

[\[Mirrors\]](#)

VCR FIRST AID

Contents:

- [1. About the Author & Copyright](#)
- [2. Introduction](#)
- [2.1\) Safety](#)
- [3. Problems](#)
- [3.1\) VCR behaving strangely](#)
- [3.2\) Ejecting a cassette from an uncooperative VCR](#)
- [3.3\) Video turns to snow while watching a movie](#)
- [3.4\) Recovering damaged or broken tapes](#)

[Document Version: 1.11] [Last Updated: 7/30/96]

1. About the Author & Copyright

Author: Samuel M. Goldwasser

E-Mail: sam@stdavids.picker.com

Corrections/suggestions: [\[Feedback Form\]](#) [\[mailto\]](#)

Copyright (c) 1994, 1995, 1996

All Rights Reserved

Reproduction of this document in whole or in part is permitted if both of the following conditions are satisfied:

1. This notice is included in its entirety at the beginning.
 2. There is no charge except to cover the costs of copying.
-

2. Introduction

This document is intended to address those problems with your VCR that just cannot wait. For detailed troubleshooting and repair procedures, refer to "[Notes on the Troubleshooting and Repair of Video Cassette Recorders](#)" which is also available at this site. Most of the information in this article is a subset of what in in that document.

2.1) Safety

If you remove the cover(s) of a VCR (ignoring the warnings about no user serviceable parts, etc.), there are some risks to you and your VCR. You also, of course, void the warranty (at least in principle). Therefore, if the unit is still under warranty, having it serviced professionally may be your wisest option.

Since nearly everything described below can and should be done with the plug pulled from the outlet, there is little danger to you electrically as long as you stay away from the power supply (usually where the cord

connects) where some large capacitors may retain a charge for as much as few minutes.

There are, however, various sharp sheet metal brackets which will be out to attach you if you reach into the bowels of the VCR. Just be aware of this hazard as you poke and prod (but only where directed!).

To avoid damage to the VCR, don't turn anything you don't understand fully and stay away from the video drum (the roughly 3 inch diameter cylinder mounted on an angle (this is normal, don't use Vise Grips in an attempt to straighten it out!!!). The reason is that the parts of the VCR that scans the tape - the video heads - are very fragile being little chips of ferrite - a ceramic material.

3. Problems

3.1) VCR behaving strangely

Try unplugging it for a couple of minutes. Sometimes, a power surge will put the internal microcomputer into a confused state and just resetting it is all that is needed.

3.2) Ejecting a cassette from an uncooperative VCR

It is a common experience - the rental movie is due back at the video store ****now**** but no matter how you press the EJECT button, yell, scream, hold your breath, or jump up and down, the cassette refuses to be appear.

This section only deals with getting the cassette out without damaging either your (or the video store's) valuable recording or VCR.

Under no circumstances should you force anything - both your tape and your VCR will be history! If the rental tape really needs to be go back and you are unable or unwilling to risk going into your VCR, explain the situation to the video store - they would rather you get it out in such a way that it is not damaged just as much as you do.

First, see if the VCR just got into a confused state - pull the plug and patiently wait a minute or two. This will seem like an eternity but may reset the microcontroller and all will be well. These things happen.

If this is not successful, you will need to open up the VCR (unplug it first!) and attempt to cycle the mechanisms by hand. Probably both top and bottom covers will need to be removed. This will require a medium size philips screwdriver. There are usually 2 to 4 screws on top and 2 to 10 screws on the bottom. Don't be tempted to turn anything you see in there just yet!

CAUTION: Do not plug the VCR into the AC outlet while in the middle of this treatment as there is no telling what it will do. The end result might be more of a mess than what you had originally! The VCR might in its infinite wisdom decide to complete the eject cycle but catch the tape on some guidepost or crinkle it in some other creative manner.

The following procedures assume that there are no broken parts, foreign objects, or other damage which might prevent manual cycling of the tape loading and cassette loading mechanism. (Inspect for toys and rocks.) Also note that some VCR designs use solenoids to engage various operations. This will complicate your task (to put it mildly) as locating and activating the proper ones at the appropriate time is, well, a treat.

Depending on what the VCR was doing or attempting to do when it got confused, you may need to do both (1) and (2) or just (2).

Tape unloading

The first step is to determine if the tape has been unloaded from the video head drum back into the cassette. If the tape is fully retracted into the cassette - there is no tape showing, then go on to step (2). If not, you will need to figure out which shaft or pulley to turn to unload the tape. Trace the linkage or gears that move the roller guide assemblies back to their motor - it may be the main capstan motor or a separate small motor used only for this purpose. (The roller guide assemblies include a white (usually) ceramic roller on a vertical post along side a funny looking tilted guidepost. They slide on tracks on either side of the video head drum and position the tape wrapped around the video drum.) Rotate this in the direction which moves the roller guides back towards the cassette.

It will take many revolutions - be persistent. If you feel any significant resistance or the roller guides move out toward the drum, turn the other way. The tape is fully unloaded when the roller guides are all the way into the cassette and the tape is straight across the cassette's stationary guideposts.

If a single motor performs both the tape loading and cassette loading functions, stop turning as soon as you see the cassette start to rise and read the next section before proceeding.

If you are not fully successful or if there is still a tape loop outside the cassette even once you have been turning for what seems to be an eternity, you can still try to eject the cassette but will need to be extra careful not to crinkle the tape as the cassette door closes with the tape sticking out. Before proceeding on in this case, try to find a way to turn one of the reels to pull that tape back in as this will make your task a lot easier. There may be an idler that swings between the two reels and this may be accessible from the bottom (the cassette will block it on top).

Cassette unloading

Once the tape is fully retracted into the cassette, the cassette can be ejected safely. If a tape loop is still sticking out of the cassette - and you care about the recording - you will need to be especially careful not to crinkle the tape as the cassette door closes. It is usually not possible to get the cassette fully out without its door closing, so the best you can do is to make sure when this happens, the tape is flat across the gap. With care, it should survive.

On a top loader, there is usually a solenoid specifically for EJECT or a simple mechanical pushbutton. Once the appropriate lever is pressed, the cassette should pop up - hold the basket with one hand as you do this to prevent any exposed tape loop from being crinkled.

On a front loader, locate the cassette loading motor and begin turning it in the appropriate direction - this will be fairly obvious assuming there are no broken gear teeth or other broken parts and that something isn't totally jammed. If this is the main capstan motor, then just continue turning as in (1). Eventually the cassette should raise up and out.

If you have a tape loop, be extra careful not to catch it on any guideposts or obstructions as you remove the cassette. Then, wind it back into the cassette by turning one of the reels (you may have to depress the release button on the bottom of the cassette with a pencil - this is the small hole in the center near the label side.)

Assuming the tape is not torn and not badly crinkled, it should be fine. If it is severely damaged, refer to the section: "Recovering damaged or broken tapes".

3.3) Video turns to snow while watching a movie

The most likely cause especially with old or rental tapes is that some oxide came off of the tape and clogged the spinning video heads. The oxide on old tapes tends to flake off and rental tapes are subject to abuse in VCRs of questionable pedigree. They may be creased or crinkled. Sometimes more serious damage results but in most cases, a good cleaning of the video heads (and other parts of the transport while you are at it - see the VCR FAQ additional info), possibly by hand, will restore your VCR to perfect health.

CAUTION: Read the following in its entirety to avoid an expensive lesson. Improper cleaning can ruin your expensive video heads. The head chips are very fragile and just rubbing them in the wrong direction (**NEVER** use an up-and-down motion) can break them completely off.

Manual cleaning using the proper head cleaning sticks is best but requires that you gain access to the interior of your VCR - i.e., take off the cover.

If you do not want to do this, you can try a wet type head cleaning tape. I do not recommend the dry type as they are much more abrasive and may cause premature wear of your video heads especially if used regularly. When using the wet type cleaning tapes, follow the directions and - very important - wait sufficient time for everything to dry out

CAUTION: If you do not wait long enough, the consequences can be unfortunate (and impressive) - wads of tape wrapped around the drum and caught in places where no tape should tread. Damage to the heads can also result. Needless to say, that tape will be ruined.

To clean by hand, you will need what are called 'head cleaning sticks'. These are covered by chamois and are safest. **DO NOT USE QTIPS (COTTON SWABS)**. These can catch on the ferrite cores and damage them or leave fibers stuck in the heads. QTips can be used for cleaning the other parts like the rollers and audio/control head but not the video heads.

To use the cleaning stick, moisten it with head cleaner or alcohol. Pure isopropyl is best, however, the 91% medicinal stuff is ok as long as you dry everything pretty quickly. Don't flood it as it will take a long time to dry and you run the risk of any water in the alcohol sitting on surfaces and resulting in rust (very unlikely, but don't take the chance).

WARNING: Do not use any strong solvents like acetone (nail polish remover), paint thinner, fuming sulphuric acid, etc. Some of these may eat at the adhesives or plastic components of your VCR.

Gently hold the flat portion of the chamois against the upper cylinder where it is joined to the lower (non-rotating) cylinder. Rotate the upper cylinder by hand so that the heads brush up against the moist chamois.

WARNING: DO NOT MOVE THE HEAD CLEANING STICK UP-AND-DOWN - you will break the fragile ferrite of the heads - \$\$\$\$\$. Side-to-side is ok as long as you are gentle.

Depending on how dirty your heads are, a couple of passes may be enough. Let everything dry out for at least 1/2 hour. This process can be repeated. However, one pass will usually do it.

In addition, inspect and clean the drum itself staying safely away from the video head chips. The five fine grooves in the drum help control the air bearing that the tape rides on and helps to stabilize tape motion. These should be clear of dirt and tape oxide (DO NOT use anything sharp or hard - the moistened head cleaning sticks will work).

WARNING: Don't be tempted to try to clean the heads when they are spinning while playing a tape. Professionals may have their favorite technique but just stick to the recommendations above until you have cleaned your 1000th VCR!

3.4) Recovering damaged or broken tapes

So you just pulled your favorite tape from the VCR and there are two tape ends dangling from it. Or, perhaps, your VCR has just munched on that tape and a section is now seriously crinkled. Maybe you haven't been following the recommendations on preventive maintenance; maybe your VCR was just hungry. In any case, what to do? The recording is, of course, irreplaceable.

Despite this, I recommend you chuck it. An imperfect splice or seriously crinkled section of tape can shatter your video heads - the most expensive single part in a VCR. If it is something you really treasure, than what I would do is the following:

NOTE: If you have never seen the inside of a video cassette, try the following on a couple you really don't care about first so that if you screw up, there is no great loss. Too bad AOL doesn't send out Internet software on video cassettes, huh?

CAUTION: The video tape itself is really really thin and easily crinkled. Be very gentle when handling it and avoid touching the oxide (dull side) if at all possible.

1. Locate a garbage cassette and disassemble it. Throw away the tape but save everything else including the reels.
2. Construct two cassettes from the combined collection of parts you now have. Cut out any sections of tape that got mangled.

Cassette 1 has the first section of tape (before the break) and uses one empty reel from the garbage cassette for the supply reel. Rewind this to the beginning.

Cassette 2 has the second section of tape (after the break) and uses the other empty reel from the garbage cassette for the takeup reel.

Use the little plastic plugs that came from the garbage tape reels or some adhesive tape to connect the tape to the reels.

3. If the break is at one end, you can just reconnect the bulk of the tape to the reel and dispose of the original leader. Just don't rewind or fast forward all the way to the end as the automatic end sensor will not work (for the particular end that has been repaired).
4. Copy to a good cassette.
5. Dispose of the original(s) or clearly mark 'DO NOT USE' with a detailed explanation.'

Filip (I'll buy a vowel) Gieszczykiewicz (filip@paranoia.com) is a little more definitive about this: "I find the destruction of it more fulfilling :-) ... put it in a paper bag and smash the life out of it with a big, heavy hammer - or a small ball hammer for an even higher satisfaction ratio :-)"

The idea is to never have a splice in a VHS cassette. (Even a seriously crinkled tape such as might result from a tape eating incident can damage the heads.) It is possible to splice safely but as noted, it can be quite costly if you don't get it quite right.

Written by Samuel M. Goldwasser. [\[Feedback Form\]](#) [\[mailto\]](#). The most recent version is available on the WWW server <http://www.paranoia.com/~filip/> [\[Copyright\]](#) [\[Disclaimer\]](#).