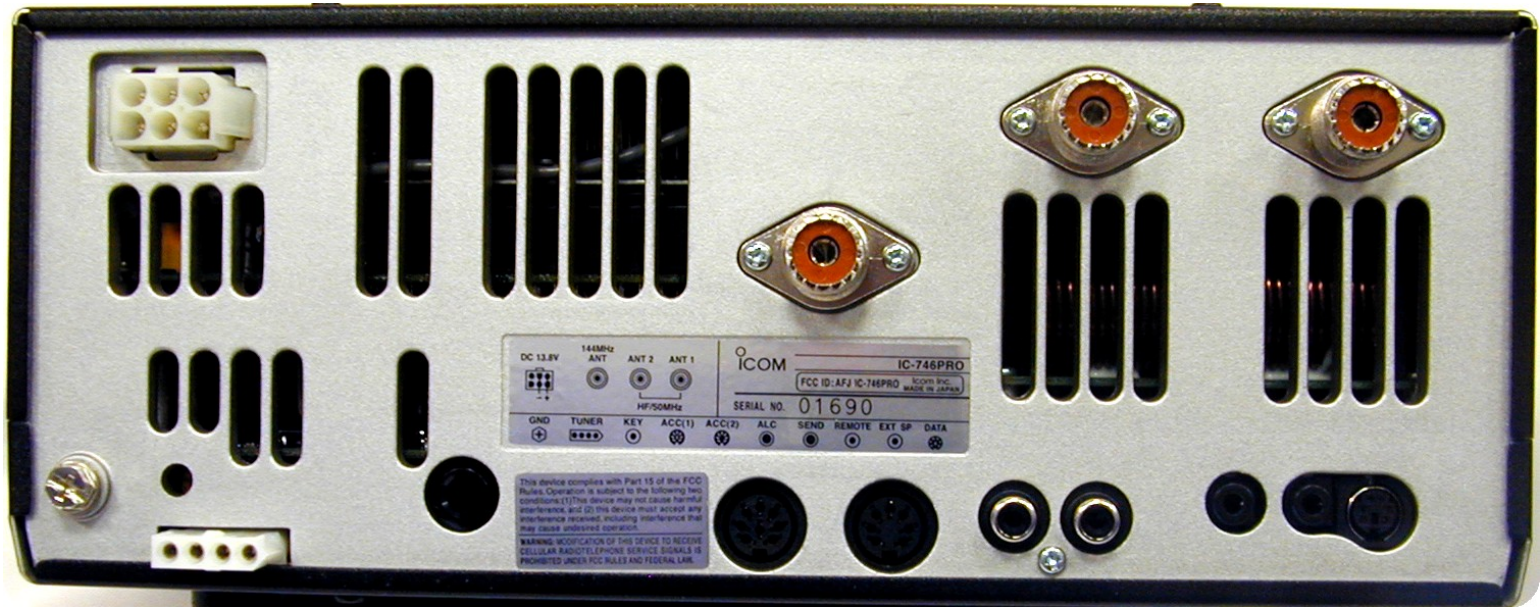


Front Panel



Rear Panel

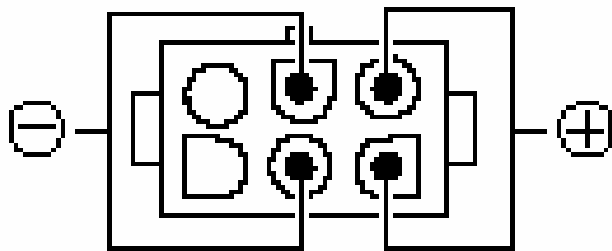
Rear Panel



Front Panel

POWER Connector

- Accepts 13.8 V DC through the supplied DC power cable (OPC-025D).



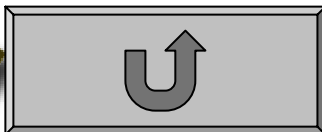
Rear panel view

PS-125 DC POWER SUPPLY



Light weight switching regulator system power supply.

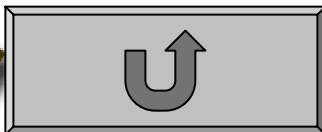
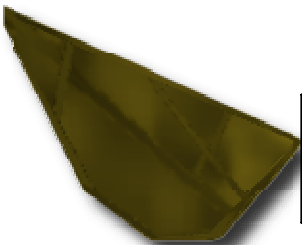
- Output voltage: 13.8 V DC
- Max. current drain: 25 A





TX Indicator

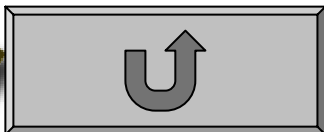
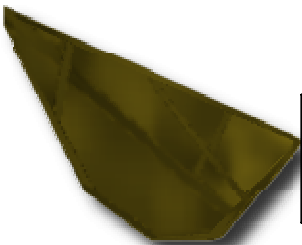
- Lights red while transmitting.





RX Indicator

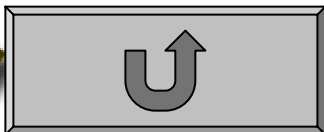
- Lights green while receiving a signal and when the squelch is open.





Lock Indicator

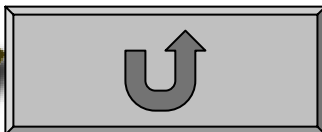
- Lights when the dial lock function is activated.
- The dial lock function prevents accidental changes caused by the tuning dial.
 - Push [LOCK/SPCH] to turn the dial lock function ON and OFF.
 - “LOCK” indicator lights while the dial lock function is activated.
 - Lights while the dial lock function is activated.





Split Indicator

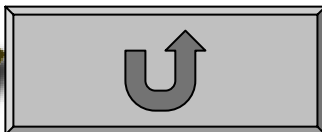
- Lights during split operation.
- Split frequency operation allows you to transmit and receive in the same mode on two different frequencies.
- The split frequency operation is basically performed using 2 frequencies in VFO A and VFO B.
- [SPLIT] Lights during split operation





Frequency Input Indicator

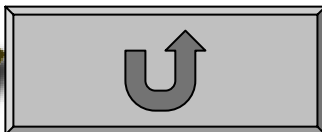
- Lights during frequency input from the keypad is enable.
- The transceiver has a keypad for direct frequency.
 - Push [F-INP].
 - F-INP indicator lights
 - Input the desired frequency.
 - Input “.” (decimal point) between the MHz units and kHz units.
 - Push [144 ENT] to enter the input frequency.
 - To cancel the input, push [A/B] instead of [144 ENT].
 - Lights when keypad input is activated.





POWER Switch

- Push momentarily to turn power ON.
 - Turn the optional DC power supply ON in advance.
- Push for 1 sec. to turn power OFF.



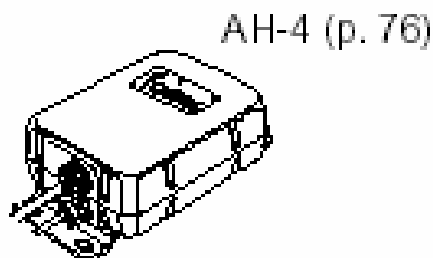
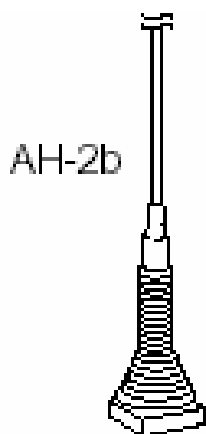
AH-4 Connector

- Connection for the AH-4 Automatic Antenna Tuner.

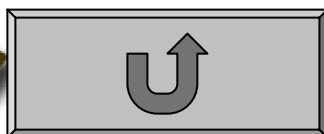
AH-4 HF/50 MHz AUTOMATIC
ANTENNA TUNER



Specially designed to tune a long wire antenna for portable or mobile HF operation. The PTT tuner start function provides simple operation.
• Input power rating: 120 W



When using the AH-4, it must be connected to the [ANT1] connector.

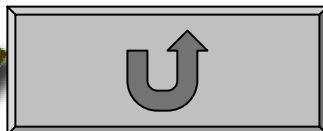


ACC Connectors

- Connectors used for Accessories

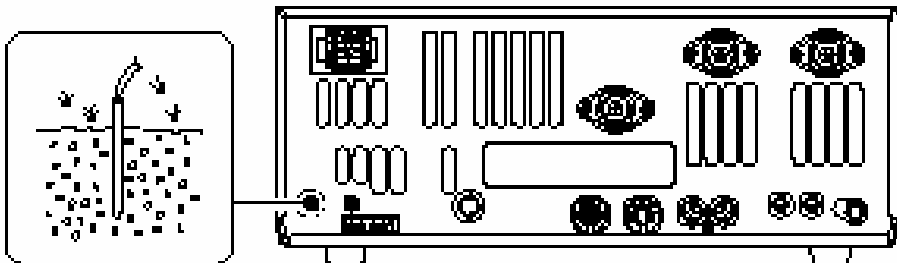
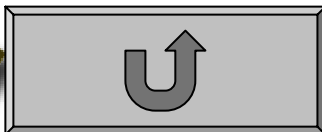
ACC (1)	PIN No.	NAME	DESCRIPTION	SPECIFICATIONS
 Rear panel view	1	RTTY	Controls RTTY keying	"High" level : More than 2.4 V "Low" level : Less than 0.6 V Output current : Less than 2 mA
	2	GND	Connects to ground.	Connected in parallel with ACC(2) pin 2.
	3	HSEND	Input/output pin. (HF/50 MHz only) Goes to ground when transmitting. When grounded, transmits.	Ground level : -0.5 V to 0.8 V Output current : Less than 20 mA Input current (Tx) : Less than 200 mA Connected in parallel with ACC(2) pin 3.
	4	MOD	Modulator input. Connects to a modulator.	Input impedance : 10 kΩ Input level : Approx. 100 mV rms
	5	AF	AF detector output. Fixed, regardless of [AF] position in default settings. (see notes below)	Output impedance : 4.7 kΩ Output level : 100–300 mV rms
	6	SQLS	Squelch output. Goes to ground when squelch opens.	SQL open : Less than 0.3 V/5 mA SQL closed : More than 6.0 V/100 μA
	7	13.8 V	13.8 V output when power is ON.	Output current : Max. 1 A Connected in parallel with ACC(2) pin 7.
	8	ALC	ALC voltage input.	Control voltage : -4 V to 0 V Input impedance : More than 10 kΩ Connected in parallel with ACC(2) pin 5.

ACC (2)	PIN No.	NAME	DESCRIPTION	SPECIFICATIONS
 Rear panel view	1	8 V	Regulated 8 V output.	Output voltage : 8 V ±0.3 V Output current : Less than 10 mA
	2	GND	Same as ACC(1) pin 2.	
	3	HSEND	Same as ACC(1) pin 3.	
	4	BAND	Band voltage output. (Varies with amateur band)	Output voltage : 0 to 8.0 V
	5	ALC	Same as ACC (1) pin 8.	
	6	VSEND	Input/output pin (144 MHz only) Goes to ground when transmitting. When grounded, transmits.	Ground level : -0.5 V to +0.8 V Output current : Less than 20 mA Input current (Tx) : Less than 200 mA
	7	13.8 V	Same as ACC(1) pin 7.	



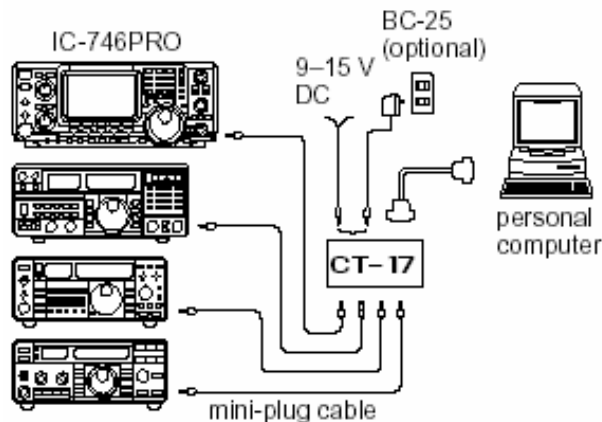
Ground Connectors

- To prevent electrical shock, television interference (TVI), broadcast interference (BCI) and other problems, ground the transceiver through the GROUND terminal on the rear panel.
- For best results, connect a heavy gauge wire or strap to a long earth-sunk copper rod. Make the distance between the [GND] terminal and ground as short as possible.
 - **WARNING: NEVER** connect the [GND] terminal to a gas or electric pipe, since the connection could cause an explosion or electric shock.



Remote Connector

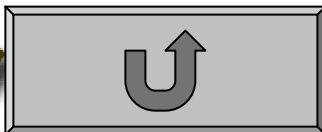
- The transceiver can be connected through an optional CT-17 CI-V LEVEL CONVERTER to a personal computer equipped with an RS-232C port. The Icom Communications Interface-V (CI-V) controls the following functions of the transceiver.
- Up to 4 Icom CI-V transceivers or transceivers can be connected to a personal computer equipped with an RS-232C port.



CT-17 CI-V LEVEL CONVERTER



For remote transceiver control using a personal computer. You can change frequencies, operating mode, memory channels, etc.



External Speaker

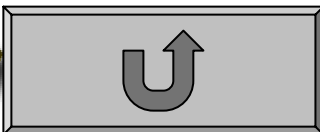
- Jack for an External speaker.
 - 2-conductor
 - 3.5 (d) mm
 - 8W
 - More than 2.0 W at 10% distortion with an 8Ω load

SP-21 EXTERNAL SPEAKER



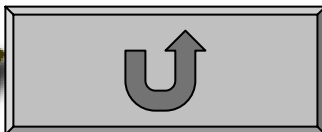
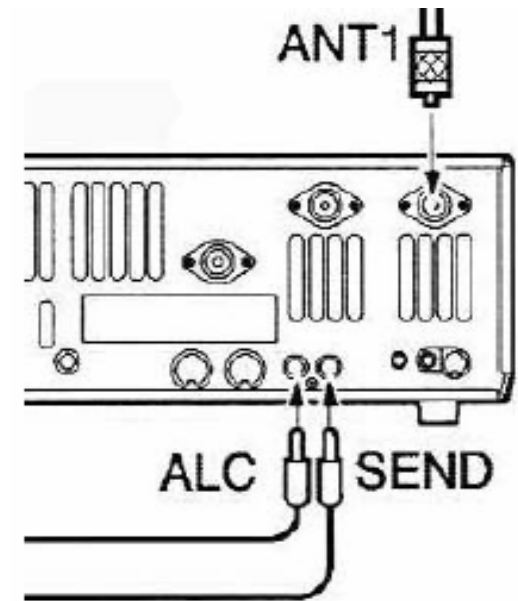
Designed for base station operation.

- Input impedance: 8Ω
- Max. input power: 5 W



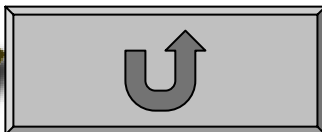
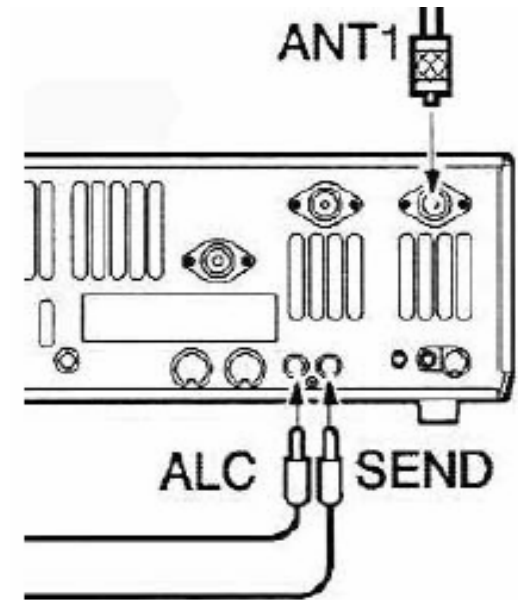
SEND Connector

- Goes to ground while transmitting to control external equipment such as a linear amplifier.
 - Max. control level: 16 V DC/0.5 A



ALC Connector

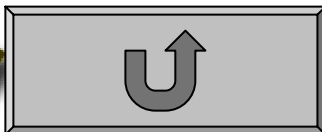
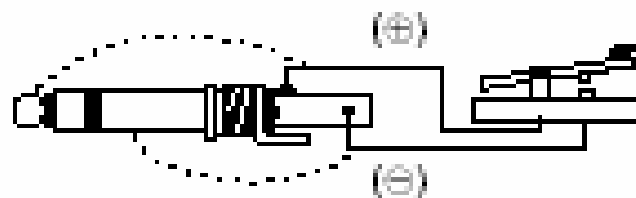
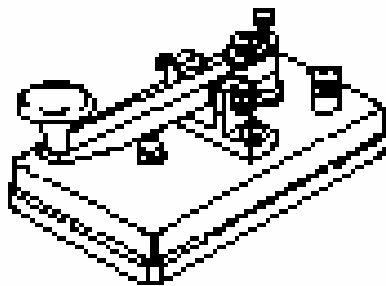
- Connects to the ALC output jack of a non-Icom linear amplifier.
 - **WARNING:** Set the transceiver output power and linear amplifier ALC output level referring to the linear amplifier instruction manual.
 - The ALC input level must be in the range 0 V to -4 V, and the transceiver does not accept positive voltage.



Key Jack Rear

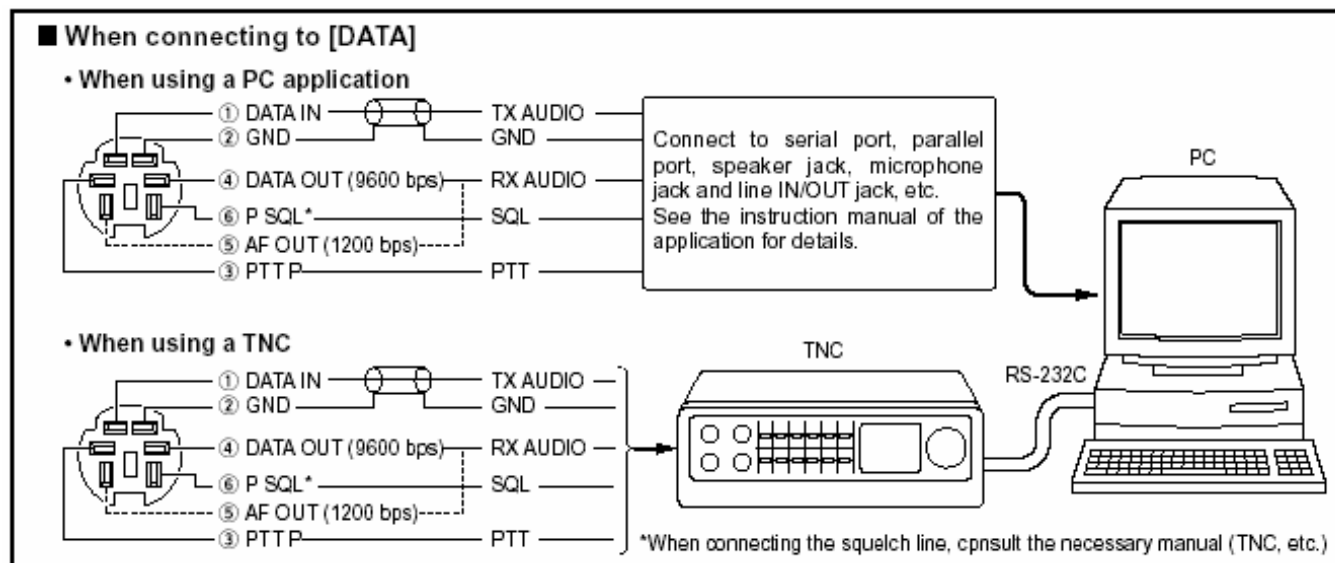
- Jack to be used for Keying via a Straight Key or Computer.

STRAIGHT KEY



Data Connector

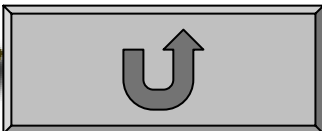
- Data connection for Packet operation.





TRANSMIT FREQUENCY CHECK

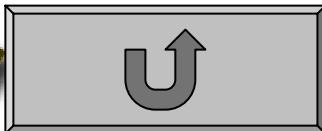
- Monitors the transmit frequency when pushed and held.
 - While pushing this switch, the transmit frequency can be changed with the tuning dial, keypad or memo pad.
 - When the split lock function is turned ON, pushing [XFC] cancels the dial lock function.





KEYPAD

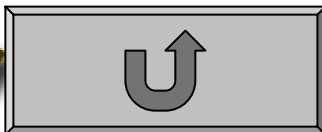
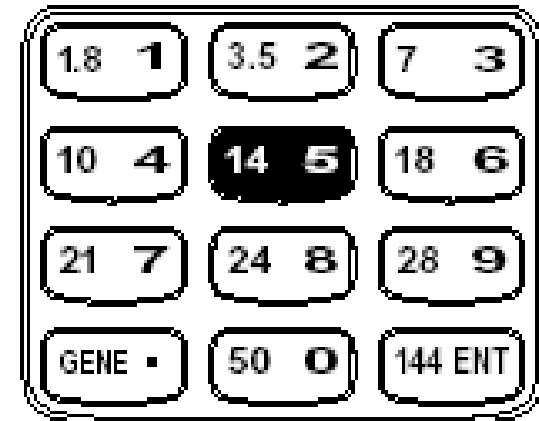
- Pushing a key selects the operating band.
 - [GENE] selects the general coverage band.
 - Pushing the same key 2 or 3 times calls up other stacked frequencies in the band.
 - ICOM's triple band stacking register memorizes 3 frequencies in each band.
 - After pushing [F-INP], enters a keyed frequency.
 - Pushing [144 ENT] is necessary at the end.
 - e.g. to enter 14.195 MHz, push [F-INP] [1] [4] [•] [1] [9] [5] [144 ENT].



Triple BSR Example

- Push [14 5], then select a frequency and an operating mode.
 - Frequency and operating mode are memorized in the first band stacking register.
- Push [14 5] again, then select another frequency and operating mode.
 - This frequency and operating mode are memorized in the second band stacking register.
- Push [14 5] again, then select another frequency and operating mode.
 - This frequency and operating mode are memorized in the third band stacking register.
- When a fourth frequency and operating mode are selected on a band, the first register is repeated.

[Example]: 14 MHz band



Triple Band Stacking Register

- The transceiver has a triple band stacking register.
 - This means that the last 3 operating frequencies and modes used on a particular band are automatically memorized.

[Example]: 14 MHz band

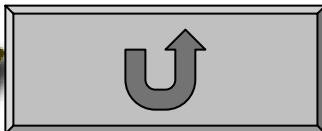
1.8 1	3.5 2	7 3
10 4	14 5	18 6
21 7	24 8	28 9
GENE ▪	50 0	144 ENT





Memory Pad Write

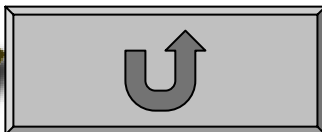
- Programs the selected readout frequency and operating mode into a memo pad.
 - The 5 most recent entries remain in memo pads.
 - The transmit frequency is programmed when pushed together with [XFC].
 - The memo pad capacity can be expanded from 5 to 10 in set mode for your convenience.





Memory Pad Read

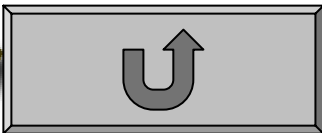
- Each push calls up a frequency and operating mode in a memo pad. The 5 (or 10) most recently programmed frequencies and operating modes can be recalled, starting from the most recent.
 - The memo pad capacity can be expanded from 5 to 10 in set mode for your convenience.





A/B

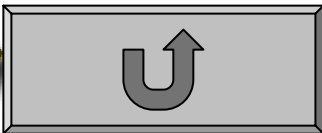
- Push to toggle between VFO A and VFO B.
 - Push for 1 sec. to equalize the frequency and operating mode of the two VFO's.





Split

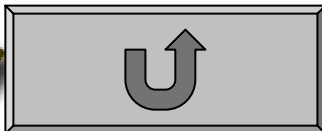
- Turns the split function ON and OFF when pushed.
- Turns the quick split function ON, when pushed for 1 sec.
 - The offset frequency is shifted from the displayed frequency.
 - The quick split function can be turned OFF using set mode.





Frequency Input

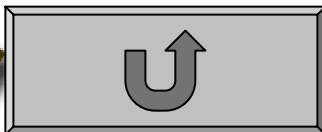
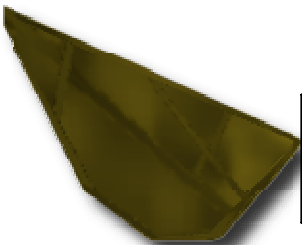
- Push to toggle keypad input between frequency and band.
 - The frequency input indicator lights during frequency input is selected for the keypad.





M-CH Knob

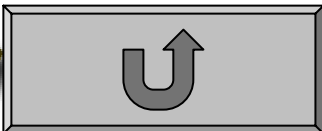
- Selects a memory channel.
 - Rotate clockwise to increase the memory channel; rotate counterclockwise to decrease the memory channel.





V/M

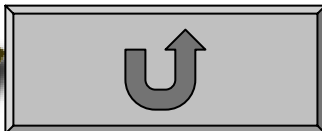
- Switches the selected readout operating mode between the VFO mode and memory mode when pushed.
 - Transfers the memory contents to VFO when pushed for 1 sec.





Memory Write

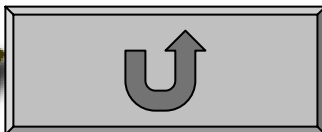
- Stores the selected readout frequency and operating mode into the displayed memory channel when pushed for 1 sec.
 - This function is available both in VFO and memory modes.



Memory Channels

- The transceiver has 101 memory channels (plus 1 call channel). The memory mode is very useful for quickly changing to often-used frequencies.
 - All 101 memory channels are tunable which means the programmed frequency can be tuned temporarily with the tuning dial, etc. in memory mode.

MEMORY CHANNEL	MEMORY CHANNEL NUMBER	CAPABILITY	TRANSFER TO VFO	OVER-WRITING	CLEAR
Regular memory channels	1-99	One frequency and one mode in each memory channel.	Yes	Yes	Yes
Scan edge memory channels	P1, P2	One frequency and one mode in each memory channel as scan edges for programmed scan.	Yes	Yes	No
Call channel	C	Same as regular.	No	Yes	No



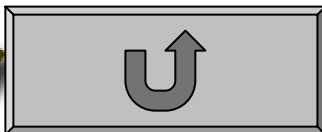
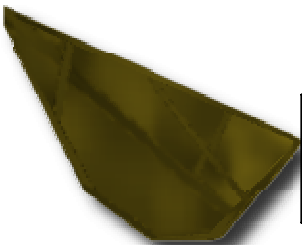
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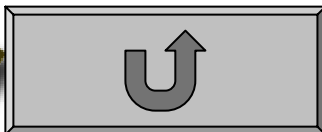
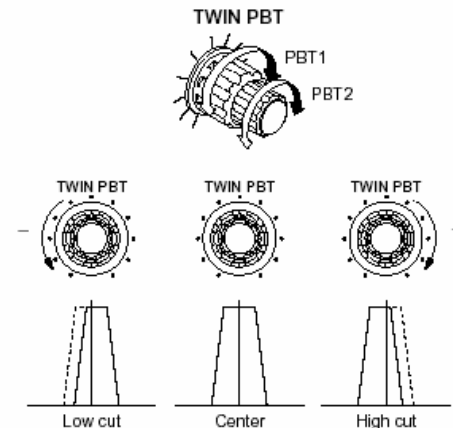
PBTC

- Clears the Twin PBT settings when pushed for 1 sec.



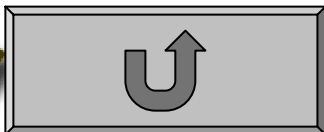
Twin PBT

- General PBT (Passband Tuning) function electronically narrows the IF passband width by shifting the IF frequency to slightly outside of the IF filter passband to reject interference. This transceiver uses the DSP circuit for the PBT function. Moving both [TWIN PBT] controls to the same position shifts the IF.
 - The LCD shows the passband width and shift frequency graphically.
 - Push [FILTER] for 1 sec. to enter the filter set mode.
 - Current passband width and shift frequency is displayed in the filter set mode screen.
 - To set the [TWIN PBT] controls to the center positions, push [PBTC] for 1 sec.
- Advanced Twin PBT Operations



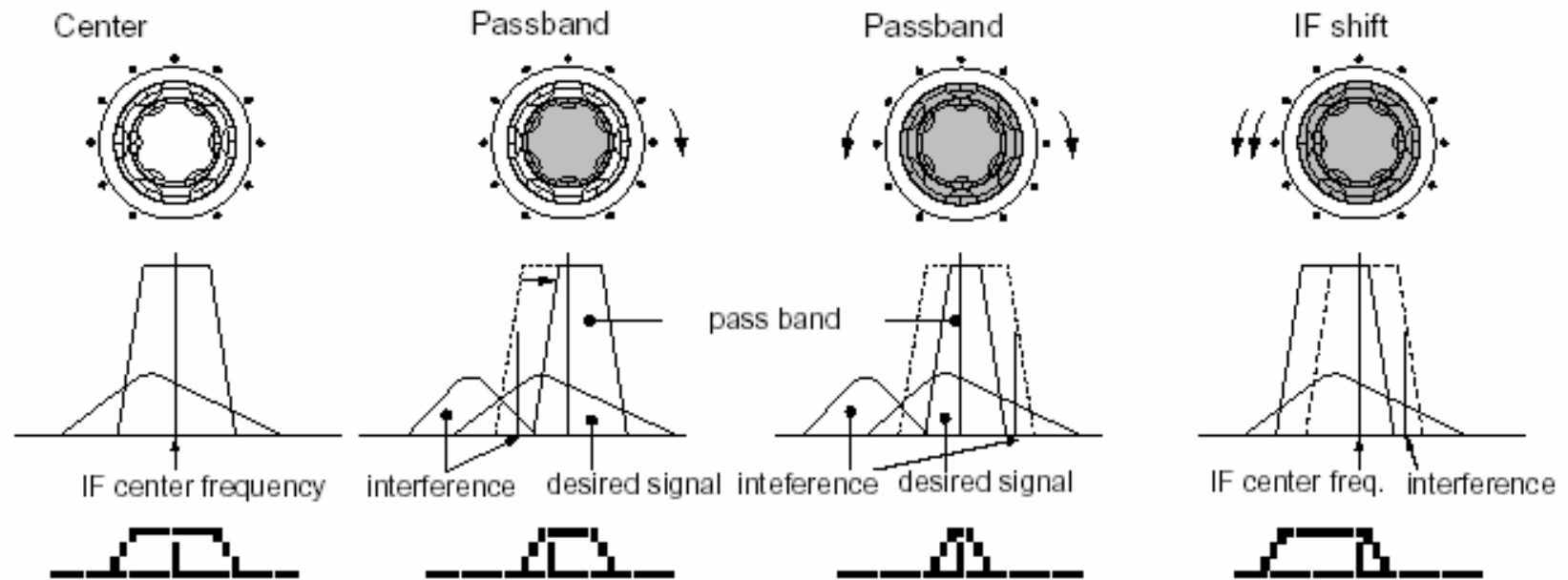
Advanced Twin PBT

- Passband width and shift frequency are displayed in the multi-function switch indicator.
- [TWIN PBT] should normally be set to the center positions or when the (PBT setting is cleared) best when there is no interference.
 - When PBT is used, the audio tone may be changed.
 - Variable range is set to half of the IF filter passband width. 25 Hz steps and 50 Hz steps are available.
 - These controls function as an IF shift control while in AM mode and when the RTTY filter is turned ON. Only the inner control may function in this case.
- Graphics of these controls function as an IF shift control.



Advanced Twin PBT Graphs

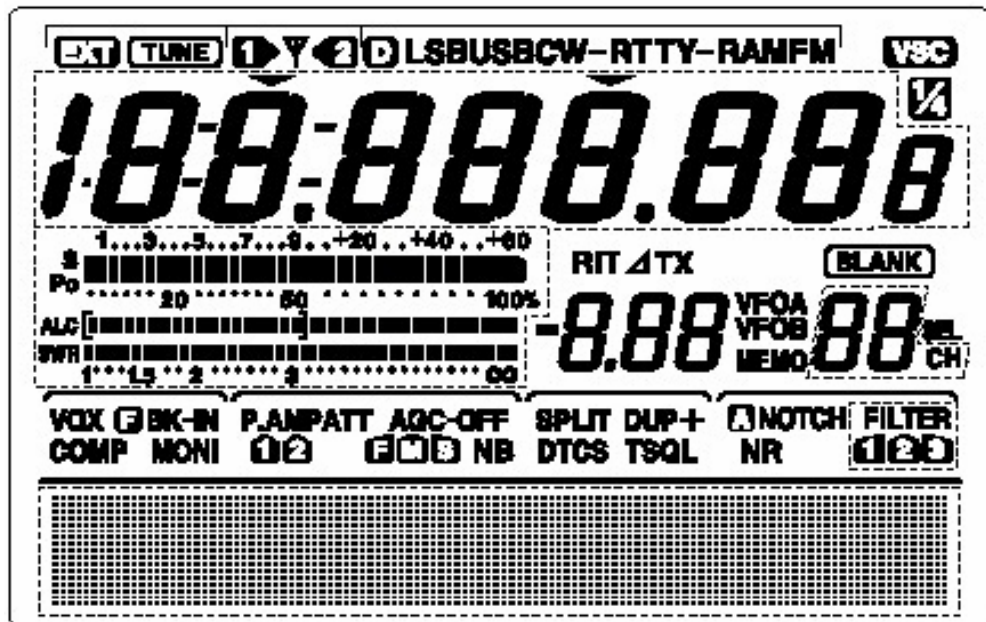
PBT OPERATION EXAMPLE



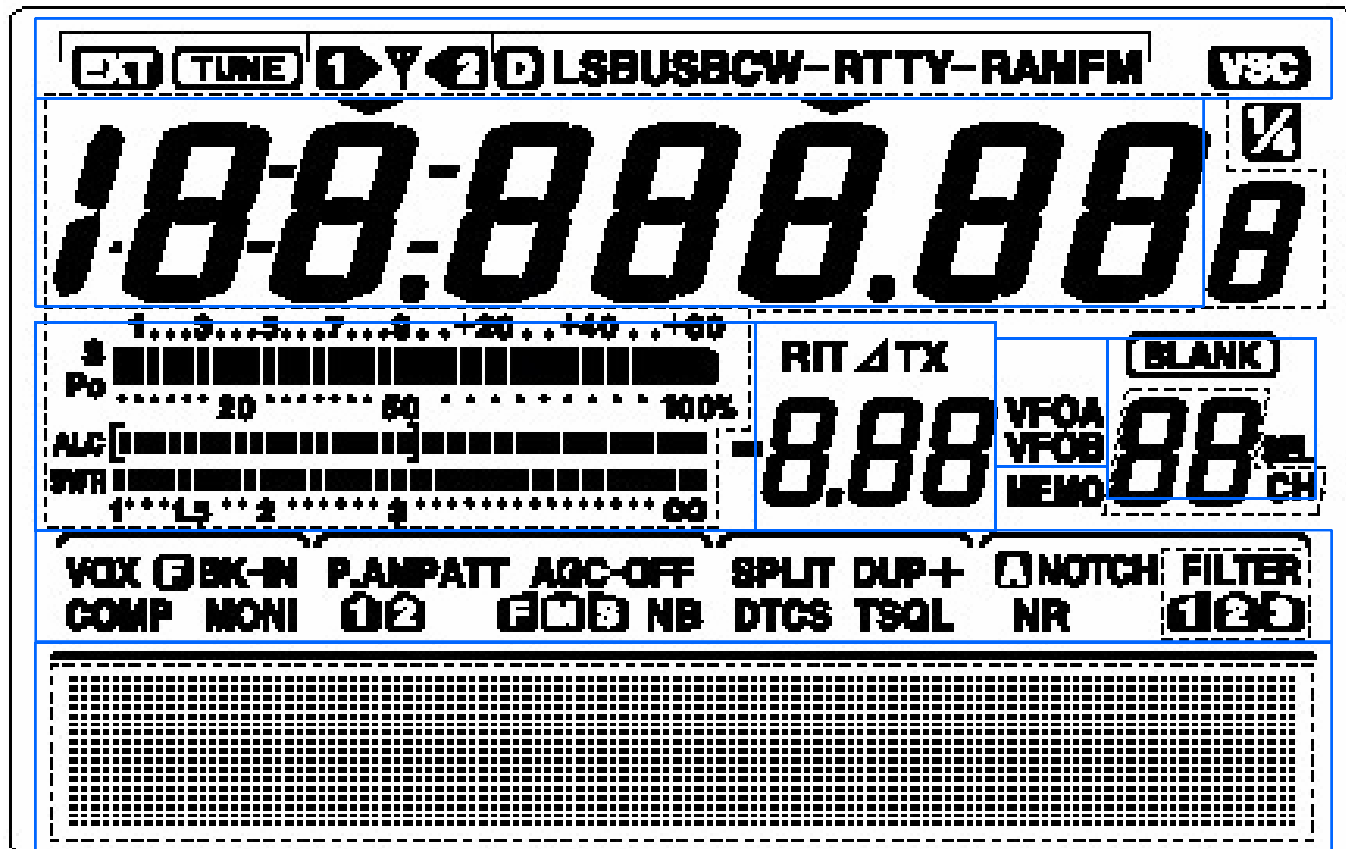
LCD

- Shows the operating frequency, function switch menus, band scope screen, memory name screen, set mode settings, etc.

[Click on display for more details](#)



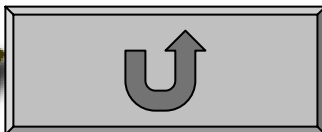
LCD Breakdown



Frequency Readout

- Show the operating frequency.
 - Showing MHz, KHz, and depending on the Quick Tuning Step Setting, 1 Hz resolution.

100.000.00



RIT Readout

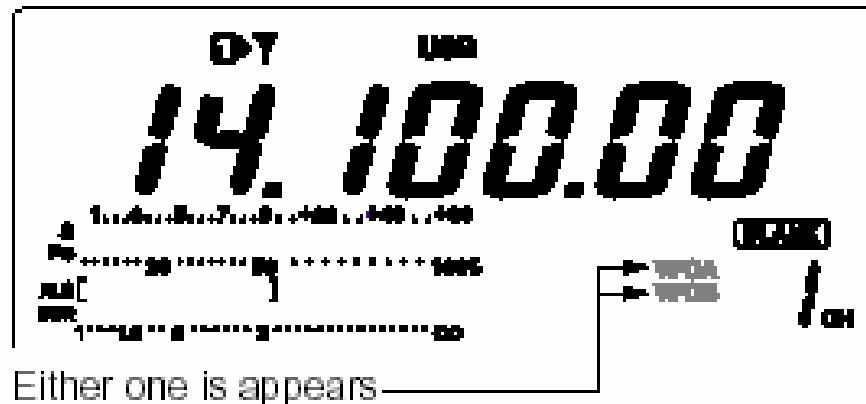
- Shows the RIT or Δ TX frequency offset.

RIT Δ TX
8.88



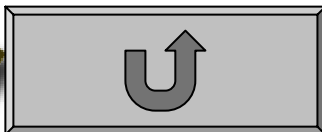
VFO Readout

- Indicates whether VFO A or VFO B is selected.



Dual VFO

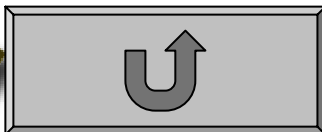
- The transceiver has 2 VFOs and are called VFO A and VFO B. You can use the desired VFO to call up a frequency and operating mode for your operation.
- **Selecting the VFO A/B**
 - Push [A/B] to switch between the VFO A and VFO B.
 - “VFO A” or “VFO B” appears.
- **Use two VFOs as a quick memory**
 - When you find a new station, but you wish to continue searching, the Two VFO system can be used for quick memory storage.
- **VFO equalization**
 - Push [A/B] for 1 sec. to equalize the undisplayed VFO condition to the displayed VFO.
 - 3 beeps sound when the VFO equalization is completed.



Memory Channel Readout

- Appears when the selected memory channel is set as a select memory channel.
 - Also indicates when the memory channel is blank.

BLANK
MEMO 88 CH



RIT Readout

- Shows the RIT or Δ TX frequency offset.

RIT Δ TX
8.88



Antenna Readout

- Display outlines the antenna being used, Mode, and Voice Scanning Conditions.

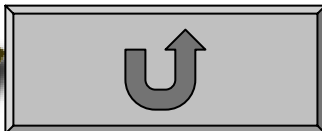
EXT TUNE 1 Y 2 D LSB USB CW-RTTY-RANFM VSC





Tune Indicators

- “TUNE” appears when the antenna tuner is ON;
- “TUNE” appears and flashes during manual tuning.
 - “EXT” appears when the optional AH-4 external antenna tuner is connected to [ANT1].

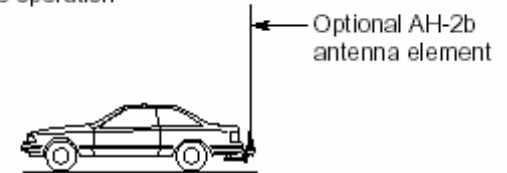


AH-4 Antenna Tuner Outline

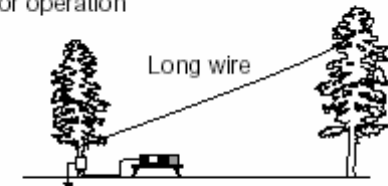
- The AH-4 matches the IC-746PRO to a long wire antenna more than 7 m/23 ft long (3.5 MHz and above).
 - **NEVER** operate the AH-4 without an antenna wire. The tuner and transceiver will be damaged.
 - **NEVER** operate the AH-4 when it is not grounded.
 - Transmitting before tuning may damage the transceiver.
- Note that the AH-4 cannot tune when using a 1.2 l long wire or multiple of the operating frequency.
- When connecting the AH-4, the antenna connection assignments are [ANT2] for the internal tuner and [ANT1] for the AH-4. The antenna indicator in LCD displays “EXT” when the AH-4 is connected and selected.

AH-4 setting example:

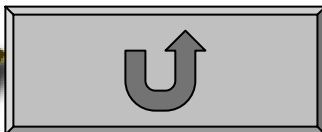
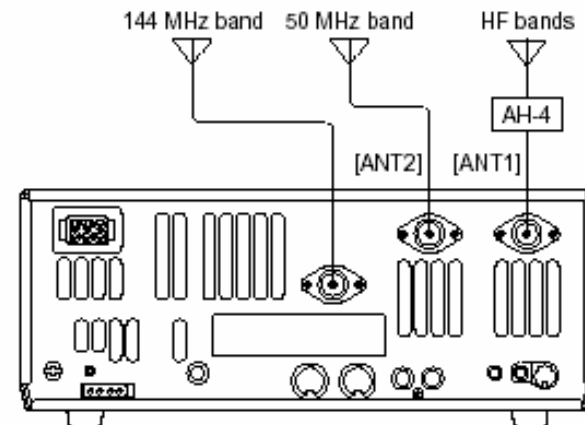
For mobile operation



For outdoor operation



WARNING: HIGH VOLTAGE!
NEVER touch the antenna element while tuning or transmitting.

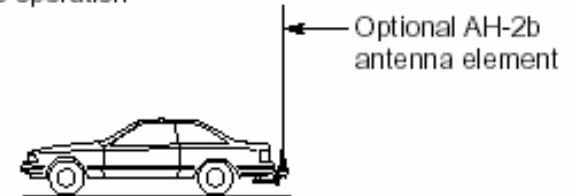


AH-4 Antenna Tuner Outline

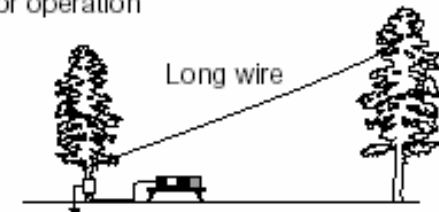
- The AH-4 matches the IC-746PRO to a long wire antenna more than 7 m/23 ft long (3.5 MHz and above).
 - **NEVER** operate the AH-4 without an antenna wire. The tuner and transceiver will be damaged.
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- Note that the AH-4 cannot tune when using a 1.2 **I** long wire or multiple of the operating frequency.
- When connecting the AH-4, the antenna connector assignments are [ANT2] for the internal tuner and [ANT1] for the AH-4. The antenna indicator in the LCD displays “EXT” when the AH-4 is connected and selected.

AH-4 setting example:

For mobile operation

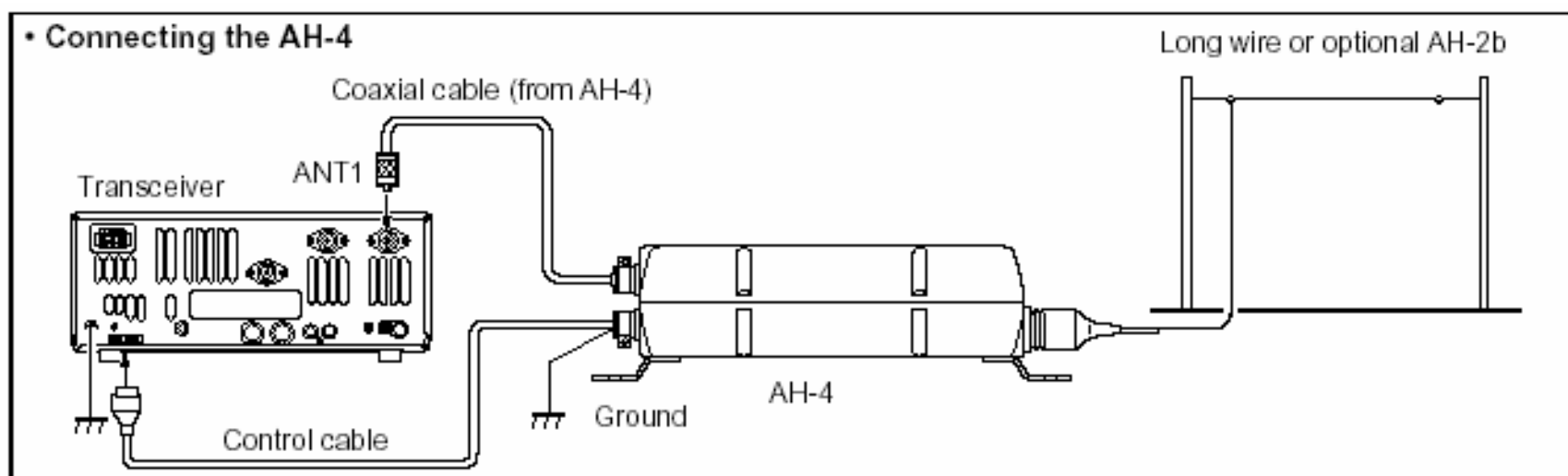


For outdoor operation



⚠ WARNING: HIGH VOLTAGE!
NEVER touch the antenna element while tuning or transmitting.

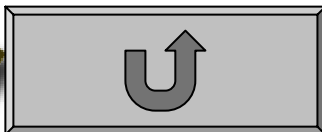
AH-4 Antenna Tuner Installation





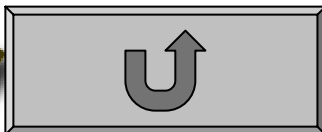
Antenna Outputs Indicator

- Indicates which antenna connector is use for HF/50 MHz.
- The IC-746PRO has 2 antenna connectors for the HF/50 MHz bands, [ANT1] and [ANT2], and 1 antenna connector for the 144 MHz band; a total of 3 antenna connectors.
 - Antenna Selections:
- For each operating band the IC-746PRO covers, there is a band memory which can memorize a selected antenna. When you change the operating frequency beyond a band, the previously used antenna is automatically selected (see below) for the new band. This function is convenient when you use 2 antennas for HF and 50 MHz bands operation.



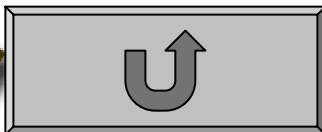
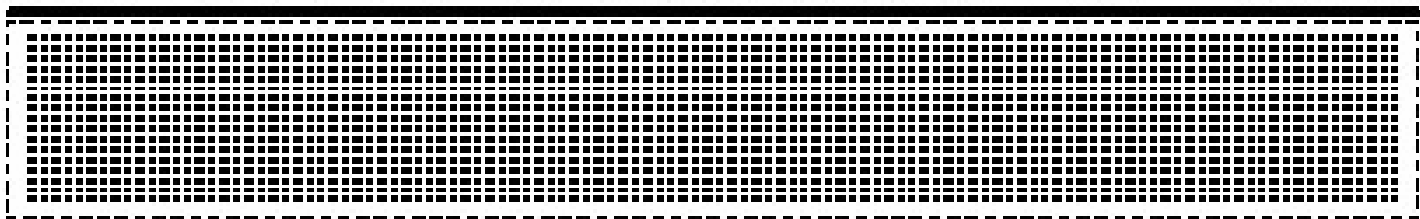
Mode of Operation

- Shows the selected operating mode.
- To select a mode of operation, push the desired mode switch momentarily. Push the switch again to toggle between USB and LSB, CW/CW-R and RTTY/RTTYR, AM and FM, if necessary.
 - Push the switch for 1 sec. to toggle between CW and CW-R, RTTY and RTTY-R, or to select data mode, if necessary.
 - “D” appears when SSB data, AM data or FM data mode is selected.



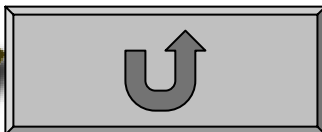
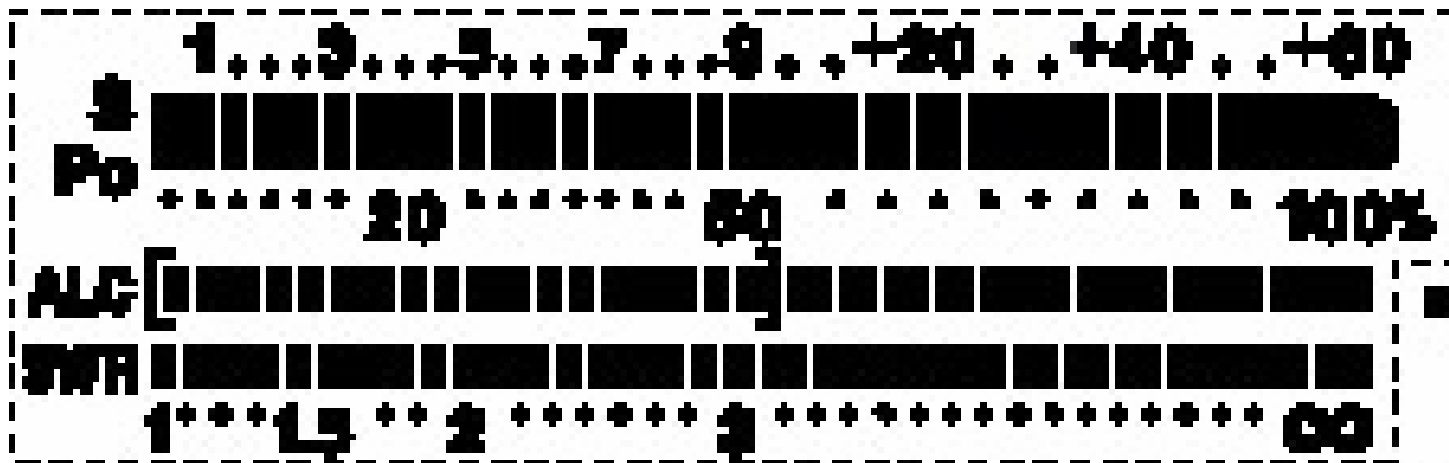
Multi Function Display

- Indicates the functions assigned to the multi-function switches ([F1]–[F5]).
 - Toggles between menu 1 (M1) and menu 2 (M2).



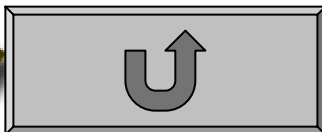
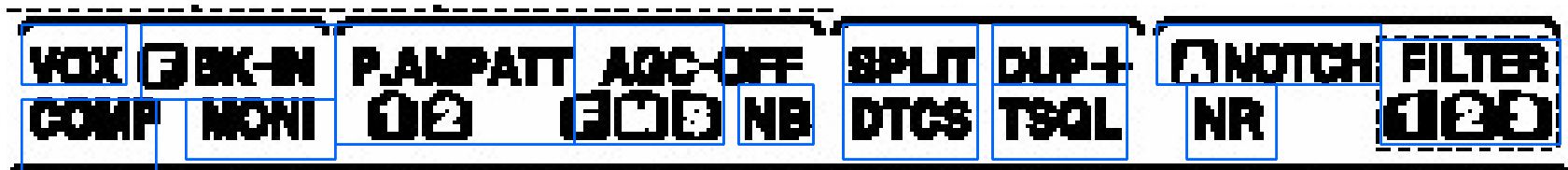
Multi Function Meter Indicator

- Shows receiving signal strength, etc. during receive.
 - Shows transmit output power, ALC and SWR during transmit.



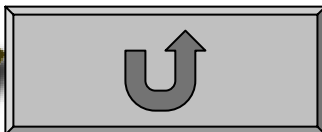
Common Functions

- Shows the status of commonly used functions.



Call

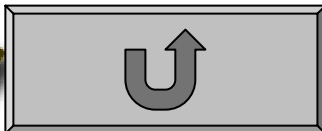
- Toggles between the call channel and normal operation when pushed momentarily.
- It's convenient to program a most-often-used frequency into the call channel for quick recall. As with memory channels, the call channel can also hold split frequencies.
 - By default 145.00000 MHz/FM is programmed into the call channel.
 - **IMPORTANT!:** When the call channel is selected with the [CALL] switch, the frequency CANNOT be changed using the tuning dial, band keys or keypad input. However, when the call channel is selected using [M-CH] in memory mode, the frequency CAN be changed.





Tuning Knob

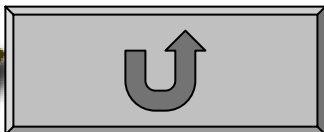
- The transceiver has several tuning methods for convenient frequency tuning.
- When rotating the tuning dial rapidly, the tuning step automatically changes several times as selected.
- The operating frequency can be changed in kHz steps (0.1, 1, 5, 9, 10, 12.5, 20 or 25 kHz selectable) for quick tuning.
- The minimum tuning step of 1 Hz can be used for fine tuning.
 - If the dial lock function is activated, the lock indicator lights, and the tuning dial does not function. In this case, push [LOCK/SPCH] to deactivate the lock function.





Auto Tuning Steps

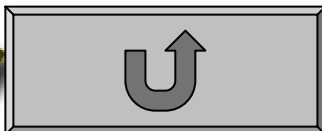
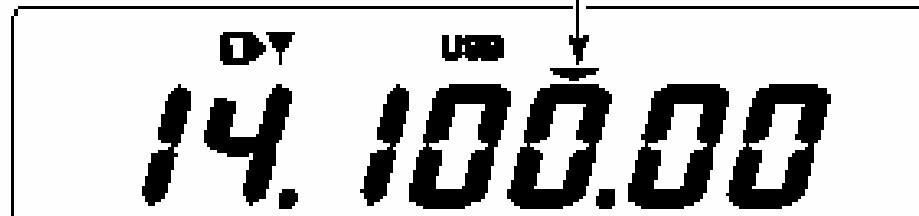
- This item sets the auto tuning step function. When rotating the tuning dial rapidly, the tuning step automatically changes several times as selected.
 - There are 2 type of auto tuning steps: HIGH (Fastest) and LOW (Faster).
 - HIGH : Auto tuning step is turned ON. Approx. 5 times fastest tuning step during rapid rotation (default)
 - LOW : Auto tuning step is turned ON. Approx. 2 times faster tuning step during rapid rotation
 - OFF : Auto tuning step is turned OFF.



Tuning Steps

- Turns the quick tuning step ON and OFF.
 - While the quick tuning indicator is displayed, the frequency can be changed in programmed kHz steps. •0.1, 1, 5, 9, 10, 12.5, 20 and 25 kHz quick tuning steps are available.
 - While the quick tuning step is OFF, turns the 1 Hz step ON and OFF when pushed for 1 sec.
 - 1 Hz indication appears in and the frequency can be changed in 1 Hz steps.
 - While the quick tuning step is ON, enters the quick tuning step set mode when pushed for 1 sec.

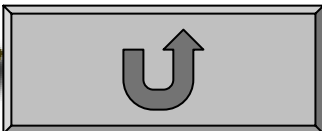
Quick tuning indicator





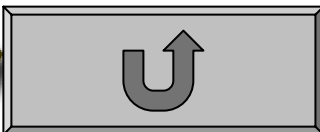
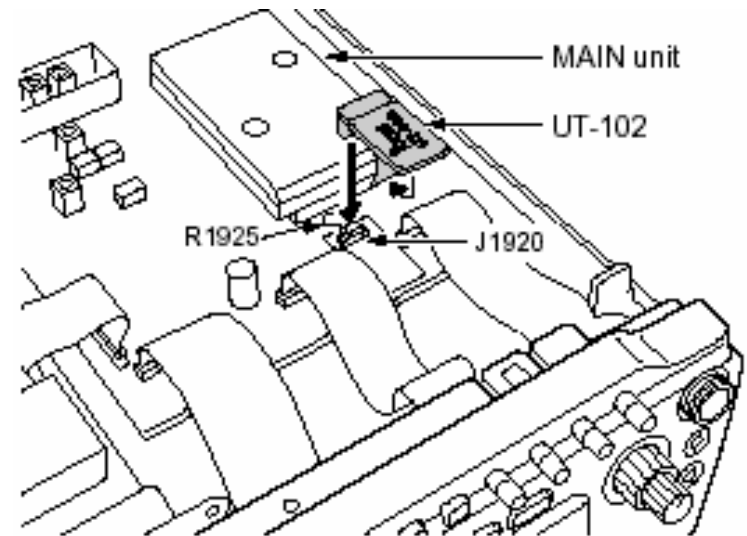
Lock

- Push momentarily to toggle the dial lock function ON and OFF.
- Pushing for 1 sec. announces the selected readout frequency and S-meter indication when an optional UT-102 is installed.



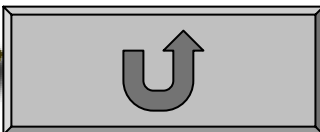
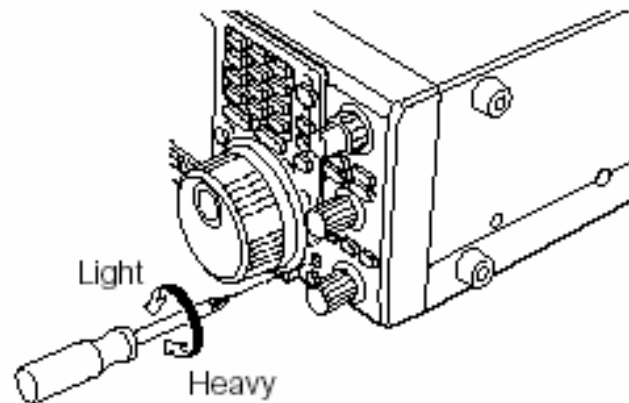
UT-102

- The UT-102 announces the accessed readout's frequency, mode, etc. (S-meter level can also be announced in a clear, electronically-generated voice, in English (or Japanese).
 - Push [LOCK/SPCH] for 1 sec. to announce the frequency, etc.



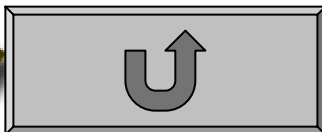
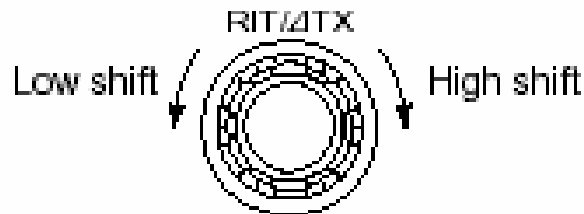
Knob Tension

- The tension of the tuning dial may be adjusted to suit your preference.
 - The brake adjustment screw is located on the right side of the tuning dial.
 - Turn the brake adjustment screw clockwise or counterclockwise to obtain a comfortable tension level while turning the dial continuously and evenly in one direction.



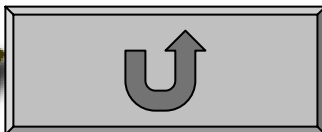
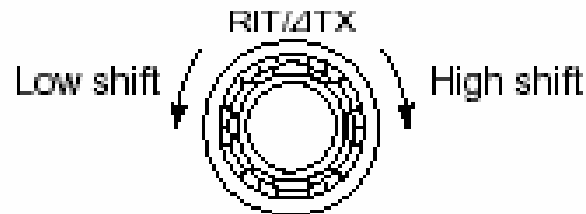
RIT Knob

- Shifts the receive frequency without changing the transmit frequency while the RIT function is ON.
 - Rotate the control clockwise to increase the frequency, or rotate the control counterclockwise to decrease the frequency.
 - The shift frequency range is ± 9.99 kHz in 10 Hz steps (or ± 9.999 kHz in 1 Hz steps).



Δ TX Knob

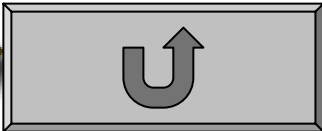
- Shifts the transmit frequency without changing the receive frequency while the Δ TX function is ON.
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RIT

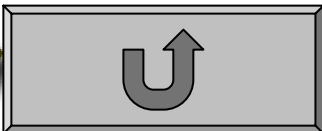
- The RIT (Receiver Incremental Tuning) shifts the receive frequency without shifting the transmit frequency.
- This is useful for fine tuning stations calling you on an off-frequency or when you prefer to listen to slightly different sounding voice characteristics, etc.





ΔTX

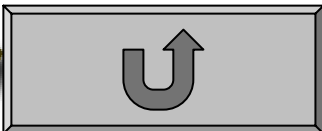
- The ΔTX shifts the transmit frequency without shifting the receive frequency. This is useful for simple split frequency operation in CW, etc.





CLEAR

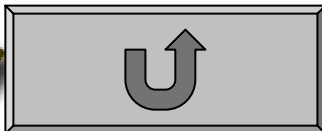
- User selectable on how to clear the RIT/ Δ TX shift frequency.
 - Quick RIT Clear this item selects the RIT/ Δ TX frequency clearing.
 - ON : Clears the RIT/ Δ TX frequency when [CLEAR] is pushed momentarily.
 - OFF : Clears the RIT/ Δ TX frequency when [CLEAR] is pushed for 1 sec. (default)





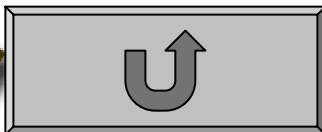
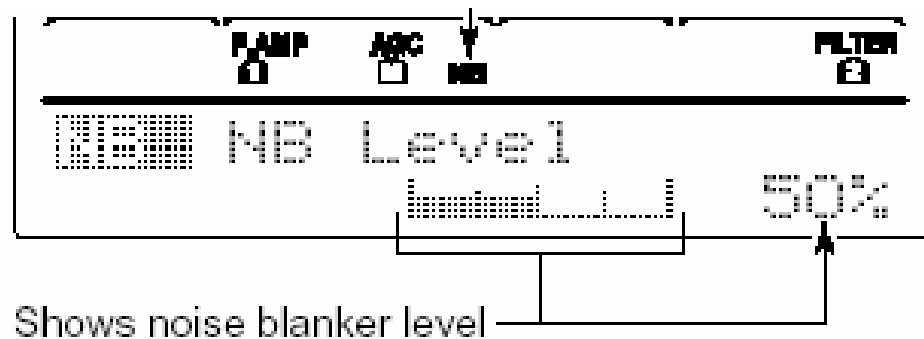
PREAMP/ATTENUATOR

- Push momentarily to toggle between preamp-1 and preamp-2.
 - “P.AMP1” activates 10 dB preamp for HF all bands.
 - “P.AMP2” activates 16 dB high-gain preamp for 24 MHz band and above.
- Push for 1 sec. to toggle the attenuator function ON and OFF.
 - ***What is the preamp?***
 - The preamp amplifies received signals in the front end circuit to improve the S/N ratio and sensitivity. Select “P.AMP1” or “P.AMP2” when receiving weak signals.
 - ***What is the attenuator?***
 - The attenuator prevents a desired signal from distorting when very strong signals are near the desired frequency, or when very strong electric fields, such as from a broadcasting station, are near your location.



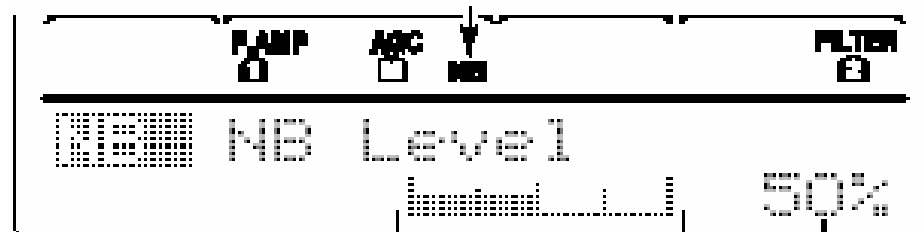
Noise Blanker

- Switches the noise blanker ON and OFF when pushed. The noise blanker reduces pulse-type noise such as that generated by automobile ignition systems. This function cannot be used for FM, or non-pulse-type noise.
 - “NB” appears while the noise blanker is activated.
 - Enters the noise blanker level set mode when pushed for 1 sec.
- When using the noise blanker, received signals may be distorted if they are excessively strong.



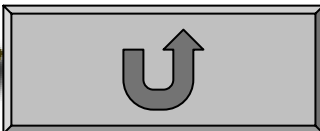
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VOX

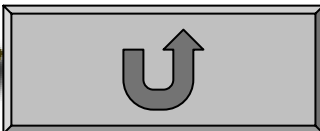
- Used for VOX and Break-In operations
- In SSB, AM and FM modes, push momentarily to turn the VOX function ON and OFF.
 - Push for 1 sec. to enter VOX set mode.
 - ***What is the VOX function?***
 - The VOX function (voice operated transmission) starts transmission without pushing the transmit switch or PTT switch when you speak into the microphone; then, automatically returns to receive when you stop speaking.





BREAK-IN

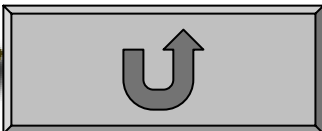
- In CW mode, push momentarily to turn the semi break-in, full break-in or break-in OFF.
 - Push for 1 sec. to enter Break-in set mode mode.
 - ***What is the break-in function?***
 - The break-in function switches transmit and receive with CW keying. Full break-in (QSK) can monitor the receive signal during keying.





BREAK-IN

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 - Push for 1 sec. to enter Break-in set mode mode.
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VOX

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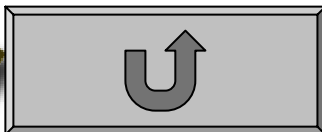
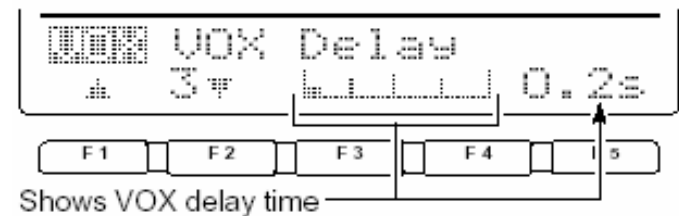
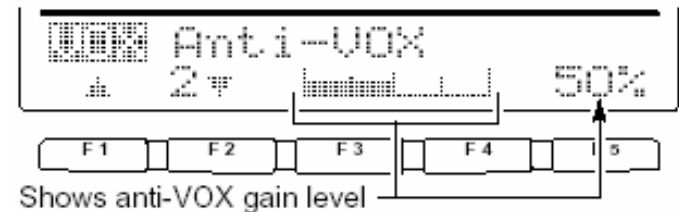
VOX/BREAK-IN Set Mode

- **VOX Set Mode**

- **VOX Gain** Sets the sensitivity of the VOX to keep the rig keyed.
- **Anti VOX** Sets the VOX so sounds in the shack do not trigger the VOX.
- **VOX Delay** Sets the interval before returning to receive.

- **BREAK-IN Set Mode**

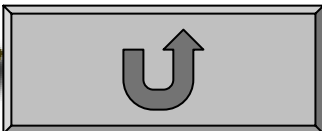
- Sets the break-in delay time (the delay from transmit to receive).
 - For both Full and Semi-Break-in setting.





MONITOR

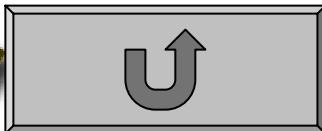
- The monitor function allows you to monitor your transmit IF signals in any mode through the speaker. Use this to check voice characteristics while adjusting SSB transmit tones.
 - The CW sidetone functions when [MONITOR] is OFF in CW mode.
 - Enters to monitor set mode when pushed for 1 sec.





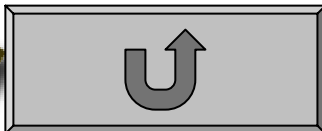
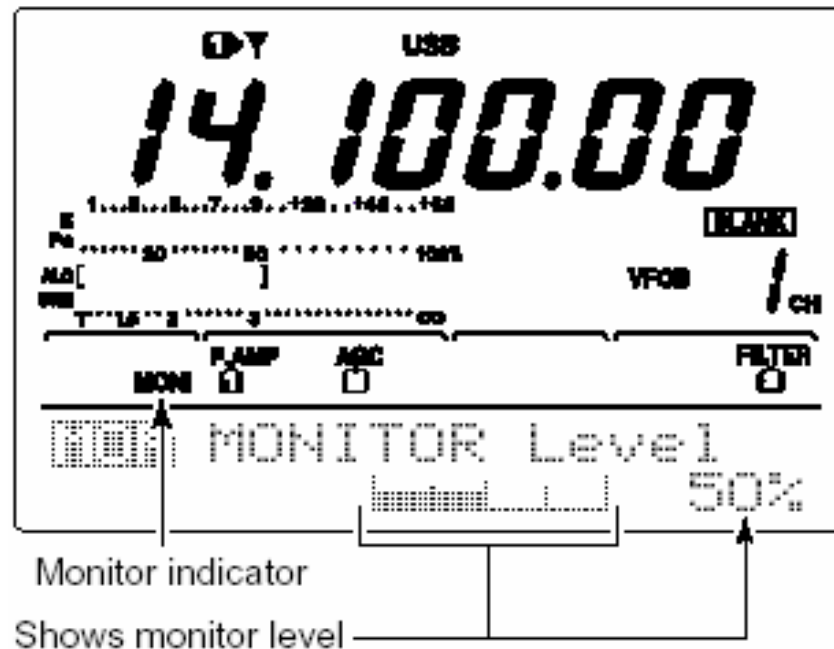
MONITOR

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MONITOR Set Mode

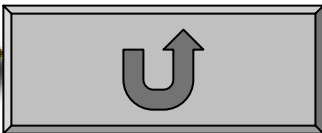
- Enters to monitor set mode when pushed for 1 sec.





TRANSMIT SWITCH

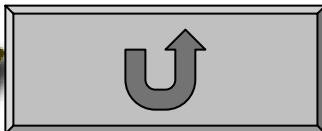
- Selects transmitting or receiving.
 - The [TX] indicator lights red while transmitting and the [RX] indicator lights green when the squelch is open.





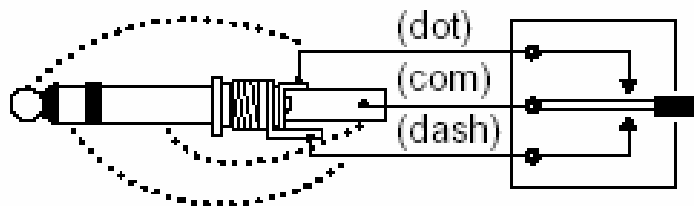
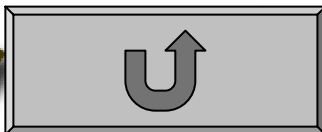
HEADPHONE JACK

- Accepts headphones
 - 1/4‘ mono type jack.
 - Output power: 5 mW with an 8 Ω load.
 - When headphones are connected, the internal speaker or connected external speaker does not function.



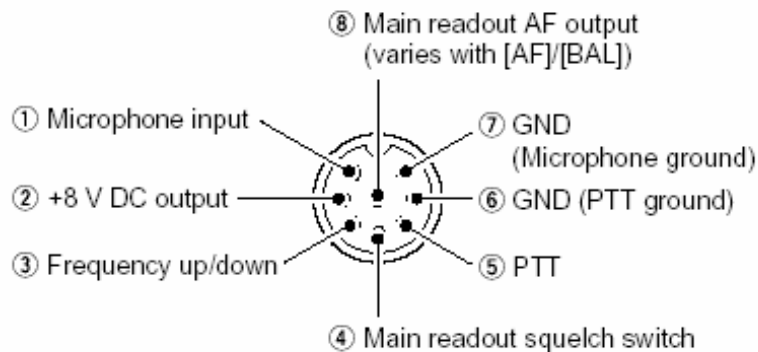
ELECTRONIC KEYER JACK

- Accepts a paddle to activate the internal electronic keyer for CW operation.
 - Selection between the internal electronic keyer, bug-key and straight key operation can be made in keyer set mode.
 - A straight key jack is separately available on the rear panel.
 - Keyer polarity (dot and dash) can be reversed in keyer set mode.
 - 4-channel memory keyer is available for your convenience.



MICROPHONE CONNECTOR

- Accepts the supplied or optional microphone.



[MIC] Pin No.	FUNCTION	DESCRIPTION
②	+8 V DC output	Max. 10 mA
③	Frequency up	Ground
	Frequency down	Ground through 470 Ω
④	Squelch open	"Low" level
	Squelch closed	"High" level

CAUTION: DO NOT short pin 2 to ground as this can damage the internal 8 V regulator.

NOTE: DC voltage is applied to pin 1 for microphone operation. Take care when using a non-Icom microphone.

SM-20 DESKTOP MICROPHONE

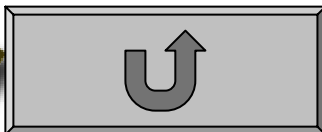


Unidirectional, electret microphone for base station operation. Includes [UP]/[DOWN] switches and a low cut function.



AF/RF/SQUELCH CONTROL

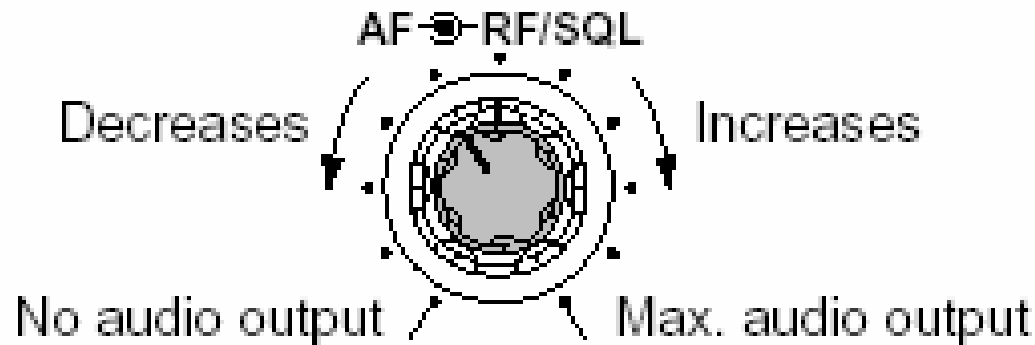
- Concentric control for the AF Control and RF/Squelch.



AF CONTROL

AF → RF/SQL

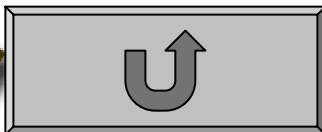
- Inner control varies the audio output level from the speaker or Headphone outputs.



RF/SQUELCH CONTROL



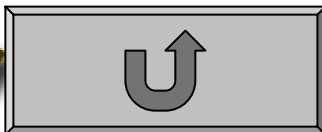
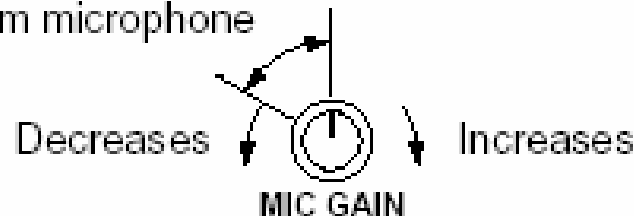
- Adjusts the RF gain and squelch threshold level.
 - The squelch removes noise output from the speaker (closed condition) when no signal is received.
- The squelch is particularly effective for FM. It is also available for other modes.
- 12 to 1 o'clock position is recommended for any setting of the [RF/SQL] control.
- The control can be set as 'Auto' (RF gain control in SSB, CW and RTTY; squelch control in AM and FM) or squelch control (RF gain is fixed at maximum) in set mode as follows.



MIC GAIN CONTROL

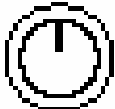
- Adjusts microphone input gain.
 - The transmit audio tone in SSB, AM and FM modes can be adjusted in tone control set mode.
 - ***How to set the microphone gain.***
 - Set the [MIC] control so that the ALC meter sometimes swings during normal voice transmission in SSB mode.

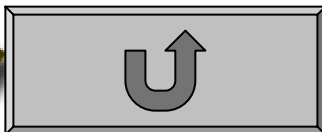
Recommended level for
an Icom microphone



RF POWER CONTROL

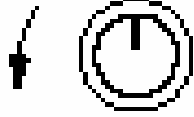
- Continuously varies the RF output power from minimum
 - (less than 5 W*) to maximum (100 W*).
 - * AM mode: less than 5 W to 40 W

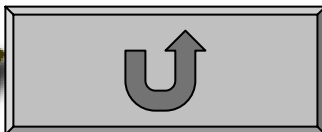
Decreases ↙  ↘ Increases
RF PWR



CW PITCH CONTROL

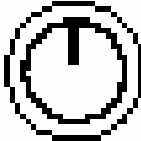
- Shifts the received CW audio pitch and monitored CW audio pitch without changing the operating frequency.
 - The pitch can be changed from 300 to 900 Hz in approx. 25 Hz steps.

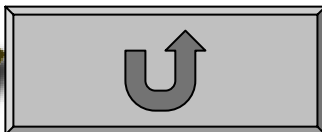
Decreases  Increases
CW PITCH



ELECTRONIC CW KEYER SPEED

- Adjusts the internal electronic CW keyer's speed.
 - 6 wpm (min.) to 60 wpm (max.) can be set.

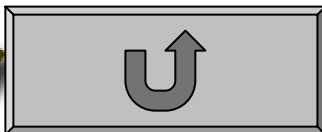
Slow ↗  ↘ Fast
KEY SPEED



AUTO/MANUAL NOTCH

A/NOTCH

- Toggles the notch function between Manual Notch and Automatic Notch when pushed.
 - *What is the notch function?*
 - The notch function eliminates unwanted CW or AM carrier tones while preserving the desired signal's audio response.
 - The filtering frequency is adjusted to effectively eliminate unwanted tones via the DSP circuit.

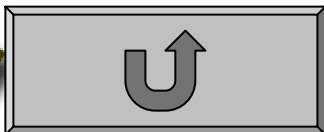




AUTO/MANUAL NOTCH

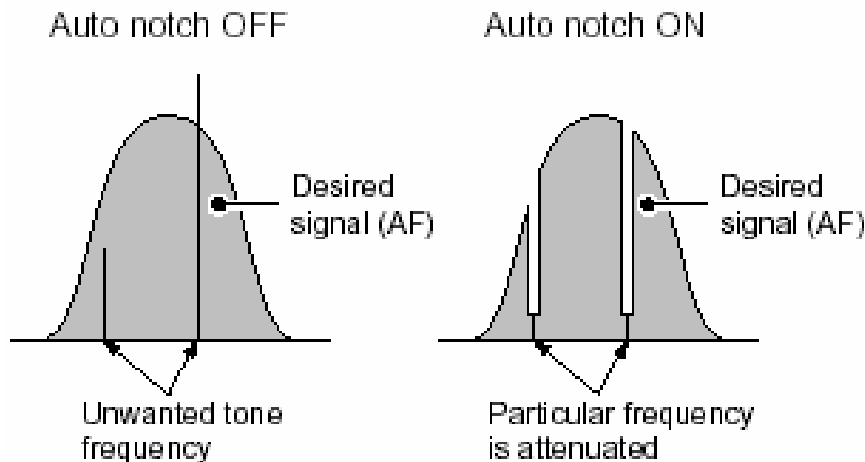
A/NOTCH

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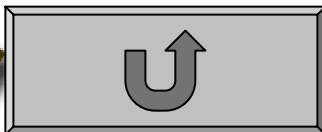
AUTO NOTCH

- The auto notch function automatically attenuates more than 3 beat tones, tuning signals, etc., even if they are moving.
 - “ANOTCH” appears when auto notch is in use.
 - “NOTCH” appears when manual notch is in use.



NR/NOTCH CONTROL

- Concentric control for the Noise Reduction and Manual Notch features.

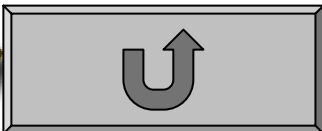




NOTCH

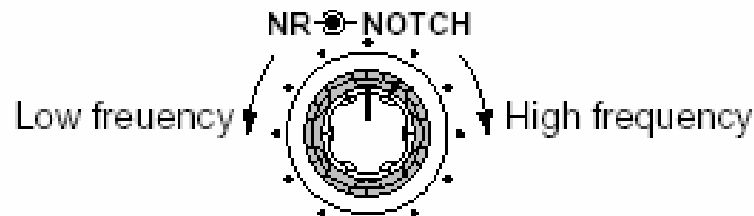
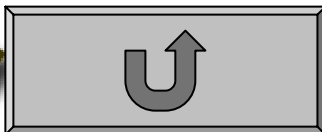
– *What is the notch function?*

- The notch function eliminates unwanted CW or AM carrier tones while preserving the desired signal's audio response.
- The filtering frequency is adjusted to effectively eliminate unwanted tones via the DSP circuit.



NOTCH CONTROL

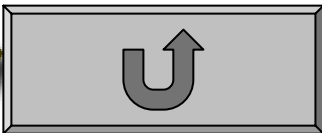
- Adjusts the notch filter frequency to remove a interference signal by varying the peak frequency of the manual notch filter to pick out a receive signal from interference while the manual notch function is ON.
 - Notch filter center frequency:
 - SSB : 0 Hz to 5100 Hz
 - CW : $-900 \text{ Hz} + \text{CW pitch freq.}$ to $4200 \text{ Hz} + \text{CW pitch freq.}$
 - AM : -5100 Hz to 5100 Hz





NOISE REDUCTION

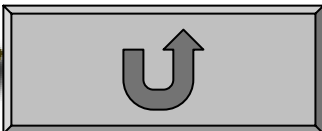
- Switches the noise reduction ON and OFF.
 - “NR” appears while the noise reduction is activated.
 - Used in conjunction with the Noise Reduction control.





NOISE REDUCTION

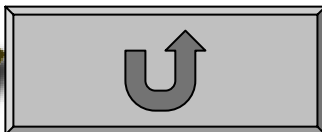
- Switches the noise reduction ON and OFF.
 - “NR” appears while the noise reduction is activated.
 - Used in conjunction with the Noise Reduction control.





NOISE REDUCTION LEVEL

- Adjusts the noise reduction level when the noise reduction is in use.
 - The noise reduction function reduces noise components and picks out desired signals which are buried in noise. The received signals are converted to digital signals and then the desired signals are separated from the noise.
 - Push the [NR] switch to turn the noise reduction ON. “NR” appears.
 - Rotate the [NR] control to adjust the noise reduction level.
 - Push the [NR] switch to turn the noise reduction OFF. “NR” disappears.
 - **NOTE:** Deep rotation of the [NR] control results in audio signal masking or distortion. Set the [NR] control for maximum readability.

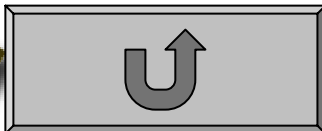




ANTENNA SELECTOR

- Switches the antenna connector selection between ANT1 and ANT2 when pushed.
 - The IC-746PRO has 2 antenna connectors for the HF/50 MHz bands, [ANT1] and [ANT2], and 1 antenna connector for the 144 MHz band; a total of 3 antenna connectors.
 - For each operating band the IC-746PRO covers, there is a band memory which can memorize a selected antenna. When you change the operating frequency beyond a band, the previously used antenna is automatically selected. Convenient when you use 2 antennas for HF and 50 MHz bands operation.

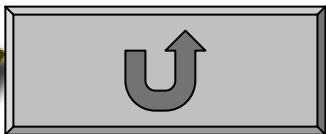
Antenna Suggestions





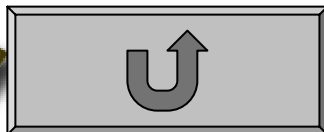
ANTENNA TUNER

- Momentary pushing the switch turns the antenna tuner ON and OFF.
- Pushing for 1 second manually starts the antenna tuner.
 - The ***internal automatic antenna tuner*** matches the transceiver to the connected antenna automatically. Once the tuner matches an antenna, the variable capacitor angles are memorized as a preset point for each frequency range (100 kHz steps). Therefore, when you change the frequency range, the variable capacitors are automatically preset to the memorized point.
- **CAUTION: NEVER** transmit with the tuner ON when no antenna is connected. This will damage the transceiver. Be careful of the antenna selection.



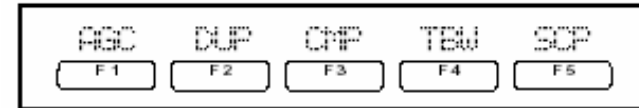
M1 Multi Function Buttons

- Push to select the function indicated in the LCD display above these switches.
 - Functions vary depending on the operating condition.
- Push to input a character for memory keyer programming or memory name.
- M2 Multi Function Buttons

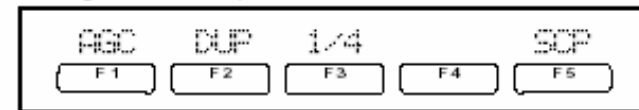


◆ M1 FUNCTIONS

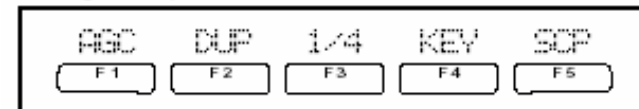
During SSB operation



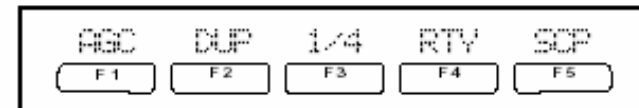
During SSB data operation



During CW operation



During RTTY operation



During AM operation

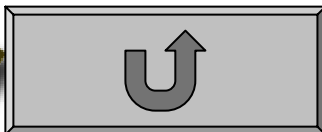


During FM operation



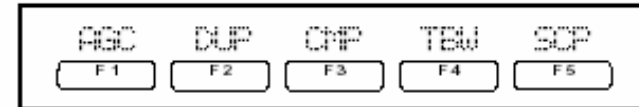
M1 Multi Function Buttons

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 - Functions vary depending on the operating condition.
- Push to input a character for memory keyer programming or memory name.
- M2 Multi Function Buttons

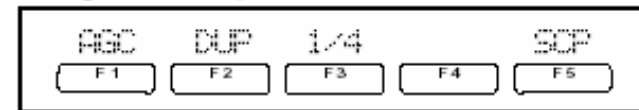


◆ M1 FUNCTIONS

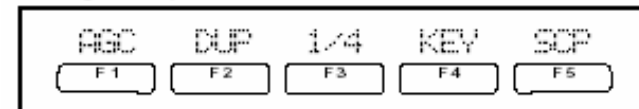
During SSB operation



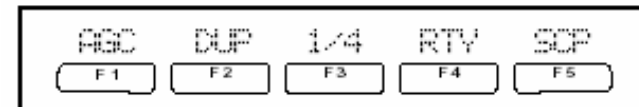
During SSB data operation



During CW operation



During RTTY operation



During AM operation

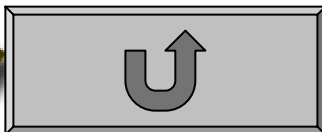
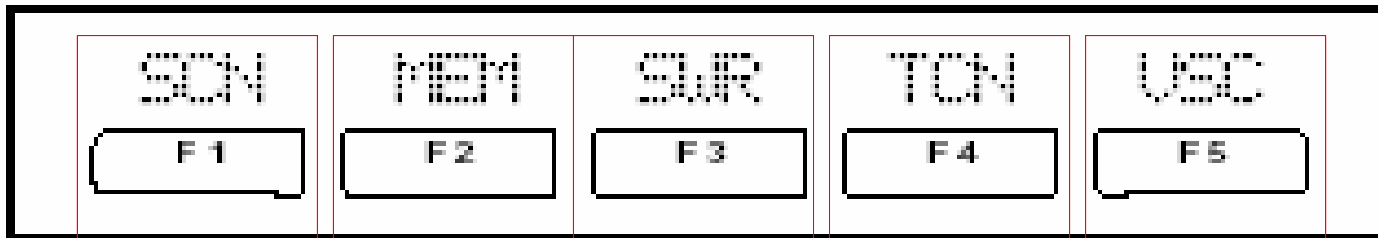


During FM operation



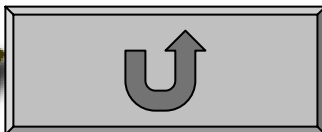
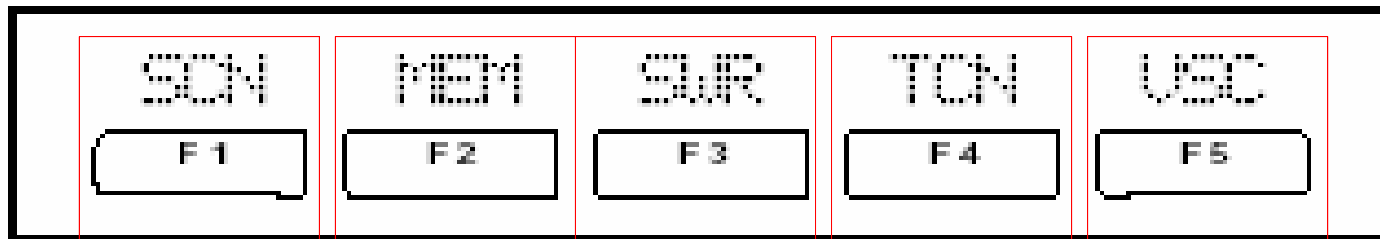
M2 Multi Function Buttons

- Secondary functions for the control of Scanning, Memory Channels, SWR Scope, and Tone Control.
 - **SCN** Selects the scan menu.
 - **MEM** Selects the memory name screen.
 - **SWR** Selects the SWR graph screen.
 - **TCN** Selects the audio tone set mode.
 - **VSC** Enables the VSC (Voice Scan Control) function



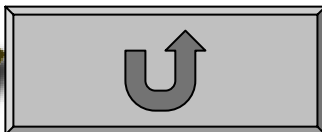
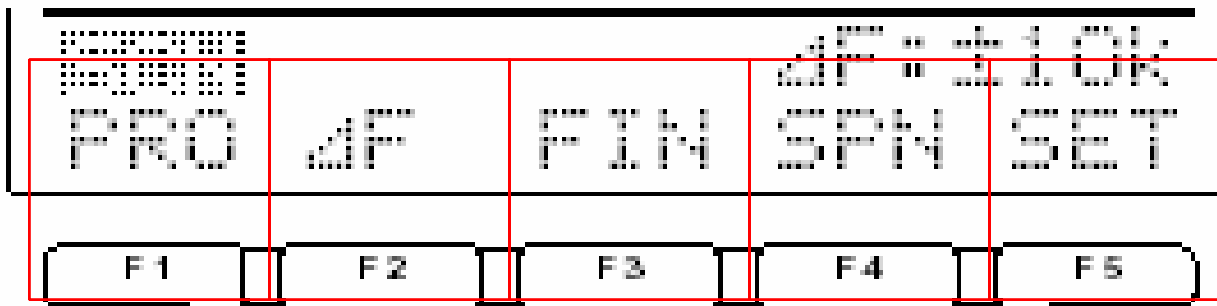
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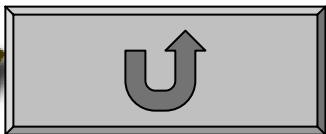
SCAN

- The selection of the type of scanning and the settings for control of the scanning function of the IC-746PRO is found under the SCN Menu.
 - Scan speed and the scan resume condition can be set using the scan set mode.



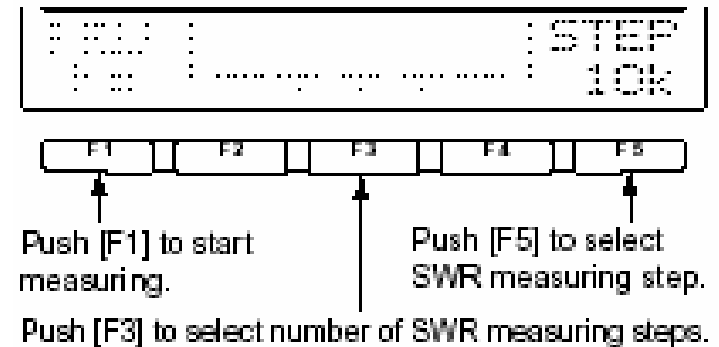
Memory Name

- All memory channels (including scan edges) can be tagged with alphanumeric names of up to 9 characters each. Like “DX spot” into memory channel 10.
 - Push [F1] several times to select the type of characters for input.
 - “**ABC**” inputs capital letters A to Z.
 - “**abc**” inputs small letters a to z.
 - “**etc**” is used to input other characters— ! # \$ % & ¥ ? ” ’ ` ^ + – . / . , : ; = < > () [] { } | _ – are available.
 - Use the keypad to directly input numerals, “0” to “9,” including a decimal point.

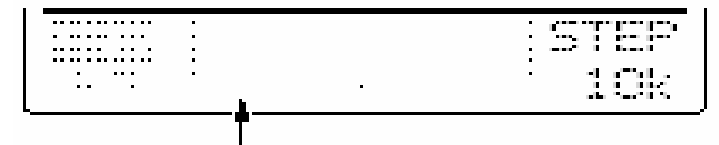


SWR Graph

- The IC-746PRO has a built-in circuit for measuring antenna SWR— no external equipment or special adjustments are necessary.
 - The IC-746PRO can measure SWR in 2 ways— spot measurement and plot measurement are available.
 - Spot Measurement gives the operator the SWR for the given operating frequency.
 - Plot measurement allows you to measure the SWR over an entire band.

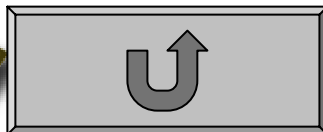
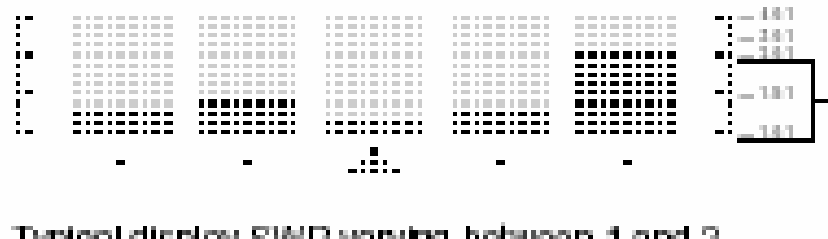


• Measuring (after pushing [F1])



Frequency marker appears and moves after measurement.

*When measurement point/s is/are set outside of the operable frequency band, frequency marker flashes.



Tone Control

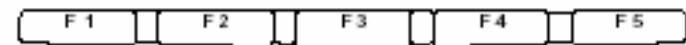
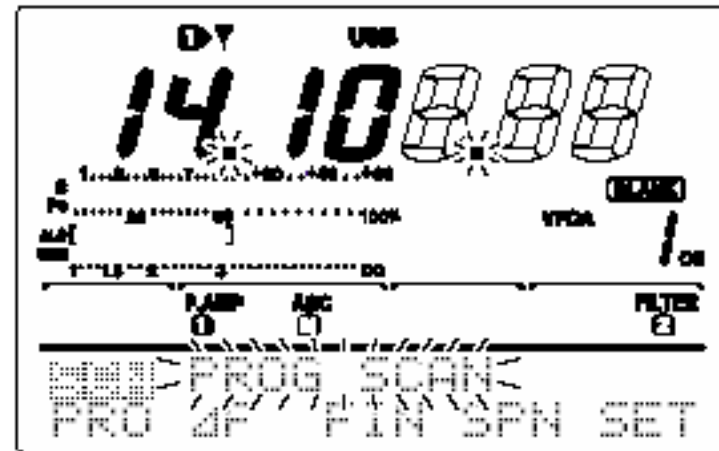
- Tone levels (bass and treble) for each transmit and receive audio can be set for each phone mode independently.
- **TX Bass** This item adjusts the bass level of the transmit audio tone from -5 dB to $+5$ dB in 1 dB steps.
- **TX Treble** This item adjusts the treble level of the transmit audio tone from -5 dB to $+5$ dB in 1 dB steps.
- **RX Bass** This item adjusts the bass level of the receive audio tone from -5 dB to $+5$ dB in 1 dB steps.
- **RX Treble** This item adjusts the treble level of the receive audio tone from -5 dB to $+5$ dB in 1 dB steps.

SSB	TX Bass	SSB
1	0	0



PROGRAM Scanning

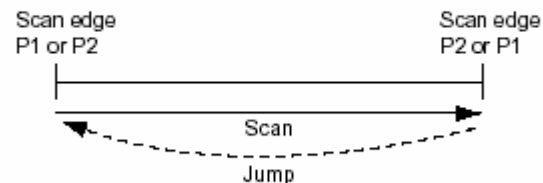
- When in VFO mode, programmed scan searches for signals between scan edge memory channels P1 and P2. The default frequencies for these memories are 0.500000 MHz and 29.99999 MHz, respectively.
 - If the same frequencies are programmed into the scan edge memory channel P1 and P2, programmed scan does not start.
- Memory Scan is selected from the menu when in Memory Mode.



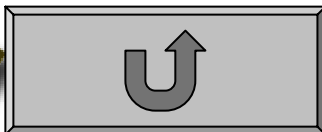
Push [F1] to start/cancel the scanning.

PROGRAMMED SCAN

Repeatedly scans between two scan edge frequencies (scan edge memory channels P1 and P2).

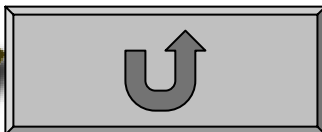
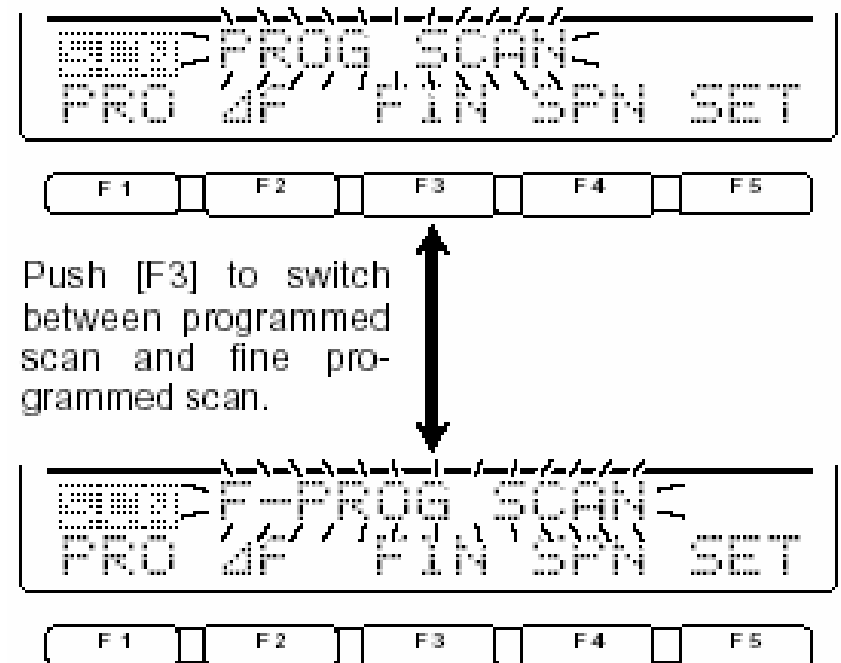


This scan operates in VFO mode.



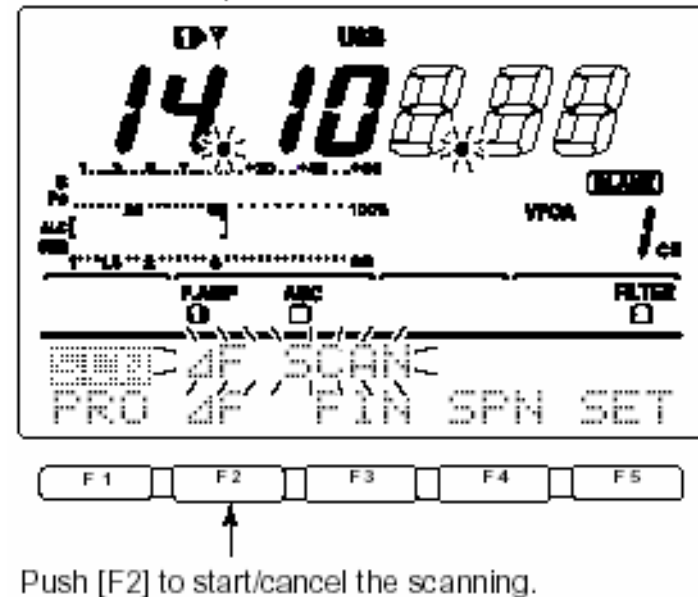
Fine Programmed Scan

- Similar to a programmed scan, except when a signal is received. Temporarily the scan continues as the tuning step set to 10 Hz.



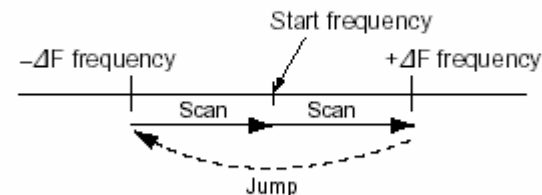
ΔF scan

- The ΔF scan searches for signals within the specified range with the displayed VFO or memory channel frequency as for center frequency. The frequency range is specified by the span.
 - Set the ΔF span
 - ± 5 kHz, ± 10 kHz, ± 20 kHz, ± 50 kHz, ± 100 kHz, ± 500 kHz and ± 1 MHz are selectable.
- As with the programmed scan, the ΔF scan also has a [fine scan setting](#).

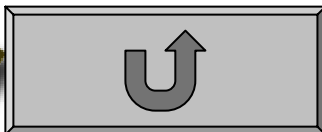


ΔF SCAN

Repeatedly scans within ΔF span area.

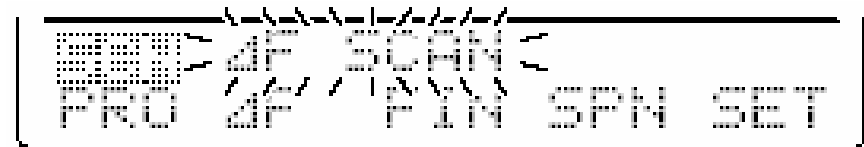


This scan operates in both VFO and memory modes.



Fine ΔF Scan

- During ΔF scan, when a signal is received, scan continues, but the tuning step is temporarily set to 10 Hz.



PRO 4F SCAN
PRO 4F FIN SPN SET

F1 F2 F3 F4 F5

Push [F3] to switch
between programmed
scan and fine pro-
grammed scan.



PRO F-4F SCAN
PRO 4F FIN SPN SET

F1 F2 F3 F4 F5



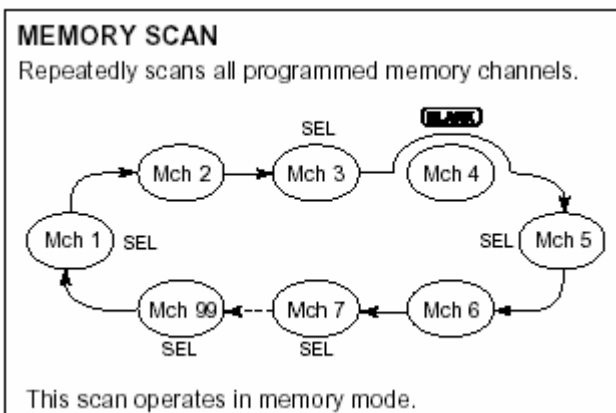
MEMORY Scanning

- Memory scan searches through memory channel 1 to 99 for signals.
 - Blank (un-programmed) memory channels are skipped.
- Select Memory Scan searches through memory channel set as “select” for signals. See below for setting and deleting select memory channels.

MEMO SCAN
MEM 2P SEL SPN SET

F1 F2 F3 F4 F5

Push [F1] to start/cancel the scanning.



Fine Scanning

- There are two types of Fine Scanning.
 - Fine Program Scan
 - Fine DF Scan

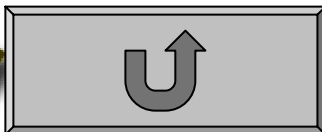


MEMO SCAN
MEN /P /SEL /SPN SET



F1 F2 F3 F4 F5

↑
Push [F1] to start/cancel the scanning.



Select Memory Scanning

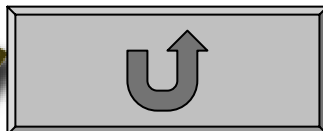
- Select memory scan searches through memory channel set as “select” for signals.

• Scan menu

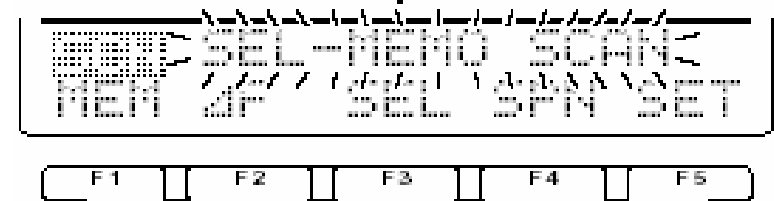


Push [F3] to set/cancel as a select channel.

Select memory indicator

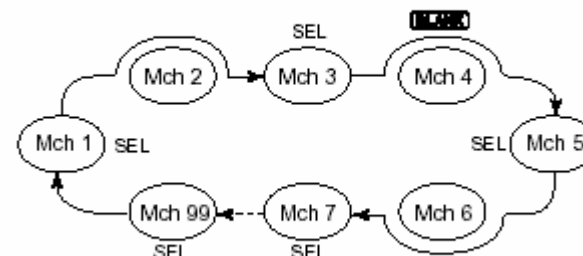


Push [F3] to switch between memory scan and select memory scan.



SELECT MEMORY SCAN

Repeatedly scans all select memory channels.

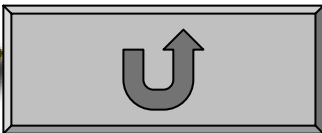


This scan operates in memory mode.



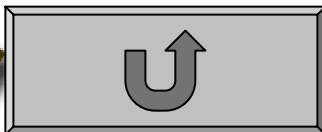
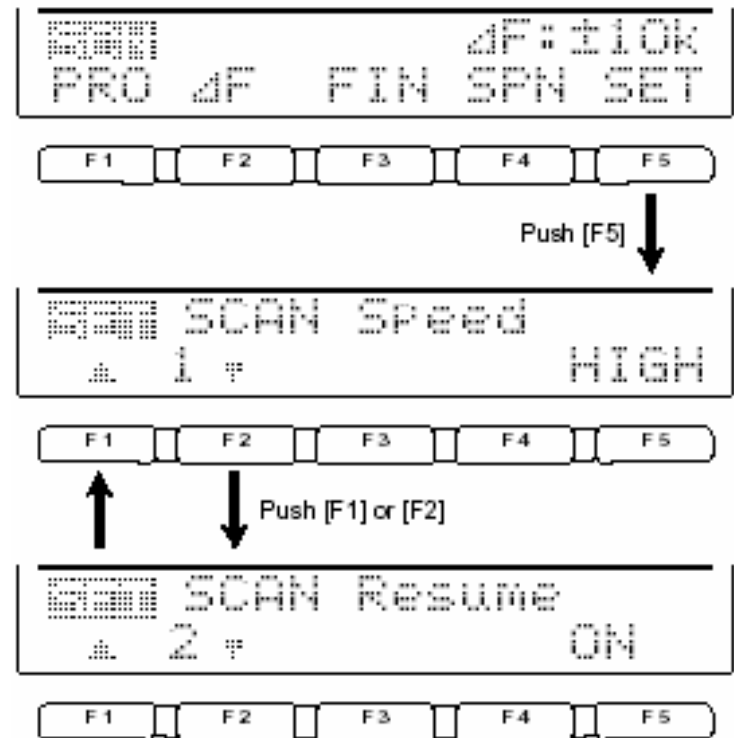
SPAN

- Sets the ΔF span by pushing.
 - ± 5 kHz, ± 10 kHz, ± 20 kHz, ± 50 kHz, ± 100 kHz, ± 500 kHz and ± 1 MHz are selectable.



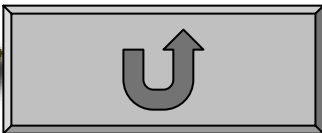
Scan Set Mode

- When the squelch is open, scan continues until it is stopped manually—it does not pause on detected signals.
- When squelch is closed, scan stops when detecting a signal, then resumes according to the scan resume condition.
 - Scan speed and the scan resume condition can be set using the scan set mode.



Scan Speed

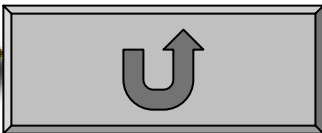
- Rotate the tuning dial to select scan speed from high and low.
 - **“HIGH”** : scan is faster
 - **“LOW”** : scan is slower





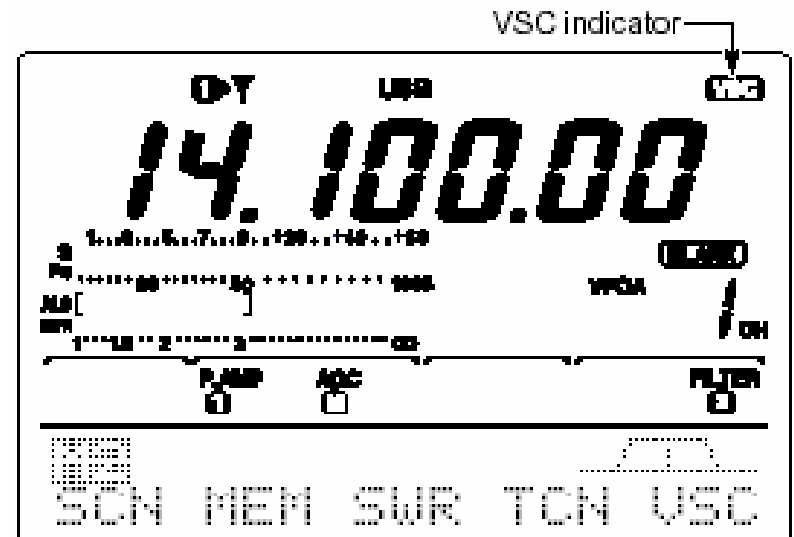
Scan Resume

- **“ON”** : when detecting a signal, scan pauses for 10 sec., then resumes. When a signal disappears, scan resumes 2 sec. later.
- **“OFF”** : when detecting a signal, cancels scanning.

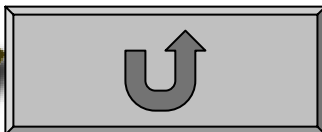


VSC

- This function is useful when you don't want unmodulated signals pausing or canceling a scan. When the voice scan control function is activated, the receiver checks received signals for voice components.
- If a receiver signal includes voice components, and the tone of the voice components changes within 1 sec., scan pauses (or stops). If the received signal includes no voice components or the tone of the voice components does not change within 1 sec., scan resumes.



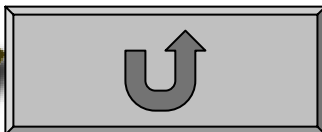
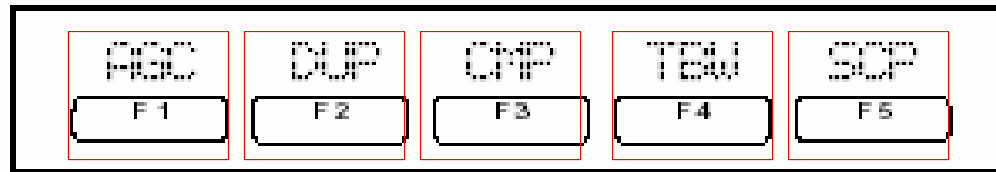
Push [F5] to turn the VSC function ON and OFF.



SSB Multi Function Buttons

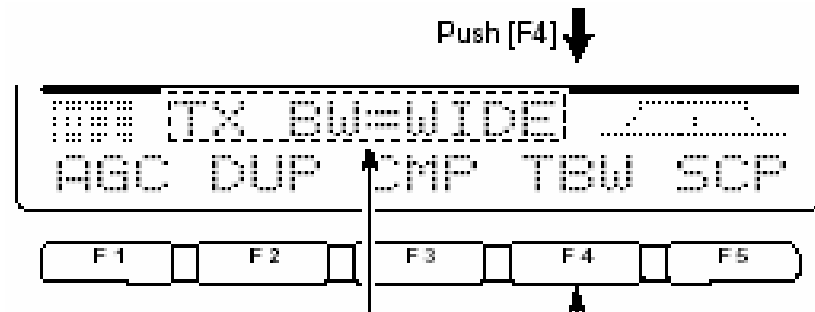
- ICOM Smart Menu system adjusts to the mode you are operating. For SSB Operation these are the following functions
 - **AGC** Automatic Gain Control
 - **DUP** Duplex Operation
 - **CMP** RF Speech Compression
 - **TBW** Transmit Band Width
 - **SCP** RX Band Scope

During SSB operation



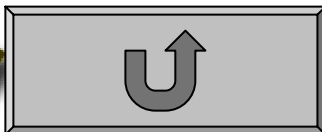
TBW

- **TBW** (Transmit Band Width)
 - The transmit filter width for SSB mode can be selected from wide, middle and narrow.
 - Push for 1 sec. to select the transmission passband width.
 - One of “TX BW=WIDE,” “TX BW=MID” or “TX BW=NAR” is displayed for approx. 1 sec.
 - Transmit filter width:
 - NAR 2.0 kHz
 - MID 2.6 kHz
 - WIDE 2.9 kHz



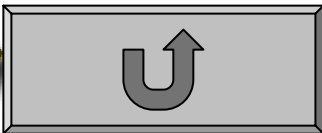
The selected transmit filter width is displayed for approx. 1 sec.

Push [F4] for 1 sec. to select the transmit filter width.



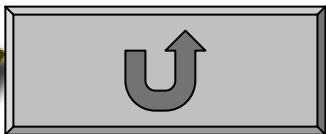
AGC

- AGC (Automatic Gain Control)
 - *What is the AGC?*
 - The AGC controls receiver gain to produce a constant audio output level, even when the received signal strength is varied by fading, etc. Select “FAST” for tuning and select “MID” or “SLOW” depending on the receiving condition.
- Push momentarily to change the time constant of the AGC.
- Push for 1 sec. to enter to the AGC set mode.



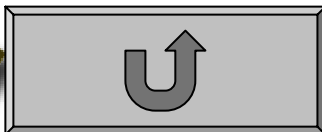
AGC

- AGC (Automatic Gain Control)
 - *What is the AGC?*
 - The AGC controls receiver gain to produce a constant audio output level, even when the received signal strength is varied by fading, etc. Select “FAST” for tuning and select “MID” or “SLOW” depending on the receiving condition.
- Push momentarily to change the time constant of the AGC.
- Push for 1 sec. to enter to the AGC set mode.



RTTY Menu

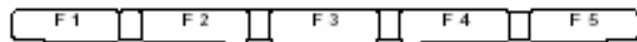
- The transceiver has a number of convenient functions for the RTTY operation that can be accessed from the RTTY menu.
 - RTTY Filter This item sets the RTTY filter width. 250, 300, 350, 500 Hz and 1 kHz can be selected.
 - When the RTTY filter is turned ON, the RTTY tuning meter can be used.
 - RTTY Decoder The transceiver has an RTTY decoder for Baudot (mark freq.: 2125 Hz, shift freq.: 170 Hz, 45 bps).
 - An external terminal unit (TU) or terminal node connector (TNC) is not necessary for receiving a Baudot signal.
 - RTTY Set Mode used to set the mark and shift frequencies, keying type, decode USOS function, etc.



RTTY Map

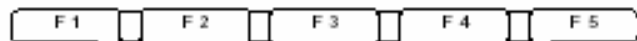
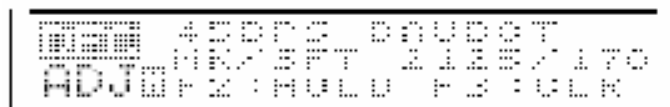
- The transceiver has a number of convenient functions for the RTTY operation that can be accessed from the RTTY menu.

• RTTY menu



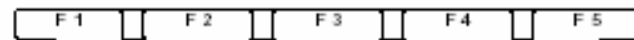
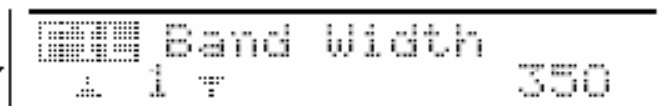
Push [F2]

• RTTY decoder screen (p. 38)



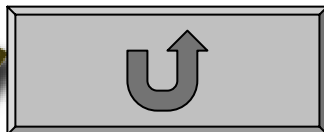
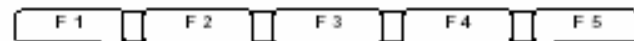
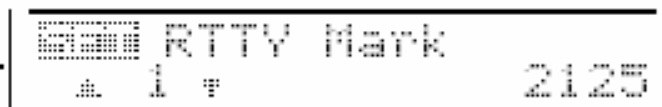
Push
[F4] for
1 sec.

• RTTY filter set mode (p. 37)



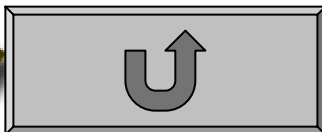
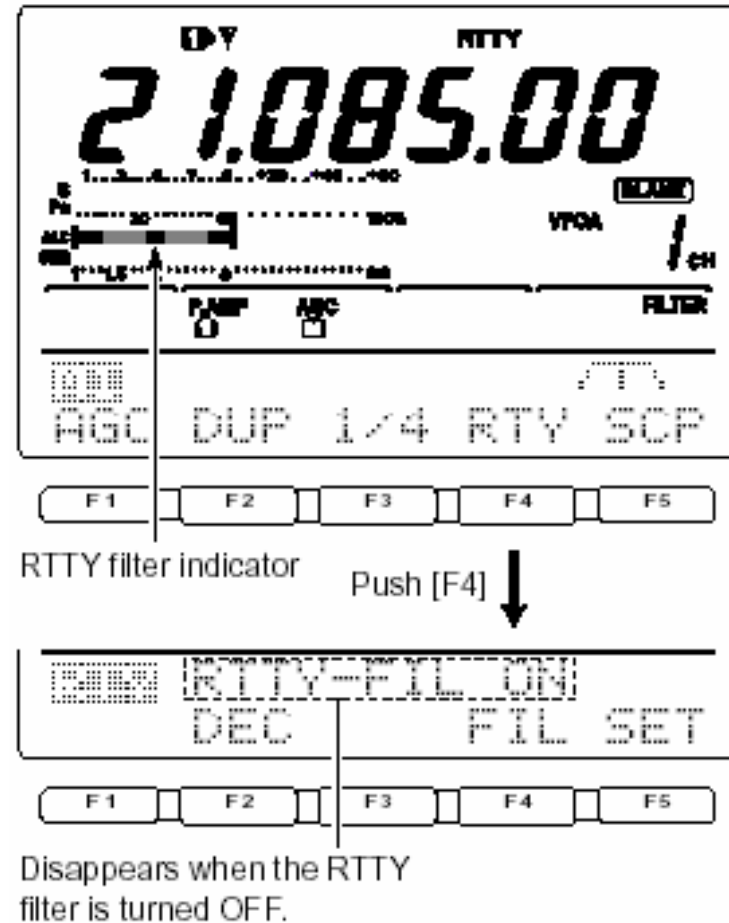
Push
[F5]

• RTTY set mode (p. 39)

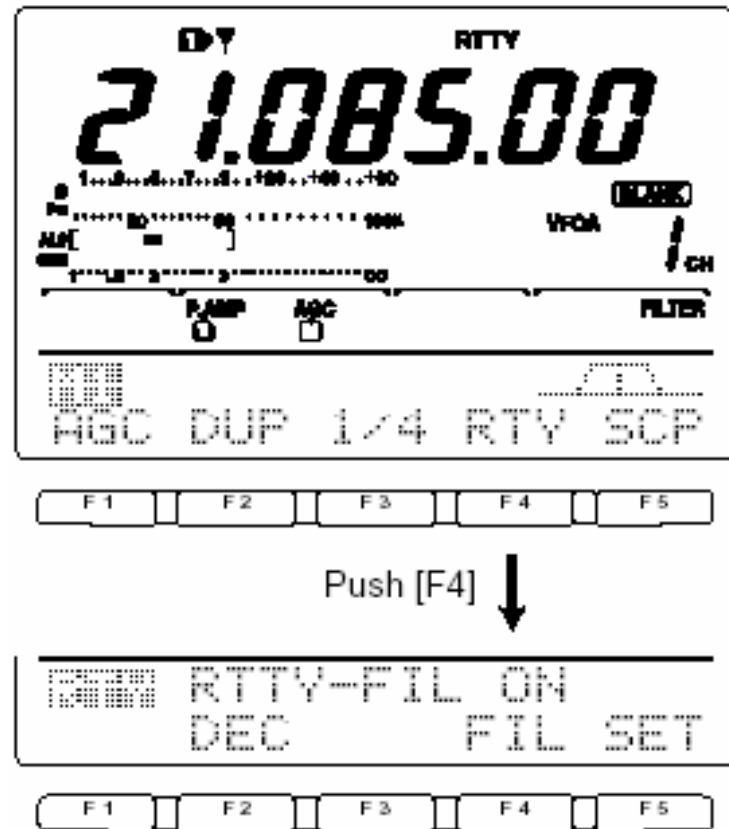
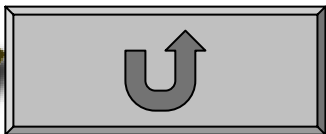


RTTY Filter

- The transceiver has 5 RTTY filters in addition to normal IF filters. The passband width can be selected from 1 kHz, 500 Hz, 350 Hz, 300 Hz and 250 Hz.
 - When the RTTY filter is turned ON, the RTTY tuning meter can be used.
- Moreover, the twin peak filter changes the receive frequency response by boosting 2 particular frequencies (2125 and 2295 Hz) for better copying of desired RTTY signals.

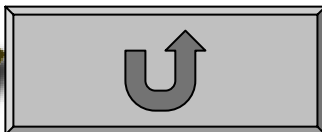


- 



RTTY Set mode

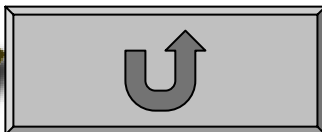
- This set mode is used to set the mark and shift frequencies, keying type, decode USOS function, etc.
 - **RTTY Mark** Sets the mark frequency for RTTY operation.
 - 1275, 1615 and 2125 Hz are selectable.
 - **RTTY Shift** Sets the shift frequency for RTTY operation.
 - 170, 200 and 425 Hz are selectable.
 - **RTTY Keying** Selects the keying polarity from normal and reverse.
 - NORMAL Key open/close = Mark/Space
 - REVERSE Key open/close = Space/Mark
 - **Decode USOS** Turn the USOS (UnShift On Space) function ON/OFF
 - ON Decode as letter code
 - OFF Decode as character code
 - **Decode New Line** Selects the new line code of the internal RTTY decoder.
 - CR: Carriage Return; LF: Line Feed
 - CR,LF,CR+LF CR, LF and CR+LF
 - CR+LF CR+LF only
 - **Decode Screen** Selects a number of the decoder indication from 2 line and 3 line.





Speech Compression

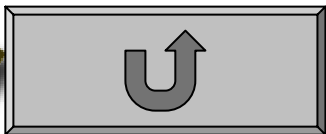
- Push momentarily to turn the RF speech compression function ON/OFF.
 - “COMP” indicator appears when the speech compressor is ON.
- Push for 1 sec. to enter to the compression set mode.
 - *What is the speech compressor?*
 - The speech compressor compresses the transmitter audio input to increase the average audio output level. Therefore, talk power is increased. This function is effective for long distance communication or when propagation conditions are poor.





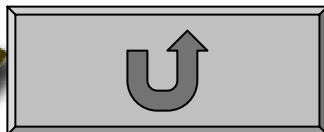
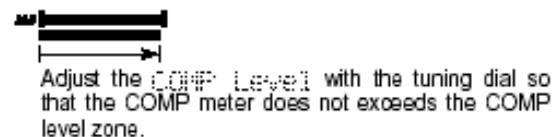
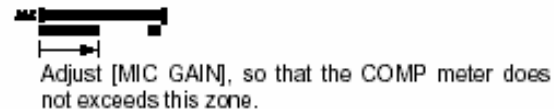
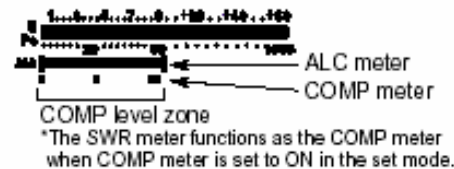
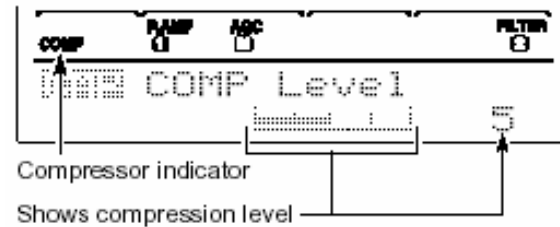
Speech Compression

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- Push for 1 sec. to enter to the compression set mode.
 - *What is the speech compressor?*
 - The speech compressor compresses the transmitter audio input to increase the average audio output level. Therefore, talk power is increased. This function is effective for long distance communication or when propagation conditions are poor.



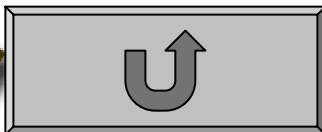
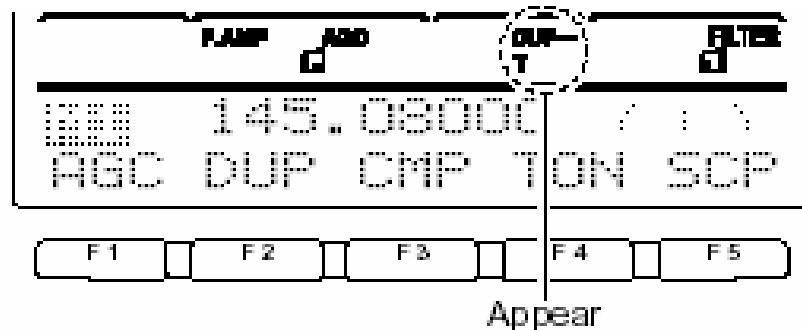
Speech Compression Set Mode

- To set up the RF Speech compression, speak normally into the microphone. Rotating the tuning dial so the COMP meter reads within the COMP zone.
 - When meter peaks above the COMP zone, your transmitted audio may be distorted.



Duplex

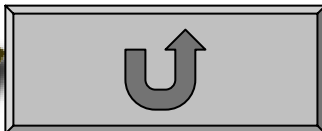
- Push momentarily to selects the duplex direction or turn the function OFF.
 - “DUP–” or “DUP+” indicator appears during duplex operation.
- Push for 1 sec. to turn the one-touch repeater function ON/OFF.





One Touch Repeater

- This function allow you to set repeater operation with push of one switch.
 - To set the transceiver for repeater operation using the one-touch repeater function, follow the steps push for 1 sec.
- **NOTE:** Set the offset shift direction and frequency in advance as well as the tone frequency.



AGC Set Mode

- The AGC (auto gain control) controls receiver gain to produce a constant audio output level even when the received signal strength is varied by fading, etc.
 - The transceiver has 3 AGC characteristics (time constant; fast, mid, slow) for non-FM mode.
 - The FM mode AGC time constant is fixed as 'FAST' (0.1 sec.) and AGC time constant cannot be selected.
 - "AGC OFF" appears when AGC time constant OFF is set with one of FAST, MID or SLOW setting in AGC set mode.

• Selectable AGC time constant (unit: sec.)

Mode	Default	Selectable AGC time constant
SSB	0.3 (FAST)	OFF, 0.1, 0.2, 0.3, 0.5, 0.8, 1.2, 1.6 2.0, 2.5, 3.0, 4.0, 5.0, 6.0
	2.0 (MID)	
	6.0 (SLOW)	
CW	0.1 (FAST)	OFF, 0.1, 0.2, 0.3, 0.5, 0.8, 1.2, 1.6 2.0, 2.5, 3.0, 4.0, 5.0, 6.0
	0.5 (MID)	
	1.2 (SLOW)	
RTTY	0.1 (FAST)	OFF, 0.1, 0.2, 0.3, 0.5, 0.8, 1.2, 1.6 2.0, 2.5, 3.0, 4.0, 5.0, 6.0
	0.5 (MID)	
	1.2 (SLOW)	
AM	3.0 (FAST)	OFF, 0.3, 0.5, 0.8, 1.2, 1.6, 2.0, 2.5 3.0, 4.0, 5.0, 6.0, 7.0, 8.0
	5.0 (MID)	
	7.0 (SLOW)	
FM	0.1 (FAST)	Fixed

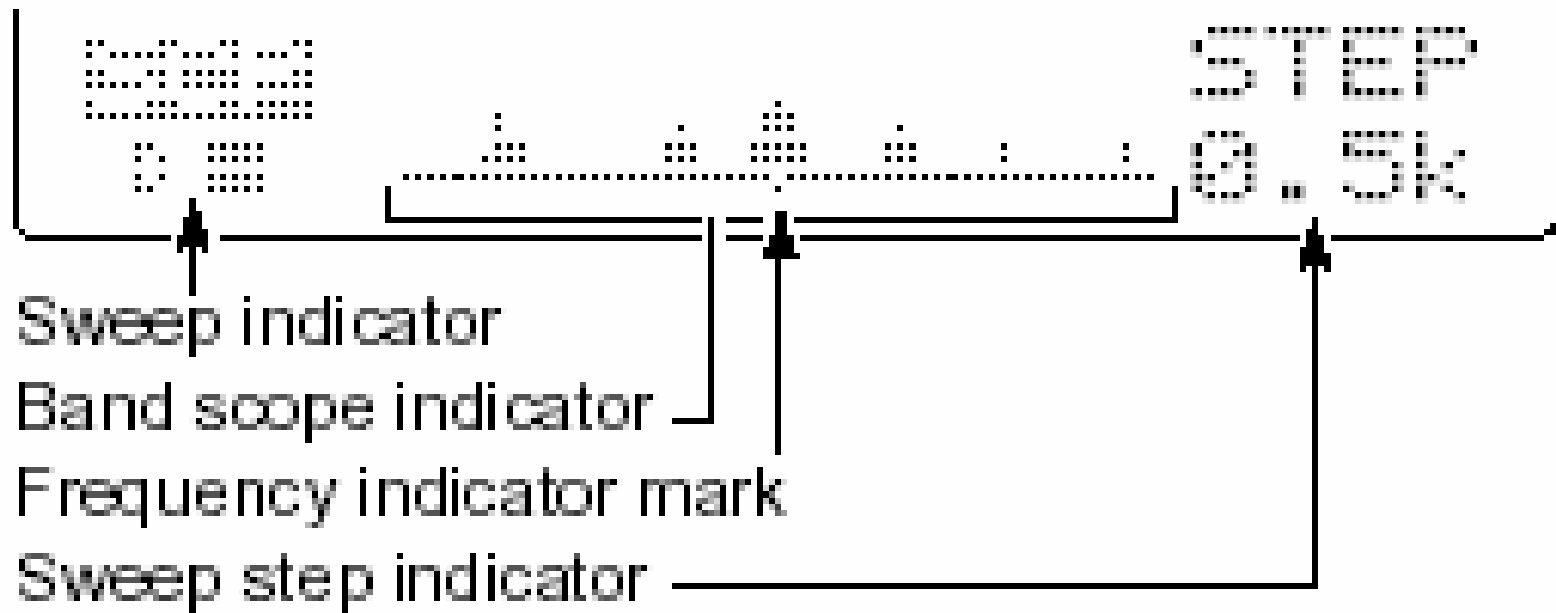


Band Scope

- Allows operators to visually check signal condition around a specified frequency in any operating mode and frequency band.
- Reading the Band Scope
 - **Sweep indicator** Gives visual indication of scope status. Received audio is not emitted from the speaker while the band scope is “sweeping.”
 - **Band scope indicator** Visually represents a relative strength of signals and their location in relation to the center (displayed) frequency.
 - Signal strength is relative to the S-meter level, S1 to S9, with each vertical dot in the band scope indicator equal to one segment of the S-meter. Signal activity is measured ± 30 steps from the center frequency with each step equal to the selected sweep step.
 - **Frequency indicator mark** After a sweep, indicates the relative position of the selected frequency.
 - When the selected frequency is outside of the sweep range, indicator flashes. After changing the frequency, push [F3] to automatically return to the center frequency.
 - **Sweep step** Indicates the selected sweep step. 0.5, 1, 2, 5, 10, 20 and 25 kHz are selectable. Each dot of the band scope indication is approx. equal to the selected sweep step.



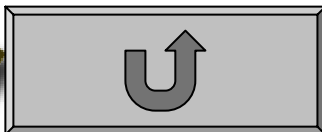
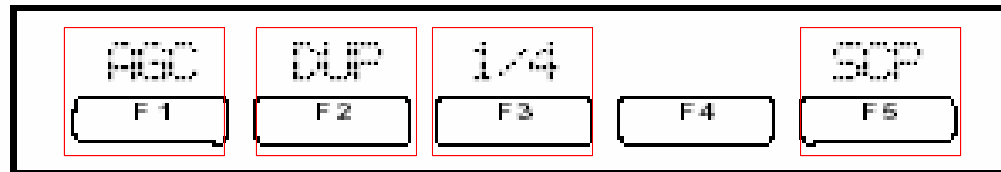
Band Scope View



SSB Data Multi Function Buttons

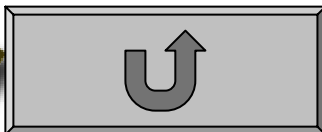
- ICOM Smart Menu system adjusts to the mode you are operating. For SSB Operation these are the following functions
 - **AGC** Automatic Gain Control
 - **DUP** Duplex Operation
 - **1/4** Turn tuning control
 - **SCP** RX Band Scope

During SSB data operation



$\frac{1}{4}$ Turn Tuning Control

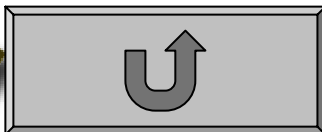
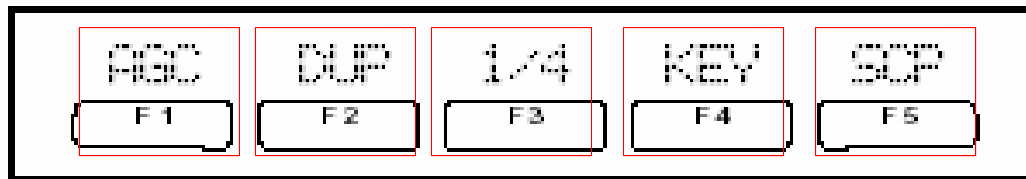
- While operating in SSB data/CW/RTTY, the $\frac{1}{4}$ function is available for critical tuning. Dial rotation is reduced to $\frac{1}{4}$ of normal when the $\frac{1}{4}$ function is in use.



CW Multi Function Buttons

- ICOM Smart Menu system adjusts to the mode you are operating. For SSB Operation these are the following functions
 - **AGC** Automatic Gain Control
 - **DUP** Duplex Operation
 - **1/4** Turn tuning control
 - **KEY** Key functions
 - **SCP** RX Band Scope

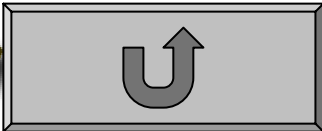
During CW operation



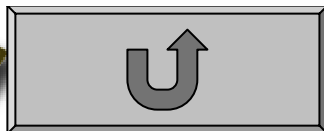
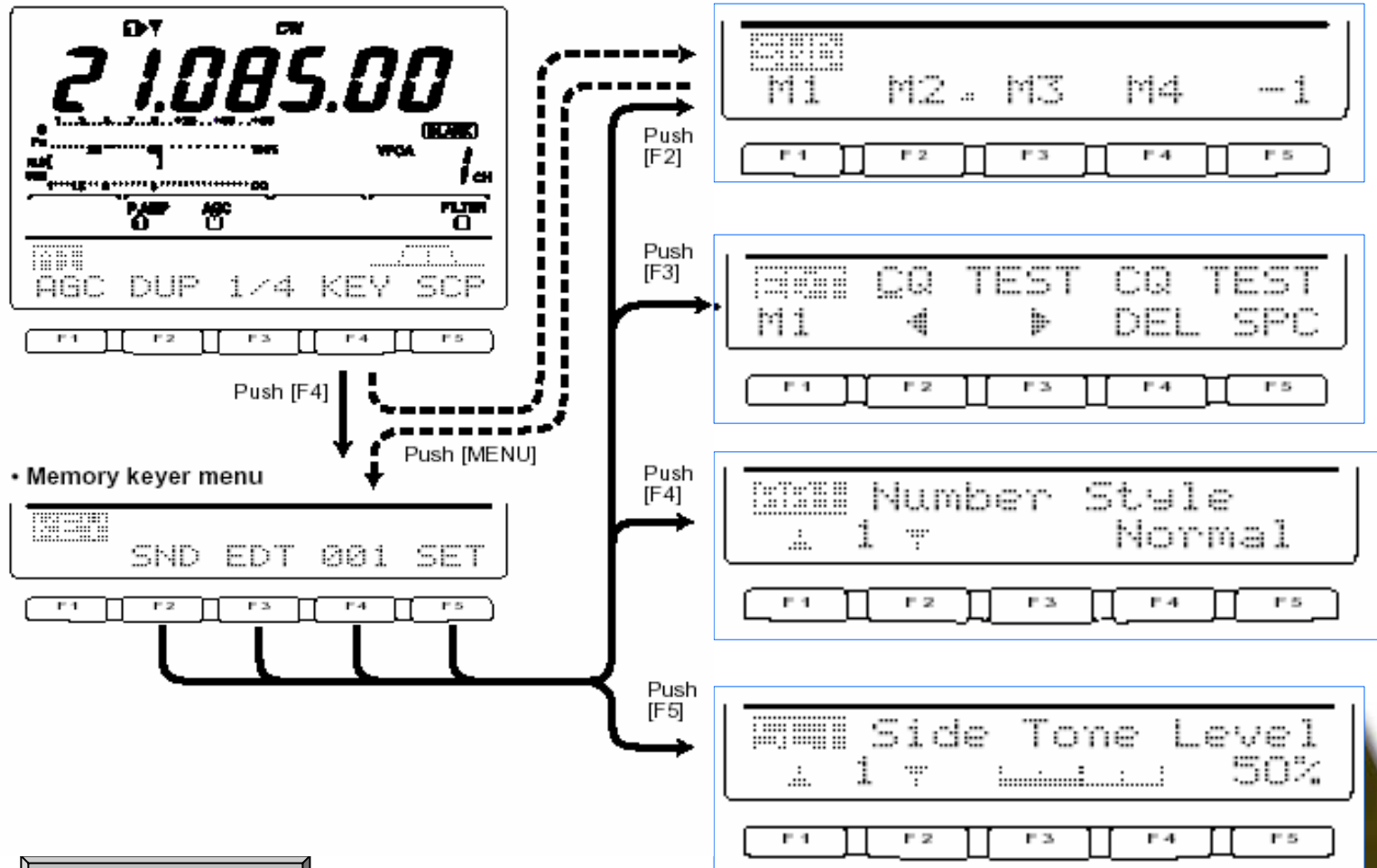


Memory Keyer Function

- The transceiver has a number of convenient functions for the electronic keyer that can be accessed from the memory keyer menu.
 - Push to select the memory keyer or keyer send menu.

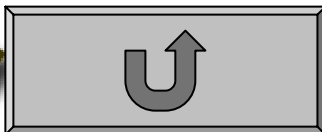


Memory Keyer Function Map



Keyer Send Menu

- ICOM Pre-set characters can be sent using the keyer send menu. Contents of the memory keyer are set using the edit menu.
- Push one of the function keys ([F1] to [F4]) to send the contents of the memory keyer.
 - Pushing a function key for 1 sec. repeatedly sends the contents; push any function key to cancel the transmission.
 - The contest number counter, above [F5], is incremented each time the contents are sent.
 - Push [F5] to reduce the contact number count by 1 when resending contents to unanswered calls.



M1 send indication

CALL	CQ	TEST	CQ	001
MEM	M2	M3	M4	-1

F1

Repeat send indication

CALL	CQ	TEST	CQ	001
MEM	M2	M3	M4	-1

Repeat indicators

M2 send indication

CALL	UR	5NN001	B	001
M1	MEM	M3	M4	-1

F2

M2 send indication

CALL	UR	5NN001	B	001
M1	MEM	M3	M4	-1

Count up trigger indicator

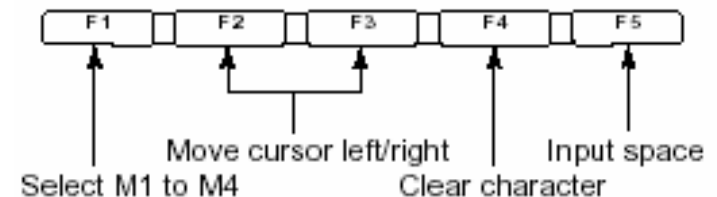
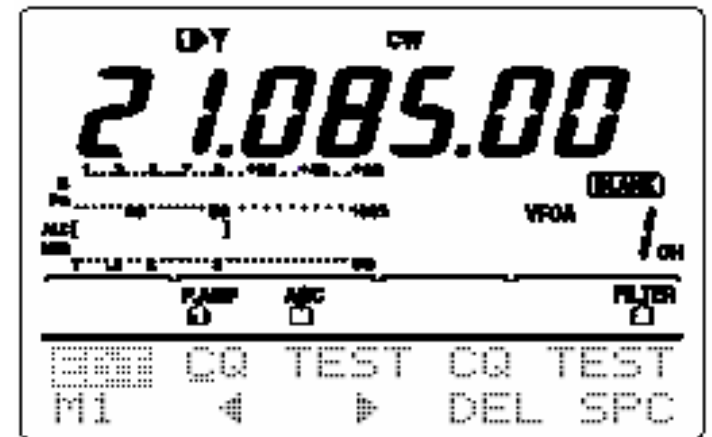
Counter

Memory Keyer Edit Menu

- The contents of the memory keyer memories can be set using the memory keyer edit menu. The memory keyer can memorize and re-transmit 4 CW key codes for often-used CW sentences, contact numbers, etc.
- Total capacity of the memory keyer is 50 characters per memory channel.

Pre-programmed contents

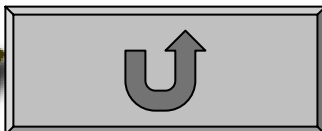
CH	Contents
M1	CQ TEST CQ TEST DE JA1 JA1 TEST
M2	UR 5NN* BK
M3	CFM TU
M4	QRZ?



- M2 default indication

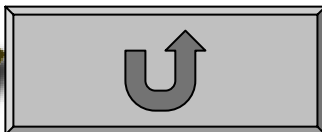


When inputting an asterisk, the counter is incremented by 1.



Contest Number Set Mode

- This menu is used to set the contest (serial) number and count up trigger, etc.
- 1. **Number Style** This item sets the numbering system used for contact (serial) numbers— normal or Morse cut numbers.
 - **NORMAL**: Does not use morse cut number (default)
 - **190 ANO**: Sets 1 as A, 9 as N and 0 as O.
 - **190 ANT**: Sets 1 as A, 9 as N and 0 as T.
 - **90 NO**: Sets 9 as N and 0 as O.
 - **90 NT** : Sets 9 as N and 0 as T.
- 2. **Count Up Trig** This item sets the count up trigger channel.
 - M1, M2, M3 and M4 can be set.
- 3. **Present Number** This item shows the current number for the count up trigger channel set above.
 - Rotate the tuning dial to change the number, or push for 1 sec. to reset the current number to 001.

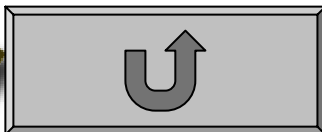


Keyer Setup Menu

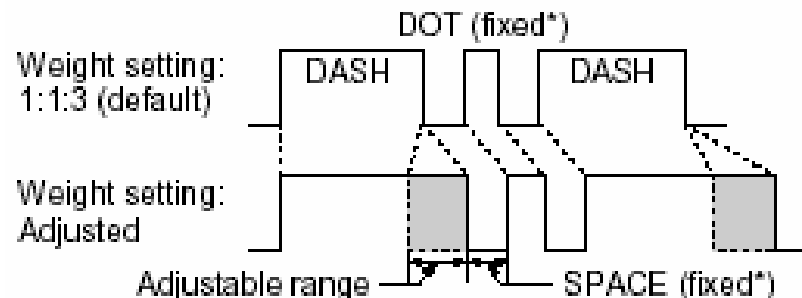
- Set mode is used to set the CW side tone, memory keyer repeat time, dash weight, paddle specifications, keyer type, etc.
1. **Side Tone Level** This item sets the CW side tone output level.
 - 0 to 100% in 1% step can be selected.
 2. **Side Tone L-imit** This item sets the CW side tone level limit. When the [AF] control is rotated above a specified level, the CW side tone does not increase.
 - ON CW side tone level is limited. (default)
 - OFF CW side tone level is not limited.
 3. **Repeat Time** When sending CW using the repeat timer, this item sets the time between transmission.
 - 1 to 60 sec. in 1 sec. step can be selected.
 4. **Dot/Dash Ratio** This item sets the dot/dash ratio.
 - 1:1:2.8 to 1:1:4.5 (in 0.12 step) can be selected.

*SPACE and DOT length can be adjusted with [KEY SPEED] only.

Secondary Set Mode



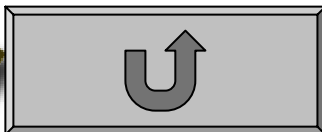
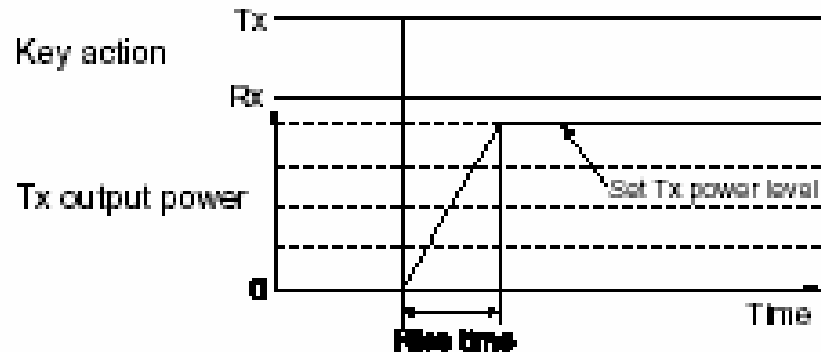
Keying weight example: Morse code "K"



Keyer Setup Menu

1. **Rise Time** This item set the envelop time period which the output power becomes the set transmit power.
 - 2, 4, 6 or 8 m sec. can be selected.
2. **Paddle Polarity** This item sets the paddle polarity.
 - Normal and reverse polarity can be selected.
3. **Keyer Type** This item selects the keyer type for [ELEC-KEY] connector on the front panel.
 - ELEC-KEY, BUG KEY and Straight key can be selected.
4. **Mic U/D Keyer** This item allow you to set the microphone [UP]/[DN] keys to be used as a paddle.
 - ON [UP]/[DN] switches can be used for CW.
 - OFF [UP]/[DN] switches cannot be used for CW.
 - **NOTE:** When “ON” is selected, the frequency and memory channel cannot be changed using the [UP]/[DN] switches.

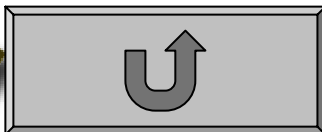
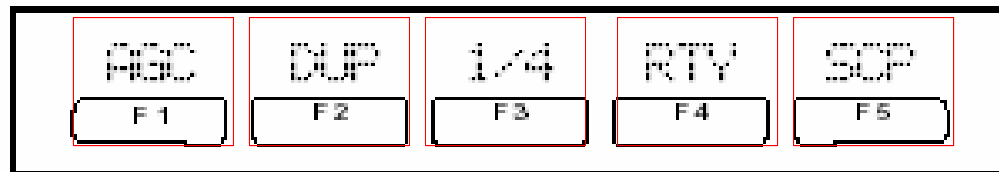
• About rise time



RTTY Multi Function Buttons

- ICOM Smart Menu system adjusts to the mode you are operating. For SSB Operation these are the following functions
 - **AGC** Automatic Gain Control
 - **DUP** Duplex Operation
 - **1/4** Turn tuning control
 - **RTY** Transmit Band Width
 - **SCP** RX Band Scope

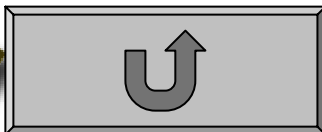
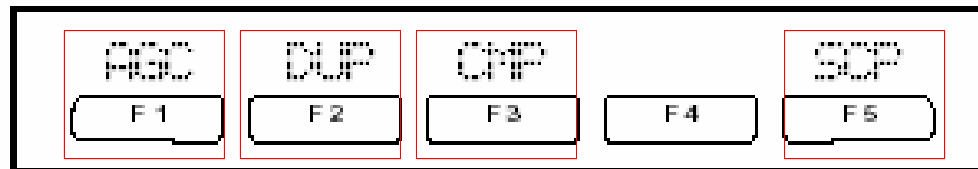
During RTTY operation



AM Multi Function Buttons

- ICOM Smart Menu system adjusts to the mode you are operating. For SSB Operation these are the following functions
 - **AGC** Automatic Gain Control
 - **DUP** Duplex Operation
 - **CMP** RF Speech Compression
 - **SCP** RX Band Scope

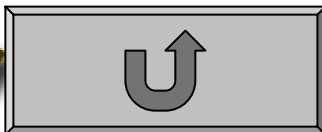
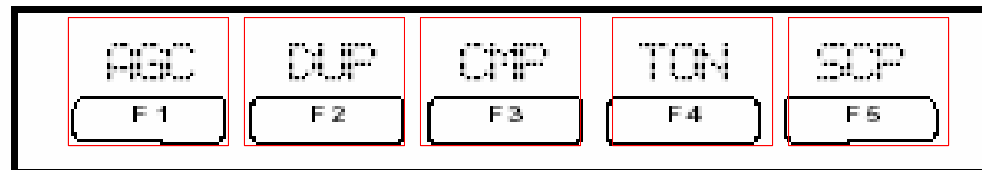
During AM operation



FM Multi Function Buttons

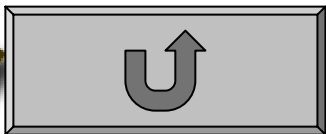
- ICOM Smart Menu system adjusts to the mode you are operating. For SSB Operation these are the following functions
 - **AGC** Automatic Gain Control
 - **DUP** Duplex Operation
 - **CMP** RF Speech Compression
 - **TON** Tones CTCSS or DTCS
 - **SCP** RX Band Scope

During FM operation



Tone

- Two of the possible signaling formats available on the IC-746PRO is CTCSS and DTCS.
- Tone squelch or CTCSS operation is a method of communications using selective calling. Only received signal having a matching tone will open the squelch.
- DTCS function is an another method of communications using selective calling. Only received signal having a matching 3-digit code will open the squelch.



CTCSS

- Tone squelch or CTCSS operation is a method of communications using selective calling. Only received signal having a matching tone will open the squelch.
- Also has decode scan capability.

• Available tone squelch 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	



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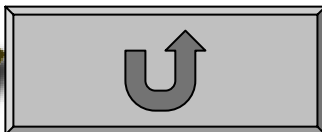
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74.4	94.8	118.8	151.4	173.8	196.6	229.1	
77.0	97.4	123.0	156.7	177.3	199.5	233.6	
79.7	100.0	127.3	159.8	179.9	203.5	241.8	
82.5	103.5	131.8	162.2	183.5	206.5	250.3	

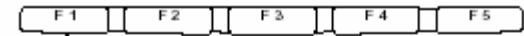


Decode Scan

- By monitoring a signal that is being operated with a repeater, tone squelch or DTCS, you can determine the tone frequency necessary to open a repeater or the squelch.
- When matched tone or code is found, the scan pauses and the tone frequency or code is set for the selected tone as in step
 - When the tone scan or DTCS code scan is operated in memory or call channel, the detected tone frequency or code can be used for temporarily.
 - To keep the detected tone frequency or code setting for memory contents, you must overwritten the memory or call channel.



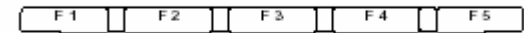
MEM Rptr Tone
TON SCN 88.5Hz



Push [F1] several times to select tone type.

• Repeater tone scan

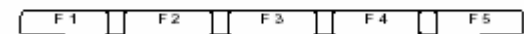
MEM Rptr Tone SCAN
TON SCN 88.5Hz



Push [F2] to start/cancel the scan.

• Tone squelch tone scan

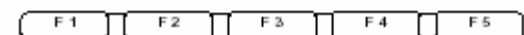
MEM TSOL Tone SCAN
TON SCN 88.5Hz



Push [F2] to start/cancel the scan.

• DTCS code scan

MEM DTCS Code SCAN
TON SCN 023-NN



Push [F2] to start/cancel the scan.

Push [F1] several times to select porality.

DTCS

- DTCS function is another method of communications using selective calling. Only received signal having a matching 3-digit code will open the squelch.
- Also has decode scan capability

• Available tone codes

023	072	152	244	311	412	466	631
025	073	155	245	315	413	503	632
026	074	156	246	325	423	506	654
031	114	162	251	331	431	516	662
032	115	165	252	332	432	523	664
036	116	172	255	343	445	526	703
043	122	174	261	346	446	532	712
047	125	205	263	351	452	546	723
051	131	212	265	356	454	565	731
053	132	223	266	364	455	606	732
054	134	225	271	365	462	612	734
065	143	226	274	371	464	624	743
071	145	243	306	411	465	627	754



DTCS

- DTCS function is an another method of communications using selective calling. Only received signal having a matching 3-digit code will open the squelch.
- Also has decode scan capability

• Available tone codes

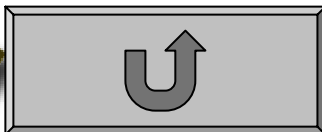
023	072	152	244	311	412	466	631
025	073	155	245	315	413	503	632
026	074	156	246	325	423	506	654
031	114	162	251	331	431	516	662
032	115	165	252	332	432	523	664
036	116	172	255	343	445	526	703
043	122	174	261	346	446	532	712
047	125	205	263	351	452	546	723
051	131	212	265	356	454	565	731
053	132	223	266	364	455	606	732
054	134	225	271	365	462	612	734
065	143	226	274	371	464	624	743
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Menu

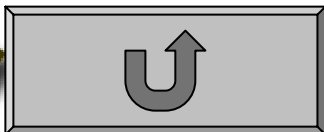
- Push to change the set of functions assigned to the multi-function switches.
 - Toggles between menu 1 (M1) and menu 2 (M2).





SSB

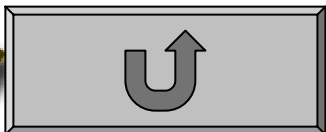
- Selects USB and LSB mode alternately.
 - Selects SSB data mode (USB-D, LSB-D) when pushed for 1 sec. in SSB mode.





CW/RTTY

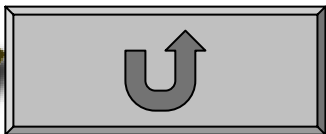
- Selects CW and RTTY mode alternately.
 - in CW mode, switches CW and CW-R (CW reverse) mode when pushed for 1 sec.
 - In RTTY mode, switches RTTY and RTTY-R (RTTY reverse) mode when pushed for 1 sec.





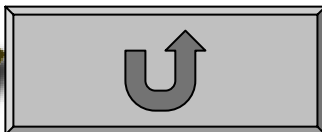
AM/FM

- Selects AM and FM mode alternately.
 - Selects AM/FM data mode (AM-D, FM-D) when pushed for 1 sec. AM/FM mode.



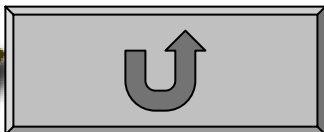
Filter

- Selects one of 3 IF filter settings.
 - Enters the filter set mode when pushed for 1 sec.
- For SSB and CW modes, the passband width can be set within 50 to 3600 Hz in 50 or 100 Hz steps. A total of 41 passband widths are available.
- For RTTY mode, the passband width can be set within 50 to 2700 Hz in 50 or 100 Hz steps. A total of 32 passband widths are available.
- For AM and FM modes, the passband width is fixed and 3 passband widths are available independently.
 - The filter selection is automatically memorized in each mode.
 - The PBT shift frequencies are automatically memorized in each filter.



Filter

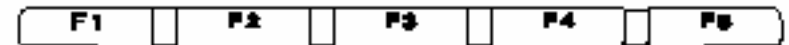
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- For AM and FM modes, the passband width is fixed and 3 passband widths are available independently.
 - The filter selection is automatically memorized in each mode.
 - The PBT shift frequencies are automatically memorized in each filter.



Filter Set Mode

- In SSB and CW modes, the passband width can be set within the following range.
 - 50 to 500 Hz 50 Hz steps 600 to 3600 Hz 100 Hz steps
- In RTTY mode, the passband width can be set within the following range.
 - 50 to 500 Hz 50 Hz steps 600 to 2700 Hz 100 Hz steps
 - Push [F-3] for 1 sec. to select the default value.
 - The PBT shift frequencies are cleared when the passband width is changed.
 - This filter set mode screen graphically displays the PBT shift frequencies and CW pitch operations.

• Filter set mode indication



Shows the selected filter and passband width.

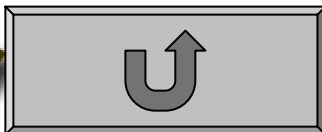
• Indication while setting



Reverses

Appears

While pushing [F1], rotate the tuning dial to set passband width.



ANTENNA Selections

- **Antenna select function: “Auto”**
 - Once an antenna has been selected for use with a band by pushing [ANT], the antenna is automatically selected whenever that band is accessed.
- **Antenna select function: “Manual”**
 - When “Manual” is selected, you can use the [ANT1] and [ANT2], however, band memory does not function.
- **Antenna select function: “OFF”**
 - In this case, only [ANT1] and the 144 MHz antenna connector can be used. [ANT] switch does not function.

