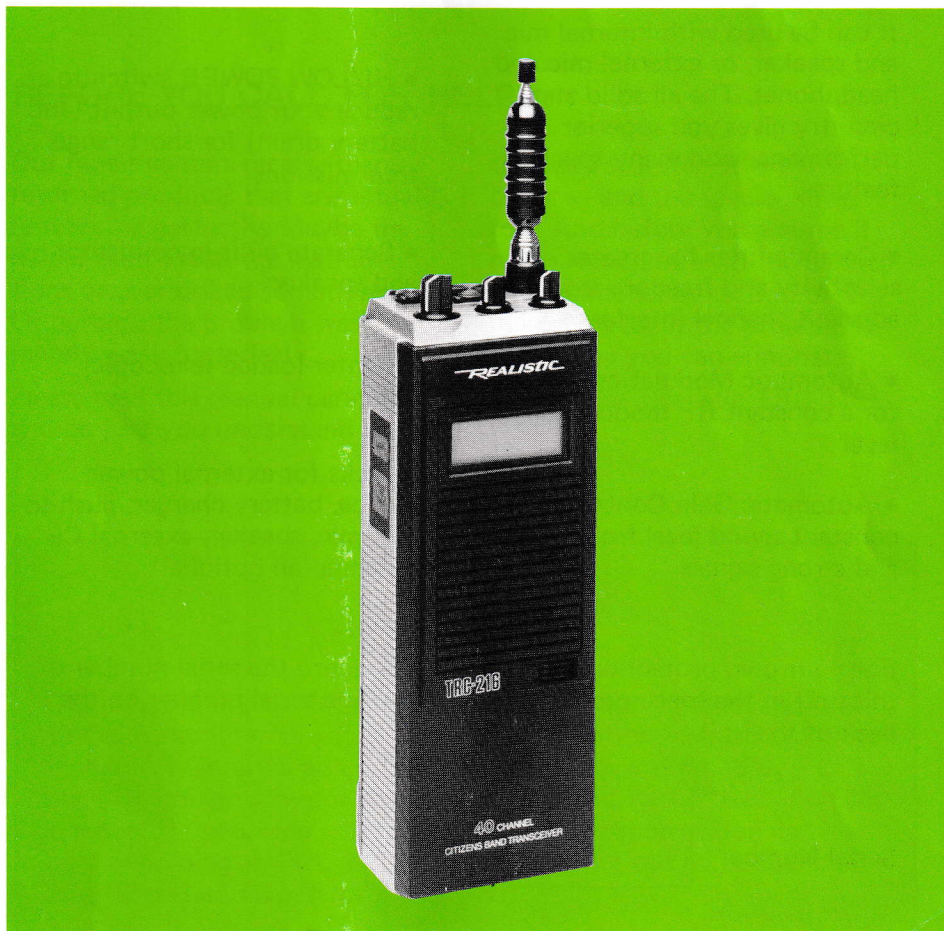


# TRC-216 CB 40-CHANNEL WALKIE-TALKIE

PLEASE READ BEFORE USING THIS EQUIPMENT



**REALISTIC®**

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Your REALISTIC TRC-216 is ideal for fast-moving communications. At work or play – at the construction site, ranch, camp, jogging trail, and even beyond. . . It encompasses many lifestyles. The digital-phase lock-loop synthesizer generates operating frequencies for 40-channels with the highest degree of accuracy and stability.

It can be used with internal mic and speaker, or external mic and headphones. The all solid state circuitry gives you superior performance and many special features.

- Ceramic filter for greater selectivity and freedom from adjacent channel interference
- Automatic Modulation Control for a constant RF modulation level
- Automatic Gain Control for a constant sound level from weak and strong signals

- Low-distortion IC audio circuit
- Built-in Automatic Noise Limiter to reduce pulse-type noise
- Semiconductor complement: 4 ICs, 29 transistors, 29 diodes
- LCD channel readout and battery condition/RF power meter
- HI/LOW POWER switch to reduce your power output (and battery drain) for short-range transmissions
- Separate built-in condenser mic and speaker
- Center-loaded telescopic antenna
- Jacks for external power source, battery charger, push-to-talk mic, speaker, external CB antenna (all optional)

For your own protection, we urge you to record the serial number of this unit in the space provided. You'll find the serial number on the back of the unit.

Serial Number

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## NO FCC LICENSE REQUIRED (USA)

Although you no longer need an FCC license to operate a CB radio, you must read and know Part 95 of the FCC Rules and Regulations. It applies to the operation of a Class D citizen's band unit. We've provided a copy of these regulations with your unit.

**Note:** Units manufactured for sale in the U.S.A. cannot legally be used in Canada. Canadian models have been D.O.C. approved and carry a D.O.C. approval label with its approval number.

## BEFORE YOU CALL FOR HELP...

Our repair centers receive many returned products that are actually working perfectly. Maybe the owner didn't read the instructions or overlooked something. Or perhaps the problem was merely weak batteries!

Please read this manual carefully and be sure you understand all

the basic features of this Transceiver — and the special ones, too! And before you assume it needs repair, refer to the Service and Maintenance section of this manual to see if the problem is something you can eliminate.

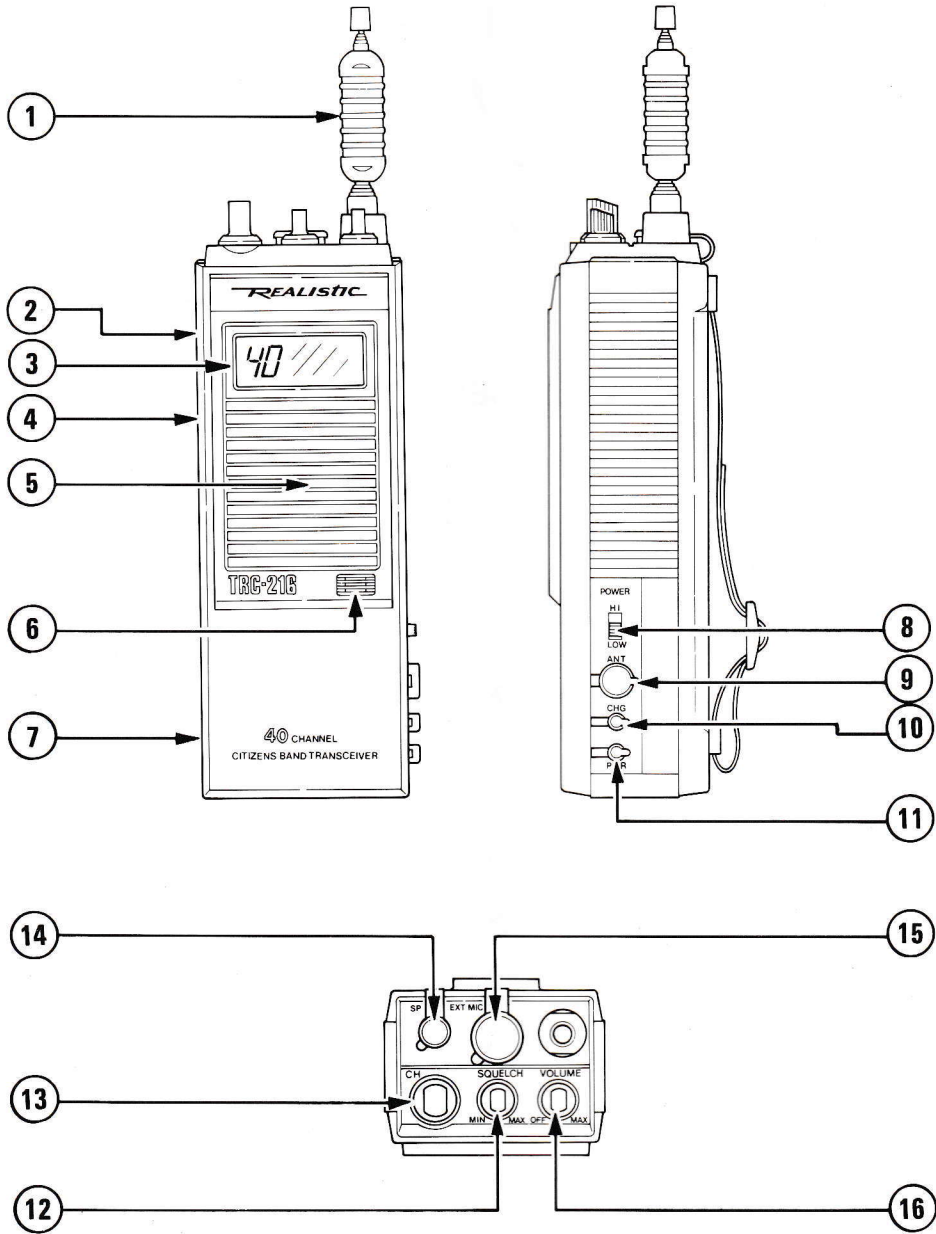
Enjoy your Realistic TRC-216!

## WARNING

Do not open up the Transceiver to make any internal adjustments. Any internal adjustments can be made only by (or under the direct supervision of) a person holding an FCC 1st and 2nd Class Radio Operator's License.

Internal adjustments and/or modifications can lead to illegal operation as defined by FCC Rules and Regulations, Part 95. Such illegal operation can lead to very serious consequences.

# CONTROLS AND FUNCTIONS



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**1. Antenna**

Extend fully.

**2. LCD LIGHT Switch**

Press to turn on lamp to illuminate LCD display.

**3. Channel Display, RF OUT/BATTERY meter**

Indicates channel (1 – 40) number selected. Also indicates condition of batteries when receiving; shows relative RF power when transmitting.

**4. PUSH TO TALK Button**

Press to transmit.  
Release to listen.

**5. Built-in Dynamic Speaker**

Listen here.

**6. Built-in Electret Condenser Microphone**

Talk here.

**7. Battery Compartment on back**  
Load batteries as noted on page 6.

**8. HI/LOW POWER Switch**

Switch to LOW when transmitting a short distance and/or to conserve batteries.

**9. ANT Jack**

Connect external antenna (50 ohm) here for mobile or base use – or just to extend range. Keep telescopic antenna collapsed.

**10. CHG Jack**

Connect battery charger, Radio Shack Catalog Number 21-516 to recharge nickel-cadmium batteries while they're in the unit.

**Note: Do not attempt to operate unit while batteries are being recharged.**

**11. PWR Jack**

Connect a 12-volt DC source, using Radio Shack 270-1533 for automotive use or 22-124 for home use.

**12. SQUELCH Control**

Adjust to eliminate background noise.

**13. CHannel Selector**

Select any one of 40 channels.

**14. External SPEAKER Jack**

Connect external speaker or earphone (8-16 ohm impedance). Internal speaker is automatically disconnected.

**15. EXTernal MIC Jack**

Connect external mic here (5-pin DIN plug). Can be used with push-to-talk mics. Built-in mic is automatically disconnected.

**16. OFF-VOLUME Control**

Turn clockwise to apply power. Adjust for desired listening level.

# PREPARATION FOR USE

1. Remove the battery compartment cover as shown below.
2. You can use the following types of size AA batteries:

Description	Quantity Required
Rechargeable Nickel-Cadmium (1.25 volts)	10
Alkaline (1.5 volts)	8
Standard (1.5 volts)	8

3. Install batteries observing proper polarity as shown in the compartment.

4. If you are using Alkaline or standard type AA batteries, use the dummy batteries as shown.

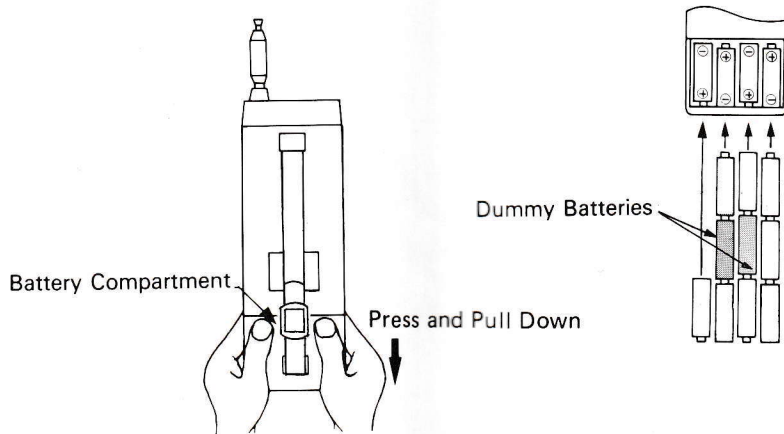
5. Check battery condition as follows:

- A. Turn power on by rotating VOLUME clockwise.
- B. If LCD meter reads up to three graduation, the batteries are OK. Batteries need to be recharged or replaced if LCD indicates BATT LOW.

**Note:** Nickel-cadmium batteries are typically in a discharged condition when they come from a store. Therefore, if you are using nickel-cadmium batteries, you will probably have to charge them before using your Walkie-Talkie. The best way to do this is to charge them in the set, using the Radio Shack battery charger designed for this unit, Catalog Number 21-516. Plug it into the CHG jack on the side of the unit. Connect the other end to a source of household, 120-volt, 60 Hz, AC power. Charging time will be 8 to 24 hours first time. Subsequent charging should take approximately 14 hours.

**Do not use the unit while batteries are being charged. The battery charger cannot be used to run the unit on AC.**

**Do not connect the charger when standard or Alkaline batteries are installed.**



# OPERATION

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## To Receive

1. **Extend the antenna fully** and keep it in a vertical position.
2. **Turn power on** by rotating VOLUME clockwise.
3. **Check the battery** condition, using the LCD display.
4. **Set the SQUELCH** control to the maximum counterclockwise position.
5. **Set the CHannel** selector to the desired channel.
6. **Adjust SQUELCH** to cut out annoying background noise when no signal is being received. To do this, set CHannel selector to where no signals are present (or wait until signals cease on your channel). Then rotate SQUELCH clockwise to the point where the background noise just stops. Now, when a signal is present, you will hear it but will not be disturbed by noise on the channel in between signals.

When properly set, the SQUELCH will keep the receiver dead until a signal comes in on that channel. Do not set the SQUELCH too high, or weak signals will not be able to open the squelch circuit. To receive weak signals, it is best to leave SQUELCH set to the minimum position, which is a complete turn counterclockwise.

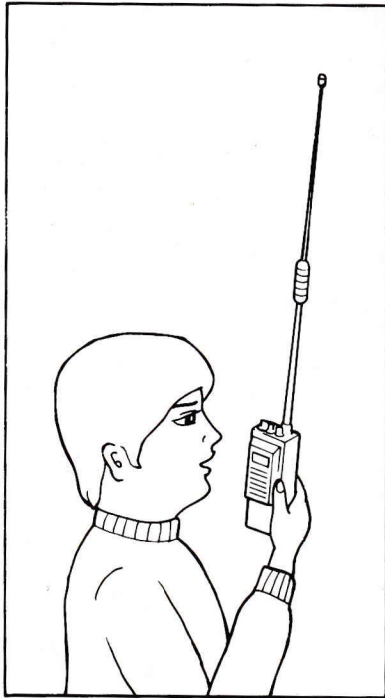
7. **Adjust VOLUME** for a suitable listening level.

## To Transmit

1. **Extend the antenna fully** and keep it in a vertical position.  
**Important:** If the antenna is not fully extended, the efficiency of the transmitter is reduced and the power amplifier transistor could be damaged.
2. **Turn power on** by rotating the VOLUME control clockwise.
3. **Check the battery** condition.
4. **Set the CHannel** selector to desired channel of operation.
5. **To transmit**, press PUSH TO TALK. Speak slowly and clearly in a normal voice, 2–3 inches (5–7.5cm) from the microphone. A built-in modulation limiter circuit allows the microphone to adjust automatically to a wide variety of voice levels. There's no need to shout or speak loudly — the built-in circuitry automatically compensates for voice levels.

If you are transmitting only a short distance or want to conserve battery power, set the HI/LOW switch to the LOW position. As a courtesy while on-the-air, you should always use only the required amount of power (LOW if possible); this will avoid unnecessary interference with other CBers.

6. **To receive**, release PUSH TO TALK.



**Note:** Your Walkie-Talkie has more than adequate mic gain so a pre-amp mic is not an advantage. As a matter of fact, if you do use a pre-amp mic and set its gain too high, you can end up with audio distortion and other problems. Therefore we do not recommend a pre-amp mic with this Walkie-Talkie.

**7. To use an external/remote microphone,** such as Radio Shack's 21-1172, just plug it into the 5-pin DIN EXT MIC jack. Then you can press the push-to-talk bar on the mic and talk; release and listen to the sound from the Walkie-Talkie's built-in speaker. You will note the built-in mic will be disconnected when you use an external mic.

When using such an external mic, hold it 2–3 inches (5–7.5cm) from your mouth. Hold at a slight angle – don't talk straight into it. Speak slowly at a normal voice level.

## OPERATING HINTS

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### **EXTernal MICrophone Jack:**

You can plug a remote microphone into the 5-pin DIN EXT MIC jack. Use an optional microphone such as Radio Shack's 21-1172. The new locking type microphone jack ensures that you won't accidentally pull out or loosen the plug connection.

**SPeaker Jack:** Plug an external speaker or earphone into this jack to avoid annoying background noise when trying to listen to weak or distant stations. When you push a plug into this jack, it automatically disconnects the internal speaker (but not the microphone function).

**POWER HI/LOW Switch:** Use this switch to reduce the battery drain when transmitting over short distances. If the switch is set to HI, the power output is 4 watts maximum. About 30% of the current is saved if the switch is set to LOW.

**External ANT Jack:** Use to connect an external antenna. When you use an external antenna, the telescopic antenna should be left collapsed within the unit.

**CHG Jack:** Connect the Radio Shack battery charger 21-516 at this jack to recharge the batteries. Be careful: only nickel cadmium batteries can be recharged. The Radio Shack 23-125 Enercell is recommended. These can be recharged up to 500 times to save you time and money.

**Caution:** Do not attempt to operate the Transceiver when charging nickel-cadmium batteries. Wait until batteries are fully charged and then operate.

**PWR Jack:** You can power your Walkie-Talkie from an external 12-volt DC source (and conserve battery power) by using an optional AC to 12-volt DC power supply such as Radio Shack's 22-124. Use coaxial barrel type plug with an inside barrel diameter of 0.85 inch (2.1mm). The center conductor of the plug must be connected to the positive lead of your power source. Or you can use our 12V DC power cord 270-1533 in your vehicle and power your Walkie-Talkie directly from the battery in your vehicle.

**Note:** Do not try to use 270-1533 for charging batteries, because it is intended only for DC operation and not for charging.

To ensure maximum range, always keep fresh batteries in the unit. Voltage decreases reduce range. If you do not wish to recharge batteries, use quality batteries such as Radio Shack ENERCELLs 23-582, which will last three times longer than regular batteries, or Radio Shack Alkaline ENERCELLs 23-552, which will last six times longer.

**LIGHT Button:** When you operate your TRC-216 in dim light, press the LIGHT button to check the current operating channel.

## SERVICE AND MAINTENANCE

Your Transceiver has been built in accordance with Radio Shack's exacting quality control standards. However, it should be treated with the reasonable care accorded any electronic equipment. Avoid handling it roughly. And avoid subjecting it to dirt or moisture.

If you experience problems when receiving, we recommend that you check the following:

- Batteries for weak or discharged condition
- OFF/VOLUME Switch setting
- SQUELCH control for proper adjustment
- Channel selector for an active channel

## 10-CODES

Citizens band radio operators have largely adopted the 10-code for standard questions and answers. It permits faster communication and is easier to

If trouble is experienced with transmitting, check for the following:

- Is the antenna fully extended for proper operation?
- Are you fully pressing the PUSH TO TALK button?

If these checks don't solve the trouble, do NOT attempt repairs or adjustments yourself. The unit should be serviced only by a qualified radio service technician. Whenever possible, return the unit to the store from which it was purchased.

understand especially in noisy areas. The following table lists some of the more common codes and their meanings.

Code	Meaning	Code	Meaning
10-1	Receiving poorly	10-10	Standing by
10-2	Receiving well	10-13	Advise road/weather conditions
10-3	Stop transmitting	10-20	What is your location?
10-4	OK—understood	10-33	Emergency traffic
10-7	Out of service	10-36	Correct time
10-8	In service	10-41	Switch to channel
10-9	Repeat	10-62	Cannot copy you

## ACCESSORIES

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Your Realistic TRC-216 has several jacks to let you connect useful accessories available at your Radio Shack.

### **Push-to-talk Mic . . .**

lets you operate your Walkie-Talkie like a full-size CB. Use our dynamic communications mic, 21-1172.

### **External Antenna . . .**

greatly extends your range in transmit and receive modes. There is a wide variety of Archer base and mobile antennas to choose from. Connect the coax antenna lead-in cable to the ANT jack by using a PL-259-to-RCA plug adapter, Catalog Number 278-208.

# SPECIFICATIONS

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## RECEIVER

**Frequency Coverage:**  
26.965 to 27.405 MHz

**Sensitivity:**  
0.5  $\mu$ V for 10 dB (S + N)/N

**Selectivity:**  
 $\pm$ 3 kHz at -6 dB

**Adjacent Channel Rejection:**  
70 dB

**Audio Distortion at 1000 Hz:**  
Less than 10% at 2 watts output  
(8 $\Omega$ )

**I.F.:**  
1 st. 10.695 MHz  
2 nd. 455 kHz

**Squelch:**  
Adjustable from 0.5  $\mu$ V

**Current Drain (12.5 V DC)**  
70-600 mA (from no-signal  
received, to full volume)

## TRANSMITTER

**Frequency Coverage:**  
26.965 to 27.405 MHz

**Power Output:**  
3.5 watts in HI Power position  
1.5 watts in LOW Power position

**Modulation:**  
90%-100%

**Spurious Output:**  
-60 dB or better

**Emission:**  
A3

**Frequency Tolerance:**  
0.002%

**Current Drain (12.5 V DC)**  
500-1100 mA (from LOW  
Power, to HI Power full  
modulation)

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## GENERAL

### Power Requirements:

8 AA Penlight cells (or 10 rechargeable nickel cadmium cells)

12 Volts DC with external adapter

Rechargeable nickel-cadmium batteries can be charged while in the unit, using an external charger/adapter and the CHG jack.

### Speaker:

2" (5cm) permanent magnet dynamic type

### Microphone:

Built-in electret-condenser type with FET amplifier

Provision for external mic with push-to-talk capability via the 5-pin DIN jack

### LCD Indicator:

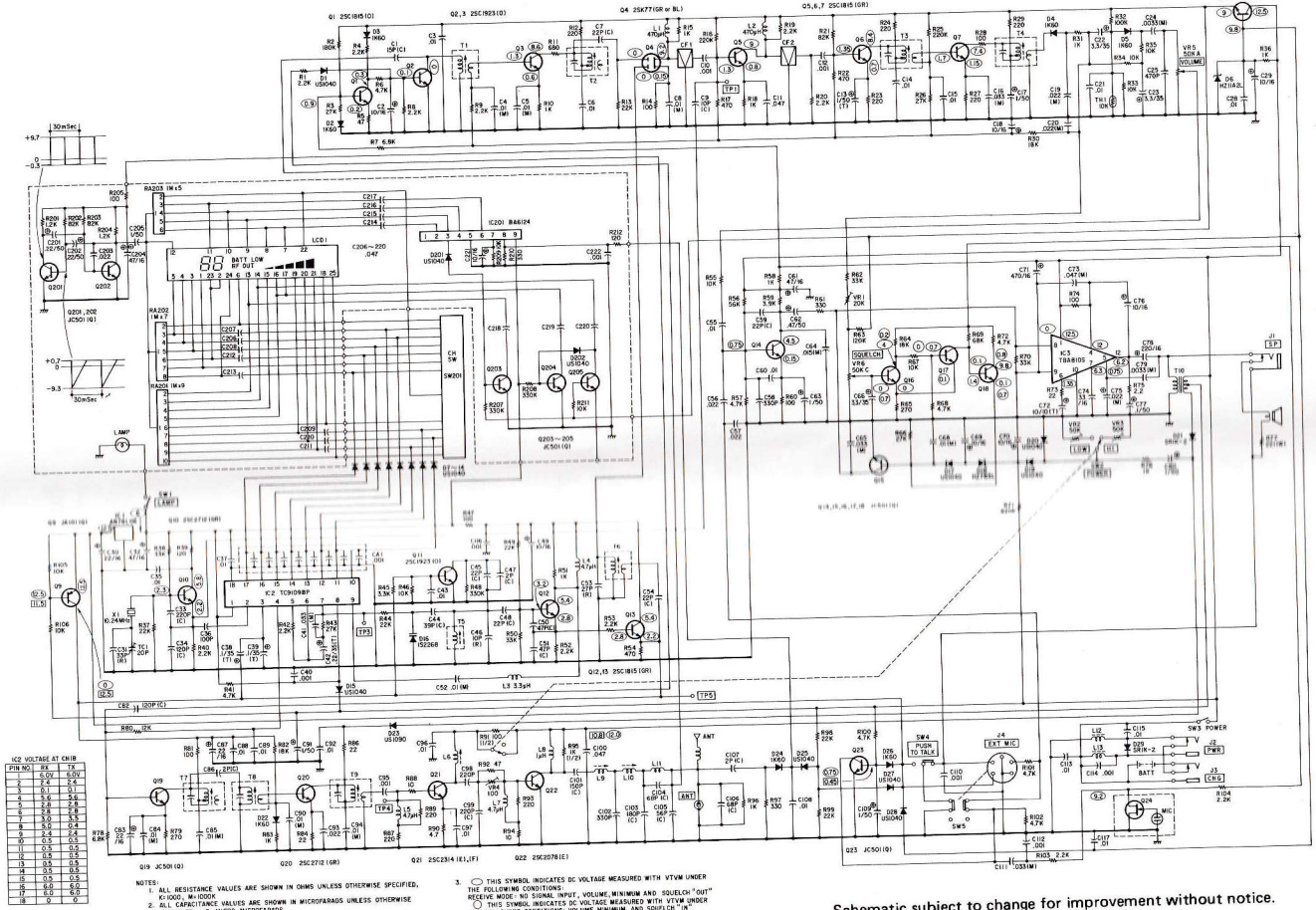
Provides indication of battery condition in receive mode

Provides indication of relative RF power output in transmit mode

Shows channel number in both modes

### Antenna:

Built-in center-loaded telescoping



Schematic subject to change for improvement without notice.

**NOTES**

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**RADIO SHACK LIMITED WARRANTY**

This product is warranted against defects for 90 days from date of purchase from Radio Shack company-owned stores and authorized Radio Shack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your Radio Shack sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage.

EXCEPT AS PROVIDED HEREIN, RADIO SHACK MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

*We Service What We Sell*

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