

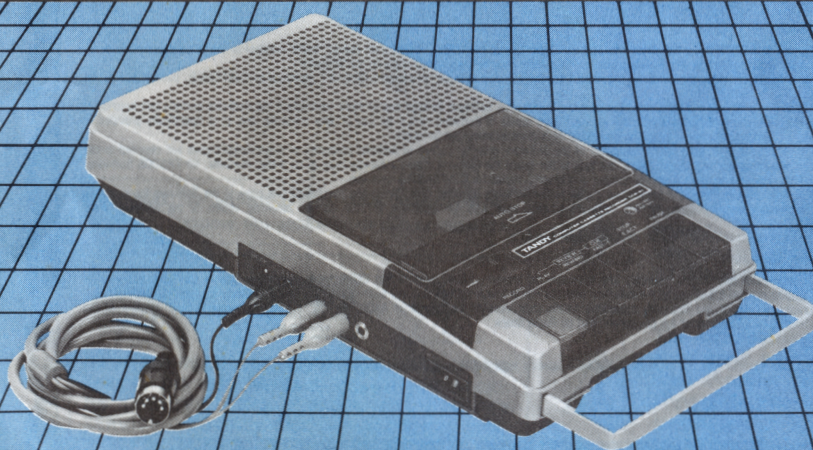
# TANDY®

## Computer Cassette Recorder

# CCR-81

## Operation Manual

### Cat. No. 26-1208A



CUSTOM MANUFACTURED FOR RADIO SHACK, A DIVISION OF TANDY CORPORATION



TERMS AND CONDITIONS OF SALE AND LICENSE OF TANDY COMPUTER EQUIPMENT AND SOFTWARE PURCHASED  
FROM RADIO SHACK COMPANY-OWNED COMPUTER CENTERS, RETAIL STORES AND RADIO SHACK FRANCHISEES OR  
DEALERS AT THEIR AUTHORIZED LOCATIONS

**LIMITED WARRANTY**

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- B. CUSTOMER assumes full responsibility for the condition and effectiveness of the operating environment in which the Equipment and Software are to function, and for its installation.

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- B. RADIO SHACK shall not be liable for any damages caused by delay in delivering or furnishing Equipment and/or Software.
- C. No action arising out of any claimed breach of this Warranty or transactions under this Warranty may be brought more than two (2) years after the cause of action has accrued or more than four (4) years after the date of the Radio Shack sales document for the Equipment or Software, whichever first occurs.
- D. Some states do not allow the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to CUSTOMER.

**IV. SOFTWARE LICENSE**

RADIO SHACK grants to CUSTOMER a non-exclusive, paid-up license to use the TANDY Software on one computer, subject to the following provisions:

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- B. Title to the medium on which the Software is recorded (cassette and/or diskette) or stored (ROM) is transferred to CUSTOMER, but not title to the Software.
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- G. All copyright notices shall be retained on all copies of the Software.

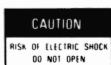
**V. APPLICABILITY OF WARRANTY**

- A. The terms and conditions of this Warranty are applicable as between RADIO SHACK and CUSTOMER to either a sale of the Equipment and/or Software License to CUSTOMER or to a transaction whereby Radio Shack sells or conveys such Equipment to a third party for lease to CUSTOMER.
- B. The limitations of liability and Warranty provisions herein shall inure to the benefit of RADIO SHACK, the author, owner and/or licensor of the Software and any manufacturer of the Equipment sold by Radio Shack.

**VI. STATE LAW RIGHTS**

The warranties granted herein give the original CUSTOMER specific legal rights, and the original CUSTOMER may have other rights which vary from state to state.

**WARNING:** To prevent fire or shock hazard, do not expose this appliance to rain or moisture.



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrow-head symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

***Tandy<sup>®</sup> CCR-81 Operation Manual***

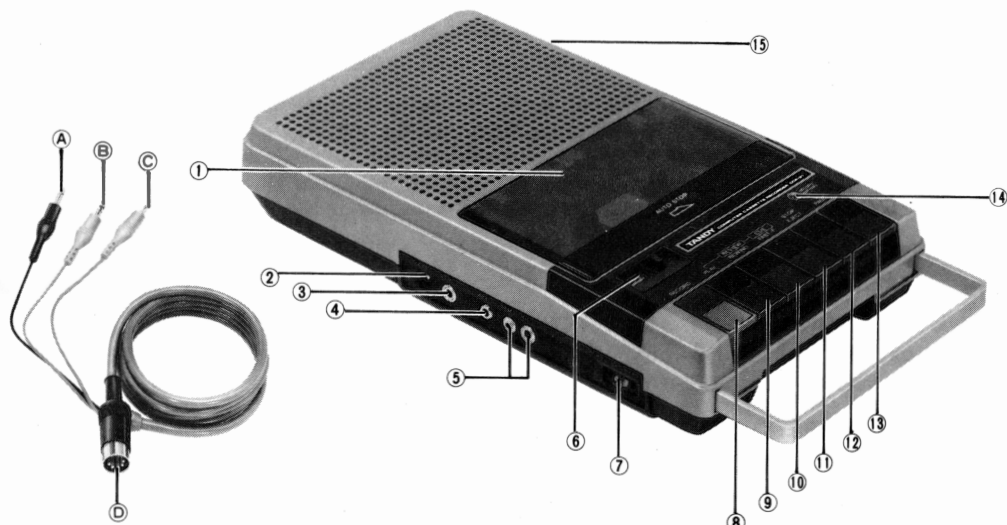
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# CONTROLS AND CONNECTIONS



- A. Tape output plug (to **EAR**phone Jack)
- B. Tape input plug (to **AUX**iliary Input Jack)
- C. Tape control plug (to **REM**ote Jack)
- D. Computer cassette plug  
(to **TAPE** output on computer)

- 1. Cassette Compartment
- 2. **DC 6V** Jack
- 3. **EAR**phone Jack
- 4. **AUX**iliary Input Jack

- 5. **REM**ote/**MIC**rophone Jack
- 6. **TAPE COUNTER**
- 7. **VOLUME** Control
- 8. **RECORD** Key
- 9. **PLAY** Key
- 10. **REWIND/REVIEW** Key
- 11. **FAST-Forward/CUE** Key
- 12. **STOP/EJECT** Key
- 13. **PAUSE** Key
- 14. **BATTERY/RECORD LED Indicator**
- 15. **AC Line Cord Receptacle**

## FEATURES

**CONNECTION CABLE:** Simple connection to computer cassette jack with supplied cable.

**COMPUTER CONTROLS THE CCR-81:** Allows the computer to start or stop the tape while loading or saving programs and data.

**CUE/REVIEW FUNCTION:** Enables instant Fast Forward or Rewind while in either Record or Play mode independent of the computer. Lets you quickly locate any desired portion of the tape.

**AUTOMATIC SHUT-OFF MECHANISM:** Automatically shuts off the recorder when the end of the tape is reached while in the Play or Record mode and/or loading or saving programs and data files. This saves wear and strain on the unit, the tape and the batteries.

**BUILT-IN A.L.C. CIRCUIT:** Enables you to automatically obtain perfect recording level for both voice and music recording — no need to adjust Volume while recording.

**TAPE COUNTER:** Helps you to quickly find a specific section of the tape.

**MECHANICAL PAUSE:** Permits you to stop the tape instantaneously either in Record or Play mode.

**ULTRA-CONVENIENT 3-WAY POWER:** Use with AC, built-in batteries or with an external source of 6 volts DC (for example, with our optional Car Adapter and use in your vehicle). (DC 6V jack not available on UK models.)

**BATTERY/RECORD LED INDICATOR:** Serves two functions. During Recording, the LED will flicker on peaks of recording signal. In any other function, it will give you an indication of the battery condition — the LED lights up when the batteries need to be replaced.

You may note that **BATTERY** Indicator flashes briefly as you switch function keys. This is normal and does not mean the batteries are weak (if the LED stays on, the batteries do need to be replaced).

The **BATTERY** Indicator is designed so that the LED lights up any time the voltage drops below the required level.

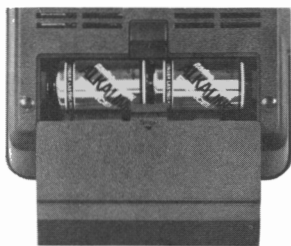
## PREPARATION FOR USE

**OPERATING ON AC POWER:** Connect one end of the AC power cord to the AC IN of the recorder, plug the other end into a convenient 120V outlet. (220/240V AC 50 Hz outlet where the sets are marked on the bottom for European and Australian models.) Connecting the cord to the set automatically disconnects the internal battery circuit. **Never leave the cord plugged into an AC outlet when it is not connected to the recorder.**

**Note:** We recommend that you always use AC power when using the CCR-81 with a computer.

## USE WITH BATTERIES

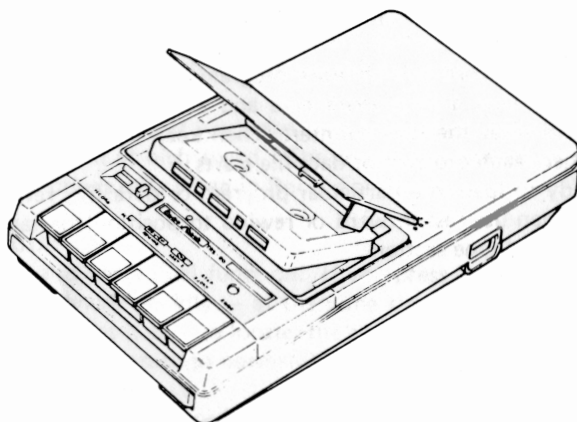
**INSTALLING BATTERIES:** Your recorder requires four (4) "C" size 1-1/2 volt batteries. We recommend Radio Shack Catalog Number 23-581 or 23-551. To load batteries, turn the recorder over and open the battery compartment cover. Insert batteries as indicated within compartment, then close the cover.



**WARNING:** Weak batteries, even "leak-proof" types, may swell and leak. To avoid damage to the recorder, remove batteries when weak or if you are going to store the recorder for a period of time.

**DC 6V Jack:** When using the unit in your vehicle, you can conserve battery power by using a power adapter (such as Radio Shack Catalog Number 14-844C) connected via a cigarette lighter socket. Use the DC 6V jack on the side to connect the adapter plug. **Set the switch on 14-844C to the 6/volt position.**

**INSERTING CASSETTE:** Before inserting or removing cassette, be sure to press the **STOP/EJECT** Key. Open the cassette lid by pressing the **STOP/EJECT** Key. Hold the cassette with the open tape side toward you and insert it into the opening so that the full reel is on your left and then close the lid. After you've completed recording or playing on one side of the cassette, open the lid, turn the cassette over and re-insert. You are ready to record or play the second track.



## OPERATION WITH THE COMPUTER

You can use the supplied cable to connect to the computer.

1. Connect to **EAR**phone Jack on cassette unit via the red tape output plug.
2. Connect to **AUX**iliary Input Jack on cassette unit via the gray tape input plug.
3. Connect to **RE**Mote Jack on cassette unit via the gray tape control plug.
4. Connect to **TAPE** output on computer via computer cassette plug.

## LOADING A PROGRAM OR DATA FILE FROM TAPE

1. Set the volume to the correct level for your computer (see the computer owner's manual for details). If you have trouble loading programs or inputting data, try adjusting the volume.
2. Be sure the tape is positioned to just before the start of the recorded program or data. Usually, this means the tape should be rewound all the way (or positioned using the counter, as explained in the Note later on).
3. Before the computer is ready to load the program or input the data, press **PLAY** on the recorder. The computer will control the tape motion. While the computer is actually receiving data from the recorder, the LED will not be on.
4. When the computer has completed the tape operation, press **STOP**.

## SAVING A PROGRAM OR DATA FILE ON TAPE

1. Insert a blank (new or bulk-erased) tape, and rewind it to the beginning of the tape (if using tape with a leader, be sure to advance it past the leader to the beginning of the recording tape).
2. Before the computer is ready to save the program or data, press **RECORD** and **PLAY** together. Both keys should remain "down". You do not need to adjust the volume setting; the cassette unit does that automatically during record operations.
3. You can now save the program or data in tape. While data is being saved, the LED will illuminate. The computer will turn the tape on and off as necessary to complete the operation.
4. When the operation is complete, press **STOP** on the recorder.

**Note:** It is possible to record two or more programs or data files on one side of a tape. However, this takes a little extra care and attention on your part. First rewind the tape and reset the tape counter. Then keep a written account of the counter reading where each program or data file starts.

When you are ready to load in a particular program or data file, rewind the tape, reset the counter, then use fast-forward or rewind to position the tape just ahead (one digit) of the desired tape section.

## OTHER USES FOR THE RECORDER

### TO PLAYBACK

1. Rewind the tape by pressing the **REWIND/REVIEW** Key.
2. Press the **STOP/EJECT** Key when you reach that section of the tape you wish to play.
3. Press the **PLAY** Key and adjust the **VOLUME** Control for the desired sound level from the speaker.
4. To stop playback, press the **STOP/EJECT** Key. If you want, let the tape play to the end and the unit will automatically shut off the power.
5. When playing back a recorded tape, make sure the **RECORD** Key is not pressed down (otherwise the recorded tape will be erased).
6. For greater fidelity, you can play back the sound through an external speaker which has an impedance of 8 ohms. Connect via a patch cord into the **EARPHONE** Jack on the side of the recorder (check your Radio Shack store for all such accessories).

**CAUTION:** If you use adapters other than Radio Shack's recommended type, you must be sure the voltage is correct (6 volts DC only) and that the center terminal of the connector is negative. Failure to observe these two vital points may result in damage to your recorder and/or adapter.

To advance tape rapidly, press **FAST-Forward/CUE**. When you reach the approximate position you want (as noted by the **TAPE COUNTER**), press **STOP/EJECT** and then press **PLAY**.

To rewind tape rapidly, press **REWIND/REVIEW**. When you reach the desired position on the tape (follow the **TAPE COUNTER**), press **STOP/EJECT** and then **PLAY**.

### **REWIND/REVIEW**

The **REWIND/REVIEW** Key has a dual function. To repeat something that has just been played or to review something that has just been recorded, press the **REWIND/REVIEW** Key.

If in the record mode, the **RECORD** Key will be released and the tape will be rewound at high speed; the recorded sound will be heard as an aid to locating any desired portion of the tape. Release the key and the unit will return to the normal play mode.

If you press **REWIND/REVIEW** while the tape is stopped, the key will lock down and the tape will rewind at high speed. The sound is automatically muted during rewind (Review functions only when in Record or Play).

### **FAST-Forward/CUE**

The **FAST-F** Key also has a dual function. If you press it, while in the Play mode, the tape will be advanced rapidly — at the same time, you'll be able to hear any signal on the tape (makes it easy to locate the end of a passage). When you release **FAST-F**, the CCR-81 will return to normal Play speed.

If you press **FAST-F** during Record mode, the **RECORD** Key will pop up and the tape will be advanced rapidly. Releasing the key will return you to normal Play.

If not in either Play or Record, the **FAST-F** Key will lock down, but you will not be able to hear tape sounds. (Cue functions only when in Record or Play.)

### **PAUSE**

**PAUSE** provides a convenient method of starting and stopping the recorder whenever it is playing or recording. However, if you are rewinding a cassette or have pressed **FAST - Forward**, pause will not "pause" operation.

To temporarily stop tape movement press **PAUSE**; press **PAUSE** once more to restart tape motion.

## **TO RECORD**

### **RECORDING WITH EXTERNAL MICROPHONE**

Connect an optional microphone to the **REMOte/MICrophone** Jacks. Use the remote switch on the microphone to temporarily stop recording.



## RECORDING FROM RADIO OR PHONOGRAPH

1. Connect signal from the external source into the **AUX** Jack (use a suitable patch cord with proper plug).
2. Set the Volume control of the external sound source to a normal listening level.
3. Follow the instructions noted previously.

Once you've decided on the source, the recorder sets its recording level automatically. The **VOLUME** Control will have no effect on the sound.

When both MIC and AUX jacks are connected, only MIC is functional.

## TO ERASE TAPE

Each time you make a recording, any previous recording on the tape is automatically erased; thus, the tape may be used for new recording as many times as you wish. If you do want to erase a cassette, use our Bulk Tape Eraser.

## ACCIDENTAL ERASURE PREVENTION

Cassettes have a built-in device to automatically prevent erasure of a previous recording. It is a small plastic tab at the back of the cassette. To activate the erase-protect feature, break off the plastic tab with a screwdriver.

There is a tab for each side; be sure you break off the correct tab. (See Figure A). If you do want to record again on that cassette, put a piece of tape over the hole where you broke off the tab as shown in Figure B.

**CAUTION:** If you have a cassette with the tabs broken off, don't try to force the **RECORD** Key down. You can damage a part of the mechanism.

## ERASE PREVENTION TABS

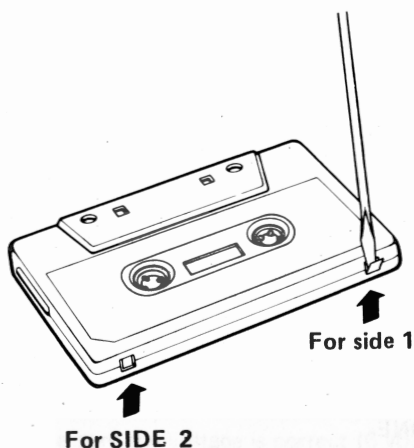


Figure A

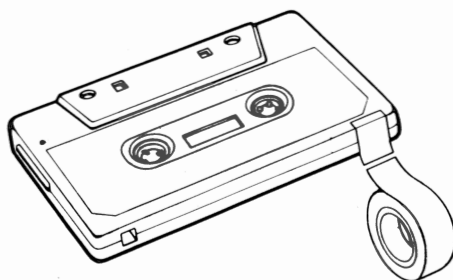
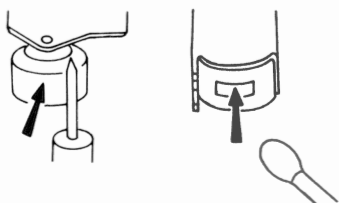


Figure B

# MAINTENANCE

With batteries and cassette removed, and with cassette lid up, press down the **PLAY** Key, exposing the erase and record heads and the rubber drive wheel. Clean these points, using a cotton swab moistened with denatured alcohol (not rubbing alcohol) or with a special head cleaning fluid. Your Radio Shack store has these items. To insure good recording and playback results, clean after the first 6 hours of operation (and every 6-8 hours of operation after that). After cleaning, be sure to press the **STOP/EJECT** Key, so that these parts may return to their normal operating position for cassette holding. For easy cleaning, we recommend our Cassette Head Cleaner Tape, Catalog Number 44-1160.



It is a good idea to periodically demagnetize the tape heads too. Use one of our Tape Head Demagnetizers.

You can clean and demagnetize in one simple operation just by playing our Cassette Demagnetizer Tape, 44-631.

If you use the longer, thinner tapes (C-90, C-120, etc.), it is absolutely vital that you keep your recorder clean. Failure to do so will result in poor tape handling, improper auto-stop function and serious tape wrap ups. Clean the tape handling parts well and often.

## CAUTION:

Do not expose the tape recorder or a cassette to high temperature or high humidity. Do not touch the tape heads with screwdrivers or other metal objects or any magnetic object.

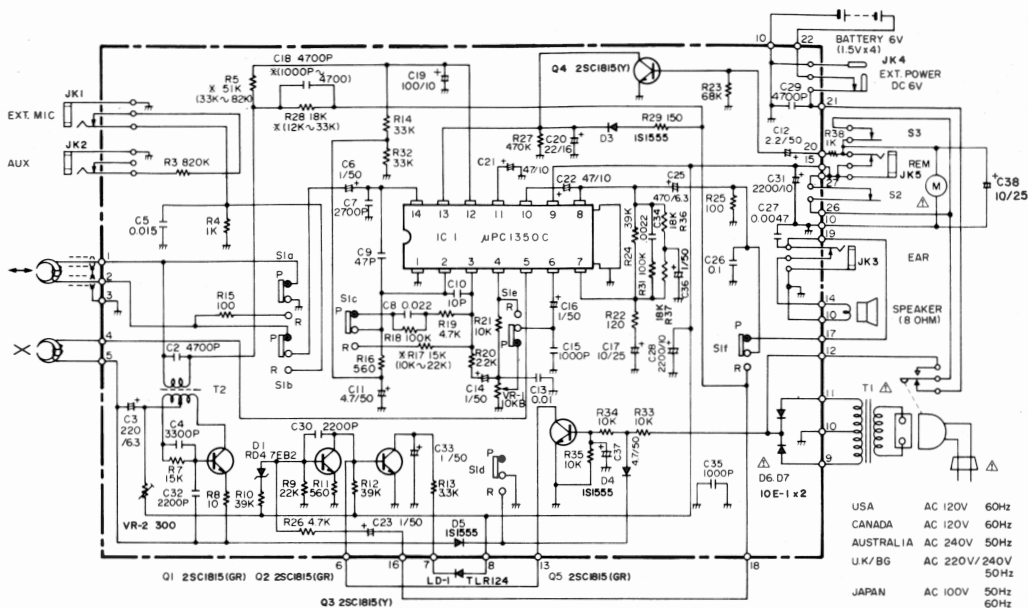
Remove batteries when recorder is not in use for more than a month, because battery leakage may damage the unit. **Don't leave weak or dead batteries in the recorder.**

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

# SPECIFICATIONS

Tape System	: 2-track monaural
Tape Speed	: 4.75 cm/sec.
Wow and Flutter (WRMS)	: 0.15%
Signal-to-Noise Ratio (DC/AC)	: 49/40 dB
Semiconductors	: 1 IC 5 transistors 7 diodes
Erase System	: DC Erasing
AGC delaytime at Recording	: 0.4 sec.
Turn on time at Record	: 0.4 sec.
Record System	: AC Bias
Power Requirement	: DC 4 "C" cells AC 120V 60 Hz 230V 50 Hz 240V 50 Hz
Dimensions	: (H)10-15/32" x (W)5-3/4" x (D)1-53/64" (266 mm x 146 mm x 46.5 mm)
Weight	: 2.2 lb (1 kg)

# SCHEMATIC DIAGRAM



## NOTES

- (1) SWITCH (S1 or S1f) SHOWN IN (P) PLAY POSITION
- (2) ALL RESISTANCE VALUES ARE INDICATED IN "OHM" ( $K=10^3$  OHM)
- (3) ALL CAPACITANCE VALUES ARE INDICATED IN " $\mu F$ " ( $P=10^{-6}$   $\mu F$ )
- (4) SWITCH S2 IS TURN ON AT PLAY AND RECORD POSITION
- (5) SWITCH S3 IS TURN ON AT FF AND RW POSITION

## CAUTION:

SINCE THE COMPONENTS MARKED BY  $\Delta$  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

Schematic subject to change without notice. For most accurate Schematic (and parts) contact Radio Shack, National Parts Dept., Fort Worth, TX 76101

In UK, contact Tandy Electronics, National Parts Dept., Bilston Road Wednesbury West Midlands WS10 7 JN

In Australia, contact Tandy Australia Limited, National Parts Dept., 91 Kurrajong Avenue, Mount Druitt, N.S.W. 2770

## SERVICE POLICY

Radio Shack's nationwide network of service facilities provides quick, convenient, and reliable repair services for all of its computer products, in most instances. Warranty service will be performed in accordance with Radio Shack's Limited Warranty. Non-warranty service will be provided at reasonable parts and labor costs.

Because of the sensitivity of computer equipment, and the problems which can result from improper servicing, the following limitations also apply to the services offered by Radio Shack:

1. If any of the warranty seals on any Radio Shack computer products are broken, Radio Shack reserves the right to refuse to service the equipment or to void any remaining warranty on the equipment.
2. If any Radio Shack computer equipment has been modified so that it is not within manufacturer's specifications, including, but not limited to, the installation of any non-Radio Shack parts, components, or replacement boards, then Radio Shack reserves the right to refuse to service the equipment, void any remaining warranty, remove and replace any non-Radio Shack part found in the equipment, and perform whatever modifications are necessary to return the equipment to original factory manufacturer's specifications.
3. The cost for the labor and parts required to return the Radio Shack computer equipment to original manufacturer's specifications will be charged to the customer in addition to the normal repair charge.

### RADIO SHACK, A DIVISION OF TANDY CORPORATION

**U.S.A.: FORT WORTH, TEXAS 76102**  
**CANADA: BARRIE, ONTARIO L4M 4W5**

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#### TANDY CORPORATION

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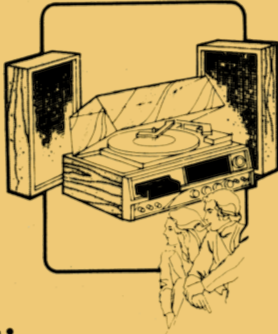
AUSTRALIA	BELGIUM	U.K.
91 KURRAJONG AVENUE MOUNT DRUITT, N.S.W. 2770	PARC INDUSTRIEL 5140 NANINNE (NAMUR)	BILSTON ROAD WEDNESBURY WEST MIDLANDS WS10 7JN



# A Consumer Guide to Audio Products Safety

Read and retain these Safety instructions and your Manual (observe all warning notes/comments).

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following basic rules for its installation, use and servicing.



## Installation

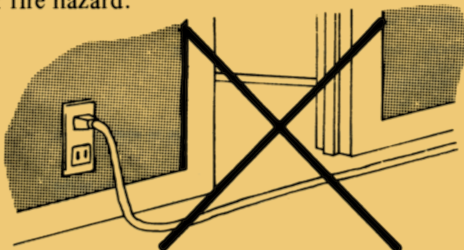
1. The power cord plug for your audio equipment may be polarized—with one blade of the plug wider than the other. This safety feature allows the plug to be inserted in the power outlet only one way. If you cannot insert the plug fully into the outlet, try reversing the plug. If it still doesn't fit, contact your electrician.



2. Operate the set only from a power source as indicated on the set or refer to the Owner's Manual for this information.
3. Overloaded AC outlets and extension cords are dangerous, and so are frayed cords and broken plugs. They may result in a shock or fire hazard. Call your service technician for replacement of such cords and plugs. Extension cords that defeat the safety purposes of polarized power cord plugs should not be used.



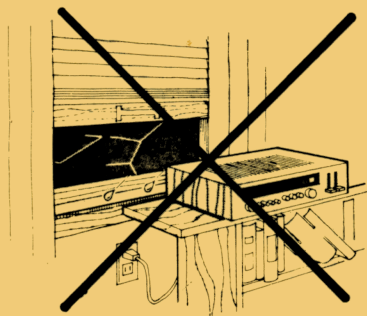
4. Do not allow anything to rest on or roll over the power cord, and do not place the power cord where it is subject to traffic or abuse. This may result in a shock or fire hazard.



5. Audio products are provided with ventilation openings in the cabinet to allow heat generated during operation to be released. If these openings are blocked, heat build-up within the set can cause failures which may result in a fire hazard. Therefore:
  - Never block the bottom ventilation slots of a portable unit by placing it on a bed, sofa, rug, etc.
  - Never place a set in a "built-in" enclosure unless proper ventilation is provided.
  - Never cover the openings with cloth or other material.
  - Never place the set near or over a radiator or heat register.
6. Installing an outdoor FM antenna can be hazardous and should be left to a professional antenna installer. To avoid the possibility of electric shock, outdoor antennas and lead-in wires should be kept well away from power lines with the antenna mast permanently grounded and a static discharge unit installed in the lead-in.
7. To avoid personal injury:
  - Do not place a receiver on a sloping shelf unless properly secured.
  - Use only a cart or stand recommended by the receiver manufacturer.
  - Mount the unit to a wall or ceiling only as recommended by the manufacturer.
  - Do not try to roll a cart with small casters across thresholds or deep pile carpets.
  - If your receiver or amplifier has provisions for connecting external speakers or other accessories (eight-track tape or cassette), use only those recommended in the Owner's Manual. Carefully follow the Operating Instructions when making connections. Also, do not insert tools or your hands in the opening for eight-track tape or cassette, especially if the unit is plugged into a wall outlet.

## Use

8. Never expose the set to rain or water. If the set becomes damp or wet, pull the plug and have it inspected by a service technician before further use. Rain or excessive moisture—even as a result of extended exposure on a back porch—may cause electrical shorts which can result in fire or shock hazards.
  - Never operate the unit if liquid has been spilled into it. Unplug the unit and have it inspected by a service technician before further use. Spilled liquid inside can cause electrical shorts which can result in fire or shock hazards.

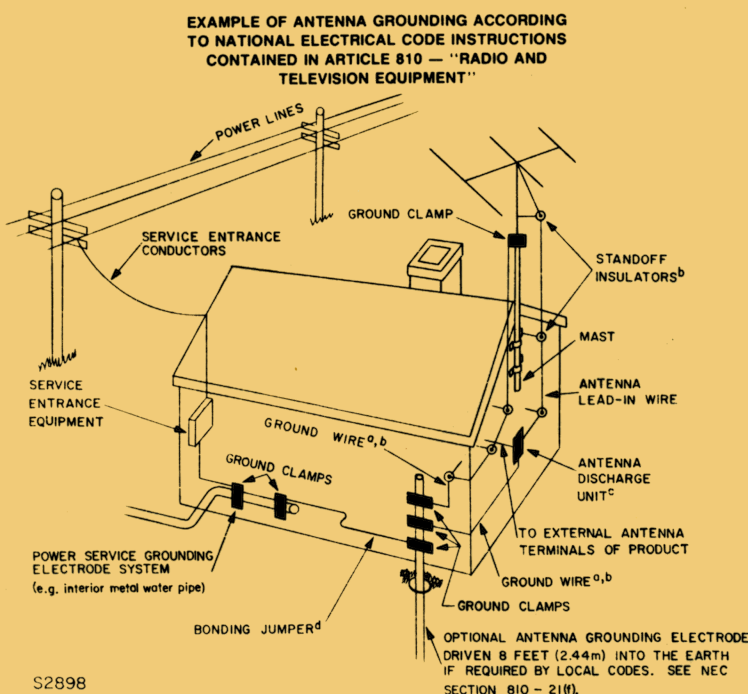


## Service

14. If your product is not operating correctly and you are unable to restore normal operation by following information provided in the Owner's Manual, do not remove the back cover of the set or attempt any further adjustments. Unplug the set and contact your nearby Radio Shack store.
15. When service or repair is required, bring the unit to Radio Shack. We have the parts and personnel to insure return to like-new conditions. Use of other than Radio Shack replacement parts (or their safety equivalents) could cause fire, shock or other hazards.
16. Removal of the back or bottom cover of the unit may expose you to hazardous energy levels. Observe all cautionary labels and warnings.

## Outdoor Antenna Grounding

17. If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure below.



<sup>a</sup>Use No. 10 AWG (5.3 mm<sup>2</sup>) copper, No. 8 AWG (8.4 mm<sup>2</sup>) aluminum, No. 17 AWG (1.0 mm<sup>2</sup>) copper-clad steel or bronze wire, or larger, as a ground wire.

<sup>b</sup>Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4—6 feet (1.22—1.83 m) apart.

<sup>c</sup>Mount antenna discharge unit as close as possible to where lead-in enters house.

<sup>d</sup>Use jumper wire not smaller than No. 6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21(j).