

To clean a disk drive

For IBM full height drives

By Ryan Harvey

Are you suddenly getting errors while reading disks on your IBM PC floppy drives? You've tried disk after disk and are always greeted with something like error reading drive A or B or are getting the Abort, Retry, Ignore error. Well assuming you've tried the obvious, like different disks, re-formatting the disk, and reseating the drive connections, you should continue reading. This guide will not cover adjusting the drive speed. The author has never had to go that far in the restoration of a drive. Please see the HSM manual on the doc's page for adjusting the drive speed!

Cleaning the heads

This first step is easy. Everyone has had those foam cleaning diskettes somewhere at one time. If you don't still have one, go pick one up you can find them on eBay or the local thrift stores and such.

OK, now that you have your cleaning diskette, let's put it to use. Most IBM drives were double sided however some of the early drives were single sided, you can easily find out what type of drive you have by looking at the lower right hand side of the floppy drive PCB with the front of the drive facing you. If you have two data cables coming from the heads you have a double sided or if you have one cable you have the single sided drive. On your cleaning disk you will need to pop out the correct number of openings. By now that cleaning agent it came with is dried up, or at least I would think so. Don't worry; it is just standard isopropyl alcohol. Locate a bottle of it, probably in the medicine cabinet or at any drugstore.

In one hand, hold the cleaning diskette, and in the other, hold the opened bottle of alcohol. Pour just a smidge on the foam of the cleaning diskette. You want it to be moist, not soaked. Put the disk in the drive you are cleaning. Try booting off it, or just initiate the command "Dir" 10 times. You need the disk to spin for about 20-30 seconds. Now, go take a break. The drive heads may have a bit of this data-erasing fluid on it, so you want to let it dry for about 10-15 minutes. If you really soaked the disk, give it 30 minutes. Don't forget to remove the disk before your break.

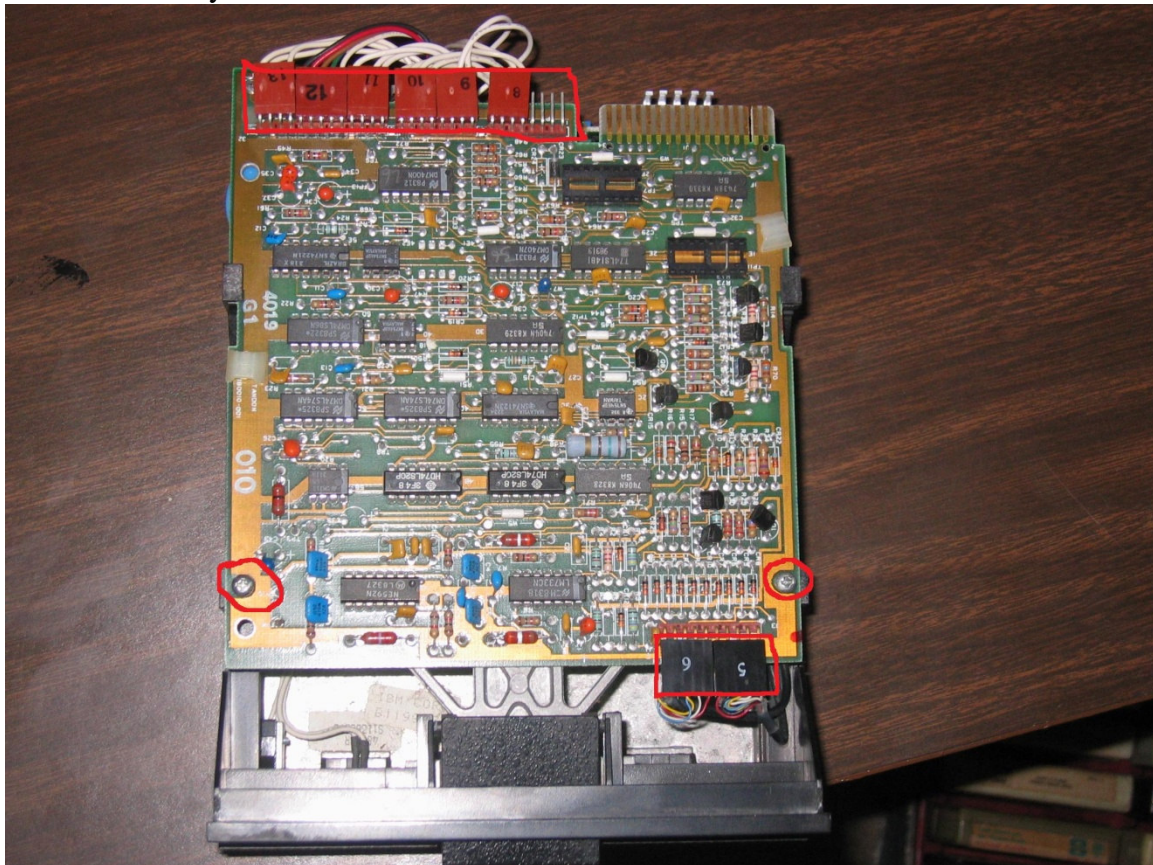
Now that is it done drying, put in a disk with some unimportant data on it; If you don't have any, just put in a formatted disk and copy some files to it. Initiate the command "dir." No errors? Great, it worked perfectly! If you get an error, go through the process again. If your disk is still damp, don't worry about putting more fluid on it. Instead of letting the disk spin for a total of 20 seconds, make it a total of 2 minutes. If that doesn't fix it, continue onward.

Cleaning and oiling the drive rails

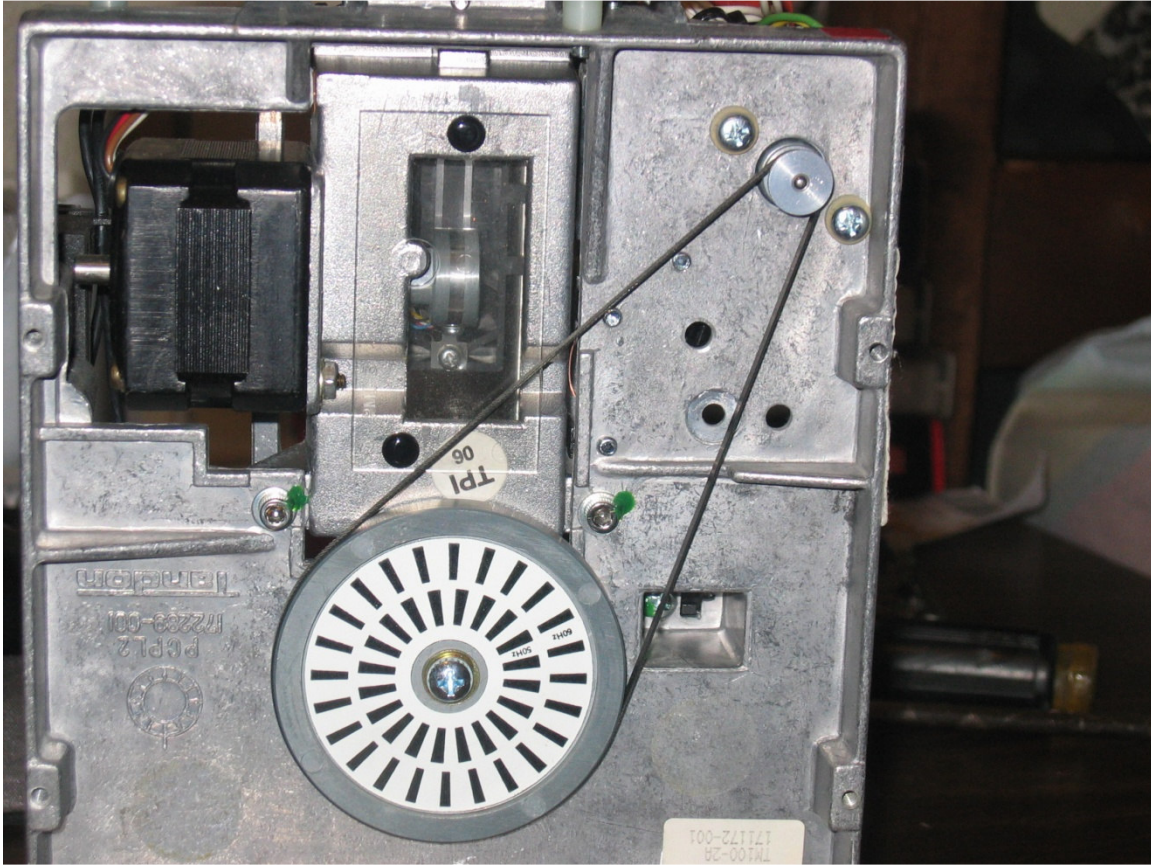
Removing the circuit board

Now for the part that requires work. Follow the instructions on the restoration page to get the drive(s) out of the unit. Take a look at the underbelly of the drive. Check the belt, make sure it isn't very loose, and has consistent quality. Turn the larger wheel where the belt spins, but only a few times. It should spin freely after the first spin. If all checks out alright, continue on. Take note on where each connector connects to on the top of the board. A picture would be best. If you have a second drive in the system, you can use it for a model, or take a picture and use it as a model. With a small Phillips head screwdriver, remove the screws on the circuit board. Put the screws aside. Push the board $1/8^{\text{th}}$ of an inch back, or until the clips are above the recessed area of the board. Slide the board to either side, and lift on the side that is free of the clip. Wiggle it to get the board out. Disconnect all the connectors, only after making note of where they connect. Set the board aside.

Circuit board key locations:

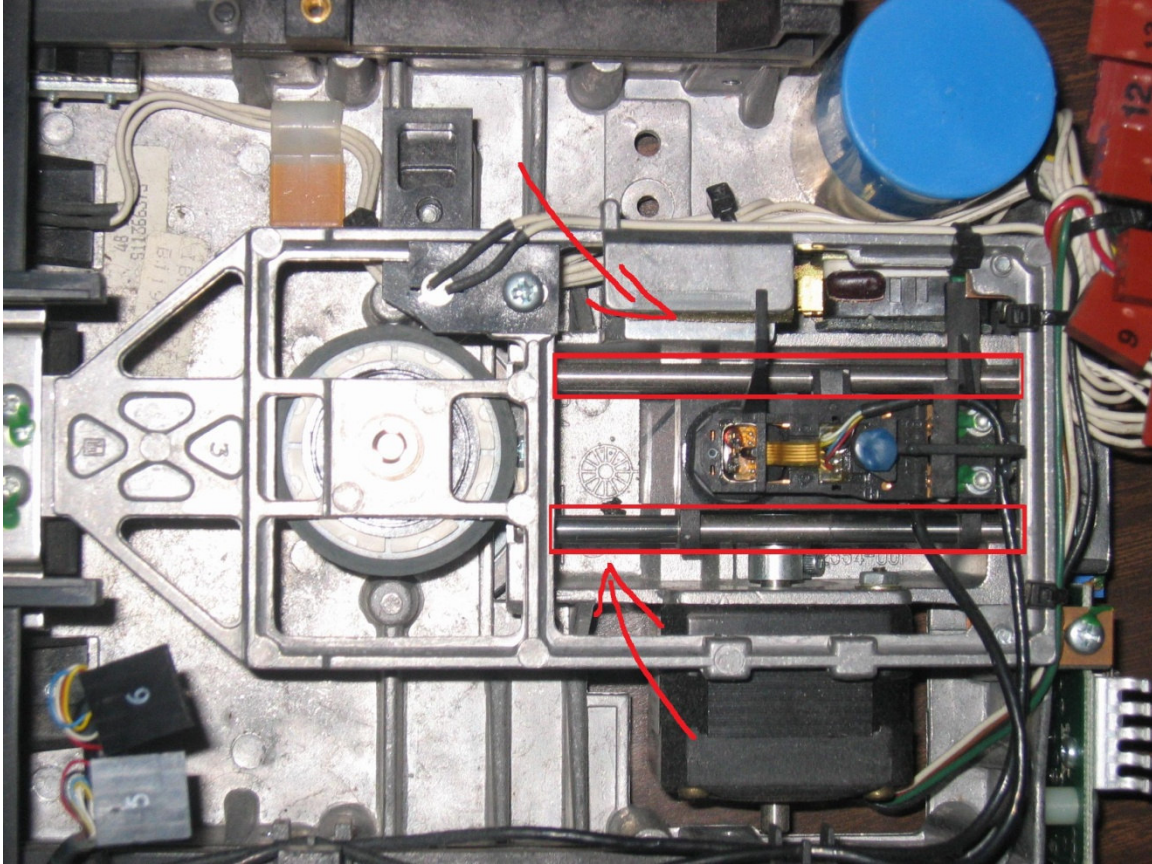


Example of a drive with a good belt:



For this step, grab the light machine oil, or lubricating oil designed to last a long time. The oil should be clear. Grab a q-tip and gently clean the drive rails of dust, dirt, and debris. Be sure to move the head forward and clean where it had been setting. Take a new q-tip, and get some of the oil on it. Gently apply the oil to the drive rails, giving them a nice thin coat of oil. Don't forget to get the bottom and sides of the rails, too, not just the top. You should also coat the part of the rail where the head is sitting. Move the head a bit and get the newly uncovered area. Oil **SHOULD NOT** be dripping off the rails. If it is, with the clean end of your q-tip, wipe the excess from the rails. Push the drive back and forth on the newly coated rails a few times.

Location of the rails:



Remounting the circuit board

Now all you have to do before putting the drive back in the system is to get the board mounted back on the drive. Just follow the photo above and you should have no problem. If the front of the drive is facing you, make sure that you screw in the right front screw first. This is to make sure the board is screwed in right. Trust me, if you don't do it this way, *you can mess up*. Make sure to get the pin connections right. You may need to use force for some, but not excessive force. Keep an eye on the pins to make sure none of them break.

Remounting the drive and testing it

Now just remount the drive, and reconnect all the cables. Follow the part of the restoration guide that deals with the taking out the floppy drives, but in reverse. Reassure all connections are 110% correct, on the drive and on the board.

Go ahead and close up the system. Now, put in your boot diskette into drive A and test the drive. If you refurbished drive A, it should be as simple as turning the system on with the boot disk in. If you refurbished a different drive, change to its location and put in a disk in it that lacks important info. Initiate the command "dir" and see what happens.

There you go! You've now refurbished your drive! It should be good for a long while. It shouldn't need any routine cleaning. As a matter of fact, you shouldn't need to do this for another five or more years, if luck is on your side.



PRINT	CON	7843	1-24-86	12:00p
TREE	CON	8955	1-24-86	12:00p
DISKCOMP	CON	4874	1-24-86	12:00p
DISKCOPY	CON	4665	1-24-86	12:00p
AUTOEXEC	BAT	3	1-24-86	12:00p
CHKDSK	CON	9435	1-24-86	12:00p
FIND	EXE	6483	1-24-86	12:00p
MORE	CON	282	1-24-86	12:00p
RECOVER	CON	4858	1-24-86	12:00p
EDLIN	CON	7261	1-24-86	12:00p
FC	EXE	14576	1-24-86	12:00p
SORT	EXE	1664	1-24-86	12:00p
SUBST	EXE	16611	1-24-86	12:00p
JOIN	EXE	15971	1-24-86	12:00p
SHARE	EXE	8384	1-24-86	12:00p
LABEL	CON	2889	1-24-86	12:00p
31 File(s)		54272 bytes free		