

81109835

OWNER'S MANUAL

40 CHANNEL CB MOBILE TRANSCEIVER MODEL TX-40



Description

The TX40 is designed to take maximum advantage from the FM mode of communication. The TX40 operates on 40 channels, derived from an advanced PLL system with a dual conversion receiver employing high quality semiconductors. The receiver is designed for low noise and high sensitivity. The use of sharp selectivity ceramic filters ensures good rejection of adjacent channels for clear communication whilst the transmitter employs speech clipping and shaping to generate sharp clear audio.

Specification

Semiconductors:	12 transistors, 4 ICs, 30 diodes
Frequency range:	27.60125 Chan 1—27.99125 Chan 40
Mode of operation:	FM (F3)
Antenna impedance:	50 ohms
Controls:	Volume control / power on-off. Variable squelch control, RF gain, Delta tune, 40 channel selector.
Connectors:	Microphone input, coaxial antenna socket, external speaker jack.
Speaker:	Built in 8 ohm.
Microphone:	500 ohm dynamic with p.t.t. bar.
Power requirement:	Nominal 13.2 Vdc.
Dimensions:	200×180×60 mm
Weight:	1.7 Kg.

Receiver

Sensitivity:	Typically 0.25 microvolts for 12 dB Sinad
Selectivity:	± 4.5 KHz. @ 6dB
Squelch range:	0.5 microvolts to 500 microvolts
Audio output:	5W peak
I.F.:	10.695 MHz. and 455 KHz.
Current drain:	Approx. 300 mA (no signal)

Transmitter

RF output:	4W /400 mW
Frequency tolerance:	Better than ± 1.5 KHz.
Maximum deviation:	± 2.5 KHz.
Harmonic suppression:	As per MPT 1320
Current drain:	Approx. 1 Amp.

Installation & Initial Adjustment

Mounting

For mobile installation, the mounting cradle serves as means of mounting your CB TRANSCEIVER in any position and attitude which will be convenient to the user. After you have determined the most convenient location in your vehicle, hold the CB TRANSCEIVER, mounted in the cradle, in the exact position, remove the cradle from the CB TRANSCEIVER and use it as a template to mark the location for the mounting bolts. Before drilling the holes, make sure nothing will interfere with the installing of the mounting bolts.

Power connection

The red power lead is to be connected to the positive terminal of the battery. The black lead is to be connected to ground. (The radio is reverse polarity protected, but if you make a mistake in connecting the power leads, the radio may be damaged. It will be inoperative until the power is connected correctly). If existing wiring is used, be sure that it is heavy enough to prevent voltage drop to the radio. A good source of positive battery voltage is at the accessory

connection on the ignition switch. Using this as a power source ensures the radio will be off when the ignition switch is turned "OFF" and power will be supplied to the radio when it is the "ON" or "ACCESSORY" position.

Antennas

Your CB TRANSCEIVER has been adjusted at the factory to give optimum performance using a 50 ohm antenna. There are a number of 50 ohm antennas available for mobile citizens' band use.

For an automobile installation, a whip may be used with good efficiency because the automobile acts as counterpoise and reduces detuning effects.

The mounting location also has a great effect on the efficiency. The most efficient and practical installation is a full quarter wave whip mounted on the right rear wing top, midway between the rear window and bumper. The so-called "short whip" is a less efficient antenna because the radiation area is reduced. However, full use of its capability may be achieved since a shorter antenna may be mounted in a more advantageous position on an automobile, such as in the middle of the roof.

There are also newer mobile antennas on the market which are made to replace the car radio antenna and are similar in appearance.

These antennas serve three purposes: AM and FM broadcast reception and Citizens' Band transmission and reception. With some of these antennas, it is possible to simultaneously transmit on CB and receive on AM broadcast without interaction. These antennas are quite efficient for all three types of operation when properly adjusted. For a boat installation, the full-length quarter wave whip antenna is very efficient, however, it requires radials which make it hard to mount in small boats. Care must be used when choosing one of the shortened type antennas as considerable variation in efficiency will be found between the various makes and models. As a general rule it is preferable to use antennas with long elements because the greater the radiating area, the stronger the radiated signal will be.

To connect an antenna to the transceiver, a 50 ohm coaxial transmission line is required. RG-8/U or UR67 coax is recommended for length exceeding 50 feet and RG-58/U or UR43 coax is recommended for length less than 50 feet to connect to the transceiver. The RG-8/U requires a PL-259 type connector and RG-58/U coax requires a PL-259 connector with a UG-175/U adaptor. (See figure 1 for assembling connector to RG-58/ U).

ASSEMBLING ANTENNA PLUG TO RG58U COAXIAL CABLE

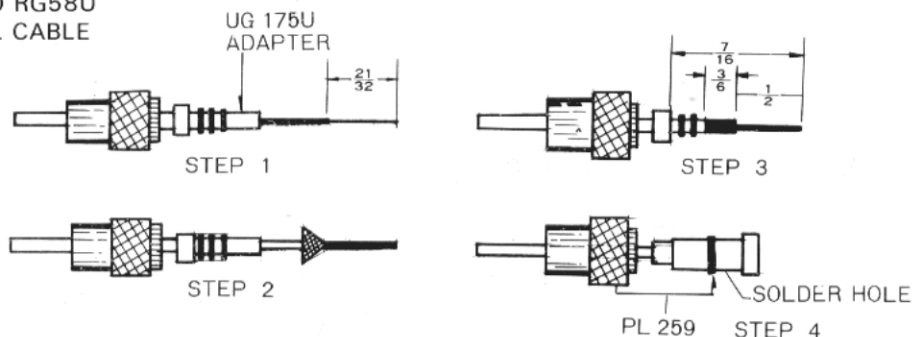


figure 1

Installation adjustments

The output circuit of the CB TRANSCEIVER transmitter has been factory adjusted to operate into any good 50 ohm antenna. No attempt should be made to tune the transmitter to the antenna. Instead, the antenna should be adjusted to present the lowest possible SWR (Standing Wave Ratio). A very low SWR means that the antenna is operating at maximum efficiency and will also mean that it is adjusted to 50 ohms. An improperly adjusted antenna causes standing waves to appear on the feed line. Since this feed line is fixed 50 ohms, and cannot be adjusted, this mismatch appears at the transmitter. If the transmitter is adjusted to compen-

sate for this mismatch, it and the antenna will no longer be operating at peak efficiency. Since the transmitter has already been adjusted for 50 ohms output and the coaxial feed line has a fixed 50 ohm value, the only remaining element to be adjusted to this value is the antenna itself. When adjusted, the antenna is probably cut as near as is possible to this value.

The mounting location on the vehicle or building and surrounding objects affect the antenna however, and requires that it be adjusted to compensate for them.

Many of the newer Citizens' Band antennas provide means of adjusting them for lowest SWR. Instructions for doing so are included with the antenna. For such antennas as the full quarter wave length whip, it is necessary to carefully vary the length until the lowest SWR is obtained. For all adjustments to the antenna, connect an SWR meter in the feed line to the antenna. The CB TRANSCEIVER will work into an antenna system having an SWR as high as 3 : 1. For best communications, you will want this figure as near 1 : 1 as possible so that the antenna will be operating at its best efficiency.

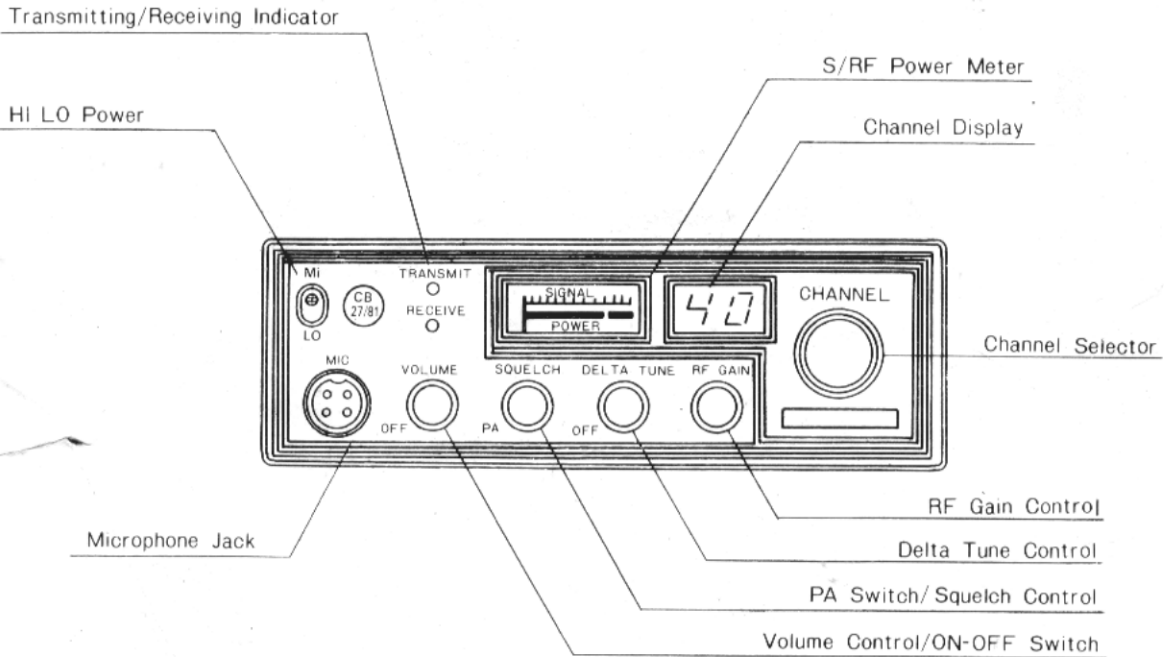
Noise Suppression

With an FM transceiver, there is good suppression of interference and the TX40 also has built in powerline filters. In most vehicular installations, the noise suppression for the car radio will be sufficient. Vehicles and boats not having this suppression may require that it be installed. In most cases, installation of distributor suppressors and generator condensers will be sufficient. In severe cases, the services of a qualified technician may be required.

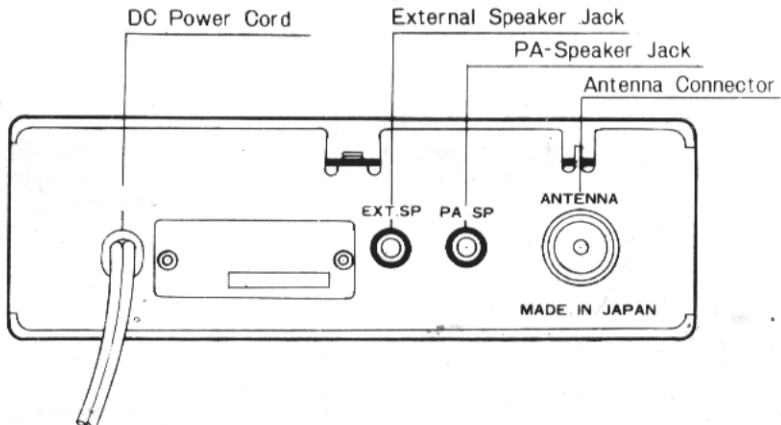
Operation of TX40

Microphone Socket	Plug in the microphone supplied with the transceiver and you can transmit by operating the press to talk bar on the microphone.
RF/S meter	When receiving, this meter shows relative strength of the received signal and when transmitting shows relative output.
Volume/power	This control switches your TX40 power on or off, and adjusts the volume of the received signal. The control should be turned clockwise from the OFF position. You will hear an audible click. Further rotation clockwise will increase volume.
Channel Selector	This is a 40 position switch which selects any of the 40 CB channels in use. Receive and transmit frequencies are selected simultaneously.
Channel display	This bright two digit display shows you which channel (1-40) you have selected.
Squelch Control/ PA-CB Switch:	This control allows you to silence the noise you would normally hear in the absence of a received signal. Start with the control fully anti-clockwise and increase the volume control until noise is heard. Do this on any vacant channel. Then turn the squelch control clockwise until a point is reached at which the noise disappears. This is the most sensitive setting of the squelch control. If you experience bursts of noise which open the squelch, advance the control a little further until the set is quiet. The optimum setting will be found by experience. In the clockwise position, the unit is squelched. And the fully counter-clockwise position, the unit is switched the PA position. In the PA position, your CB transceiver is converted to a Public Address amplifier or hailer. The PA function should not be used unless an 8-16 ohms external speaker has been connected to the PA Jack located on the back of the chassis. Once this optional speaker has been connected, simply switch the PA-CB switch to the PA position and depress the microphone push-to-talk switch.
RF gain control	Note: The volume control adjusts PA output level. Under normal conditions, this control is set fully clockwise. If you operate in close proximity to another transmitter, i.e. two cars in the same car park, the receiver gain can be reduced to prevent overload by rotating the RF gain control anti-clockwise.

- Delta Tune In narrow band FM systems, frequency accuracy is most important. If the station you are hearing is slightly off channel, the Delta Tune allows you to "fine tune" him for best quality speech output. The range of the Delta Tune is \pm 1KHz.
- High/Low power In the HI position, the transmitter output is 4W. In the LO position, the output is 400 mW.
- Rear panel DC power cord. Connect to suitable power supply (11-14Vdc at 1-2A) using red lead positive and black lead negative. Reverse connection may cause serious damage to the equipment.
- External speaker jack For connection of an extension loudspeaker. The speaker must have an impedance of 4 to 8 ohms. Plugging into the jack automatically disconnects the internal speaker.
- Antenna This is a 50 ohm socket for connection of the antenna feed line. The correct plug to use is the PL259 as shown earlier in this manual. Poor or corroded connection in the plug may damage the transmitter output stage so please ensure correct termination is carried out.



Rear View



OPERATING PROCEDURE

Caution:

IT IS ILLEGAL TO OPERATE THE TRANSMITTER SECTION OF THIS TRANSCEIVE PRIOR TO RECEIVING A VALID STATION LICENSE. DO NOT PUSH TRANSMIT SWITCH WITHOUT FIRST CONNECTING A 50 OHM ANTENNA OR DUMMY LOAD.

1. Receiver

- (a) Turn all rotary controls counter-clockwise.
- (b) Turn the ON-OFF switch (on the volume control) to "ON" position.
- (c) Turn RF gain control fully clockwise.
- (d) Select the desired operating channel (1-40)
- (e) Adjust the volume control to normal listening level.
- (f) Adjust the squelch control.
- (g) When signal is heard; adjust the delta tune for maximum "S" meter reading.
- (h) Adjust the RF gain control if required.

2. Transmitter

- (a) Select the desired operating channel.
- (b) To transmit, hold the microphone 2 to 3 inches from your mouth. Normally, it is best to hold it so that you talk across it rather than directly into it. This will prevent the sound of your breathing being transmitted. Hold the Push-To-Talk button on the microphone, and speak in a normal conversation level. When your transmission is completed, release the button on the microphone and listen to your party's reply.

Channel	1	27.60125	MHz	Channel	21	27.80125	MHz
"	2	27.61125	"	"	22	27.81125	"
"	3	27.62125	"	"	23	27.82125	"
"	4	27.63125	"	"	24	27.83125	"
"	5	27.64125	"	"	25	27.84125	"
"	6	27.65125	"	"	26	27.85125	"
"	7	27.66125	"	"	27	27.86125	"
"	8	27.67125	"	"	28	27.87125	"
"	9	27.68125	"	"	29	27.88125	"
"	10	27.69125	"	"	30	27.89125	"
"	11	27.70125	"	"	31	27.90125	"
"	12	27.71125	"	"	32	27.91125	"
"	13	27.72125	"	"	33	27.92125	"
"	14	27.73125	"	"	34	27.93125	"
"	15	27.74125	"	"	35	27.94125	"
"	16	27.75125	"	"	36	27.95125	"
"	17	27.76125	"	"	37	27.96125	"
"	18	27.77125	"	"	38	27.97125	"
"	19	27.78125	"	"	39	27.98125	"
"	20	27.79125	"	"	40	27.99125	"

