DSS-1 USB MODIFICATION INSTRUCTIONS
2020 Version

IMPORTANT NOTE: IF YOU ARE PLANNING ON RE-USING THE ORIGINAL DSS-1 FLOPPY DRIVE (CANON MD-350), YOU MUST CHANGE THE JUMPER ID SETTING FROM 0 TO 1. This jumper is located on the side of the floppy drive near the back. There are four jumper positions, labelled 0-3, plus a couple of other jumpers. Move the jumper next to '0' and install it next to '1'.

However, a new floppy drive with integrated card reader is recommended. The Mitsumi FA404M is a good option.

1. Verify that the kit contains:

- •CPU board
- •Memory board
- •14 pin FFC cable
- •6 pin FFC cable
- •14 8-pin SIP socket
- •4" wire
- •2 40-pin IC sockets
- •1 16-pin IC socket
- •1 14-pin IC socket
- •1 6-pin FFC connector
- •4 x screw and spacer (for new LCD)

--KLM-782 Modification-- (refer to original installation guide for pictures)

Ensure that none of the pins on the CPU and Memory boards are bent or broken off.

2. Open the DSS-1 and remove the KLM-780 and KLM-782 board assemblies.

3. Remove KLM-1061 board from KLM-782 board (desoldering connecting ground wire optional)

4. Using a pair of small flush cutters, remove the old DRAM chips. Alternatively, if you have a good desoldering station, the chips may be removed with it instead.

5. Using a desoldering pump, or solder wick, remove the existing IC pin legs and clean the holes with solder wick. Make sure no solder remains in any of the holes.

6. Remove solder from holes near IC, and remove solder mask from indicated area with a small knife or razor. Don't cut the trace!

7.Install 8-pin SIP sockets in old memory chip locations. If any resistance is encountered inserting the sockets, use solder wick to clean the holes. Don't force the

sockets into the holes! The extreme left and right positions get two rows of sockets (IC25, IC36), and the rest (IC26-IC35) have only the right-hand socket installed (with the board oriented so that the sockets are closest to you). Refer to the installation guide for a picture).

8. Install the 6-pin FFC connector in the indicated position. Pin #2 does not go through a hole, but is soldered on top of trace that had the solder mask removed in step #6.

9. Insert memory board in sockets just installed. Connect 6 pin FFC cable between board and connector installed in step #8

10. Reinstall KLM-1061 board, re-soldering ground wire if necessary.

---KLM-780 Modification---

The modification to the original CPU board involves removing several IC's and replacing four of them with IC sockets, and adding wire jumpers.

The safest method is to snip each leg of the IC's individually with small flush cutters, remove the IC body, then remove the legs from the PCB one at a time with a soldering iron and small pliers or tweezers. Extreme care must be taken here, as damage to the PCB will result in intermittent problems or complete loss of functionality.

1. Using flush cutters, remove the following IC's:

- IC15 (74LS138)
- IC21 (8085)
- IC27 (74LS08)
- IC28 (74LS139)
- IC30 (74HC74)
- IC31 (74LS32)
- IC6 (uPD765) - This IC must be replaced with a new one. This part is available from many vendors (eBay, utSource, etc.)

IC15, IC21, IC27, and IC6 need to have the PCB holes cleaned out as they will be replaced with sockets. IC28, IC30, and IC31 can have the old IC legs trimmed flush with the PCB, the old solder does not need to be removed.

Remove IC12, IC18, and IC19 from their sockets.

Remove C28 (1uF electrolytic, near IC21). It can simply be clipped from the PCB.

2. Install IC sockets in the following locations:

- IC 6 (40 pin)
- IC21 (40 pin)
- IC15 (16 pin)
- IC27 (14 pin)

3. Locate IC7 (SED9420C). Using flush cutters, cut pin #11 (second from the end, it will have a "10" in white silkscreen beside it). Cut the pin just above the PCB. Bend pin #11 up so it's not touching the PCB. There should be about 2mm between the cut end of pin #11 and the PCB.

4. Clean the hole in the PCB that pin #11 feeds through. Using the supplied wire, strip 2mm from the end of the wire. Feed the end of the wire from the underside of the PCB, through the now empty hole for pin #11, and solder the wire to the cut pin #11. The object is to not have pin #11 or the wire now soldered to it make electrical contact with the hole for pin #11.

5. Solder the other end of the wire to IC6 pin 16 (IC6 position now occupied by 40-pin socket).

6. Solder a jumper wire between IC28 pin 16 and pins 6 and 7. (74LS139, now removed).

7. Re-install the KLM-780 board inside the DSS-1. When replacing connectors CN5A and CN7A, bend the wires as flat as possible.

8. Plug the CPU daughterboard into the sockets just installed. Take care that no pins are bent and that the pins line up with the sockets just installed. If necessary, gently bend any pin that does not register in the socket correctly. The USB connectors should be close to the left side of the instrument.

9. Install the replacement uPD765 floppy controller in the empty 40-pin socket on the CPU daughterboard. Ensure correct orientation.

10. Connect the supplied 14-pin FFC cable between the memory board (contacts down) and CPU board (contacts up).

11. Run memory and switch tests to verify functionality. Check that both USB ports function using a USB flash drive. Do not hot-swap the USB drive. It must be inserted before power-up.