

N.N.

uniden®



**MC 790
MARINE RADIOTELEPHONE
OWNER'S MANUAL**

UNIDEN MC790

The UNIDEN MC790 VHF marine radio transceiver has been designed to give you a rugged reliable instrument that will provide you with years of trouble-free service.

You are encouraged to thoroughly read this manual to acquaint yourself with the characteristics and operation of your transceiver so that you can contribute to the longevity of your investment.

With proper care and maintenance, your UNIDEN MC790 will outlast your present vessel and serve you well on board several more. The full features and flexibility de-

signed into this quality transceiver will prevent it from becoming obsolete regardless of changes in craft or geographic locations. The unit may be mounted in any number of convenient locations by utilizing the universal mounting bracket.

The UNIDEN MC790 is of all solid state design with conservatively rated rugged components and materials compatible with the marine environment. The transceiver utilizes a number of gaskets, sealing rings, waterproof membranes, and other sealants to effect a splash proof housing for protection of the electronics.

INSTALLATION

CAUTION: The MC790 will operate only with nominal 12 volt negative ground battery systems.

It is important to carefully determine the most suitable location for your MC790 on your vessel. Electrical, mechanical, and environmental considerations must all be taken into account. You must select the optimum relationship among these considerations. ▲▲

Keep in mind the flexibility designed into the MC790 so that you can most conveniently use your radio. Features which should be considered are:

1. Universal mounting bracket may be installed on either top or bottom of shelf, bulkhead, or overhead mounting.

2. The microphone connector faces forward allowing convenient in-dash or "built-in" installations.
3. The front panel can be fully reversed to provide for optimum viewing and operating for any mounting position.
4. The REMOTE speaker jack may be used with an auxiliary speaker.

All connections are "plug-in" type for easy removal of the radio.

ANTENNA CONSIDERATIONS

A variety of antennas is available from a number of quality suppliers. It is recommended you draw upon the advice of your Marine Dealer in determining a suitable antenna for your vessel and range requirements.

The general rules for antennas are: The more gain the greater the range and, the higher above the water line the greater the range. Antennas should be located so as not to be in proximity to metal objects. Antennas should not have excessively long coaxial feed cables.

CHOOSING A LOCATION

Some of the more important external factors to consider in selecting the location of your MC790 are:

1. Select a location that is free from spray and splash.
2. Keep the battery leads as short as possible. Connection directly to the battery is most desirable. If direct connection cannot be made with the supplied power lead, any extension should be made with #10 AWG wire. Long extensions should use larger wire.
3. Keep the antenna lead as short as possible. Long antenna leads can cause substantial loss of performance for both receiving and transmitting.
4. Locate your antenna as high as possible and clear from metal objects. The reliable range of coverage is a direct function of antenna height.
5. Select a location that does not allow the radio to be subjected to direct sunlight (including that coming through windows).
6. Select a location that allows free air flow around the heat sink on the rear of the radio.

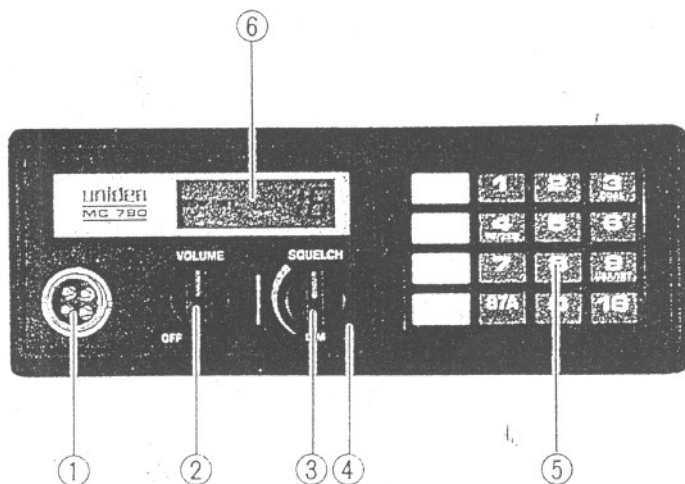
7. Select a location well away from the ship's compass. Auxiliary speakers also should be located away from the compass.

After you have carefully considered the various factors affecting your choice of location, position the radio (with the bracket, microphone, power plug, antenna plug and any auxiliary plugs installed) into the selected location to assure there is no interference with surrounding items. Mark the location of the mounting bracket.

Remove the bracket from the radio and use it as a template to mark the holes to be drilled for the mounting hardware. Drill the holes and mount the bracket with hardware compatible with the material of the mounting surface. Install the power cable (red is +, black is -), antenna and all other auxiliary cables and accessories.

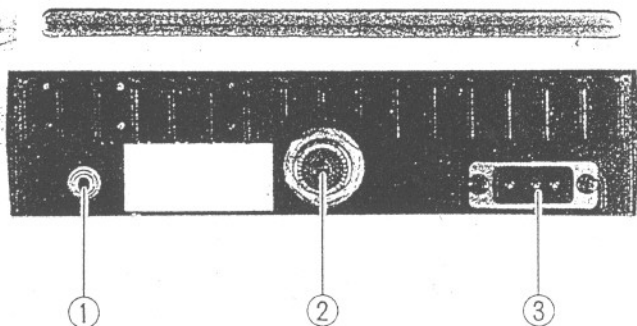
Install the radio into the mounting bracket and connect all cables and accessories to the appropriate jacks and connectors.

CONTROLS AND INDICATORS



- ① **Microphone Connector** . . . Plug your Microphone here.
- ② **ON/OFF VOLUME Knob** . . . Turns power on and adjusts volume level.
- ③ **SQUELCH Knob** . . . Used to silence the background noise when no signal is being received. Turn the knob just past the point where background noise stops.
- ④ **DIM Control** . . . Adjusts the brightness of both LCD and the keyboard backlighting for night operation.
- ⑤ **Key Board** . . . Selects the desired channel. LCD display shows CH-1 through CH-88. For channels 1 through 9, first you must depress "0" then the desired channel number. If you attempt to enter CH. 75, 76 and channels other than VHF marine channels, which are Ch. 29 – 59, and 89 – 99, the letter "E" will flash in the LCD display and also "70" will flash when Ch. 70 is selected for transmit on international channels. To continue normal use of the radio, make a proper channel selection.
- ⑥ **LCD** . . . Provides indication of channel and function even in brightest sunlight.

REAR PANEL CONNECTORS



① REMOTE Speaker Connector

. . . If you desired to use another speaker in addition to the one in the unit, a four or eight ohm speaker equipped with a miniature phone plug may be connected to this jack.

② DC Power Connector . . .

Battery connections are to be made with the cable supplied to mate with this connector. Remember, red is +, black is -. The power cord is equipped with a fuse to protect the radio. Use only a Six (6) AMPERE fast blow fuse for replacement.

③ ANT Connector . . .

This connector is for connection of the antenna. A type PL259 connector is required to make proper connection.

Note: The radio must be connected to a power source for the memory to function properly. Remember not to disconnect the power cable, or you will lose the memory. However, when this unit is not going to be used for a long period of time, be sure to disconnect the power cable for safety because the current of less than 1mA is fed for memory back-up even after the radio is OFF. (But in this case, you will lose the memory.)

CARE AND MAINTENANCE

Your MC790 is a precision piece of electronic equipment and you should treat it accordingly. Due to the rugged design, very little maintenance is required, however, a few precautions should be observed.

If your radio has been accidentally subjected to splay or splash you should immediately wipe it down with a soft cloth dampened with fresh water.

If the antenna has been damaged, you should not transmit except in case of emergency. A defective antenna may cause damage to your radio.

KEY FUNCTION

SCAN

This key turns on the Memory Scan and gives you "SCAN" on LCD. If the squelch is in operation and Scan Memory Channels are programmed, Scan starts its operation. While it is on, the second digit of the channel number shows movement indicating that the Scan is on.

When the radio receives a signal on a programmed channel while Memory Scan is on, and squelch opens, it indicates its channel number and stays on that channel. When the signal is gone, squelch closes and Memory Scan is reactivated.

MANUAL

This key is used to check Memory Scan or when all the memory scan is deleted. It is also used when "0" is flashing by mispressing the scan key with no channel number programmed in memory scan. If you press this key in a normal operation, it shows each channel number programmed in Memory Scan.

ENTER

This is the key to turn on the Memory Scan Channel. Select the channel you wish to program, then press the ENTER Key. "MEM" is indicated on the left hand of the channel number to indicate that the program is completed.

DELETE

This key deletes the programmed Memory Scan Channel(s). When this key is pressed, the lowest numbered channel in the Memory Scan is indicated and deleted. If you keep pressing it, the next lowest channel number is indicated for deletion. "0" flashes when all the memory scan channels are deleted.

0

These keys are used to program channel numbers. The first number you press becomes the first digit, and if the second digit is not programmed within 10 seconds after the first one, it returns to the previous channel. When the selected channel number does not exist, "E" flashes.

9

3

DUAL

By pressing this key, "DUAL" is indicated on the display. Every one and a half seconds, it monitors CH16. If the receiver hears a signal on CH16, it locks onto that channel. When the signal stops, it returns to monitoring CH16 every one and a half seconds. "DUAL" can be operated along with Memory Scan. By pressing the "DUAL" key, it can be cancelled.

4

1W/25W

By pressing this key, the power out-put can be changed to 1W and it will be indicated on LCD. By pressing this key again, the power out-put returns to 25W and the indication on LCD will be turned off.

9

USA/INT

This key gives you international channels or USA channels with an indication of "INT" or "USA" on the display. When the radio is activated, international channels are automatically available and by pressing the key, it goes to USA channels.

16

This key gives you instant access to channel 16 and "16" will be indicated on LCD when you press it.

87A

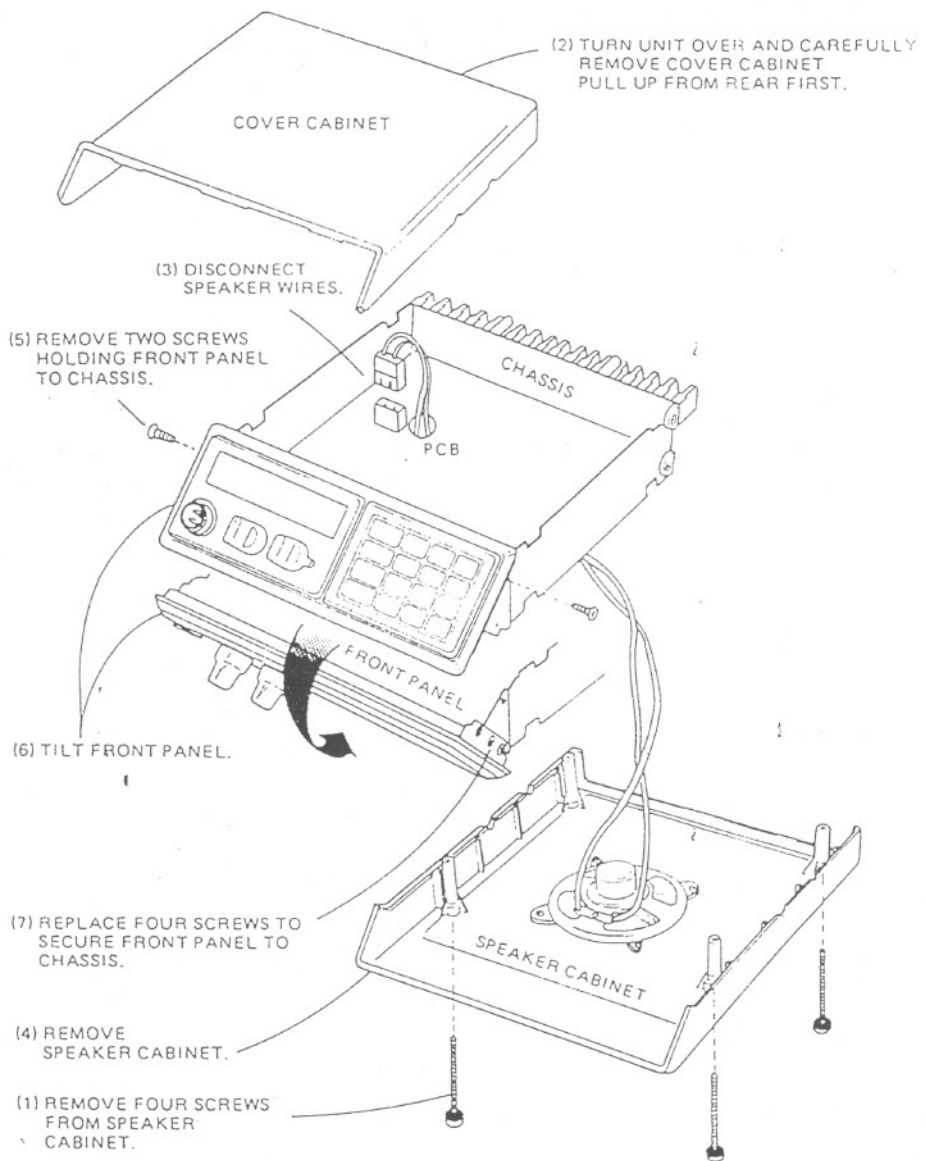
This key gives you instant access to channel 87A and "87" will be indicated on LCD when you press it. If channel 87A is selected from keyboard while operating U.S.A. channels, LCD WILL FLASH "U".

NOTE:

The MC790 has a self-check function to indicate malfunctions due to overly high incoming noise levels and sudden, drastic changes of power voltage levels when the unit is on. This self-check will illuminate all segments of the LCD when triggered. If this should occur, turn unit off, then back on to reset the microprocessor chip. The programmed functions will not be erased as long as the Back-up Battery is functioning.

Please read the Owner's Manual carefully before operating your unit.

REVERSING THE FRONT PANEL



ENGINE NOISE SUPPRESSION

Interference from the impulse noise generated by the electrical systems of engines is sometimes a problem with radios. The MC790 has been designed to be essentially impervious to ignition impulse noise and alternator noise. However, in some installations it may be necessary to take measures to further reduce the effect of noise interference. All DC battery

wires, antenna lead, and accessory cables should be routed away from the engine and engine compartment and from power cabling carrying particularly high currents

In severe cases of impulse noise interference, it may be necessary to install a noise suppression kit that is available from your Marine Dealer.

VHF FM MARINE RADIOTELEPHONE CHANNELS AND FUNCTIONS (U.S.A. CHANNELS)

| CHANNEL DESIGN | FREQUENCY (MHz) | | TYPE TRAFFIC | SHIP TO SHIP | SHIP TO SHORE | PERMANENT SCAN LIST |
|----------------|-----------------|---------|-------------------|--------------|---------------|---------------------|
| | SHIP | SHORE | | | | |
| 01 | 156.050 | 156.050 | VTS | Yes | Yes | |
| 02 | 156.100 | 156.100 | Port Ops | Yes | Yes | |
| 03 | 156.150 | 156.150 | Port Ops | Yes | Yes | |
| 04 | 156.200 | 156.200 | Port Ops | Yes | Yes | |
| 05 | 156.250 | 156.250 | VTS | Yes | Yes | |
| 06 | 156.300 | 156.300 | Safety | Yes | No | Coast Guard |
| 07 | 156.350 | 156.350 | Com'l | Yes | Yes | |
| 08 | 156.400 | 156.400 | Com'l | Yes | No | |
| 09 | 156.450 | 156.450 | Com'l & Non Com'l | Yes | Yes | Fish |
| 10 | 156.500 | 156.500 | Com'l | Yes | Yes | |
| 11 | 156.550 | 156.550 | Com'l | Yes | Yes | |
| 12 | 156.600 | 156.600 | Port Ops | Yes | Yes | |
| 13 | 156.650 | 156.650 | Navigational | Yes | Yes | |
| 14 | 156.700 | 156.700 | Port Ops | Yes | Yes | |
| 15 | — | 156.750 | Environmental | RX Only | RX Only | Environmental |
| 16 | 156.800 | 156.800 | Safety Calling | Yes | Yes | |
| 17 | 156.850 | 156.850 | State Control | Yes | Yes | |
| 18 | 156.900 | 156.900 | Com'l | Yes | Yes | |
| 19 | 156.950 | 156.950 | Com'l | Yes | Yes | |
| 20 | 157.000 | 161.600 | Port Ops | Yes | Yes | |
| 21 | 157.050 | 157.050 | Coast Guard | Yes | Yes | Coast Guard |
| 22 | 157.100 | 157.100 | Coast Guard | Yes | Yes | Coast Guard |
| 23 | 157.150 | 157.150 | Coast Guard | Yes | Yes | Coast Guard |
| 24 | 157.200 | 161.800 | Public Corresp. | No | Yes | Busy Tel. |
| 25 | 157.250 | 161.850 | Public Corresp. | No | Yes | Busy Tel. |
| 26 | 157.300 | 161.900 | Public Corresp. | No | Yes | Busy Tel. |
| 27 | 157.350 | 161.950 | Public Corresp. | No | Yes | Busy Tel. |
| 28 | 157.400 | 162.000 | Public Corresp. | No | Yes | Busy Tel. |
| 60 | 156.025 | 156.025 | | | | |
| 61 | 156.075 | 156.075 | | | | |
| 62 | 156.125 | 156.125 | | | | |
| 63 | 156.175 | 156.175 | | | | |
| 64 | 156.225 | 156.225 | | | | |
| 65 | 156.275 | 156.275 | Port Ops | Yes | Yes | |
| 66 | 156.325 | 156.325 | Port Ops | Yes | Yes | |
| 67 | 156.375 | 156.375 | Com'l | Yes | No | |
| 68 | 156.425 | 156.425 | Non Com'l | Yes | Yes | Fish |
| 69 | 156.475 | 156.475 | Non Com'l | Yes | Yes | Fish |
| 70 | 156.525 | 156.525 | Non Com'l | Yes | No | Fish |
| 71 | 156.575 | 156.575 | Non Com'l | Yes | Yes | Fish |
| 72 | 156.625 | 156.625 | Non Com'l | Yes | No | Fish |
| 73 | 156.675 | 156.675 | Port Ops | Yes | Yes | |
| 74 | 156.725 | 156.725 | Port Ops | Yes | Yes | |
| 77 | 156.875 | 156.875 | Port Ops | Yes | No | |
| 78 | 156.925 | 156.925 | Non Com'l | Yes | Yes | Fish |
| 79 | 156.975 | 156.975 | Com'l | Yes | Yes | |
| 80 | 157.025 | 157.025 | Com'l | Yes | Yes | |
| 81 | 157.075 | 157.075 | Coast Guard | Yes | Yes | Coast Guard |
| 82 | 157.125 | 157.125 | US Gov Only | Yes | Yes | |
| 83 | 157.175 | 157.175 | Coast Guard | Yes | Yes | Coast Guard |
| 84 | 157.225 | 161.825 | Public Corresp. | No | Yes | Busy Tel. |
| 85 | 157.275 | 161.875 | Public Corresp. | No | Yes | Busy Tel. |
| 86 | 157.325 | 161.925 | Public Corresp. | No | Yes | Busy Tel. |
| 87 | 157.375 | 161.975 | Public Corresp. | No | Yes | Busy Tel. |
| 88 | 157.425 | 162.025 | Com'l | Yes | No | Busy Tel. |

VHF FM MARINE RADIOTELEPHONE CHANNELS AND FUNCTIONS (INTERNATIONAL CHANNELS)

| CHANNEL DESIGN | FREQUENCY (MHz) | | TYPE TRAFFIC | SHIP TO SHIP | SHIP TO SHORE | PERMANENT SCAN LIST |
|----------------|-----------------|---------|-------------------|--------------|---------------|---------------------|
| | SHIP | SHORE | | | | |
| 01 | 156.050 | 160.650 | VTS | Yes | Yes | |
| 02 | 156.100 | 160.700 | Port Ops | Yes | Yes | |
| 03 | 156.150 | 160.750 | Port Ops | Yes | Yes | |
| 04 | 156.200 | 160.800 | Port Ops | Yes | Yes | |
| 05 | 156.250 | 160.850 | VTS | Yes | Yes | |
| 06 | 156.300 | 156.300 | Safety | Yes | No | |
| 07 | 156.350 | 160.950 | Com'l | Yes | Yes | |
| 08 | 156.400 | 156.400 | Com'l | Yes | No | |
| 09 | 156.450 | 156.450 | Com'l & Non Com'l | Yes | Yes | Fish |
| 10 | 156.500 | 156.500 | Com'l | Yes | Yes | |
| 11 | 156.550 | 156.550 | Com'l | Yes | Yes | |
| 12 | 156.600 | 156.600 | Port Ops | Yes | Yes | |
| 13 | 156.650 | 156.650 | Navigational | Yes | Yes | |
| 14 | 156.700 | 156.700 | Port Ops | Yes | Yes | |
| 15 | 156.750 | 156.750 | Environmental | Yes | Yes | Environmental |
| 16 | 156.800 | 156.800 | Safety Calling | Yes | Yes | |
| 17 | 156.850 | 156.850 | State Control | Yes | Yes | |
| 18 | 156.900 | 161.500 | Com'l | Yes | Yes | |
| 19 | 156.950 | 161.550 | Com'l | Yes | Yes | |
| 20 | 157.000 | 161.600 | Port Ops | Yes | Yes | |
| 21 | 157.050 | 161.650 | Coast Guard | Yes | Yes | |
| 22 | 157.100 | 161.700 | Coast Guard | Yes | Yes | |
| 23 | 157.150 | 161.750 | Coast Guard | Yes | Yes | |
| 24 | 157.200 | 161.800 | Public Corresp. | No | Yes | Busy Tel. |
| 25 | 157.250 | 161.850 | Public Corresp. | No | Yes | Busy Tel. |
| 26 | 157.300 | 161.900 | Public Corresp. | No | Yes | Busy Tel. |
| 27 | 157.350 | 161.950 | Public Corresp. | No | Yes | Busy Tel. |
| 28 | 157.400 | 162.000 | Public Corresp. | No | Yes | Busy Tel. |
| 60 | 156.025 | 160.625 | | | | |
| 61 | 156.075 | 160.675 | | | | |
| 62 | 156.125 | 160.725 | | | | |
| 63 | 156.175 | 160.775 | | | | |
| 64 | 156.225 | 160.825 | | | | |
| 65 | 156.275 | 160.875 | Port Ops | Yes | Yes | |
| 66 | 156.325 | 160.925 | Port Ops | Yes | Yes | |
| 67 | 156.375 | 156.375 | Com'l | Yes | No | |
| 68 | 156.425 | 156.425 | Non Com'l | Yes | Yes | Fish |
| 69 | 156.475 | 156.475 | Non Com'l | Yes | Yes | Fish |
| 70 | - | 156.525 | Non Com'l | Yes | No | Fish |
| 71 | 156.575 | 156.575 | Non Com'l | Yes | Yes | Fish |
| 72 | 156.625 | 156.625 | Non Com'l | Yes | No | Fish |
| 73 | 156.675 | 156.675 | Port Ops | Yes | Yes | |
| 74 | 156.725 | 156.725 | Port Ops | Yes | Yes | |
| 77 | 156.875 | 156.875 | Port Ops | Yes | No | |
| 78 | 156.925 | 161.525 | Non Com'l | Yes | Yes | |
| 79 | 156.975 | 161.575 | Com'l | Yes | Yes | |
| 80 | 157.025 | 161.625 | Com'l | Yes | Yes | |
| 81 | 157.075 | 161.675 | Coast Guard | Yes | Yes | Coast Guard |
| 82 | 157.125 | 161.725 | US Gov Only | Yes | Yes | |
| 83 | 157.175 | 161.775 | Coast Guard | Yes | Yes | Coast Guard |
| 84 | 157.225 | 161.825 | Public Corresp. | No | Yes | Busy Tel. |
| 85 | 157.275 | 161.875 | Public Corresp. | No | Yes | Busy Tel. |
| 86 | 157.325 | 161.925 | Public Corresp. | No | Yes | Busy Tel. |
| 87 | 157.375 | 161.975 | Public Corresp. | No | Yes | Busy Tel. |
| 87A | 157.375 | 157.375 | | | | |
| 88 | 157.425 | 162.025 | Com'l | Yes | No | Busy Tel. |

CAUTION: OPERATION ON CHANNELS 15 AND 17 HAS BEEN ELECTRONICALLY RESTRICTED TO LOW POWER TO PROTECT CH.16, THE DISTRESS FREQUENCY.

SPECIFICATIONS

GENERAL

| | |
|-----------------------------|---|
| Channels | : Transmit 55 Receive 80 |
| Frequency Control Method | : PLL synthesizer |
| Antenna Impedance | : 50 ohms, nominal |
| Speaker | : 2.85 inch, 8 ohms |
| Microphone | : Rugged 600 ohms dynamic element with coiled cord and plug-in connector |
| Channel Display | : L.C.D |
| Frequency Stability | : $\pm 0.001\%$ |
| Operating Temperature Range | : $\pm 20^{\circ}\text{C}$ to $+ 50^{\circ}\text{C}$ |
| Shock and Vibration | : Meets or exceeds EIA standards, RS152B and RS204C |
| Size | : 7-1/4"W (185m/m) x 9-5/8"L (245m/m) x 2-1/4"H (58m/m) |
| Weight | : 1.6 kg |
| Controls | : On-Off/Volume, Squelch & Dimmer controls, Key Board |
| Connectors | : Antenna, microphone, remote speaker, DC power |
| Frequency Range | : 156 to 158 MHz transmit 156 to 163 MHz receive |
| Lights and Indicators | : Channel Number, <input type="checkbox"/> , 25W, 1W, USA, INT, DUAL, SCAN, MEM, Backlight Key Board & LCD. |
| Standard Accessories | : Plug-in microphone, mounting bracket and hardware, DC power cord, mike hanger, spare fuse, owner's manual |
| Supply Voltage | : 13.8V DC negative ground |

TRANSMITTER

| | |
|------------------------------|---|
| Power Output | : 25 or 1 watt (keypad selectable) |
| Power Requirement | : 25 watts output: 5.0A @ 13.8V DC 1 watt output : 1.0A @ 13.8V DC |
| Modulation | : FM, ± 5 kHz deviation |
| Hum and Noise | : 40 dB |
| Attenuation | |
| Audio Distortion | : Less than 5% with 3 kHz deviation with 1000 Hz modulating frequency |
| Spurious Emission | : -70 dB |
| Output Transistor Protection | : Built-in |
| Output Power Stabilization | : Built-in automatic level control (ALC) |

SPECIFICATIONS

RECEIVER

| | |
|-------------------------------|---|
| Sensitivity | : 0.35 μ V for 12 dB SINAD 0.50 μ V for 20 dB S/N |
| Threshold Squelch Sensitivity | : 0.20 μ V (EIA method) |
| Tight Squelch Sensitivity | : 2.0 μ V (EIA method) |
| Spurious Response Attenuation | : 75 dB |
| Image Response Attenuation | : 75 dB |
| Intermodulation Attenuation | : 65 dB @ 12 dB SINAD |
| Adjacent Channel Rejection | : 70 dB (EIA method) |
| Rejection Selectivity | : \pm 7.5 kHz @ 6 dB down \pm 15 kHz @ 60 dB down |
| Audio Output Power | : 3.5 watts minimum at 10% distortion at 1 kHz modulation and \pm 3.5 kHz deviation (4 ohm speaker) |
| Power Requirement | : 0.6A @ 13.8V DC, squelched 1.2A @ 13.8V DC at rated audio output |
| IF Frequencies | : 1st — 21.4 MHz 2nd — 455 kHz |
| Hum and Noise Level | : -50 dB (EIA method) |

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