

IC-02A/AT

144MHz FM TRANSCEIVER

INSTRUCTION MANUAL



TABLE OF CONTENTS

SECTION	1	FEATURES	1
SECTION	2	SPECIFICATIONS	3
SECTION	3	ACCESSORIES.....	5
SECTION	4	PRE-OPERATION	6
SECTION	5	CONTROL FUNCTIONS.....	9
SECTION	6	OPERATION	16
	6-1	RECEIVING	16
	6-2	TRANSMITTING	17
	6-3	KEY FUNCTIONS.....	19
	6-4	DIAL MODE.....	21
	6-5	MEMORY CHANNEL MODE	30
	6-6	PRIORITY FUNCTION.....	32
	6-7	LOCK FUNCTION.....	34
	6-8	SCANNING OPERATIONS	34
SECTION	7	INSIDE VIEWS	39
SECTION	8	TROUBLESHOOTING	41
SECTION	9	BLOCK DIAGRAM	45
SECTION	10	SCHEMATIC DIAGRAM.....	SEPARATE

SECTION 1 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 operating frequency can be entered by pushing the front panel keys as can the frequency step rate, duplex offset frequency and subaudible tone (IC-02AT only).

●MULTI-PURPOSE SCANNING

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

●10 MEMORY CHANNELS

The IC-02A/AT has ten memory channels and each channel stores the operating frequency as well as duplex/simplex, duplex offset and subaudible tone frequency (IC-02AT only) information for your operating convenience.

●SLIDE-ON BATTERY

The supplied IC-BP4 slides on or off the IC-02A/AT for easy removal or installation. A one button quick-release lock is provided to prevent unwanted removal.

- **RUGGED CONSTRUCTION**

Constructed with an all metal chassis, stainless steel battery slide rails, reinforced die-cast aluminum back as well as moisture and dust resistant seals, the IC-02A/AT is built to stand up to the most demanding environments.

- **EASY-TO-READ DISPLAY**

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

In addition an S/Rf meter is provided in the form of a segmented LCD bar across the bottom of the display.

- **DUAL POWER LEVELS**

Transmitter output can be switched easily between two levels; 3W 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 the standard aluminum case back provides superior heat sinking when the unit is run at that level.

- **VARIOUS ACCESSORIES AVAILABLE**

All IC-2 series accessories are compatible with the IC-02 series plus there are new options such as the IC-BP7 and IC-BP8 battery packs and the HS-10 headset with PTT switchbox and VOX unit options.

SECTION 2 SPECIFICATIONS

GENERAL

-Number of semiconductors	Transistors	42 (02AT: 48)
	FETs	3
	ICs	10 (02AT: 13)
	Diodes	40 (02AT: 46)
Frequency coverage	02A/AT: 144MHz ~ 148MHz (Some versions cover 140MHz ~ 149.995MHz without guaranteed specifications.)	
Frequency readout	6 digit 5kHz readout, LCD	
Frequency resolution	02A/AT: 5kHz steps (other steps such as 10kHz, 15kHz, 20kHz and 25kHz are programmable and available by pushing the UP/DOWN buttons)	
Frequency control	Digital PLL synthesizer with key input	
Frequency stability	Within 0.002% 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	12 ~ 15V DC for the EXTERNAL DC POWER JACK IC-BP2 ~ IC-BP8 BATTERY PACKS are acceptable.	
Current drain at 8.4V	Transmitting:	HIGH (3.5W) Approx. 1.1A
		LOW (0.5W) Approx. 0.45A
	Receiving:	At max audio output Approx. 140mA
		Squelched Approx. 35mA

Dimensions	116.5mm(H) x 65mm(W) x 35mm(D) without battery pack. IC-BP4 attendant battery pack: 49mm(H) x 65mm(W) x 35mm(D)
Weight	515g (IC-02A: 515g) including IC-BP4 battery pack and flexible antenna

TRANSMITTER

Output power	HIGH: 3.5W with IC-BP4 (9V) LOW: 0.5W with any ICOM battery pack
Emission mode	F3E 16K0 (16F3)
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	F3E 16K0 (16F3)
Intermediate frequencies	1st: 16.9MHz 2nd: 455kHz
Sensitivity	Less than 0.25μV for 12dB SINAD Less than 0.3μV 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

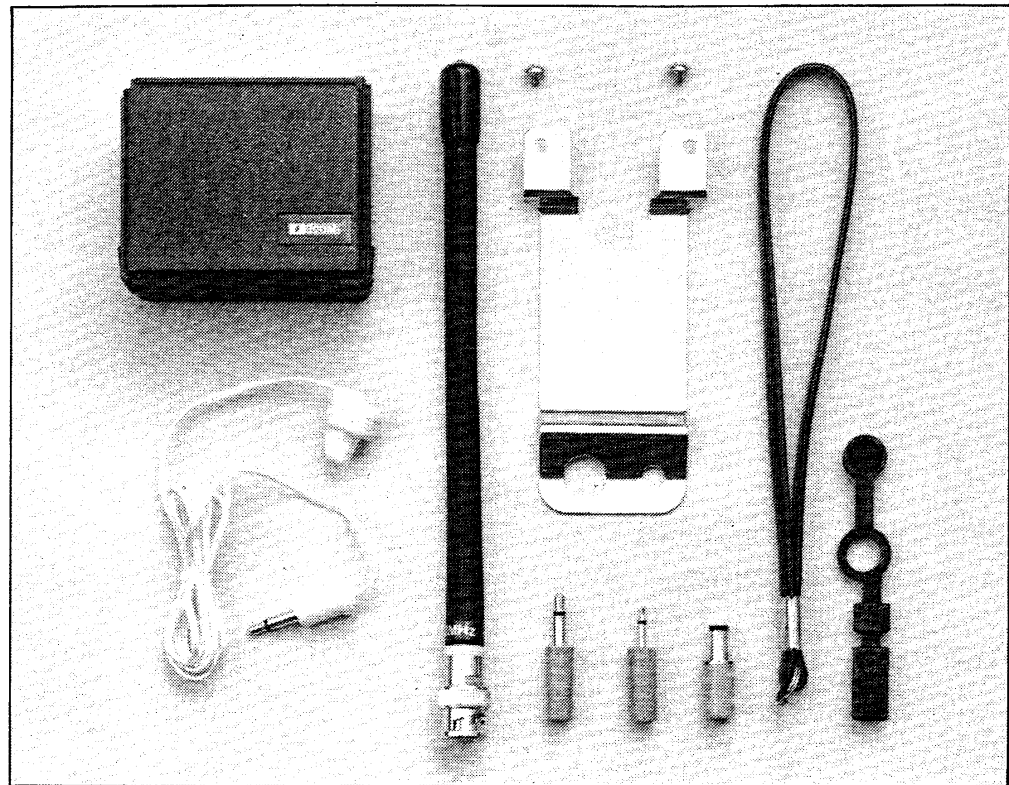
All stated specifications are subject to change without notice or obligation.

SECTION 3 ACCESSORIES

UNPACKING

Carefully remove your transceiver from the packing carton and examine it for signs of shipping damage. Notify the delivering carrier or dealer immediately, stating full details, should any damage be apparent. We recommend you keep the shipping carton for storing, moving or reshipping the transceiver if necessary. Accessory hardware, cables, etc., are packed with the transceiver. Make sure you have removed all equipment and parts before discarding the packing material.

1. Power pack IC-BP4
(Attached to the set.) 1
2. Flexible antenna 1
3. Belt clip 1
4. Earphone. 1
5. Earphone plug. 1
6. Microphone plug 1
7. DC Power plug 1
8. Hand-strap 1
9. Rainproof cap 1

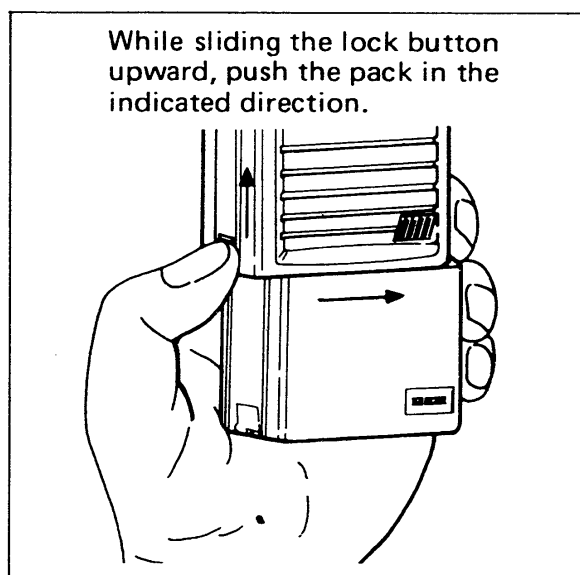


SECTION 4 PRE-OPERATION

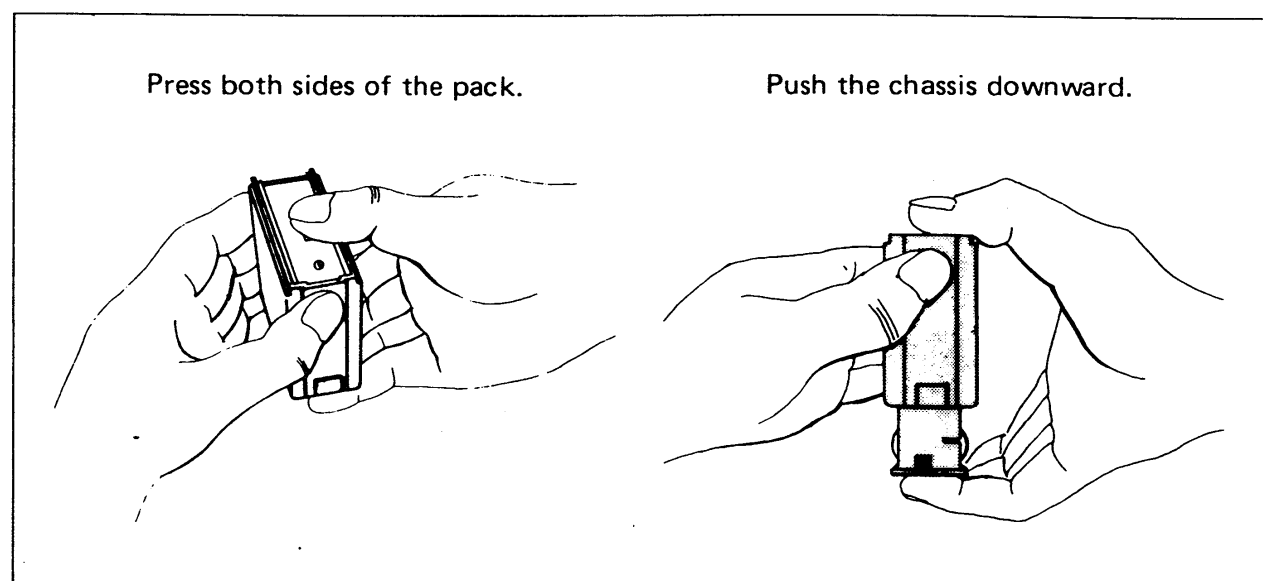
4 - 1 BATTERY INSTALLATION

(1) Using IC-BP4

- ① Place the power switch in the OFF position. Remove the power pack from the bottom of the set by pushing the pack in the indicated direction while sliding the lock button upward. Separate the pack into two parts as follows:



Also, AA type nickel-cadmium, rechargeable batteries can be used, but the charger for them should be the optional BC-35 charger.



- ② The chassis holds six AA type batteries. Install batteries into each holder, according to indicated polarity. With the batteries properly in place, carefully replace the pack and slip it onto the set with the reverse procedures.