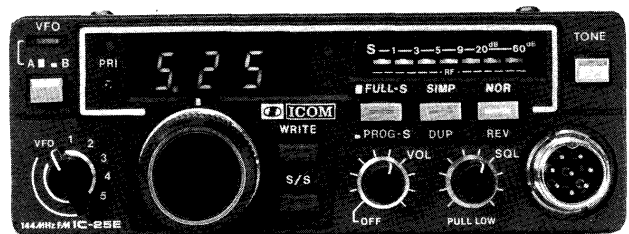


# IC-25A/E

144MHz FM TRANSCEIVER

## INSTRUCTION MANUAL



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## SECTION I SPECIFICATIONS

### GENERAL

Numbers of semi-conductors	: Transistor	48	
	FET	5	
	IC	21 (IC-25A : 20)	
	Diode	89 (IC-25A : 91)	
Frequency coverage	: 144.000 ~ 145.995MHz (IC-25A : 143.800 ~ 148.195MHz)		
Frequency resolution	: 5KHz/25KHz steps	(IC-25A : 5KHz/15KHz steps)	
Frequency control	: Microcomputer based 5KHz step Digital PLL synthesizer		
	Independent Dual VFO Capability.		
Frequency stability	: Within $\pm 1.5$ KHz		
Memory channels	: 5 channels with any inband frequency programmable		
Usable conditions	: Temperature: $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$ ( $14^{\circ}\text{F} \sim 140^{\circ}\text{F}$ )		
	Operational time: Continuous		
Antenna impedance	: 50 ohms unbalanced		
Power supply requirement	: 13.8V DC $\pm 15\%$ (negative ground) 6A Max.		
Current drain (at 13.8V DC)	: Transmitting	HIGH (25W)	Approx. 4.8A
		LOW (1W)	Approx. 1.3A
	Receiving	At max audio output	Approx. 0.6A
		Squelched	Approx. 0.4A
Dimensions	: 50mm(H) x 140mm(W) x 177mm(D)		
Weight	: Approx. 1.5kg		

### TRANSMITTER

Output power	: 25W (HIGH), 1W (LOW)		
Emission mode	: $16\text{F}_3$		
Modulation system	: Variable reactance frequency modulation		
Max. frequency deviation	: $\pm 5$ KHz		
Spurious emission	: More than 60dB below carrier		
Microphone	: 1.3Kohm dynamic microphone with built-in preamplifier		
	and push-to-talk switch		
Operating mode	: Simplex, Duplex		
	(Any inband frequency separation programmable)		
Tone burst	: 1750Hz $\pm 0.1$ Hz (IC-25A : Not installed)		

### RECEIVER

Receiving system	: Double-conversion superheterodyne		
Modulation acceptance	: $16\text{F}_3$		
Intermediate frequency	: 1st: 16.9MHz		
	2nd: 455KHz		
Sensitivity	: More than 30dB S+N+D/N+D at $1\mu\text{V}$		
	Less than $0.6\mu\text{V}$ for 20dB Noise quieting		
Squelch sensitivity	: Less than $0.4\mu\text{V}$		
Spurious response rejection ratio	: More than 60dB		
Selectivity	: More than $\pm 7.5$ KHz at $-6$ dB point		
	Less than $\pm 15$ KHz at $-60$ dB point		
Audio output power	: More than 2.0W		
Audio output impedance	: 4 ~ 8 ohms		

## SECTION II DESCRIPTION

### 144MHz FM TRANSCEIVER INCORPORATING A MICROCOMPUTER

CPU control with ICOM's original programs provide various operating capabilities. No-backlash dial controlled by ICOM's unique rotary encoder circuit. The band-edge detector and Endless System provides out-of-band protection. There are no variable capacitors or dial gear, ensuring problem-free use. The IC-25A/E can accommodate FM, coverage in the 144 ~ 146MHz (IC-25A: 143.8 ~ 148.2MHz) frequency range.

### MULTI-PURPOSE SCANNING

The Memory Scan allows you to monitor five different memory channels and two VFO frequencies, and the Program Scan provides scanning between two programmed frequencies. The scanning speed is adjustable, and the auto-stop terminates scanning when a signal is received or a channel is empty.

### DUAL VFO'S

Two separate VFO's can be used independently either for simplex operation or for duplex operation, and any desired frequency can be 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 an extremely accurate readout. Frequencies are displayed in 4 LED digits representing 5KHz digits.

Automatic recycling restarts tuning at the top of the band, i.e., at 145.995MHz when the dial goes below 144.000MHz. Recycling changes 145.995MHz to 144.000MHz as well. Quick tuning in 25KHz steps (IC-25A : 15KHz) is available with VFO "B", and is also provided for trouble free QSO (IC-25A : 145.995MHz and 144.000MHz should be read 148.195MHz and 143.800MHz.)

### OUTSTANDING PERFORMANCE

The RF amplifier using a MOS FET and the first mixer using a double balanced mixer, and other circuits provide excellent cross modulation and two-signal selectivity characteristics. The IC-25A/E has excellent sensitivity demanded especially for mobile operation, high stability, and with a pair of high quality monolithic crystal filters and ceramic filters facilitates very stable receiving and excellent durability.

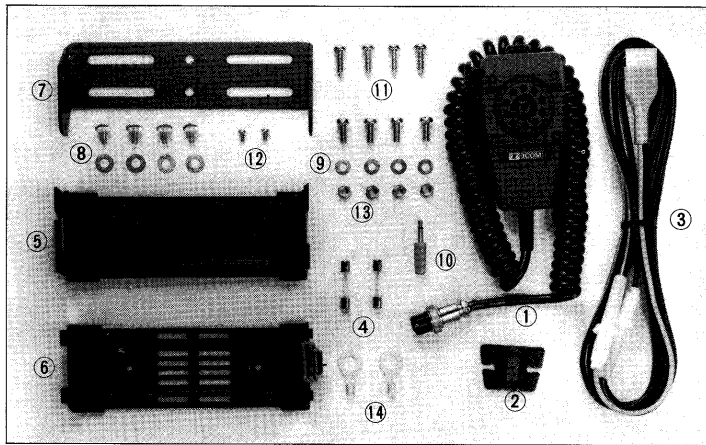
The transmitter uses the double balanced mixer (the same one for receiver) in a single conversion system, a band-pass filter and a high-performance low-pass filter. This system provides distortion-free signals with a minimum spurious radiation level.

The IC-25A/E has everything you need to truly enjoy VHF FM operation, in an extremely compact, rugged transceiver, designed to ensure high quality, long term use.

## SECTION III INSTALLATION

### UNPACKING

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. Accessory hardware, cables, etc., are packed with the transceiver. Make sure you have not overlooked anything.

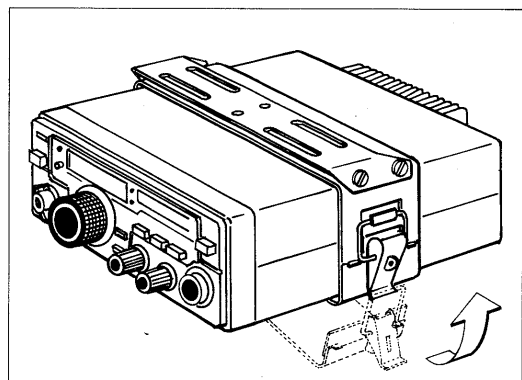
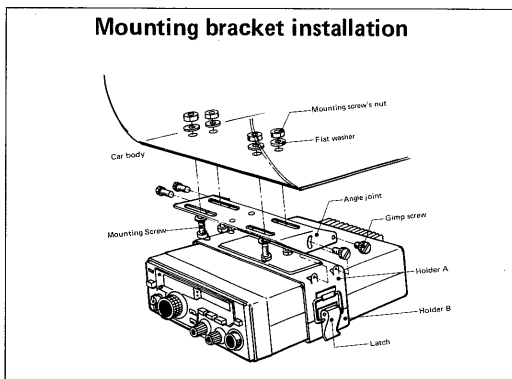


- |   |   |   |    |
|---|---|---|----|
| 1. Microphone (dynamic type IC-HM7) . . . . . | 1 | 8. Gimp screws . . . . .                    | 4  |
| 2. Microphone hook . . . . .                  | 1 | 9. Flat washers . . . . .                   | 12 |
| 3. Power cord . . . . .                       | 1 | 10. Plug for speaker . . . . .              | 1  |
| 4. Spare fuses (10A) . . . . .                | 2 | 11. Mounting screws . . . . .               | 8  |
| 5. Installing holder A . . . . .              | 1 | 12. Screws for additional bracket . . . . . | 2  |
| 6. Installing holder B . . . . .              | 1 | 13. Mounting screw's nuts . . . . .         | 4  |
| 7. Installing angle joint . . . . .           | 1 | 14. Battery terminal lugs . . . . .         | 2  |

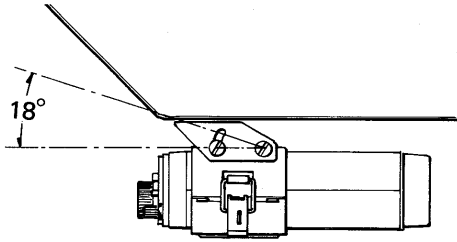
**Note:** Some version supplies IC-HM8 (dual tone encoder mic) instead of IC-HM7.

### LOCATION

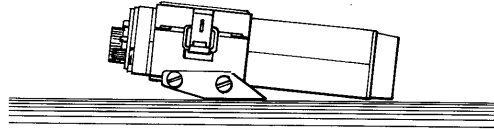
Where you place the transceiver in your automobile is not critical and should be governed by convenience and accessibility. Since the unit is so compact, many mobile possibilities present themselves. In general, the mobile mounting bracket will provide you with some guide as to placement. Any place where it can be mounted with metal screws, bolts, or pop-rivets will work. For fixed station use, a power supply should be designed to produce 6 amps for the transceiver.



**Angle adjustment**



**Optional installation**

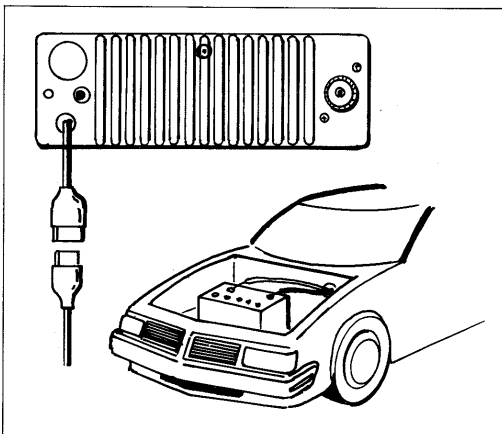


### POWER REQUIREMENTS

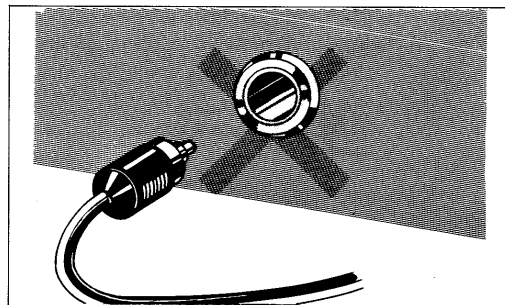
The transceiver is supplied ready to operate from any regulated 13.8V DC, 6 ampere negative ground source. An automobile 12 volt, negative ground, system is usually more than adequate. Some note must be taken, however, of the condition of the vehicle's electrical system. Items such as low battery, worn generator/alternator, poor voltage regulator, etc., will impair operation of your transceiver as well as the vehicle. High noise generation or low voltage delivery can be traced to these deficiencies. If an AC power supply is used with your transceiver, make certain it is adequately regulated for both voltage and current. Low voltage while under load will not produce satisfactory results from your transceiver. Receiver gain and transmitter output will be greatly impaired. Caution against catastrophic failure of the power supply should be observed.

**CAUTION:** Excessive Voltage (above 15VDC) will cause damage to your transceiver. Be sure to check source voltage before plugging in the power cord.

Included with your transceiver is a DC power cable with plug attached. The Red Wire is positive (+), the Black, negative (-). If your mobile installation permits, it is best to connect these directly to the battery terminals. This arrangement eliminates random noise and transient spikes sometimes found springing from automotive accessory wiring. If such an arrangement is not possible, then any convenient B+ lead in the interior of the vehicle and the negative frame can be utilized. Remember, the unit operates on a negative ground system only; it cannot be used in a positive ground automobile. After making your connections, simply insert the plug into your transceiver.



Do not use a cigarette lighter socket.





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