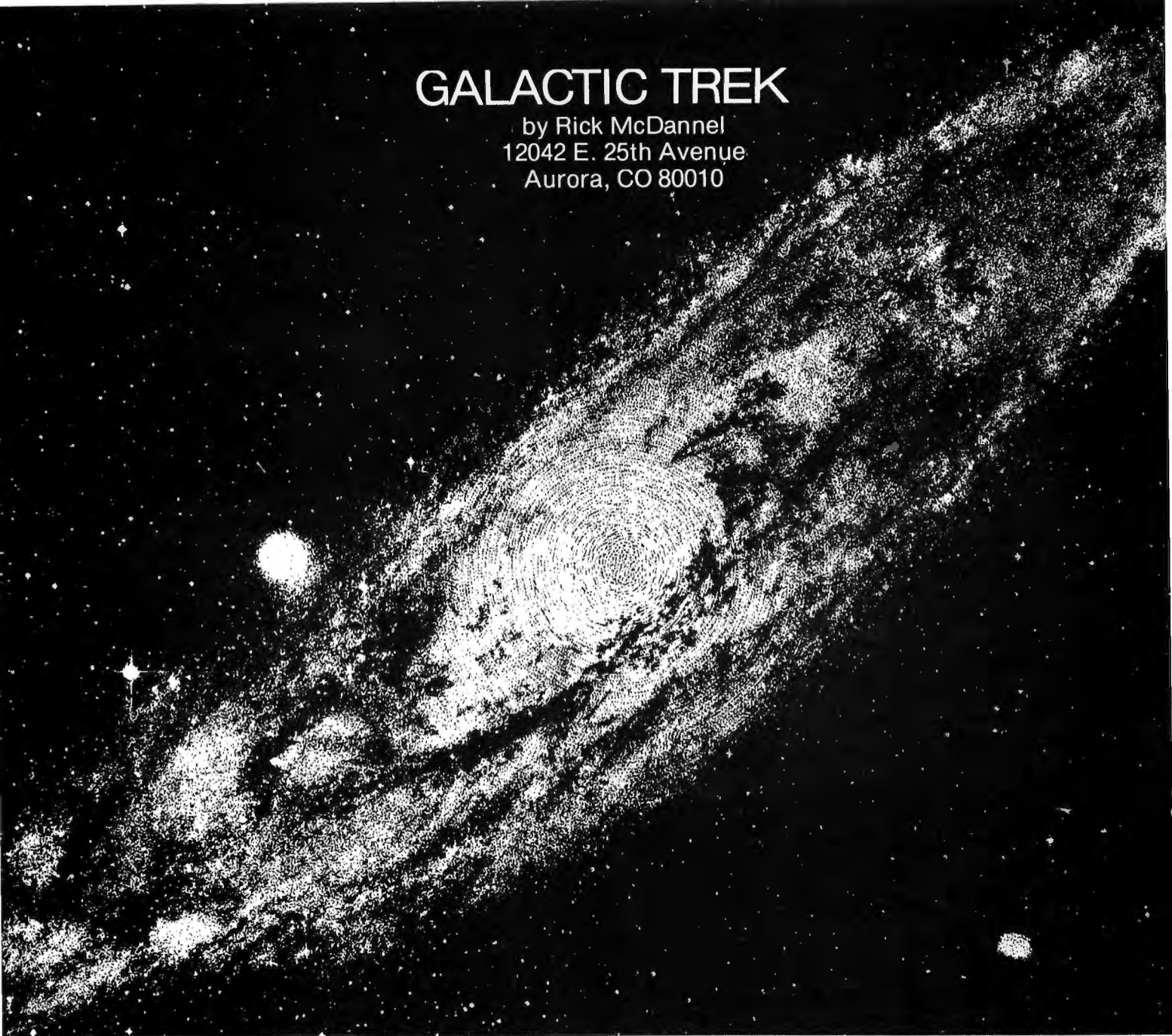


GALACTIC TREK

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I am sure I am not the only one who has spent hours and hours hacking away at a game written in BASIC only to find out that the result was much too slow to be exciting. Hopefully, with this program I can show one way to make BASIC games more dramatic. I think you will be pleasantly surprised at what a thirteen byte machine language subroutine can do.

The function of the ML subroutine is to scroll everything on the graphic screen to the bottom except the top eight lines which will be used to display the score. The program uses PMODE 1 which requires two pages of memory, in this case memory positions 1536-3072. In PMODE 1 each byte contains four horizontal graphic elements and each graphic line is thirty-two bytes long giving us

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a 128x96 resolution. The basic procedure for scrolling would be to start with the last byte in the second line from the bottom and put that byte in the same position in the last line. In other words, get the byte in memory position 3040 and put that byte in 3040 + 32 or memory position 3072. After that it is just a matter of decrementing and repeating this process until the last point to be scrolled is reached. This works fine but the result is just not fast enough for this game. To get twice the speed all that needs to be done is to put the bytes two lines down instead of one. The other difference between the basic procedure described above and the subroutine used in "GALACTIC TREK" is that instead of moving one byte at a time, the 16 bit accumulator is used and two bytes are

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moved. The following is the complete listing of the scroll routine used in the program:

```
0001 0600                ORG 15000
0002 3A98 8E11C0        START LDX #4544        Get start addr
0003 3A9B EC83          LOOP  LDD ,--X          Get 2 bytes and
                        *dec address pointer
0004 3A9D A78840        STA 64,X          Put 2 bytes 2
                        *lines down
0005 3AA0 8C0700        CMPX #1792        Check for last
                        *byte to scroll
0006 3AA3 26F6          BNE LOOP          No, then again
0007 3AA5 39            RTS              Yes, return to basic
0008 3AA6                END

LOOP 3A9B START 3A98
```

After running "GALACTIC TREK", the first evidence of the ML subroutine will be seen as the title page scrolls down the screen. Press the fire button on the right joystick to begin the game. The right joystick will control the horizontal movement of the ship. The player starts the game with four ships and is awarded a bonus ship for each complete "TREK". Each completion of the three phases of the game is considered to be a "TREK". The ship's lasers are fired by pushing the fire button. A thousand points must be obtained in each phase in order to proceed to the next.

In the first phase, the player is required to travel through a Zymanian minefield. Twenty-five points are awarded for each mine blown up. The amount of mines on the screen will increase with every one hundred points. The second phase is a little more difficult. The object of this phase is to obtain the precious Zymanian Ore that are also worth twenty-five points a piece. In this phase, the laser acts in the capacity of a tractor beam. To make it a little more interesting the ship will have to travel through a passageway that narrows with every one hundred points. In the final phase the player will meet the Zymanians themselves in the form of a fleet of ships. They may not be very accurate with their lasers, but like the other phases with each

one hundred points the difficulty level increases. In this case the frequency of Zymanian's shots is stepped up. The strategy is to shoot the ships as quickly as possible since each ship shot will be one less that can fire back and less waves of attackers will have to be taken on. The player is awarded fifty points for each ship blown up.

You may notice that many of the objects fired upon will not blowup with the first hit. This is not a flaw, it was put in the program intentionally to make it more challenging. Also, the debris from blown up objects can be just as fatal as the objects themselves. Besides the level of difficulty increasing with every one hundred points, with each "TREK" the difficulty level will increase faster than the preceding "TREK".

After losing all the ships a "GAME OVER" message will be displayed, to play again just press the fire button. The high score will be displayed in the upper right hand corner of the screen.

I think you will find "GALACTIC TREK" an enjoyable and challenging game. If there are any comments or questions, please write to me at the above address. Also for those of you who do not like to type send \$4.95 to cover my costs and I will send you a copy of "GALACTIC TREK" on cassette. A 16K Extended Computer is required for this game.