Two-Stage Binary Loader for Altair 680 Cassette BASIC

BINSAVE and BINLOAD can be used to make a bootable Altair 680 Cassette BASIC tape that loads in about 5 minutes instead of 13 minutes. The binary format used is the same as on Altair 8800 load tapes.

Once a tape is created, BINLOAD is at the start of the tape. It is loaded by jumping to the standard Altair 680 Cassette boot ROM. Once BINLOAD is in RAM, it is manually executed by the operator (J 3F00) to load the rest of BASIC which follows on the tape in a more efficient binary format. You can watch a video of this process starting at 7:43 into this video: https://www.youtube.com/watch?v=a0h1iJiZcSc

Here are the steps to create a bootable binary BASIC tape:

1) Use the "L" command to load "Cassette BASIC V1.1 R3.2.S19" into memory (do NOT execute BASIC)
2) Use the "L" command to load BINSAVE.S19 into memory (will be at $3E00)
3) Use the monitor "M" command to set save parameters for BASIC as follows:
   $3E02-$3E03 First address to write ($0000)
   $3E04-$3E05 Last address to write ($1C18)
   $3E06-$3E07 Jump-to (start) address ($0000)
4) Use the "L" command to load BINLOAD.S19 into memory (will be at $3F00)
5) Position the tape where you want BASIC to begin and press RECORD
6) Write BINLOAD to tape using the KCACR monitor ROM. "J FD74" enters the tape write routine. Respond with the start and end addresses at the ? prompts (no CR needed): ?3F00 ?3F66
7) When the write completes, jump to BINSAVE (already in memory) to write BASIC to cassette: "J 3E00". Recording will begin as soon as you type the last "0" of 3E00. You'll probably want about five seconds of idle tone on the tape after BINLOAD is saved before you type the last "0" of 3E00.

BINSAVE displays the address it is on every 256 bytes or so. This allows you to monitor progress. BASIC runs through $1C18.

To boot BASIC from tape, follow these steps:

1) Press play on the cassette player and then immediately "J FD00" to jump to the cassette boot ROM. This will read BINLOAD from the start of the tape (takes 15-20 seconds).
2) As soon as the monitor prompt appears after loading BINLOAD, type "J 3F00" to execute BINLOAD in memory (this has to be done within the amount of idle time provided on tape during step 7 of the save procedure). BINLOAD will then read the rest of BASIC from tape over the next four minutes or so.

BINLOAD displays the address it is loading every 256 bytes or so. This allows you to monitor progress. BASIC runs through $1C18.