# COMMODORE 1531 DATASSETTE

**A Friendly Introduction to Your 1531 Datassette**



## USER'S GUIDE

*Retrocomputing*

# C= commodore
## COMPUTERS

# USER'S GUIDE STATEMENT

"This equipment generates and uses radio frequency energy. If it is not properly installed and used in strict accordance with the manufacturer's instructions, this equipment may interfere with radio and television reception. This machine has been tested and found to comply with the limits for a Class B computing device peripheral in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If you suspect interference, you can test this equipment by turning it off and on. If you determine that there is interference with radio or television reception, try one or more of the following measures to correct it:

- reorient the receiving antenna
- move the equipment away from the receiver
- change the relative positions of the equipment and the receiver
- plug the equipment into a different outlet so that the equipment and the receiver are on different branch circuits.

If necessary, consult your Commodore dealer or an experienced radio/television technician for additional suggestions. You may also wish to consult the following booklet, which was prepared by the Federal Communications Commission:

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

# OPERATING INSTRUCTIONS FOR YOUR

# 1531 DATASSETTE™

A COMMODRE 1531 DATASSETTE* unit is a device for storing and recalling computer programs on ordinary cassette tapes. It can be used for saving programs you have written and want to recall for later use. It can also be used to read pre-recorded programs that you have purchased.



*DATASSETTE is a trademark of Commodore Electronics Ltd.

# DATASSETTE™ OPERATING INSTRUCTIONS FOR YOUR COMPUTER

## Important information about your DATASSETTE™

The COMMODORE 1531 DATASSETTE™ is supplied with a cord attached. This cord connects DATASSETTE™ to the 264 series computers (Commodore Plus/4, 16, 116). Power is supplied from the computer to the unit through this cord. The computer and the DATASSETTE™ communicate through the cord as well.

TURN OFF THE COMPUTER BEFORE CONNECTING THE DATASSETTE™ TO IT.

## For COMMODORE computer users

The COMMODORE 1531 DATASSETTE™ was designed for use on the 264 series computers.

The DATASSETTE™ plugs in to a connector at the back of the computer. The plug will only fit on the connector one way. DO NOT FORCE IT.

It is also important to keep the DATASSETTE™ at least 2 feet away from the TV because radio emissions from the TV can interfere with the correct operation of the DATASSETTE™.
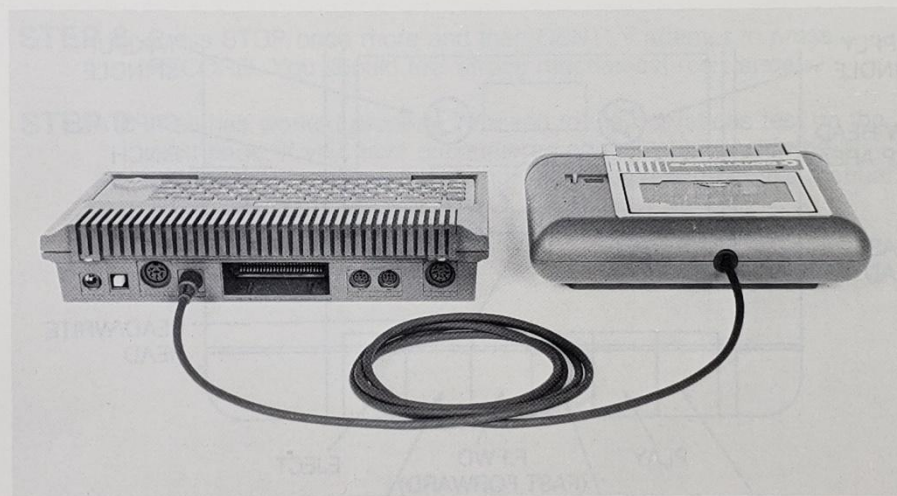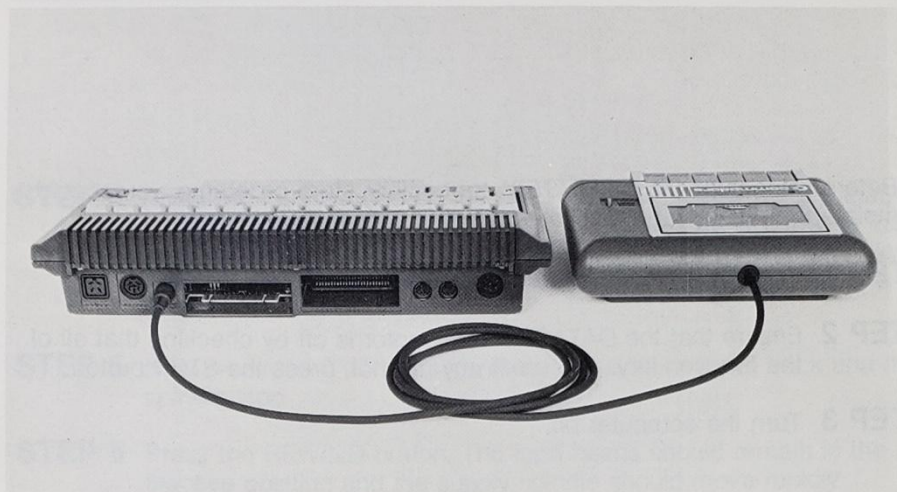
# PRELIMINARY CHECKOUT

Before using your DATASSETTE™ to recall or store programs, you should complete the preliminary checks — which are described below:

**STEP 1** Turn off the computer and plug in the DATASSETTE™.

**STEP 2** Ensure that the DATASSETTE™ motor is off by checking that all of the function keys are up. If any are not, press the STOP button.

**STEP 3** Turn the computer on.

Fig. 1
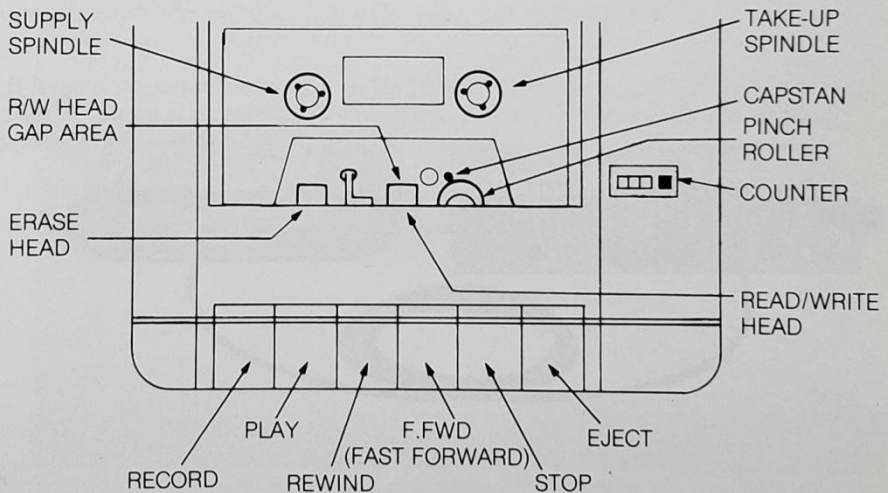
**STEP 4** Press the PLAY button on the DATASSETTE™. Look to see that, as the button is engaged, the READ/WRITE heads move towards the spindles and the capstan comes into contact with the pinch roller (see Fig. 1). The take-up spindle should be moving smoothly in a counter-clockwise direction.

**STEP 5** Now press the STOP button. The heads should move back and the spindle stop.

**STEP 6** Press the REWIND button. The tape heads should remain in the inactive position and the supply spindle should move rapidly clockwise.

**STEP 7** Press STOP again and then F.FWD. The tape heads should still remain in the inactive position and the take-up spindle should move rapidly counter-clockwise.

**STEP 8** Press STOP once more and then GENTLY attempt to press RECORD. You should feel strong mechanical resistance.

**STEP 9** If all has worked properly, proceed to the operations test on the next page. If you have encountered any difficulties with the preliminary checkout, please turn to the last page in this manual.

# OPERATIONS TEST

To test the operation of your new DATASSETTE™, write a short program, SAVE it on to the cassette, and LOAD it back into the computer.

Get a blank cassette (a standard 1/8'' audio cassette is all you need) and place it in the DATASSETTE™. Always press REWIND to ensure that you are starting at the beginning of the tape.

NOTE: Use a tape with playing time of 0 to 30 minutes. Do NOT use anything longer than this, because it strains your machine.

The following program shows the displays for the Commodore computer.

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**STEP 1** On the keyboard type:            10 PRINT"THIS IS A TEST"

---

**STEP 2** Press [ RETURN ]

---

**STEP 3** Type:                         SAVE"TEST"

---

**STEP 4** Press [ RETURN ]

The display will show:          PRESS PLAY & RECORD ON TAPE

Do that by pressing the RECORD and PLAY buttons until both keys lock.

The display will show: At this   OK
point the computer screen       SAVING TEST
will go blank untill the
program is ¡SAVEd.

The red LED light will come
on, and then after a few
moments, the display will
show:                          READY

The LED light will go off.
The light stays on only during
the SAVE operation. Your
program has now been SAVEd.
Let's verify this.

**STEP 5** Erase the memory by typing: NEW

then press **RETURN**

The display will show: READY

---

**STEP 6** Type: LIST

then press **RETURN**

The display will show: READY
indicating that the memory is
blank.

---

**STEP 7** Rewind the cassette by
pressing REWIND, then STOP
when the tape is at the
beginning.

---

**STEP 8** Type: LOAD"TEST"

then press **RETURN**

the display will show: PRESS PLAY ON TAPE

After obeying the command,
the display will show: OK
SEARCHING FOR TEST

At this point the computer
screen will go blank until
the program is found. The
display will show: FOUND TEST

Press the Commodore key to
load this program (if the
Commodore key is not
pressed, the loading is auto-
matic after a several seconds).
The display will show: LOADING

At this point the computer
screen will go blank until the
program is loaded.
The display will show: READY.

Note: If the computer displays: LOAD ERROR
try the LOAD command a few
more times, but if the
message repeats, turn to the
last page.

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**STEP 9** Type:                                          LIST

and press [RETURN] Now
the display will show that the
memory has received the
program "TEST" by
displaying                                    10 PRINT"THIS IS A TEST"
                                              READY

If all of the preceding steps have been successfully completed, your
DATASSETTE™ has been properly checked and is ready to go to work. The
commands to use the DATASSETTE™ are described later in this manual.

NOTE:      If any of the above steps does not work, turn to the last page of this
           manual.

# CARE OF TAPES

Be careful to rewind all tapes to the beginning after use because this
protects the recording from abrasion and contamination. Do not store or place
any tapes near strong magnetic fields such as may occur near loudspeakers
or large motors.

# DATASSETTE™ MAINTENANCE

The DATASSETTE™ uses magnetic heads to record and retrieve the
information on the cassette tapes. These heads tend to accumulate residue
and dirt from the tape as the tape moves across them. After a period of time,
the accumulation lifts the tape slightly away from the heads, drastically
degrading the signal from the head.

Therefore, the following procedure should be used after every 10 to 20
hours of tape playing time to ensure that your DATASSETTE™ continues to
read and write reliably.

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# CLEANING AND DEMAGNETIZING YOUR

# DATASSETTE™ HEADS

You'll need the following tools and materials:

1       Tape head cleaner. Alcohol may be used in emergency, but is not
        recommended for long term use.

NOTE:   Do not use trichloroethane or any other plastic or rubber solvent.

2       Cotton swabs.

3       Tape head demagnetizer. Unit must have protective plastic or rubber
        covering on the piece that comes into contact with the tape heads so
        as not to scratch delicate head gap.

# Follow these steps to clean and demagnetize your DATASSETTE™

**STEP 1**  Turn the computer off.

**STEP 2**  Press EJECT to open cover, then press PLAY to expose heads.

**STEP 3**  Put tape head cleaner on one side of a cotton swab. Gently wipe the surfaces of RECORD/PLAY and erase heads (see Fig. 1). Scrub gently. Any build-up of tape oxide particles on or around the head gap of the RECORD/PLAY head may cause unreliable performance.
Also clean pinch roller and other tape bearing surfaces if tape head cleaner is suitable for this purpose (check label).

**STEP 4**  Plug in demagnetizer, and activate it while it is at least one foot away from DATASSETTE™ heads.

**STEP 5**  Slowly move demagnetizer up to RECORD/PLAY head and around on head surface. Rate of motion should be approximately one inch per second during this time.

**STEP 6**  Slowly move demagnetizer to the erase head and then to all other ferrous metal surfaces which come into proximity with the tape.

**STEP 7**  Now slowly move demagnetizer away from heads. Do not deactivate field until demagnetizer is at least two feet away from heads.

The tape head cleaning and demagnetizing procedure is now complete. Inspect RECORD/PLAY surface for wear. If the tape has worn a groove on head surface more than a couple of tape thicknesses deep, program reading performance may be poor. If so, then replacement of tape head is indicated. Normally, a few thousand hours of tape running time have been completed before replacement is required.

# DATASSETTE™ OPERATION

## Commands

Here are the commands that will activate your DATASSETTE™. Simply type the desired command and press **RETURN**. In the list of commands below, NAME stands for the name that you, the user, assign to your program. You should select a name that will distinguish that program from other programs (or data files) on the same tape. The name should have a meaning to you. PROG1, PROG2, etc., are not good choices because they are not distinctive. A program name can be no more than 16 characters long.

SAVE"NAME"
will SAVE a program by storing it on the DATASSETTE™.

Example: SAVE"TEST"

will SAVE the program TEST on to the DATASSETTE™.

NOTE:   Simply typing SAVE will store the prgram without a name on the cassette.

LOAD"NAME"
will LOAD the program NAME from tape. All other programs on the same tape will be ignored.

Example: LOAD"TEST"

will LOAD the program TEST from the cassette.
   If LOAD is typed, then the first program found on the cassette will be LOADed.

VERIFY"NAME"
will VERIFY that the program which has been SAVEd has been stored correctly.

Example: VERIFY"TEST"

will search for and VERIFY the program named TEST on the cassette.

If the computer responds     OK
with     READY
then the program has been
stored correctly. If, however,
the computer responds with     VERIFY ERROR
    READY

then the program on the tape has not been stored properly. Re-SAVE the program and VERIFY again. If this still fails, then the DATASSETTE™ is not working properly, the tape is of poor quality, or the tape heads need cleaning.

NOTE:   VERIFY can be used to skip through a tape in order to SAVE a new program at the end of other programs. The technique to use is described here:

When you are ready to store the new program that is in your computer, give the command VERIFY"NAME" using the name of the last program on the tape. The computer will search for and VERIFY this last program on the tape, bypassing all other programs. Because the last program is not the same as the new program currently in memory, the display will read; VERIFY ERROR but the tape will have advanced to the end of all the programs on the tape. You can then SAVE your new program, typing SAVE"NAME", where NAME is the unique name of the new program that is in your computer. The new program is now on the cassette immediately after the other programs.

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# USING THE COUNTER

Your DATASSETTE™ has a 3-digit counter that you can use to find SAVEd programs quickly. When you use the counter properly, you can advance or rewind the tape to the location of the program you want to LOAD. This saves time because the computer doesn't have to search the whole tape.

The counter runs whenever the tape is PLAYing, RECORDing, REWINDing, or Fast Forwarding (F.FWD).

Here's how to use the counter to find a SAVEd program quickly:

1. Make sure your tape is rewound to the beginning.
2. Reset the counter to 000 by pressing the black button beside the 3-digit display.
3. Note the counter number when you are ready to SAVE a program. This number tells you where that program will be located on the tape.
4. Advance (F.FWD) or REWIND the tape to the counter number at which you SAVEd the program you now want to LOAD.
5. Follow the regular LOAD procedure.

NOTE: The counter can't work accurately unless you follow steps 1 and 2. Don't reset the counter to 000 unless you're at the beginning of the tape.

# FILE HANDLING

Experienced programmers may write more sophisticated programs that use large amounts of data. This data may be stored on a file on the cassette. The commands to handle data files are explained below.

Files of data can be written to and read from the DATASSETTE™. These CANNOT be LOADED like a program, but they can be read by a program. To communicate with the DATASSETTE™, use the OPEN command.

OPEN A,B,C,"NAME"

This will OPEN a logical file where NAME identifies the file and:

A        Choose a reference number from 1 to 255. If your program uses more than one file, each file must have its own file number.

B        Must be 1 for the DATASSETTE™. This is your device code.

C        Specifies whether the program will WRITE to or READ from this file, coded as follows:

if C = 0  read from tape

C = 1    write to tape with an End-Of-File marker to be written when the file is CLOSED.

C = 2    write to tape with an End-Of-Tape marker to be written when the file is CLOSED.

Example: OPEN5,1,1,"TEST"

will OPEN a file named "TEST" with a file number of 5. The program will WRITE to this file on the cassette.

If a value of 2 is chosen for C and "TEST" is chosen for the name, this will WRITE on End-Of-Tape marker at the end of the file. If the computer is then told to read a file which is after the file "TEST", then when the computer has passed TEST it will respond with: FILE NOT FOUND ERROR and stop. This is because the file "TEST" tells the computer that the tape has ended — regardless of whether it has or not — so the computer thinks that there are no more programs on the tape.

C and NAME may be left out if the user wishes. If NAME is not used, the file will be OPENed without a name. When a READ instruction is given by the computer, it will read the first file that it finds. If C is left out, then the file will be OPENed for READ.

INPUT # A,D
will input data from the cassette and use it in the program.

A is the logical file number used in a previous OPEN statement which specifies READ from cassette.

D is the BASIC variable to which the data from the tape will be transmitted. If words are to be read, then D should be D$. The error message FILE DATA ERROR will be displayed if you don't use D$.

 Example: INPUT # 5, A$

 will input string data (words) from logical file 5. Data will be read from the cassette and assigned to the variable A$.

 GET # is an alternative to INPUT # . GET # will get one character (letter) at a time. GET # can read commas, colons, etc., whereas INPUT # cannot.

PRINT # A,D
will write data to the cassette where

A is the logical file number used in the previous OPEN statement which specified WRITE to the cassette.

D is the BASIC variable from which the data is to be written. If the data is words, then D$ must be used.

 Example: PRINT # 5, A$

 will output the string A$ to logical file 5 on the tape provided the file has been OPENed for write. If the file was not properly OPENed, NOT OUTPUT FILE will be displayed.

CLOSE A
will close the file designated A, where A refers to the file number.

WARNING: If this command is not used after all the data has been written to the cassette, some data may not be written to the cassette. 15

Here are some sample program segments which use the above commands:

Example program 1 — writing data

```
10 OPEN1,1,1,"TEST FILE"
20 FOR X = 1TO10
30 PRINT# 1,X
40 NEXT
50 CLOSE1
```

Line 10 OPENs file 1 for WRITE as TEST FILE.
Line 20 Do everything between "FOR"&"NEXT" 10 times.
Line 30 PRINTs the variable 1 on to the tape.
Line 40 Goes back to line 20 for 10 times.
Line 50 CLOSEs the file.

Example program 2 — reading data using INPUT

```
10 OPEN1,1,0,"TEST FILE"
20 INPUT# 1,D$
30 PRINT D$
40 IF ST = 0 GOTO 20
50 CLOSE 1
```

Line 10 OPENs the file for READ as TEST FILE.
Line 20 Reads a string from the tape into D$.
Line 30 Prints the value of D$ on the screen.
Line 40 Checks the status of the cassette. If the tape is OK then GOTO line 20.
Line 50 CLOSEs the file.

Example program 3 — reading data using GET

```
10 OPEN1,1,0,"TEST FILE"
20 GET# 1,D$
30 PRINT D$
40 IF ST = 0 GOTO 20
50 CLOSE1
```

Line 10 OPENs the file for READ as TEST FILE.
Line 20 GETs a character into D$.
Line 30 Prints the character in variable D$ on the screen.
Line 40 Checks the status of the cassette. If the tape is OK then GOTO line 20.
Line 50 CLOSEs the file.

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