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Teaberry Electronics Corporation

AM CITIZENS BAND MOBILE STATION TYPE TRANSCEIVER



RACER "T" **INSTRUCTION MANUAL**

GENERAL INFORMATION

DESCRIPTION:

The Racer "T" Citizens Band Two-Way Radio employs solid state logic technology to utilize 21st century accuracy today. The Teaberry Engineering Group has developed phase lock loop (PLL) for frequency determination in the Racer "T".

A Citizens Band Two-Way Radio is actually two (2) devices contained in a single package. One device is a receiver which enables a person to listen to signals in the atmosphere very similar to a car or home radio listens to a commercial broadcast station. The Citizens Band Radio receiver is pretuned to the 23 channels assigned by the Federal Communications Commission in the Citizens Band 27 MHz frequency spectrum. The desired channel is selected by the operator.

The second device is a transmitter which radiates an electro-magnetic signal into the atmosphere. The transmitter enables an operator to "talk" with other receivers. The transmitter frequencies are assigned by the Federal Communications Commission (FCC) in the 27 MHz frequency band. The FCC further mandates that the transmitter frequency be controlled by a crystal to ensure that the transmitter does not drift off frequency which would cause interference with other radio and/or television services world wide.

PHASE LOCK LOOP:

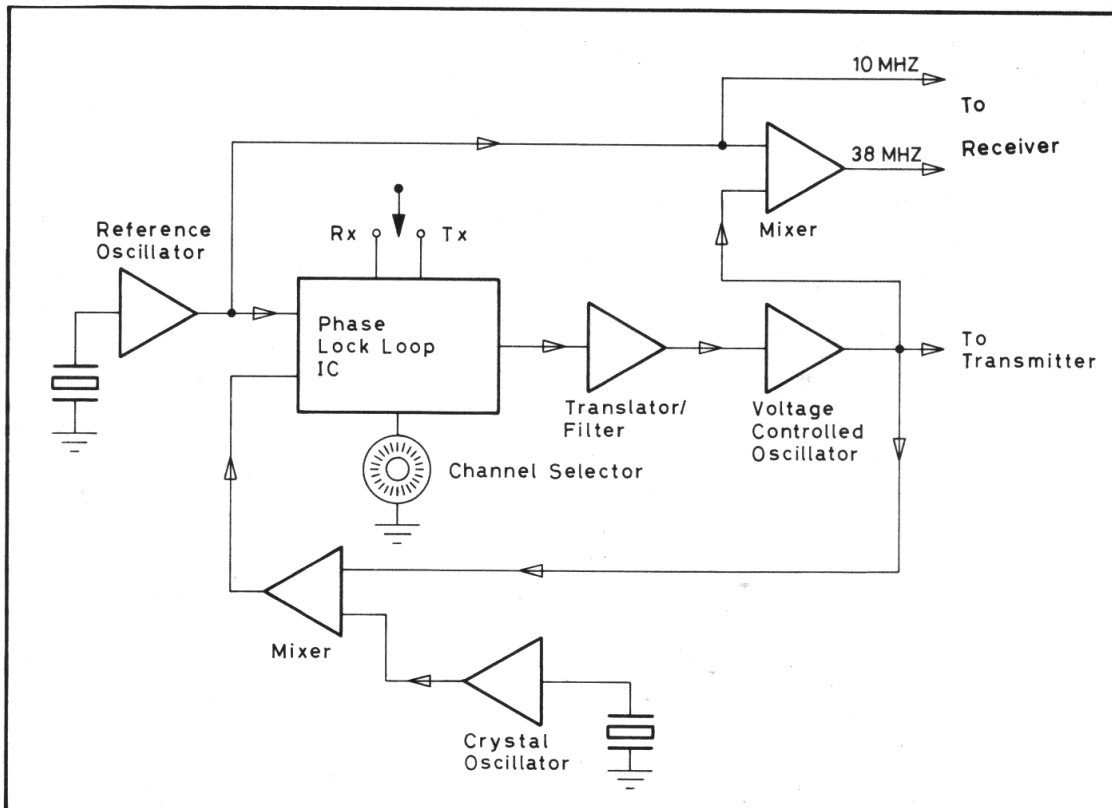


Figure 1 — Simplified Phase Lock Logs Block Diagram

TWO CRYSTAL PHASE LOCK LOOP (PLL) FREQUENCY SYNTHESIZER:

The purpose of the Phase Lock Loop Frequency Synthesizer is to generate the multiple frequencies necessary to operate the twenty three channels authorized by the Federal Communications Commissions. This state of the art enables the frequencies to be created using only two crystals. In addition, it enables the channel frequency to be more accurately maintained.

Teaberry Electronic's Phase Lock Loop major components are: Two Crystal Oscillators, Phase Lock Loop Integrated Circuit (PLLIC), Translator/Filter and a Voltage Controlled Oscillator (VCO). The signals generated are the transmitter frequency and two intermediate frequencies one at 10 MHZ and one in the 38 MHZ range utilized in the receiver.

The circuit functions as follows: The reference frequency is generated by a crystal oscillator and is divided to a frequency of a very low value usually in the 10 KHZ range. This frequency determines the accuracy of the complete loop. The Voltage Controlled Oscillator (VCO) is the output which becomes the transmitter frequency. A sample of the VCO is fed back to Phase Lock Loop (PLL) by means of a mixer and a programable divider chain controlled by the channel selector. The loop is completed when the mixed VCO frequency matches the reference oscillator. When the VCO is not at the desired frequency, the PLL will create an error signal processed by the Translator/Filter to move the VCO frequency to the desired output frequency.

SPECIFICATIONS:

GENERAL:

Channels	23 Channels for amplitude modulation (AM), utilizing Phase Lock Loop circuitry.
Frequency Control	Phase Lock Loop Synthesizer
Frequency Range	26.965 MHZ to 27.255 MHZ
Components Parts	26 transistors; 1 FET; 21 Diodes; 2 Varactor Diode; 1 PC Resistor Network; 1 LED; 4 IC; 2 Crystals; 2 Ceramic Filters
Microphone	4 pin dynamic
Antenna	50 Ohm output
Jacks and Connectors	Microphone (4P), DC Power, External speaker, PA Speaker and Antenna
Control and Switches	ON-OFF volume, Squelch, Delta tune, PA/CB, ANL/OFF, Channel Selector
Indicators	S/RF Meter, Modulation Lamp
Power Supply	13.8 VDC
Accessories	DC Power Cord, Microphone and Microphone Hanger, Mounting Bracket, Mounting Knobs, Sheet metal screws
Size	6-1/2" (W) x 9-1/4" (D) x 2-3/16"(H)
Weight	4 lb. 1oz.

RECEIVER:

Receiving System	Double Conversion
Delta Tune +/-	1.4 Khz
Frequency tolerance	0.003%
Sensitivity at 10 dB S+N/N	0.5 μ V
Image Rejection Ratio	50 dB
AGC Figure of Merit	70 dB
Squelch Sensitivity at Threshold	0.25 μ V
Adjacent Channel Selectivity	55 dB
Audio Output Power	3.8 W
Battery Drain at no signal	350 mA
S-Meter Sensitivity for S - 9	50 μ V
P.A. Output	3.8 W

TRANSMITTER:

RF Output Power	4.0 W maximum
Spurious Emission	-50 dB
Battery Drain at no Modulation	1100 mA

Frequency Tolerance
Modulation

.003%
100%

WARNING:

Operation of this equipment requires a valid station license issued by the Federal Communications Commission. Do not transmit with your equipment until you have received your license. Illegal operation can result in severe penalties. Be certain that you have read Part 95 of the FCC Rules and Regulations before operating your station.

License applications are to be made on FCC Form 505 available from your nearest FCC field office. (A copy of this form is included with your new transceiver).

You are required to maintain a current copy of Part 95 of the FCC Rules as a part of your station records. Copies of Part 95 are available from Superintendent of Documents Government Printing Office, Washington, D.C. 20402. Your station license is to be posted in accordance with paragraph 95. 101 of the Rules and an Executed Transmitter Identification Card (FCC Form 452-C) is to be attached to each transceiver. (A copy of this form is included with your new transceiver).

FCC Rules require that ALL transmitter adjustments other than those supplied by the manufacturer as front panel operation control, be made by or under supervision of the holder of an FCC issued 1st or 2nd class radio operator license.

Replacement or substitution of Crystals, Transistors, Regulator Diodes or any other part of a unique nature, with parts other than those recommended by us, may cause violation of the technical regulations of Part 95 of the FCC Rules or Violation of the Type Acceptance requirements of Part 2 of the Rules.

INTRODUCTION:

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	26.965	13	27.115
2	26.975	14	27.125
3	26.985	15	27.135
4	27.005	16	27.145
5	27.015	17	27.165
6	27.025	18	27.175
7	27.035	19	27.185
8	27.055	20	27.205
9	27.065	21	27.215
10	27.075	22	27.225
11	27.085	23	27.235
12	27.105		

Figure 3 – Citizen Band Frequency Chart

INSTALLATION

CARTON CONTENTS:

Upon receiving your unit, examine the carton to ensure that all of the items originally included at the factory are in your hands. Refer to figure 4, Carton Contents.

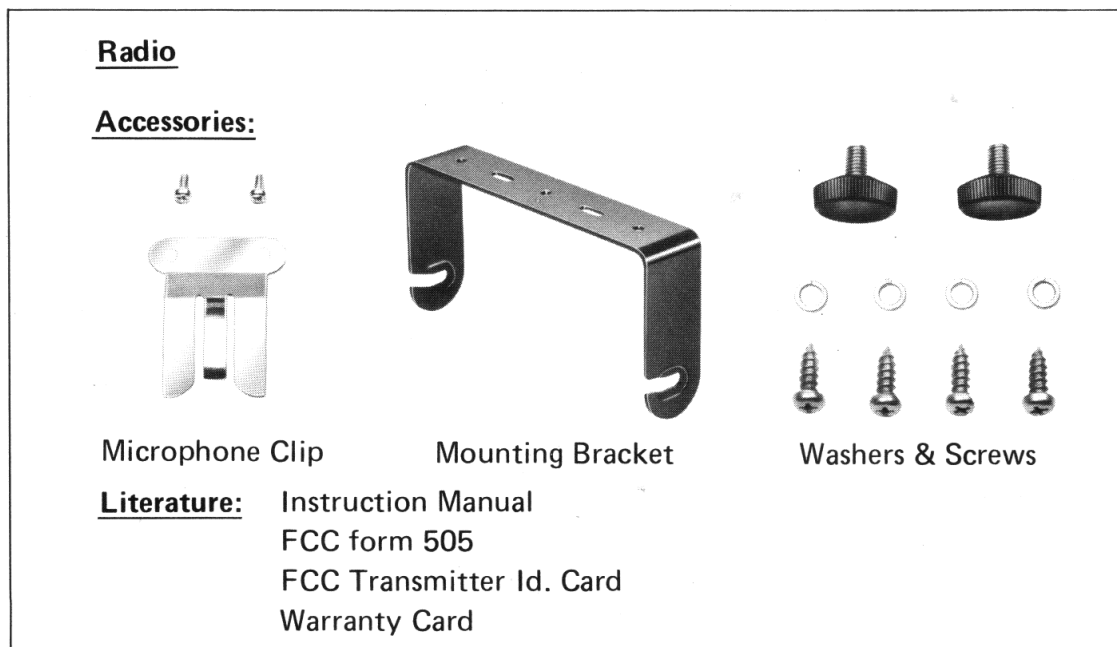


Figure 4 – Carton Contents

TRANSCEIVER INSTALLATION:

Safety and convenience are the primary considerations for mounting any piece of mobile equipment. All controls must be readily available to the operator without interfering with the movements necessary for safe operation of the vehicle. Be sure all cables are clear of the brake, clutch, accelerator, and operator feet zone.

A common mounting position for a transceiver is under the dashboard directly over the driveshaft hump. To install the Racer "T", partially unscrew (do not remove) the thumb screws securing the mounting bracket. Guide the shafts of the screws through the slots in the mounting bracket by pulling the radio forward and up causing the radio to become free from the mounting bracket assembly.

Ensure that the mount screws will "bite" into the vehicle metal chassis. Using the mounting bracket as a template, drill the three pilot holes on the dash board. Secure the mounting bracket with the self-tapping screws.

Replace the Racer "T" in the mounting bracket by guiding the shafts of the thumb screws into the mounting bracket slots by pushing the radio back and down causing radio to set in the mounting bracket assembly. Tighten the thumb screws to secure the radio in the mounting bracket assembly. Do not mount the transceiver in the path of the heater or airconditioning air stream. For the under-dash mounting refer to figure 5, Typical Mounting Configuration.

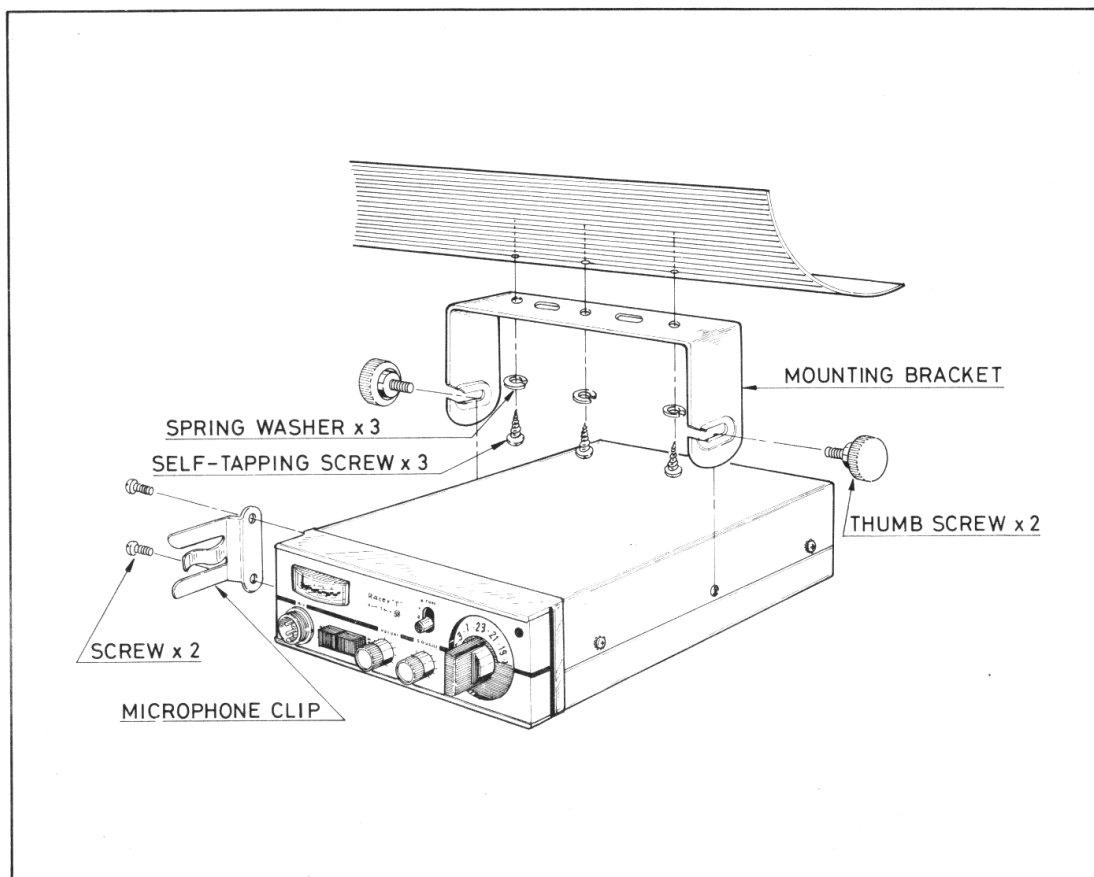


Figure 5 – Typical Mounting Configuration

GROUND INFORMATION:

This radio may be installed and operated in any 12 VDC negative or positive grounded vehicle. Most newer U.S. and foreign made cars or smaller trucks use a negative ground system while some older cars and some newer large trucks may use a positive grounded system.

Negative Ground Vehicle:

Connect the red-fused wire of the power cord to the positive or (+) battery terminal or to a fuse block or ignition switch or other convenient point. The black wire is negative and should be connected to metal part of the vehicle body or (–) battery terminal.

Positive Gound Vehicle:

Connect the red-fused wire of the power cord to the positive terminal (+) of the battery or to metal part of the vehicle body. The black wire is negative and should be connected to the “hot” side of the ignition switch or directly to the negative terminal of the battery.

ANTENNA INSTALLATION:

Your Racer "T" is designed to operate with any good quality Citizens Band mobile antenna. The type of antenna you should use depends largely upon how and where the antenna is to be mounted and the radiation pattern desired or required. ALL TEABERRY dealers are qualified to assist you in the selection of the proper type to meet your need.

A vertical whip antenna is best suited for mobile use. A non-directional antenna should be used for best results in any case. The base loaded whip antenna will normally provide effective communication. For greater range and more reliable operation, a full quarter wave whip should be used. Either of these antennas use the metal car body as a ground plane and the shield of the co-axial cable as well as the metal case of the transceiver should be grounded. A standard antenna connector (SO-239 type) is provided on the rear panel for easy connection to a standard PL-259 cable termination.

Four of the most popular locations are shown in figure 6, Typical Antenna Mounting Configuration.

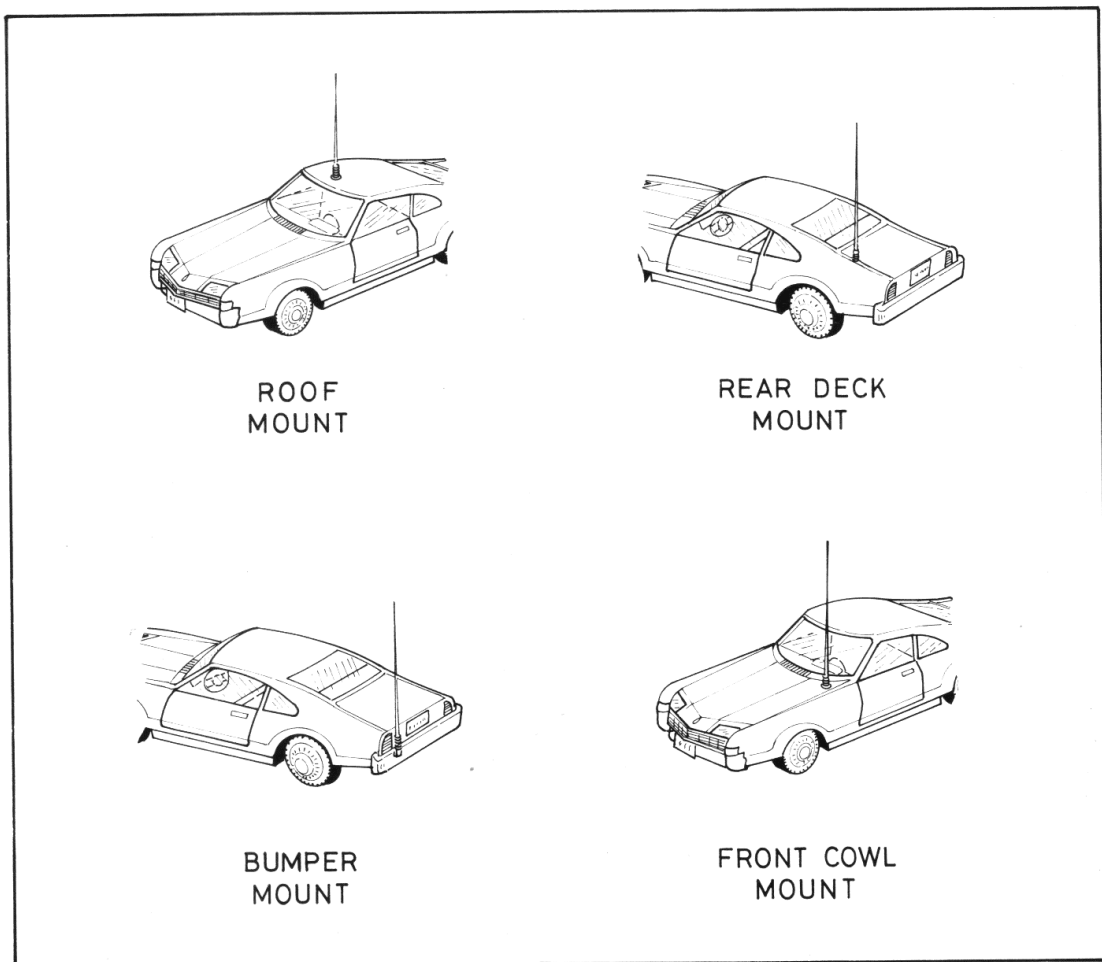


Figure 6 – Typical Antenna Mounting Configurations.

OPERATING INSTRUCTIONS

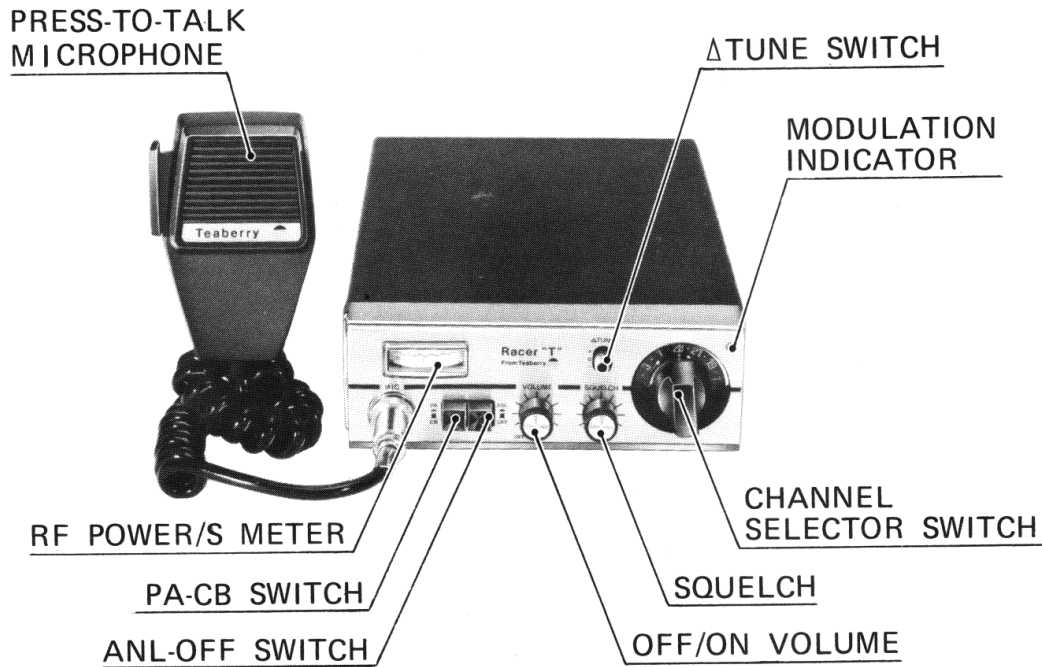


Figure 7 – Front Panel Controls, Indicators and Connectors

FUNCTIONS:

Refer to figure 7, Front Panel Controls, Indicators, and Connectors, and figure 8, Rear Panel Connectors to locate the functions explained below.

1. **OFF/ON VOLUME:** Turn clockwise to apply power to the unit and to set the desired listening level.
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 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. **ΔTUNE SWITCH:** This switch allows variation of the receiver operating frequencies above and below the assigned channel frequency (within legal limitations). It permits receiving signals which are transmitted slightly off frequency.
4. **PA - CB SWITCH:** This switch allows to select the mode of operation. The PA function should not be used unless an external speaker is connected. In the CB position, the PA function is disabled and the unit will transmit and receive on the selected frequency.

5. **ANL - OFF SWITCH:** This switch activates a highly effective audio Type Automatic Noise Limiter Circuit.
6. **RF POWER/S METER:** This meter shows the RF power when transmitting and the strength of the incoming signal when receiving. A change of one S unit indicates a change of 6 db in signal level. The metering circuit is calibrated so that for 50 microvolts, the S meter will read S9.
7. **CHANNEL SELECTOR SWITCH:** This switch allows to select the desired channel for transmission and reception. Channels 1 thru 8; 10; and 12 through 23 may be used for communications between stations operation under different licenses. Whereas, channel 9 has been reserved by the FCC for emergency communications in involving the immediate safety of life of individuals or immediate protection of property. Channel 9 also may be used to render assistance to a motorist. Channel 11 is reserved for calling other stations. Once contact is established both stations must move to a clear channel. These guidelines are FCC rulings.
8. **PRESS-TO-TALK MICROPHONE:** The receiver and transmitter are controlled by the press-to-talk switch on the microphone. Press the switch so that the transmitter is activated; release the switch to receive. When transmitting, hold the microphone two inches from the mouth and speak clearly in a normal voice. The radio comes complete with a low impedance dynamic microphone.
9. **MODULATION INDICATOR:** This lamp indicator when the transmitter is being modulated. The brightness of the lamp will vary with the percentage of modulation employed.

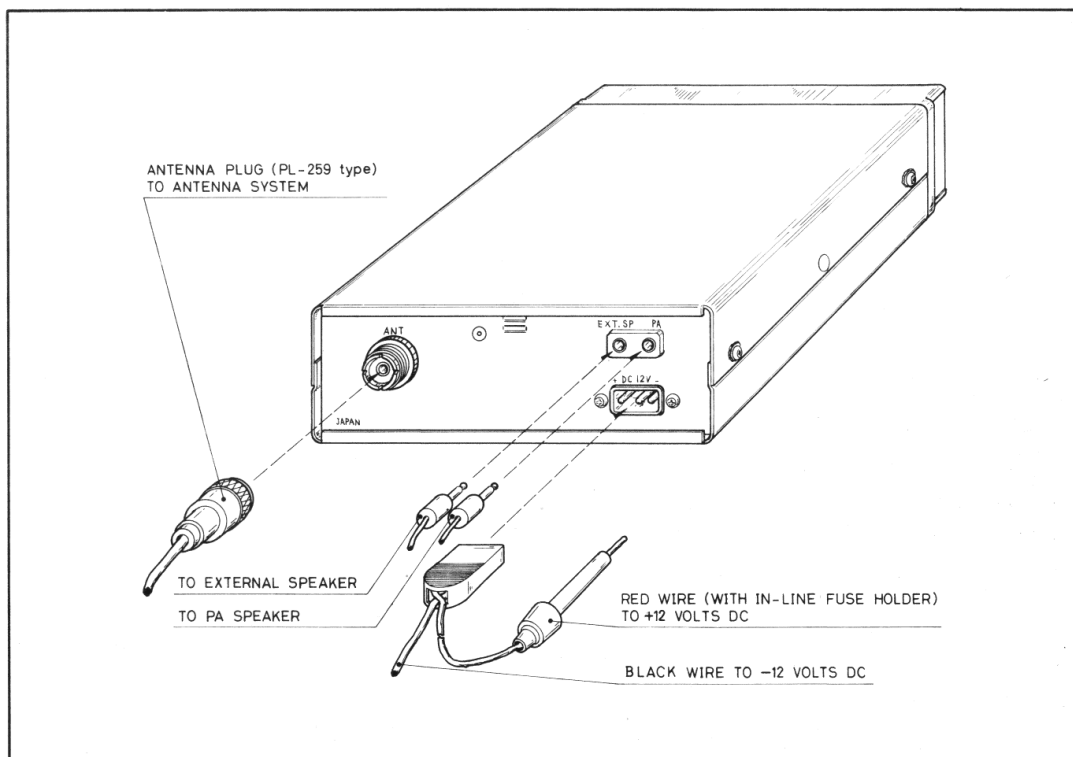


Figure 8 – Rear Panel Connectors

10. **PUBLIC ADDRESS:** An external 8 ohm, 3.5 watts speaker may be connected to the PA Speaker jack located on the rear panel when this unit is used as a public address system. The speaker should be directed away from the microphone to prevent acoustic feed-back. Physical separation or isolations of the microphone and speaker must be used when operating the PA at high output levels.

Note: While using the PA function you can still monitor receive signals through the PA speaker. However, when you do not desire to monitor the channel activity, set the Channel Selector Switch to the blank position between Channels 23 and 1.

The output volume of the PA functions is controlled by the OFF/ON VOLUME Control.

11. **REMOTE SPEAKER:** The external speaker jack on the rear panel is used for remote receiver monitoring. The external speaker should have 8 ohm impedance, and rated to handle at least 3.5 watts. When the external speaker is plugged in, the internal speaker is disconnected.

OPERATION PROCEDURE TO RECEIVE:

1. Be sure that power source and antenna are connected to the proper connections before going to next step.
2. Set PA-CB Switch to the CB position and turn unit on by turning Volume Control Clockwise.
3. Set the Volume Control to a comfortable listening level.
4. Listen to the background noise from the speaker. Turn the Squelch Control slowly clockwise until 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.
5. Set the Channel Selector Switch to the desired channel.
6. Position the Δ Tune Switch to optimize the quality of the received station audio.

OPERATING PROCEDURE TO TRANSMIT:

CAUTION

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

1. Select the desired channel.
2. If the channel is clear, depress the push-to-talk switch on the microphone and speak in a normal voice. The modulation lamp (red) will light, indicating transceiver is in transmit mode of operation.

NOISE SUPPRESSION

The clarity and useful range of any mobile radio equipment can be seriously affected by noise induced by the vehicle. After the mobile equipment has been placed in operation, it should be analyzed for excessive noise. Mobile noise is normally due to one or more of the following three factors: ignition noise, generator or alternator noise, accessory noise. In most vehicles (1958 and later), resistance high tension ignition cable is supplied as standard equipment for the complete ignition harness. The use of this cable eliminates the need for sparkplug suppression. In those instances where high tension cable is not supplied, a "High Tension Harness Kit" is available from automotive supply dealers.

To differentiate between noise created by the ignition system and noise created by the generator or alternator, start the vehicle and race the engine. Then turn off the engine. Noise which stops immediately is caused by the ignition system. Noise which stops a few seconds after the ignition is turned off is caused by the alternator or generator.

If you do experience alternator or generator noise, suppression kits are available at most two-way radio dealers.

To further eliminate mobile noise, it is suggested that you check to see that bonding straps are installed from the vehicle hood to the firewall; and from the tailpipe to the vehicle chassis. Accessory noise can be remedied by connecting a Sprague Type 48P18(0.5 μ F, 50V) Bypass capacitor. Cut the lead as close to the actuating element as possible. Be sure the capacitor is well-bonded to the body or engine block. (See your dealer)

OPERATOR TROUBLESHOOTING

Should the unit malfunction or not perform properly the operator should perform the procedure explained below:

1. If the transceiver is completely inoperative.
 - * Check the power cord and fuse (2A).
2. If trouble is experienced with receiving.
 - * Check ON/OFF VOLUME CONTROL setting.
 - * Be sure SQUELCH is adjusted properly. Is it over-squelched?
 - * Check if the unit is switched to an operation channel.
3. If trouble is experienced with transmitting.
 - * Check if PA/CB SWITCH is set to CB position.
 - * Check if the transmission line (co-axial cable) is securely connected to ANTENNA CONNECTOR.
 - * Check if the antenna is fully extended for proper operation.
 - * Are all transmission line (co-axial cable) connections secure and free of corrosion?
 - * Make sure you are fully pressing the Push-To-Talk button on the microphone.

* Be sure the microphone plug is properly connected to MICROPHONE CONNECTOR on the unit.

When these procedures fail to place the unit into operation, it should be returned to the factory for service under the terms of our warranty.

PREVENTIVE MAINTENANCE

At six months or twelve months intervals the following measurements should be made:

1. Standing Wave Ratio also known as SWR and "Peaking the antenna".
2. Inspect all electrical connections to ensure they are tight.
3. Inspect antenna co-axial cable for wear or breaks in shielding.
4. Inspect all screws and other mounting hardware to ensure they are tight.

REPLACEMENT PARTS LIST

Symbol No.	Description	Part No.
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SEMI CONDUCTORS

Q301	Transistor	2SC930	D		2SC930
Q101, 102	Transistor	2SC930	E		2SC930
Q502, 503, 601, 602, 604	Transistor	2SC945	Q	or	2SC945 or
		2SC372	Y	or	2SC372 or
		2SC536	E		2SC536
Q701, 702	Transistor	2SC536	E		2SC536
Q501	Transistor	2SA733	Q		2SA733
Q504	Transistor	2SA495	O		2SA495
Q901	Transistor	BC546	A		BC546
Q902	Transistor	2SC1957	K		2SC1957
Q903	Transistor	2SC1909			2SC1909
Q603	Transistor	2SD325	E		2SD325
TH501	Thermistor	SDT-500			SDT-500
IC301	Integrated Circuit	CX-075	B		CX-075
IC701	Integrated Circuit	LA-4400			LA-4400
D508	Light Emitting Diode	SLP-123B	(02)		SLP-123B
D101, 301, 604	Diode	IS188(A)	FM		IS188 A
D102, 302, 501, 502, 504, 505, 507, 509, 601, 602, 603	Diode	IS1588 or ITT73N			IS1588 or ITT73N
D503, 701	Diode	DS-130 10D-1	E	or	DS-130 or 10D-1
D303	Diode	XZ-070			XZ-070
D605	Diode	XZ-076			XZ-076
D506	Diode	XZ-152			XZ-152

COILS AND TRANSFORMERS

L101	Antenna Coil				4-257R815
L102	RF Coil				4-259R828
L901	RF Coil				4-259R865
L902	Choke Coil				4-253R709
L903	RF Coil				4-259R861
L904	VHF Coil				4-265R802
L905	VHF Coil				4-265R803
L906	RF Coil				4-259R80810
T301	IFT	10 MHz			4-256R717
T302	IFT	10 MHz			4-256R714
T303	IFT	455 kHz			4-256R748
T304	IFT	455 kHz			4-256R734
T701	OPT				4-254R809

Symbol No.	Description	Part No.
<i>COILS AND TRANSFORMERS</i>		
T702	Choke Coil	4-255R810
F301	HF Filter	CFU-455H
F302	HF Filter	SF-455D
F901	HF Filter	54 MHz
<i>VARIABLE RESISTORS</i>		
VR2	Variable Resistor, 10KB, SQUELCH	4-222R512
VR5	Variable Resistor, 10KD with switch, OFF/ON VOLUME	4-222R526
VR7	Semi Variable Resistor, 1 kohm	4-222R775
VR4	Semi Variable Resistor, 5 kohm	4-222R777
VR3, 9	Semi Variable Resistor, 50 kohm	4-222R780
VR1	Semi Variable Resistor, 100 kohm	4-222R781
<i>MISCELLANEOUS</i>		
SX-1	PLL Unit assembly	176-0-311R112
IR501	Resistor Network	4-221R804
	Rotary Switch, CHANNEL SELECTOR SWITCH	4-231R514
S1, 4	Push Switch, ANL-OFF SWITCH and PA-CB SWITCH	4-231R815
S3	Slide Switch, Δ TUNE SWITCH	4-231R217
	Socket, 3-pin, DC 12V Socket	4-235R830
	Socket, 4-pin, Microphone Socket	4-235R815
	Socket, PA Speaker Jack and External Speaker Jack	4-235R829
	Receptacle, Antenna Connector	4-235R806
	RF POWER/S METER	4-511R10471
PL2	Meter Lamp, 14V/40mA	4-612R816
PL1	Channel Indicator Lamp, 6V/21mA	4-612R10691
	Speaker, 3", 8-ohm	4-151R813
	Bushing, 3B type, for IC701	
	Bushing, H type, for O603 and Q903	
	Mica Sheet, 1S-12F type, for IC701	
	Mica Sheet, 1S-313B type, for Q603 and Q903	
	Power Cord assembly	4-243R20501
	Power Cord, 3-pin	4-243R205
	Fuse, 2 amp.	4-234R809
	Label, for \ominus Power Cable identification	176-6-472R145
	Label, on Fuse Holder	176-6-472R175
	Microphone assembly	4-153R80701
	Microphone	4-153R807
	Plug	4-236R807
	Badge	176-2-142R115A
	Tip Plug	176-2-382R125
	Terminal, with white wire	176-2-382R12300
	Terminal, with red wire	176-2-382R12301
	Terminal, with violet wire	176-2-382R12302
	Terminal, with blue wire	176-2-382R12303

Symbol No.

Description

Part No.

MISCELLANEOUS

Terminal, with green wire	176-2-382R12304
Terminal, with yellow wire	176-2-382R12305
Terminal, with orange wire	176-2-382R12306
Terminal, with brown wire	176-2-382R12307
Terminal, with black wire	176-2-382R12308

RESISTORS

R909	Carbon	1.5 ohm	± 5%	¼W	R-R0150JB
R905	Carbon	2.2 ohm	± 5%	¼W	R-R0220JB
R714	Carbon	15 ohm	±10%	¼W	R-R150KB
R903	Carbon	33 ohm	±10%	¼W	R-R330KB
R718, 723	Carbon	56 ohm	± 5%	¼W	R-R560JB
R904	Carbon	68 ohm	± 5%	¼W	R-R680JB
R501, 509, 908	Carbon	82 ohm	± 5%	¼W	R-R820JB
R505, 610	Carbon	100 ohm	±10%	¼W	R-R101KB
R103, 502	Carbon	120 ohm	±10%	¼W	R-R121KB
R305	Carbon	150 ohm	±10%	¼W	R-R151KB
R510	Carbon	82 ohm	±10%	¼W	R-R820KB
R614, 705	Carbon	390 ohm	±10%	¼W	R-R391KB
R102	Carbon	560 ohm	± 5%	¼W	R-R561JB
R506, 508, 906	Carbon	680 ohm	± 5%	¼W	R-R681JB
R105, 302	Carbon	820 ohm	± 5%	¼W	R-R821JB
R722	Carbon	330 ohm	± 5%	¼W	R-R331JB
R913	Carbon	4.7K ohm	±10%	¼W	R-R472KB
R303, 304, 701, 704, 712	Carbon	1K ohm	±10%	¼W	R-R102KB
R106	Carbon	1.2K ohm	±10%	¼W	R-R122KB
R706, 707, 710	Carbon	1.5K ohm	± 5%	¼W	R-R152JB
R901	Carbon	1.8K ohm	± 5%	¼W	R-R182JB
R601	Carbon	2.2K ohm	±10%	¼W	R-R222KB
R101, 104, 301, 503	Carbon	3.3K ohm	±10%	¼W	R-R332KB
R611, 703	Carbon	3.9K ohm	±10%	¼W	R-R392KB
R603, 711, 715, 716	Carbon	4.7K ohm	± 5%	¼W	R-R472JB
R504	Carbon	5.6K ohm	± 5%	¼W	R-R562JB
R606, 708, 713	Carbon	6.8K ohm	± 5%	¼W	R-R682JB
R507, 511, 612, 717	Carbon	10K ohm	±10%	¼W	R-R103KB
R616, 902	Carbon	12K ohm	±10%	¼W	R-R123KB
R607	Carbon	15K ohm	±10%	¼W	R-R153KB
R608	Carbon	18K ohm	±10%	¼W	R-R183KB
R605, 613	Carbon	22K ohm	±10%	¼W	R-R223KB
R602	Carbon	27K ohm	±10%	¼W	R-R273KB
R604, 617	Carbon	33K ohm	±10%	¼W	R-R333KB
R609, 709	Carbon	39K ohm	± 5%	¼W	R-R393JB
R912	Carbon	47K ohm	±10%	¼W	R-R473KB
R702	Carbon	150K ohm	±10%	¼W	R-R154KB

Symbol No.	Description	Part No.
<i>RESISTORS</i>		
R615	Carbon	220K ohm ±10% ¼W R-R224KB
R913	Carbon	4.7K ohm ±10% ¼W R-R472KB
R910	Carbon	4.7 ohm ±5% ½W R-R0470JC
R907	Carbon	8.2 ohm ±5% ½W R-R0820JC
R911	Solid	270 ohm ±5% ½W R-R271JC
R720	Metal Oxide Film	8.2 ohm ±10% 2W
R719, 721	Metal Oxide Film	22 ohm ±10% 2W
R306	Metal Oxide Film	150 ohm ±10% 2W

<i>CAPACITORS</i>		
C301, 513	Ceramic	2 pfd ± 0.25 pfd 50V N220 R-CKD020C
C107	Ceramic	15 pfd ± 5% 50V N220 R-CKD150J
C102	Ceramic	22 pfd ± 5% 50V N220 R-CKD220J
C101	Ceramic	27 pfd ± 5% 50V N220 R-CKD270J
C909	Ceramic	33 pfd ± 5% 50V N220 R-CKD330J
C303, 903, 914	Ceramic	47 pfd ± 5% 50V N220 R-CKD470J
C306	Ceramic	68 pfd ± 5% 50V SL R-CKD680J
C104	Ceramic	82 pfd ± 5% 50V N220 R-CKD820J
C908	Ceramic	100 pfd ± 5% 50V N220 R-CKD101J
C915	Ceramic	220 pfd ±10% 50V SL R-CKD221K
C510	Ceramic	270 pfd ±10% 50V SL R-CKD271K
C718	Ceramic	330 pfd ±10% 50V SL R-CKD331K
C913	Ceramic	390 pfd ± 5% 50V SL R-CKD391J
C906, 911	Ceramic	0.0022 mfd ±20% 50V YP R-CKD222M
C514, 603, 725, 901, 917	Ceramic	0.0047 mfd ±20% 50V YP R-CKD472M
C607, 912, 916, 920, 921, 922, 923, 924	Ceramic	0.01 mfd ±20% 50V YP R-CKD103M
C103, 108	Ceramic	0.01 mfd +80%–20% 50V YZ R-CKD103Z
C902	Ceramic	0.022 mfd +80%–20% 50V YZ R-CKD223Z
C105, 106, 109, 302, 307, 308, 311, 315, 316, 504, 512, 601, 605, 904, 905, 918, 925	Ceramic	0.039 mfd +80%–20% 25V YZ R-CKD393Z
C910, 919	Ceramic	0.039 mfd +80%–20% 50V YM R-CKD393Z
C724	Ceramic	0.1 mfd +80%–20% 50V YM R-CKD104Z
C716	Mylar	0.0068 mfd ±20% 50V R-CQS682M
C708, 713, 715, 726, 727	Mylar	0.01 mfd ±20% 50V R-CQS103M
C312, 502, 507, 516	Mylar	0.022 mfd ±20% 50V R-CQS223M

Symbol No.	Description	Part No.
<i>CAPACITORS</i>		
C304, 305, 309, Mylar 310, 702, 703, 709	0.039 mfd \pm 20%	50V R-CQS393M
C506, 719, 721 Mylar	0.068 mfd \pm 20%	50V R-CQS683M
C728 Mylar	0.0047 mfd +80%–20%	50V R-CQS472Z
C701, 706, 711, Aluminum Electrolytic 712	0.1 mfd	10V
C602 Electrolytic	1 mfd	10V
C501 Electrolytic	1 mfd	50V
C503 Electrolytic	3.3 mfd	16V
C511 Electrolytic	3.3 mfd	50V
C515 Electrolytic	4.7 mfd	16V
C714 Electrolytic	4.7 mfd	10V
C313, 710 Electrolytic	10 mfd	10V
C509 Electrolytic	10 mfd	16V
C704 Electrolytic	33 mfd	6.3V
C314, 508, 705 Electrolytic	33 mfd	10V
C720 Electrolytic	47 mfd	16V
C604 Electrolytic	47 mfd	10V
C707 Electrolytic	100 mfd	16V
C606, 717 Electrolytic	220 mfd	10V
C722 Electrolytic	470 mfd	16V
C723 Electrolytic	1000 mfd	16V

1 YEAR WARRANTY POLICY

Teaberry Electronics Corporation herein warrants its new products to be free from defects in materials and craftsmanship under normal use and service for a period of 1 YEAR after delivery to the original owner.

If failure should occur, and in our judgement it is under the terms of our warranty. Teaberry Electronics Corporation will repair and return to said owner at no charge, the unit which has been returned prepaid to our factory.

Accident, alteration, improper installation or wiring, lightning strike, misuse, neglect, repair outside of our factory, of usage contrary to our instructions will void this warranty.

Teaberry Electronics Corporation

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