GME Electrophone

INSTRUCTION MANUAL

TX840B
27 MHz AM/S.S.B. TRANSCEIVER

COMPLIES WITH SMAS 312

Issue 01

STANDARD COMMUNICATIONS PTY. LTD.

CONTENTS

GENERAL DESCRIPTION

Thank you for your confidence in selecting the TX840B Transceiver. We know you will find your transceiver as exciting as it is practical. We have combined superb workmanship and modern styling with the very latest "state of the art" circuitry to bring you the new TX840B AM/S.S.B. Transceiver. It has been especially designed to give you maximum performance and reliability. Your TX840B is completely factory aligned and quality assurance tested. To obtain the maximum benefit and pleasure from your TX840B, please read the contents of this manual very carefully before attempting to install or operate the transceiver.

Features:

- **Instant channel 8 recall:** By simple push button selection, on the front panel.

  Note: When Ch. 8 is selected, the Digital Readout goes blank.

- **Last channel memory:** Instantly returns to last used channel when Channel 8 button released.

- **Full 40 channel operation:** P.L.L. frequency synthesised circuitry allows transmission and reception on all 40 channels of the 27MHz Citizens Band Radio Service.

  Note: Please see Channel Information Chart for recommended usage (Page 7).

- **Compact size:** The TX840B takes up less space in your vehicle, only 172W x 175L x 52D (mm).

- **Your TX840B Transceiver** comes complete with P.T.T. hand microphone, D.C. lead, transceiver and microphone mounting brackets and all mounting hardware.

- **Power supply:** The transceiver is ready for connection to a 13.8V D.C. negative ground system. DC power is provided to the transceiver by means of a fused power lead.

- **Receiver:** The TX840B contains a sensitive and highly selective single-conversion superheterodyne receiver providing crystal-controlled P.L.L. operation on all 40 channels. Incorporated in the circuit are a number of features designed to provide optimum reception. There is an effective audio stage. 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 "silences" the receiver when no signals are being received. The squelch circuit is adjustable providing varying degrees of sensitivity to incoming signals.

- **Signal level indicator:**The signal level indicator consists of 4 LEDs which light up according to the signal strength received.

  LED 1 lights at approx. 1.5μV
  LED 2 lights at approx. 3μV
  LED 3 lights at approx. 8μV
  LED 4 lights at approx. 50μV

- **Transmitter:** The transmitter offers stable operation delivering a full 4 watts (AM) and 12 watts P.E.P. (S.S.B.) R.F. power output. High efficiency I.C.s transistors and low loss components are used for high reliability.

- **Power modulation indicator:** The 4 LEDs which double as a signal level indicator show relative output power when transmitting. Under normal AM operation, the first 3 LEDs should light, showing relative output power and the fourth LED should blink when talking into the microphone.

SPECIFICATIONS

General

Frequency: 26.965 MHz to 27.405 MHz
No. of Channels: 40 A.M., 40 L.S.B., 40 U.S.B.
Channel Spacing: 10 kHz
Frequency Control: P.L.L. Synthesiser
Frequency Stability: Better than ± 20 ppm
Temperature Range: -10°C + 60°C
Operating Voltage: 13.8V D.C. Negative Ground System
Dimensions: 172W x 175D x 52H mm
Antenna Impedance: 50 Ohms
Antenna Connector: PL259 Plug
Current Protection: 3 Amp in Line Fuse (30 mm)
Reverse Polarity & Over Voltage Protection: Shunt 18 Volt Zener Diode
P.A. Socket: 4 Ohms, 4 Watts max.
Ext. Speaker Socket: 4 to 8 Ohms
Controls: Channel selector, Volume On/Off power, Squelch, Clarifier
Switches: Mode A.M./U.S.B./ L.S.B., P.A./C.B., Noise Blanker/A.N.L., Local/Distance, Channel 8 memory, Microphone P.T.T.
Connections: Microphone socket, D.C. Power Input, Ext. speaker socket, P.A. socket, Antenna socket

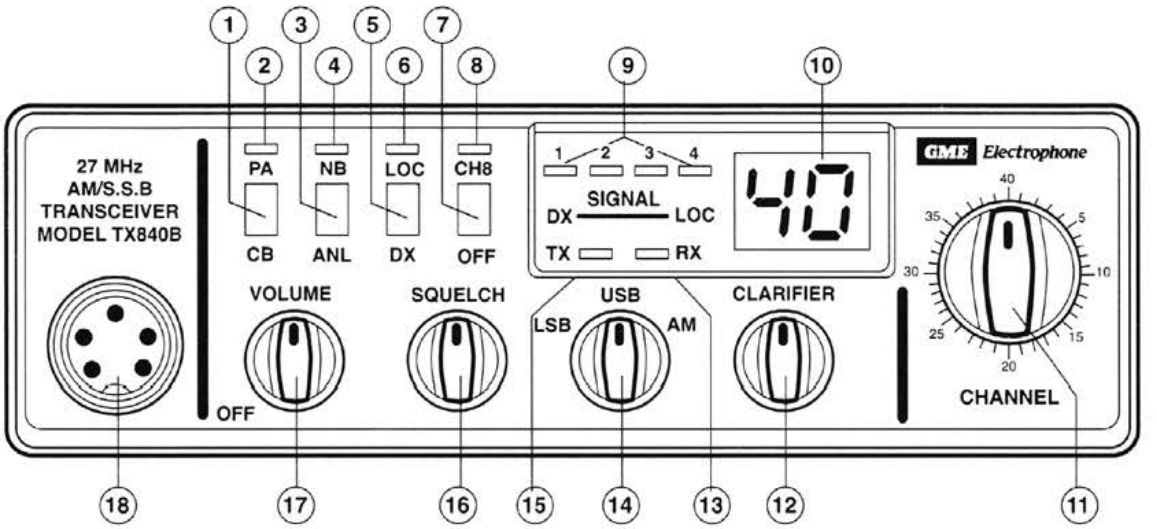
Transmitter:

Power Output: A.M. - 4 Watts R.M.S.
S.S.B. - 12 Watts P.E.P.
Transmitter Modes: A.M. - Amplitude modulated, high level Class B
S.S.B. - Single Side Band, Carrier Suppression better than -40dB, Unwanted Side Band suppression better than -60dB
Harmonic Suppression: Better than -70dB
Power Consumption: A.M. - full modulation 1.6 Amps
S.S.B.. - 2.4 Amps

Receiver

Circuit System: Superheterodyne V.C.O Direct Injection Method, Single Conversion
IF Circuit: 10.695 MHz AM/S.S.B High Quality Crystal Filter
Sensitivity: A.M. - 0.6μV 12dB SINAD
S.S.B.. - 0.25μV 12dB SINAD
Selectivity: A.M./S.S.B. +/- 10 kHz better than -75dB
Squelch Range: Threshold = 0.3μV
Tight = 100μV
Intermodulation: Better than -65dB
Clarifier Range: ± 1100Hz
Image Rejection: Better than -90dB
A.G.C. Range: Less than 10dB change in Audio Output from 1μV to 50μV
Audio Output: 3.5 Watts into 4 Ohms
Current Consumption: 270mA Squelched
560mA Full Volume

OPERATING CONTROLS



1. **PA/CB Button**
   Your transceiver is equipped with a P.A. (public address) amplifying system which works in conjunction with the volume control. Select P.A./C.B. switch "IN" for P.A. operation and "OUT" for normal 27 MHz operation.

2. **P.A. LED**
   Lights up when P.A. button is pushed "IN".

3. **Noise Blanker/Automatic Noise Limiter Button**
   When the NB/ANL button is pressed "IN", the noise blanker circuit is activated, which considerably reduces impulse noise such as interference from spark plugs. When the button is "OUT", the noise limiter is automatically set for minimum interference.

4. **Noise blanker LED**
   Lights up when NB/ANL button is pressed "IN".

5. **Local/Distant Button**
   Select distant position ("OUT") for weak or normal strength signals. Select local position ("IN") for very strong signals to prevent overload or splatter and reduce background noise.
   (See Operating Instructions).

6. **Local LED**
   Lights up when LOC/DX button is pressed "IN".

7. **Instant channel 8 button**
   Push "IN" to instantly select Channel 8 road channel. (The Channel display will be blanked out in this mode). When the button is "OUT", the last used channel is returned.

8. **Channel 8 LED**
   Lights up when Ch. 8 button is pressed "IN".

9. **Signal LEDs**
   Indicates R.F. power output in Transmit Mode or signal strength in Receive Mode.

10. **Channel indicator LED**

11. **Channel selector**
    Selects any one of the 40 operating channels in the 27 MHz CB band.

12. **Clarifier**
    This control is used on the LSB/USB mode to fine tune the signal (on receive only). Adjust this control either way to receive the clearest or most intelligible signal.

13. **Receive LED**
    Lights up when the set is switched "ON".

14. **Mode switch**
    Selects mode of operation LSB/USB or AM

15. **Transmit LED**
    Lights up when transmitting.

16. Squelch control

Turn the knob clockwise until the background noise disappears. Now you can hear signals without annoying background hiss. Rotating the squelch too far clockwise will decrease reception sensitivity so that very weak stations will not be received. Therefore, when you are in communication with a distant weak station, rotate the squelch all the way counterclockwise.

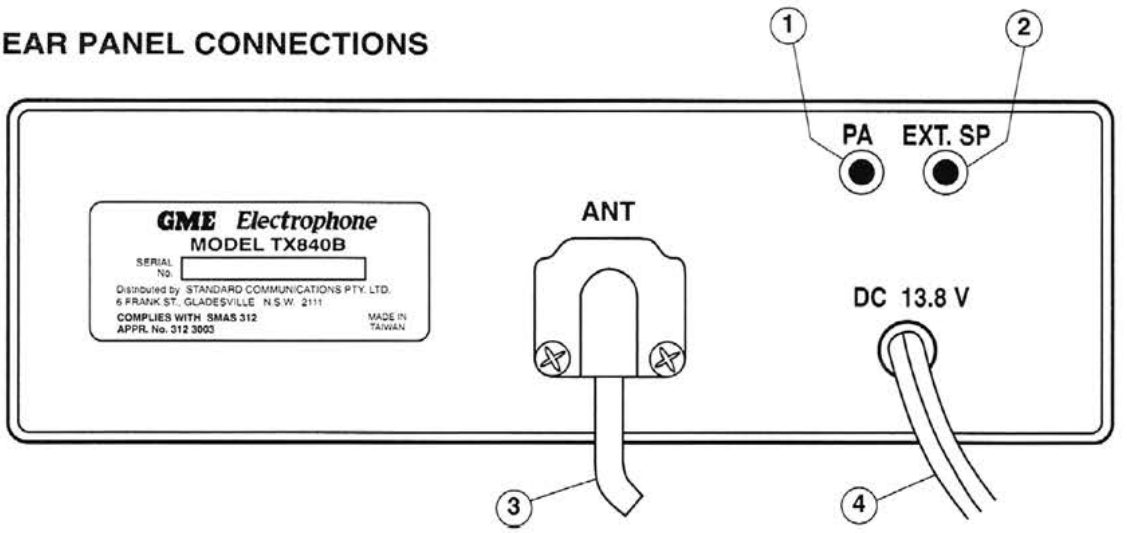
17. Volume control/Power switch

This turns the power ON or OFF and controls the sound output level from the speaker.

18. Microphone socket

Accepts the microphone plug. A push-to-talk microphone is supplied with the transceiver.

REAR PANEL CONNECTIONS



1. P.A. Socket

This socket is used to plug in an external 8 Ohm horn speaker (SPK03W) allowing the transceiver to be used as a public address system or loud hailer. Uses a standard 3.5 mm mini-type plug.

2. Extension Speaker Socket

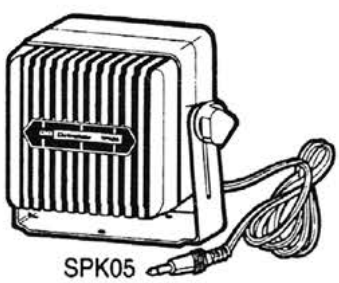
Used for connecting an external speaker of 8 to 16 Ohms impedance (SPK05 or SPK06). Accepts a 3.5 mm mini-type plug. Insertion of an external speaker into this jack will automatically silence the built-in speaker.

3. Antenna Connector

Used for connecting the antenna with matching PL259 type coaxial plug.

4. DC Power Socket

The DC power cord supplied connects to the 12V battery system.



SPK05

SPK03W

SPK06

CHANNEL / FREQUENCY CHART

CH	FREQUENCY	SUGGESTED USAGE		CH	FREQUENCY	SUGGESTED USUAGE	
1	26.965 MHz	General	AM	21	27.215 MHz	General	SSB
2	26.975 MHz	"	"	22	27.225 MHz	"	"
3	26.985 MHz	"	"	23	27.255 MHz	"	"
4	27.005 MHz	"	"	24	27.235 MHz	"	"
5	27.015 MHz	"	"	25	27.245 MHz	"	"
6	27.025 MHz	"	"	26	27.265 MHz	"	"
7	27.035 MHz	"	"	27	27.275 MHz	"	"
8	27.055 MHz	"	" (3)	28	27.285 MHz	"	"
9	27.065 MHz	Emerg. Channel	(1)	29	27.295 MHz	"	"
10	27.075 MHz	General	AM	30	27.305 MHz	"	"
11	27.085 MHz	Call Channel	AM (1)	31	27.315 MHz	"	"
12	27.105 MHz	General	AM	32	27.325 MHz	"	"
13	27.115 MHz	"	"	33	27.335 MHz	"	"
14	27.125 MHz	"	"	34	27.345 MHz	"	"
15	27.135 MHz	"	"	35	27.355 MHz	"	" (2)
16	27.155 MHz	Call Channel	SSB (1)	36	27.365 MHz	"	"
17	27.165 MHz	General	SSB	37	27.375 MHz	"	"
18	27.175 MHz	"	"	38	27.385 MHz	"	"
19	27.185 MHz	"	"	39	27.395 MHz	"	"
20	27.205 MHz	"	"	40	27.405 MHz	"	"

(1) Legally Designated (2) Suggested 2nd SSB Call Channel (3) Suggested Road Channel

IGNITION NOISE INTERFERENCE

Use of a mobile transceiver at low level signal conditions is normally limited by the presence of electrical noises. The primary source of noise in an automobile installation is from the generator (or alternator) and the ignition system in the vehicle. Under most operating conditions, when signal levels are adequate, the background noise does not present a serious problem. Also, when extremely low level signals are being received, the transceiver may be operated with the vehicle engine off.

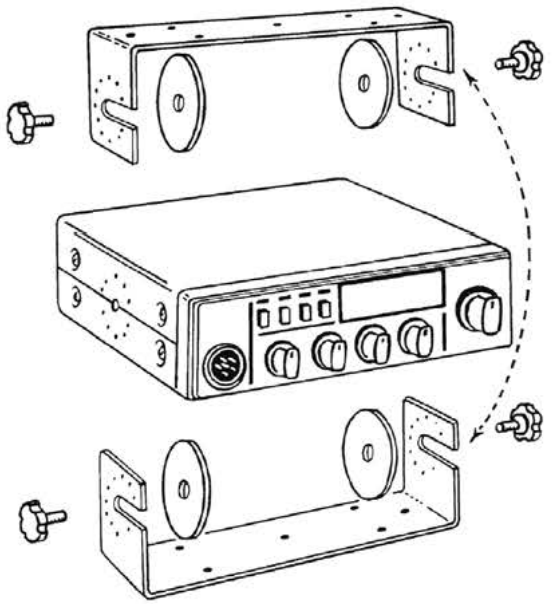
If you are receiving excessive interference from the electrical system on your vehicle, contact your dealer or an auto electrician for advice.

INSTALLATION

Mounting

Always mount where controls are readily accessible. The unit may be mounted to the underside of the dashboard of a car, truck etc. utilising the special bracket included with your transceiver. Attach the bracket using the self-tapping screws supplied. Fit the transceiver to the bracket using the two knurled securing screws at the sides.

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



DC POWER CONNECTIONS

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

The transceiver is designed to operate from negative ground electrical systems employing a battery source of 11.5 to 14.5 Volts DC. The fused DC power cable is used to make the necessary power connection to the transceiver. The red (fused) lead is connected to the positive (+) side of the electrical system and the black lead is connected to the negative (-) side of the system.

In a 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). (Refer to Fig.2)

For connection to the "hot" battery side, a suitable post can usually be found on the fuse block. The transceiver draws a maximum of 2.5 Amperes 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 to the transceiver is automatically cut when the ignition is turned off. (Refer to Fig.1)

WARNING!
ACCIDENTAL REVERSAL OF THE POSITIVE AND NEGATIVE CONNECTIONS MAY CAUSE SERIOUS DAMAGE TO THE TRANSCEIVER WHICH WOULD VOID THE WARRANTY. IF THE FUSE BLOWS, REPLACE IT WITH A 3 AMP 3AG TYPE.

ANTENNA CONNECTION

The lead-in cable from the antenna must be terminated with a PL259 type male connector. Attach it 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 5 pin plug at the end of the curled cord into the microphone socket.

DO NOT TRANSMIT WITHOUT AN ANTENNA CONNECTED TO THE TRANSCEIVER.

Fig. 1.

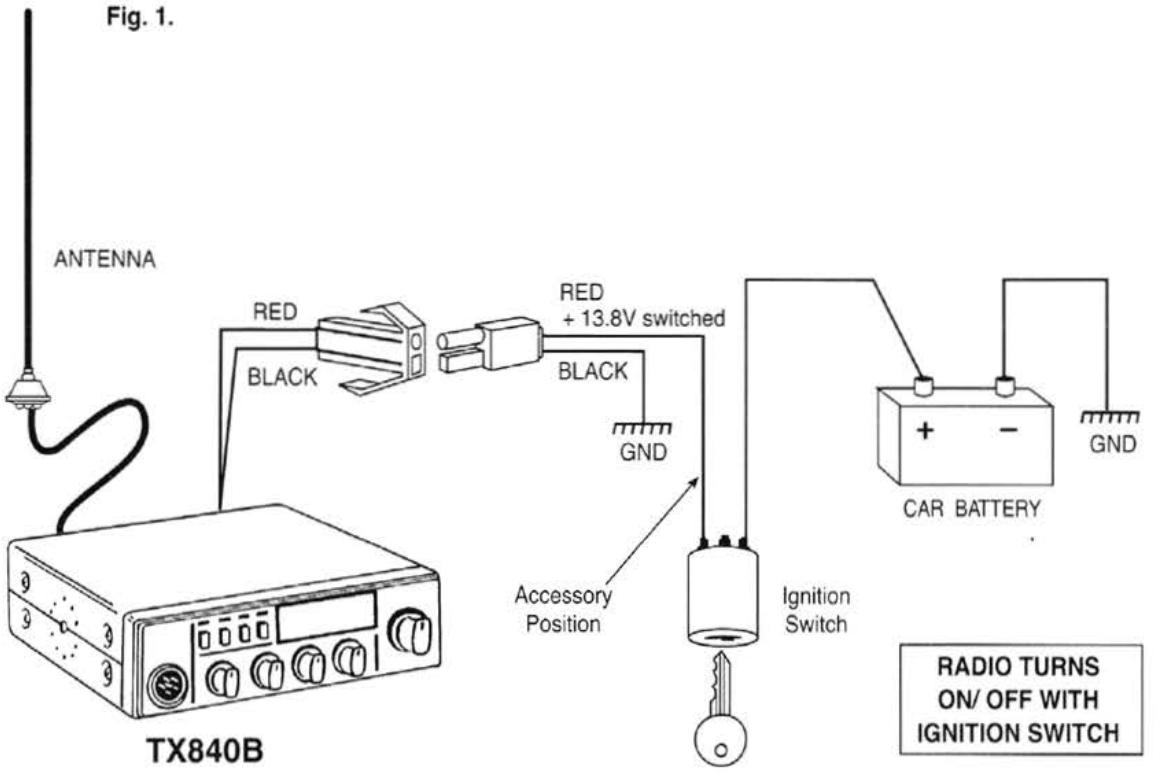
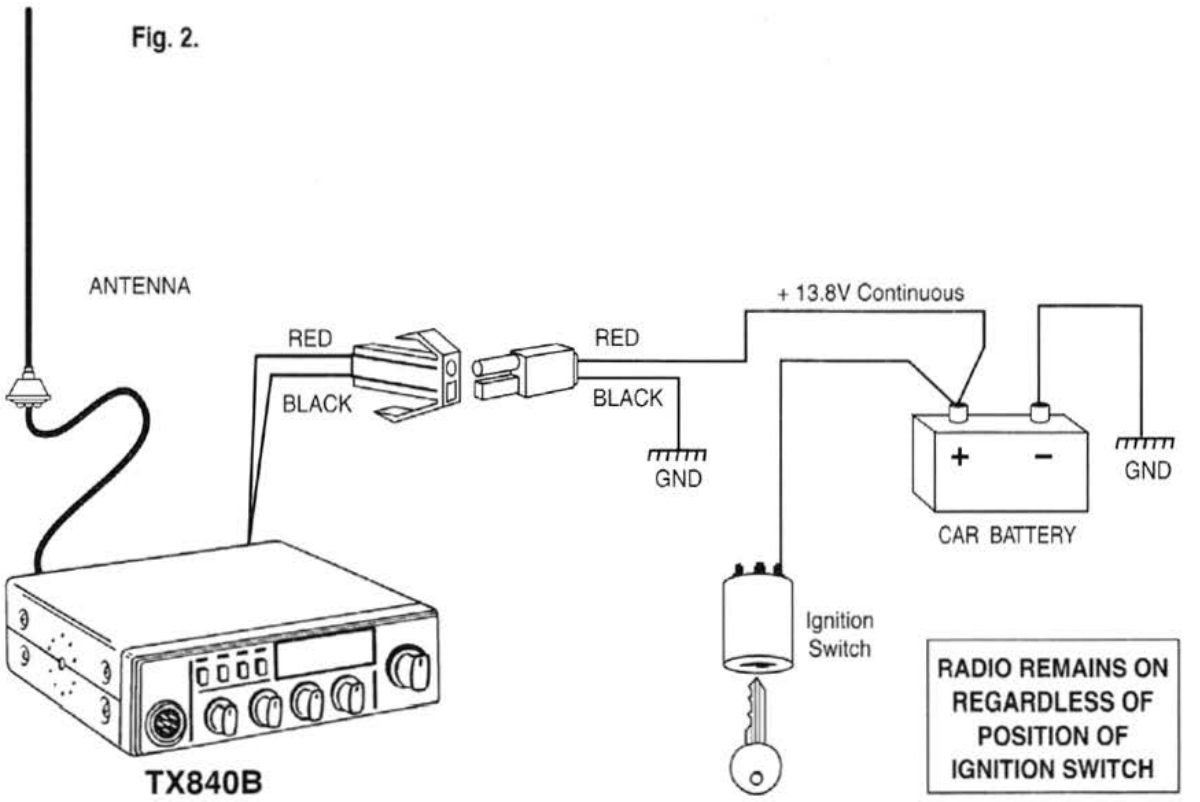

ANTENNA
RED
BLACK
RED
+ 13.8V switched
BLACK
GND
+
−
GND
CAR BATTERY
Accessory
Position
Ignition
Switch
RADIO TURNS
ON/ OFF WITH
IGNITION SWITCH
TX840B

Fig. 2.


ANTENNA
+ 13.8V Continuous
RED
BLACK
RED
BLACK
GND
+
−
GND
CAR BATTERY
Ignition
Switch
RADIO REMAINS ON
REGARDLESS OF
POSITION OF
IGNITION SWITCH
TX840B

OPERATING INSTRUCTIONS

IMPORTANT
NEVER ATTEMPT TO TRANSMIT WITHOUT AN ANTENNA CONNECTED TO THE TRANSCEIVER OTHERWISE DAMAGE MAY OCCUR TO THE OUTPUT TRANSISTORS WHICH WOULD VOID THE WARRANTY.

AM OPERATION

Receiving operation procedure

1. Place the CB-P.A. switch in the CB position.
2. Place the LSB/USB/AM switch in the AM position.
3. Turn the set on by turning the VOLUME CONTROL clockwise, past the click.
   NOTE: Microphone must be plugged in for receiver to operate.
4. Set the VOLUME CONTROL for a comfortable audio level.
5. Listen to the background noise from the speaker. Turn the SQUELCH CONTROL slowly clockwise, until the noise just disappears. The squelch is now properlyadjusted. The receiver will remain quiet until a signal is received. Do not advance the control too far, otherwise some of the weaker signals will not open the squelch.
6. Set the CHANNEL SELECTOR switch to the desired channel.
7. Select the Local/Distant switch to suit the current reception conditions. The attenuation selected by the operation of this switch has been carefully selected to give the best results under a wide range of signal conditions. Selecting this switch under very strong signal conditions will prevent distortion caused by overload and reduce the effects of splatter on adjacent channels. Selection under congested channel conditions will help reduce many of the weaker transmissions allowing greater clarity of the stronger signals. The switch should be left in the "OUT" position when listening to weak or distant signals.

Transmit operating procedure

1. Select the channel on which you wish to transmit.
2. If the channel is clear, depress the push-to-talk switch on the microphone and speak into the microphone in a normal voice.

S.S.B. OPERATION

You can only use S.S.B. operation when talking to another station which also has an S.S.B. transceiver. Stations which have A.M. mode only will not be able to understand your transmission. The recommended procedure is to communicate initially on A.M. and if the reception in either direction is becoming weak, select in conjunction with the other station, either USB or LSB mode and stronger signals will be received. It will be necessary to adjust the clarifier control for clearest reception.

PUBLIC ADDRESS

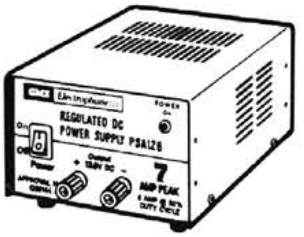
For P.A. (public address) operation use an external 8-16 Ohm speaker (SPK03).

1. Connect a P.A. speaker or loud hailer by plugging a "MINI PLUG" (3.5 mm) into the P.A. socket on the rear of the set.
2. Press the CB-P.A. button in.
3. Press the microphone button. Speak into the microphone and turn the volume control in a clockwise direction to adjust the volume from the P.A. speaker. The internal speaker of the transceiver is disconnected when in P.A. mode.

OPTIONAL ACCESSORIES

REGULATED POWER SUPPLIES

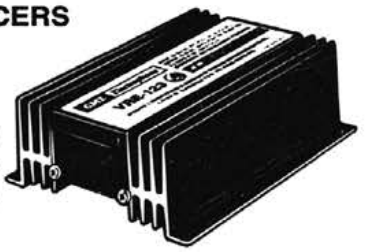
PSA 123 (4 Amp)
PSA 126 (7 Amp)
PSA 1210 (11 Amp)
PSA 1225 (35 Amp)

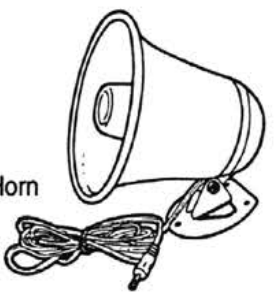


VOLTAGE REDUCERS

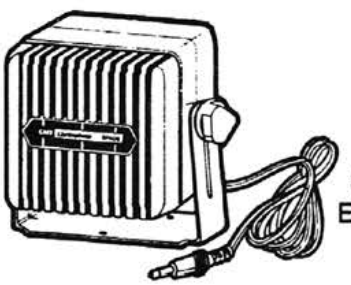
VRE 123 (3 Amp)
VRE 125 (5 Amp)
VRE 1210 (10 Amp)
VRE 1220 (20 Amp)
VRE 1230 (30 Amp)

Multi-Circuit:
VR7280 (20 Amp)
VR8410 (30 Amp)



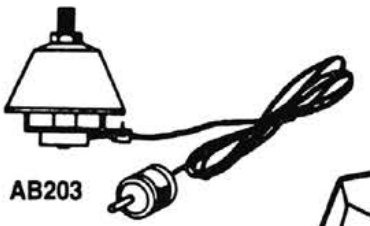


SPK03W
White 8 Ohm
Public Address Horn
Speaker



SPK05
Standard 8 Ohm
Extension Speaker

SPK06
Miniature 8 Ohm
Dust/Water
Resistant
Extension Speaker



AB203

MB03

AE229
Base
Antenna

AE210
1M Whip

AE243
1.2M
Red Label
Heavy Duty
Pre-tuned
Whip

AE230
1.8M
Whip

MC521A
Amplified Desk
Microphone

WARRANTY

GME ELECTROPHONE limit this Warranty to the original Purchaser of the equipment.

GME ELECTROPHONE warrant this product to be free from defects in materials and workmanship for a period of twelve (12) months from the date of purchase from their authorised dealer.

Should the product require servicing during this period, all labour and parts used to effect repairs will be supplied free of charge. **GME ELECTROPHONE** reserve the right to determine whether damage has been occasioned by accident, misuse or improper installation whereby the Warranty would be void, including:

Transceivers which have been damaged due to:

(a) Incorrect reverse polarity connection to a battery or power supply.

(b) Connection to incorrect supply voltage.

(c) Operation without an antenna or by connection to an antenna which has been incorrectly installed, resulting in damage to the transmitter's output transistors.

(d) Effects of water or moisture penetration.

(e) Non-factory modifications.

Procedure to be followed by claimant: In the event of a defect occurring during the twelve (12) month Warranty period, the original purchaser may return the defective unit along with suitable proof of purchase date (i.e. receipt, docket, credit card slip etc.) and a full description of the defect to the Dealer from whom the unit was purchased.

All freight charges incurred for transportation by the Dealer or **GME ELECTROPHONE** are the Purchaser's responsibility.

The Dealer will forward it to the closest authorised **GME ELECTROPHONE** Service Depot in your particular State.

GME ELECTROPHONE AFTER SALES SERVICE

Your **GME ELECTROPHONE** transceiver is especially designed for the environment encountered in mobile installations. The use of all solid state circuitry, careful design and rigorous testing, result in high reliability. Should a failure occur however, **GME ELECTROPHONE** maintain a fully equipped service facility and spare parts stock to meet the customers requirements long after the expiry of the warranty period.

GME Electrophone

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