Micro Movie

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MICRO MOVIE makes it easy to draw pictures on your TRS-80. With a little practice, you can do animated "movies". Individual pictures, and movies, can be saved on tape, for later playback.

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Radio Shack Micro Movie Program

General Description

MICRO MOVIE makes it easy to draw pictures on your TRS-80. With a little practice, you can do animated "movies". Individual pictures, and movies, can be saved on tape, for later playback.

There are many features in the MICRO MOVIE program. Some are easy to use, while others will require some time and effort to master. We will start with the basic features, and gradually work up to the advanced graphic features.

Loading Micro Movie

LEVEL I

Use the "CLOAD" command to load the program. MICRO MOVIE will start running automatically as soon as it is loaded.

LEVEL II

1. Type [S][Y][S][T][E][M], and press [ENTER].
2. When *?_ appears, type [M][O][V][I][E], and press [ENTER]. The tape recorder will start.
3. When the *?_ appears, type [/], and press [ENTER]. The program will start.

The List

When the program starts, it will display a list of things that you may do. You tell the program what you want to do by typing the first letter of the choice you want. For now, ignore all the choices except "ADD TO END OF MOVIE". That lets you draw pictures and make movies. Type [A]. (You don't have to press [ENTER].) Anytime you want to return to the List, type [SHIFT] [H] twice, and press [ENTER].

You can stop the program at any time by pressing the [BREAK] key. You will have to reload the program to run it again.

Screen Editing

Before you start drawing, you should learn about the tools you'll be using.

The Cursor

The flashing bar (upper left corner of the screen) is called the "CURSOR". Try typing a few words. See how the cursor leads the way. Press the [←] key (the key directly above the [ENTER] key). It does not erase as it moves across a word.

Try typing over some letters. Notice that you only change the letter that is inside the cursor. The cursor is saying, "Do you want to change THIS letter?" If you want to change that letter, simply type in the new letter. If not, just press the [→] key.

Arrow Keys

The arrow keys can move the cursor to any point on the screen. As you move the cursor, you may notice that you can hold a key, and the cursor keeps going. All the keys have this repeat feature. It's very handy for moving the cursor around the screen.

Wrap-Around

Note the "wrap-around" feature. What is the "wrap-around" feature? Just hold down any key, and keep holding it down. See? Now try the up and down arrows. See? That's the "wrap-around" feature. It makes it easy to get from here to there (and back again).

Clear Key

The [CLEAR] key is your Panic Button. It wipes out everything on the screen. It will also return the cursor to its "Home" position (upper-left corner).

Delete

Try typing a sentence. Move the cursor so that it covers the first letter of the sentence. Hold the [SHIFT] key down, and type [D]. Each time you do this, the letter inside the cursor will be Deleted. The rest will move to the left. Think of it as a vacuum cleaner. Turn on the vacuum cleaner by holding down the [SHIFT] key and the [D] key at the same time. It will only suck up letters to the right of the cursor, not to the left.

Insert

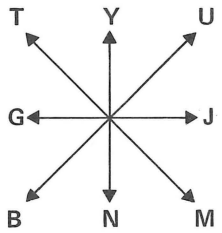
Type, "AAAACCCC". Use the arrow key to move the cursor back. Place the first "C" inside the cursor. Now hold down the [SHIFT] key, and type "[I]". Everything to the right of the cursor (and inside the cursor) moves to the right. Everything to the left of the cursor is ignored. Use this feature to Insert missing letters, and words.

Two Other Cursor Controls

SHIFT H will always move the cursor back to the "Home" position. That's the upper left corner of the screen. SHIFT L will move the cursor to the first position on the next Line.

Graphics

Type SHIFT G. Look at the cursor. You are now in the Graphics mode. All the arrow keys still work, but they move you a smaller distance. There are only eight keys in the Graphics Mode. They each draw in a different direction.



Using the keys, take the cursor for ride around the screen. Remember, the CLEAR key erases the screen.

A Little Trick To Remember

CLEAR the screen, and draw something in the middle. Press the H key. Now, you're back in the Text Mode. Press SHIFT H. (That returns the cursor to Home. Now press SHIFT I a few times. Try SHIFT D a few times. You can move the whole drawing around the screen.

Erasing Points And Lines

Go back to the Graphics Mode. (SHIFT G) Use the arrow keys to get back to your drawing. You can erase using the same drawing keys, but hold the SHIFT key down. The direction diagram works the same way, just keep the SHIFT key down.

That's everything there is to drawing pictures on the screen. Now, you're ready to draw your masterpiece. When you're finished, come back, and we'll talk about preserving your drawing for posterity.

Saving Pictures On Tape

Before you save a picture, you must store it in memory. Make sure the cursor is NOT at the "Home" position, and press [ENTER]. If you're using a 4K computer, the screen will clear, and print "NO ROOM IN MEMORY". Don't panic. That's only important if you're making a movie. We're just doing a picture.

Set up the tape recorder to record on a new cassette. Make sure you're past the leader. Type [SHIFT][H] twice, and press [CLEAR]. Now, type [!][P]. This lets the computer know that you want to Put something on tape.

After the "P", you can type a name for your picture. The TRS-80 will save the first six letters as the name of the picture. You'll need to remember the name of the picture to get it later on. Press [ENTER], and the tape recorder will store the name of the picture, and the picture, on tape. After about 18 seconds, the cursor, and the picture will reappear. It's now safe to [CLEAR] the screen, and make a new picture.

Loading A Picture From Tape

First, type [SHIFT][H] twice, and press [ENTER], to return to the list. Next, press [A] (ADD TO END OF MOVIE). Now, press [CLEAR]. Type [!][G], and the name of the picture. Press "Rewind" on the tape recorder, then press [ENTER]. When the tape is rewound, press "Play". If there's more than one picture on the tape, the TRS-80 will search for the one you just typed and Get it from the tape.

Let's Make A Movie

Since the MICRO MOVIE program uses almost 4K of memory, additional memory is required to make movies. The more memory you have, the longer the movie you can make. If you only have 4K of memory, we'll stop here and wait, while you run out and get some more. Hurry back.

You make an animated "movie" by storing a sequence of individual pictures (or frames, as we say in the "movie biz"). These frames are stored, using the "ADD TO END OF MOVIE" function. In the "PLAY MOVIE" mode, the frames appear, in rapid succession, to create the "illusion" of motion.

Let's Get Things "Moving"

We'll start with something simple, like an asterisk. Push [CLEAR], then press [ENTER] to get back to the list. Press [C] to make sure there is nothing left in memory. Now, press [A] to "ADD TO END OF MOVIE". (The first thing we add will be the start of our movie.) OK, move the cursor down a few lines (using the [↓] key). Now type [*], and press [ENTER]. That's our first frame.

To make the asterisk move, we're going to use a little trick you learned a few pages back titled "A Little Trick to Remember". (Do you remember?) Using the [↑] key, move the cursor up ONE line. Hold down the [SHIFT] key and press [I] five times. Press [ENTER]. (You can keep holding down the [SHIFT] key if you like). That's our second frame of the movie.

We want to repeat that whole sequence ([SHIFT] [I] five times, press [ENTER] once), till we get that asterisk over to the other side of the screen. Once we get to the right side of the screen, press [SHIFT] [H] (returns cursor Home), and press [ENTER]. That gets us back to the List.

How To Play Back The Very First Movie You Ever Made On The TRS-80

Press the [P] key.

How Do You Stop It?

Press any arrow key to stop the movie. That returns you to the list. If you don't press the arrow key, the movie will repeat until the next power failure in your area, which we understand, isn't due till 1999. You have time to go get a cup of coffee.

Let's Add Some Things To Our Movie (OK, YOUR Movie)

If, you haven't pressed an arrow key, do it now. (Even if you have, do it again, it can't hurt.) You're back at the list. Press [A] since we're going to "ADD TO END OF MOVIE".

Adding To The End Of The Movie

Using the [↓] key, move the cursor down a line. Now, we'll use our little vacuum cleaner trick. Press [SHIFT] [D] five times and press [ENTER] once. Keep it up until you get the asterisk back to the left side of the screen.

After you "Enter" the last frame, press SHIFT H to get the cursor "Home". Press ENTER to get back to the list.

How To Play The Revised Movie

Look at the list. You tell us. (Hint; you want to Play the movie.) Remember, any arrow key will stop the movie, and P will start it again.

Another Handy Hint

Let's put together some of the things we've talked about. In the first section, we Put still pictures on tape, then retrieved them with the Get command. You can use those commands to put your still picture at the start of the movie, and then add animation to it. You can also store the last "frame" of the movie on tape. You can also get a second picture, add it to the last frame of the movie, and start a new animated scene. Use your "stills" for backgrounds, and add the animation to the "stills".

Historical Note

Most animated movies are done this way. According to Ward Kimball, head of animation for Walt Disney Studios, a full-length animated Disney movie takes about 2 years to produce. Isn't that interesting?

Control Frames

Control frames are special instructions you can use to control the speed, add pauses, and clear the screen DURING the movie. You enter the control instructions just as you enter a frame, by pressing ENTER after the instructions.

Speed Control

You have 26 different speeds to choose from. Any part of the movie can run at any speed you choose. You can speed up, and slow down whenever you want. To enter a speed control frame, at the start of a movie, before you've drawn anything, SHIFT H twice to get the cursor "Home". Type ! S A to play at the fastest possible speed. Type ! S Z for the slowest speed. If you don't type any speed indicator (A thru Z), the movie will play at !SD speed. The A speed will play about 28 frames a second. The Z speed is about 2-1/2 frames a second. To make an object move across the screen smoothly, you could save 28 frames, with the object moving two positions each frame. At maximum speed, it will move very smoothly, but it takes more memory, and more time to create. You could save 3 frames, moving 20 positions in each frame. This is easier, and requires less memory, but the technique is very jerky.

Wait Control

The Pause Control Frame lets you freeze a frame on the screen. At the "Home" position, type [!][W][A] for the shortest delay (about .4 second). Type [!][W][Z] for a 10 second delay. 26 different pauses are available, depending on the letter which follows !W. For longer delays, use more than one control frame.

Clear Control

The Clear Control Frame wipes the screen. Like all the control frames, it only requires 4 bytes of memory. Rather than press the [CLEAR] key and store a blank frame, type [!][C] at the "Home" position.

Saving A Movie On Tape

Get back to the list ([SHIFT][H] twice, and [ENTER]). Now press [S] to "SAVE ON TAPE". Get the tape recorder ready to record, and press [ENTER]. As the movie is stored, an asterisk will flash. Each flash represents 256 bytes. You can estimate how much memory the movie requires by counting the flashes. After the movie is recorded, the list will reappear.

Loading A Movie From Tape

You will usually want to "CLEAR MEMORY" first, otherwise, it will be added to the end of the frames that are already in memory. Press [L] to "LOAD FROM TAPE". Get the tape ready, and press [ENTER]. As soon as the movie is loaded, it will start to play automatically. If you don't want it to start, simply hold down an arrow key while the movie is loading. Once you start a load, there is no way to stop it, except to kill everything.

The Net Change Concept

The MICRO MOVIE program saves space by storing ONLY the changes you make from one frame to the next. When you're trying to make a long movie, it is not what is shown on the screen that counts. It's how much of the picture is changed from frame to frame. MICRO MOVIE stores the first scene, but only records the changes from that point on.

Modifying A Movie

This part is a bit tricky, so make sure you have the Net Change idea down pat. The "MODIFY MOVIE" function plays back one frame at a time, so you can OK the frame by pressing [ENTER]. If you want to change the frame, do it, and then press [ENTER]. The next frame will appear, and you can either accept it (by pressing the [ENTER] key), or make the desired changes, and then press [ENTER]. After you enter the last frame, the program returns to the list. If you want to change just the last part of a movie, [SHIFT] [H] twice, and press [ENTER]. The movie will play automatically. When you get near the part you want to change, stop the movie with an arrow key, and single-step the movie using [ENTER].

How To Delete A Movie Frame

In the "MODIFY MOVIE" mode, you can delete a frame by pressing [CLEAR], and then type [!] [D]. Sometimes when you delete a frame, part of the picture will be lost. Patch the next frame with the missing parts, then store it.

Inserting Frames In The Middle Of A Movie

In the "MODIFY MOVIE" mode, step through the movie, to one frame PAST the point you want to insert something. Press [CLEAR], and type [!] [I], then press [ENTER]. The movie will BACKUP one frame. You can then add as many frames as you want (just as if you were in the "ADD TO END OF MOVIE" mode). When you have finished inserting all the frames you want, press [CLEAR], and type [!] [N] to return to Normal. When you press [ENTER], you'll be at the next frame in the movie.

Two More Control Frames (For Advanced Use)

These two concepts can get a little hairy, so let's take it slow from this point on. The Repeat Control Frame lets you repeat a section of the movie up to 26 times. The Link Control Frame lets one movie automatically load, and play another movie.

Repeating A Series Of Frames

At the point you want to START the section to be repeated, press [CLEAR], and type [!] [R] [@]. At the end of the repeat section, press [CLEAR], and type [!] [R] [A] for one repeat. Type [!] [R] [B] for two repeats, [!] [R] [C] for three repeats, etc. . . When the program encounters an !RA, the program will search backwards till it comes to the ! R@ frame. If it doesn't find an !R@ frame, it will repeat from an !C frame. A to Z gives you up to 26 repeats.

The Link Control Frame

When the Link Command is encountered, the TRS-80 will start the tape recorder, and load a new movie. It has the same effect as requesting "CLEAR MEMORY", then "LOAD FROM TAPE". The last frame of the movie is left on the screen while the new movie is being loaded. The flashing asterisk doesn't appear on the screen.

The Link Frame should ONLY be used at the very end of a movie, and it should NEVER be stored until you are ready to save the movie on tape. When you have a movie that you want to link to a second movie, do this:

1. Select "ADD TO END OF MOVIE".
2. Type [!] [L] (at the "Home" position), and press [ENTER].
3. Press [CLEAR], and [ENTER] to get back to the list.
4. Press [R] to "RECORD ON TAPE" as usual.
5. Remove the tape from the recorder (without rewinding it), and set it aside, until you are ready to record the second movie (which this first movie will control).

Now you can work on the second movie. Once you're finished with the second movie, put the tape back in the recorder, and save the second movie on tape, following the usual procedures. (No rewind this time either.)

CAUTION:
Be very careful when you load a movie that contains a Link command. If you let the movie play until the Link command, the TRS-80 WILL start loading from the tape (even if there is no movie on the tape). The only way to stop it is to give it a movie to read, or shut everything off, and start over.

If you want to make modifications to a movie that has a link command, these are the steps to follow:

1. Request "LOAD FROM TAPE", and start loading the movie.
2. While the tape is loading, hold down an arrow key. (Keep holding it.)
3. Request "MODIFY MOVIE".

4. **CAREFULLY** step through the movie, and Delete the Link frame. You can now make any changes, and play the movie.
5. When you are finished with all the changes, add the link frame to the end of the movie. Now you can save the movie on tape.

In Conclusion

That's about all we can tell you about the MICRO MOVIE program. Now it's up to you to add your imagination, and creativity. Those are your only limits. If you come up with something really neat, send us a copy. We'd like to see some of your handiwork. Let's face it, we're all kids at heart, and what kid doesn't enjoy a cartoon? We really hope you have as much fun with this program as we did while we were writing this manual. The MICRO MOVIE program is addictive. We think it will get you hooked, too. If you have any suggestions on how we can improve this program, or if you would like to suggest a program, drop us a line, and let us know.

GOOD LUCK
and
HAVE FUN!

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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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