

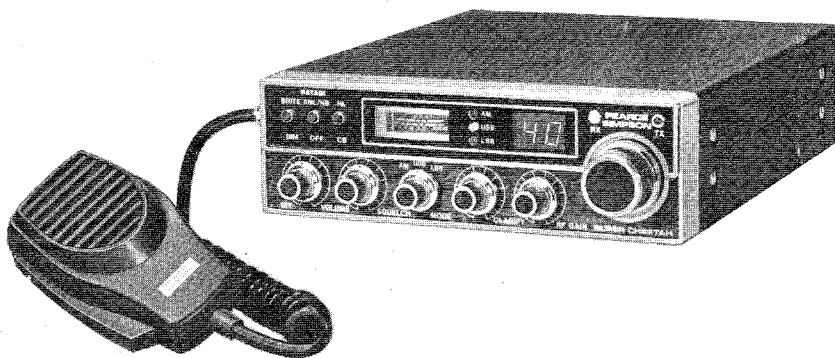
PEARCE SIMPSON

OWNER'S GUIDE

Congratulations

YOU HAVE JUST PURCHASED THE VERY BEST
AM/SSB MOBILE CITIZENS BAND
TWO WAY RADIO

SUPER CHEETAH



HATADI ELECTRONICS CORPORATION PTY LTD.
9 BARCOOLA PLACE, BAYVIEW HEIGHTS, N. S. W. 2104 AUSTRALIA

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SECTION 1

GENERAL INFORMATION

DESCRIPTION

Your SUPER CHEETAH represents the most advanced AM/SSB 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. Your SUPER CHEETAH features a frequency synthesizing circuit with PHASE LOCKED LOOP techniques to assure ultraprecise frequency control. This radio has been Type Accepted and Type Certified by the D.O.C. TELECOM AUSTRALIA.

IMPORTANT!!

For your own protection, we urge you to record the serial number of this unit in the space provided. You'll find the serial number on the back panel of the unit.

SERIAL NUMBER

SPECIFICATIONS

GENERAL

Channels	40
Frequency Range	26.965 MHz to 27.405 MHz
Frequency Control	PLL Synthesized
Antenna Impedance	50 ohm
Power Input	13.8V DC
Accessories	DC Power Cord, Detachable Dynamic Microphone, Microphone Hanger, Mounting Bracket
Size	7-1/4"(W) x 9-1/4"(D) x 2-1/4"(H)
Weight	4 lbs

TRANSMITTER

Output Power	AM 4 watts
	SSB 12 watts PEP
Emission Type AM	6A3
Emission Type SSB	3A3J
Spurious Harmonic Emission	Better than
Frequency Tolerance	0.003%
Modulation Percentage (Peak)	100%

RECEIVER

Sensitivity at 10 dB S+N/N	AM 0.5 μ V SSB 0.25 μ V
Sensitivity for 500 mW Audio Output	AM 0.25 μ V SSB 0.15 μ V
Squelch Threshold	AM 0.5 μ V SSB 0.2 μ V
Squelch Deepest Point	1000 μ V
"S" Meter S-9	100 μ V
Delta Tune/Clarifier	\pm 1.25 KHz
Maximum AF Output Power	4 watts
AF Output Power/10% Distortion	3 watts
Selectivity BW @ 6 dB Down	6 KHz
Adjacent Channel Rejection	-60 dB
Image Rejection	Greater than -60 dB
Speaker Impedance	8 ohms

PUBLIC ADDRESS

Output Power @ 10% Distortion	3.0 watts
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LICENSING PROCEDURES

Please see your CB dealer or post office.

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

To insure that you realize the maximum performance from this radio, please read the following descriptions and operating instructions carefully.

SECTION 2 INSTALLATION

TRANSMISSION LINE

To connect an antenna to the unit, a 50 ohm coaxial lead-in wire is required. Most CB antennas are pre-tuned at the factory and designed for 50 ohm lead-in. The recommended coaxial cable is RG-58/U if the lead-in is 50 feet or less. For lead-in length over 50 feet, RG-8/U is recommended. The transmission cable must be terminated in a PL-259 type connector at the radio.

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 in the hull and water.

GROUND INFORMATION:

NOTE: This transceiver may be installed and used in any 12-volt DC negative or positive ground system vehicle.

Most newer Australian and foreign made cars and small trucks use a negative ground system, while some older cars and some newer large trucks may use a positive ground system.

A negative ground system is generally identified by the (-) battery terminal being connected to the vehicle motor block, but if you cannot determine the polarity system of your vehicle, it is suggested that you consult your vehicle dealer for definite information.

NEGATIVE GROUND SYSTEM

If you are operating on a negative 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.

POSITIVE GROUND SYSTEM

If you are operating on a positive ground system, connect the black DC power cord from the transceiver to the negative, or (-), battery terminal or other convenient point, and connect the red power lead to the chassis or vehicle frame, or (+) battery terminal.

CONNECTING THE POWER CORDS

With regard to the connection of the power cords, it may be possible or desirable to connect the (red lead for negative ground system) or (black lead for positive ground system) to the ignition switch accessory terminal so that the transceiver is automatically turned off when the ignition switch (key) is turned off.

Alternately, the power lead may be connected to an available terminal on the fuse block or even to a point in the wiring harness. Care must be taken, however, to guard against a short circuit condition. When in doubt, please contact your vehicle dealer for specific information for your vehicle.

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.

MOBILE IGNITION INTERFERENCE

Engine ignition interference should not be a problem, and vehicles equipped with standard broadcast radios will have enough suppression to eliminate ignition interference. If interference is present, any skilled auto radio repairman should be able to eliminate it for you.

INSTALLATION ADJUSTMENT

CAUTION

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

The RF (Radio Frequency) output circuit of the SUPER CHEETAH transmitter, has been adjusted at the factory to operate in any 50 ohm antenna system. Therefore, you don't have to tune the radio. However, you may have to adjust your antenna to

get the lowest possible Standing Wave Ratio. This lowest SWR means that the antenna is operating at maximum efficiency. The ideal is 1:1. (SWR of 1.5:1 or less is highly recommended).

The recommended method of antenna tuning is to use an in-line watt-meter or VSWR bridge to adjust the antenna for minimum reflected power on Channel 19.

BASE STATION OPERATION

Your mobile transceiver can be used as a base station by employing an external power supply which converts AC power to D.C. The power supply must be rated at 13.8V DC and minimum 3 amperes current draw.

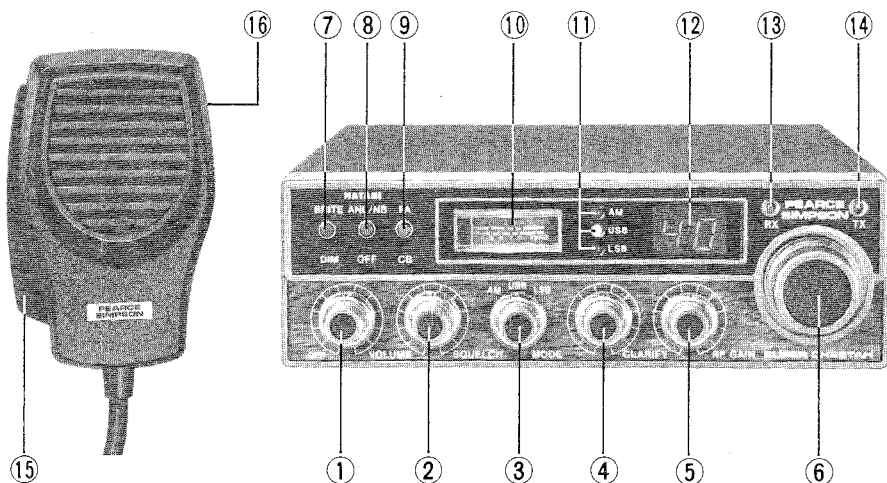
The radio may be used with any type of 50 ohm station antenna. A ground plane vertical antenna will provide the most uniform coverage. For point-to-point operation, where both stations are fixed, a directional beam will usually increase communications range. This type of antenna concentrates transmitted energy in one direction, thus reducing interfering signals. Antenna height is an important factor when maximum range is desired. Keep the antenna clear of surrounding structures or foliage.

For base station operation, simply connect the red (+) and black (-) leads of the transceiver to the corresponding terminals of the AC power supply. Connect the antenna to the rear panel connector and perform the VSWR measurements as explained under Installation Adjustment, above.

NOTE: Do not attempt to operate this transceiver by connecting directly to 240V AC.

SECTION 3 OPERATING INSTRUCTIONS

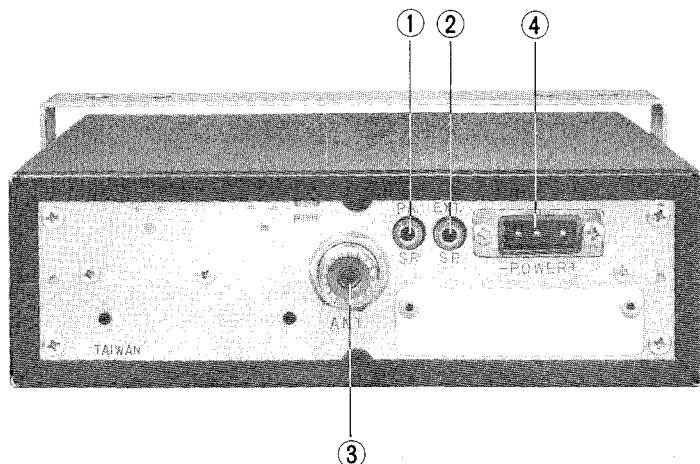
CONTROLS, INDICATORS, CONNECTORS AND THEIR FUNCTIONS



FACE PANEL

- 1. OFF/ON VOLUME:** Turn clockwise to apply power to the radio and to set the desired listening level. Turn fully counterclockwise to turn the radio OFF.
- 2. SQUELCH:** This control is used to cut off or eliminate receiver background noise in the absence of an incoming signal. For maximum receiver sensitivity, it is desired that the control be adjusted only to the point where the receiver background noise or ambient background noise is eliminated. Turn the control fully counterclockwise, then slowly rotate clockwise until the receiver noise disappears. Any signal to be received must now be slightly stronger than the average received noise. Further clockwise rotation will increase the threshold level which a signal must overcome in order to be heard. Only strong signals will be heard at a maximum clockwise setting.
- 3. MODE SELECTOR SWITCH:** This switch allows selection of AM, USB, or LSB mode of operation. Unless the station with which communication is desired is equipped with SSB, the AM mode is normally used. The mode selector switch changes the mode of operation of both transmitter and receiver simultaneously. An explanation of how to determine which mode to use is contained in the Operating Procedure paragraphs, which follows.

4. **CLARIFIER:** This control allows variation of receiver operating frequencies above and below the assigned frequency (within legal limitations). Although this control is intended primarily to tune in SSB signals, it may be used to optimize AM signals as described in the Operating Procedure paragraphs, which follow.
5. **RF GAIN CONTROL:** This control adjusts the strength of the incoming signal. When too strong a signal comes in, turn counterclockwise to set the desired level. If the signal you receive is weak, turn clockwise. To obtain calibration of the "S" meter, RF GAIN CONTROL must be in the full clockwise position.
6. **CHANNEL SELECTOR SWITCH:** This switch selects the desired channel for transmission and reception on both AM and SSB.
7. **BRIT-DIM SWITCH:** This switch controls the brightness of the meter as well as the LED channel display. DIM position reduces the brightness.
8. **ANL/NB SWITCH:** When the switch is placed in the ANL/NB position, the Automatic Noise limiter and the RF Noise Blanker circuits are activated. The ANL reduces hash type noise and NB eliminates repetitive noise such as ignition interference.
9. **PA-CB SWITCH:** This switch selects the functional mode of operation. The PA function should not be used unless an external speaker is connected. In the CB position, the PA function is inoperative and the radio will transmit and receive on the selected frequency.
10. **RF POWER/"S" METER:** When the transceiver is in the receive mode, relative strength is indicated in "S" units on the lower scale of the meter. When transmitting, relative power output is indicated on the upper scale of the meter. The metering circuit is calibrated to that for 100 microvolts the "S" meter will read S-9.
11. **MODE INDICATORS:** The LED indicators designate the mode of operation; AM, USB, LSB. They are operated by the mode switch.
12. **CHANNEL INDICATOR:** Light Emitting Diode (LED) indicates the channel number in use.
13. **RECEIVE INDICATOR:** When receiving, the indicator lights up GREEN.
14. **TRANSMIT INDICATOR:** When the transmitter is on, the indicator lights up RED.
15. **PRESS-TO-TALK MICROPHONE:** The receiver and transmitter are controlled by the press-to-talk switch on the microphone. Press the switch to activate the transmitter; release the switch to receive. When transmitting, hold the microphone two inches from the mouth and speak clearly in a normal voice. The microphone provided with your radio is a detachable low impedance dynamic type.
16. **MICROPHONE GAIN CONTROL (located on the microphone):** This control is used to adjust, as required, microphone input sensitivity in transmit and PA volume in PA function.



REAR PANEL

1. **PUBLIC ADDRESS:** An external 8 ohm, 4.0 watt speaker may be connected to the PA Speaker Jack when this unit 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 must be employed when operating the PA at high output levels.
2. **EXTERNAL SPEAKER:** 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.
3. **ANTENNA CONNECTOR:** This female connector permits connection of the transmission line cable male connector (PL-259) to the transceiver.
4. **POWER:** This plug permits connection of the DC power to the transceiver. The supplied DC Cord's plug is polarized which ensures that power will always be connected and fused properly.

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. Set the PA-CB Switch to the CB position and turn the unit ON by rotating the Volume Control clockwise.
3. Set the mode switch to the desired mode.
4. Set the Channel Selector Switch to the desired channel.
5. Set the Volume Control to a comfortable listening level.
6. Set the RF Gain Control to the maximum clockwise position.

7. 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.
8. Adjust the Clarifier Control to Clarify the SSB signals or to optimize the AM signals.

OPERATING PROCEDURE TO TRANSMIT

1. Be sure the operator of the transmitter is a holder of a Citizens Band license issued by the D.O.C. or has applied for a license and has in his possession a completed license.
2. Select the desired channel.

CAUTION

Be sure the antenna is properly connected to the transceiver before transmitting. Transmitting without an antenna or with a poorly matched antenna (high SWR; over 2) can cause damage to the transmitter.

3. If the channel is clear, depress the push-to-talk switch on the microphone and speak in a normal voice.
4. Make sure the Microphone Gain Control is maximum counterclockwise for maximum modulation. During control adjustment can be made.

OPERATING PROCEDURE FOR PUBLIC ADDRESS

- 1) Connect a remote speaker to the jack provided on the rear panel.
- 2) Place the PA-CB Switch in the PA position.
NOTE: When the Volume control is rotated clockwise, activity on the CB channel will be heard through the PA speaker.
- 3) Depress the push-to-talk switch on the microphone and speak in a normal voice.
- 4) Adjust the volume of the speaker using the control on the microphone.

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 in 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.
- ☆ Be sure OFF/VOL. Control is turned "ON".

2. If trouble is experienced with receiving.

- ☆ Check OFF/VOL. 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.
- ☆ Be sure the RF GAIN Control is in the maximum clockwise position.

3. If trouble is experienced with transmitting.

- ☆ Be sure that the PA-CB SWITCH is set to the CB position.
- ☆ 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.
- ☆ Be sure that you are fully pressing the Push-to-Talk switch on the microphone.

SERVICING YOUR TRANSCEIVER

The technical information and diagram provided in the Owner's Guide are supplied for the use of a qualified holder of a first or second class radiotelephone license in servicing this transceiver. It is the user's responsibility to see that this radio is operating at all times in accordance with the D.O.C. Citizens Band Radio Service regulations.

If you install your own transceiver, do not attempt to make any transmitter tuning adjustments, as they are prohibited by the D.O.C.

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

SCHEMATIC DIAGRAM

