

## Altair BASIC 1.0

The file "BASIC Ver 1-0.tap" is an image of Altair BASIC 1.0 on paper tape. This is the first version of BASIC released for the Altair computer. It was announced in the April 1975 issue of "Computer Notes." At the following link is a picture of the tape as provided by Bill Gates to the Computer History Museum:

<http://www.computerhistory.org/revolution/personal-computers/17/312/1142>

BASIC 1.0 has capabilities similar to those of Altair 4K BASIC, but requires at least 6K or so of RAM in order to execute a program. Looking at sales literature from March of 1975, BASIC 1.0 was typically sold with 8K of RAM. Bill and crew later implemented a number of space saving optimizations to allow BASIC and a simple program to fit and execute in just 4K of RAM. Unlike 4K BASIC, BASIC 1.0 still uses longer verbs found in Dartmouth BASIC like "READY" instead of "OK" as the prompt and "SCRATCH" instead of "NEW" to clear program memory.

The BASIC 1.0 tape was released before the "Altair Absolute Load Tape Format" was developed, so the tape is pretty much just a binary dump of BASIC from memory. The image is preceded by a string of NULLs for leader and a sync byte of 6Ah to mark the start of the memory image. Since the tape does not include the second-stage checksum loader, the boot loader entered on the front panel is different than the boot loaders we're accustomed to seeing in the Altair BASIC manuals.

The file "LOAD10.xxx" in the "SIO Loaders" folder is a front panel boot loader for the BASIC 1.0 tape. The file "LOAD10-Octal.PRN" includes the program bytes in octal for easy entry on the front panel. While this loader is most likely not an exact duplicate of the loader provided by MITS in the BASIC 1.0 manual, it is probably very similar. If anyone has a copy of the BASIC 1.0 manual in which the loader is documented, please contact me!

## Notes / Patches

The original BASIC 1.0 tape image file I obtained (and the paper tape in the picture) appears to have been saved from memory *after* the cold-start dialog completed, so the cold-start code had already replaced the cold-start jump with a jump to the warm-start entry point. I patched the cold-start entry point back into the jump instruction at location zero so that BASIC starts up properly.

BASIC 1.0 expects the rev 0 version of the 88-SIO serial board for console I/O. Since an unmodified rev 0 88-SIO board is relatively uncommon (most were manufactured as, or user upgraded to, rev 1), the tape image has been patched to support the rev 1 version of the 88-SIO.

An ESC character appears in the CR/LF sequence following the "XXXX BYTES FREE" message that is printed during startup. This ESC character can cause problems for terminals which support escape sequences (most terminals), so the ESC has been patched to a NULL.