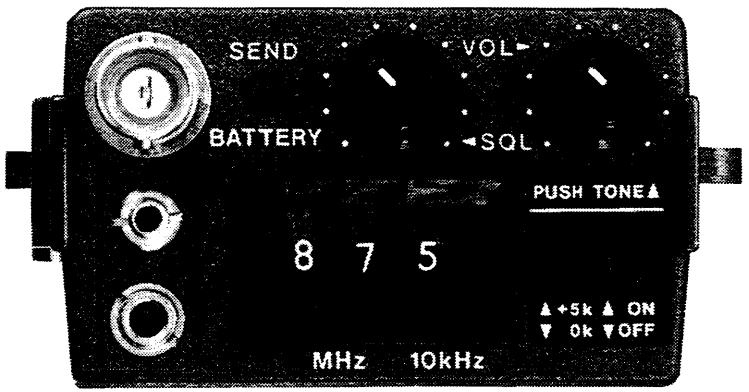
IC-4E

430MHz FM TRANSCEIVER

INSTRUCTION MANUAL



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SECTION I INTRODUCTION

SYNTHESIZED HAND HELD TRANSCEIVER

This small, light weight 2000 channel transceiver comes in handy for use any time, whether outdoors, in a car, or at home, 2000 channels can be used on any 430MHz band frequency.

DUAL POWER LEVEL

Transmitter output can be switched easily to either of two levels; 1.5W output HIGH for long distances, and 0.15W LOW for short distances. Battery consumption is minimized in the Low Power Mode. The IC-BP5 Power Pack as an option gives 2.3W output.

VARIOUS POWER PACKS AVAILABLE

The Power Pack is slipped on the bottom of the radio very easily, and various power packs are available to suit your needs, for minimum size, longer use, or higher power.

HIGHLY EFFICIENT FLEXIBLE ANTENNA

A highly efficient flexible antenna is supplied with the set. When the antenna is removed, its connector can be used for an external antenna connector.

SECTION II SPECIFICATIONS

GENERAL

Number of Semiconductors	Transistors 43 FET 2 IC 6 Diodes 24
Frequency Coverage	430.000 ~ 439.995MHz
Frequency Resolution	5KHz steps 2000 channels
Frequency Control	Digital PLL synthesizer, with thumbwheel switches
Frequency Stability	Within ±2.5KHz
Usable Temperature	−10°C ~ 60°C (14°F ~ 140°F)
Antenna Impedance	50 ohms unbalanced
Power Supply Requirement	DC 8.4V; with attendant power pack IC-BP3, DC 6 ~ 12V negative ground is acceptable
Current Drain at 8.4V	Transmitting HIGH : 1.5W Approx. 700mA LOW : 0.15W Approx. 300mA Receiving At max audio output Approx. 170mA Squelched Approx. 20mA
Dimensions	116.5mm(H) x 65mm(W) x 35mm(D) without power pack Attendant power pack, IC-BP3: 49mm(H) x 65mm(W) x 35mm(D)
Weight	470g including power pack, IC-BP3 and flexible antenna

TRANSMITTER

Output Power	HIGH: 1.5W, LOW: 0.15W at 8.4V
Emission Mode	$16F_3$
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) can be used
Operating Mode	Simplex Duplex; −7.6MHz (Version G: +1.6MHz) and can be monitored repeater's input frequency. (Version SM: −1.6MHz and −4.6MHz)

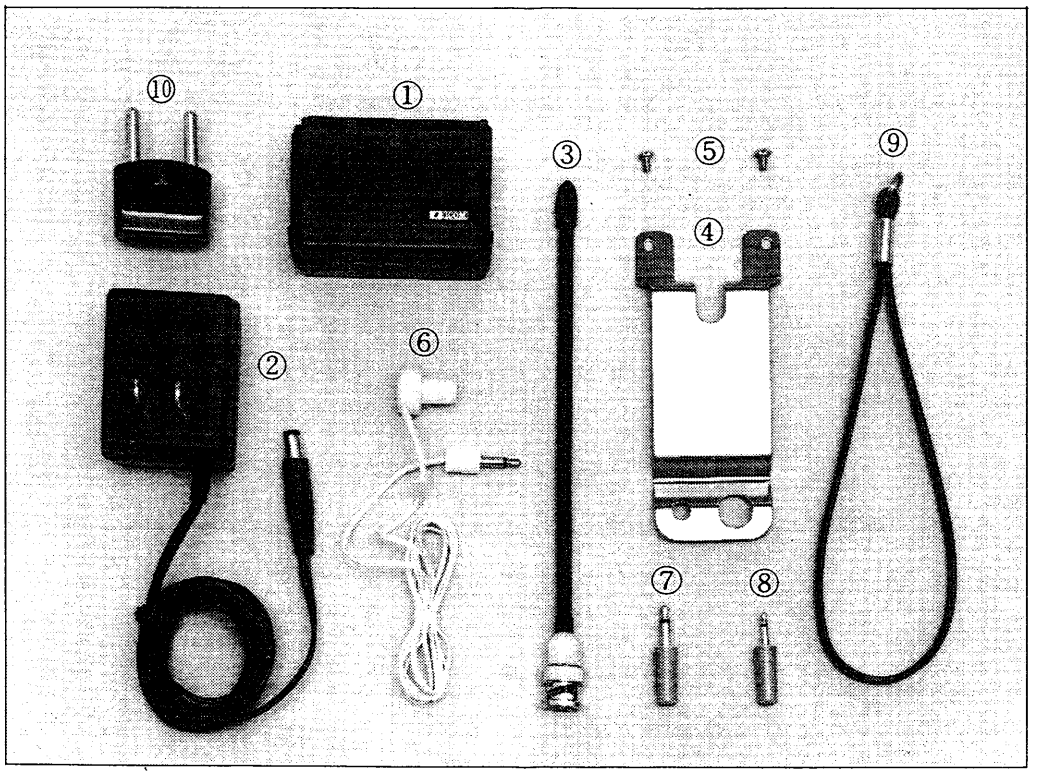
RECEIVER

Receiving System	Double-conversion superheterodyne
Modulation Acceptance	$16F_3$
Intermediate Frequency	1st: 21.8MHz 2nd: 455KHz
Sensitivity	More than 26dB S+N+D/N+D at 1μV Less than 0.5μV for 20dB Noise quieting
Squelch Sensitivity	Less than 0.4μV
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 400mW
Audio Output Impedance	8 ohms

Specifications are approximate and are subject to change without notice or obligation.

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 1
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9. Hand-strap 1
10. AC conversion plug (Universal type) 1

SECTION IV PRE-OPERATION

BATTERY INSTALLATION

When using Nickel-Cadmium power pack IC-BP3:

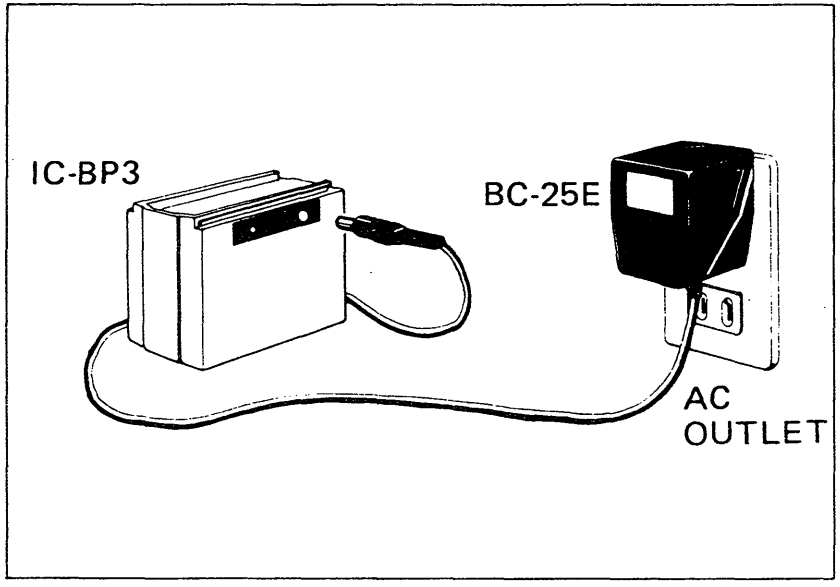
The IC-BP3 is a rechargeable Nickel-Cadmium power pack, and it can be slipped onto or off the set very easily. It has a connector for a charger, charge-current control circuit, reverse polarity protection circuit and charge indicator LED in its own pack. You can use the supplied BC-25E wall charger or 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.

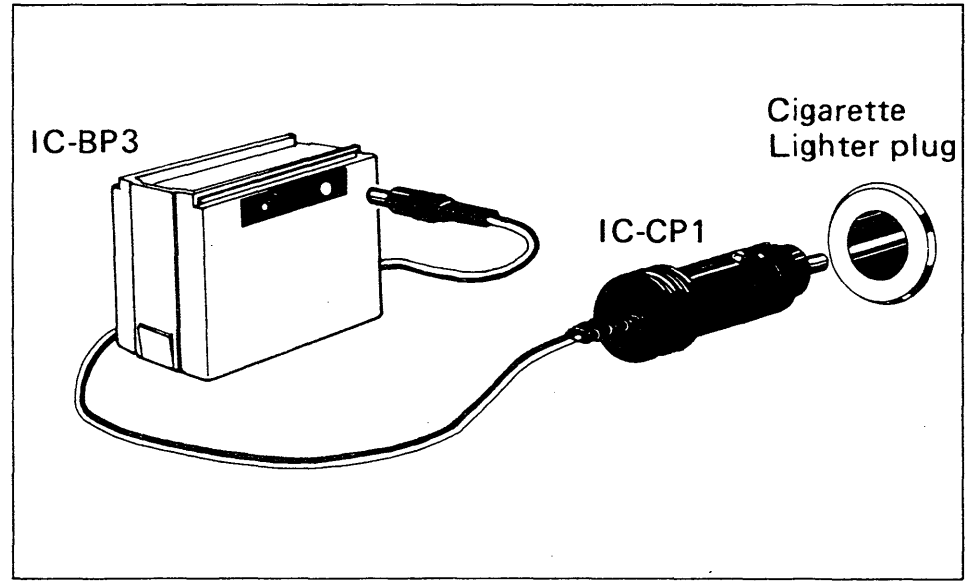
After charging is completed, the batteries can be used in the same manner as dry cells. However, the voltage of Nickel-Cadmium batteries drops rapidly just before they are exhausted, so when the Transmit Indicator LED of the transceiver goes out, be sure to immediately stop using it, and recharge the batteries again.

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

1. Use the supplied wall charger BC-25E 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-25E), 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 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.

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