



PEARCE SIMPSON

OWNER'S GUIDE

Congratulations

You have purchased the magnificent

SUPER CHEETAH MK2

40-CHANNEL AM/SSB MOBILE CB RADIO



HATADI ELECTRONICS PTY. LTD.
MONA VALE AUSTRALIA

Keep
in
touch

DESCRIPTION

Your PEARCE SIMPSON SUPER CHEETAH MK2 represents the most advanced Mobile Station type radio ever designed for use in the Citizens Band Radio Service. It will operate on any of the 40 frequencies designated as citizens band channels by the D.O.C. (Department of Communications). Your SUPER CHEETAH MK2 features a frequency synthesizing circuit with PHASE LOCK LOOP techniques to assure ultraprecise Frequency control. This radio has been Type Accepted and Type Certified by the D.O.C.

WARNING

Before transmitting with your transceiver, you must obtain a Department of Communications (D.O.C.) Citizens Radio Licence. Obtain an application form, from the D.O.C. Before completing the form you should read the conditions governing the licensing and operation of the Citizens Radio Service (D.O.C. brochure RB 250). This brochure also can be obtained from the D.O.C. After completing the application form, mail it with the appropriate fee to the Superintendent Regulatory of Licensing in the State or territory in which the station will be operated.

INTRODUCTION

This radio has been designed to provide high level performance in the Citizens Band Radio Service, which is comprised of the following frequency assignments:

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

SPECIFICATIONS

GENERAL

Channels	40 AM, 40 LSB, 40 USB
Frequency Range	26.865 to 27.405 MHz
Frequency Control	Phase Locked Loop (PLL) synthesized circuitry
Frequency Tolerance	±0.005%
Frequency Stability	0.001%
Operating Temperature Range	-20°C to +50°C
Microphone	Plug-in type; dynamic with push-to-talk switch and coiled cord
Input Voltage	13.8V DC nominal, 15.9V max., 11.7V min. (positive or negative ground)
Current Drain	Transmit: AM full mod., 2.2A; SSB 12 watts PEP output, 2A. Receiver: AM & SSB with maximum audio output, 0.6A
Cabinet Dimensions	7-9/32(W) x 9-5/64(D) x 2-9/32(H)
Weight	4.5 lbs
Antenna Connector	UHF, SO-239
Meter	Illuminated; indicates relative power output and received signal strength, green receive LED
Indicators	LED display; channel, emergency channel, TX/RX and mode. Highway Watch (HW)

TRANSMITTER

Power Output	AM, 4 watts SSB, 12 watts, PEP
Modulation	AM, high and low level Class B
Intermodulation Distortion	SSB: 3rd and 5th order, better than -25 dB; 7th and 9th order, better than -35 dB
SSB Carrier Suppression	Better than -55 dB
Unwanted Sideband	Better than -50 dB
Frequency Response	AM and SSB: 350 to 2500 Hz
Output Impedance	52 ohms, unbalanced
SSB Filter	10.695 MHz, 8 pole monolithic type 6 dB @ 4.2 kHz 60 dB @ 7.0 kHz
Output Indicators	Meter shows relative RF output power; red transmit LED

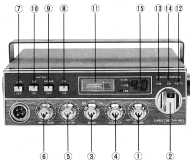
RECEIVER

Sensitivity	SSB: Better than $.25\mu\text{V}$ for 10 dB (S+N)/N at greater than $\frac{1}{2}$ watt of audio output AM: Better than $.5\mu\text{V}$ for 10 dB (S+N)/N at greater than $\frac{1}{2}$ watt of audio output
Selectivity	SSB and AM: 6 dB @ 4.2 kHz, 60 dB @ 7.0 kHz
Cross Modulation	More than 50 dB
Image Rejection	More than 75 dB
I.F. Frequency	AM and SSB: 10.695 MHz
Automatic Gain Control	(AGC): Less than 10 dB change in audio output for inputs from 10 to 500,000 microvolts
Squelch	Adjustable; threshold less than $.5\mu\text{V}$
Noise Blanker	RF type, effective on AM and SSB
Clarifier Range	± 1.0 kHz
Audio Output Power	3 watts into 8 ohms
Frequency Response	350 to 2500 Hz
Distortion	Less than 10% at 3 watts output
Built-in Speaker	16 ohms, round
External Speaker (Not Supplied)	8 ohms; disables internal speaker when connected

PA SYSTEM

Power Output	3 watts into external speaker
External Speaker for PA	8 ohms (not supplied)

FRONT PANEL CONTROLS AND INDICATOR



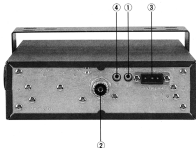
CONTROLS AND THEIR FUNCTIONS

- 1. OFF/ON VOLUME:** To turn the transceiver on, rotate the control clockwise past click. To turn the transceiver off, rotate the control counterclockwise past click. Rotate the control clockwise for a comfortable audio volume level.
- 2. CHANNEL SELECTOR:** This switch is used to select any one of the 40 Citizens Band channels. Channel 9 has been reserved by the D.O.C. for emergency communications involving the immediate safety of life of individuals or immediate protection of property. Channel 9 may also be used to render assistance to a motorist.
- 3. MODE SELECTOR:** This switch selects AM, USB or LSB mode of operation. This selector changes the mode of operation of both transmitter and receiver simultaneously.

Set the selector to the mode on which you wish to communicate. For easier identification of the mode, LED mode indicator is provided in three different colours green for AM, yellow for USB, and red for LSB.

4. **SQUELCH:** The squelch control is normally set to a position which just eliminates undesired background noise with no signal present. With the audio volume adjusted to a satisfactory level, rotate the Squelch control clockwise to the point where the sound from the speaker is cut off. In this position, there will be no sound from the speaker until a signal is received. In order to hear weak signals, it may be necessary to rotate the Squelch control counterclockwise, allowing some background noise to be heard.
5. **CLARIFIER:** The clarifier is normally set to the center position. This feature has several uses and can greatly enhance receiver operation. If a receive signal is slightly off frequency, this control can be operated to optimize the receive signal. This control is primarily intended to tune in SSB signals, but, it may be also used to optimize the AM signal.
6. **MIKE GAIN:** This control is used to adjust, as required, microphone input sensitivity for optimum amount of modulation in transmit. Citizen's band transceivers have been designed to permit the user to attain levels of modulation up to 100% depending on the setting of the microphone gain control, using the microphone provided with the unit. The PEARCE SIMPSON radio's automatic compression and peak limiting circuits assure maximum modulation with minimum distortion.
7. **CH 9 SWITCH:** This switch is for use when emergency communication is needed on the emergency channel, CH9. Pressing the CH9 switch activates CH9 regardless of the position of the channel selector switch. When CH9 switch is pressed, the channel display is blanked and the CH9 indicator is activated.
8. **PA-CB SWITCH:** This control engages the PA function. The PA function should not be used unless an external speaker is connected. In the CB position the PA function is disabled and the radio will transmit and receive on the selected channel.
9. **NB/ANL SWITCH:** When the switch is placed in the NB ANL position, both of RF Noise Blanker and Automatic Noise Limiter circuits are activated. The NB is very effective for repetitive impulse noise such as ignition noise. The ANL reduces annoying hash-type noises.
10. **DW SWITCH:** This mode when selected will provide continuous scanning of Channel 9 (commonly accepted "truckers" channel) every 3 to 4 seconds, in conjunction with any other frequency selected.

11. **S/RF METER:** This meter displays relative transmitter RF output power when transmitting, and input signal strength when receiving. The meter is illuminated when power is on.
12. **TX/RX INDICATOR:** The TX, RX light in the upper right corner of the front panel lights in red colour when the microphone button is pressed and transmitter is in operation. It lights in green colour when the microphone button is released and the receiver is in operation.
13. **CH9 INDICATOR:** When the Channel 9 override button is activated this indicator shows red.
14. **DW INDICATOR:** This LED glows when the Dual Watch switch is activated.
15. **CHANNEL READOUT:** Light Emitting Diode (LED) indicates the channel you select.



REAR OF THE UNIT

- 1. EXTENSION SPEAKER JACK:** The External Speaker Jack is used for remote receiver monitoring. The external speaker should have 8-ohm impedance and be rated to handle at least 4.0 watts. When the external speaker is plugged in the internal speaker is automatically disconnected.
- 2. ANTENNA CONNECTOR:** This female connector permits connection of the transmission line cable male connector (M-Type) to the transceiver.
- 3. POWER JACK:** This jack permits connection of the DC power to the transceiver.
- 4. PA SPEAKER JACK:** Used to connect a PA speaker (8 ohm 4W) for PA operation. Before operating PA you must first connect a PA speaker to this jack.

SERVICING YOUR TRANSCEIVER

The technical information, diagrams and charts will be supplied upon request.

It is the user's responsibility to see that this radio is operating at all times in accordance with the D.O.C. Citizens Radio Service regulations.

We highly recommend that you consult a qualified radiotelephone technician for the servicing and alignment of this CB radio product.

Please refer to the WARNING information contained in the 1st page of this Owner's Manual.

(NOTE: When ordering parts, it is essential to specify the correct model number and serial number of the unit.)

INSTALLATION

MOBILE STATION INSTALLATION

Plan the location of the transceiver and microphone bracket before starting the installation. Select a location that is convenient for operation and does not interfere with the driver or passenger in the vehicle. The radio should be securely fastened to some solid face, using the mounting bracket and self-tapping screws which are provided.

In addition to the standard hump and dash mounts, this transceiver can be conveniently mounted overhead or on a vertical surface. The front panel can be easily reversed (see previous page) to give the proper control panel orientation for overhead and vertical mounting.

MOBILE STATION ANTENNA

Since the maximum allowable power output of the transmitter is limited by the D.O.C. the antenna is a very important factor affecting transmission distance. It is for this reason that we strongly recommend that you install only a quality antenna in your new citizens band system. You have just purchased a superior transceiver. Don't diminish its performance by installing an inferior antenna.

Only a properly matched antenna system will allow maximum power transfer from the 50-ohm transmission line to the radiating element. Your PEARCE SIMPSON dealer is qualified to assist you in the selection of the proper antenna to meet your application requirements.

For automobile installation, the whip antenna may be used with good effect. The most efficient and practical installation is a full quarter wave whip antenna mounted on the rear deck or fender top midway between the rear window and bumper.

A short "loaded" whip antenna is more convenient to install on your automobile, although the efficiency is less than a full quarter wave whip antenna.

For marine installation, consult your dealer for information regarding an adequate grounding system and prevention of electrolysis between fittings the hull and water.

POWER CORD CONNECTION: GROUND SYSTEM

Connect the red DC power cord from the transceiver to the positive, or (+), battery terminal or other convenient point and connect the black power lead to the chassis or vehicle frame, or (-) battery terminal. This unit is negative earth only.

PUBLIC ADDRESS

An external 8 ohm 4-watt speaker must be connected to the (PA SPKR) jack located on the rear panel when the transceiver is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feedback. Physical separation or isolation of the microphone and speaker is important when operating the PA at high output levels.

OPERATING PROCEDURE

TO RECEIVE:

1. Be sure that the power source, antenna and microphone are connected to the proper connectors before going to the next steps.
2. Turn the unit ON by rotating the Volume Control clockwise.
3. Set the Channel Selector Switch to the desired channel.
4. Set the Volume Control to a comfortable listening level.
5. Listen to the background noise from the speaker. Turn the Squelch Control slowly clockwise until the noise JUST disappears (no signal should be present). Leave the control at this setting. The SQUELCH is now properly adjusted. The receiver will remain quiet until a signal is actually received. Do not advance the control too far, or some of the weaker signals will not be heard.

TO TRANSMIT:

CAUTION

The transceiver Voltage Standing Wave Ratio (V.S.W.R.) measurement must be performed prior to the use of the transmitter. A V.S.W.R. ratio in excess of 2:1 may damage the transmitter.

1. Be sure the operator has read and understands, D.O.C. Rules and Regulations prior to operating the transmitter.
2. Select the desired channel.
3. If the channel is clear, depress the push-to-talk switch on the microphone and speak in a normal voice.

PREVENTIVE MAINTENANCE

At six to twelve month intervals, the following system checks should be made:

1. Check Standing Wave Ratio (SWR).
2. Inspect all electrical connections to ensure that they are tight.
3. Inspect antenna coaxial cable for wear or breaks on shielding.
4. Inspect all screws and other mounting hardware for tightness.

OPERATOR TROUBLESHOOTING

Should the unit malfunction or not perform properly, the operator should perform the procedures indicated below:

1. If the transceiver is completely inoperative.
 - Check the power cord and fuse.
2. If trouble is experienced with receiving.
 - Check ON/OFF VOLUME CONTROL setting.
 - Be sure SQUELCH is adjusted properly. Is the radio over-squelched?
 - Check to see that the radio is switched to an operational mode.
3. If trouble is experienced with transmitting.
 - Check to see that the transmission line (coaxial cable) is securely connected to the ANTENNA CONNECTOR.
 - Be sure that the antenna is fully extended for proper operation.
 - Be sure that all transmission line (coaxial cable) connections are secure and free of corrosion.

