Altair 680 Capacitor C4 Discharge Mod

As part of trying to get three MITS 16K RAM boards for the Altair 680 to work reliably, I frequently swapped boards in and out of the system for several weeks. After one of the first few board swaps, several parts failed on the main board and one on the memory board. I assumed I must have done a hot swap of the board, though I didn't recall doing so. Over the next few weeks, the same few chips blew over and over again, but there was definitely no hot swap on these subsequent occurances

After lots of experiments and head scratching, I finally figured out the damage was occurring when I inserted a memory board while the system was OFF! Capacitor C4 on the main board is the +16v filter cap. Nothing on the main board drains that capacitor and the +19v or so sitting on that 100uf cap is sufficient to cause the part failures when inserting the memory board.

An easy solution is to install a 27K or so resistor across C4. A convenient place to install this resistor is shown below (the diagonal resistor). You can see the + end of C4 at the bottom of the picture.