

IC-04A/AT/E

430MHz FM TRANSCEIVER

INSTRUCTION MANUAL

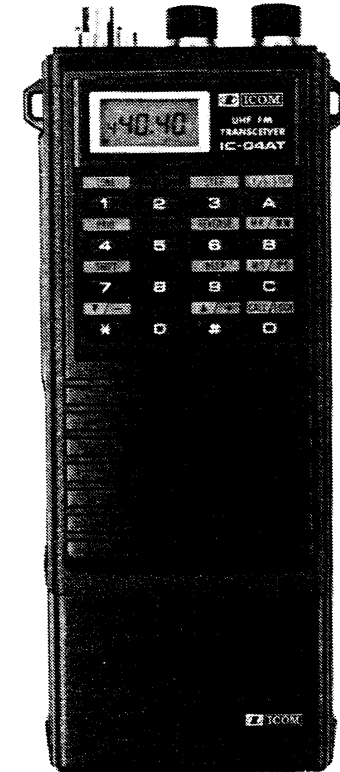


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SECTION I FEATURES

SYNTHESIZED HANDHELD TRANSCEIVER

This small, light weight handheld transceiver comes in handy for use any time, whether outdoors, in a car, or at home. The operation frequency can be entered by pushing the front panel keys as well as can be set the frequency step rate, duplex offset frequency and subaudible tone (IC-04AT only).

MULTI-PURPOSE SCANNING

Memory scan allows you to monitor all memory channels. Programmed scan provides scanning between two programmed frequencies. Auto-stop is provided and stops scanning when a signal is received, and resume when the signal goes away.

10 MEMORY CHANNELS

The IC-04A/AT/E has ten memory channels and each channel stores the operating frequency as well as duplex/simplex, duplex offset and subaudible tone frequency (IC-04AT only) for your operating convenience.

EASY-TO-READ DISPLAY

This set employs an easy-to-read LCD display. This displays the operation frequency as well as the memory channel number, duplex mode, scan mode, lock function, tone encoder enable indication, etc.

In addition an S/Rf meter is provided with in-lined dots on the LCD readout across the bottom of the display.

DUAL POWER LEVEL

Transmitter output can be switched easily to either of two levels; 2.5W output HIGH for long distances and 0.5W LOW for short distances. Battery consumption will be minimized in the LOW power mode. The IC-BP7 power pack as an option gives 5W output and standard aluminum case back provides superior heat sinking when the unit is run at that level.

VARIOUS ACCESSORIES AVAILABLE

All IC-4 series accessories are compatible with the IC-04 series plus there are new options such as the IC-BP7 and IC-BP8 battery packs and the HS-10 headset with PTT switch box and VOX unit options.

SECTION II SPECIFICATIONS

GENERAL

Number of Semiconductors	Transistor	47 (04AT: 53, 04E: 48)
	FET	1
	IC	10 (04AT: 13, 04E: 11)
	Diode	38 (04AT: 46, 04E: 39)
Frequency Coverage	04A/AT; 440 ~ 450MHz (Australian version: 430 ~ 440MHz)	
	04E; 430 ~ 440MHz	
Frequency Readout	6 digit 5KHz readout, LCD Display	
Frequency Resolution	04A/AT; 5KHz steps (other steps such as 10KHz, 15KHz, 20KHz and 25KHz are programmable and available by pushing the UP/DOWN buttons)	
	04E; 12.5KHz steps (25KHz steps are programmable)	
Frequency Control	Digital PLL Synthesizer with key input	
Frequency Stability	Within 0.001% in range of $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$	
Memory Channels	10 Channels	
Scanning	Programmed Scan and Memory Channel Scan available	
Usable Temperature	$-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$	
Antenna Impedance	50 ohms unbalanced	
Power Supply Requirement	DC 8.4V with attendant power pack IC-BP3	
	DC 5.5V ~ 16V negative grounded is acceptable.	
Current Drain at 8.4V	Transmitting: HIGH (2.5W)	Approx. 1.25A
	LOW (0.5W)	Approx. 0.55A
	Receiving: At max audio output	Approx. 150mA
	Squelched	Approx. 45mA

Dimensions 116.5mm(H) x 65mm(W) x 35mm(D) Without power pack
Attendant power pack, IC-BP3 39mm(H) x 65mm(W) x 35mm(D)
Weight 515g (IC-04A: 495g) including power pack, IC-BP3 and flexible antenna

TRANSMITTER

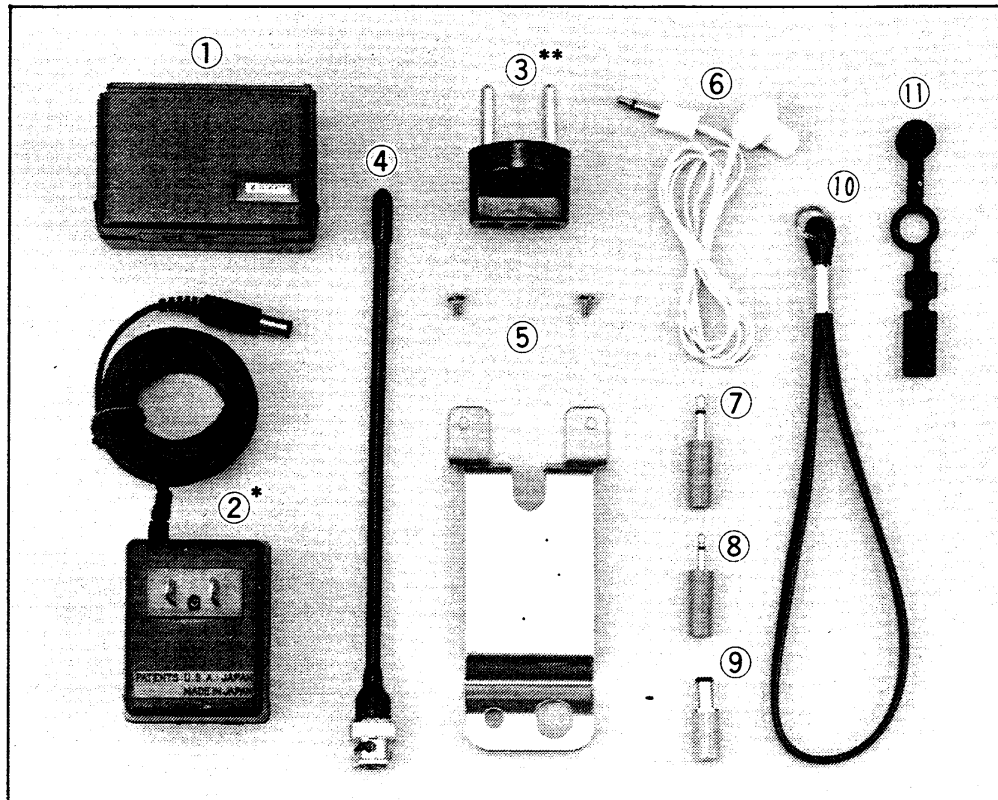
Output power HIGH: 2.5W at 8.4V (5W at 13.2V)
LOW: 0.5W at 8.4V ~ 13.2V
Emission mode 16F₃ (F3E 16K0)
Modulation system Variable reactance frequency modulation
Max. frequency deviation ±5KHz
Spurious emission More than 60dB below carrier
Microphone Built-in Electret condenser microphone
Optional Speaker-microphone (IC-HM9) and Headset (HS-10) can be used
Operating mode Simplex
Duplex (Any in-band frequency separation programmable)

RECEIVER

Receiving system Double-conversion superheterodyne
Modulation acceptance 16F₃ (F3E 16K0)
Intermediate frequencies 1st: 21.8MHz 2nd: 455KHz
Sensitivity Less than 0.3μV for 12dB SINAD
Less than 0.4μV for 20dB Noise quieting
Squelch sensitivity Less than 0.1μV
Spurious response rejection ratio More than 60dB
Selectivity More than ±7.5KHz at -6dB point
Less than ±15KHz at -60dB point
Audio output power More than 500mW (at 8 ohms 10% distortion)
Audio output impedance 8 ohms

SECTION III ACCESSORIES

Carefully remove your transceiver from the packing carton and examine it for signs of shipping damage. Should any be apparent, notify the delivering carrier or dealer immediately, stating the full extent of the damage. It is recommended you keep the shipping cartons. In the event storage, moving, or reshipment becomes necessary, they come in handy. Various accessories are packed with the transceiver. Make sure you have not overlooked anything.



- | | |
|--|---|
| 1. Power pack IC-BP3
(Attached to the set.) | 1 |
| 2. Wall charger* | 1 |
| 3. AC Conversion plug** | 1 |
| 4. Flexible antenna | 1 |
| 5. Belt clip. | 1 |
| 6. Earphone. | 1 |
| 7. Earphone plug | 1 |
| 8. Microphone plug | 1 |
| 9. DC Power plug | 1 |
| 10. Hand-strap | 1 |
| 11. Rainproof cap. | 1 |
- * BC-25U for 117V
BC-26E for 240V
** Supplied only for 240V version.

SECTION IV PRE-OPERATION

BATTERY INSTALLATION

When using Nickel-Cadmium power pack IC-BP3:

The IC-BP3 is a rechargeable Nickel-Cadmium power pack, and it can be slipped onto or off the set very easily. It has a connector for a charger charge-current control circuit, reverse polarity protection circuit and charge indicator LED in its own pack. You can use the supplied BC-25U/26E wall charger or similar simple wall charger, or a car battery by using optional cable IC-CP1 for recharging. Before use, the power pack should be charged about 15 hours, because the battery may have discharged.

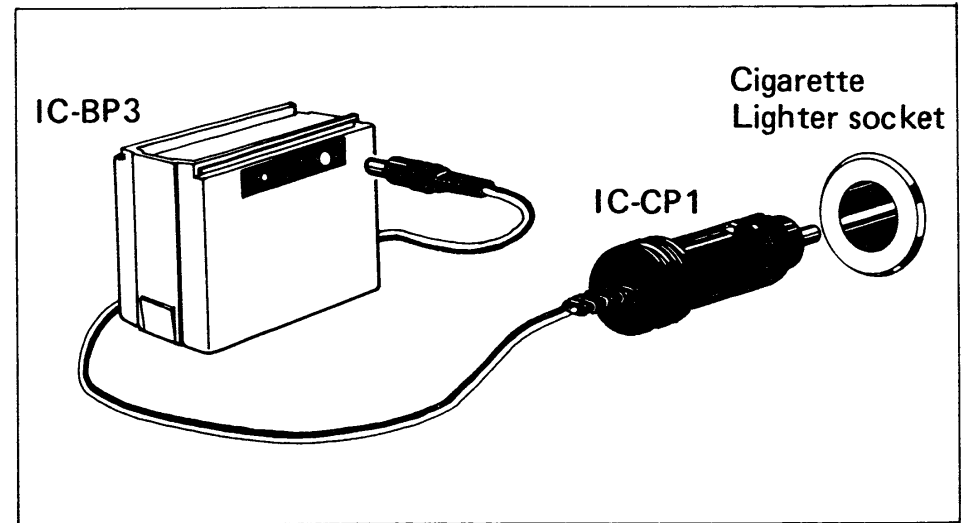
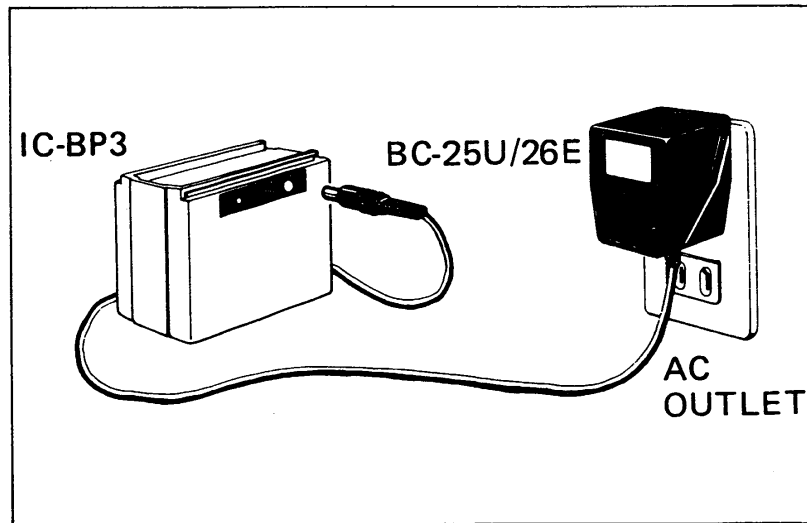
After charging is completed, the batteries can be used in the same manner as dry cells. However, the voltage of Nickel-Cadmium batteries drops rapidly just before they are exhausted, so when the battery exhausting indicator on the frequency display is indicated, be sure to immediately stop using it, and recharge the batteries again.

HOW TO CHARGE (When using Nickel-Cadmium power pack IC-BP3)

1. Use the supplied wall charge BC-25U/26E or a stable power source with an output voltage of DC 13.8V and current capacity over 50mA, or use a 12V car battery with optional charger cable IC-CP1. (Output voltage of 12 ~ 15V can be used, but output voltage near the specified voltage should be used.)
2. The power switch of the transceiver must be OFF, or remove the power pack from the transceiver.
3. Connect the output plug of the wall charger (BC-25U/26E), or other power source, to the charger socket of the power pack. (When charging Nickel-Cadmium batteries in the IC-BP4 power pack,

you should use the BC-30/BC-35 charger only.)

The charge indicator LED of the power pack is lit, which shows that the charger is working.



4. It takes about 15 hours to charge the batteries completely. This charger is designed for 0.1C (10-hour rate current), but charge for 15 hours in order to compensate for any unbalance of the batteries.

You should charge the batteries for 15 hours when you have not used them for a long time or after buying them.

5. Charge between 0°C and 40°C.
6. Avoid continuing charging as much as possible after full charging, (15 hours). If excess charging is repeated, efficiency of the power pack is reduced.
7. After charging, unplug the power source from the charger socket of the power pack. The transceiver and the power pack are now ready for operation.