This game in its many different versions and names (ROCKET, LUNAR, LEM, and APOLLO) is by far and away the single most popular computer game. It exists in versions that start you anywhere from 500 feet to 200 miles above the moon, or other planets, too. Some allow the control of directional stabilization rockets and/or the retro rocket. The three versions presented here represent the most popular of the many variations.

In most versions of this game, the temptation is to show up too soon and then have no fuel left for the lower part of the journey. This, of course, is disastrous (as you will find out when you land your own capsule)!

LUNAR was originally in FOCAL by Jim Storer while a student at Lexington High School and subsequently converted to BASIC by David Ahl. ROCKET was written by Eric Peters at DEC and LEM by William Labaree II of Alexandria, Virginia.

In this program, you set the burn rate of the retro rockets (pounds of fuel per second) every 10 seconds and attempt to achieve a soft landing on the moon. 200 lbs/sec really puts the brakes on, and 0 lbs/sec is free fall. Ignition occurs at 8 lbs/sec, so do not use burn rates between 1 and 7 lbs/sec. To make the landing more of a challenge, and more closely approximate the real Apollo LEM capsule, you should make the available fuel at the start (N) equal to 16,000 lbs. and the weight of the capsule (M) equal to 32,500 lbs in Statement 15.

Some versions of BASIC object to the series expansion calculations in Statements 420 and 430 (as you near the lunar surface, these numbers get very small). If your does, substitute the following expanded form for the expansion in Statement 420:

\[-Q(1+Q(1/2+Q(1/3+Q(1/4+Q))))\]

You should be able to figure the other one out yourself.

**LUNAR**

CREATIVE COMPUTING

This is a computer simulation of an Apollo LEM launch capsule.

The GO-TO-CAPSULE has failed so you have to land the capsule manually.

GET BURN RATE OF RETRO ROCKETS TO ANY VALUE BETWEEN 0 (FREE FALL) AND 200 (MAXIMUM BURN) POUNDS PER SECOND.
GET NEW BURN RATE EVERY 10 SECONDS.

CAPSULE WEIGHT: 37,500 LBS.
FUEL WEIGHT: 14,500 LBS.