

1 VHS Camcorder Teardown

I obtained an RCA Super VHS camcorder for free on craigslist. These old VHS camcorders are commonly available on ebay, for \$30-40, at the moment. It was designed by a firm in Indianapolis, made in Japan and uses primarily hitachi parts.

1.1 Work Log

The camcorder is a work of art, but it's also sad. The complexity, and amount of work put in to this device, by the engineers who made it, followed by the assemblers who had to deal with the myriad cables and boards... It's a mess. Within ten years of this camera being designed, it was obsolete. Was it worth it? Some people worked very hard to make this camcorder that become obsolete with the smaller mini DV cameras. I wouldn't have wanted that job. I would say this camcorder is more complex than most modern goods.¹

1.2 What's inside

In this particular camcorder we get the following parts:

- Various motors for focus, zoom, shutter open / close
- Camera Lens Assembly and Image sensor
- Small image tube
- 14V NiCd charger (takes in 120V)
- various hardware, some inductors, and junk boards, gears, springs, glass delay lines, etc...

¹In retrospect, I'm sure a lot of it was reused tech. VCRs had been out for 10 years (online says JVC released in 1977, and this cam was 1989), I think by then? But even 10 years is not a lot.

Teardown time is about 1-3 hours, minimum.

1.3 Image Sensor Reuse

There is a Hitachi Super H H-2 CPU on board with the image sensor. 5V and GND are clearly marked on one of the connectors. It draws around 50mA at idle.

I would like to reuse the image sensor but as of yet don't know how to. Further information could be obtained from either this or a similar camcorders service manual. Alternatively, I could purchase a camera module off ebay and work with that². I don't yet have an ID for the image sensor used on board. If I can't get the image sensor working, I can instead just use the lens somewhere else (I will try with the OV7670). Disassembly of the lens from the image sensor required hot air to release glue from some screws.

1.4 Modular Boards

The assembly of this camera has a style of using vertical daughter boards spread throughout. See photos.

²Currently, the go to camera sensor for arduino is the OV7670 on ebay. Search "cmos camera module". There is also some options from Adafruit and Sparkfun for a comparable price.