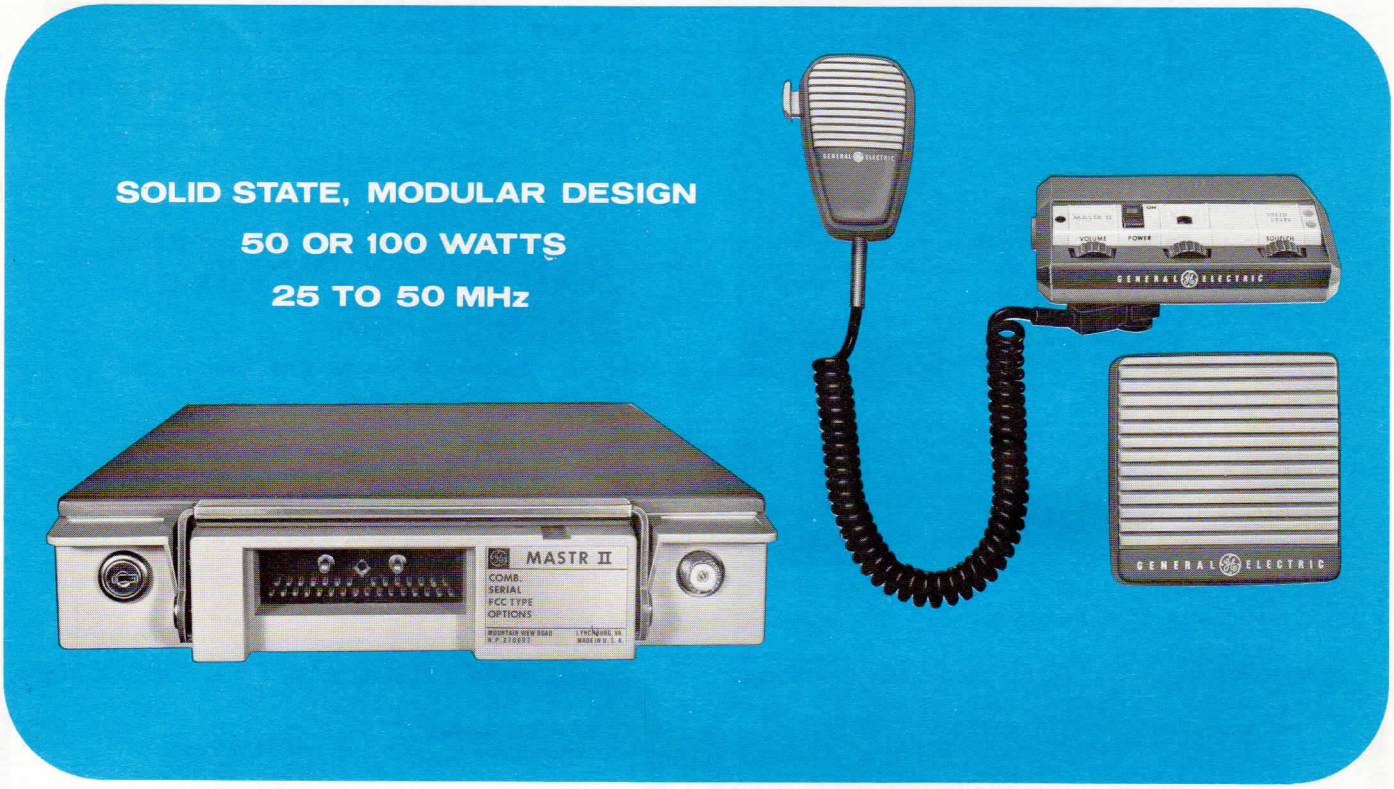
MOBILE RADIO

ECR-1827B

MASTR II



THE MASTR II MOBILE RADIO is a top performance, widely applicable quality radio for today's two-way communication systems. It is the radio with the "built-in future", able to handle system requirement changes expected to occur in the years ahead. Most of its circuitry is composed of plug-in modules which enable field expansion, modification or servicing to be quickly and inexpensively performed without the aid of a soldering iron.

THE HIGH RELIABILITY OF MASTR II radios is accomplished by virtual elimination of point-to-point wiring, maximum use of integrated circuitry and conservatively rated silicon components. The radio is well protected against the entry of dirt, dust and water by its totally enclosed, rugged case. In addition, contaminant-susceptible devices such as the antenna switch, are hermetically sealed for extensive, trouble-free operation.

EXTENDED PERFORMANCE OPERATION – MASTR II, at temperature extremes of $-40^{o}C$ to $+70^{o}C$, is rated to do what ordinary radios are expected to do per EIA Standards at $-30^{o}C$ to $+60^{o}C$. Also, performance is guaranteed in MASTR II radios with supply voltage levels varying from ±20% of rated (EIA). Under normal conditions of temperature and supply voltage, the MASTR II is ultra conservatively rated.

±12 VDC OPERATION WITHOUT CONVERTERS – MASTR II radios may be used interchangeably in negative or positive ground vehicular electrical systems. No power consuming internal or external converters or special cable adapter kits are required. The standard interconnecting cable is simply connected according to the polarity of the vehicle involved.

SAFETY DESIGNED ACCESSORIES – the control unit, microphone and speaker have durable mar-resistant, plastic housing with rounded corners and are devoid of sharp projections. Also, the controls are recessed and brackets are designed to release on impact.

THE THIN – 2.5 INCH – PROFILE of the MASTR II mobile radio permits new freedom for installation in narrow spaces such as beneath or behind front seats of vehicles. Its unique construction allows horizontal, vertical or inverted mounting without affecting performance or mechanical durability. The radio maintains its 2.5" dimension even when it is securely locked into its separate mounting frame.

THE DRIP-PROOF TOP AND BOTTOM COVERS remain in place whenever the radio is out of its mounting frame, giving complete protection to the internal components at all times. However, the top cover may be readily removed for servicing without taking the radio out of its mounting frame.

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certified and guaranteed

OPERATING SPECIFICATIONS

MASTR II MOBILE RADIOS

25–50 MHz

GENERAL

MODEL SERIES	RF POWER OUTPUT (Watts)	PA POWER INPUT (Watts)	BATTERY DRAIN (Amps. @ 13.8 VDC) Rx STANDBY	Rx FULL AUDIO	TRANSMIT	FCC FILING NUMBER Suffix A	Suffix B	APPLICABLE TO PART NUMBER (FCC Rules)
MC64	50	95	0.25	2.4	11A @ 13.6 VDC	KT30A	KT30C	21, 89, 91, 93
MC74	100	220*	0.25	2.4	25A @ 13.4 VDC	KT31A	KT31C	

*Power input is adjustable to 180 watts to meet Part 91 of FCC Rules.

OPERATING VOLTAGE: 12 VDC (±Ground)

DIMENSIONS:

Mobile Unit (HxWxD)	2.5" x 11.75" x 18.75" (6,4 cm x 29,9 cm x 47,6 cm)
Control Unit, less bracket (HxWxD)	2.2" x 6.7" x 5.0" (5,6 cm x 17,0 cm x 12,7 cm)
Speaker, less bracket (HxWxD)	5.1" x 5.1" x 2.8" (13,0 cm x 13,0 cm x 7,1 cm)

WEIGHT (Approximate):

Unit (less accessories)	20 lbs. (9,06 kg)
Shipping (domestic pack)	44 lbs. (19,9 kg)

COLORS: Each combination has 3 coordinated colors: Moonstone Brown, Ash Beige, Charcoal Gray.

DUTY CYCLE:

Intermittent	Receiver, 100% – Transmitter, 20% (EIA)
Continuous	Transmitter 100% (as per specified continuous rating)

AMBIENT TEMPERATURE: –40°C to +70°C (–40°F to +158°F) with full specified performance per EIA.

CONTROLLED VOLTAGES: Electronically Regulated (Internal) 10 VDC ±0.10 V and 5 VDC ±0.10 V

METERING: Centralized metering sockets (transmitter and receiver) accommodate the General Electric 4EX3A11 or 4EX8K12 sets, or a single 0-3 VDC, 20,000 ohms/volt meter may be used.

STANDARD CONTROL CABLE: 20 feet (Power Cables 23 feet each)

TRANSISTORIZED MICROPHONE: Output 0.090 volts (rms) into 600 ohm load

RECEIVER

Channel Spacing:	20 kHz
Sensitivity:	
EIA 12 dB SINAD	0.25 uv
20 dB Quieting	0.35 uv
Noise Squelch	0.12 uv
Channel Guard Squelch	6 dB SINAD
Selectivity:	
EIA 2-Signal (20 kHz channels)	–100 dB
Frequency Stability:	
Suffix A Models	
–40°C to +70°C	±0.0005%
0°C to +55°C	±0.0002%
Suffix B Models	
–40°C to +70°C	±0.0002%
Modulation Acceptance:	±6.5 kHz
Intermodulation:	–80 dB
Spurious and Image Rejection:	–100 dB
Audio Response:	Within +1 and –8 dB of 6 dB/octave de-emphasis, 300 to 3000 Hz
Audio Distortion:	Less than 3%
Audio Output:	12 watts to 8Ω speaker
RF Input Impedance:	50 ohms

Maximum Frequency Spread:	Full Specification	3 dB Degradation
25–30 MHz	.120 MHz	.340 MHz
30–36 MHz	.120 MHz	.340 MHz
36–42 MHz	.160 MHz	.400 MHz
42–50 MHz	.360 MHz	.640 MHz

TRANSMITTER

RF Power Output:	
Intermittent	MC64 50 watts MC74 100 watts
Continuous	MC64 40 watts MC74 55 watts
Spurious and Harmonic Emission:	–85 dB
Modulation Deviation:	0 to ±5 kHz (16F3) (15F2)
Frequency Stability:	
Suffix A Models	
–40°C to +70°C	±0.0005%
0°C to +55°C	±0.0002%
Suffix B Models	
–40°C to +70°C	±0.0002%
Audio Response:	Within +1 and –3 dB of 6 dB/octave pre-emphasis, 300 to 3000 Hz per EIA
Audio Distortion:	Less than 2%
RF Output Impedance:	50 ohms
FM Noise:	–70 dB

Maximum Frequency Spread: (2 to 8 Channels)	Full Specification	1 dB Degradatior
25–30 MHz	.160 MHz	.320 MHz
30–36 MHz	.200 MHz	.400 MHz
36–42 MHz	.240 MHz	.470 MHz
42–50 MHz	.280 MHz	.540 MHz

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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Other Features

- Interchangeable plug-in transmitter and receiver oscillator modules for ±0.0002% or ±0.0005% frequency stability.
- Up to 8 frequency transmit and/or receive capability as a standard function. Unused channel capacity may be employed at any time by adding the required number of oscillator modules.
- The broad band power amplifier requires no tuning and power output is adjustable.
- Microstrip technology used extensively for RF connections providing low loss and improved reliability.
- Light Emitting Diodes (LEDs) used for indicators instead of troublesome filament type lamps. An LED has the same long life expectancy and dependability as provided by quality transistors.
- Twelve watts audio output at a mere 3% distortion means loud and clear messages all of the time.
- Single conversion receiver with monolithic crystal filters and crystal discriminator assures stable, interference free reception in today's congested radio environment.
- Single layer construction and plug-in circuit boards provide "from the top" accessibility of all components, enabling the radio to be promptly and economically serviced.
- Plug-in modules have individual test values and can be checked independent of other circuits or they can be quickly and easily replaced.
- A tone filter for attenuating audible tone squelch frequencies is supplied as standard for all radios whether equipped with Channel Guard (Tone Squelch) or not.
- Fast squelch action — on standard receivers, squelch burst disappears in less than 10 milliseconds after the end of a message.
- Structural grade, cold rolled steel used for top and bottom covers and separate mounting plate.
- The low profile package permits new freedom for installation in confined spaces.

Options

- **All Solid State Channel Guard** (Tone Squelch) with plug-in VERSATONE* tone determining networks. Changing a tone frequency is simply a matter of replacing a plug-in VERSATONE module with one of a new desired frequency. Squelch tail elimination is included with the Channel Guard option.

- **Fixed Squelch** — is a pre-set circuit that replaces the variable squelch control, eliminating the chance of operator mis-adjustment. An "ON-OFF" switch on the control unit permits monitoring the receiver in the unsquelched condition.

- **Busy Light** — An LED indicator which tells the operator at a glance when his selected channel is busy or idle. It makes it unnecessary to audibly monitor the channel.

- **Priority Search Lock Monitor** — available for multi-frequency radios for sequentially monitoring any pair of selected channels. A message on the priority channel will lock out the other channel until the transmission is completed.

- **Noise Blanker** — improves signal clarity and effective range of the receiver in the presence of impulse noise interference.

- **Carrier Control Timer** — turns off the transmitter after one minute of operation and sounds an alert tone. It is reset on releasing the push-to-talk switch. Time interval and tone level are adjustable.

- **Public Address "Hailer"** — provides 12 watts of audio to an external speaker with a switch on the control head. This enables incoming messages to be heard outside of the vehicle or can be used as a public address system.

- **Control Cables** (18 or 30 conductor) are available in lengths of 9 and 27 feet. The length of the two conductor power cable, included with each option, is 12' and 30' long respectively.

**VERSATONE is a hybrid thick film integrated circuit module which is adjusted on frequency by laser beam under computer control.*