EMPEROR MOBILE AMATEUR RADIO

MODEL TS-3010

OWNER'S MANUAL

SPECIFICATIONS

General

Frequency Range :	28.315MHz to 28.755MHz
Frequency Tolerance :	0.005%
Frequency Stability :	0.001%
Operating Temperature :	-30°C to +50°C
LCD Display :	Channel Number Operating Frequency (Frequency Counter) Modulation RF Output Power Received Signal Strength Standing Wave Ratio Calibration Transmit and Receive Status
Operating Voltage :	13.8V DC nominal ±15%
Size :	200mmW x 60mmH x 237mmD (7.87") (2.36") (9.33")

Transmitter

Power Output	AM 4 watts SSB 12 watts PEP
Spurious & Harmonic Emission	AM : -60dB SSB : -60dB
Unwanted Sideband Suppression	-50dB
Modulation Frequency Response	AM and SSB : -3dB at 300Hz and 2500Hz
Microphone Sensitivity	AM : 1mV for 50%modulation SSB:1mV for 6 watts PEP output

Receiver

Sensitivity	AM : 0.5uV SSB : 0.25uV
Selectivity	AM and SSB: 60dB
Image Rejection Ratio	AM and SSB: 70dB
RF Gain Control	AM and SSB: 55dB
Squelch Sensitivity at Threshold	AM and SSB: 2uV
IF Rejection Ratio	AM and SSB: 60dB
Clarifier Range	±1.5KHz

Public Address System

Power Output	4 watts into external speaker

INSTALLATION

LOCATION

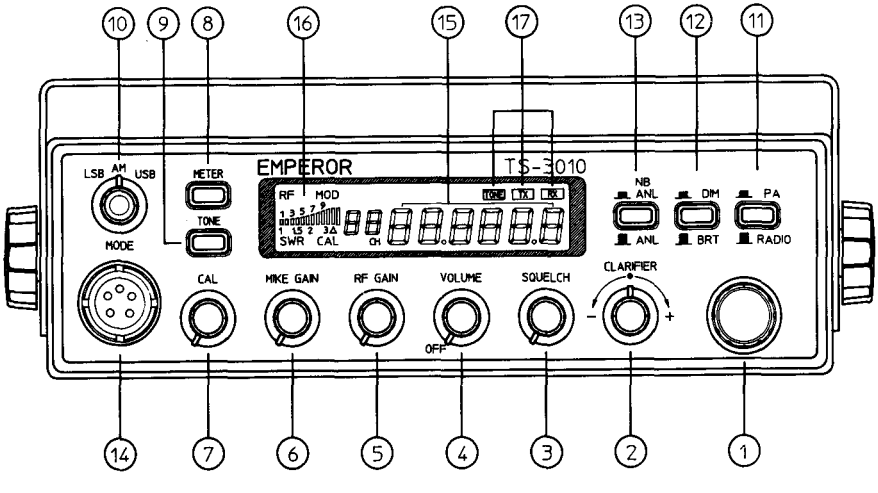
Select a location that is convenient for operation and does not interfere with the driver or passengers in the vehicle. In automobiles, the transceiver is usually installed under the dash with the microphone bracket beside it.

MOUNTING AND CONNECTION

Your TS-3010 amateur radio is supplied with a universal mounting bracket. When mounting the bracket and the radio to your car, make sure it is mechanically strong enough. Also provide a good electrical connection to the chassis of the vehicle. Follow the steps noted below to mount and connect the transceiver.

1. After you have determined the most convenient mounting location in your vehicle, hold the radio with the mounting bracket in the exact location desired. If nothing interferes, remove the mounting bolts. Before drilling the holes, make sure nothing interferes with the mounting bolts.
2. Connect the antenna cable plug to the standard receptacle on the rear panel of the radio. Most CB antennas are terminated with a type PL-259 plug and mate with the receptacle.
3. Connect the red DC power input wire to +13.8V DC. This wire extends from the rear panel. In automobile installation, +13.8V DC is usually obtained from the accessory contact on the ignition switch. This prevents the transceiver from being left on accidentally when the driver leaves the car and also permits operating the unit without the engine running. Locate the accessory contact on most ignition switch by tracing the power wire from the AM broadcast receiver in the car.
4. Connect the black lead wire to -13.8V DC. This is usually the chassis of the car. Any convenient location with good electrical contact may be used.
5. Mount the microphone bracket at a location where the microphone is readily accessible

OPERATION



Read the following sections carefully and familiarize yourself with the functions of each controls and indicators.

A. DISPLAY

Your TS-3010 amateur radio features a large, easy-to-read, multi-function LCD display. It displays the following functions and the modes of operation of your radio.

15.Frequency Counter	:	Indicates the channel number, its corresponding operating frequency and variations in receive frequency as it is fine-tuned by CLARIFIER. For further details, refer to CLARIFIER section of this manual.
16. Modulation	:	Indicates the modulation level of signals transmitted.
16. RF Output Power	:	Indicates the RF output power.
16. Signal Strength	:	Indicates the strength of signals received.
16. Calibration and SWR	:	Indicates the antenna matching condition.
17. TX/RX and TONE Mode	:	Illuminates when you are in either mode of operation.

Refer to the sections below for the further information on the proper use of the display and its functions.

B. CONTROL FUNCTIONS

1. ***CHANNEL SELECTOR.*** Located on the extreme right on the front control panel, this switch selects any of the channels desired. The selected channel number and its corresponding operating frequency appear on the LCD display. The frequency is shown in 6 digits.
2. ***CLARIFIER.*** This control allows variation of the receiver frequency above and below the assigned frequency to fine-tune and optimize the incoming signal. When using this control, please note the following:
   * When this control is set in its center position, you will receive on the assigned frequency.
   * When you turn it clockwise, the receive frequency will rise above the assigned frequency. In its fully clockwise position, the receive frequency will be 2.0 KHz above the assigned frequency. This variation will be shown on the LCD display as you rotate the control knob.
   * When you turn it counterclockwise, the receive frequency will fall below the assigned frequency. In its fully counterclockwise position, the frequency will be 2.0 KHz below the assigned frequency. This change in receive frequency will also be shown on the LCD display.
   * When you key the microphone to transmit, transmission will be made on the assigned frequency, and the receive frequency shown on the display will automatically return to the assigned frequency, regardless of the position of the control.
3. ***SQUELCH.*** This control is used to cut off receiver background noise when no signal is being received. Make sure that it is set at the point where the background noise just disappears. A further clockwise rotation will increase the threshold level which a signal must overcome to be heard.

4. ***ON/OFF/VOLUME.*** To apply power to the radio, turn this control clockwise past the detent. Adjust it to a comfortable listening level. To turn it off, rotate it counterclockwise past the detent.
5. ***RF GAIN CONTROL.*** Use this control to reduce the gain of the RF amplifier to an optimum level under a strong signal condition.
6. ***MIKE GAIN CONTROL.*** Use this control to adjust the microphone gain in the transmit and PA modes so that full talk power is available at several inches away from the microphone. In the PA mode, this control function as the volume control.
7. ***CAL CONTROL.***This control is used to check SWR (standing wave ratio) and see how well your antenna is matched to the radio. The antenna matching condition affects the radiated power and transmit range of your radio. Follow the procedure described below and make sure that your radio is working at an optimum level.

   "METER" button next to the display window allows you to select the meter function modes of RF output power, the received signal strength, modulation level, calibration and SWR. Each time you press the button, the function mode changes and the selected mode is shown on the display.

   Select the CAL mode using this button. While keying the microphone, rotate the CAL control until it reaches the point where the "CAL" position on the meter illuminates.

   Then, without releasing the PTT switch on the microphone, change the mode to SWR and read its value. The lower the value, the better. While "1" is ideal, the SWR value up to "3" is generally good for a satisfactory transmission.
8. ***METER MODE SELECTOR.*** As explained above, this switch is used to select the meter display modes. Each time you press this button, the meter mode changes. It shows the modulation level of the transmitted signal (MOD), the RF output power (RF) in the transmit mode and the strength of the received signal in the receive mode (though "RF" is still shown in this mode). It also shows the standing wave ratio (SWR) and calibration (CAL) level.
9. ***TONE CONTROL.*** The switch is used to shape the audio response of the signal being received to the operator's preference. In its HI position, treble is increased. In the LOW position, bass is increased.
10. ***LSB/AM/USB/MODE SWITCH.*** This switch is used to select AM, LSB or USB mode of operation.
11. ***PA-RADIO SWITCH.*** This switch selects between RADIO and PA modes of operation. For the PA mode, a speaker having an impedance of 8 ohms and 3-watt rating is recommended. MIKE GAIN works as a volume control in the PA mode.
12. ***BRITE-DIM SWITCH.*** This switch controls the brightness of the meter and the LCD display for day- or night-time driving.
13. ***ANL/NB-ANL SWITCH.*** This is used to reduce the interference noise. In the ANL position, it only activates the automatic noise limiter in the audio circuit. In the ANL/NB position, it also activates the RF noise blanker and provides a more effective way to reduce repetitive impulse noise such as ignition interference.

14. ***PRESS-TO-TALK MICROPHONE***. Press the PTT switch on the microphone to transmit and release it to receive. When transmitting, hold the microphone about 2 inches away from your mouth and speak clearly in a normal voice. The 5-pin microphone connector on your TS-3010 amatuer radio accepts other optional microphone you may have available. When such an optional microphone has an UP-DOWN channel selector on it, you may use that function to select a channel on your TS-3010 amateur radio.

C. RECEIVING A MESSAGE

1. Make sure that all the connectors are properly terminated before going to the next step.
2. Set the PA- RADIO switch to the RADIO position and turn the radio on.
3. Adjust the volume to a comfortable listening level.
4. Select the mode desired (either AM, LSB or USB).
5. Select the channel desired.
6. Adjust the RF Gain Control and Clarifier to an optimum level.

D. TRANSMITTING A MASSAGE

1. Select the channel desired for transmitting,
2. Set the Mike Gain control fully clockwise.
3. If the channel is clear, press the push-to-talk switch on the microphone and speak into it in a normal voice.

E. REAR PANEL CONTROLS

1. **EXTERNAL SPEAKER**

   The external speaker jack on the rear panel is used for a remote receiver monitoring. The external speaker should have 8-ohm impedance and be able to handle at least 4 watts. When the external speaker is plugged in, the internal speaker is disconnected.

2. **PUBLIC ADDRESS**

   To use your radio as a public address system, connect an external 8-ohm speaker (4 watts minimum) to the PA speaker jack located on the rear panel. Direct the speaker 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.