IC-245E

2 METER FM
SSB-CW
Digital Synthesized
Transceiver

INSTRUCTION
MANUAL

ICOM

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ICOM

Congratulations on your purchase of the ICOM IC-245E. The IC-245E is unique in its mobility, flexibility and compact size. Outstanding performance capabilities are produced by the proprietary ICOM C-MOS LSI built into each IC-245E. By itself, the IC-245E gives full command of the 144 – 146 MHz 2 meter band. The IC-245E is a multimode 2MHz FM, USB, CW unit. Carefully reading this manual will help you get the most pleasure and effective use from your new transciever.

SECTION 1 FEATURES

Multi-mode mobile transceiver

The IC-245E provides 144 – 146MHz FM, USB, CW coverage in the 144 – 146MHz frequency range. Thus the IC-245E can be used for DX, local calls, and satellite work.

Refined appearance and convenient layout

The knobs are easy to handle, the readout is large and easy on the eyes due to digit brightness during the day and automatic dimming in darkness, and the meter is easy to read. Again, ICOM has produced a set that is as attractive as it is functional.

A unique C-MOS LSI

The ICOM chip makes the IC-245E a revolutionary transceiver. This multi-function chip incorporates years of ICOM digital and PLL technology development. Compact size, dual VFO performance and an accurate, stable, digitalized frequency readout are possible due to the chip. Pulses generated by turning the dial are counted, thus controlling an up/down counter that controls a programmable divider in the PLL to change frequencies. Crystal-controlled oscillator-accurate levels are produced. SSB tuning is 100Hz per vernier increment and FM is 5KHz per vernier.

Dual VFO's

Two separate VFO's can be used either independently or together for simplex operation, and any desired frequency split in duplex operation.

Continuous tuning system

ICOM's new continuous tuning system features an LED display that follows the tuning knob movement and provides and extremely accurate readout. Frequencies are displayed in 4 LED digits representing MHz to KHz. 100Hz digits are represented by each vernier scale mark. Automatic recycling restarts tuning at the top of the band, i.e., 145.999MHz when the dial goes below 144.000MHz. Recycling changes 145.999MHz to 144.000MHz as well. Quick tuning in 5KHz steps is available, and fine tuning in 100Hz steps is provided for trouble free QSO operation. A click-stop mechanism prevents knob rotation due to vibration in mobile use.

Excellent performance in operation

Nearby strong signal interference is overcome by a MOSFET RF amplifier circuit, a specially designed 1st mixer circuit and the helical cavities used in the IC-245E. These same elements provide great selectivity for binary signals, and maintain a high, stable sensitivity. A system of cascaded filters gives exceptional FM performance, and SSB performance is insured by a monolithic crystal filter and a ceramic filter.

The transmitter uses a balanced mixer in a single conversion system, a band-pass filter and a high-performance low-pass filter. This system provides distortion-free signals with a minimum spurious radiation level.

SECTION II SPECIFICATIONS

General Specifications

Semiconductor complement	Transistors	111
	FET	21
	IC (includ. LSI)	50
	Diodes	131
Frequency range	144.0MHz – 146.0MHz	
Frequency stability	Within ±1.5KHz at temperature variation from -10°C to +60°C.	
Mode	FM (F3)	
	SSB (A3J USB), CW (A1)	

Antenna impedence	50 ohms unbalanced
Power source voltage	DC 13.8V ± 15%
Grounding polarity	Negative ground
Power consumption (with DC 13.8V supply)	
in reception	at minimum AF volume 0.6A at maximum AF volume 0.8A
in transmission	at SSB (PEP 10W) 2.8A at CW FM (10W output) 2.8A at FM (10W output) 2.8A
Outline dimensions (in m/m)	(H) 90 x (W) 155 x (D) 235 (protruding portions not included)
Weight	Approx. 2.7Kg

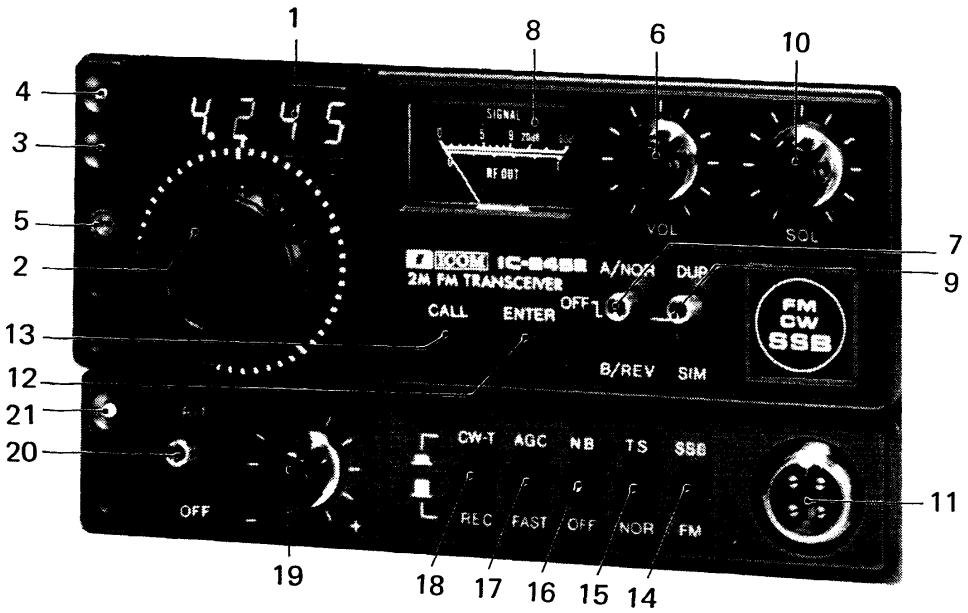
Transmitter unit

Frequency range	144.0MHz – 146.0MHz Continuously variable. Digital 2 VFO system.
RF output power	SSB 10W (PEP) CW 10W FM 10W
Type of modulation	FM variable reactance frequency modulation
Maximum frequency deviation (FM)	±5KHz
Spurious level	Lower than -60dB
SSB carrier suppression ratio	More than 40dB
Microphone	500 ohms dynamic microphone with push-to-talk switch (IC-SM2 electric condenser microphone usable)

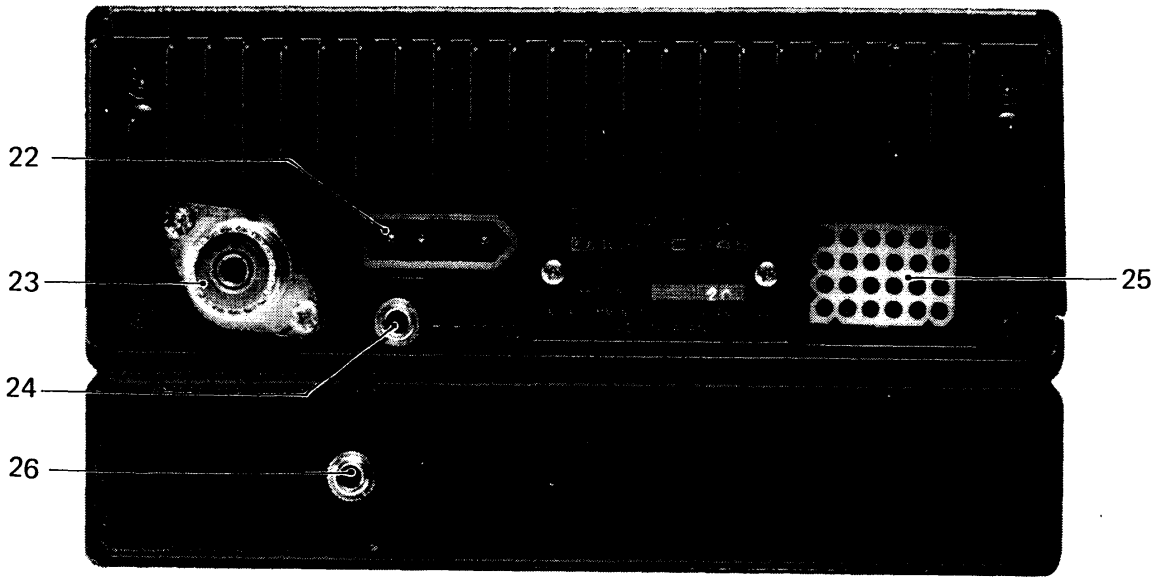
Receiver unit

Frequency Range	Same as transmitter
Receiving System	SSB, CW Single Super Heterodyne FM Double Super Heterodyne
Intermediate Frequency	SSB, CW 10.7MHz FM 10.7MHz, 455KHz
Sensitivity	SSB, CW 0.5μV at (S+N)/N 10dB or better Noise Suppression Sensitivity 20dB 0.6μV or less
Squelch Sensitivity (FM)	0.4μV or less
Suprious Sensitivity	-60dB or better
Selectivity	SSB, CW ± 1.2KHz or better at -6dB ± 2.4KHz or better at -60dB FM ± 7.5KHz or better at -6dB ± 15KHz or better at -60dB
Audio Output	More than 1.5W (into 8Ω)
Audio Output Impedance	8 ohms

FRONT VIEW



BACK VIEW

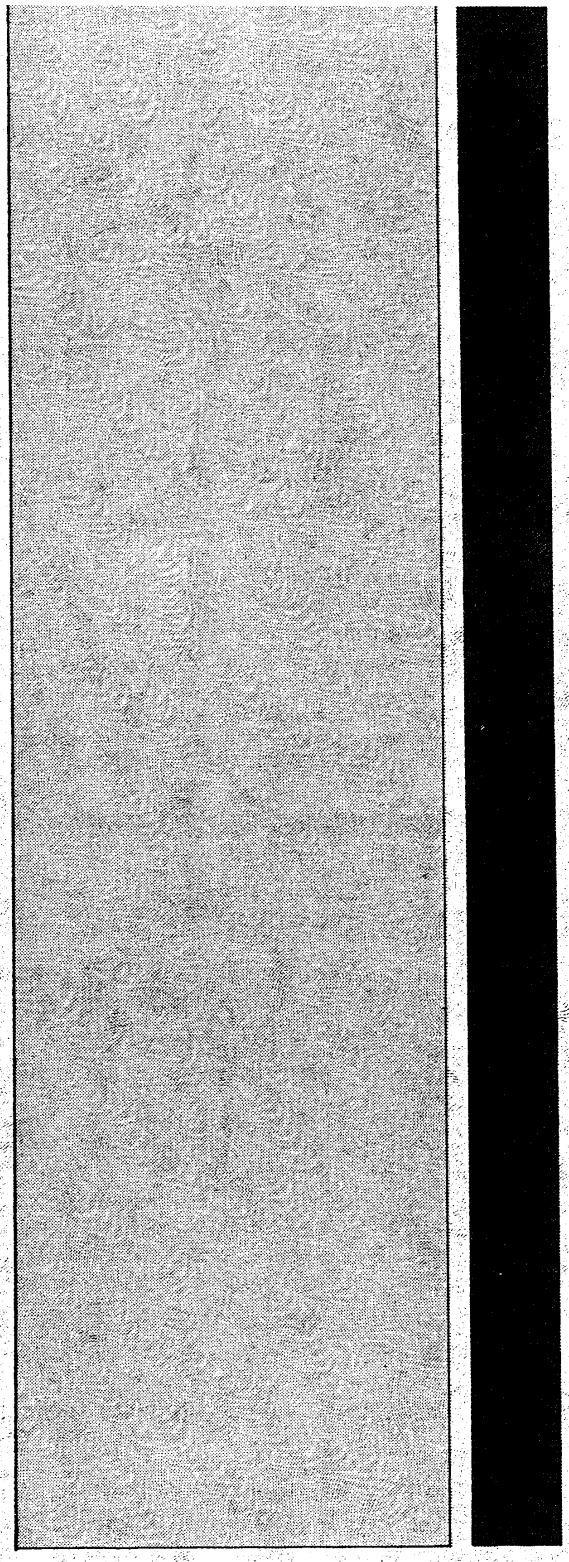


SECTION III CONTROLS

Front Panel Configuration

The front panel controls are shown in Fig.

	CONTROL or CONNECTION	DESCRIPTION
1	Frequency Display	The operating frequency display of the set is shown by a 4-figure LED digital indicator with MHz to KHz digits. The frequency displayed is the carrier frequency of each communication mode (FM, SSB or CW), thus eliminating retuning when a mode is changed.
2	Tuning Knob	The tuning knob selects receiving and transmitting frequencies. Rotating, one vernier graduation shifts the frequency by 100Hz (5KHz by one complete rotation) in SSB and by 5 KHz steps (500KHz by one complete rotation) in FM. Push the TS switch (12) to change frequencies in 5KHz steps in SSB. For SSB operation frequencies are changed in 100KHz, and in FM, in 5KHz steps.
3	RECEIVE LED	Illuminated during reception. In FM operation, it is illuminated only when the squelch opens.
4	TRANSMIT LED	Illuminated during transmission.
5	Photo Sensor	A sensor used to detect the brightness of surroundings. When operating the set in the dark, the sensor actuates the dimmer circuit to furnish easier reading of meters and the frequency readout by reducing the light intensity level.
6	VOL (Volume Control) Knob	A knob used to control the audio-level of the received signals. Turning clockwise will increase the audio level. Set the volume to the proper audio level as desired.
7	VFO Switch	A selector switch used to either "A/Norm" or "B/Rev" VFO. When set to "A", both reception and transmission will operate with "A" VFO and when set to "B", they will operate with B-VFO. When changing from A to B VFO, the frequency used before change over of the selector switch is memorized in A VFO. Even after changing frequency with B-VFO, the memorized A-VFO frequency is still usable by restoring the switch to "A" position. (From B to A, the same function is provided.)
8	Meter	When receiving, this meter will operate as an S-meter to indicate signal strength and when transmitting, the meter shows relative RF-power output.



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