Tools for data recovery experts

Guide for using HddSurgery™ head change tools:

- ***HDDS Sea 2.5" Slim set***

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1. Introduction

This guide is intended as a short course in handling of our tools for professionals in data recovery. It is assumed that the user is experienced in data recovery and familiar with "traditional" ways of saving data. This manual should not be taken as a guide for training.

Using these tools without adequate software support is not recommended. It is recommended to use some of the proven systems for cloning, such as Ace Lab, Salvation Data, Copy-r and other products.

It is possible to recover data without HddSurgery™ tools. In many cases, the known processes of hard drive head replacement are effective and sufficient. The general idea behind HddSurgery™ tools was to make sure that the process of replacing damaged hard drive heads goes with no errors. The use of HddSurgery™ tools prevents the ferromagnetic read/write heads to get in any kind of contact with the platter i.e. disk surface or other read/write heads. Also, with some basic procedures and short training, it is possible to let junior data recovery technicians handle complex tasks. With the development of these tools, we are trying to eliminate the element of luck which usually accompanies the process of data recovery.

Experienced data recovery technicians or engineers can have great success even without our tools, but they can have absolute security only when using HddSurgery™ tools.

Non-contact head replacement implies that there is no contact between the heads, or between heads and platters in the process of dismounting the donor heads and mounting heads on the patient drive. Traditional techniques of replacing the heads imply contact between the heads and contact of heads with the platters in data area. These problems especially come to light on drives that have suffered some form of physical damage.

These tools do not solve the head compatibility problem. They will only assure that the head replacement goes easily. If you have questions about compatibility, you can send them to HddSurgery™ support team on support@hddsurgery.com

HddSurgery™ is not responsible for any eventual damage caused by usage of our tools. HddSurgery™ is not responsible for the data stored on the patient or donor hard drives.

2. HddSurgery™ Sea 2.5" Slim set head replacement tools

HddSurgery™ **HDDS Sea 2.5" Slim set** represents a pair of head replacement tools which can be used to safely and easily replace heads on the Seagate 2.5" slim hard drives with 1-2 platters which “park their read/write heads” on a ramp.

The set contains:

- ## Sea 2.5" Slim 1

  This head replacement tool can be used on 2.5” Seagate slim hard drive models which have 1 platter and with their heads parked on a ramp.

- ## Sea 2.5" Slim 2

  This head replacement tool can be used on 2.5” Seagate slim hard drive models which have 2 platters and with their heads parked on a ramp.

3. Supported models

HDDS Sea 2.5" Slim set Supported models	
List of **Seagate** families and models on which process of head replacement could be performed by using the ramp tools from HDDS Sea 2.5" Slim set.	
HDDS Sea 2.5'' Slim 1	**HDDS Sea 2.5'' Slim 2**
Mobile Hdd ST1000LM035 ST1000LM037 ST1000LM038	**Mobile Hdd** ST2000LM007 ST2000LM009 ST2000LM010 **BarraCuda** ST2000LM015

4. Handling the tools

When not in use, the tools should always be kept in a wooden box delivered with the tools. This way of keeping the tools prevents any possible damage which could appear when not handled properly.

While taking the tool out of the box, always hold it for the shank. Never hold the tool in the part where the head lifting snouts are.

Due to the sensitivity of hard drive platters to dust and any kind of contamination, be sure to clean the tools before their use. Tools can be cleaned with a piece of cotton wool and alcohol. When cleaning the head lifting snouts, be extremely gentle.

Picture 4.1. HDDS Sea 2.5" Slim set

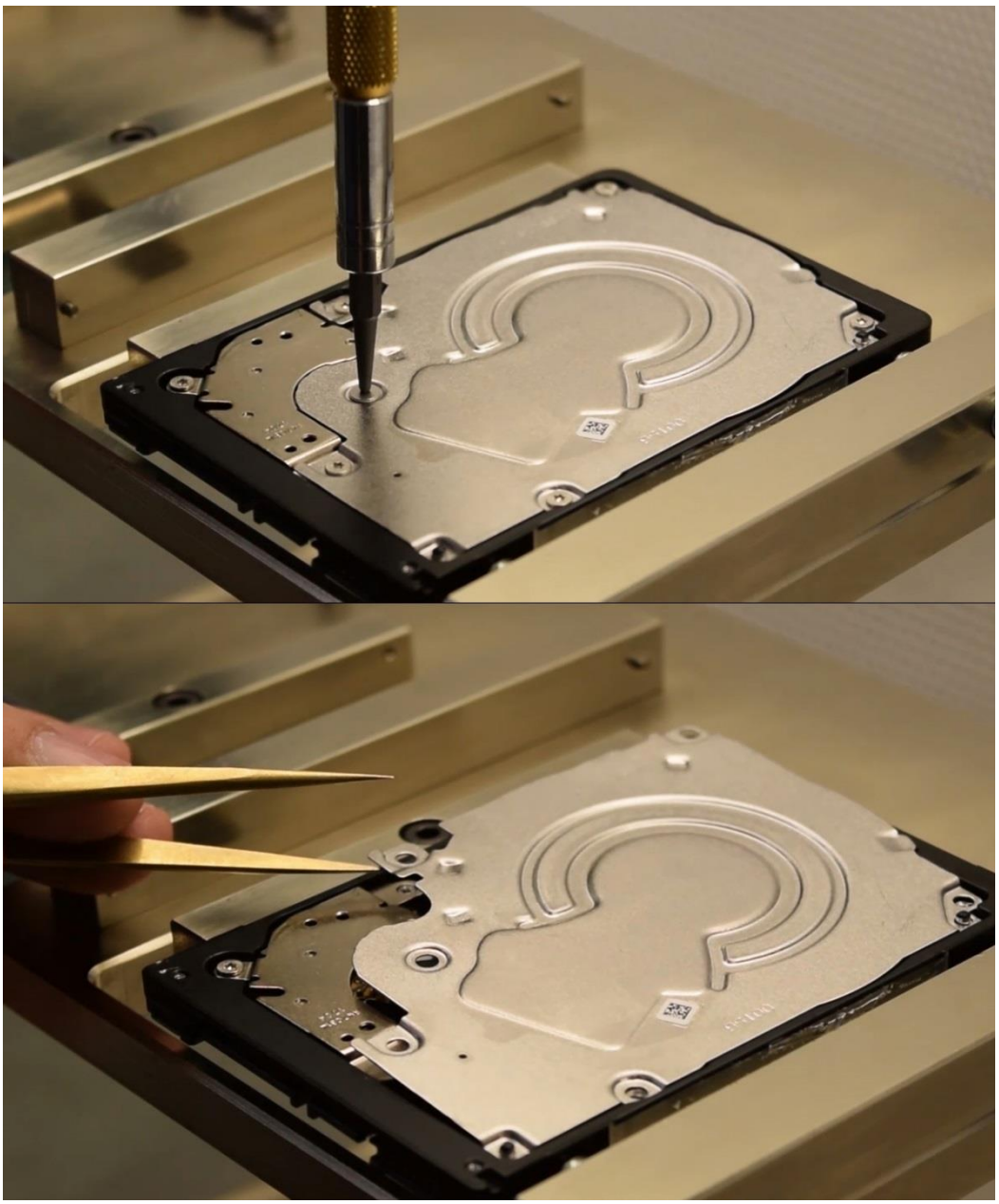
5. Head replacement process on Seagate slim hard drives

Step 1 – Preparing the drive

Remove all labels from the drive. Carrefully remove the PCB from the drive.

Picture 5.1. Preparing the drive

Remove all screws which are holding the lid. Use a pentalobe screwdriver for the screw which is securing the head stack assembly. Remove the lid in order to open the drive.



Picture 5.2. Removing the lid

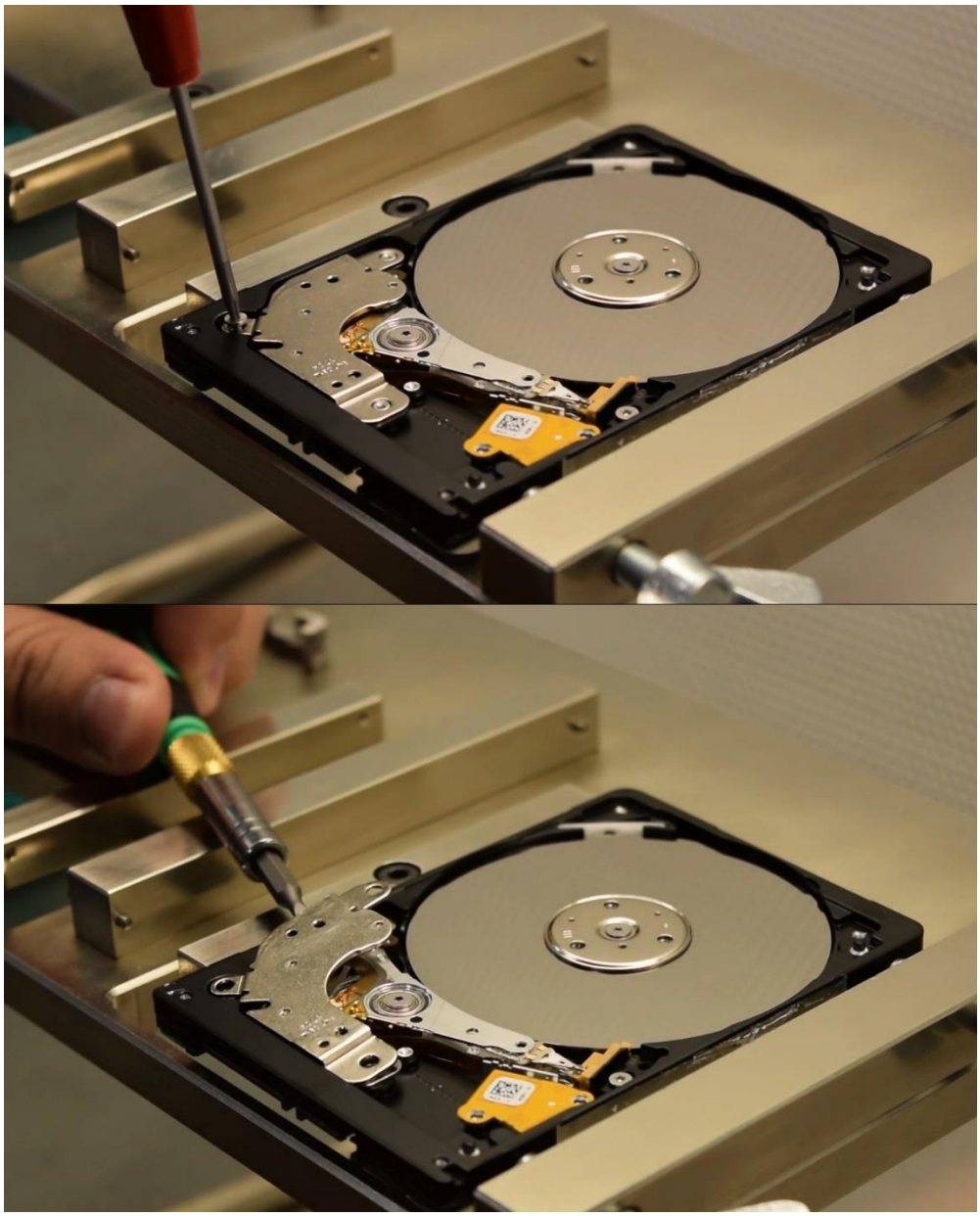
Remove the screws that are holding the flat cable connector.

Picture 5.3. Removing the flat cable

Tighten the head stack assembly with a bolt in order to prevent unwanted movements.

Picture 5.4. Placing a bolt for securing the heads

Remove the screw and lift the upper magnet carefully.



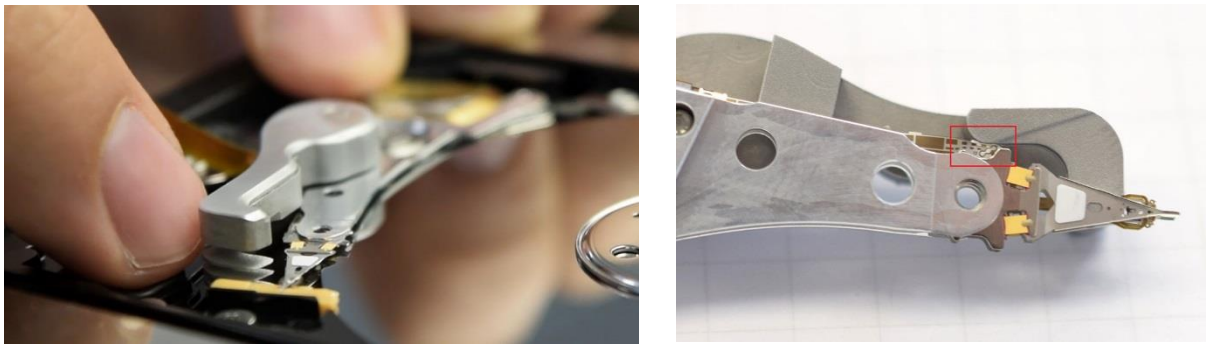
Picture 5.5. Removing the magnet

Place a non-countersink screw and tighten the bottom magnet in order to prevent the any unwanted movements.

Picture 5.6. Tightening the bottom magnet

Step 2 – Mounting the tool

Carefully center the axis of the tool over the smaller hole on the head arm. Take care that the snouts are positioned away from the heads, and push the axis of the tool all the way down through the hole. Axis of the tool should go easily through this hole.



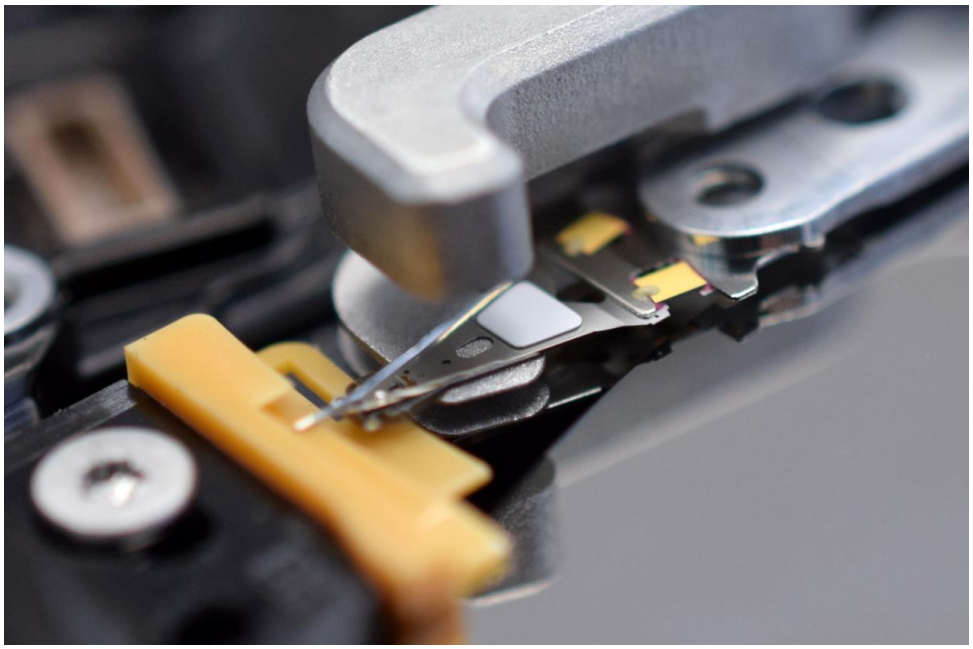
Picture 5.7. Placing the tool

Push the tool so the snouts go between the heads. These snouts will keep the distance between the heads and assure that the heads don't touch each other. You may slightly move the heads toward the platters while inserting the tool.

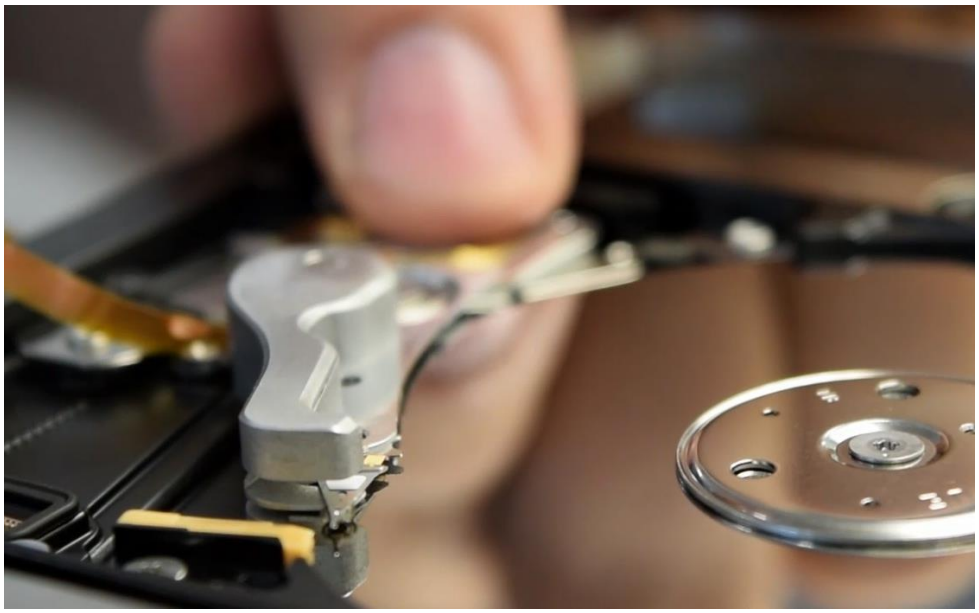
ATTENTION! Stop pushing the tool when the heads are lifted! If you continue pushing the tool, it may damage the heads and sensitive parts (check the right image).

Perform this action with additional precaution as there is a possibility the heads could get damaged.

Be sure that the tool is positioned correctly. Head carriers should be placed between the heads.

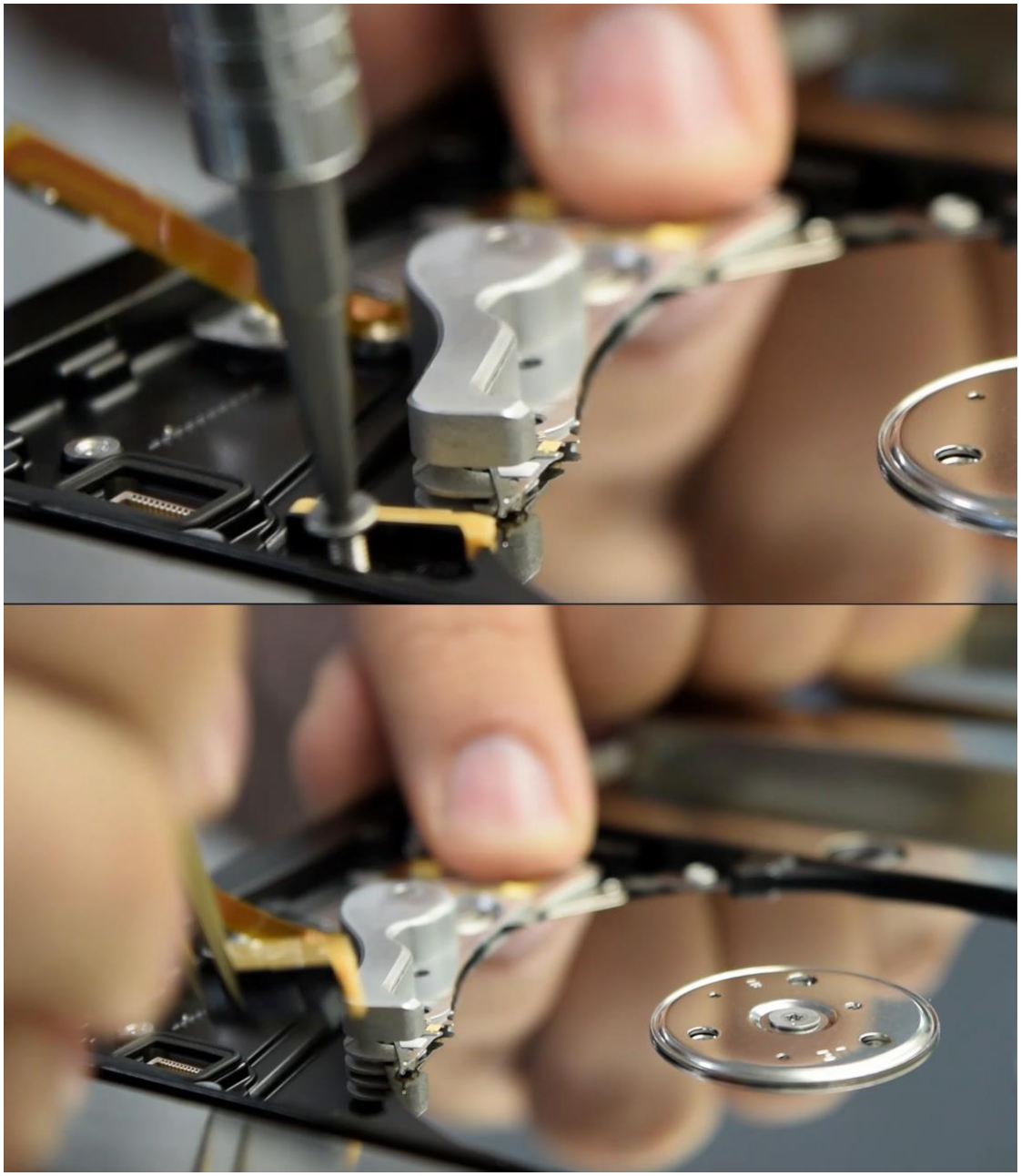


When the tool is mounted, gently move the heads over the platters and stop when the ramp is free for dismounting.



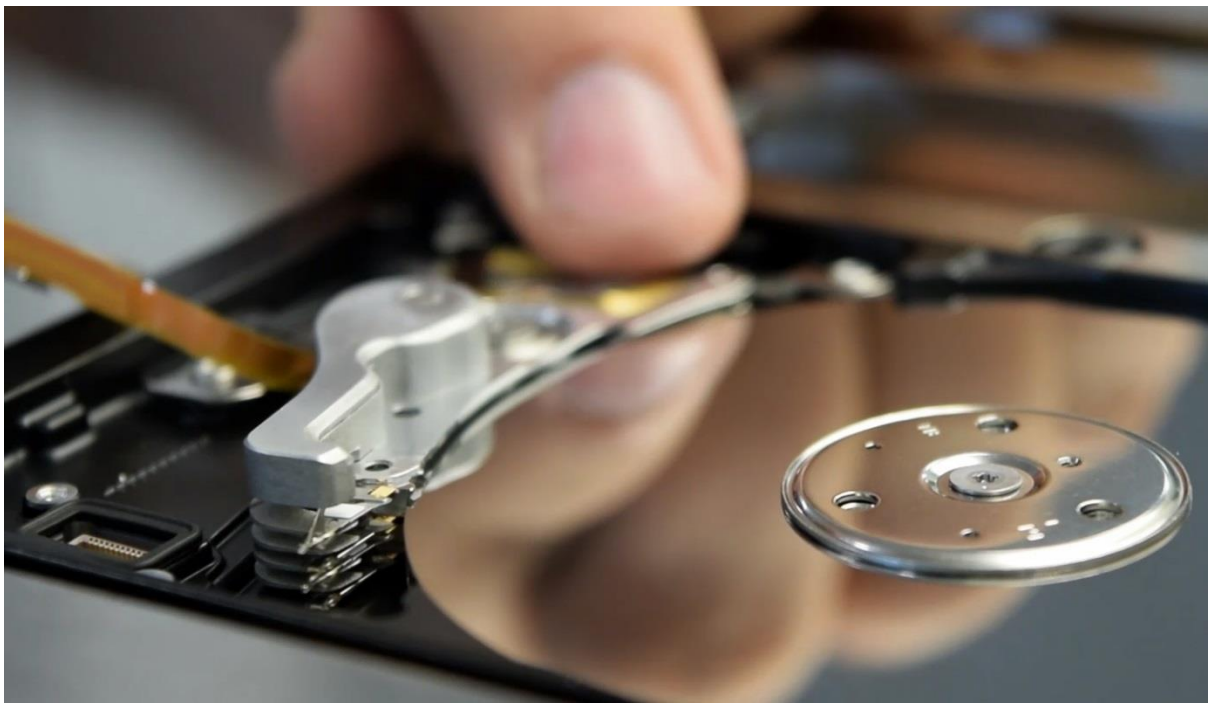
Picture 5.8. Moving the heads over the platters

Dismount and remove the ramp.



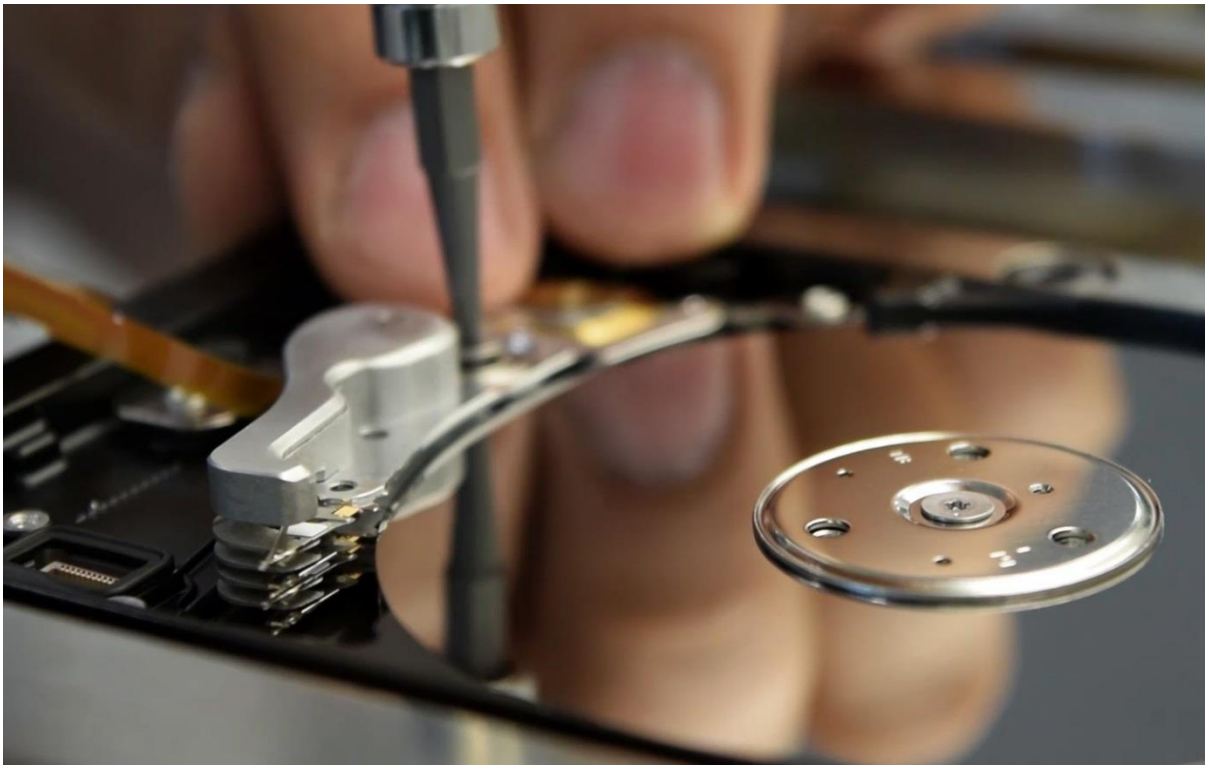
Picture 5.9. Dismounting the ramp

Slide the heads off the platters.



Picture 5.10. Sliding the heads off the platters

Unscrew and remove the screw which is holding the head arm connected to the hard drive casing. While unscrewing this screw, hold the head arm with your other hand to prevent the heads from going back to the ramp area.

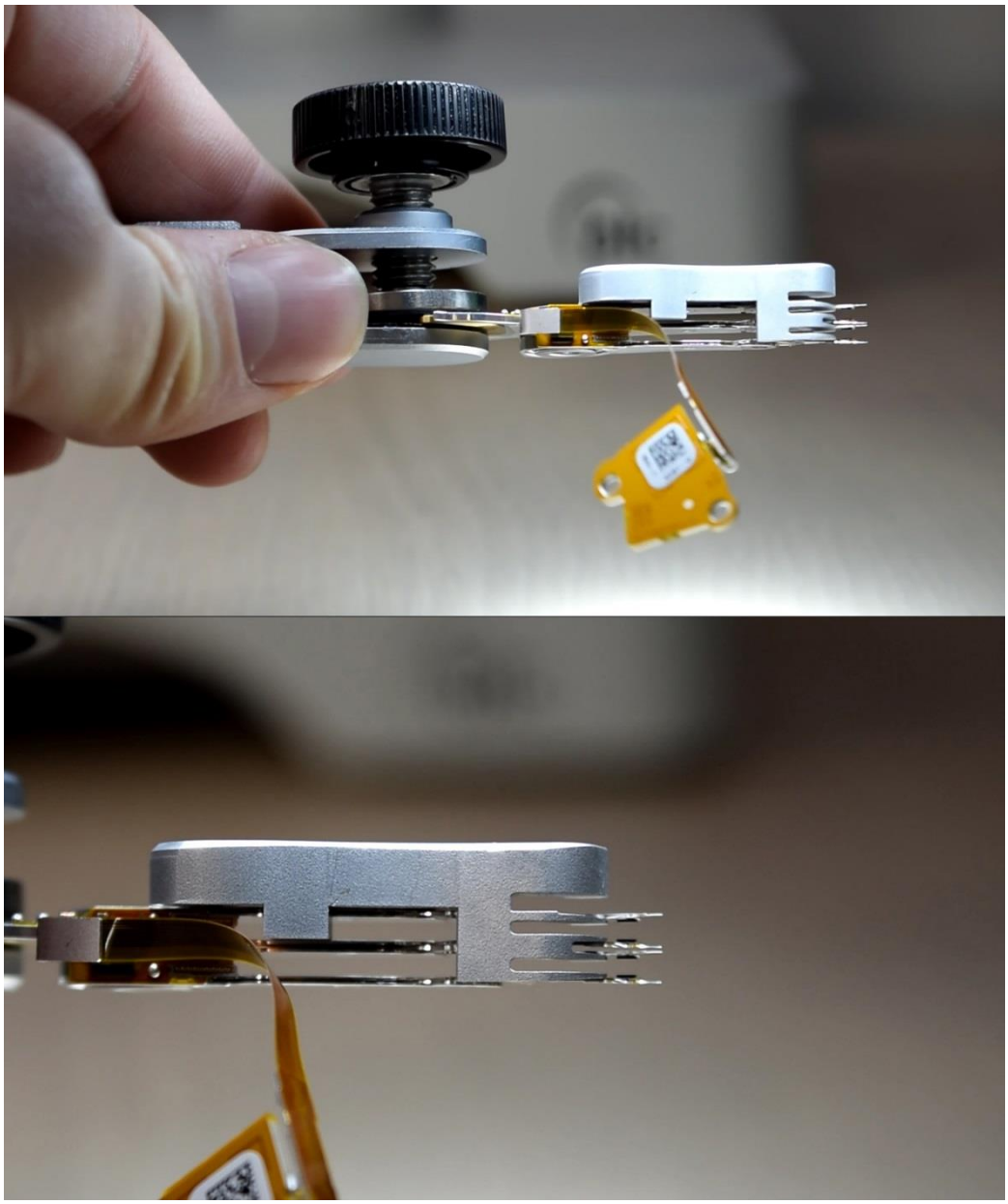


Picture 5.11. Removing the screw

To lift the head assembly, tweezers are needed. Use the tweezers to grab the head assembly through some of the holes on the head arm. Pull the head arm up using the tweezers.

To make sure that the head assembly goes straight up, use one finger to pull the back side of the head arm (side where the magnetic coil is) simultaneously. Don't try to dismount the heads by pulling the tool.

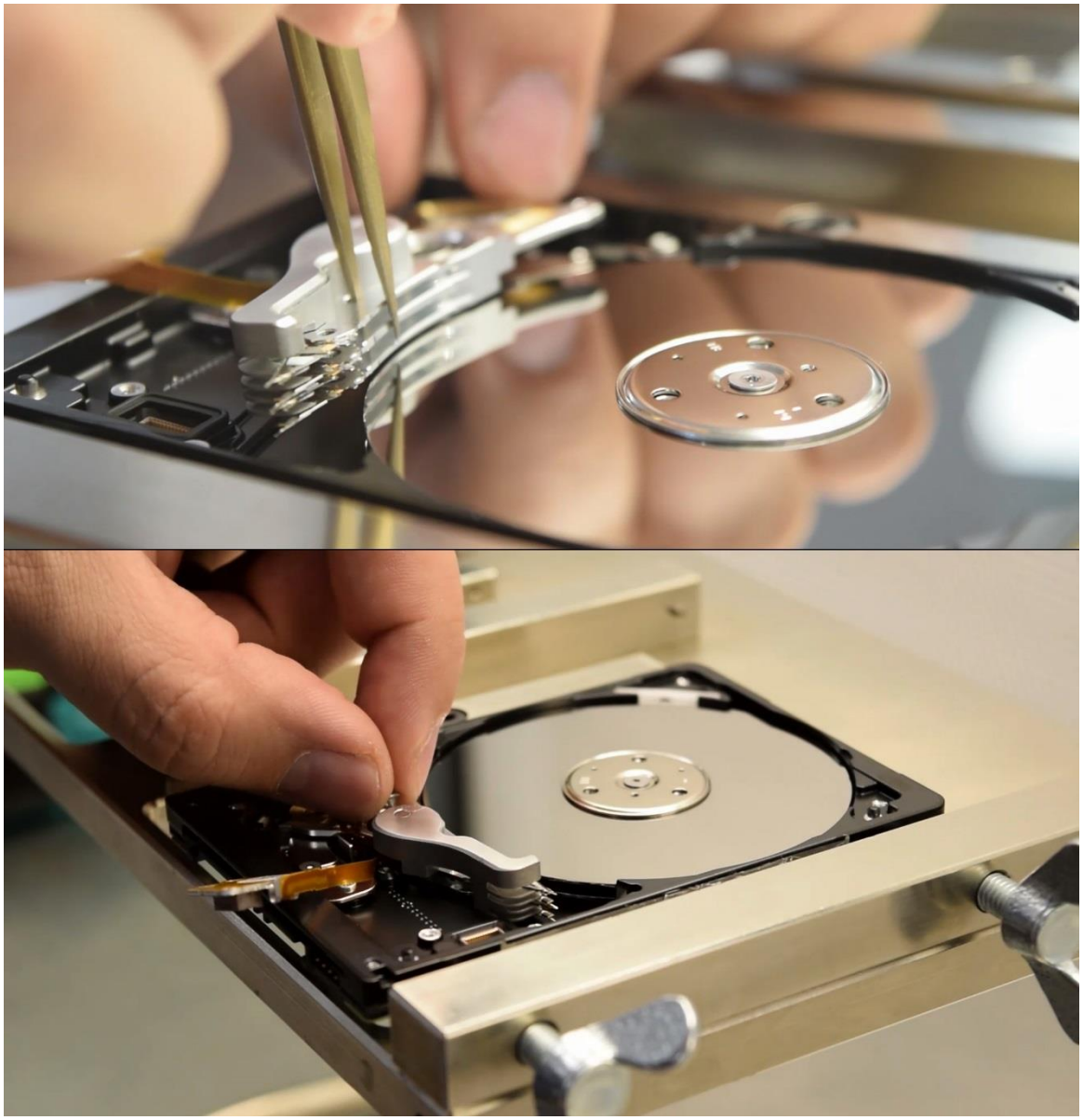
Picture 5.12. Lifting the heads



Picture 5.13. Lifting the heads

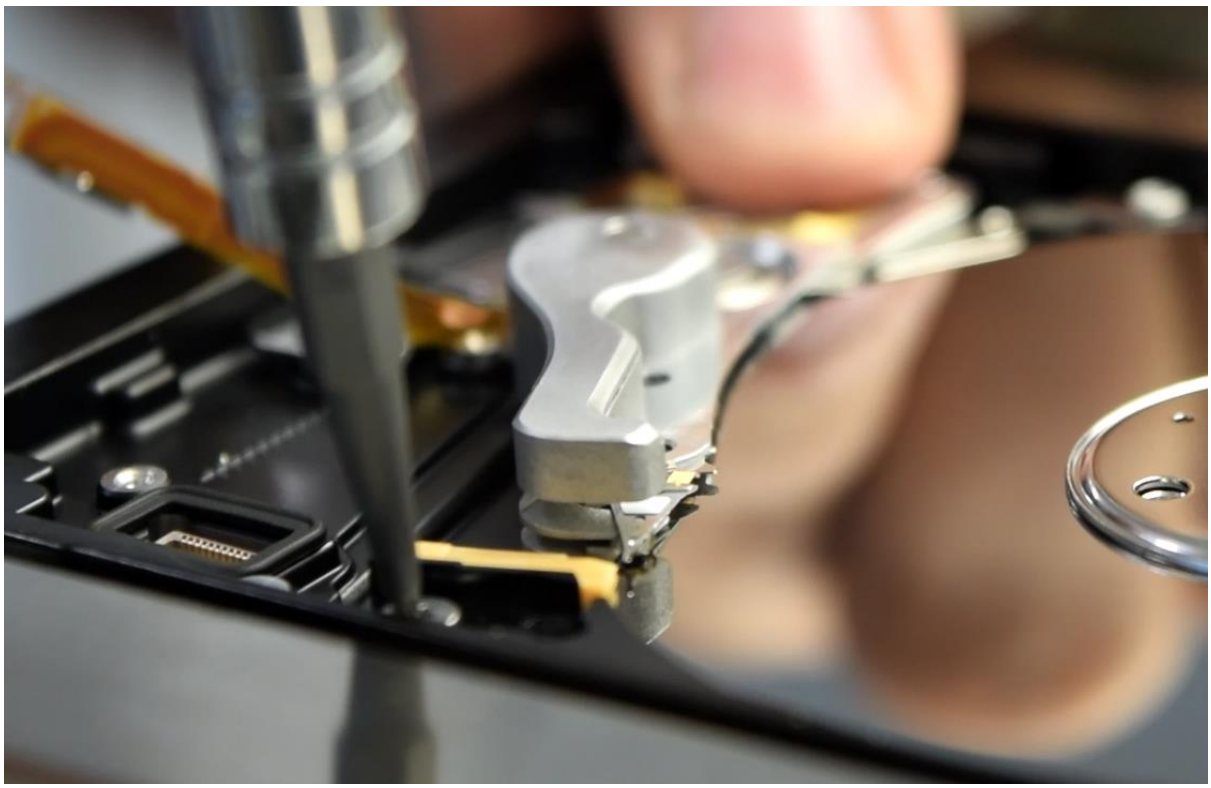
Step 3 – Returning the heads

Place the head stack assembly to its position. Tighten it with a screw in order to prevent any unwanted movements.



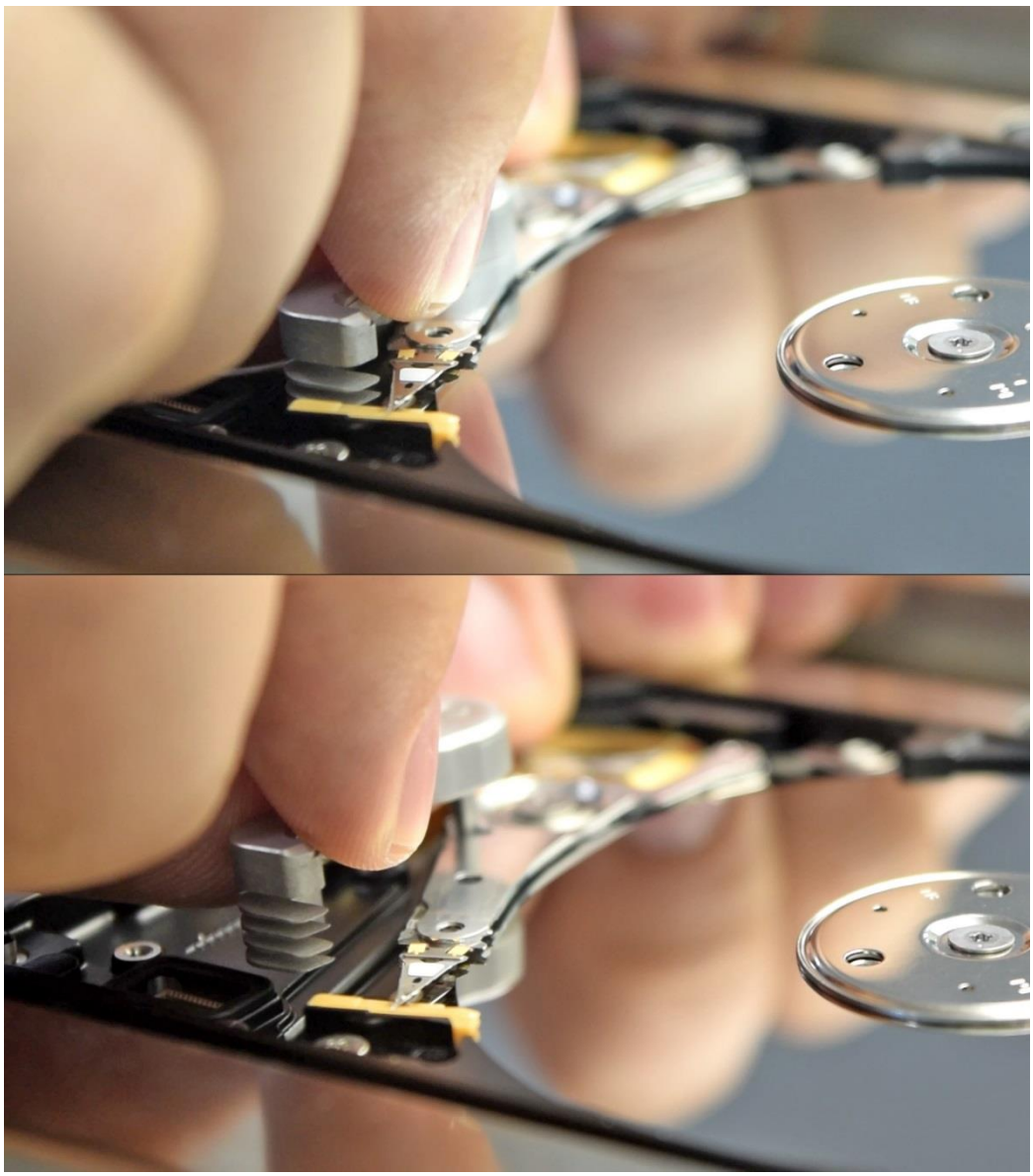
Picture 5.14. Positioning the head stack assembly

Place the heads over the platters and mount the ramp. Use one finger to pull the back side of the head arm (side where the magnetic coil is) simultaneously.



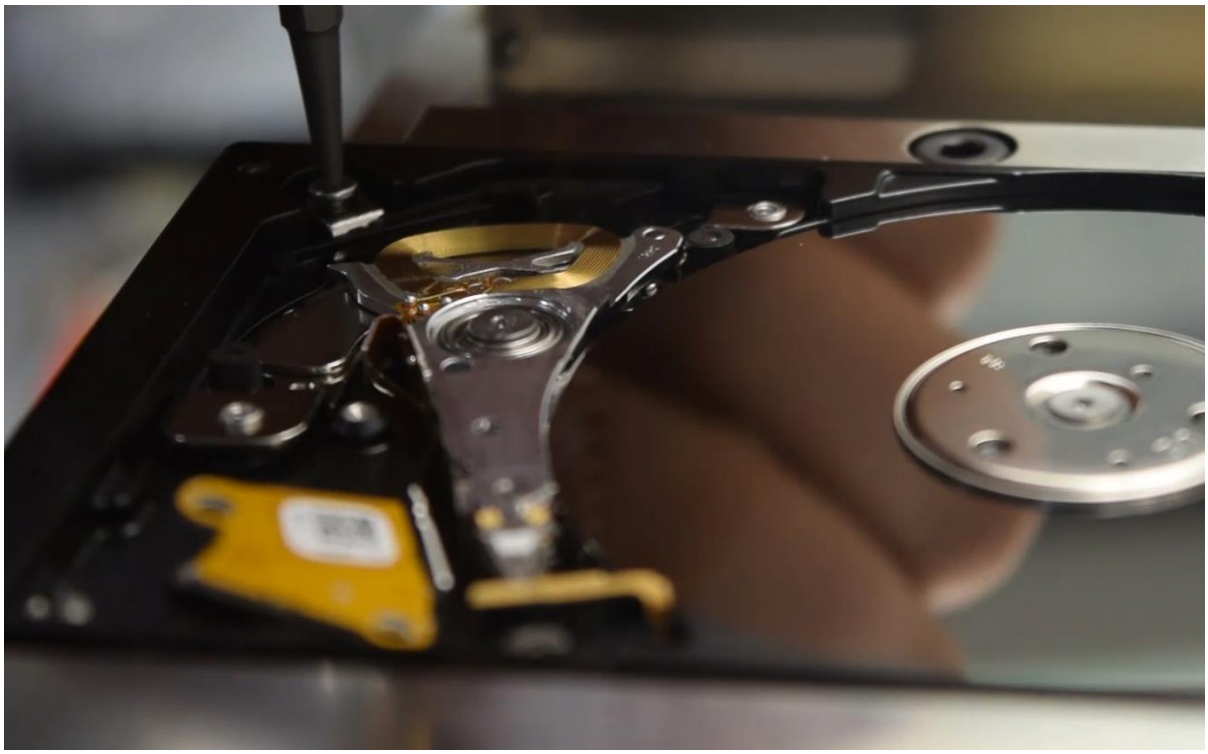
Picture 5.15. Mounting the ramp

Slide the heads over the ramp. Scroll the tool away from the heads. While holding the head arm in its place with one hand, pull the axis of the tool out of the hole to dismount the tool.



Picture 5.16. Dismounting the tool

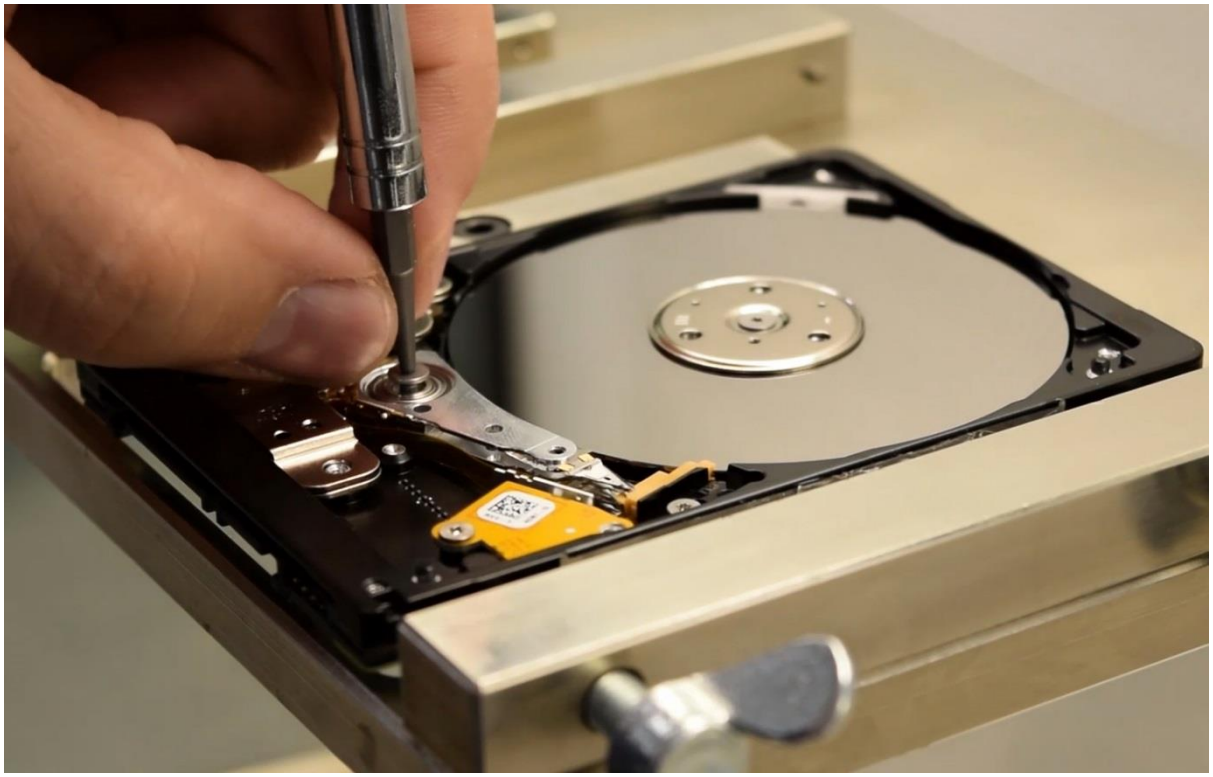
Unscrew the bolt which is holding the bottom magnet.



Picture 5.17. Removing the screw from the bottom magnet

While holding the heads on the ramp, return the magnet to its place. Be very careful in this step because the magnet might damage the heads if it lands on the magnetic coil of the head arm.

Unscrew the bolt which is holding the head stack assembly. Place the flat cable to its place.



Picture 5.18. Removing the screw from the HSA

Put the lid back to close the drive. Put the PCB back and clone the drive.

6. Conclusion

This guide was written by HDDSurgery™ team and it is based on our experience acquired during the process of development, design and testing.

HddSurgery™ is not responsible for any possible consequential damage, including the loss or recovery of data or any other damage made by using or working with HddSurgery™ tools.

You can find more information about these tools and many other tools used for data recovery on our website:

http://www.hddsurgery.com/

Also you can watch the videos that show how these tool work on our YouTube channel:

http://www.youtube.com/user/HddSurgery

If you have any doubts or questions regarding use of HDDS Sea 3.5" Ramp 4A, you can contact our support team any time:

support@hddsurgery.com