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**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:

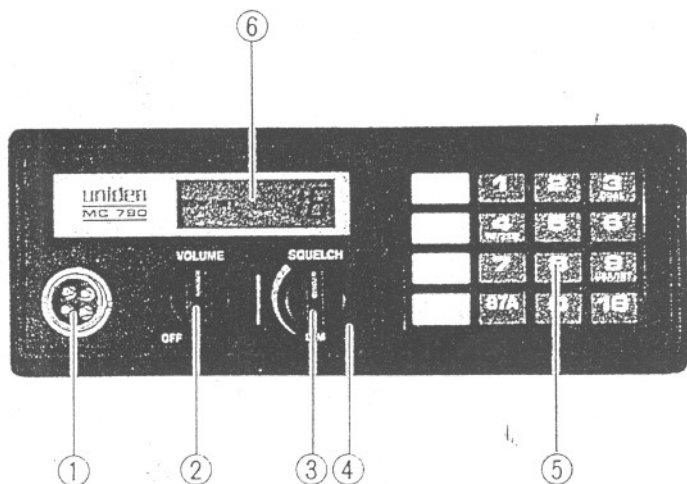
1. Select a location that is free from spray and splash.
2. Keep the battery leads as short as possible. Connection directly to the battery is most desirable. If direct connection cannot be made with the supplied power lead, any extension should be made with #10 AWG wire. Long extensions should use larger 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.

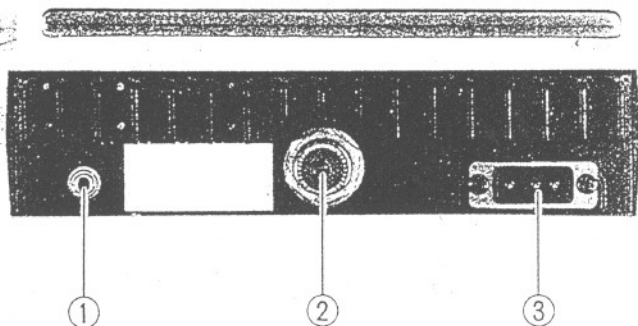
Install the radio into the mounting bracket and connect all cables and accessories to the appropriate jacks and connectors.

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

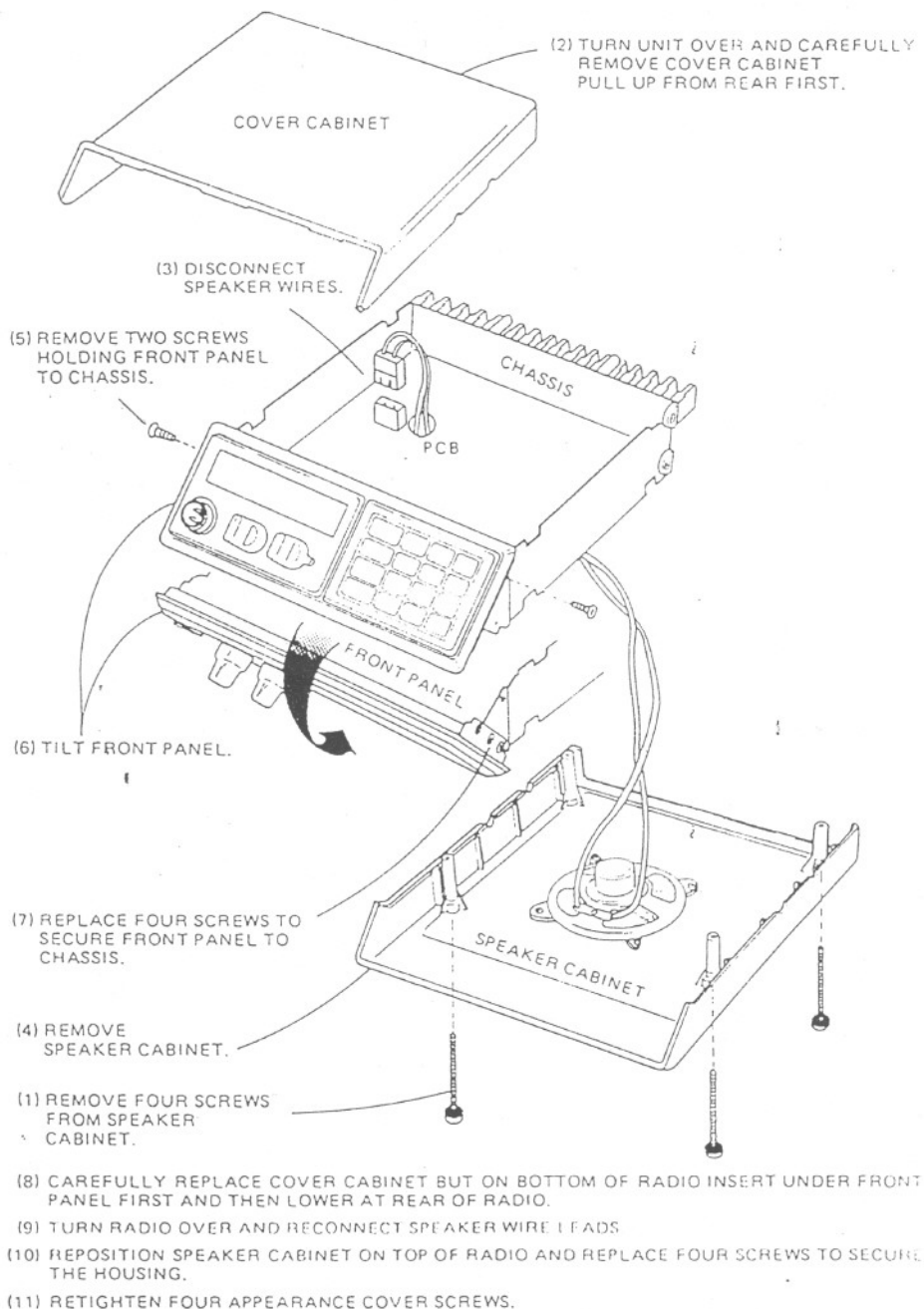
This key gives you instant access to channel 87A and "87" will be indicated on LCD when you press it. If channel 87A is selected from keyboard while operating U.S.A. channels, LCD WILL FLASH "U".

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	160.900	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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