MARINE RADAR

MR-40

Icom Inc.

DANGER! HIGH VOLTAGE

■ NEVER OPEN THE UNIT

This product contains high voltages that could be FATAL. This product has no user-serviceable parts inside. All repairs and adjustments MUST be made by a qualified electronics repair person.

■ HIGH VOLTAGES

High voltages of up to 5,000 volts are used in radar equipment. Although prudent measures for safety have been adopted, sufficient care must be taken in the operation, maintenance and adjustment of the equipment.

Electric shock by 1,000 volts or more may cause electrocution and death; and, even an electric shock of 100 volts may be fatal.

■ PREVENTION AGAINST ELECTRIC SHOCK (FOR QUALIFIED ELECTRONICS REPAIR PERSONS ONLY)

To prevent such accidents, turn OFF the power source and do not reach inside the unit until you have: ① discharged capacitors by a wire securely grounded at one end; and ② checked that no charges remain inside the device.

Also, it is safest to wear dry wool insulated rubber gloves. NEVER use both hands simultaneously; keep one hand in your pocket.

RADIATION HAZARD

Radiation emitted from the scanner can be harmful, particularly to the eyes. To avoid harmful radiation, ensure the radar power is in the OFF position before beginning work on the radome.

Under no circumstances should you look directly into the radome from a distance of less than 2 feet (0.61 meters) when the radar is in operation.

IMPORTANT

- **READ THIS INSTRUCTION MANUAL CAREFULLY** before attempting operation. If you have any questions regarding the operation of the MR-40, feel free to contact your nearest authorized Icom Dealer or Service Center.
- **SAVE THIS INSTRUCTION MANUAL**
  This instruction manual contains important safety and operating instructions for the MR-40.

EXPLICIT DEFINITIONS

The following explicit definitions apply to this instruction manual.

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

INTRODUCTION

Thank you for choosing this Icom product for your radar navigation needs.

The **MR-40** is designed especially for pleasure boats and yachts. It has powerful 3 kW transmission power, a 9 inch CRT display and many advanced features with long term reliability.

PRECAUTIONS

- **NEVER** connect the MR-40 to an AC outlet. This will ruin the unit.
- **NEVER** let metal, wire or other objects touch any internal components in the unit. Electric shock could occur.
- **NEVER** place the unit within the reach of babies or children at any time.
- **NEVER** expose the unit to rain, or any liquid.

UNPACKING

Accessories included with the MR-40:	Qty.
① System cable	1
② Installation nuts (M10)	4
③ Flat washers (M10)	4
④ Spring washers (M10)	4
⑤ Installation screws (M10 x 25)	4
⑥ Installation screws (M10 x 50)	4
⑦ Connector cover	1
⑧ BNC connector cover	1
⑨ Cable lug	1
⑩ Sponge	1
⑪ DC power cable	1
⑫ Viewing hood	1
⑬ Mounting bracket	1
⑭ Self-tapping screws (M6 x 30)	5
⑮ Spring washers (M6)	5
⑯ Flat washers(M6)	5
⑰ Mounting screw knobs	2
⑱ Mounting screw rubbers	2
⑲ Spare fuse (10A)	1
⑳ Spare fuse (5A)	1

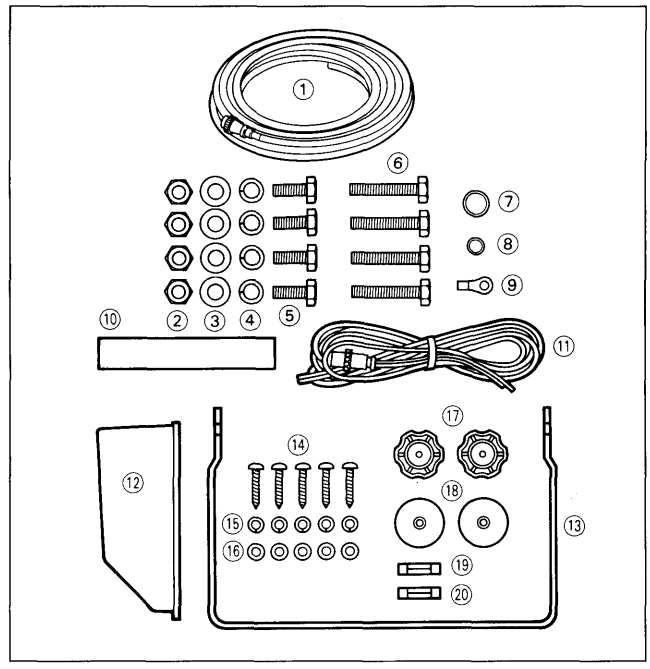
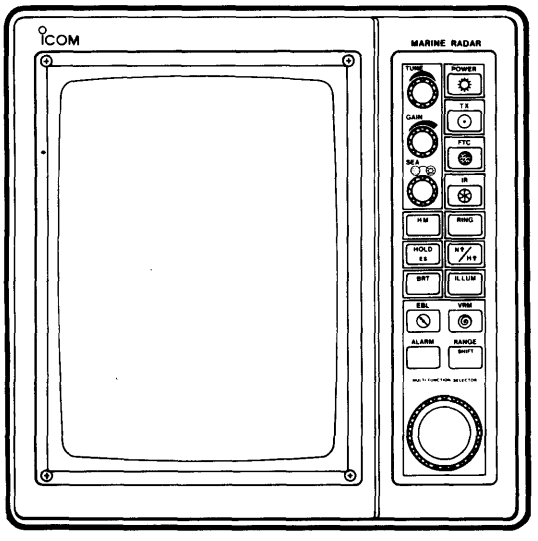
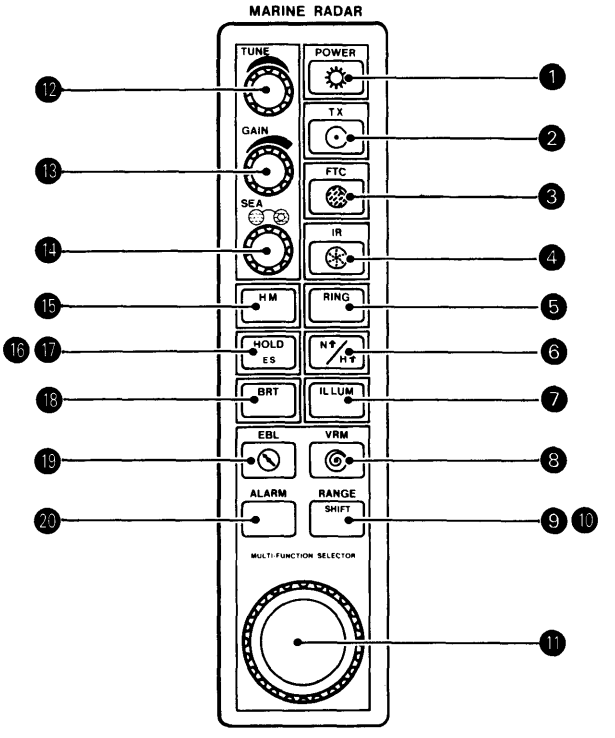


TABLE OF CONTENTS

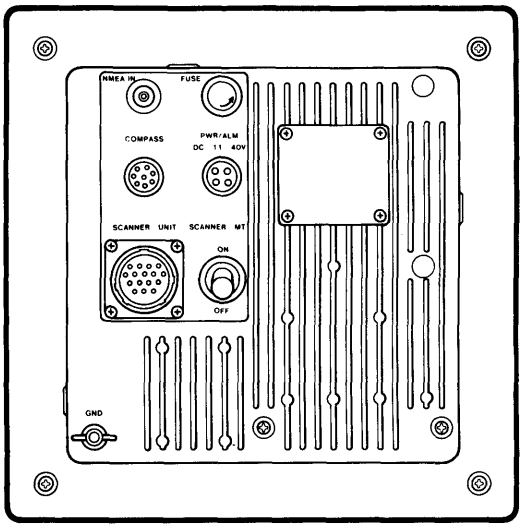
1 CONTROL FUNCTIONS

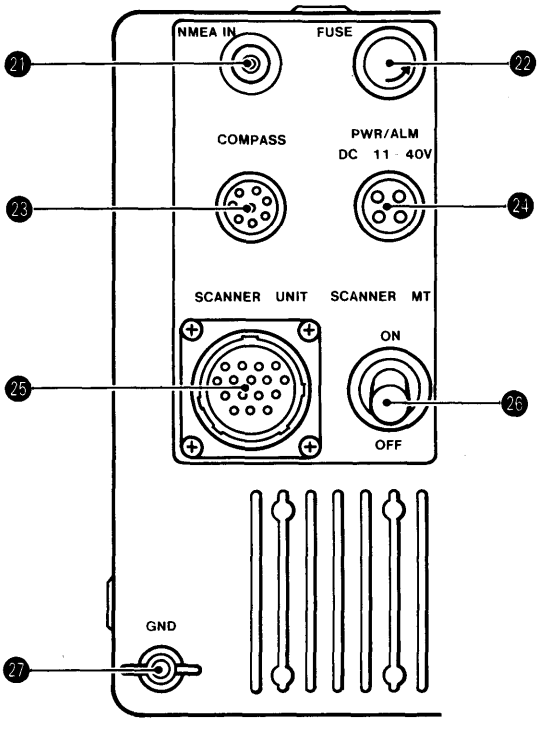
FRONT PANEL





REAR PANEL





❶ POWER SWITCH [POWER] (p. 5)
Turns the power ON and OFF.
- The Initial screen appears for 2 min. after power has been turned ON.
- To turn OFF the power, push and hold the switch for 2 sec.

❷ TX SWITCH [TX] (pgs. 4, 5)
Selects PPI (Plan Position Indicator) or stand-by screen.

❸ FTC SWITCH [FTC] (pgs. 4, 10)
Suppresses some precipitation clutter.
- Small pips may be suppressed when [FTC] is ON.

❹ INTERFERENCE REDUCTION SWITCH [IR] (pgs. 4, 10)
Reduces or eliminates interference from other radar devices.

❺ RING SWITCH [RING] (pgs. 4, 7)
Turns the fixed range ring ON and OFF.

❻ NORTH-UP/HEAD-UP SWITCH [N↑/H↑] (p. 4)
Selects the Head-up and North-up screens.
- A compass interface with an "N+1" data format is necessary to indicate the North-up screen.

❼ ILLUMINATION SWITCH [ILLUM] (p. 6)
Turns ON and OFF the control panel illumination.

❽ VRM SWITCH [VRM] (pgs. 4, 7~8)
Displays the variable range marker and acts as the multi-function selector for the range marker selector.

❾ RANGE SWITCH [RANGE] (p. 6)
Acts as the multi-function selector for the range selector.

❿ SHIFT SWITCH [SHIFT] (p. 4)
Turns ON and OFF the shift function when the switch is pushed and held.
- When the shift function is ON, the displayed area is shifted forward.

⓫ MULTI-FUNCTION SELECTOR (pgs. 7~9)
Selects the displayed range, EBL, VRM and alarm area according to the pushed switch.

⓬ TUNE CONTROL [TUNE] (p. 6)
Adjusts the clarity of the display.
- Adjust the control to increase the "LEVEL" indication in the upper right corner.

⓭ GAIN CONTROL [GAIN] (p. 6)
Adjusts the receiver amplifier gain.
- Clockwise rotation increases the gain.
- Greater gain may increase noises on the screen.

⓮ SEA CLUTTER CONTROL [SEA] (pgs. 6, 10, 12)
Reduces sea clutter such as echoes. Display can be adjusted on ranges up to 4 miles.
- Set the control in the counterclockwise position in the normal condition.
- Use the control when the sea is rough.

⓯ HEADING MARKER SWITCH [HM] (p. 6)
Removes the heading marker temporarily from the screen when pushed and held.

⓰ HOLD SWITCH [HOLD] (p. 6)
Freezes the displayed screen.

⓱ ECHO STRETCH SWITCH [ES]
Turns ON and OFF the echo stretch function when the switch is pushed and held for 2 sec.
- When the function is activated, pips are magnified.

⓲ BRIGHT SWITCH [BRT] (p. 6)
Selects the screen brightness.

⓳ EBL SWITCH [EBL] (p. 8)
Displays the electronic bearing line and acts as the multi-function selector for the bearing line selector.

⓴ ALARM SWITCH [ALARM] (p. 9)
Activates the alarm function and acts as the multi-function selector for the alarm area selector.

㉑ NMEA INTERFACE CONNECTOR [NMEA IN] (p. 5)
Accepts the connection of a navigation receiver with NMEA 182 or 183 data format such as Loran-C or GPS to indicate Lat/Lon information on the screen.

㉒ FUSE HOLDER [FUSE] (p. 21)
Holds the specified 10 A fuse for internal DC power supply protection.

㉓ COMPASS SOCKET [COMPASS]
Connects the compass interface to display the North up screen.

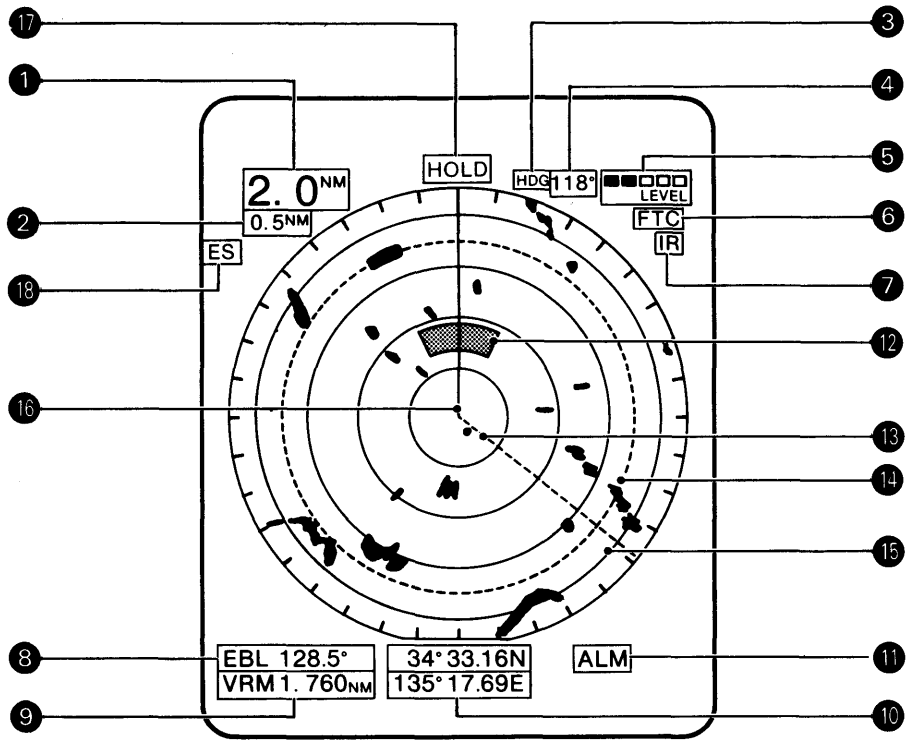
㉔ DC POWER SOCKET AND ALARM TERMINAL [PWR/ALM DC 11~40V] (p. 19)
Accepts 11~40 V DC. Also accepts an external buzzer, if desired.

㉕ SCANNER SOCKET [SCANNER UNIT] (p. 15)
Connects the supplied scanner unit.

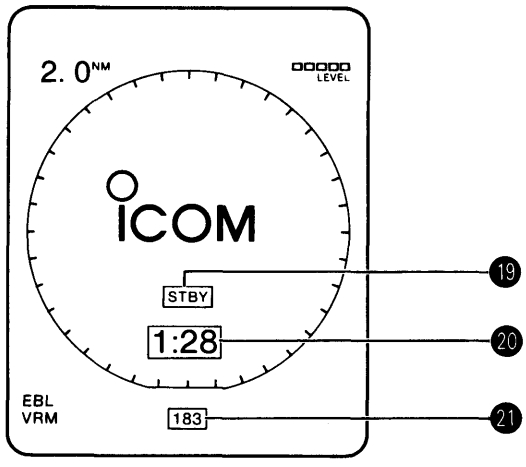
㉖ SCANNER MOTOR SWITCH [SCANNER MT] (p. 5)
Switches the scanner rotation.

㉗ GROUND TERMINAL [GND] (p. 15)
To prevent electrical shock and other problems, connect this terminal to a ground.

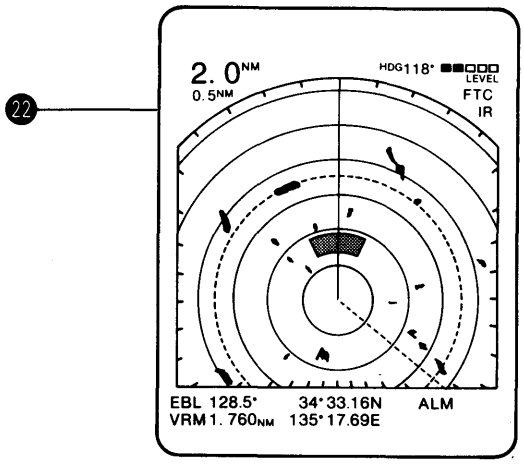
2 SCREEN DESCRIPTION



PPI SCREEN



INITIAL SCREEN



SHIFTED SCREEN

■ Control functions

[TUNE]
Adjusts the clarity of the display.

[GAIN]
Adjusts the receiver amplifier gain.

[SEA]
Reduces sea clutter such as echoes. Display can be adjusted on ranges up to 4 miles.

[HM]
Removes the heading marker temporarily from the screen when the switch is pushed and held.

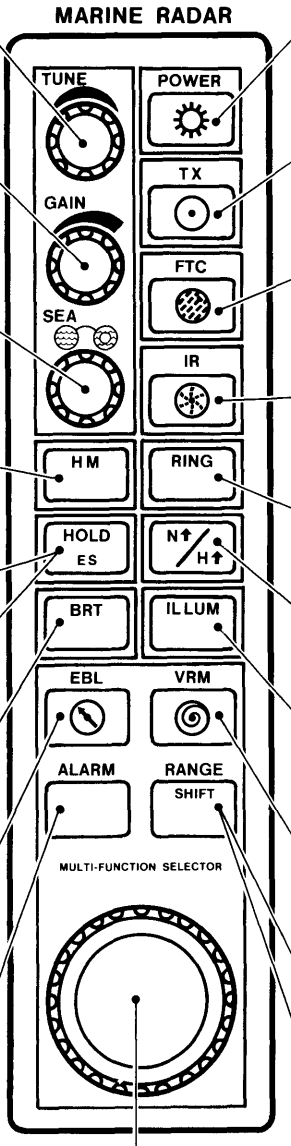
[HOLD]
Freezes the displayed screen.

[ES]
Turns ON and OFF the echo stretch function when the switch is pushed and held for 2 sec.

[BRT]
Selects the screen brightness.

[EBL]
Displays the electronic bearing line and acts as the multi-function selector for the bearing line selector.

[ALARM]
Activates the alarm function and acts as the multi-function selector for the alarm area selector.



[MULTI-FUNCTION SELECTOR]
Selects the displayed range, EBL, VRM and alarm area according to the pushed switch.

[POWER]
Turns the power ON and OFF. To turn power OFF, push and hold the switch for 2 sec.

[TX]
Selects the PPI or stand-by screen.

[FTC]
Suppresses some precipitation clutter.

[IR]
Reduces or eliminates interference from other radar devices.

[RING]
Turns ON and OFF the fixed range ring.

[N ↑/H ↑]
Selects the Head-up or North-up screens*1 .

[ILLUM]
Turns ON and OFF the control panel illumination.

[VRM]
Displays the variable range marker and acts as the multi-function selector for the range marker selector.

[RANGE]
Acts as the multi-function selector for the range selector.

[SHIFT]
Turns ON and OFF the shift function when the switch is pushed and held for 2 sec.

*1 North-up can be used only when a compass interface with "N+1" data format is connected.

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Icom Inc.