

TANGLES' PIN PARTS

TPP-1011

NVRAM Adapter for STERN MPU-200



Description

The TPP-1011 is a non-volatile RAM adapter (NVRAM) that plugs in as a replacement for the two 5101 memory chips used on the Stern MPU-200 CPU board.

This module is a worthwhile upgrade for your classic Stern pinball machine, enabling the complete removal of batteries. Remove the risk of battery corrosion by removing batteries completely.

The TPP-1011 comes assembled. Typically no soldering is required to install this component as the original memory chip is socketed.

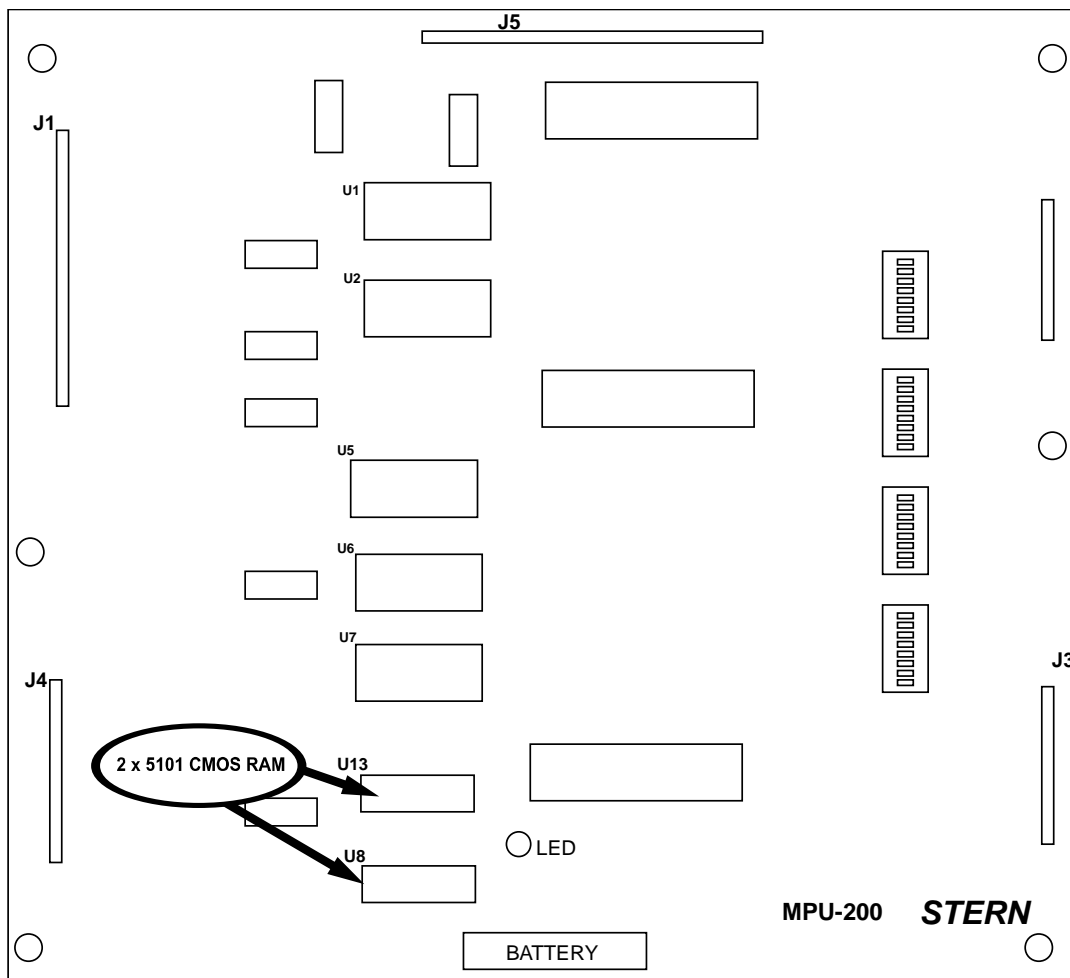
Installation

Warning: High voltages are present inside the pinball machine. Ensure the power is off and the mains cable is disconnected before you commence work.

1. Ensure power is off to the machine.
2. Locate two 5101 ICs at position U8 and U13.
3. Remove both the 5101 CMOS RAM chips from their sockets using a chip extractor or by delicately levering the IC out of its socket with a small screwdriver.
4. Remove the battery from the CPU board. This can be achieved with side cutters or a set of fine tipped tin snips. If the CPU board has been modified to locate the batteries off the main board, then the wires to this battery holder may be removed.
5. Install the TPP-1011 into the socket. Use the photos provided below to ensure the correct orientation. TPP-1011 plugs into both the U9 and U13 sockets.

6. Inspect the installation carefully to ensure all pins are seated in the socket and that the plug-in module is not misaligned.
7. Power the machine up and monitor the CPU LED. If the NVRAM is installed correctly, the LED should complete its usual 7 flash sequence. A missing or mis-installed NVRAM module will stop after the 4th flash.

MPU Board Layout

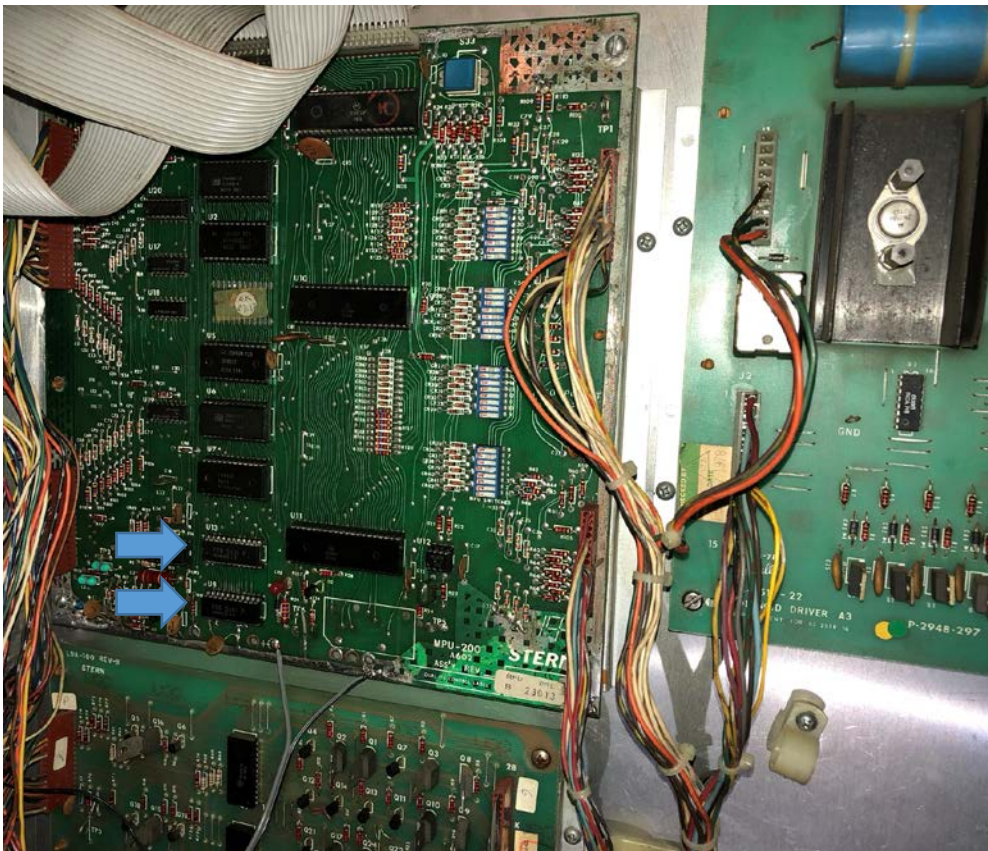


Compatibility

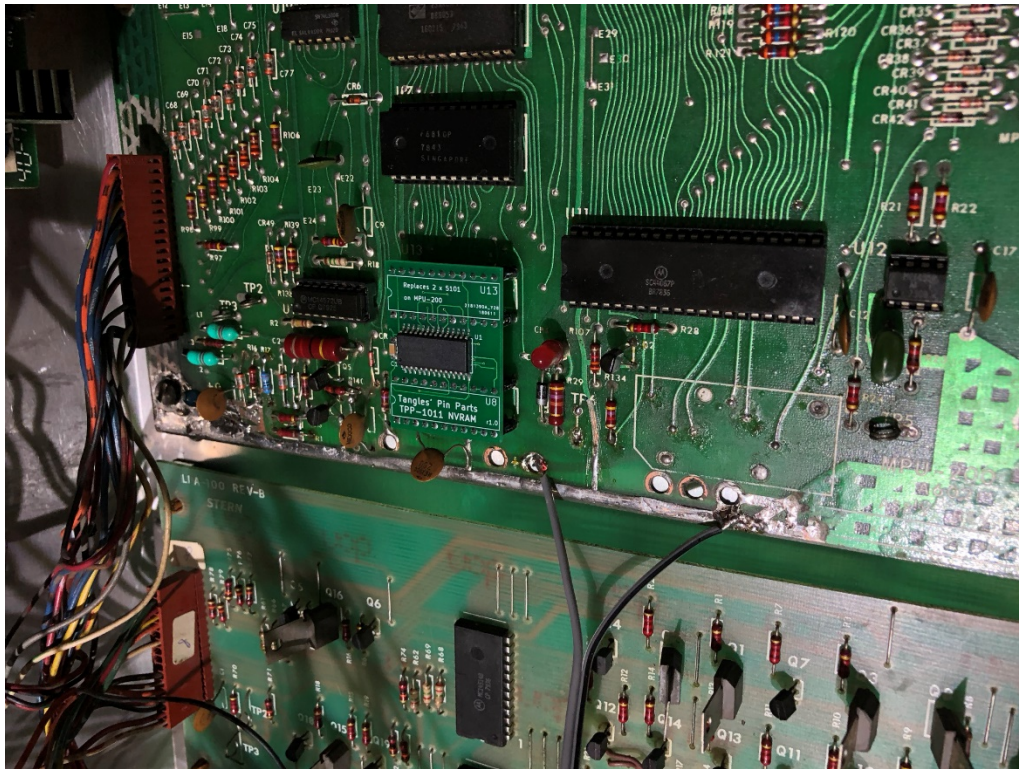
Stern:

Ali, Big Game, Catacomb, Cheetah, Cue, Dragonfist, Flight 2000, Freefall, Galaxy, Hypnox, Iron Maiden, Lazer Lord, Lightning, Meteor, Nine Ball, Orbitor 1, Quicksilver, Seawitch, Split Second, Star Gazer, Viper

Compatibility



MPU-200 Board with original 5101 chips installed. The MPU-200 has these chips in sockets so removal is easy with a chip remover tool or a small screw driver.



Here is the TPP-1011 NVRAM installed into both U13 and U9 sockets. A close inspection shows no pins were missed.

This MPU board has a remote battery pack. Removing the old battery pack is a simple as snipping the leads in this case.