

INSTRUCTION MANUAL

40 CHANNEL
CITIZEN BAND 2-WAY RADIO
MODEL : SY-220

SHIMADZU ELECTRONICS CO., LTD.
P.O. BOX 100000
DALLAS, TEXAS 75220



SPECIFICATIONS

TRANSMITTER SECTION

POWER OUTPUT	4 Watt Min.
EMISSION	6A3(AM),
MODULATION	AM, 90% typical

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	1.0 μ V for 10 dB 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	2.5 W maximum at 8 ohm load
CURRENT DRAIN	250 mA on standby (no signal)
CURRENT DRAIN (MAXIMUM)	Less than 1.5A,
ANTENNA	Nominal 50 ohms impedance
POWER SOURCE	Operates from nominal 13.8 volt DC, negative ground system
DIMENSIONS (HOUSING)	132(W) x 172(D) x 34(H)mm
WEIGHT	1.4 Kg

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.

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.

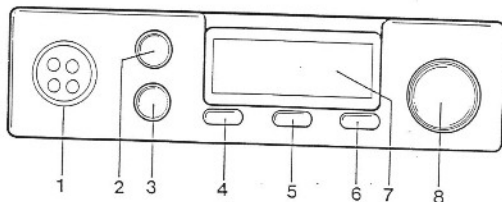
TRANSMITTER

The transmitter offers crystal-controlled operation on all 40 CB channels, 4 watt 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 or positive ground system. DC power is provided to the transceiver by means a fused power lead.

OPERATING CONTROL AND FEATURES



(1) MICROPHONE INPUT

socket for push-to-talk microphone.

(2) ON-OFF / VOLUME CONTROL

Controls audio output VOLUME and "ON-OFF" the power the extreme COUNTER- CLOCKWISE position is power OFF state.

(3) SQUELCH CONTROL

Used to quiet the receiver during absence of receive signals. Sensitivity to incoming signals is fully adjustable.

(4) DW SWITCH

This switch is used for DUAL WATCH in receive mode. When DW switch is pressed, DW lamp turn on and DW channel must be selected by UP/DOWN channel switch. If DW switch is pressed once more, DW mode release and DW lamp turn off.

(5) CH9/OFF SWITCH

For Emergency CALL/MONITOR(CHANNEL 9 OPERATION): Just set the front switch (CH9/OFF) to CH9 position and the unit will be fixed only to Channel 9. Or you can set Channel 9 by the Channel Selector to "9".

(6) SCAN SWITCH

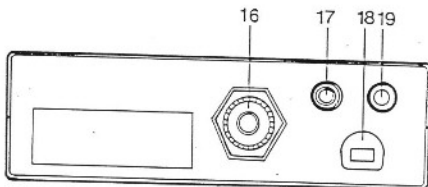
Auto scan mode in RX can be set by this SCAN SWITCH. Incoming signal stop the autoscanning

(7) L.C.D DISPLAY

L.C.D indicates the channel selected by 23 position, and functions.

(8) CHANNEL SWITCH

This Rotary switch selects on of 23 channels in RX mode but in TX mode, Channel is not changed.



(16) ANTENNA CONNECTION

To match antenna lead-in cable (RG-58/U or RG-8U) with PL-259 type coaxial connector.

(17) S-METER JACK

At Receive mode. External Jack for strength of incoming signals.

(18) DC POWER CABLE

12 volts DC for transceiver supplied.

(19) EXTERNAL SPEAKER JACK

Impedance of any device such as headphone connected to this jack should be 8-16 ohms. Insertion of plug into jack automatically silences the transceiver internal speaker

TRANSCIVER INSTALLATION

SEUNG YOUNG ELECTRONICS CO. LTD.
P.O. BOX 59, SUWON-220
CHUNG KEE 17

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.

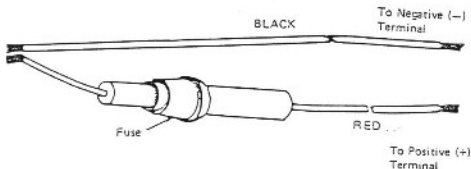
Attach bracket to the underside of dashboard using the self-tapping screws supplied. Attach the transceiver to the bracket using the two knurled securing screws at the side.

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

DC POWER CONNECTION

The transceiver is designed to operate from a battery source of 10.8 to 15.6 volts DC, employing negative or ground electrical systems. The fused DC power cable supplied is used to make the necessary power connection to the transceiver. Red (fused) lead is connected to positive (+) side of the electrical system and the black lead is connected to the negative (-) side of the system. 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 accessory (Use the unfused input side. The DC power cable is equipped with its own fuse). Connection at this point will ensure DC power always supplied to the transceiver when the ignition is turned off. If DC power is cut off when the ignition switch is turned off, the memory channel data is erased.



CONNECTING DC POWER CORD

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 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 CB 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 downward position. Set RF Gain control to the upward position.

POSITION

AM

3. Turn "ON/OFF" switch, to apply power. Operation will be instantaneous.
4. Set the "VOLUME/ON-OFF" switch clockwise to a comfortable listening level (approximately 1/3 setting). 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 background noise is heard. Rotate the SQUELCH slowly clockwise until background noise just disappear. At this point the receiver will be quiet under "no signal" 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 turn the control fully counter clockwise.

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.

TRANSMITTING

To transmit, depress the push-to-talk button on microphone. The S/TX power LEVEL METER indicates the relative transmit power level. 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, impossible. In the same way, your signal cannot be by another station when he is transmitting - each must take turns. To receive again, simply release the microphone push-to-talk button.

CAUTION : ANY CHANGES FOR MODIFICATIONS IN CONSTRUCTION OF THIS
DEVICE WHICH ARE NOT EXPRESSLY APPROVED BY THE
PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S
AUTHORITY TO OPERATE THE EQUIPMENT.

SEUNG YONG ELECTRONICS CO. LTD.
400 DP CINSY 220
EXHIBIT 4. 18

AVAILABLE 27MHz FREQUENCIES

Your transceiver provides operation on all available channels. Frequencies are listed in accompanying table.

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 normally require further adjustments.