CCR-81
Computer Cassette Tape Recorder

Catalog Number 26-1208
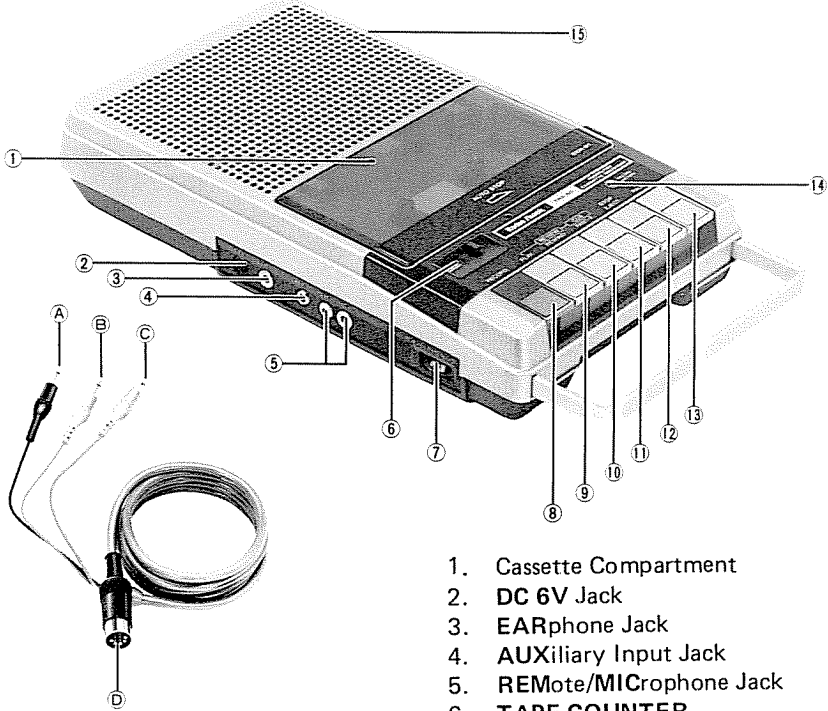
Radio Shack®

TRS-80®
MICRO
COMPUTER
SYSTEM

CUSTOM MANUFACTURED FOR RADIO SHACK, A DIVISION OF TANDY CORPORATION

CONTROLS AND CONNECTIONS

1. Cassette Compartment
2. DC 6V Jack
3. EARphone Jack
4. AUXiliary Input Jack
5. REMote/MICrophone 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

A. Tape output plug (to EARphone Jack)
B. Tape input plug (to AUXiliary Input Jack)
C. Tape control plug (to REMote Jack)
D. Computer cassette plug
    (to TAPE output on computer)

FEATURES

CONNECTION CABLE: Simple connection to TRS-80 cassette jack with supplied cable.

TRS-80 CONTROLS THE CCR-81: Allows the TRS-80 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 TRS-80. 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 TRS-80 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.
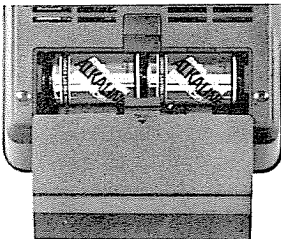

WARNING: Weak batteries, even "leak-proof" types, may swell and leak. To avoid damage to the recorder, remove batteries when weak or if you are going to store the recorder for a period of time.

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.
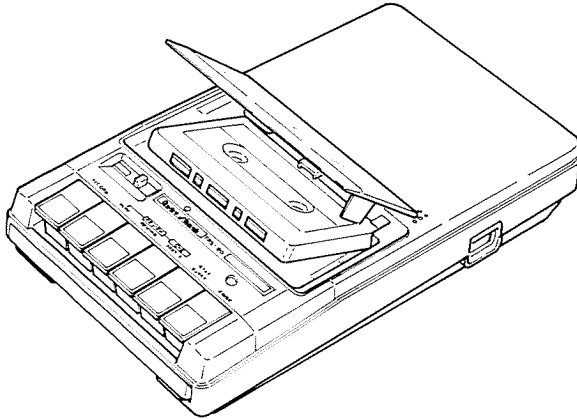
OPERATION WITH THE TRS-80

You can use the supplied cable to connect to the computer, TRS-80.

1. Connect to **EAR**phone Jack on cassette unit via the black tape output plug (diam. 3.5).
2. Connect to **AUX**iliary Input Jack on cassette unit via the gray tape input plug (diam. 3.5).
3. Connect to **REM**ote Jack on cassette unit via the gray tape control plug (diam. 2.5).
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 **EAR-phone** 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 **REM**ote/**MIC**rophone 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** and **TONE** Controls 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 illustration below.) If you do want to record again on that cassette, put a piece of tape over the hole where you broke off the tab.

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
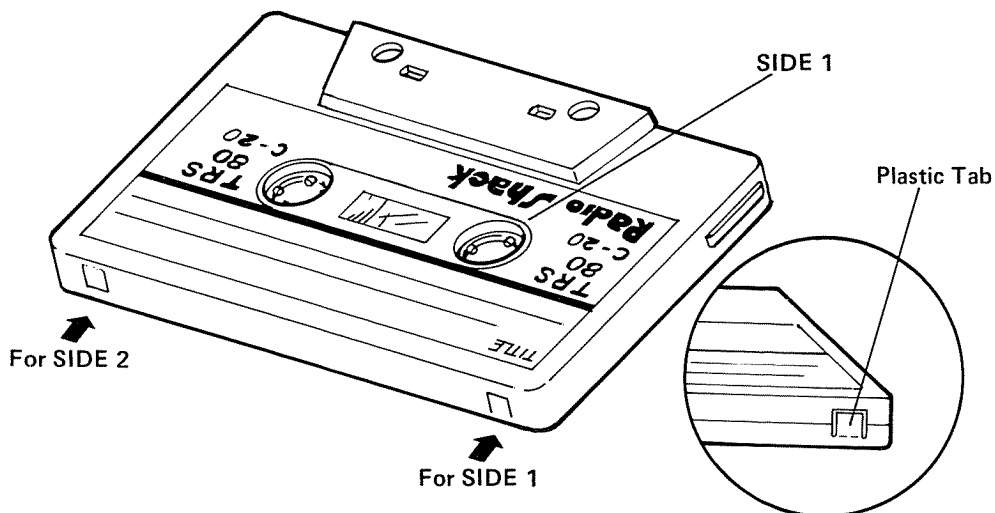
MAINTENANCE

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.
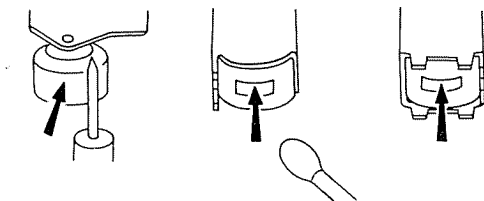
It is a good idea to periodically demagnetize the tape heads too. Use one of our Tape Head Demagnetizers.
You can clean and demagnetize in one simple operation just by playing our Cassette Demagnetizer Tape, 44-631.
If you use the longer, thinner tapes (C-90, C-120, etc.), it is absolutely vital that 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.

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SCHEMATIC DIAGRAM

USA	AC 120V	60Hz
CANADA	AC 120V	60Hz
AUSTRALIA	AC 240V	50Hz
U K/BG	AC 220V/240V	50Hz
JAPAN	AC 100V	50Hz 60Hz
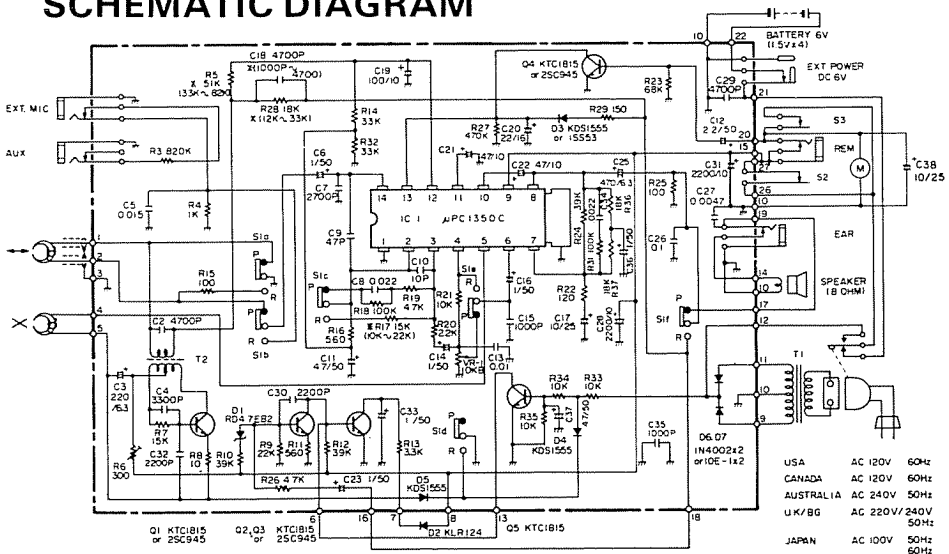
NOTES

(1) SWITCH (S1a ~ S1f) SHOWN IN (P) PLAY POSITION
(2) ALL RESISTANCE VALUES ARE INDICATED IN "OHM" (K×10³OHM)
(3) ALL CAPACITANCE VALUES ARE INDICATED IN "µF" (P×10⁶µF)
(4) SWITCH S2 IS TURN ON AT PLAY AND RECORD POSITION
(5) SWITCH S3 IS TURN ON AT FF AND RW POSITION

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" × (W)5-3/4"
	× (D)1-53/64"
	(266 mm × 146 mm × 46.5 mm)
Weight	: 2.2 lb (1 kg)

LIMITED WARRANTY

Printed in Korea