Mitsubishi EX320U Projector Disassembly

This guide covers disassembly and cleaning of...

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INTRODUCTION

This guide covers disassembly and cleaning of the optical components. Sometimes, dust or contamination can be sucked into the projector by the fan, and if this is deposited on any of the optical components it can cause shadowy patches on the projected image. Cleaning is fairly straightforward, given a little care and patience.

Other Mitsubishi projectors are likely to be similar in construction, and even if you're faced with a DLP projector of a completely different make you may well get some useful tips from this guide if you haven't tackled a projector before. An Acer S1210 I recently worked on follows very similar principles, making me think it could well have come from a Mitsubishi factory.

DLP projectors contain a DLP chip containing an array of microscopic mirrors, each of which can be tilted electronically in order to reflect the light from the lamp onto the screen or not. A colour wheel in front of the lamp rotates at high speed, causing the DLP chip to be illuminated by each of the three primary colours in turn, in order to build up a colour image.

Problems with the colour wheel can occur, either due to it not being able to spin freely, or through problems with the sensor which detects its rotational position. In some projectors this is detected automatically and indicated by status lights, or it may cause the image to flicker in different colours. These problems are not covered in the present guide.

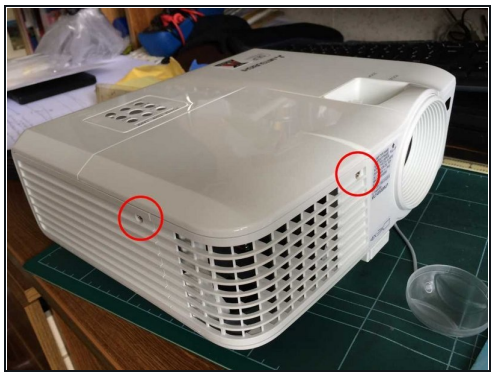
The main tools you will need are Pozidriv #1 and #2 screwdrivers and a 5mm (or 3/16") nut driver (or pliers, at a pinch). It will be greatly helpful if the #2 screwdriver (at least) is magnetic, and it needs to have a shaft 75mm (3") long no thicker than the bit, in order to access deeply recessed screws.

You will also need a spudger or other opening tool, and fine tweezers will be helpful.

TOOLS:

Mako Driver Kit - 64 Precision Bits (1)
Jimmy (1)
Tweezers (1)
Spudger (1)

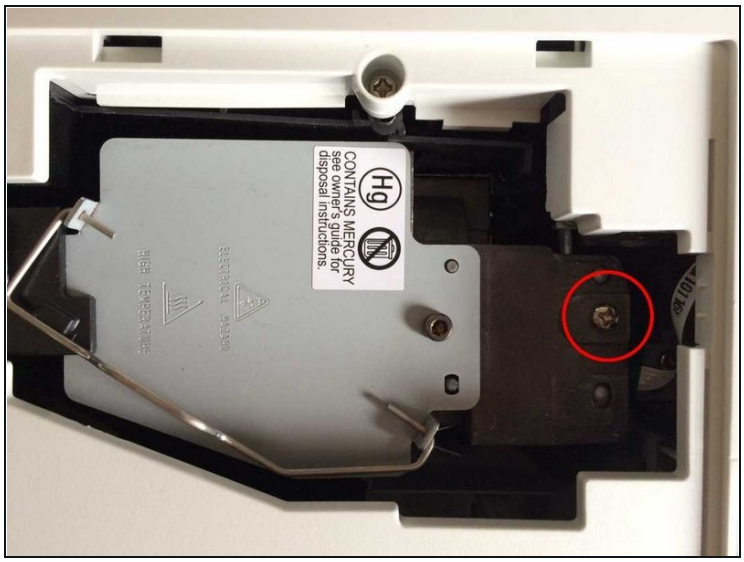
Step 1 — Lamp cover removal



- Remove 2 screws retaining the lamp cover.
- Lift the lamp cover from the front and remove.
- Peel off the transparent adhesive film and put it aside with the lamp cover.

⚠ Don't forget to replace the transparent cover on reassembly!

Step 2 — Lamp removal



- Lift up the wire handle then undo the lamp retaining screw. This is a captive screw which remains in the lamp assembly.
- Lift out the lamp, holding it only by the wire handle. Place the lamp in a clean polythene bag and set it aside in a safe place.

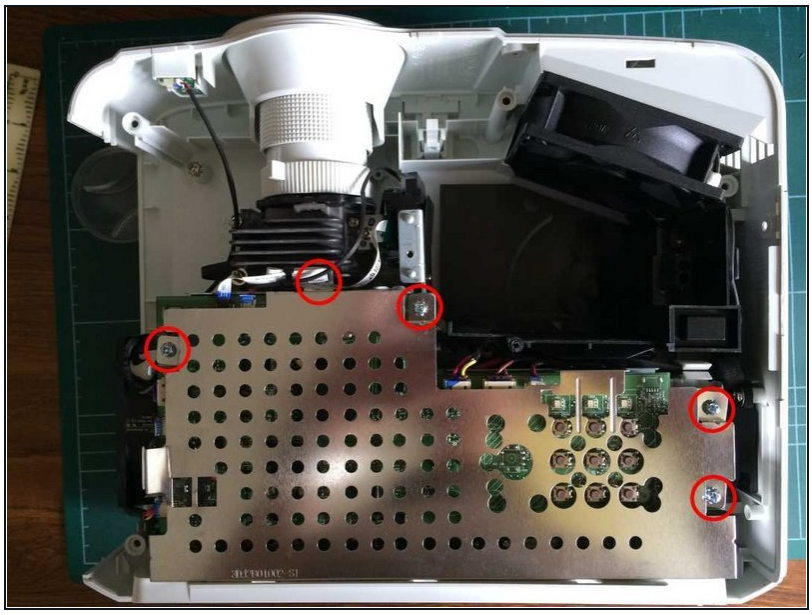
⚠ Caution: Do not touch any part of the lamp with your fingers, apart from the handle and the top cover. Finger grease on any glass parts is likely to shorten its life, and could cause it to explode.

Step 3 — Top cover removal



- Remove one screw from under the lamp cover.
- Turn the projector over and remove 5 screws from the bottom. These are quite deeply recessed and you will need a screwdriver at least 6cm long.
- Turn the projector the right way up again and work around the top cover with a spudger to release it from its clips. Lift the top cover off.

Step 4 — Metal shield removal - 1



- Remove 5 screws securing the metal shield.

ⓘ Note that the screw which locates in the optical assembly is hidden by a ribbon and a black cable. Carefully release them from their retaining clip in order to access the screw.

Step 5 — Metal shield removal - 2

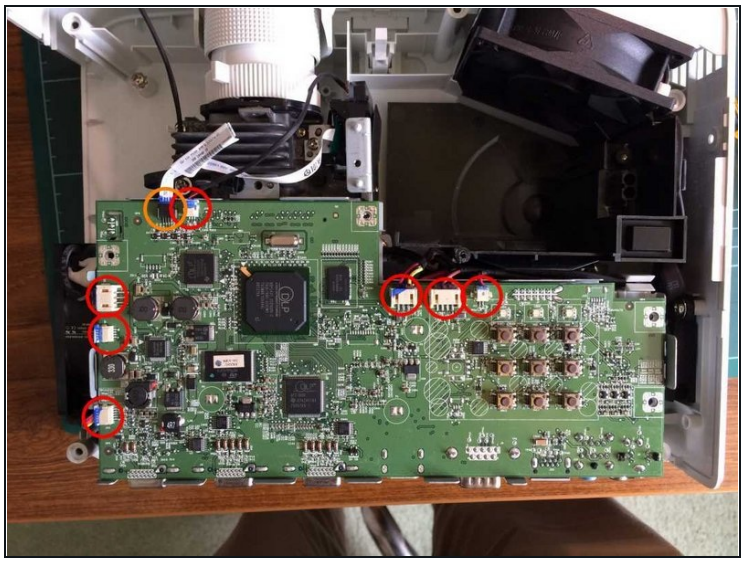
- Remove 3 screws from the back of the projector.
- Remove 8 binding posts from the D-type connectors, using a 5mm socket.
- The plastic back panel can now be lifted out.

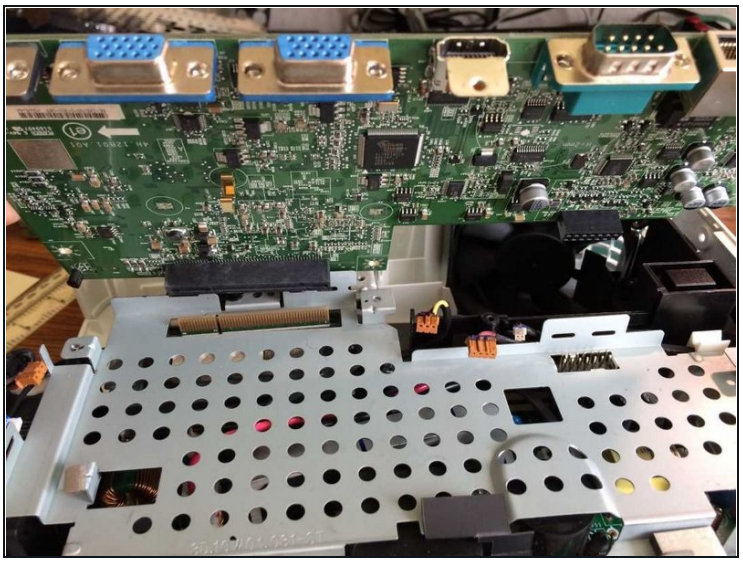
ⓘ Replacing the back panel can be a little tricky. Practice it now!

- Lift off the metal shield, gently releasing the clips on the sides and the front, and easing it over the sockets at the back.

⚠ This metal cover is flimsy and easily bent. Try not to bend it, but if you do (which is likely), be sure to bend it back.

Step 6 — Logic board removal





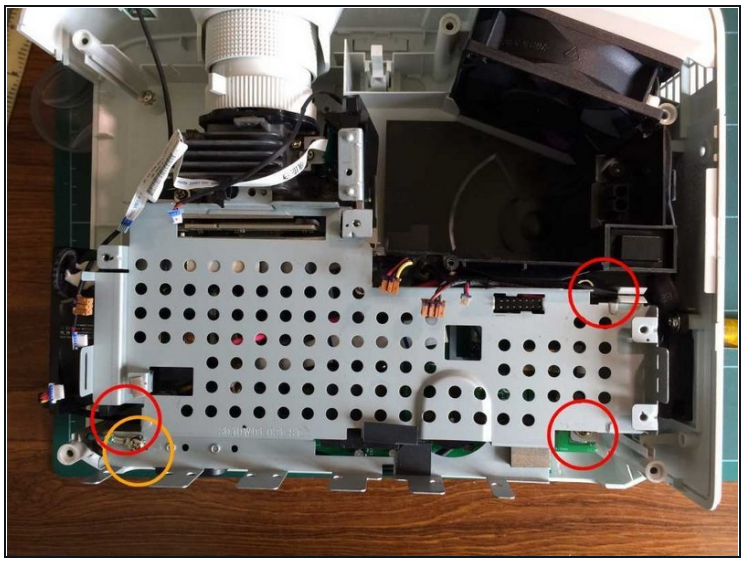
- Gently pull the ribbon cable by the optical assembly out of its socket.
- Disconnect 7 other cables.

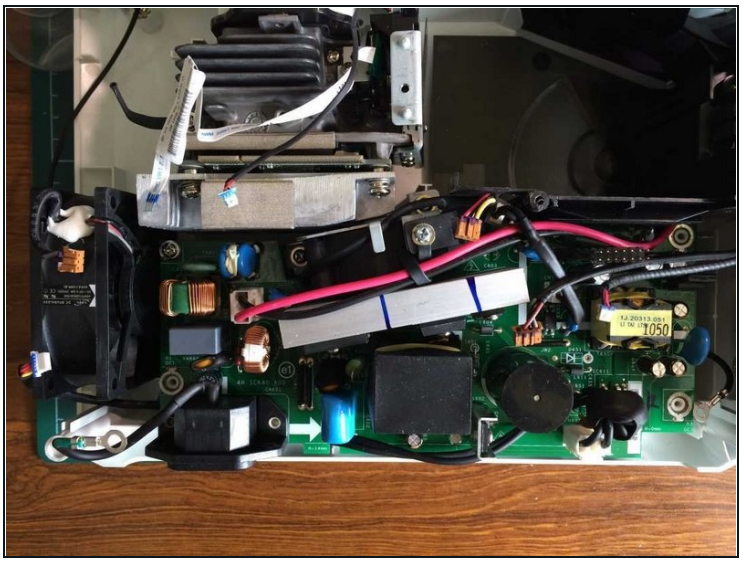
⚠ DO NOT disconnect the cables by pulling on the wires, but rather ease the plugs out of their sockets. They will come out quite easily if you grip them with a good quality pair of tweezers or repeatedly pull on one side then the other.

- You can now lift off and put aside the main logic board by easing it upwards from the front. When you get it off you will see that it was retained by 2 connectors: an edge connector on the optical assembly and a pin block to the right connecting it to the power supply board below.

⚠ On reassembly, make sure the two connectors on the underside of the logic board are properly engaged and pushed fully home.

Step 7 — Metal plate removal

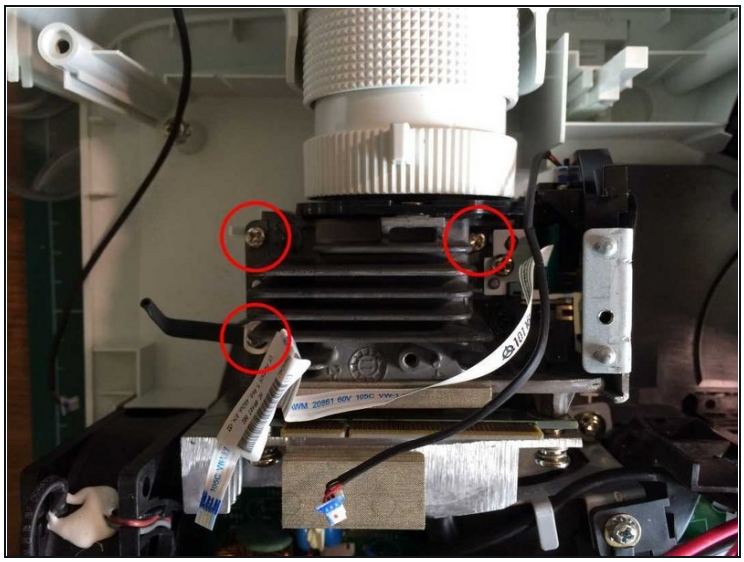


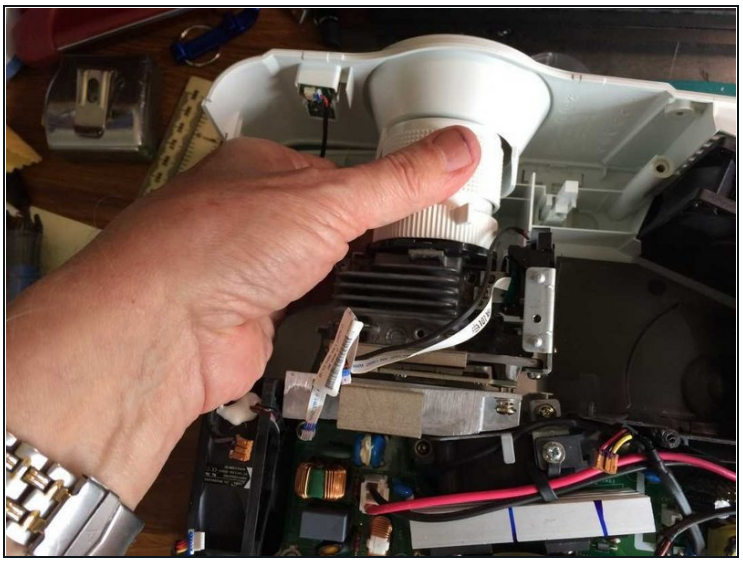


- Remove 3 self-tapping screws which fasten the metal plate to plastic posts below. You will need a long screwdriver and it will help greatly if it's magnetic. The rear screw on the right also retains an earthing lead.
- Remove a machine screw and its earthing lead.
- Lift off the metal plate.

ⓘ Note that on reassembly small holes or notches next to the screw holes have to locate in pegs before the metal plate will go fully home. Make sure none of the cables connecting to the main logic board are trapped underneath.

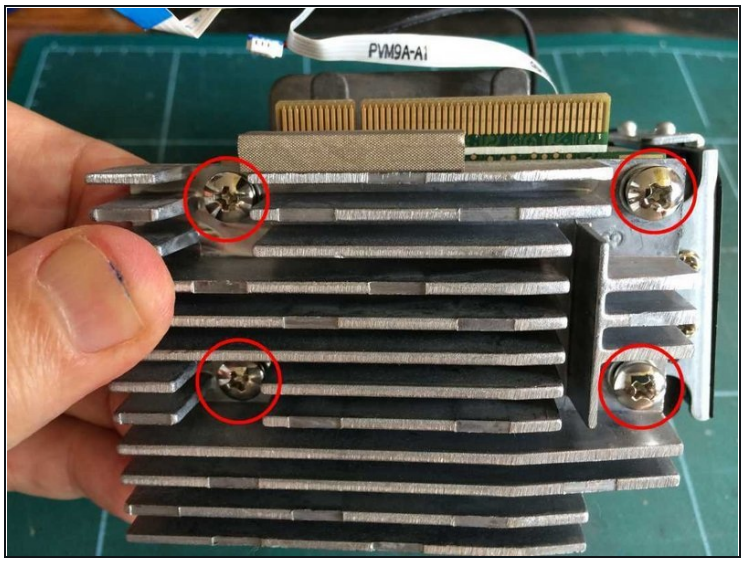
Step 8 — Optical assembly removal





- Remove 3 screws retaining the optical assembly. Note that only one of the two screws on the right should be removed.
- Gently lift out the optical assembly, disengaging the lens from the front panel.

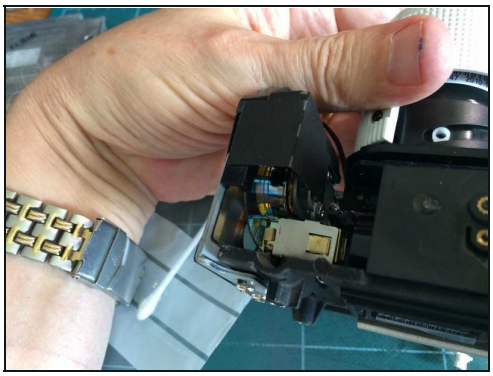
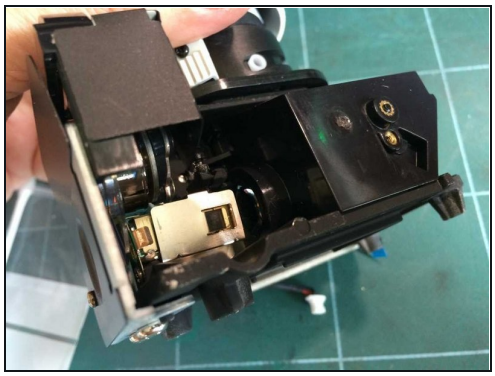
Step 9 — Removing the DLP chip



- Remove 4 screws and lift off the heat sink and DLP chip.
- Inspect the DLP for any dust. You can wipe it gently with a cotton wool bud moistened with isopropyl alcohol.

⚠ Unless you are going to reassemble it immediately, put the DLP chip assembly in a clean polythene bag to protect it from dust.

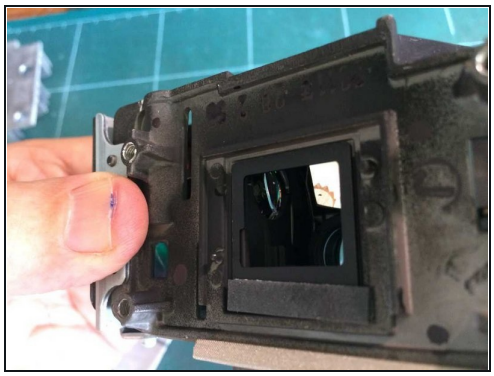
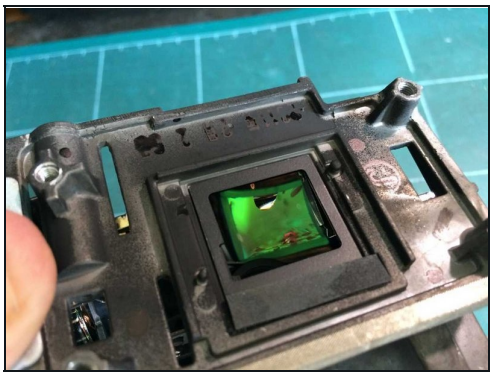
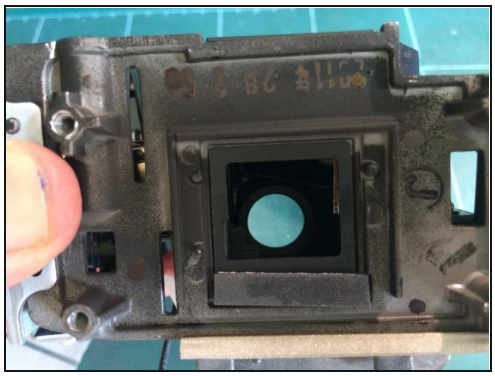
Step 10 — Optical path - 1

- Follow the light path and inspect carefully for dust or contamination. These pictures show the optical assembly upside down.
- Light enters from the lamp on the right, facing the screen (on the left in this picture since it's upside down).
- The light then passes through the colour wheel ...
- ... and into the collimator.

ⓘ If dust or contamination has been sucked into the projector by the fan, it can deposit on and around the collimator, resulting in shadowy patches on the projected image.

Step 11 — Optical path - 2

- The light enters the imaging chamber on the right (the left in the picture, as again, it's upside down).
- The light is reflected off a mirror in the floor of the chamber, focussing it onto the DLP chip, which is located in the aperture we're looking through.
- From the DLP chip, the light is reflected through the projection lens and hence on to the screen.

To reassemble your device, follow these instructions in reverse order.