IC-M700

HF SINGLE SIDEBAND RADIOTELEPHONE

INSTRUCTION MANUAL

ICOM

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SECTION 1 SPECIFICATIONS

GENERAL

Frequency Coverage:

Receive	1.6MHz ~ 23.9999MHz
Transmit	2.0MHz ~ 2.9999MHz
	4.0MHz ~ 4.9999MHz
	6.0MHz ~ 6.9999MHz
	8.0MHz ~ 8.9999MHz
	12.0MHz ~ 13.9999MHz
	16.0MHz ~ 17.9999MHz
	22.0MHz ~ 22.9999MHz

Frequency Control:
CPU based 100Hz step Digital PLL synthesizer.
Independent Transmit-Receive Frequency Programmable on any band.

Frequency Readout:
6 digit 100Hz readout.

Frequency Stability:
Less than ±20Hz in the range of −30°C ~ +60°C

Memory Channel Capacity:
48 Simplex or Semi-duplex Channels owner Programmable

Power Supply Requirements:
DC 13.6V ±15% Negative ground Current drain 25A max.
AC power supply is available for AC operation.

Current Drain:

Receiving;	Stand by	1.2A
	Max. audio output	1.6A
Transmitting;	Average voice	12A
	Two tone	19A

Antenna Impedance:
50 ohms Unbalanced

Weight:
7.2kg (15.8 lb)

Dimensions:
112(124)mm(H) x 287(297)mm(W) x 356(376)mm(D)
( ): Shows the dimensions including projections

TRANSMITTER

Emission Modes:
A3J (J3E; USB and LSB)
A3A (R3E; USB)
A3H (H3E; USB)

RF Output Power:
150 Watts PEP.

Spurious Emissions:
−65dB

Carrier Suppression:
A3J (J3E) 40dB
A3A (R3E) 16dB ±2dB
A3A (H3E) 3-6dB

Unwanted Sideband:
−55dB

Microphone:
600 ohms with push-to-talk switch

RECEIVER

Receiving System:
Double-conversion Superheterodyne

Receiving Modes:
A3J (J3E; USB and LSB)
A3 (A3E, H3E)

Intermediate Frequencies:
1st 70.4515MHz
2nd 9.0115MHz (A3J)
9.0100MHz (A3)

Sensitivity:
A3J (J3E) 12dB SINAD at −6dBμ (0.5μV) input
A3 (A3E) 12dB SINAD at 3dBμ (1.4μV) input

Selectivity:
A3J (J3E) 2.3KHz/6dB, 4.2KHz/60dB
A3 (A3E) 6.0KHz/6dB, 20.0KHz/60dB

Spurious and Image Rejection:
70dB

Clarifier Range:
±150Hz

Audio Output:
5 watts (4 ohms, 10% distortion)

AF Output Impedance:
2 - 8 ohms

SECTION 2 FEATURES

48 MEMORY CHANNELS

The IC-M700 can be operated simplex or semi-duplex covering all ship-to-shore, High Seas telephone and ship-to-ship SSB channels. Independent transmit and receive frequency programming in 100Hz steps provides complete flexibility.

A quartz-locked rock-solid synthesized tuning system provides superb stability without ever having to purchase expensive crystals or PROMs. Memories are fully programmable from the front panel keyboard, and are field programmable.

ALL MODES

All radiotelephone channels are accessible with the IC-M700. High Seas transmission modes A3J (SSB supressed carrier at least −40dB) and A3A (SSB reduced carrier −16dB) are provided for as well as A3H (SSB full carrier; Emulated AM).

FULL COVERAGE

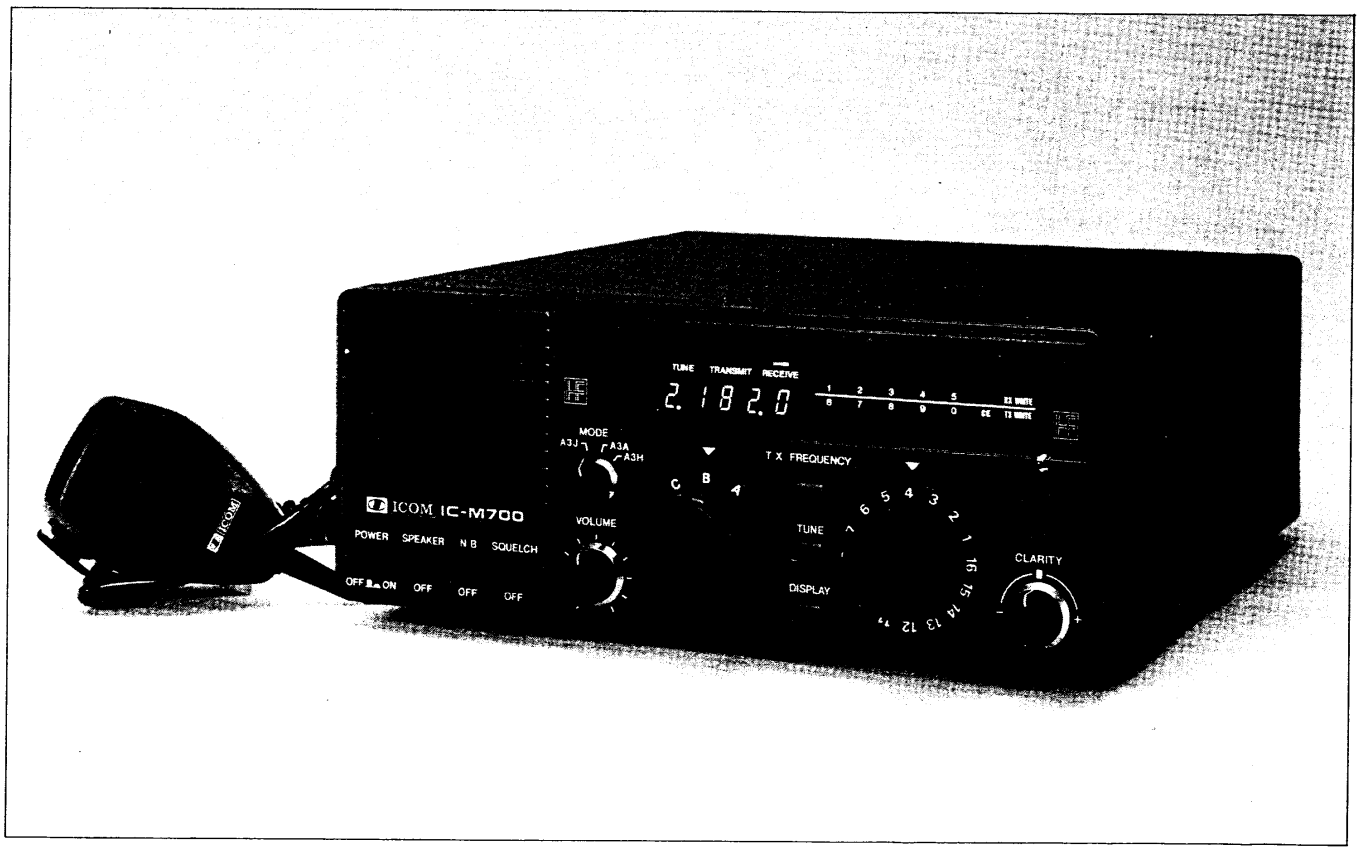
The IC-M700 features full transmit and receive coverage of all marine bands through 23.999MHz, as well as general coverage reception of UPI/AP news broadcasts, weather reports, WWV time signals, FAX weather charts and foreign broadcasts.

SUPERIOR AUDIO

A heavy-duty speaker provides five watts of receive audio.

OTHER FEATURES

Additional features include a wide-range clarifier, audio activated squelch (radio remains silent unless a human voice is detected), noise blanker (eliminates interference from shipboard electrical sources), modern digital readout, noise-canceling microphone, telephone-style microphone handset for privacy (optional), PLUS a heavy-duty mounting bracket. The IC-M700 is compatible with most existing antenna tuners.

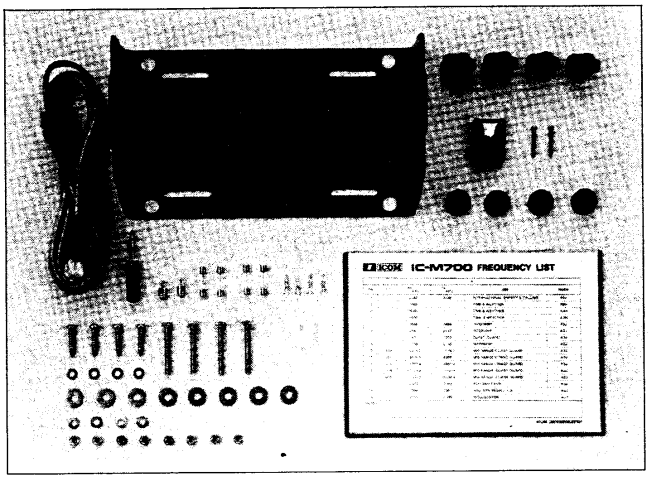


SECTION 3 INSTALLATION

BE SURE TO READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE OPERATION

3 - 1 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 will be handy. Accessory cables, plugs, etc., are packed with the transceiver. Make sure you have not overlooked anything.



1. Power Cord 1
2. External Speaker Plug 1
3. Pin Plugs 2
4. Fuses (30A) 2
5. Fuses (5A) 2
6. Antenna Tuner Connector (with contact pins) 1
7. Mounting Bracket 1
8. Mounting Screw Knobs 4
9. Flat Washers (M5) 4
10. Bracket Fixing Screws (Tapping Screws) 4
11. Bracket Fixing Screws (Hex Head Screws) 4
12. Flat Washers (M6) 8
13. Spring Washers (M6) 4
14. Bracket Fixing Screw's Nuts (M6). 8
15. Microphone Hanger 1
16. Microphone Hanger Fixing Screws 2
17. Frequency Chart (with Plastic Case) 1
18. Rubber Cushion Feet 4

3 - 2 PLANNING

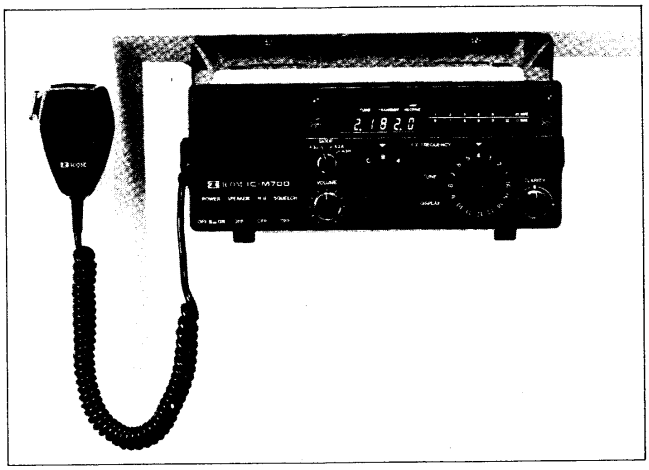
Select a location for your transceiver which will allow free access to the front controls, good air circulation and rear clearance for access to the fuse and cable connectors. Provide the best protection you can from direct rain or heavy seas.

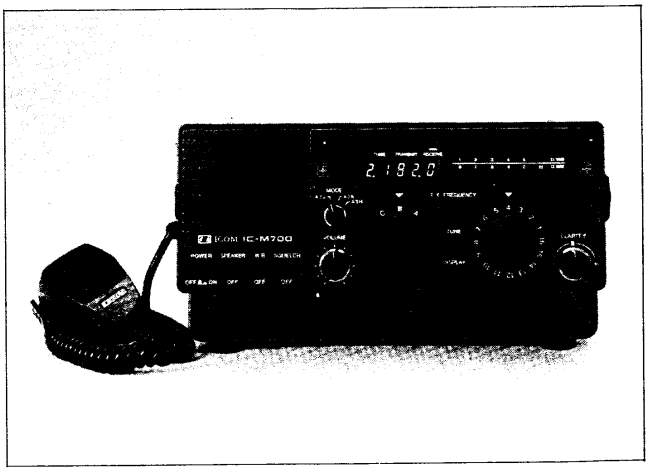
Avoid long cable runs to the antenna and power source. At the same time, keep power and antenna cables as far as possible from electrical sources i.e. generators, alternators, electrical pumps, etc. Stay away from the magnetic compass with the cables, and avoid running the antenna cable near electronic instruments.

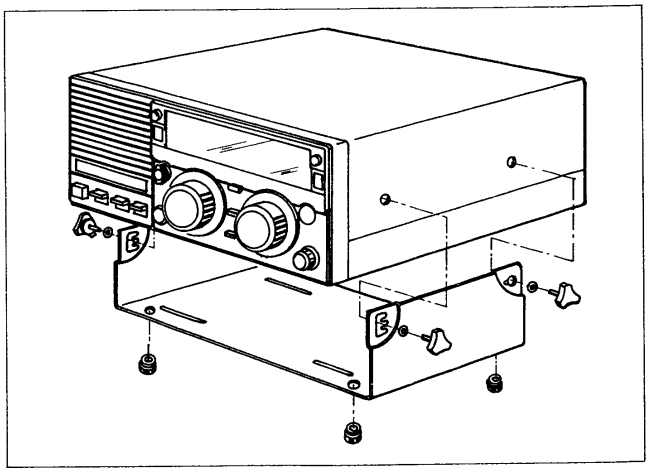
3 - 3 MOUNTING THE TRANSCEIVER

Your ICOM transceiver is supplied with a universal bracket which allows "over" or "under" mounting by placing the bracket where the unit is adequately supported when wave shock and vibration are considered.

The mounting hardware supplied will fit most installations, but should you need special mounting fasteners any good marine supply store will be able to assist you. As in any marine installation it is recommended that high quality marine fasteners be used. Try to avoid drilling new mounting holes in the bracket, as the balance of the set may be affected.





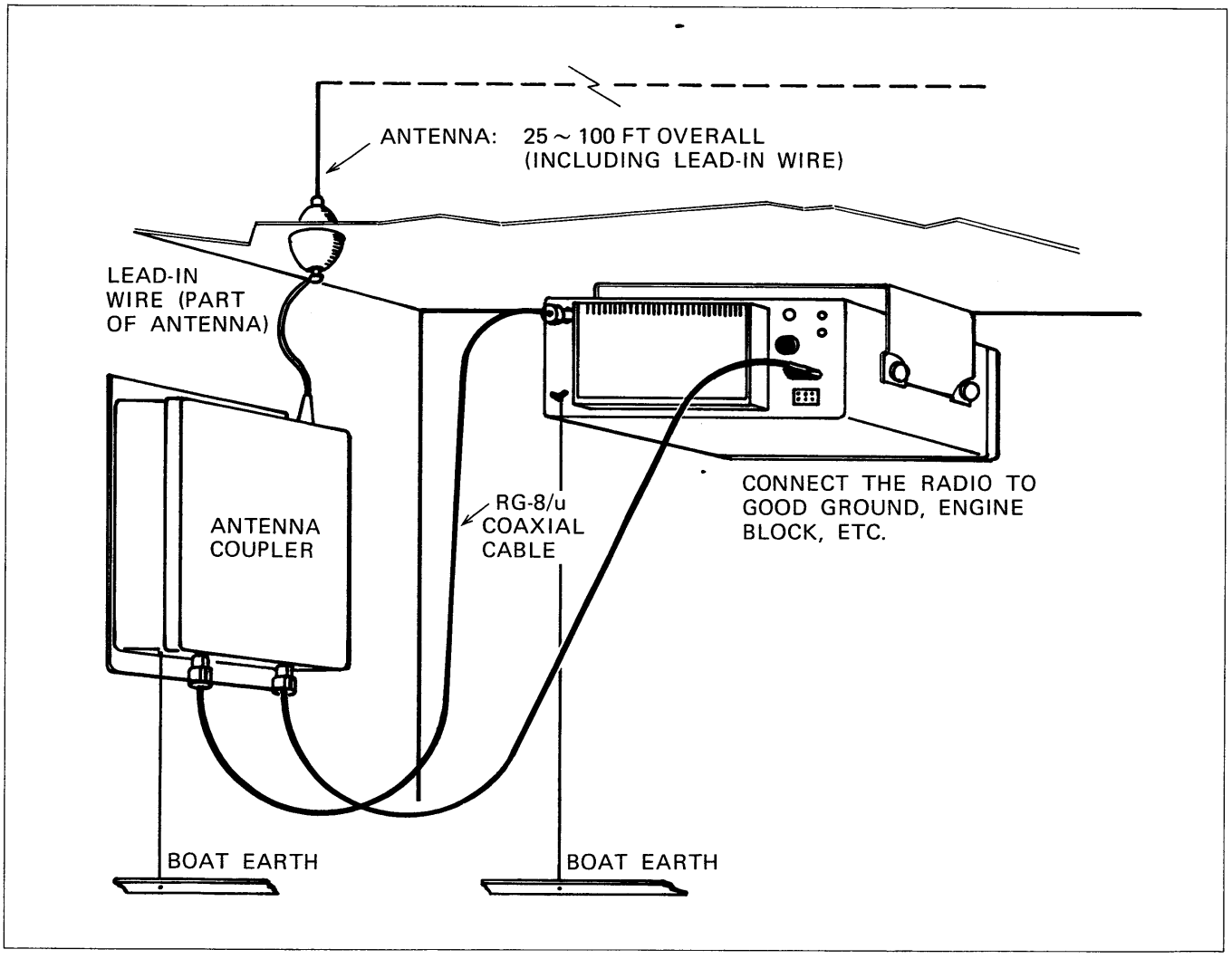


3 - 4 TYPICAL INSTALLATION

The following figure shows a typical installation. Any radio communications system operating with a whip antenna or long wire antenna (insulated back stay) must have an adequate ground connection, otherwise the overall efficiency of the radio installation is degraded especially at lower frequencies.

The 50 ohm output impedance of the transceiver makes it necessary to employ antennas of the trapped or externally matched type. The use of an antenna coupler in conjunction with a whip antenna or long wire antenna (insulated back stay) allows an efficient installation which will cover all HF marine bands. The transceiver was designed to easily interface with most existing antenna couplers for marine applications.

On wooden or fiberglass boats, the use of a copper ground plate as the ground portion of the keel on a saliboat will often perform adequately. The ground system must be joined to the antenna coupler with a heavy copper strap.



3 - 5 PRIMARY POWER

If at all possible, do not exceed the 10 feet length of the power cable supplied, if it is necessary to make a run over 10 feet use #6 cable, and more than 20 feet should not be used. Use a direct run to the power source. Connect the power cable to the DC power source with the RED lead to the positive terminal and the BLACK lead to the negative terminal. When hooking up the cable, solder all connections and insure that all connections are clean, tight and moisture free.

Be sure to leave a service margin in the power cable so that should the transceiver have to be removed from the bracket it can slide out without straining the cable.

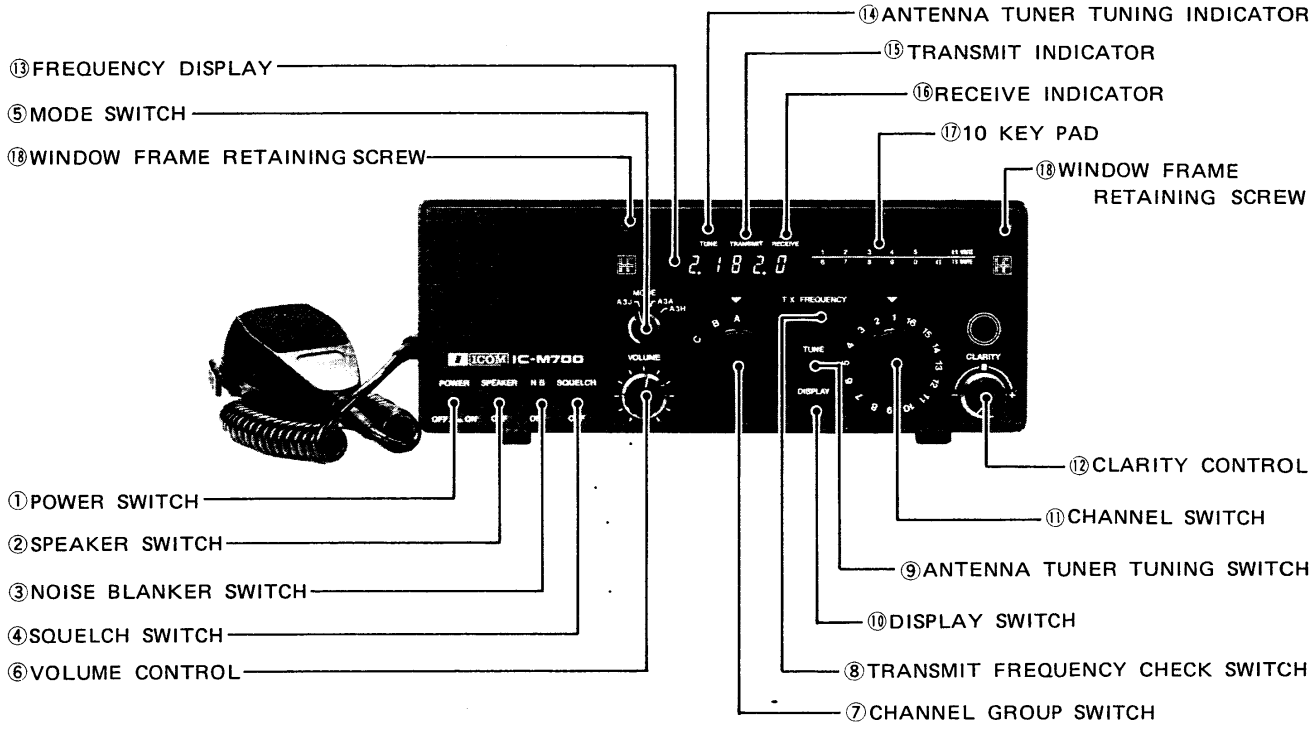
3 - 6 EXTERNAL SPEAKER

The IC-M700 contains an internal speaker, and is also designed so that it can drive an external speaker from the external (EXT) speaker jack on the rear panel. Be sure the impedance of the external speaker is 4 - 8 ohms, and connect it with supplied 1/4 inch standard phone plug.

The external speaker is paralleled to the internal speaker and actuated even if the speaker switch on the front panel is turned off. Thus the external speaker jack can also be used as an AF output terminal for a FAX machine or tele-typewriter.

SECTION 4 OPERATING CONTROLS

4 - 1 FRONT PANEL



1. POWER SWITCH

The POWER SWITCH is a push-lock type switch which controls the input DC power to the IC-M700. When the switch is pushed in and locked, power is supplied to the set. When the switch is pushed again and released, power is cut to all circuits except the PA unit.

2. SPEAKER SWITCH

Switches the internal speaker ON and OFF. When connecting an external speaker to the external speaker jack, the external speaker will be actuated even if this switch is turned OFF.

3. NOISE BLANKER SWITCH

Switches the noise blanker circuit ON and OFF. When the switch is turned ON (up position), pulse-type noises will be reduced to provide acceptable reception.

4. SQUELCH SWITCH

Switches the squelch function ON and OFF. When the squelch is turned ON, the radio maintains silent until a human voice signal is received.

5. MODE SWITCH

Selects the operation mode, one of A3J (J3E), A3A (R3E) and A3H (H3E). Turning this switch counterclockwise further from A3J position, selects A3J LSB mode.

6. VOLUME CONTROL

Controls the audio output level in the receive mode. Clockwise rotation increases the level.

7. CHANNEL GROUP SWITCH

Selects a channel group, one of A, B and C. Each group has 16 channels, and a channel can be selected by the CHANNEL SWITCH.

8. TRANSMIT FREQUENCY CHECK SWITCH

While holding this switch, the receive frequency changes to the transmit frequency. Thus the transmit frequency may be checked.

9. ANTENNA TUNER TUNING SWITCH

Starts tuning function of the automatic antenna tuner installed. By holding this switch, the radio is turned in the transmit mode and a low power signal is transmitted (this level can be adjusted by an internal control) to tune the antenna tuner. At this time, the ANTENNA TUNER TUNING INDICATOR is ON. When the tuning has been finished, the TUNING INDICATOR goes off and the radio returns to the receive mode.

10. DISPLAY SWITCH

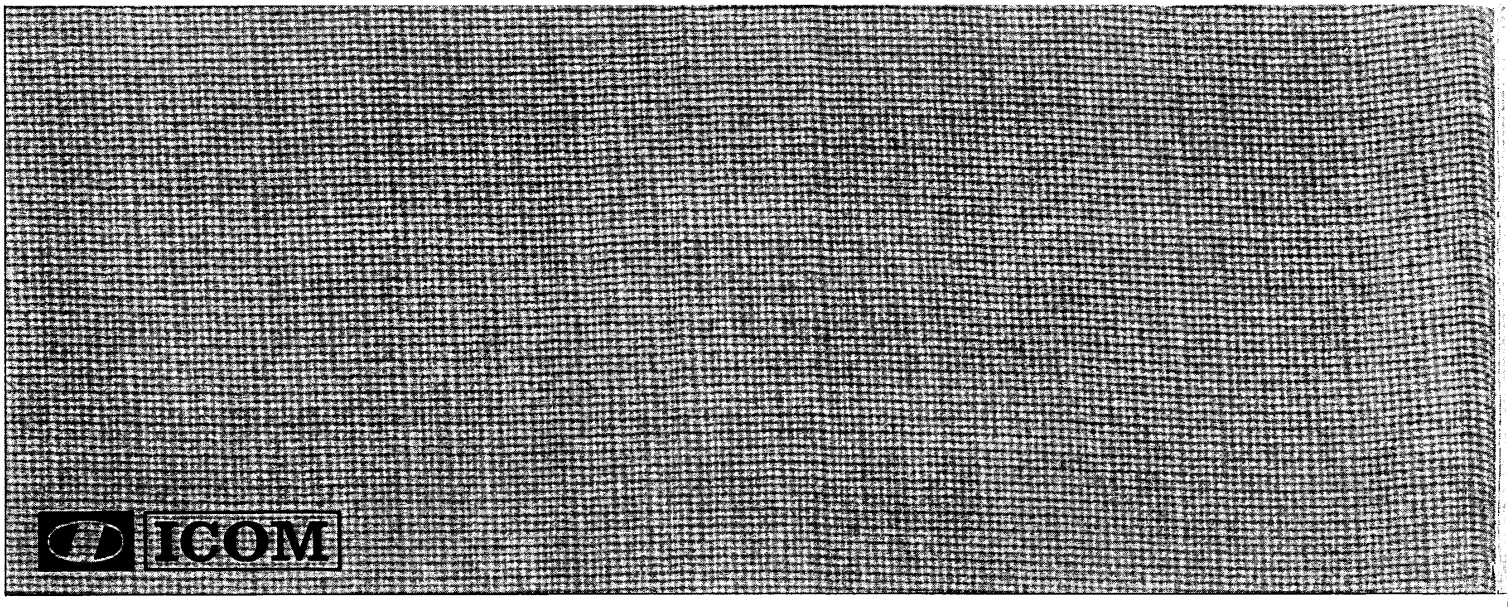
Turns all the display illuminations ON and OFF.

11. CHANNEL SWITCH

Selects a channel, of 16 channels which has been selected by the CHANNEL GROUP SWITCH.

12. CLARITY CONTROL

Shifts the receive frequency 150Hz (maximum) to either side of the displayed receive frequency. This allows clear reception for an off frequency signal. Rotating this control clockwise (+ side) raises the receive frequency and counterclockwise (– side) lowers the receive frequency.



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