



# **INSTRUCTION MANUAL**

**FOR**

**SOLID STATE AM/FM 40 CHANNEL**

**CITIZENS BAND 2-WAY RADIO**

# **MAGNUM MX**

## SPECIFICATIONS

### TRANSMITTER SECTION

POWER OUTPUT .....	AM/FM 4 Watt Max (AT 13.8V DC)
EMISSION .....	A3E, F3E
SPURIOUS RESPONSE REJECTION .....	-90dBc=4nW
MODULATION .....	AM, 90% typical FM, Less than 2.0KHz

### RECEIVER SECTION

CIRCUIT TYPE .....	Dual conversion superheterodyne with RF stage and 455 KHz ceramic filter
FREQUENCY .....	1 crystal-controlled PLL, 40 channels in the 27 MHz Citizens Band
SENSITIVITY .....	AM 1.0 $\mu$ V for 10 dB S/N FM 0.25 $\mu$ t for 10dB S/N
SQUELCH RANGE .....	1mV
SELECTIVITY .....	60 dB down at +10 KHz
IF FREQUENCY .....	1st IF : 10.695 MHz 2nd IF : 455 KHz
IMAGE REJECTION .....	-55 dB
AUDIO OUTPUT .....	2.5W maximum at 8 ohm load
CURRENT DRAIN .....	250mA on standby (no signal)
CURRENT DRAIN (MAXIMUM) .....	Less than 1.5A
ANTENNA .....	Nominal 50 ohms impedance
POWER SOURCE .....	Operates from nominal 13.8 volts DC, negative ground system
DIMENSIONS (HOUSING) .....	5.12"W x 6.85"D x 1.34"H
WEIGHT .....	1.9 lbs

## DESCRIPTION

This model is an all-transistor 2-way radio transceiver for mobile operation. A frequency synthesizer circuit provides 40 crystal controlled PLL transmit and receive channels in the 27 MHz Band, engineered for trouble-free performance. Your transceiver uses heat resistant transistors in all critical areas. Current drain on 12 volts DC is exceptionally low. Operation over long periods is feasible even with your engine turned off. The transceiver may also be operated from A.C. when used with an optional Power Supply.

## RECEIVER

The receiver is a sensitive and highly selective dual-conversion superheterodyne type providing crystal-controlled PLL operation on all 40 CB channels. The circuit incorporates an effective full time Automatic Noise Limiter in the audio stages. A ceramic filter provides sharp selectivity and high adjacent channel rejection. As a result, transmissions on adjacent channels cause minimum interference.

A variable squelch control is incorporated to "silence" the receiver when no signals are being received. The squelch circuit is adjustable providing varying degrees of sensitivity to incoming signals.

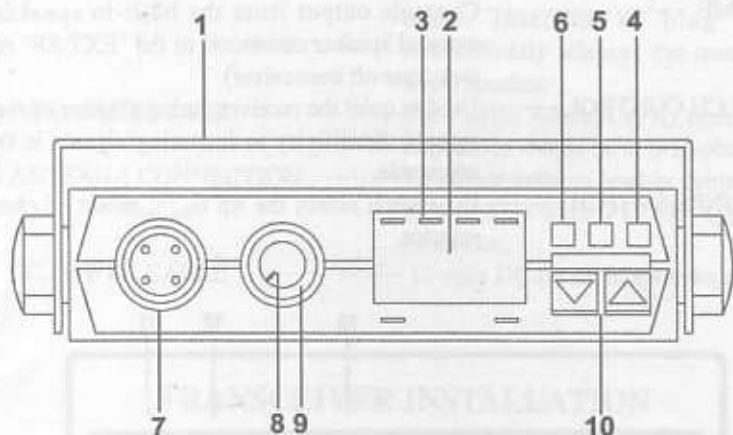
## TRANSMITTER

The transmitter offers crystal-controlled operation on all 40 CB channels, 4 watt DC power input to the final RF with average modulation capabilities is possible by the use of high-efficiency Transistors and low loss components, wiring, and mounting boards, The legal limit of power for this service is provided.

## POWER SUPPLY

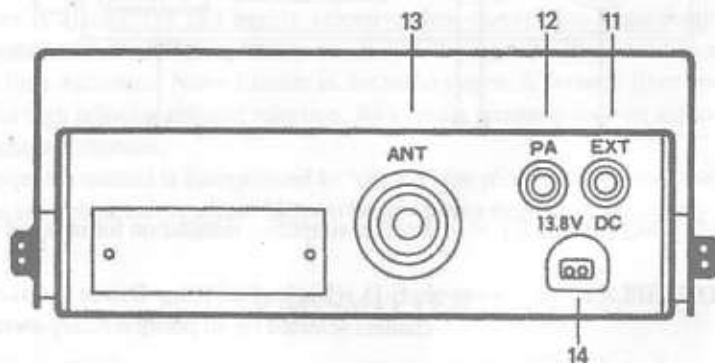
The transceiver is ready for connection to a 12 volt DC, negative ground system. DC power is provided to the transceiver by means of a fused power lead.

## OPERATING CONTROL AND FEATURES



- (1) MOUNTING BRACKET .....Bracket simplifies installation for removal of unit.
- (2) L.E.D. DISPLAY .....L.E.D. (Light Emitting Diode) indicates the channel selected by 40 position rotary-switch.
- (3) TX/RX SIGNAL METER .....At receive mode, some or all of the LEDs will light up indicating the strength of the incoming signals by the number of LEDs. In the transmit mode, it indicates the relative RF power output.
- (4) AM/FM SWITCH .....Changes your Transceiver system from a Transceiver function, using the internal speaker, to a Public Address function.FOR AM/FM OPERATION: press the AM/FM button.
- (5) CH9/OFF SWITCH .....FOR EMERGENCY CALL/MONITOR (CHANNEL 9 OPERATION):press the CH9/OFF button.
- (6) CB/PA SWITCH .....Changes your CB system form a CB function, using the internal speaker, to a Public Address function.

- (7) MICROPHONE INPUT .....4 pin socket for push-to-talk microphone.
- (8) VOLUME .....Controls output from the built-in speaker, of external speaker connected to the "EXT SP" or PA jack (rear oft transceiver).
- (9) SQUELCH CONTROL .....Used to quiet the receiver during absence of receive signals. Sensitivity to incoming signals is fuully adjustable.
- (10) CHANNEL SWITCH .....Up switch select the up count mode of channel selector.



Down switch select the down count mode of channel selector. When those up and down switch are depressed, channel is changed. But in TX mode. Channel is not changed.

- (11) EXTERNAL SPEAKER JACK .....Impedance of any device such as head-phone connected to this jack should be 8-16 ohms. Insertion of plug into jack automatically silences the transceiver internal speaker.
- (12) PA SPEAKER JACK .....For Public Address (PA) operation.Horn impedance should be in 8-16 ohmrange.
- (13) ANTENNA CONNECTION .....To match antenna lead-in cable (RG-58/U of RG-8U) with PL-259 type coaxial connector.
- (14) DC POWER CABLE ..... 12 volts DC for transceiver supplied.

## TRANSCEIVER INSTALLATION

### MOUNTING

Always mount where controls are readily accessible, Unit may be mounted to the underside of the dashboard of a car, truck, etc., utilizing special bracket included with transceiver.

Attach bracket to the underside of dashboard using the self-tapping screws supplied. Attach the transceiver to the bracket using the two knurled securing screws at the side.

Tilt the unit to the most convenient angle before tightening securing screws.

### DC POWER CONNECTIONS

The transceiver is designed to operate from a battery source of 11.5 to 14.5 volts DC, employing negative of ground electrical systems.

The fused DC power cable supplied is used to make the necessary power connection to the transceiver. Red lead is connected to the positive (+) side of the electrical system and the black lead is connected to the negative (-) side of the system.

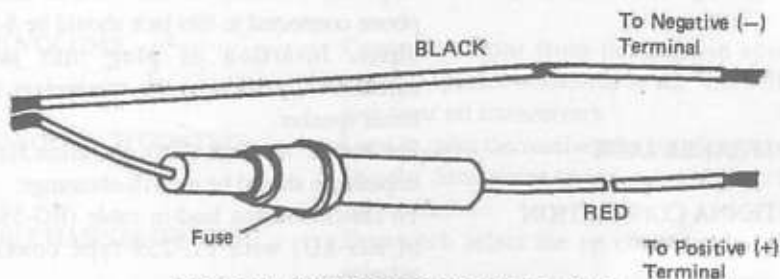


FIGURE 4. CONNECTING DC POWER CORD

In a negative ground vehicle, connect the Red lead to the "hot" point in the electrical system (battery positive), and the Black lead to any point connected to the vehicle chassis (battery negative).

For connection to the "hot" battery side a suitable post can usually be found on the fuse block. The transceiver draws a maximum of 1.5 ampere of current, therefore you can use a terminal which supplies power to the Radio or other accessory (Use the unfused input side. The DC power cable is equipped with its own fuse). Connection at this point will ensure DC power is automatically cut off to the transceiver when the ignition is turned off.

**IMPORTANT : DC VOLTAGE AT THE TERMINAL SELECTED ON THE FUSE BLOCK MUST BE AT LEAST 11.5 VOLTS FOR PROPER OPERATION.**

#### ANTENNA CONNECTION

The lead-in cable from the CB antenna must be terminated with a PL-259 type male connector. Attach to the matching antenna input connector at the rear of the transceiver.

#### MICROPHONE BRACKET

Attach the microphone bracket provided to any convenient location.

#### MICROPHONE CONNECTION

Insert the 4 pin plug at the end of the coiled cord into the microphone socket.

# **DO NOT TRANSMIT WITHOUT AN ANTENNA CONNECTED TO THE TRANSCEIVER.**

## **IGNITION INTERFERENCE**

Normally the suppression on modern automotive engines is adequate to prevent annoying interference to your VB transceiver. If it does not, consult your dealer who will recommend additional suppression measurements.

## **RECEIVING**

1. Select desired channel using the channel Selector Switch.
2. Set "squelch" control to the extreme minimum position.
3. Set the "VOLUME" to a comfortable listening level (approximately 1/3 set-ting). The receiver is now ready to operate.

## **SQUELCH ADJUSTMENT**

The Squelch control eliminate annoying background noise in the absence of signals. to adjust the SQUELCH control properly turn up VOLUME until back-ground noise is heard. Set the SQUELCH slowly upper side until the background noise just disappear. At this point the receiver will be quiet under "nosignal" conditions, however a reasonable strength incoming signal will overcome the squelch action and be heard. As the control is advanced the squelch action is progressively increased and stronger incoming signals are needed to overcome it. To receive weak signals or to disable the squelch circuit set the control fully minimum position.

## **EXTERNAL SPEAKER JACK**

Recommended plug for the EXT SPEAKER jack is a "MINIPLUG" subminiature phone plug.

The impedance of earphones or speakers connected should be 8-16 ohms. Insertion of a plug automatically silences the transceivers internal speaker.

## **SIGNAL STRENGTH LEVEL INDICATOR**

When receiving, this LED TX/RX SIGNAL METER provides a relative indication of signal strength.

## **TRANSMITTING**

Prior to operating your transmitter do the following:

To transmit, depress the push-to-talk button on the microphone. The Red Transmit Indicator light will come on. use the microphone like a telephone speaking several inches from the face. Do not shout, use a normal speaking voice.

when you are transmitting, the receiver is silenced and reception is, therefore, im-



possible. In the same way, your signal cannot be heard by another station when he is transmitting - each must take turns. To receive again, simply release the microphone push-to-talk button.

## LED TX/RX SIGNAL METER

In transmit position the LED TX/RX SIGNAL METER gives a relative indication of antenna RF power output.

The RF power meter will read true antenna power output when the transceiver is connected to a 50-OHM resistive load. The level indicator indication will not be accurate if the load is mismatched but this will not adversely affect operation if a standard good quality antenna is used.

## USE AS PUBLIC ADDRESS SYSTEM

Provision has been made for Public Address (PA) operation utilizing the microphone and audio stages in the transceiver. For PA operation, use an external high-efficiency public address horn type speaker with an impedance range of 8 to 16 ohms. Connect to the PA jack on the rear panel of the transceiver. The required plug is a subminiature phone plug. For Public Address (PA) operation, switch CB/PA SWITCH to PA position.

## AVAILABLE CITIZEN BAND FREQUENCIES

Channel	Frequency	Channel	Frequency
1	26.960	21	27.210
2	26.970	22	27.220
3	26.980	23	27.250
4	27.000	24	27.230
5	27.010	25	27.240
6	27.020	26	27.260
7	27.030	27	27.270
8	27.050	28	27.280
9	27.060	29	27.290
10	27.070	30	27.300
11	27.080	31	27.310
12	27.100	32	27.320
13	27.110	33	27.330
14	27.120	34	27.340
15	27.130	35	27.350
16	27.150	36	27.360
17	27.160	37	27.370
18	27.170	38	27.380
19	27.180	39	27.390
20	27.200	40	27.400

## TRANSCEIVER SERVICING

Transceiver has been fully tested prior to shipment and will not normally require further adjustments.