

Cross Reference Utility

Catalog Number 26-2008




The TRS-80 Cross Reference Utility program is designed to build a cross reference table for any BASIC program. The programmer has a choice of listing by Variable, Reserved Word, or Line Number. The computer will print these elements followed by the line number in which they appear. Both Tape and Disk versions are included.

Required Equipment:
16K Level II TRS-80
Printer

Optional Equipment for Transfer to Disk:
Expansion Interface
Disk Drive(s)

Cross Reference Utility Program

Radio Shack®

 A DIVISION OF TANDY CORPORATION
FORT WORTH, TEXAS 76102

First Edition

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Introduction

The TRS-80 Cross Reference Utility program is designed to build a cross reference table for any BASIC program. The programmer has a choice of listing by Variable, Reserved Word, and/or Line Number. The computer will print these elements followed by the line number on which they will appear. The programmer can use this information to quickly locate subroutines or to identify variables.

There are two versions of the program in this package. The Tape version is for the normal Level II TRS-80; the Disk version is required when using TRS-80 mini Disks and TRSDOS.

Features and Notes on Program Operation

1. Any combination of options may be selected by replying **Y** or **N** to questions.
2. The data is displayed on the screen and can also be printed.
3. If you are not using the printer, the screen will show:
ENTER TO CONTINUE. Press **ENTER** when you are ready to start a listing.
4. You have a choice of categories to cross reference; line numbers, variable names, and reserved words (IF, GOSUB, etc.).
5. Pressing the **SHIFT** and **@** keys simultaneously will halt the listing on the screen. Pressing **ENTER** will terminate the rest of the list. Pressing any other key will resume the listing.
6. When the listing is done, you have an option to go through the program again.
7. You can rerun the program without reloading.
8. Disk version will print **CAN'T READ** if file can not be opened and **WRONG TYPE FILE** if non-BASIC file is specified.

Loading the Tape Version

How to Load the Tape Version of Cross Reference

Follow these steps:

1. Turn on the TRS-80 video screen.
2. Turn on the TRS-80 keyboard.

The screen will show:

You type:

MEMORY SIZE?

Press **ENTER**

READY>_

3. Insert the Cross Reference tape (Tape Version) into the cassette recorder.
4. Rewind the tape.
5. Press the "PLAY" button.
6. Type **SYSTEM** and press **ENTER**

The screen will show:

You type:

*?_

RIGHT and press **ENTER**

*?_

Y and press **ENTER**

The program will immediately begin. Turn to the middle of page 7.

Transferring to Disk (For Disk Users Only)

Use the TAPEDISK utility to transfer Cross Reference from Tape to Disk. Detailed instructions for using TAPEDISK are on pages 5-6 and 5-7 of your TRSDOS Reference Manual.

Follow these steps:

1. Put the Cross Reference tape (Disk Version) in the recorder and rewind the tape.
2. Set the volume of the recorder between 4 and 6.
3. Press the "PLAY" button on the recorder.

The screen will show:

You type:

DOS READY

TAPEDISK and press ENTER

?_

C and press ENTER

(Program will
load from Tape)

?_

F XREF CMD: 5500 5D40 5B4C
and press ENTER

(Program will be
written to Disk)

?_

E

DOS READY

Running the Program

Diskettes can be damaged through contact with magnetic fields, mishandling, etc. To insure against loss of your program, before you begin running Cross Reference, you should make a copy of your diskette and keep the original in a safe place. See Appendix A for detailed Backup instructions.

Follow these steps in the exact order:

1. Turn on everything, except the TRS-80 keyboard.
2. Insert the Backup copy of the Cross Reference diskette (notch up, label facing to the right) in Drive 0 and close the door. Make sure the notch is not covered with a piece of tape.
3. Turn on the TRS-80 keyboard.

The screen will show:

You type:

DOS READY

☒ R ☒ E ☒ F and press ☒ ENTER

The screen will show the following options:

PRINTER? — You may answer either ☒ Y or ☒ N. ☒ N will cause data to be displayed on the screen. ☒ Y will cause the data to be printed.

Note: If you press ☒ Y but do not have a printer, the program will lock. Push the Reset button to start over.

LINE-NUMBERS? — ☒ Y will cross reference line numbers (statement numbers) when they follow GOTO , GOSUB , ELSE , or RESUME .

VARIABLES? — ☒ Y will cross reference variable names.

RESERVED WORDS? — ☒ Y will cross reference all BASIC reserved words.

FROM DISK? — (Disk version only) ☒ Y will load BASIC programs from Disk. ☒ N will load programs from tape.

Answer ☒ Y for Yes or ☒ N for No to each question.

Running the Program (continued)

EXAMPLE:

The screen will show:	You type:
PRINTER?	<input checked="" type="checkbox"/> Y
LINE-NUMBERS?	<input checked="" type="checkbox"/> N
VARIABLES?	<input checked="" type="checkbox"/> Y
RESERVED WORDS?	<input checked="" type="checkbox"/> N
FROM DISK?	<input checked="" type="checkbox"/> Y

If you are using a cassette tape, the screen will show:

READY CASSETTE

Put the tape, containing the BASIC program, in the recorder and press the "PLAY" key. Then press **ENTER**.

If you are using a Disk, the screen will show:

ENTER FILESPEC

Type the name of the disk file, without quotes, and press **ENTER**.

If the program cannot be found or read, the message.

CAN'T READ! TRY AGAIN will appear. Press **ENTER** to get back to FROM DISK? or press **SHIFT** and **@**, then **ENTER** to get back to the beginning. If the file is not a proper basic program, WRONG TYPE FILE will appear.

If you are not using the printer, ENTER TO CONTINUE will appear.

Press **ENTER** and the listing will begin on the screen. You can stop the listing by holding down the **SHIFT** key, then pressing the **@** symbol.

When the listing is done the screen will show:

END OF LIST — RESTART?

☒ N will terminate the program. ☒ Y will let you start over. If you want to start over, the screen will show:

SAME PROGRAM?

☒ Y will allow you to make another list without reloading the program.

☒ N will cause the program to completely start over at the beginning.

Note: If the program will fit in memory when loaded by BASIC, it will fit when loaded by this program. (Even larger programs will fit sometimes.)

Appendix A — How to Backup Your Program

How to Backup Your Program Diskette

Use this procedure EXACTLY:

1. Turn on everything except the TRS-80 keyboard. If this is the first time you've ever used the Radio Shack Disk System, refer to the Disk Operating System Manual for detailed instructions.
2. Insert a new, blank diskette in Drive 1 (farthest from the Interface) with the diskette notch up, label to the right.
3. Close the Drive 1 door.
4. Insert the Program diskette in Drive 0 with the notch up, label facing right, and close the door. (Drive 0 is the first drive connected to the interface.)
5. Turn on the TRS-80 Keyboard. (The switch on the right rear apron.)

The screen will show:

You type:

DOS READY

BACKUP and press **ENTER**

SOURCE DRIVE NUMBER?

0 and press **ENTER**

DESTINATION DRIVE NUMBER?

1 and press **ENTER**

BACKUP DATE (MM/DD/YY)?

01/01/80 **ENTER**

HIT 'ENTER' TO CONTINUE

(Example for January 1, 1980)
STOP — Don't press anything!!!

Now we can check to see if the "Backup" procedure was successful:

1. Remove the Program diskette from Drive 0.
2. Take the Backup diskette out of Drive 1. Place the Backup copy in Drive 0 and close the door.
3. Now you can press **ENTER**. If the screen shows: DOS READY, your Backup was successful.

If something went wrong, go back to step 1.

Important Information for Cassette Users

Using Your Cassette Deck

Many factors affect the performance of a cassette system. The most significant one is volume. Too low a volume may cause some of the information to be missed. Too high a volume may cause distortion and result in the transfer of background noise as valid information.

Three different cassette models have been supplied with the TRS-80 system -- the CTR-40, CTR-41 and CTR-80. Each model has its own loading characteristics. The table below gives suggested volume ranges for each of the CTR models.

Notice that volume ranges for LEVEL I and LEVEL II are different. This is because the LEVEL II data transfer rate is faster (500 baud vs. 250 baud). Also, notice that pre-recorded Radio Shack programs need a slightly **higher** volume setting than that required by your own CSAVED tapes. The prerecorded tapes are produced with high-speed audio equipment at a slightly lower level than the CSAVE process provides.

RECORDER MODEL	USER-GENERATED TAPES		PRE-RECORDED RADIO SHACK TAPES	
	LEVEL I	LEVEL II	LEVEL I	LEVEL II
CTR-40	YELLOW LINE	RED LINE	YELLOW LINE	RED LINE
CTR-41	6 — 8	4 — 6	6½ — 8½	5 — 7
CTR-80	4½ — 6½	3 — 5	5½ — 7½	2½ — 5

Recommended Volume Settings for RADIO SHACK Cassette Decks

(With CTR-40 and CTR-80, to increase volume, turn the control to the left. With CTR-41, turn control to the right.)

When information is being loaded from the cassette tape, two asterisks will appear on the screen. The one on the right will flash on or off each time a new line of program is read in. If the asterisks do not appear, or the one on the right does not flash, then the volume setting is probably too low. If the asterisks appear but one is not flashing, try increasing the volume setting. Use the reset button to stop the cassette and return control to you if loading problems occur. (Asterisks do not blink when loading data from cassette.)

Radio Shack programs are recorded at least twice on each tape (usually once on each side). You should do the same when you record programs on tape. This will give you a back-up if one does not load properly or if it becomes damaged.

Important Note: The CTR-41 requires that you keep the supplied "dummy plug" in the MIC jack at all times. However, the CTR-40 and the CTR-80 should never be used with the "dummy plug."

LEVEL I

Sometimes you will get an error message during an attempted CLOAD. This means that some information was lost or garbled. Adjust the volume level slightly and try again.

LEVEL II

In case of an error message, proceed as above. In LEVEL II, there is also a rare case in which the program has not loaded correctly *even though no error is generated*. So, after CLOADing a program, be sure to LIST it. If some data was garbled, then at some point in the listing, the display will be filled with meaningless words and characters. Adjust the volume and try again.

Hints and Tips

Computer tapes should be stored in a relatively dust-free area (a cassette case is recommended) and protected from high temperatures. Magnetic and electrical fields may alter recorded information, so avoid them (i.e. household appliances, power sources such as transformers and television sets, etc.).

The cassette deck supplied with TRS-80 is very compatible with the system and will perform its duties with great success. To keep the cassette deck in top condition and thus minimize your problems, you should periodically perform some routine maintenance on it. Dirty heads can cause as much as a 50% loss in volume. Also, heads become magnetized with use and may cause distortion. We recommend that you clean the head, capstan and pinch roller after every four hours of operation. Heads on new recorders should always be cleaned before use.

Note: Cassette cleaning and demagnetizing accessories are available from your local Radio Shack store.

IMPORTANT NOTICE

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NOTE: Good data processing procedure dictates that the user test the program, run and test sample sets of data, and run the system in parallel with the system previously in use for a period of time adequate to insure that results of operation of the computer or program are satisfactory.

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PRINTED IN U.S.A.