Fixing a Sony Wega with a 6 or 7 blink code

I converted the web article into this set of printable instructions as a way to make this repair easier for those who want to have a printed reference so that it won't be necessary to keep referring to a computer while doing the repair. The original article can be found here: http://k0lee.com/2011/05/fixing-a-sony-wega-with-6-or-7-blink-code/

To provide a little background, I returned home one day only to find that our Sony Wega TV (Model KV34HS420) was no longer working. It would respond to the remote control and begin to start to turn on, but then it would turn itself off before a picture appeared on the screen. After that, the standby/timer LED would continue blinking 6 or 7 times. This blinking LED is a diagnostic code, but its description of the potential issue provided little value. After reading a few dozen postings on the issue, a pattern began to emerge that made me hopeful that I could repair it myself.

We purchased this TV in 2005 while the jury was still out about which flat panel TV technology would eventually replace the tried-and-true CRT technology. Back then, the LCD and plasma flat panel displays still had viewing angle and reliability issues and cost 2 or 3 times as much as an equivalent-sized CRT model and so we just decided to replace our 15-year-old Sony CRT TV with a more modern HD-capable CRT TV. I was hoping to get 15 years out of this model as well before having to send it to the recycler.

This TV has excellent picture quality along with no restrictions in viewing angle, and other than its size and weight, I found it much better than what was available with newer technologies at the time. It sits in a corner and therefore takes up no more room than an equivalent size flat panel display. So, after only 6 years, I was wondering whether it would need to be replaced or if I could fix it. After a fair amount of forum reading, I found that this 6 or 7 LED blink code was a rather common problem, along with a common solution, namely to replace the MCZ3001DB integrated circuits known as IC8002 and IC6501 on the 'D' board. This chip is functionally identical to earlier versions of it known as MCZ3001D or MCZ3001DA. The forums had many people describing their success at making the repair, but pictures of this procedure were non-existent, which is why I gathered the information together for others who wanted to give it a try. Also, the level of difficulty and amount of work involved was not clearly described, so I hope to explain and show what I did so the reader can determine whether it is within his or her skill level to attempt this repair.

This TV weighs 200 lbs. I didn't want to have to move it from its stand. Fortunately, it was possible to remove the entire back shell simply by removing all of its screws and sliding it off with the TV while still on the stand. There are a lot of screws, about a dozen around the periphery of the TV along with several more on the back panel where the connectors are located, but fortunately, it's a one-person job although it wouldn't hurt to have a helper because the shell, although fairly lightweight, is bulky. Removing the shell allows access to the 'D' board.

If you have never unsoldered components from a circuit board, you should search for the term 'desoldering' on YouTube where you'll see examples of how to use a soldering iron and vacuum solder sucker (as shown in Fig 2) to remove the solder from the legs of the existing ICs. Also, don't use a soldering gun since it produces too much heat and can damage the board and traces. Use a pencil-type soldering iron that is rated between 25-45 watts to minimize the possibility of damaging the board with excessive heat.

Fig 1. After removing about a 17 screws, the rear shell can be slipped off.

I should mention that before removing the cover, you must unplug the TV and give it a few hours for the high voltages to dissipate so as to avoid shock hazards. It's best to unplug it and wait overnight, since if the TV is not working so there's no need for it to remain connected to power.

Fig 2. A spring loaded solder sucker like this one works well to help remove the solder. A pencil-soldering iron with a sharp tip that is rated at 25 watts is necessary to melt the solder.

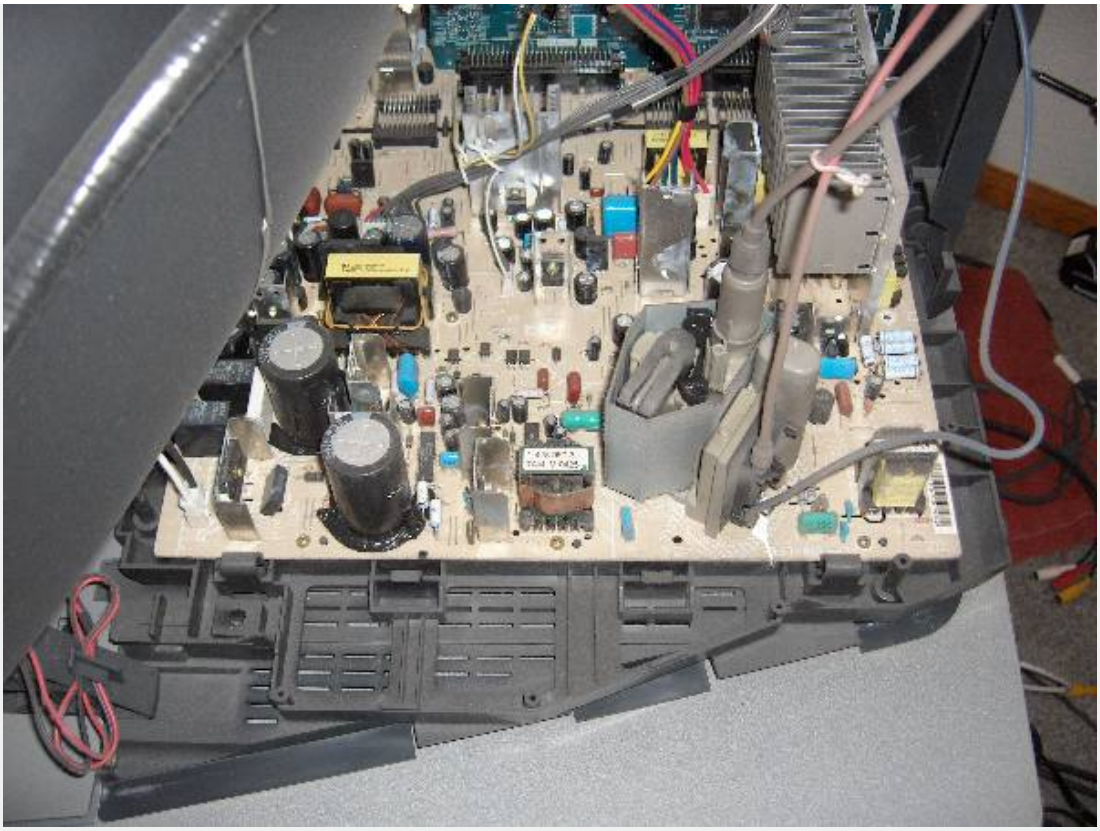

Fig 3. The 'D' board shown above is held in with about 8 screws.

It wasn’t clear how to remove the board, or if it would be necessary to undo all of the wiring connections. Some of the connectors were easy to remove, but the 3 high voltage wires that connect to the CRT did not have easy-to-unplug connections. I eventually figured out that I didn’t need to remove those wires at all. There are a number of connectors that need to be flipped upward to disconnect the ‘D’ board from an adjacent board. It wasn’t clear at first how they worked, but if you pull them upward, they unsnap from the ‘D’ board and pivot up 90 degrees like a draw bridge. I unplugged all the other cables I could find, removed about 8 screws, and the board came out far enough to let me rotate it into a position where I could access the bottom of the board. It was necessary to use a stubby screw driver to remove one screw that was far forward, hidden between two connectors, and just under the CRT. The board was still tethered by the high voltage connections, but I was able to fix it ‘in place’, by turning it over like shown in the image below.

Some comments of the blog article reported that the board and the plastic tray it’s mounted to can be ‘slid back’ a little after unlatching two plastic latches to get around the issue of having to use a stubby screwdriver to access the screw under the CRT. Others have reported that they cut the HV wires and then soldered them back together (with heatshrink to re-insulated them) so that they could repair the board on a workbench. The service manual indicates that if you push in on the wires connected to the flyback transformer and rotate them ¼ turn counter clockwise, the wires will release. But I didn’t do that since I repaired the board in place and didn’t have to disconnect those wires.

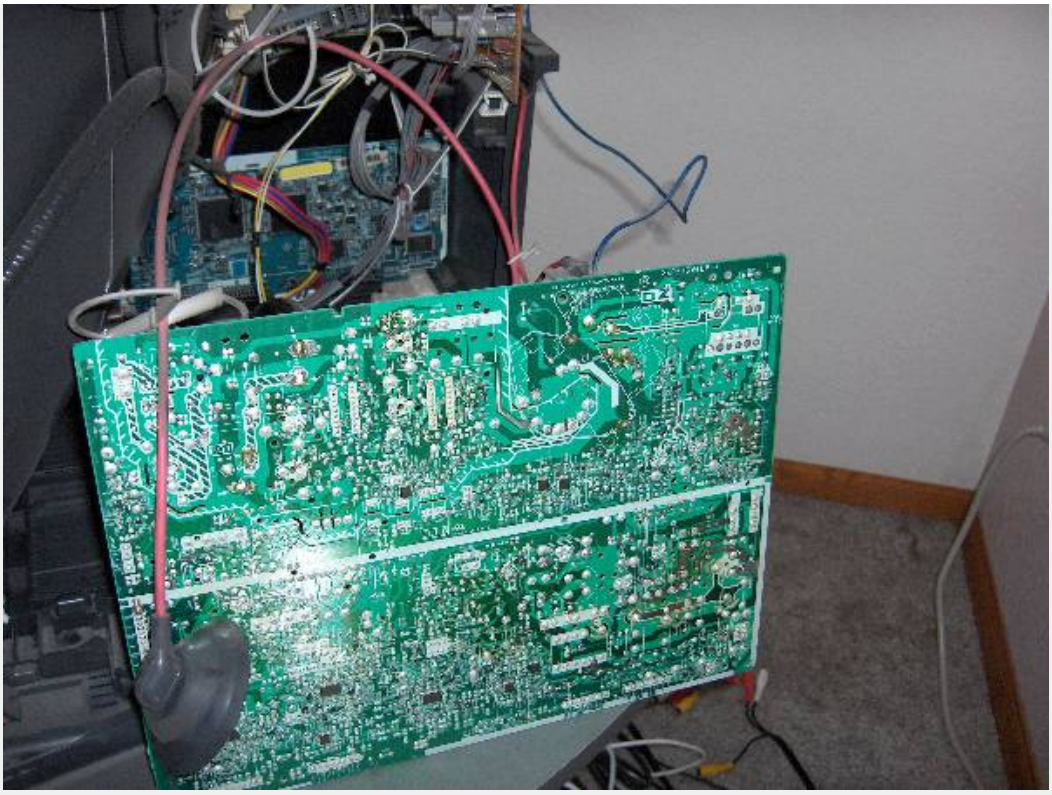

Fig 4. Bottom of Sony 'D' board shown rotated in repair position. Note, it's not necessary to disconnect the wire with the suction-cup-like insulator on it from the CRT.

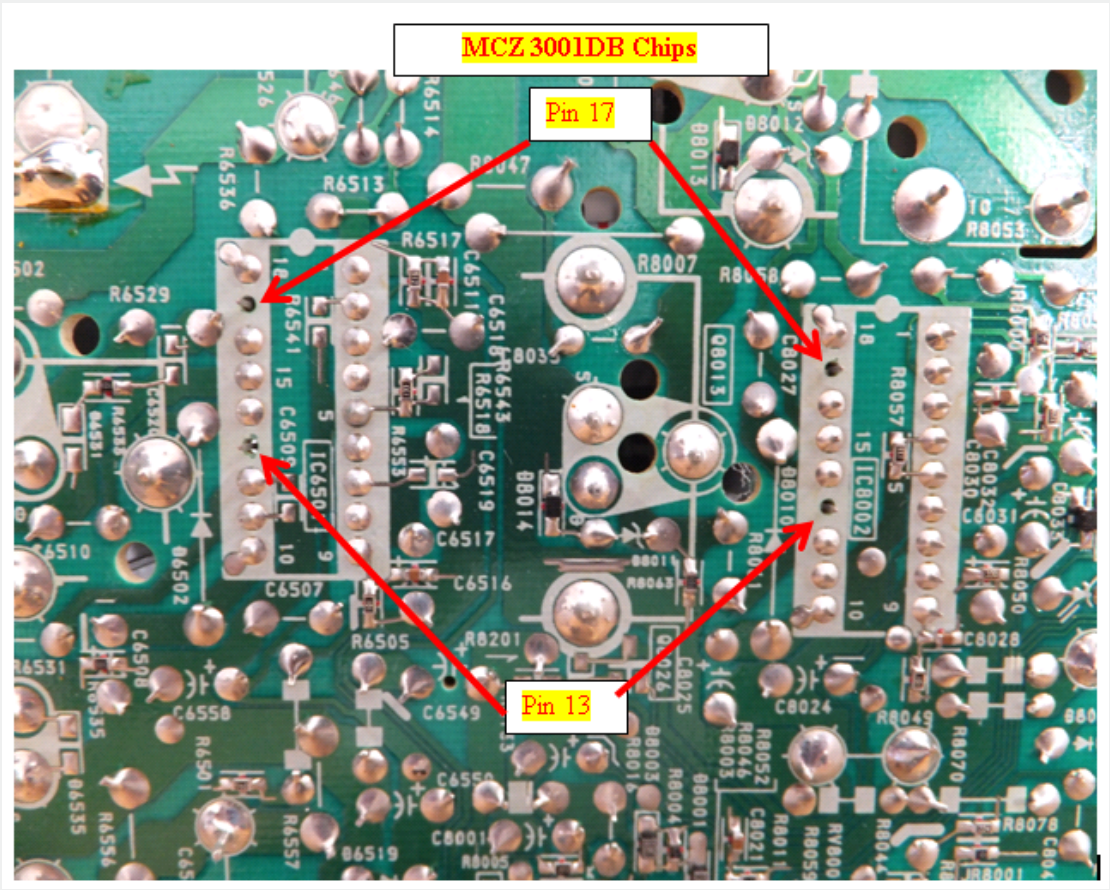

Fig 5. Do NOT solder pins 13 or 17. If you're using a socket, it would be best to clip the legs in those holes off the socket.

Be aware that each chip has two pins are not soldered to the board (pins 13 and 17) on most D-boards. This is normal and so don't solder those pins if they weren't soldered initially or else the fix will not work. Take note of the orientation of the chips since there is a notch on one end facing the closest edge of the board. You do NOT want to install the chips backwards. Also, don't solder the new chips in directly. Use sockets in case you ever need to do this repair again, since having to unsolder these chips is what creates most of the work. If they were socketed in the first place, you could replace them without having to remove the board or doing any soldering at all.

After replacing the ICs with sockets, you'll need to install the replacement ICs. Odds are that only one of the chips is bad, but since you won't know which one, it's best to just replace them both. It is necessary to squeeze the pins together to get the legs aligned with the holes in the sockets. This style of IC has its legs spread out by default, and so they won't automatically align unless you pre-bend them inward just a little to align with the holes in the socket. Carefully examine the chips after you install them to make sure all the legs made it into the socket.

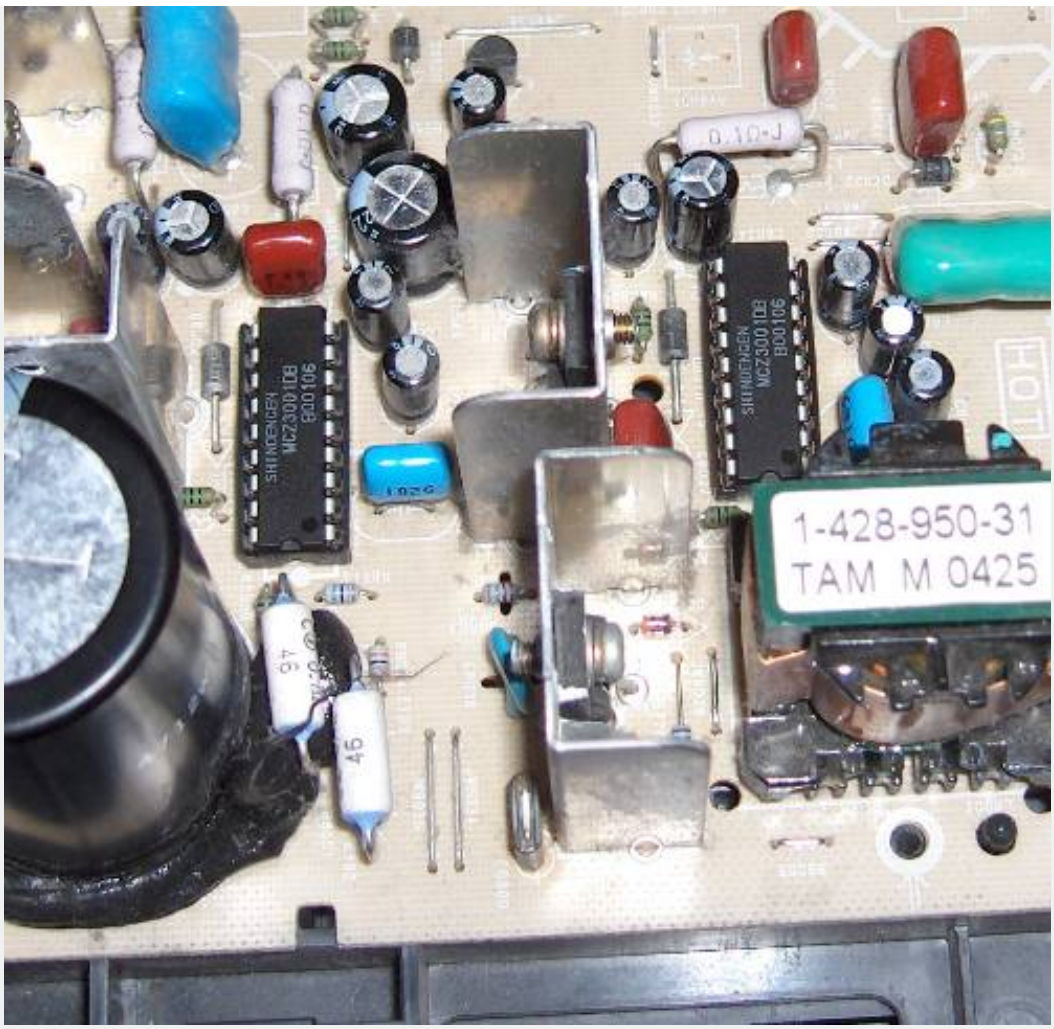

Fig 6. IC8002 and IC6501 installed in their new sockets.

After re-installing the board and attaching all the cables, it would be a good idea to test it to make sure the repair worked before reinstalling the cover. With luck, your TV will be back up and running, avoiding a premature trip to

the recycler. I can't guarantee this fix will work for you, but the consensus on the forums is that it frequently fixes the 6 or 7 blink code problems on the Sony Wega CRT models.

Troubleshooting Tips:

If the repair doesn't appear to work the first time you turn on the TV, I always advise using these troubleshooting tips. When I refer to the IC, I mean the MCZ3001DB Integrated Circuit. Also, after you've turned the TV back off, then unplug it and make sure to wait at least 20 minutes after you've unplugged it for the voltages to dissipate before touching any components inside the TV.

- Check for any cables that didn't get re-attached after re-assembly.
- Make sure pins 13 and 17 are not soldered and not making electric contact between the board and the IC.
- Check for missing solder or cold solder joints. The solder joints should be shiny, not dull and there shouldn't be any voids between the pins and the solder. A cold joint will have a dull appearance. Use a magnifying glass to inspect your work.
- Check for solder bridges. A solder bridge is when the solder connects two pins or traces that should not be connected. Some solder wick (available at any RadioShack) is good for removing solder from these bridges although it is not as useful for getting solder out of holes in the board, that's what the solder sucker excels at. But for removing bridges, solder wick works best. If you've never used solder wick, YouTube has some short videos on the topic.
- Carefully examine the ICs and sockets and make sure all the legs made it into the holes in the sockets and are not bent under the chip.
- The ICs have a small half circle notch on one end. This notch must face the closest edge of the board as shown in the picture. If either one has been inserted incorrectly with the power applied it will likely have damaged the IC. If you installed an IC backwards and applied power, you can try turning the IC around, but if it still doesn't work, you'll need to replace the IC.