

Cat. No. 21-1577A

**OWNER'S MANUAL**

Please read before using this equipment.

**TRC-485**

**40-Channel AM/SSB CB Transceiver**

**Radio Shack®**

# FEATURES

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Your Radio Shack TRC-485 40-Channel CB Transceiver is a two-way citizen's band radio for use in your vehicle. Or, you can connect a DC power supply and base station antenna to set up a base station in your home. You can also connect optional equipment to your CB, such as an external speaker. With the right accessories, your CB also becomes a public address system.

Your CB also has these advanced features:

**Phase-Locked Loop (PLL) Frequency Synthesizer** — provides highly accurate and stable tuning.

**Single Side Band Mode** — gives you twice the number of channels, and increases the effective communications range.

**Dual Watch (DW)** — lets you monitor one channel while listening to another.

**Scan** — searches for active channels.

**Large, Illuminated, Digital Display** — clearly shows the channel number, frequency, and incoming signal strength.

**CH9 Switch** — lets you quickly switch to Channel 9 so you can report or monitor emergency situations.

**Last-Channel Memory** — the radio "remembers" the channel you previously tuned to when you turn on your vehicle's ignition.

**Built-In, Ceramic Filters** — ensure superior channel selectivity and freedom from adjacent channel interference.

**Built-In PA Amplifier** — lets you use your CB as a public address system when you add an optional PA speaker.

**External Speaker Jack** — lets you connect your CB to an external speaker.

**Built-In Automatic Modulation Control** — ensures a constant RF modulation level.

**Automatic Gain Control** — maintains a constant volume level, regardless of the signal strength.

**Switchable Noise-Blanker** — reduces interference from ignition systems, motors, and other electrical equipment.

**Squelch Circuit** — compensates for signal fading and eliminates signal chopping.

**RF Gain Control** — lets you adjust the receiver gain to match the strength of the received signal.

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**Clarifier Control** — improves reception of SSB (single sideband) signals.

**Universal Mounting Bracket** — lets you mount your CB securely in your vehicle or on a table or shelf in your home.

**Note:** To use this CB, you must purchase a mobile or base station antenna. Your local Radio Shack store has a wide variety of antennas. For more information, see “Connecting an Antenna” on Page 6.

For your records, we recommend you record your CB’s serial number in the space provided. The serial number is on the CB’s back panel.

Serial Number \_\_\_\_\_

## FCC INFORMATION

The Federal Communications Commission (FCC) does not require you to have a license to operate this CB radio. However, you must know Part 95 of *FCC Rules*. It explains the proper operation of a Class D citizen’s band transceiver. We enclosed a copy of Part 95 with your CB radio.

**Warning:** Do not open the CB radio to make any internal adjustments. A CB radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the

settings inside the unit to exceed these limitations.

Any adjustments to a CB radio must be made by a qualified technician using the proper test equipment.

To be safe and sure:

- Never open your CB radio’s case.
- Never change or replace anything in your CB radio.

Your CB radio might cause TV or radio interference even when it is operating properly. To determine whether your CB radio is causing the interference, turn off your CB radio. If the interference goes away, your CB radio is causing the interference. Try to eliminate the interference by:

- Moving your CB radio away from the receiver
- Contacting your local Radio Shack store for help

This device complies with Part 95 of *FCC Rules*. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

# CONTENTS

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<b>Installation</b> .....	<b>5</b>
Attaching the Microphone Holder .....	5
Mounting the Transceiver .....	5
Connecting an Antenna .....	6
Connecting the Microphone.....	7
Connecting Optional Speakers .....	8
Using an External CB Speaker .....	8
Connecting a PA Speaker .....	8
Using Vehicle Battery Power .....	8
Using the Transceiver as a Base Station.....	9
<b>Operation</b> .....	<b>11</b>
Receiving Transmissions and Adjusting Squelch.....	11
Transmitting.....	12
Using Special Controls .....	12
Scanning Incoming Signals.....	12
Monitoring Channel 9 .....	12
Notes on SSB Reception .....	13
Alternating between Two Channels .....	13
Using Last Channel Recall.....	13
Using Clarifier .....	13
Using RF-Gain .....	14
Using NB.....	14
Using the PA Amplifier .....	14
<b>Operational Hints</b> .....	<b>15</b>
Common Uses for a CB.....	15
Personal Uses.....	15
Business Uses .....	15
Maximum Range .....	15
Transmission Courtesy .....	16
Using Common 10-Codes .....	17
<b>Troubleshooting</b> .....	<b>18</b>
Reducing Noise .....	19
<b>Maintenance</b> .....	<b>20</b>
Replacing the Fuses.....	21
<b>Specifications</b> .....	<b>22</b>

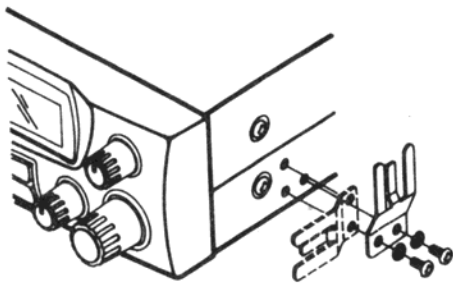
# INSTALLATION

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## ATTACHING THE MICROPHONE HOLDER

You can connect the microphone holder to either side of the transceiver or to another location in your vehicle.

To attach the holder to either side of the transceiver, horizontally or vertically, secure the holder to the side using the supplied screws and lock washers.



To attach the holder to another location in the vehicle, such as the dashboard, follow these steps.

1. Using the holder as a template, mark the positions for the mounting screw holes at the desired location.
2. At each marked position, drill a hole slightly smaller than the supplied mounting screws.

**Caution:** Be careful not to drill into anything behind the mounting surface.

3. Attach the holder at the mounting location using the supplied machine screws and lock washers.

## MOUNTING THE TRANSCEIVER

The most common mounting location for this CB is under a vehicle's dashboard. However, if you use the TRC-485 as a base station, you can place it on a desk, shelf, or table (see "Using the Transceiver as a Base Station").

If you are mounting the CB in a vehicle, choose a location where:

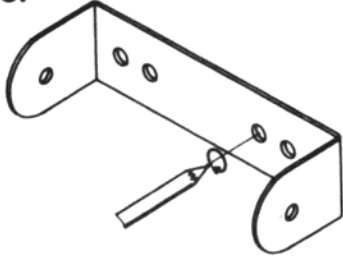
- You can easily reach the CB.
- Wires and cables are clear of the vehicle's pedals or other moving parts.
- The CB is not directly in front of heating vents.
- All wires and cables can reach their connection points.

**Caution:** If you use the CB in a vehicle, mount it securely to avoid damage to the CB or vehicle or injury to anyone in the vehicle during sudden starts or stops.

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Follow these steps to mount the CB using the supplied hardware.

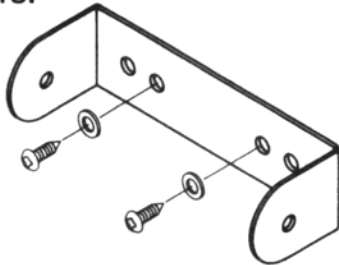
1. Using the mounting bracket as a template, mark the positions for the screw holes on the mounting surface.



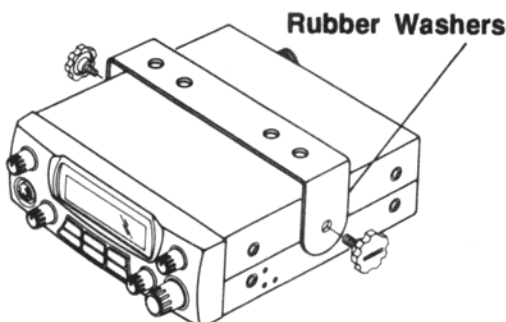
2. In each marked location, drill a hole slightly smaller than the supplied mounting screws.

**Caution:** Be careful not to drill into objects behind the mounting surface.

3. Using a Phillips screwdriver, attach the mounting bracket to the mounting surface with the supplied mounting screws and flat washers.



4. Attach the CB to the mounting bracket using the supplied rubber washers and mounting knobs.



## CONNECTING AN ANTENNA

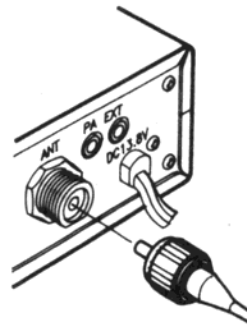
There are many different types of CB antennas for mobile CBs. Each antenna type has its own benefits, so choose the one that best meets your needs. Your local Radio Shack store sells a wide variety of antennas.

**Note:** If you are using this CB as a base station, see "Using the Transceiver as a Base Station" on Page 9.

When you choose an antenna, keep in mind that for the best performance you should mount the antenna:

- As high as possible on the vehicle
- As far as possible from sources of electrical noise
- Vertically

Once you choose an antenna, follow its mounting instructions. Then route the cable to the transceiver and connect the cable to the **ANT** jack on the back of the transceiver.



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### Cautions:

- Avoid routing the cable next to sharp edges or moving parts, which might damage the cable.
- Do not run the cable next to power cables or other radio antenna cables.
- Do not run the cable through the engine compartment or other areas that produce extreme heat.

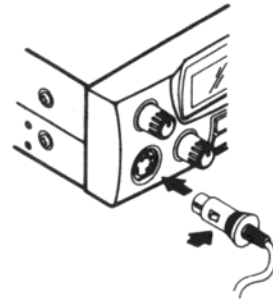
To achieve your radio's maximum range, the antenna's Standing Wave Ratio (SWR) must be adjusted. You can use an SWR meter (not supplied) to adjust the SWR for your antenna.

Follow the instructions supplied with the SWR meter and antenna to adjust your antenna's SWR to the lowest possible value. SWR values of 2.0:1 are generally acceptable, with readings of 1.5:1 or lower being more desirable.

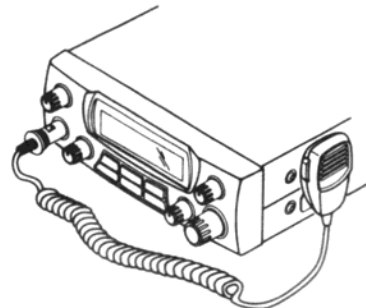
**Note:** Using your radio with an antenna adjusted to a high SWR value might eventually damage your radio.

## CONNECTING THE MICROPHONE

1. Press the tab on the side of the supplied microphone's plug and insert the plug into the microphone jack on the front of the transceiver. Be sure the tab is aligned with the jack's notch.



2. Slide the microphone onto the microphone holder.



**Caution:** To disconnect the microphone from the transceiver, press the tab on the side of the plug. Then pull out the plug. Never pull on the microphone cable.

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## CONNECTING OPTIONAL SPEAKERS

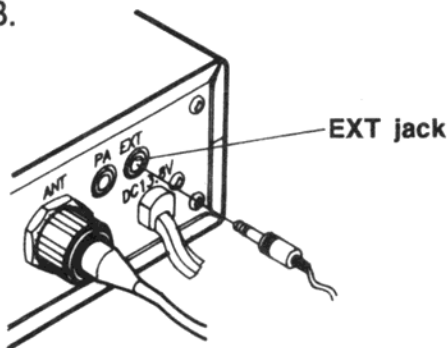
You can connect your transceiver to an external CB speaker and a PA (public address) speaker.

**Note:** Connecting an external or a PA speaker disconnects the CB's internal speaker.

### Using an External CB Speaker

The external speaker you use with the transceiver should have an impedance of 8 ohms and be able to handle 3 to 10 watts of power, such as Radio Shack Cat. No. 21-549. The speaker cable must have a 1/8-inch plug.

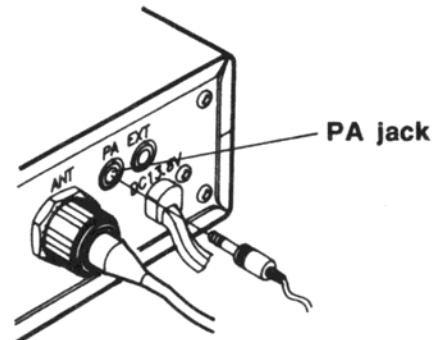
To connect the external speaker to the transceiver, insert the speaker cable's plug into the **EXT** jack on the back of the CB.



### Connecting a PA Speaker

The PA speaker should have an impedance of 8 ohms and be able to handle at least 2.5 watts of power, such as Cat. No. 40-1227. The speaker cable must have a 1/8-inch plug.

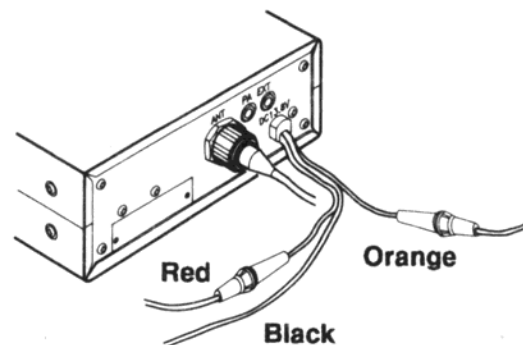
To connect the PA speaker to the transceiver, insert the speaker cable's plug into the **PA** jack on the back of the CB.



**Note:** The speaker should be at least 6 feet from the CB.

## USING VEHICLE BATTERY POWER

Follow these steps to connect the transceiver to vehicle battery power



1. Connect the red wire (with an in-line fuse holder) on the back of the transceiver to a point in your vehicle's fuse block that has power only when the ignition is in the ACC (accessory) or ON position.



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2. Connect the black wire to a metal part of the vehicle's frame (chassis ground).

**Caution:** Do not connect the black wire to a non-metallic (plastic) part, or to any part insulated from the vehicle's chassis by a non-metallic part.

3. Connect the transceiver's orange wire (with an in-line fuse holder) to a point in your vehicle's fuse block that supplies constant positive (+) power even when the ignition is turned off, or directly to your vehicle's positive (+) battery terminal. This connection is for last-channel memory.

## USING THE TRANSCEIVER AS A BASE STATION

Although this transceiver is designed mainly for mobile use, you can also use it as a base station with an AC power source. For base station installation, you need these items.

- 12-volt DC power supply that can supply at least 1.5 amps

**Caution:** Most 12-volt DC power supplies plug into a standard AC outlet to produce DC power. Before connecting your CB to a 12-volt DC power supply, read and follow the instructions included with the power supply.

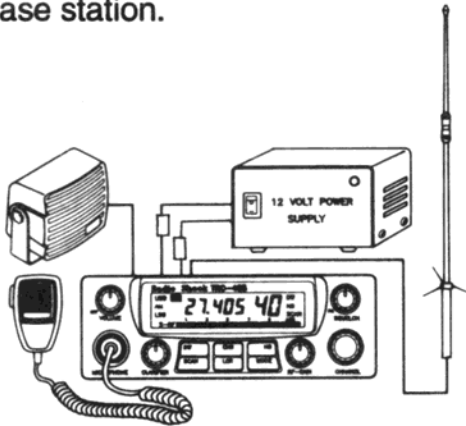
- Base station antenna
- Coaxial antenna cable and connectors

**Note:** Your local Radio Shack store carries coaxial antenna cable and connectors.

- External 8-ohm speaker

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Follow these steps to install the CB as a base station.



1. Mount the base station antenna as described in its owner's manual.

**Warning:** Use extreme caution when you install or remove a base station CB antenna. If the antenna starts to fall, let it go. It could contact overhead power lines. If the antenna touches a power line, contact with the antenna, mast, cable, or guy wires can cause electrocution and death. Call the power company to remove the antenna. DO NOT attempt to do so yourself.

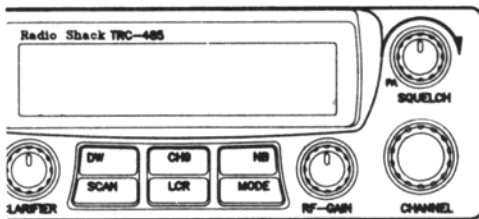
2. Connect the antenna to the **ANT** jack on the back of the CB.
3. Connect the transceiver's black power wire to the negative (-) terminal on the DC power supply.
4. Connect the transceiver's red and orange wires, each with in-line fuse holders, to the positive (+) terminal on the DC power supply.
5. Connect the DC power supply to a standard AC outlet.

# OPERATION

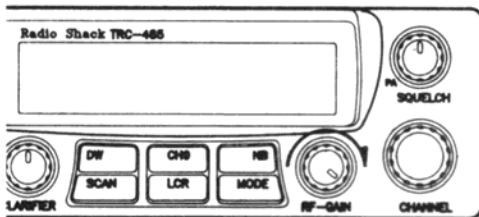
Before you use your CB, you should know how to use it effectively and courteously. "Operational Hints" on Page 15 contains information that will help you get more enjoyment from your CB.

## RECEIVING TRANSMISSIONS AND ADJUSTING SQUELCH

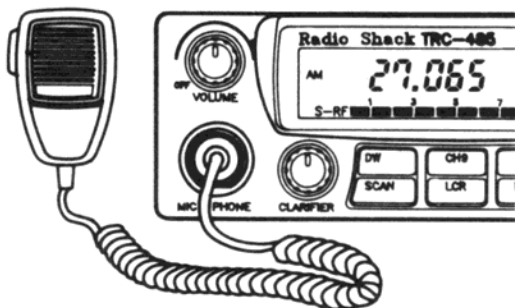
1. Turn **SQUELCH** clockwise until it clicks.



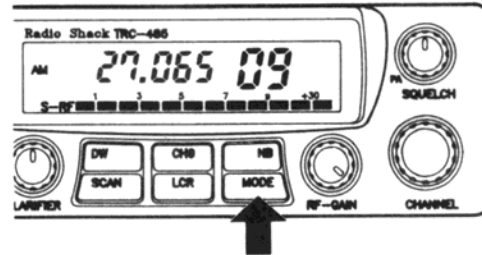
2. Turn **RF-GAIN** fully clockwise.



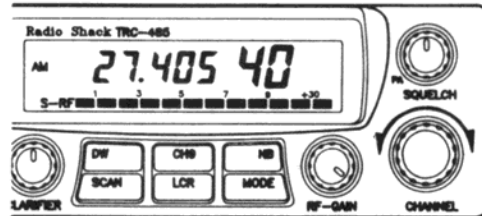
3. Turn on the transceiver by turning **VOLUME** clockwise. The display lights and the last-tuned frequency and channel appear. A bar graph also appears which shows the received signal strength.



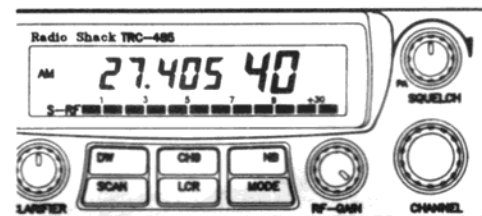
4. Press **MODE** to select the mode of operation — **AM**, **LSB** (Lower Side Band), or **USB** (Upper Side Band). (See "Notes on SSB Reception" on Page 13.)



5. Rotate **CHANNEL** to select a channel.



6. To cut out background noise between transmissions, wait until there is no signal, then slowly turn **SQUELCH** clockwise until the background noise stops.



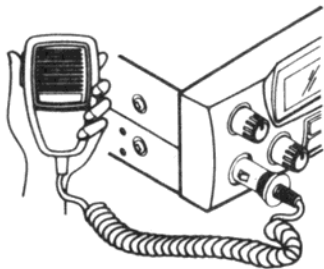
**Note:** To receive very weak signals, turn **SQUELCH** counterclockwise. You hear noise between transmissions, but you also hear weak transmissions (those not strong enough to break through a higher squelch setting).

7. Adjust **VOLUME** to a comfortable listening level.
8. To turn off the CB, turn **VOLUME** counterclockwise until you hear it click.

## TRANSMITTING

**Note:** We recommend you try receiving before you transmit.

1. Follow Steps 1–7 in “Receiving Transmissions and Adjusting Squelch.”
2. To transmit, press the Talk button on the microphone. Hold the microphone 2–3 inches from your mouth and speak in a normal tone of voice. **TX** appears on the display along with a bar graph which shows the relative strength of your transmission.

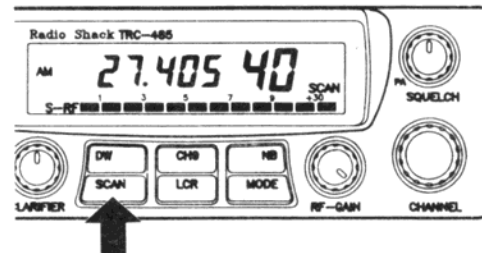


3. When you finish transmitting, release the Talk button. **TX** and the signal strength bars clear from the display.
4. To turn off the CB, turn **VOLUME** counterclockwise until you hear it click.

## USING SPECIAL CONTROLS

### Scanning Incoming Signals

To scan incoming signals, press **SCAN**. **SCAN** appears on the display, and the transceiver stops for 5 seconds on each channel.

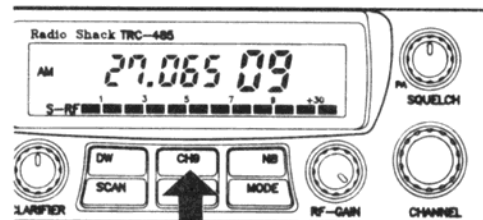


To stop automatic scanning, press **SCAN** again. **SCAN** disappears from the display.

### Monitoring Channel 9

For emergency call monitoring on Channel 9, just press **CH9**. **09** flashes on the display, and the transceiver stays on channel 9.

To release emergency call monitoring, press **CH9**. The previously selected channel number appears on the display.

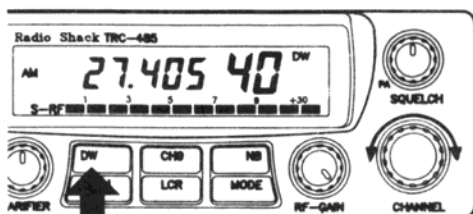


## Notes on SSB Reception

- When you first listen to an SSB signal, you probably will not be able to understand it. The voice might sound distorted. Slowly turn **CLARIFIER** to bring the signal into its natural voice tonal range.
- An SSB signal produces a fluttering, unintelligible sound when received in the AM mode. Set the mode switch to either **LSB** or **USB**, and adjust **CLARIFIER**.
- If the voice is still not intelligible, it might be an SSB signal operating on the other sideband — try the other SSB mode.
- You can tune AM signals when the mode switch is in the **USB** or **LSB** position. Adjust **CLARIFIER** to eliminate the steady tone caused by the AM carrier signal.

## Alternating Between Two Channels

To alternate between two channels, select one channel and press **DW** (dual watch). **DW** appears on the display. Then rotate **CHANNEL** to select the other channel.

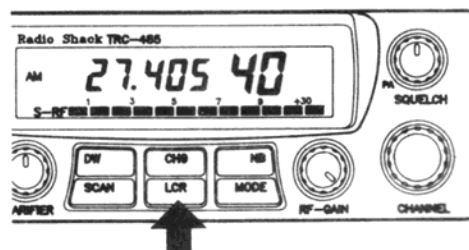


The transceiver alternates between the first selected channel (the dual watch channel) and the currently selected channel. Whenever the transceiver detects a transmission on the first channel, it switches back to that channel. After 5 seconds, the transceiver returns to the second channel (even if the transmission is not complete).

To turn off dual watch, press **DW**. **DW** disappears from the display.

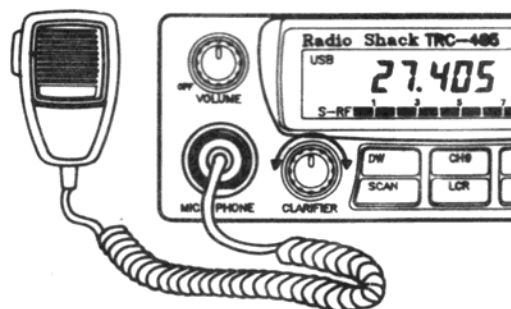
## Using Last Channel Recall

Press **LCR** to return to Channel 9 (the default) or the last channel that you transmitted on.



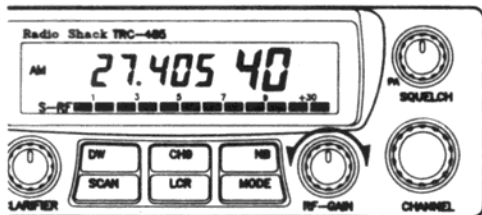
## Using CLARIFIER

When you listen to an SSB signal, turn **CLARIFIER** to tune in slightly off-frequency stations or to tune out interference from adjacent channels.



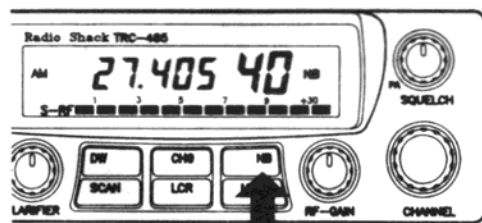
## Using RF-GAIN

When you receive an extremely strong signal, adjust **RF-GAIN** to vary the overall volume, instead of using the **VOLUME** control.



## Using NB

If your reception is disturbed by interference from impulse type noise (ignition noise and other electrical noise), press **NB** to reduce or eliminate the noise.

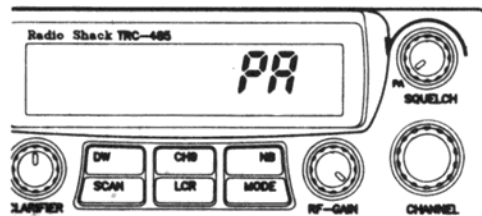


## USING THE PA AMPLIFIER

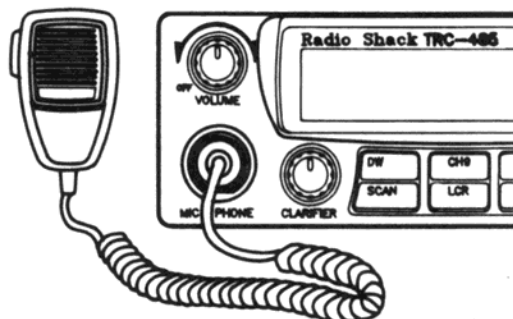
Your CB has a built-in PA (public address) amplifier. With an optional PA speaker, you can turn your radio into a mobile address system.

Follow these steps to use the PA amplifier after you connect an external PA speaker (see "Connecting a PA Speaker" on Page 8).

1. Rotate **SQUELCH** counterclockwise to **PA**. **PA** appears on the display.



2. To transmit, press the Talk button on the microphone. Hold the microphone 2-3 inches from your mouth and speak in a normal tone of voice.
3. Turn **VOLUME** for the desired volume level. If you hear a high-pitched squeal, adjust **VOLUME** until the squeal stops.



# OPERATIONAL HINTS

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Like most activities, CB radio has its customs and courtesies. The following tips will help you get the most enjoyment from your CB.

## COMMON USES FOR A CB

### Personal Uses

- Keep in touch with home while driving to work, to the store, or to a social activity. Let your family know you are tied up in traffic or that you will stop by the store on the way home.
- If you are a two-car (or more) family, CB radios are great for communicating with family members while they are in their cars.
- Contact friends or neighbors — find out “what’s happening” or plan a get-together.
- Ever have car trouble or run out of gas on the highway? What an assurance it is to be able to radio for assistance!
- Camping, fishing, and other sports are more fun with a CB radio. Locate a buddy or find out “what’s cooking” back at camp.

### Business Uses

- For security officers, a CB is more than a convenience — it is a must for both safety and efficiency.
- Truck drivers and delivery personnel can learn road and traffic conditions and get assistance in locating destinations. A CB radio is also good company on those “long hauls.”
- On construction crews, a CB radio quickly pays for itself when you are calling for additional materials or coordinating the activities of different work crews.

## MAXIMUM RANGE

The maximum range and quality of CB radio transmissions vary depending on the following conditions:

- The type and quality of antenna used
- The height of the antenna’s mounting location — the higher the antenna, the better the signal’s range
- The surrounding terrain — mountains and tall buildings limit the range
- Weather conditions
- The number of nearby radios operating on the same channel

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- Standing wave ratio (SWR) between the antenna and the CB. You can check the SWR between the CB and a mobile or base station antenna using an SWR tester (such as Cat. No. 21-523). Follow the instructions supplied with the SWR tester and the mobile or base station antenna to change the SWR, if necessary.

**Note:** Your CB radio's transmission range is generally line-of-sight.

## **TRANSMISSION COURTESY**

Please follow these guidelines of radio courtesy when using your CB.

- Wait for a pause in someone else's transmission before you ask for a break.
- If you do not receive an answer to your call after a second attempt, sign off and wait several minutes before trying again.
- Do not hold down the Talk button when you are not talking. (This is called dead keying.)
- Assist callers with directions, information about road conditions, and any other reasonable requests.



## USING COMMON 10-CODES

Citizen's band operators have largely adopted the 10-codes for standard questions and answers. These codes permit faster communication and better intelligibility in noisy areas.

This table lists codes adopted by the Associated Public Safety Communications Officers (APCO).

Code	Meaning	Code	Meaning
10-1	Your signal is bad.	10-17	En route.
10-2	Your signal is good.	10-18	Urgent.
10-3	Stop transmitting.	10-19	Contact _____.
10-4	Message received and understood.	10-20	What is your location?
10-5	Relay information to _____.	10-21	Call _____ by telephone.
10-6	I am busy or are you busy?	10-22	Cancel last message.
10-7	Out of service.	10-23	Arrived at the scene.
10-8	In service.	10-24	Assignment complete.
10-9	Repeat last message.	10-25	Meet _____.
10-10	Negative (NO).	10-26	Estimated time of arrival is _____.
10-11	_____ in service.	10-30	Use caution.
10-12	Stand by.	10-31	Pick up.
10-13	Report road/weather conditions.	10-33	Emergency traffic. Clear the channel.
10-14	Information.	10-34	What time is it?
10-15	Message delivered.	10-41	Switch to Channel xx.
10-16	Reply to message.	10-62	Cannot understand.

# TROUBLESHOOTING

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If at any time you suspect that your CB is not working as it should, refer to the following chart to see if you can eliminate the problem. If the problem persists, take the CB to your local Radio Shack store for assistance.

Symptom	Solution
Trouble with reception	Too much squelch? Adjust as needed.
	Radio not on operating channel? Switch to active channel.
	Microphone connected? Secure connections.
	Antenna connected? Secure connections.
	Mode switch setting? Select appropriate position (AM, LSB, USB).
Trouble with transmission	Transmission cable connected to antenna? Secure antenna connector.
	Antenna fully extended? Extend to full length.
	All connections free of corrosion? Clean and tighten.
	Talk button fully pressed in? Press completely.
	Microphone connector loose? Firmly press in jack.
Radio does not work at all	Power connected? Secure connections.
	Microphone connected? Secure connections.
	Fuses need replacing? See "Replacing the Fuses" on Page 21.

If these solutions do not solve the problem, do not attempt repairs or adjustment yourself. The CB should be serviced only by a qualified radio technician. If you still have problems, take your CB to a local Radio Shack store for assistance.

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## REDUCING NOISE

Because your CB is exceptionally quiet, any noise you hear is probably from an external source in your vehicle such as the alternator, another radio, or spark plugs.

You can determine the noise's source by turning off the engine and operating the CB with your vehicle's ignition set to ACC. If the noise is reduced, the problem is in your vehicle's ignition or electrical system.

Here are a few hints to help you reduce or eliminate such noise:

- Make all CB power and antenna wires as short as possible.
- Route the power wires away from the antenna wires.
- Be sure that the chassis ground connection is secure.
- Replace old ignition wires with new, high-voltage, noise suppression wires.
- Install noise suppressors on your spark plugs, or install new spark plugs that have built-in noise suppressors.
- If problems persist, check your alternator/generator and regulator gauges. You can reduce the noise from these sources by using bypass capacitors at the various output voltage points.

Your local Radio Shack store has a wide selection of noise suppression accessories.

# MAINTENANCE

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Your Radio Shack TRC-485 40-Channel CB Transceiver is an example of superior design and craftsmanship. The following suggestions will help you care for your CB so you can enjoy it for years.



Keep the CB dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode electronic circuits.



Handle the CB gently and carefully. Dropping it can damage circuit boards and cases and can cause the CB to work improperly.



Keep the CB away from dust and dirt, which can cause premature wear of parts.



Wipe the CB with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the CB.

Modifying or tampering with the CB's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your CB is not performing as it should, take it to your local Radio Shack store for assistance.

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## REPLACING THE FUSES

The TRC-485's 3-amp and 1-amp in-line fuses help protect your CB from power surges and short circuits.

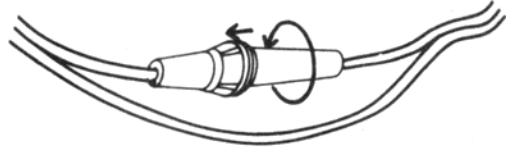
- If there is no power, check the red wire's fuse. If the red wire's fuse is blown, use a 3-amp, fast-acting glass fuse, such as Cat. No. 270-1009.
- If the last-channel recall does not work, check the orange wire's fuse. If the orange wire's fuse is blown, use a 1-amp, fast-acting glass fuse, such as Cat. No. 270-1005.

Follow these steps to replace the fuse.



1. Make sure the power source and CB are both off.
2. Hold the fuse holder by both ends, push the ends together, twist one end counterclockwise, and pull them apart.
3. Remove the old fuse and inspect its condition. If it is blown and requires replacement, insert a new one of the same type and rating. If it is not blown, reinsert it.

4. Push the fuse holder ends together and twist one end clockwise.



# SPECIFICATIONS

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## RECEIVER

Max Sensitivity .....	AM 0.5 $\mu$ V, SSB 0.25 $\mu$ V
Sensitivity for 10dB S/N .....	AM 0.5 $\mu$ V, SSB 0.25 $\mu$ V
AGC Figure of Merit 100mV for 10dB change in Audio Output .....	AM 90 dB, SSB 90 dB
Overload AGC Characteristics from 100mV to 1000mV .....	AM +3 dB, SSB $\pm$ 3 dB
Overload Audio Fidelity at 6 dB Down .....	450 Hz – 2100 Hz
Adjacent Channel Selectivity .....	AM 60 dB
Image Rejection (5.6 MHz) .....	Typically better than 90 dB
IF Rejection .....	70 dB or better
Maximum Audio Output Power .....	2.5 Watts
Squelch Range .....	Adjustable from 0.5 $\mu$ V to 1 mV
Battery Drain at no signal .....	500 mA
Battery Drain at Max. Output Power .....	1.5 A
Receiver Clarifier Range .....	$\pm$ 1 kHz Variable

## TRANSMITTER

Max. Output Power .....	AM 4 Watts, SSB 12 Watts PEP
Spurious Emission .....	-65 dB or better
Battery Drain	
At no modulation .....	AM less than 2.5 A SSB less than 1.0 A
At Maximum Output Power .....	AM less than 2.5 A SSB less than 3.0 A
Modulation Frequency Response (1 kHz, 0 dB reference) .....	Lower, at 450 Hz, AM -6 dB SSB -6 dB Upper, at 2.5 kHz, AM -6 dB SSB -6 dB

### **Limited Ninety-Day Warranty**

This product is warranted by Radio Shack against manufacturing defects in material and workmanship under normal use for ninety (90) days from the date of purchase from Radio Shack company-owned stores and authorized Radio Shack franchisees and dealers. In the event of a product defect during the warranty period, take the product and the Radio Shack sales receipt as proof of purchase date to any Radio Shack store. Radio Shack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of Radio Shack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period. This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a Radio Shack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

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