

ICOM

INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

IC-M5

Icom Inc.

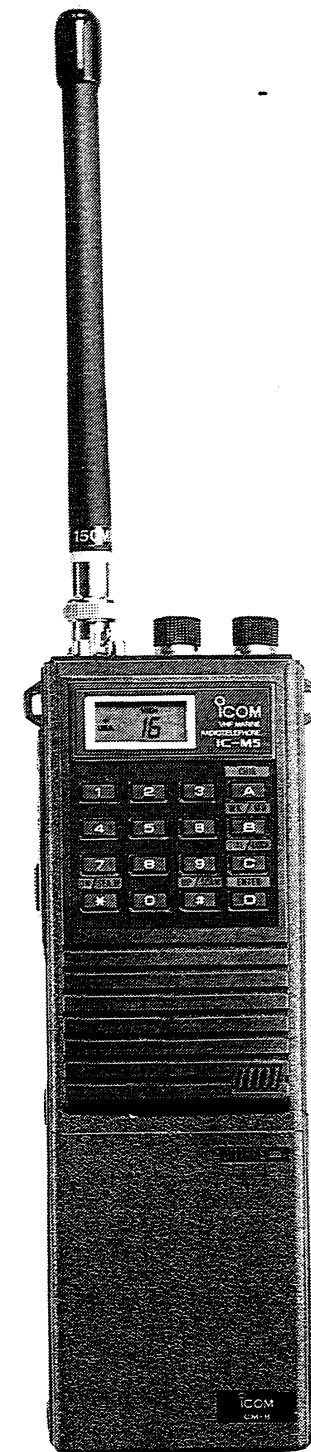


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CAUTION: The use of non-Icom battery packs/chargers may impair transceiver performance and invalidate the warranty.

SECTION I INTRODUCTION

SYNTHESIZED HANDHELD TRANSCEIVER

The ICOM IC-M5 is a very compact VHF synthesized handheld transceiver. Using the latest in electronic design, the IC-M5 offers key-board frequency selection. The IC-M5 covers all U.S. and International channels and 10 WEATHER channels.

The Channel 16 PRIORITY button gives instant access to that channel. Offering rugged construction, extreme stability and frequency accuracy, the IC-M5 will give you years of trouble-free operation.

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, higher power or longer use.

HIGHLY EFFICIENT FLEXIBLE ANTENNA

A highly efficient flexible antenna is supplied with the set. Since the IC-M5 uses a standard BNC-type connector an external antenna may be easily substituted for the flexible antenna.

MOISTURE PROOF

When the belt clip screws and rainproof cap for the top panel are in place, the IC-M5 is splash resistant.

SECTION II SPECIFICATIONS

GENERAL

Number of Semiconductors	Transistors	40
	FET	3
	IC	8
	Diodes	20
Number of Channels	All U.S.A. and International channels and 10 Weather channels (Auxiliary Priority channels available) Operation; Simplex, Semi-duplex	
Channel Spacing	25 KHz	
Frequency Stability	0.0005 Percent	
Usable Temperature	-20 Degrees C to 60 Degrees C (-4 Degrees F to 140 Degrees F)	
Antenna Impedance	50 ohms unbalanced	
Power Supply Requirement	Any ICOM battery pack listed on p. 35 12 ~ 15V DC from EXT. DC JACK	
Current Drain at 13.2V	Transmitting	
	At 5 watts output	Approx. 1.45A
	Receiving	
	At max audio output	Approx. 140mA
	Squelched	Approx. 35mA
Dimensions	118(129)mm(H) x 65(74)mm(W) x 35(41)mm(D) without power pack Attendant power pack, CM-7: 80mm(H) x 65mm(W) x 35mm(D) (); Shows the dimensions including projections	
Weight	590g including power pack, CM-7 and flexible antenna	

RECEIVER

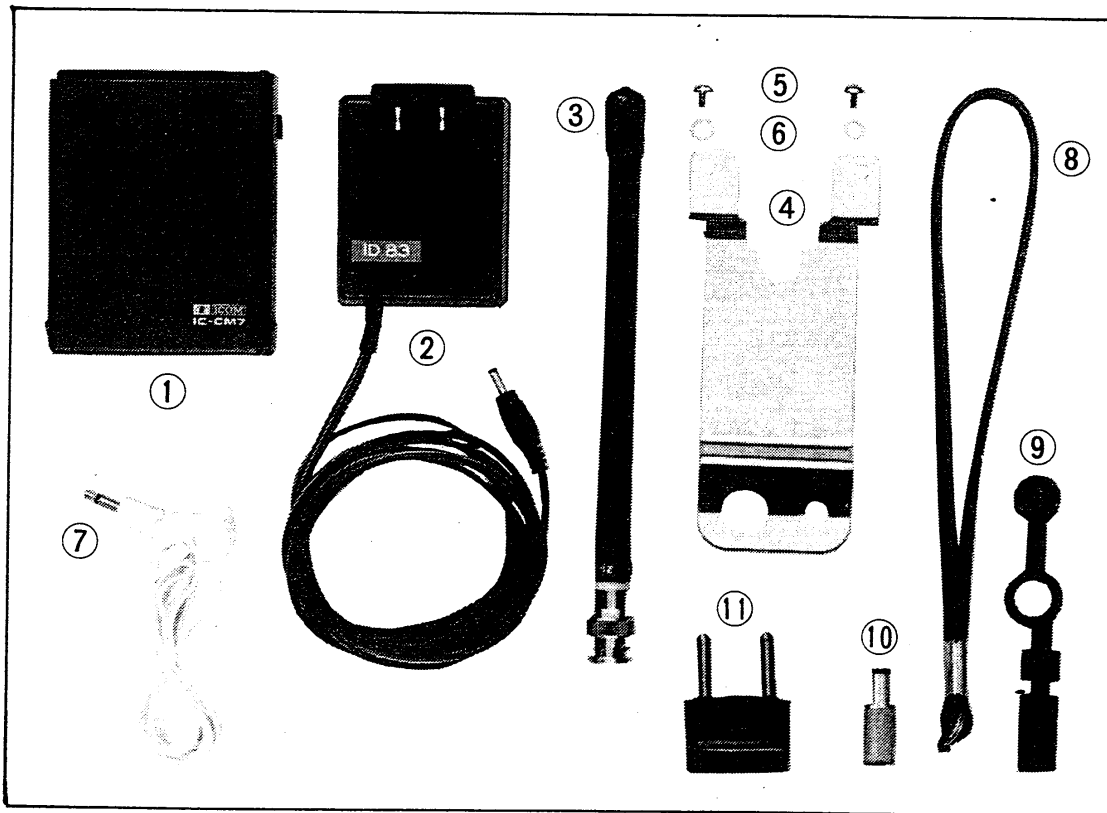
Frequency Range	156.025 ~ 157.425MHz and 160.625 ~ 163.275MHz
Receiving System	Double-conversion superheterodyne
Modulation Acceptance	16F ₃ ±7.5KHz (F3E 16K0).
Intermediate Frequency	1st: 16.9MHz 2nd: 455KHz
Sensitivity	Less than 0.3μV for 20dB Noise quieting Less than 0.25μV for 12dB SINAD
Squelch Sensitivity	Less than 0.1μV
Spurious response rejection ratio	More than 60dB
Selectivity	More than 65dB at adjacent channel
Intermodulation Rejection Ratio	More than 60dB
Audio Output Power	More than 500mW at 10% distortion
Audio Output Impedance	8 ohms

TRANSMITTER

Frequency Range	156.025 ~ 157.425MHz
Output Power	Hi: 5 watts, Low: 1 watt (Hi: 2.5 watts, Low: 1 watt with CM-8 8.4V battery)
Emission Mode	16F ₃ (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 (CM-9 or EM-46) and Headset (HS-10) can be used.

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 that 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 CM-7 1
(attached to the set)
2. Wall charger CM-16U/E* . 1
3. Flexible antenna 1
4. Belt clip. 1
5. Belt clip retaining screws. 2
6. Plastic washers 2
7. Earphone. 1
8. Hand-strap. 1
9. Rainproof cap. 1
10. DC Power plug 1
11. AC conversion plug** . . 1
* CM-16U for 117V AC
CM-16E for 240V AC
** 117V AC version is not included.

SECTION IV PRE-OPERATION

BATTERY INSTALLATION

The supplied CM-7 NiCd POWER PACK is rechargeable and can be charged with the supplied CM-16U/E WALL CHARGER, optional CM-35 DESK CHARGER, or a 12V battery using the optional IC-CM1 cable. Before using the power pack, charge it for 15 hours with the CM-16U/E or 1.5 hours with the CM-35.

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 channel display is present, be sure to stop operating, and recharge the batteries.

When operating the transceiver in environments where re-charging is difficult or impossible, the optional CM-12 BATTERY PACK is recommended for use.

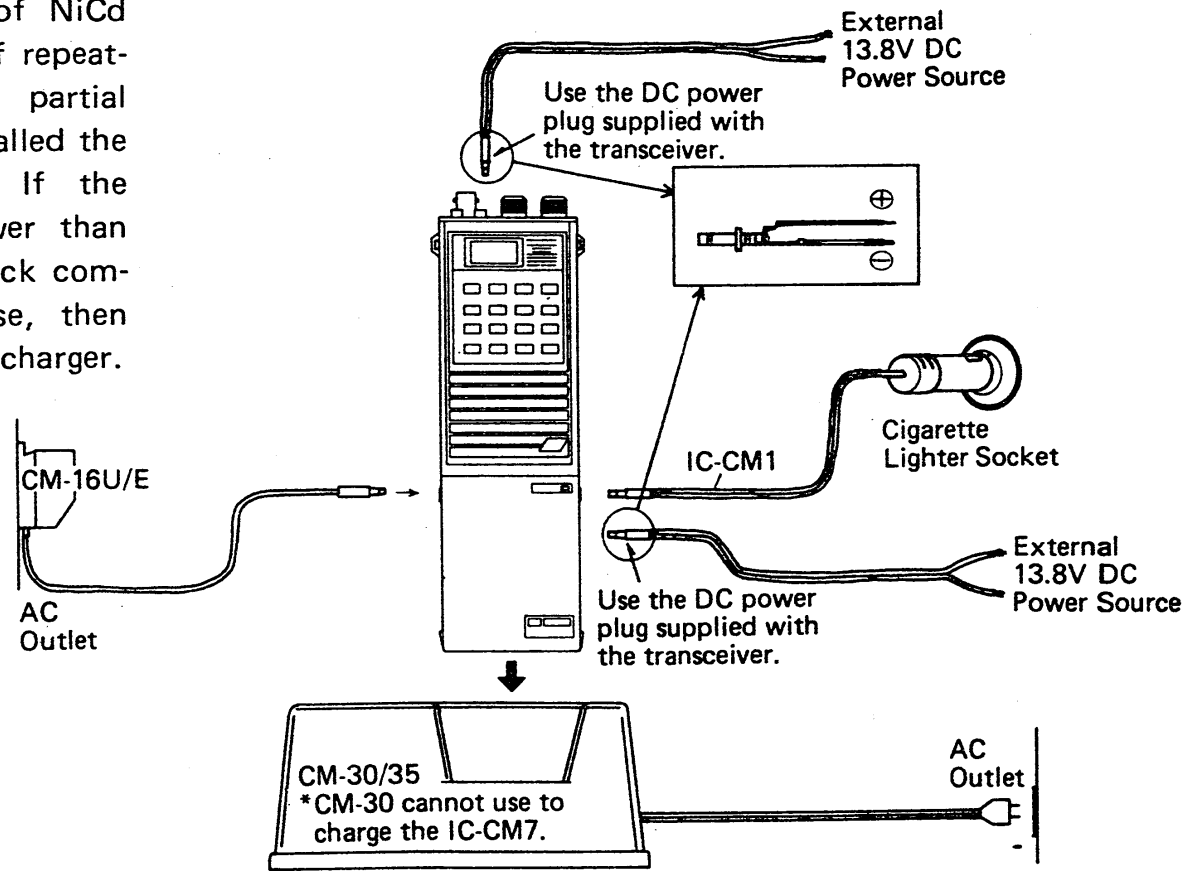
HOW TO CHARGE (When using Nickel-Cadmium power pack CM-7)

1. Use the supplied CM-16U/E WALL CHARGER, optional CM-35 DESK CHARGER, or a stable power source with an output voltage of 13.8V DC and current capacity over 100mA, or use a 12V battery with the optional IC-CM1 cable. (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.

- Connect the output plug of the wall charger (CM-16U/E), or other power source, to the charger socket of the power pack.
The charge indicator LED of the power pack is lit, which shows that the charger is working.

BATTERY PACK NOTE:

The full charge capacity of NiCd batteries may be reduced if repeatedly charged with only partial discharge periods. This is called the battery memory effect. If the battery capacity seems lower than when new, discharge the pack completely through normal use, then charge fully using the proper charger.



4. It takes about 15 hours to charge the batteries completely with CM-16U/E. This charger is designed for 0.1C (10-hour rate current). Charging for 15 hours compensates for any unbalance of the batteries. (It takes about 1.5 hours with CM-35)
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 continuous charging as much as possible after full charging, (15 hours). If excess charging is repeated, the total life 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.

EXTERNAL POWER SOURCE

For use at home or for long periods, please use an external power source which assures you of stable communications without the concern of battery consumption.

1. Use either a regulated power supply or a battery of 13.8V DC and of over 1.5A current capability.
2. Correctly connected the external supply to the external DC power jack as shown in the figure. If polarity is reversed, source power is cut off by the protection circuit and the unit will not operate.

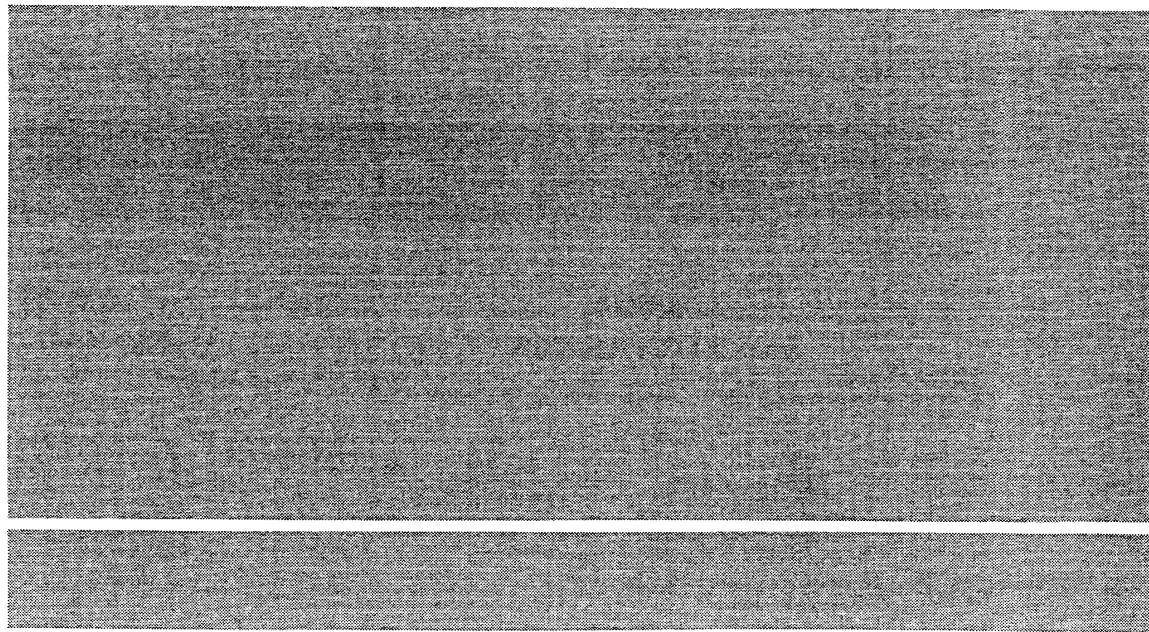


PRECAUTIONS FOR USE OF THE NICKEL-CADMIUM BATTERIES (from the JIS C8705 MANUAL)

General Cautions

1. Never short the power pack.
Since internal resistance is low, excess shorted current flows away, causing the batteries or conductors to burn. Avoid shorts! The polarity is shown on the power pack.
2. Never solder the batteries directly.
If the batteries are soldered directly, the separator or insulator may become melted and damaged. Accordingly, the terminal must be spot-welded first and then soldered.
3. Confirm polarities in order to prevent reverse charging.
If they are charged in reverse, batteries may be damaged. Therefore confirmation of correct polarity is essential, to proper operation.
4. Never charge with excess charging current.
If an excess charging rate is employed, gas consumption speed cannot keep up with gas generating speed at the time of charging. Batteries may be damaged by increasing internal pressure. Accordingly, the charging must be kept regulated.
5. Avoid charging under 0°C or over 40°C.
Under 0°C, since gas consumption speed becomes lower at the charging time, inside pressure increases and hydrogen is generated. Since charging efficiency is reduced over 40°C, it is rather difficult to charge. Accordingly, charging must be done between 0°C and 40°C.
6. Never put batteries into fire.
Since there may be a little gas left in the batteries, internal pressure increases suddenly and the batteries explode if thrown into a fire. Also, battery electrolyte is ejected and can cause damage to skin and clothes.

Count on us!



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