

SUPER STAR-402
INSTRUCTION MANUAL
FOR
SOLID STATE AM, FM, 40 CHANNEL
CITIZEN BAND 2-WAY RADIO

PRINTED IN KOREA

SPECIFICATIONS

TRANSMITTER SECTION

RF Power Output 13.8V DC	AM: 4W MAX FM: 4W MAX
Modulation Capability	AM: 90±5% FM: 2.0±0.2KHz
Frequency Range	26.965-27.405 MHz
Spurious Emission	Better than -60dB

RECEIVER SECTION

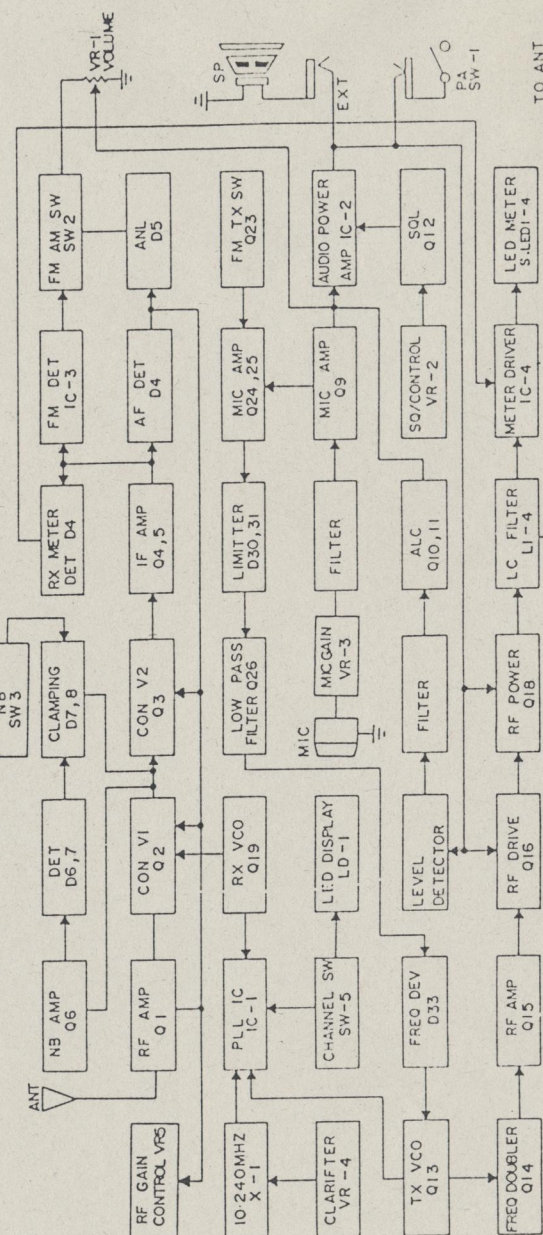
Sensitivity at 10dB S+N/N	AM: 1μV SSB: 80dB
Image Rejection	Less than 60dB
AGC	6%
Distortion at 1mV Input	Threshold: 0.5μV Maximum (stop): 500μV
Squelch Sensitivity	Better than 70dB
Adjacent Channel Selectivity	60dB
Cross Modulation	5 Watts Peak
Audio Output	450 to 2000Hz
Audio Bandwidth (1kHz/0dB) 3dB down	±1.0KHz
Clarifier Frequency Range	Operates from nominal 13.8 Volts DC.
Power Source	

WARNING

The Citizens Band (CB) Radio Service is under the jurisdiction of the Department of Transport & Communications. Any adjustment or alterations which would alter the performance of transceiver's original D.O.T.C. type acceptance or would change the frequency determining method are strictly prohibited.

Replacement or substitution of Crystals, Transistors, IC, 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 the D.O.T.C.

BLOCK DIAGRAM



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. The transceiver may also be operated from A.C. when used with an optional Power Supply.

RECEIVED

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.

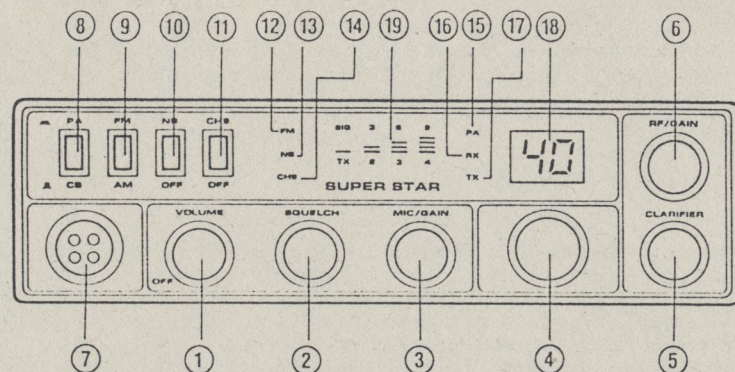
TRANSMITTER

The transmitter offers crystal-controlled operation on all 40 CB channels, 5 watt DC 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 of a fused power lead.

OPERATING CONTROL AND FEATURES



1. VOLUME CONTROL WITH POWER SWITCH

The volume control adjusts sound output of the speaker. With a click turn clockwise the volume control, the set is on. A further clockwise turn increases volume and a counter clockwise turn will decrease volume and finally turns off the set with a click.

2. SQUELCH CONTROL

The word "squelch" means to silence; therefore, the function of the control is to silence the atmospheric noise (hash) usually present in all high frequency AM radio communication. The maximum "squelch" is obtained when the control is in full CLOCKWISE position, minimum "squelch" when in the COUNTER-CLOCKWISE position.

3. MICROPHONE GAIN CONTROL

This control provides the proper or desired modulation or PA audio level.

4. CHANNEL SELECTOR

The Channel Selector sets the channel frequencies simultaneously for the receiving and transmitting modes.

5. CLARIFIER

This control provides an adjustment for TUNING-IN stations which are slightly OFF frequency, to optimize the AM and SSB reception.

6. RF GAIN CONTROL

This control is used to increase the sensitivity of the receiver so that distant stations may be received more clearly, or to decrease the sensitivity so that very strong stations may be received more clearly.

7. MICROPHONE JACK

This jack accommodates the microphone connector, and is wired to provide transmit when microphone position is keyed.

AVAILABLE CITIZEN BAND FREQUENCIES

Your transceiver provides operation on all available U.S. Citizens Band channels. Frequencies are listed in accompanying table.

Channel	Frequency	Channel	Frequency
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

TRANSCEIVER SERVICING

Transceiver has been fully tested prior to shipment and will not normally require further adjustments.

RECEIVING

1. Select desired channel using the channel Selector Switch.
2. Rotate "squelch" control to the extreme counter-clockwise position.
3. Rotate the "VOLUME/ON-OFF" switch clockwise, 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 the background noise just disappear. At this point the receiver will be quiet under "nosignal" 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 transceiver's internal speaker.

SIGNAL STRENGTH LEVEL METER

When receiving, the S/RF POWER LEVEL METER provides a relative indication of signal strength in "S" units providing a means of comparison between one received signal and another.

TRANSMITTING

To transmit, depress the push-to-talk button on the 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 heard by another station when he is transmitting—each must take turns. To receive again, simply release the microphone push-to-talk button.

S/TX POWER LEVEL METER

In transmit position the S/TX POWER LEVEL METER gives a relative indication of antenna RF power.

USE AS PUBLIC ADDRESS SYSTEM

Provision has been made for Public Address (PA) operation utilizing the microphone and audio stages in the transceiver. For PA operation, use an external high-efficiency public address horn-type speaker with an impedance range of 8 to 16 ohms. Connect to the PA jack on the rear panel of the transceiver. The required plug is a subminiature phone plug. For Public Address (PA) operation, switch CB/PA SWITCH to PA position.

8. PA/CB SWITCH

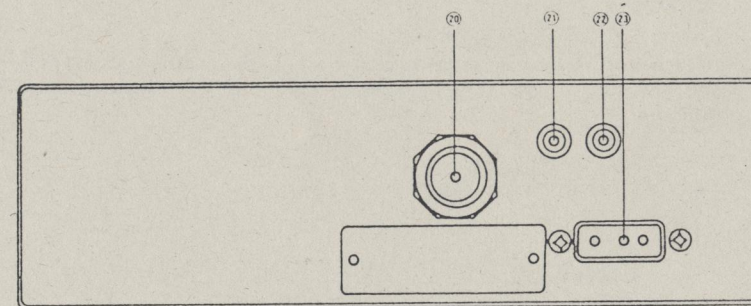
This switch selects the mode of operation. When set in the CB position, the transceiver will function as a Citizens Band Radio. When set in the PA (Public Address) position, and an EXTERNAL PA SPEAKER is connected to the PA jack on the rear panel, the unit operates as a public address amplifier.

9. FM/AM SWITCH

Press in to select the FM mode, release to select the AM mode.

10. NB ON/OFF SWITCH (Noise Blanker)

Excessive electrical noise, ignition and other atmospheric disturbances will be greatly reduced when this control is in the on position. For normal conditions set the switch in the OFF position.



11. CH9 ON/OFF SWITCH (Emergency Channel)

When the switch is placed in the CH9 position, any channels under operation will be switched to CH9 instantaneously & automatically for the emergency call. At the same time, the channel selector will not function.

12. FM LED LAMP

This yellow led lamp will light when the FM/AM switch is set to pushed FM position.

13. NB LED LAMP

This green led lamp will light when the NB/OFF switch is set to pushed NB position.

14. CH9 LED LAMP

This red led lamp will light when the CH9/OFF switch is set to pushed CH9 position.

15. PA LED LAMP

This yellow led lamp will light when the PA/CB switch is set to pushed PA position.

16. RX LED LAMP

This green led lamp will be lighted during transmitting mode.

17. **TX LED LAMP**
This red led lamp will be lighted during receiving mode.
18. **LED CHANNEL INDICATOR**
The number of selected channel will appear on this display panel.
19. **R.F. OUTPUT POWER LEVEL LED INDICATORS**
These 10 led lamps show transmitter power when transmitting and input signal strength when receiving.
20. **ANTENNA CONNECTION**
To match antenna lead-in cable (RG 58/U or RG-8U) with PL-259 type coaxial connector.
21. **PA SPEAKER JACK**
For Public Address (PA) operation, horn impedance should be in 8-16 ohm range.
22. **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.
23. **DC POWER CONNECTOR**
12 volts DC for transceiver supplied.

TRANSCEIVER INSTALLATION

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

With regard to the connection of the power cords, it may be possible or desirable to connect the red lead (for negative ground systems) or the black lead (for positive ground systems) to the ignition switch accessory terminal so that the radio 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.

GROUND INFORMATION

Most newer U.S. and foreign made cars and small trucks use a negative ground system, while some older cars and some newer, larger 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 of your vehicle, consult your vehicle dealer for information.

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

NEGATIVE GROUND SYSTEM

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

POSITIVE GROUND SYSTEM

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

ANTENNA CONNECTION

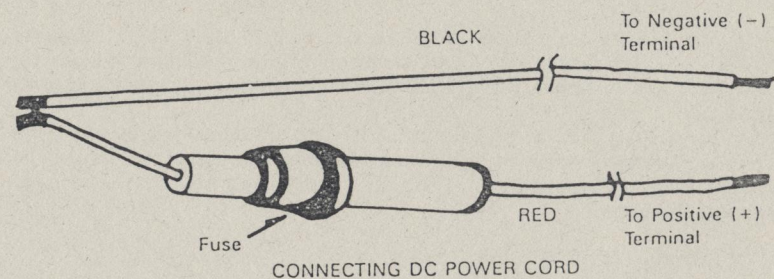
The lead-in cable from the CB antenna must be terminated with a PL-259 type male connector. Attach to the matching antenna input connector at the rear of the transceiver.

MICROPHONE BRACKET

Attach the microphone bracket provided to any convenient location.

MICROPHONE CONNECTION

Insert the 4 pin plug at the end of the coiled cord 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.