ICOM®

INSTRUCTION MANUAL

HF/50 MHz
ALL MODE TRANSCEIVER

IC-703

Icom Inc.

FOREWORD

Thank We understand that you have a choice of many different radios in the market place. We want to take a couple of moments of your time to thank you for making the IC-703 your radio of choice, and hope you agree with Icom's philosophy of "technology first." Many hours of research and development went into the design of your IC-703.

FEATURES

- *DSP features (AF DSP; UT-106 DSP UNIT required some version)*
- *All mode capability covering 160–6 m*
- *9.0–15.87 V operation*
- *Compact with detachable front panel*
- *±0.5 ppm of high frequency stability*
- *Built in antenna tuner*
- *Simple band scope function*

IMPORTANT

READ THIS INSTRUCTION MANUAL CAREFULLY before attempting to operate the transceiver.

SAVE THIS INSTRUCTION MANUAL. This manual contains important safety and operating instructions for the IC-703.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ **WARNING**	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No risk or personal injury, fire or electric shock.

PRECAUTION

⚠ **WARNING RF EXPOSURE!** This device emits Radio Frequency (RF) energy. Extreme caution should be observed when operating this device. If you have any questions regarding RF exposure and safety standards please refer to the Federal Communications Commission Office of Engineering and Technology's report on Evaluating Compliance with FCC Guidelines for Human Radio Frequency Electromagnetic Fields (OET Bulletin 65).

⚠ **WARNING HIGH VOLTAGE! NEVER** attach an antenna or internal antenna connector during transmission. This may result in an electrical shock or burn.

⚠ **NEVER** apply AC to the [DC13.8V] receptacle on the transceiver rear panel. This could cause a fire or damage the transceiver.

⚠ **NEVER** apply more than 16 V DC, such as a 24 V battery, to the [DC13.8V] receptacle on the transceiver rear panel. This could cause a fire or damage the transceiver.

⚠ **NEVER** let metal, wire or other objects touch any internal part or connectors on the rear panel of the transceiver. This may result in an electric shock.

NEVER expose the transceiver to rain, snow or any liquids.

AVOID using or placing the transceiver in areas with temperatures below –10°C (+14°F) or above +60°C (+140°F). Be aware that temperatures on a vehicle's dashboard can exceed 80°C (+176°F), resulting in permanent damage to the transceiver if left there for extended periods.

AVOID placing the transceiver in excessively dusty environments or in direct sunlight.

AVOID placing the transceiver against walls or putting anything on top of the transceiver. This will obstruct heat dissipation.

Place unit in a secure place to avoid inadvertent use by children.

During mobile operation, **DO NOT** operate the transceiver without running the vehicle's engine. When the transceiver's power is ON and your vehicle's engine is OFF, the vehicle's battery will soon become exhausted.

Make sure the transceiver power is OFF before starting the vehicle. This will avoid possible damage to the transceiver by ignition voltage spikes.

During maritime mobile operation, keep the transceiver and microphone as far away as possible from the magnetic navigation compass to prevent erroneous indications.

BE CAREFUL! The rear panel will become hot when operating the transceiver continuously for long periods.

BE CAREFUL! If a linear amplifier is connected, set the transceiver's RF output power to less than the linear amplifier's maximum input level, otherwise, the linear amplifier will be damaged.

Use Icom microphones only (supplied or optional). Other manufacturer's microphones have different pin assignments, and connection to the IC-703 may damage the transceiver.

Beat signals may be heard on some frequencies. These will occur as a result of circuit construction.

For U.S.A. only

Caution: Changes or modifications to this transceiver, not expressly approved by Icom Inc., could void your authority to operate this transceiver under FCC regulations.

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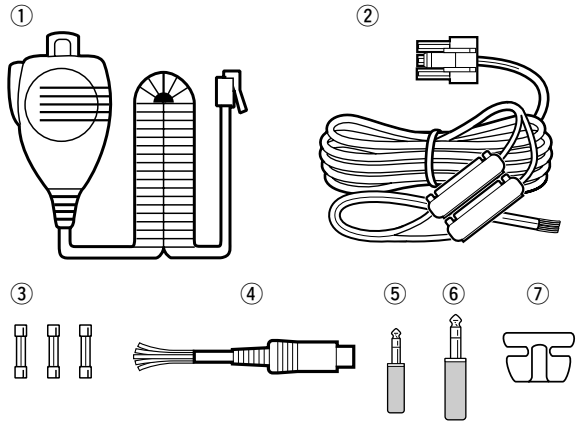
SUPPLIED ACCESSORIES

The transceiver comes with the following accessories.

	Qty.
① Hand microphone (HM-103)	1
② DC power cable (OPC-1229)	1
③ Spare fuse (FGB 4 A)	3
④ ACC cable	1
⑤ 3.5 (d) mm plug	1
⑥ 6.5 (d) mm Electronic keyer plug	1
⑦ Microphone hanger	1



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QUICK REFERENCE GUIDE

■ Installation

1. Install a ground system for DC noise suppression and RFI suppression
2. Install your DC power supply
3. Install lightning protection. This will help protect more than your gear.
4. Install and connect an antenna system for the appropriate bands of operation
5. Connect other peripheral equipment. This includes microphones, headsets, TNC, amplifiers and any other equipment necessary to make your shack complete.

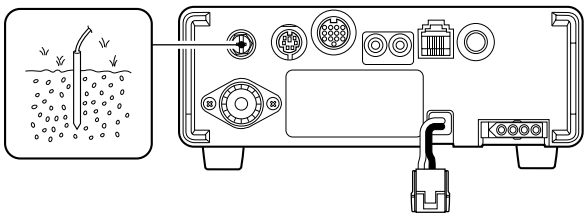
1. Grounding your Shack

Although your radio will operate by connecting the DC power supply and antenna, it is necessary to have a good ground system in your shack. A ground connection is the electrical contact between the common point of an electrical or electronic system and the earth.

A good earth ground is necessary to prevent electrical shock, eliminate problems from RFI and DC noise. With more electronic devices being used today, it is also important to reduce RFI and EMI. Although you may not see interference in your shack, without a grounding system, your neighbours may experience interference. Even though many of these devices are Part 15, where they must accept interference from their surrounding environment, it is best to eliminate as much of the possible interference from your shack.

If you do not have a grounding system for your shack, depending on the location of your shack, basement or ground floor, a good ground system can be as simple as a couple of ground rods driven 6 to 8 feet into the soil. When installing your IC-703 to your grounding system, the shortest most direct connection is recommended.

NOTE: There are many publications covering proper grounding techniques. Check with your local dealer for more information and recommendations.



⚠ **WARNING!: NEVER** ground station equipment or antennas to house gas lines. **NEVER** attach ground lines to plastic (pvc) pipe.

◇ Some Symptoms if inadequate grounding

a. Poor DC Ground

50/60 Hz hum on the audio either Rx or Tx without the antenna connected.

If you feel a tingling sensation when you touch a metal surface. Surfaces such as the cover of your radio or power supply.

b. Poor RF Ground

While transmitting and you feel a tingling sensation when you touch a metal surface. Surfaces such as the cover of your radio or power supply.

While transmitting, you experience interference to other electronic devices, such as the telephone, television or stereo audio systems.

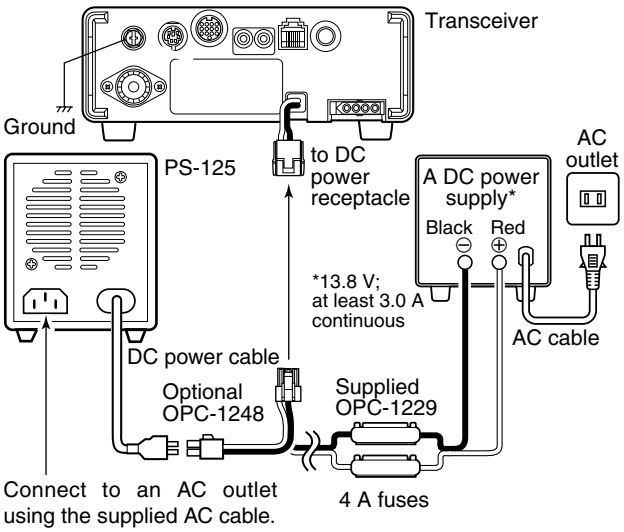
2. Installing your DC Power Supply

The DC power supply is a device used to convert 110/220 V AC, also know as Household current, to a steady source of 13.8 V DC.

The perfect match to your IC-703 is the PS-125. This plug and play unit plugs into the DC power receptacle using an optional OPC-1248 located on the rear of the radio.

Or connect the supplied DC power cable (OPC-1229) to the appropriate color coded terminals, then insert the DC connector into the DC power receptacle located on the rear of the radio.

NOTE: Although the power supply current requirement is quite low during receiving, this not the case when you transmit. With many electrical devices in the shack, it is very important to verify the electrical circuit is not overloaded.



3. Installing lightning protection

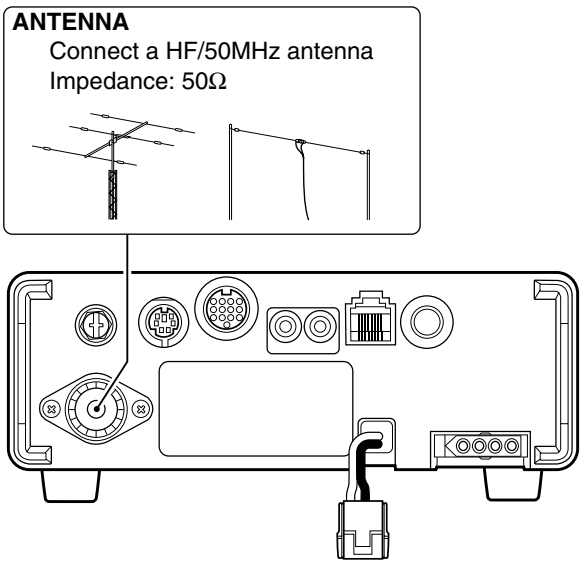
Although you may not live in an area with high occurrence for lightning storms, it is always wise to take precautions for lightning or static discharges. Proper lightning protection not only offers protection to the ham gear, but the shack and most importantly the operator.

NOTE: There are many publications covering proper lightning protection, check with your local dealer for more information and recommendations.

4. Installing your antenna system

Whether your IC-703 is your first radio or one of many, one of your key elements in a great shack is the antenna system. There is a connection on the back of your IC-703, for HF and 6 m. If you are using one antenna for HF and 6 m, for simplicity, connect the antenna coax to ANT.

ANTENNA
Connect a HF/50MHz antenna
Impedance: 50Ω

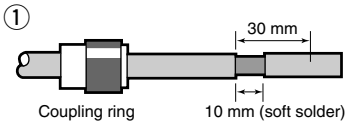


Your IC-703 is equipped with an internal antenna tuner (ATU) for operation on 160–6 m. This ATU is designed to work with an unbalanced 50 Ω feedline. The purpose of the internal antenna tuner is to match the impedance of your antenna system to as close to a 50 Ω load as possible. This ATU will not operate with a long wire or ladder line (450 Ω or other balanced feedlines). An external ATU such as the AH-4 would be necessary for this kind of operation.

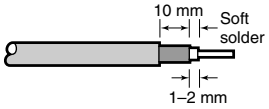
Antenna SWR

Each antenna is tuned for a specified frequency range and SWR may be increased out-of-range. When the SWR is higher than approx. 2.0:1, the transceiver's power drops to protect the final transistors. In this case, an antenna tuner is useful to match the transceiver and antenna. Low SWR allows full power for transmitting even when using the antenna tuner. The IC-703 has an SWR meter to monitor the antenna SWR continuously.

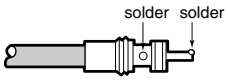
PL-259 CONNECTOR INSTALLATION EXAMPLE

① 

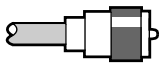
Slide the coupling ring down. Strip the cable jacket and soft solder.

② 

Strip the cable as shown at left. Soft solder the center conductor.

③ 

Slide the connector body on and solder it.

④ 
Screw the coupling ring onto the connector body.

30 mm ≈ 9/8 in 10 mm ≈ 3/8 in 1–2 mm ≈ 1/16 in

⚠ **WARNING:** Although a mag mount antenna works great on a vehicle, **DO NOT** use the IC-703 with this type of antenna.

CAUTION: Although your IC-703 has protection to drop down power with a high SWR, this does not completely protect the transceiver from transmission without an antenna. Make sure you have an antenna connected whenever you transmit with your radio.

NOTE: There are many publications covering proper antennas and their installation, check with your local dealer for more information and recommendations.

5. Connect other peripheral equipment

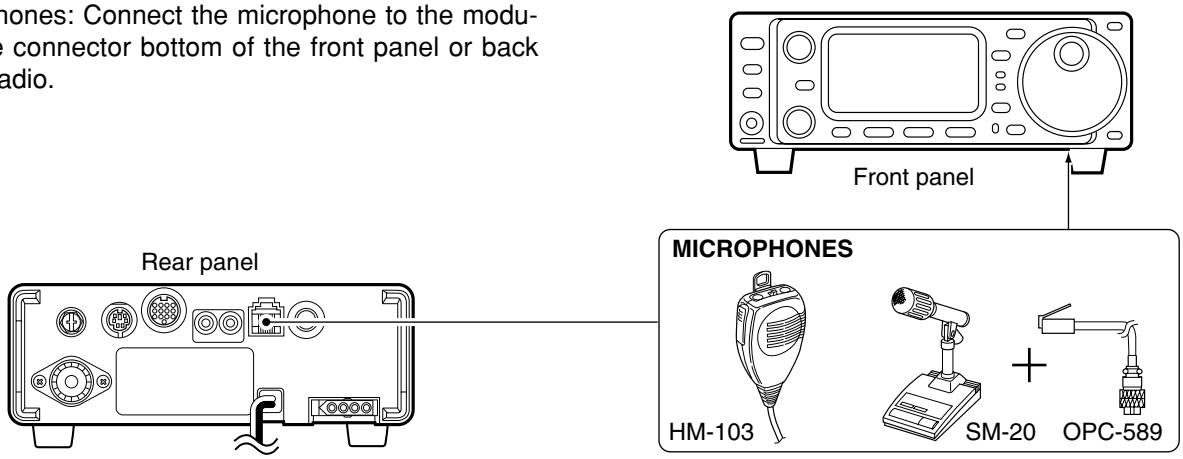
Everyone has his or her favorite ad-on gear; now is the time to connect this gear! We will cover the basic devices that can be connected to your IC-703.

If you do not see the particular item you are wanting to connect, refer to the Advance Connections section starting on page 14.

■ Operation

1. Voice

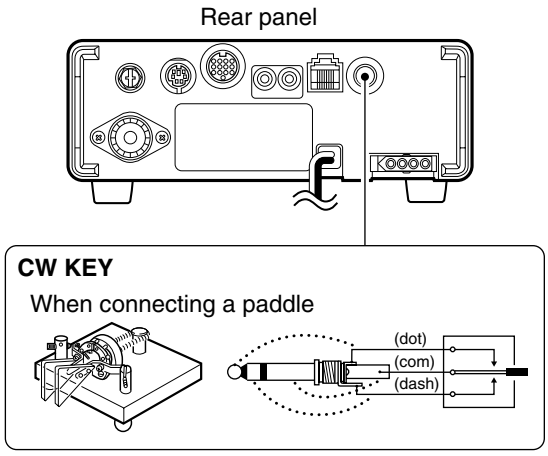
Microphones: Connect the microphone to the modular-type connector bottom of the front panel or back of the radio.



2. CW

CW Key: There are several types of keys or keyers that can be used with your IC-703.

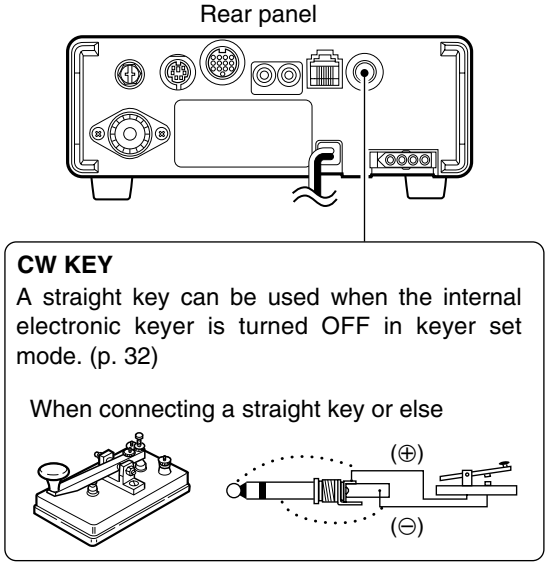
a. Iambic Key paddle: Use a 6.35(d) mm (¼″) stereo plug and connect to the [KEY] jack located on the rear of the radio.



b. Straight Key: Use a 6.35(d) mm (¼″) mono plug and connect key to the back of the radio.

c. External Keyer: Use a 6.35(d) mm (¼″) mono plug and connect to the back of the radio.

d. Computer Keying: Use a 6.35(d) mm (¼″) mono plug and connect to the back of the radio.



NOTE: You will need to select the type of keyer you are using in the keyer set mode. There are many advanced CW functions in this set mode. Until you have a full understanding of these functions change only the items necessary.

Count on us!

IC-703
#02, #12
(Europe)
HF+50 M

<Intended Country of Use>

■ GER □ FRA □ ESP ■ SWE
■ AUT ■ NED □ POR ■ DEN
■ GBR □ BEL □ ITA ■ FIN
■ IRL ■ LUX □ GRE □ SUI
■ NOR

IC-703
#10, #20
(Italy)
HF only

<Intended Country of Use>

□ GER ■ FRA ■ ESP □ SWE
□ AUT □ NED ■ POR □ DEN
□ GBR □ BEL ■ ITA □ FIN
□ IRL □ LUX □ GRE □ SUI
□ NOR

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