Tools for data recovery experts

Guide for using HddSurgery™ head change tools:

- ***HDDS Sea 3.5" Ramp 4A***

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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

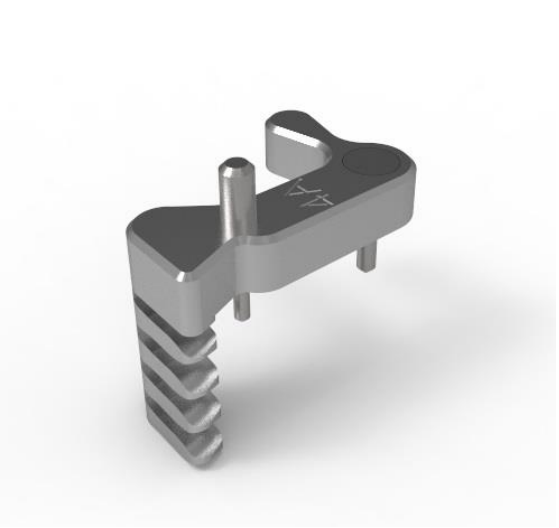
HddSurgery™ is not responsible for any eventual damage caused by usage of our tools. HddSurgery™ is not responsible for the data stored on the patient or donor hard drives.

2. HddSurgery™Sea 3.5" Ramp 4Ahead replacement tools

HddSurgery™ **HDDS Sea 3.5" Ramp 4A** represents a pair of head replacement tools which can be used to safely and easily replace heads on the Seagate 3.5" hard drives with 4 platters which “park their read/write heads” on a ramp.

- ## Sea 3.5" Ramp 4A

  This head replacement tool can be used on 3.5” Seagate hard drive models which have 4 platters and with their heads parked on a ramp.



3. Supported models

HDDS Sea 3.5" Ramp 4A 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 3.5" Ramp 4A.
Lombard ST4000DM000 ST4000VX000 ST4000VN000 ST5000DM000 ST5000VX000

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 5.1.HDDS Sea 3.5" Ramp 4A

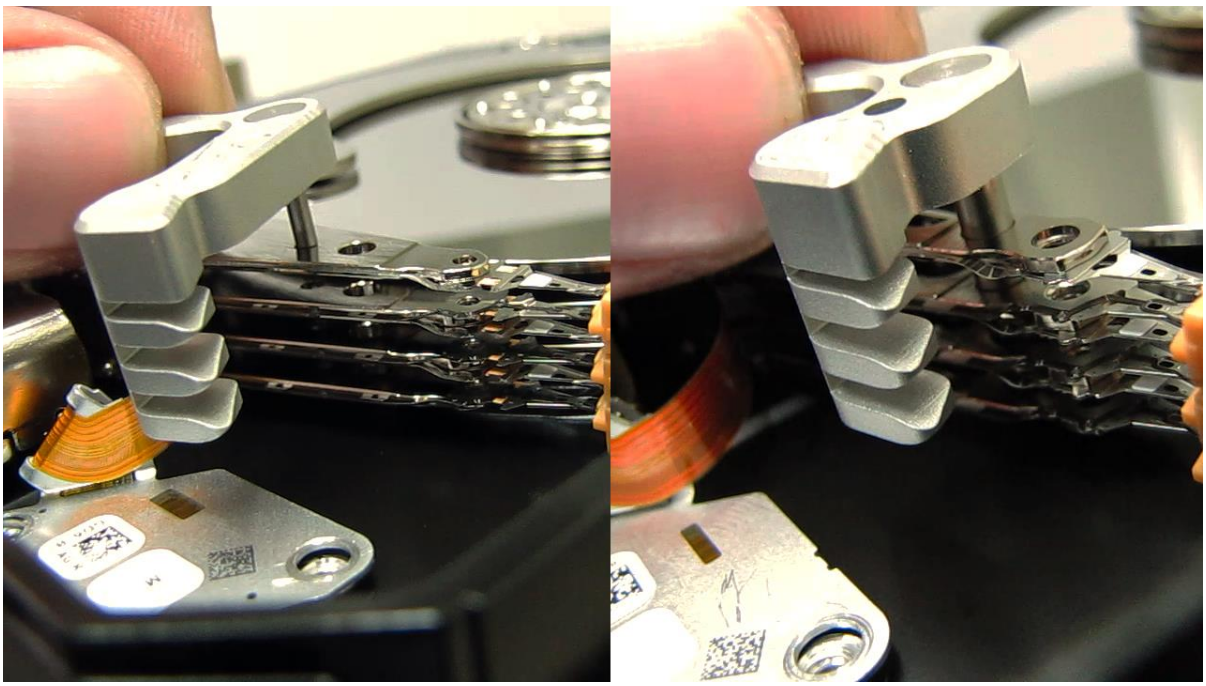
5. Head replacement process on Seagate hard drives

Head replacement process using Sea 3.5" Ramp 4A tool is exactly the same as shown with 3A tool from ourHDDS Sea 3.5" Ramp set manual.

Step 1 – Mounting the tool on actuator arm

Remove the screws that are holding the flat cable connector and the magnet. Push the connector from the bottom upwards to release it. Pressure from below may cause the connector to pop out and possibly damage the platters. In order to prevent this from happening, hold the top of the connector with your other hand while pushing it from the bottom. Do not remove the magnet yet because it is the only thing holding the heads on the ramp.

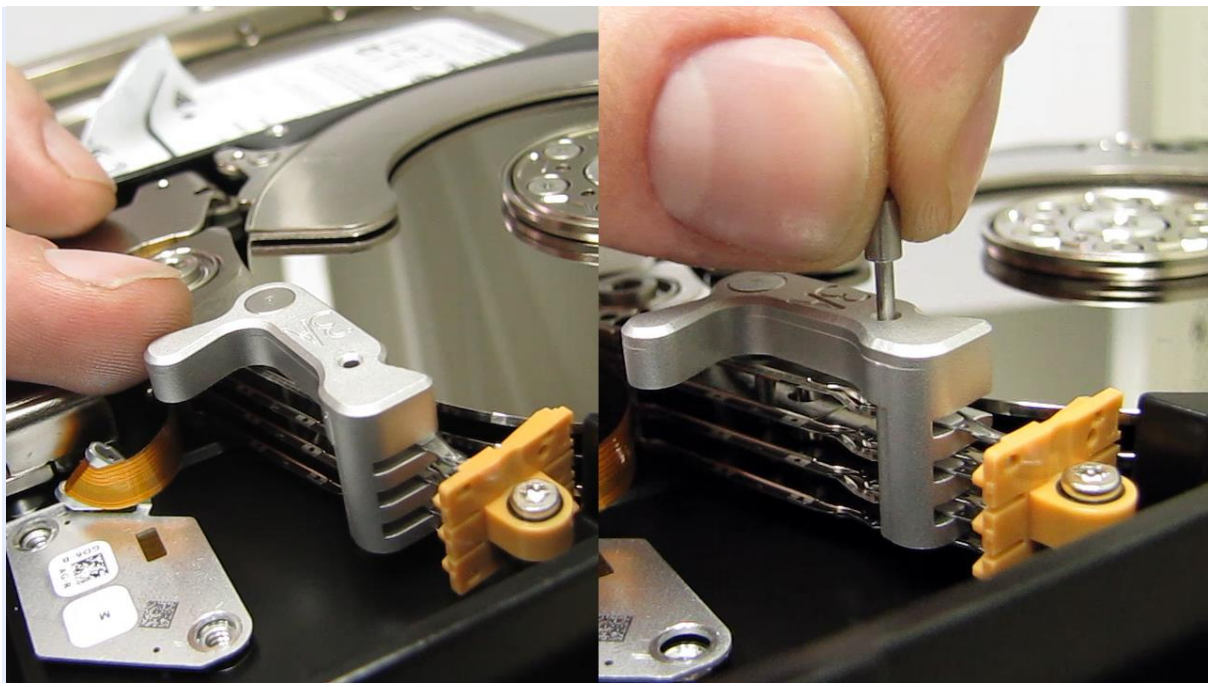
Carefully center the axis of the tool over the smaller hole on the head arm. Take care that the snouts are positioned away from the heads, and push the axis of the tool all the way down through the hole. Axis of the tool should go easily through this hole.



*Picture 2. Mounting the **Sea 3.5" Ramp p3a** (left), and **Sea 3.5" Ramp p3b** (right)*

Step 2 – Securing the heads with the tool

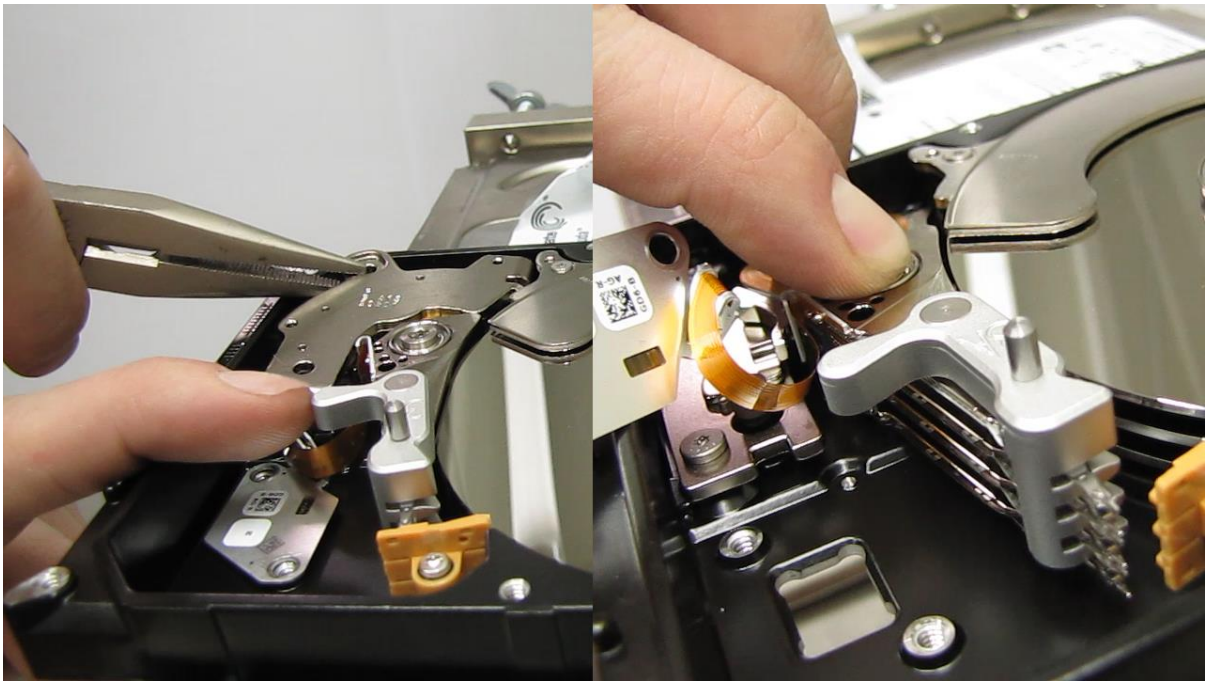
Push the tool so the snouts go between the heads. These snouts will keep the distance between the heads and assure that the heads don't touch each other. Secure the tool in this position with the provided securing pin. The Pin should go through the hole easily.



Picture 3. Securing the heads with the tool

Step 3 – Moving the heads off of the ramp

Remove the magnet and scroll the heads off the ramp. When heads are off of the ramp, the tool will prevent the heads from touching each other and the head assembly can be safely and easily transferred to another drive.

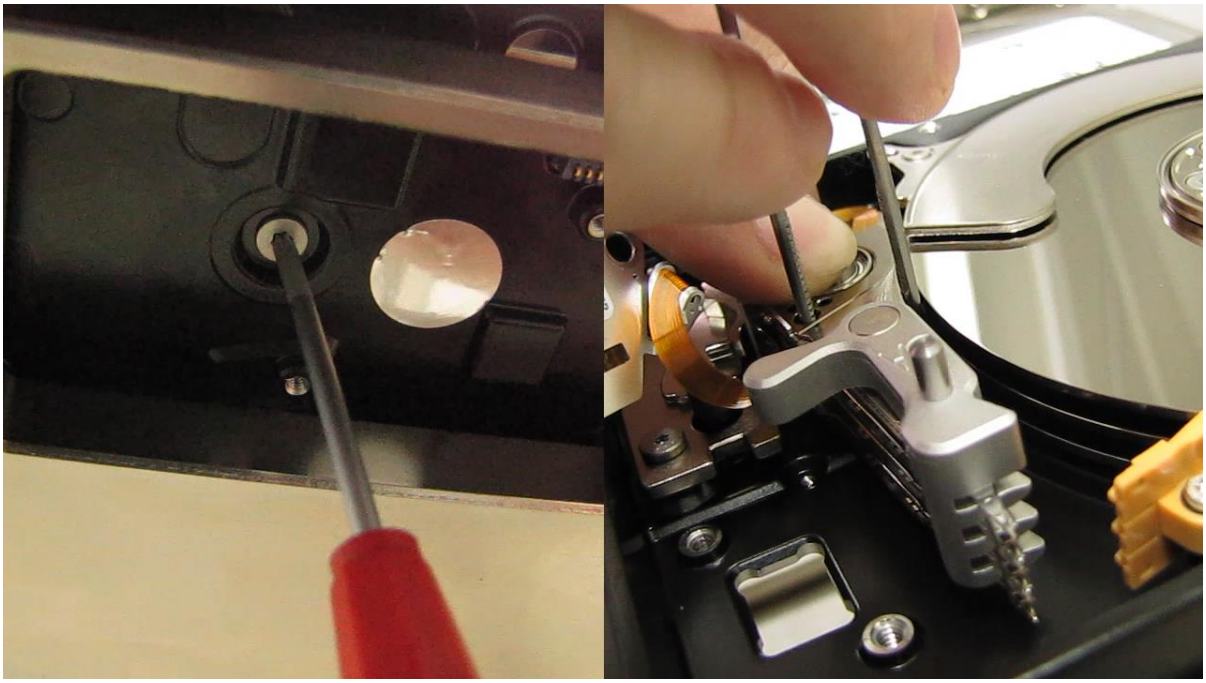


Picture 4. Moving the heads off of the ramp

Step 4 – Dismounting the heads

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.

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.

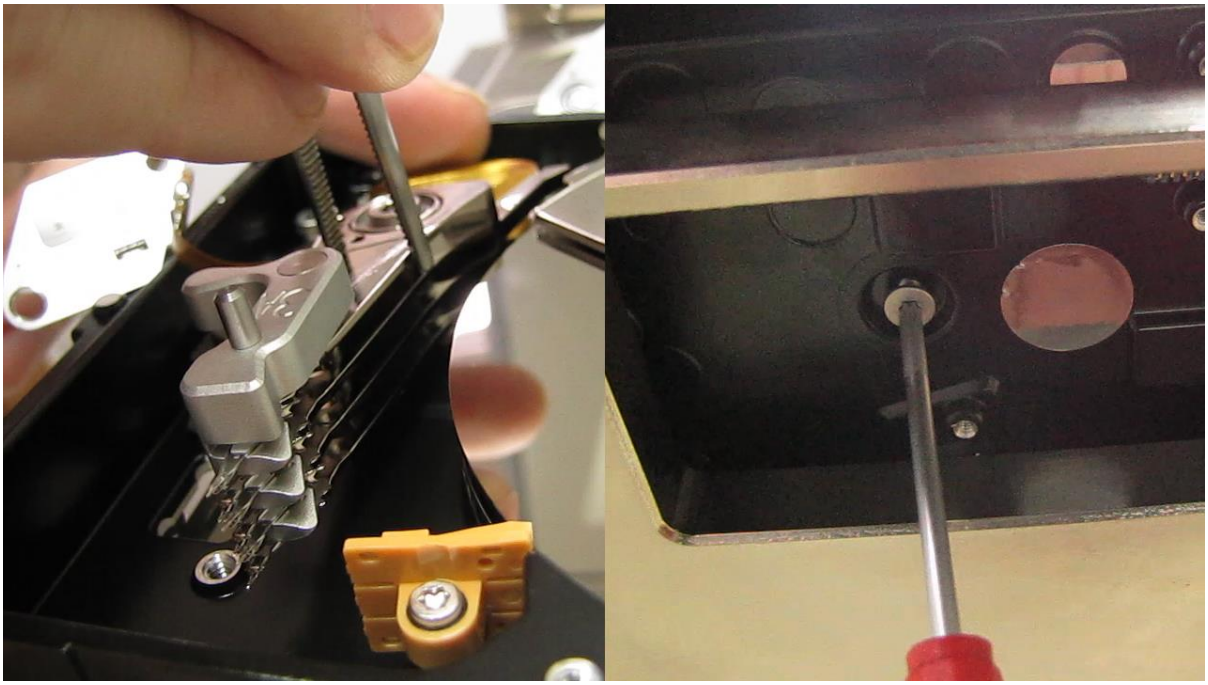


Picture 5. Dismounting the heads

Step 5 – Mounting the heads in the patient drive

Place the head assembly to its place in a patient hard drive using the tweezers. Assist the process with your other hand.

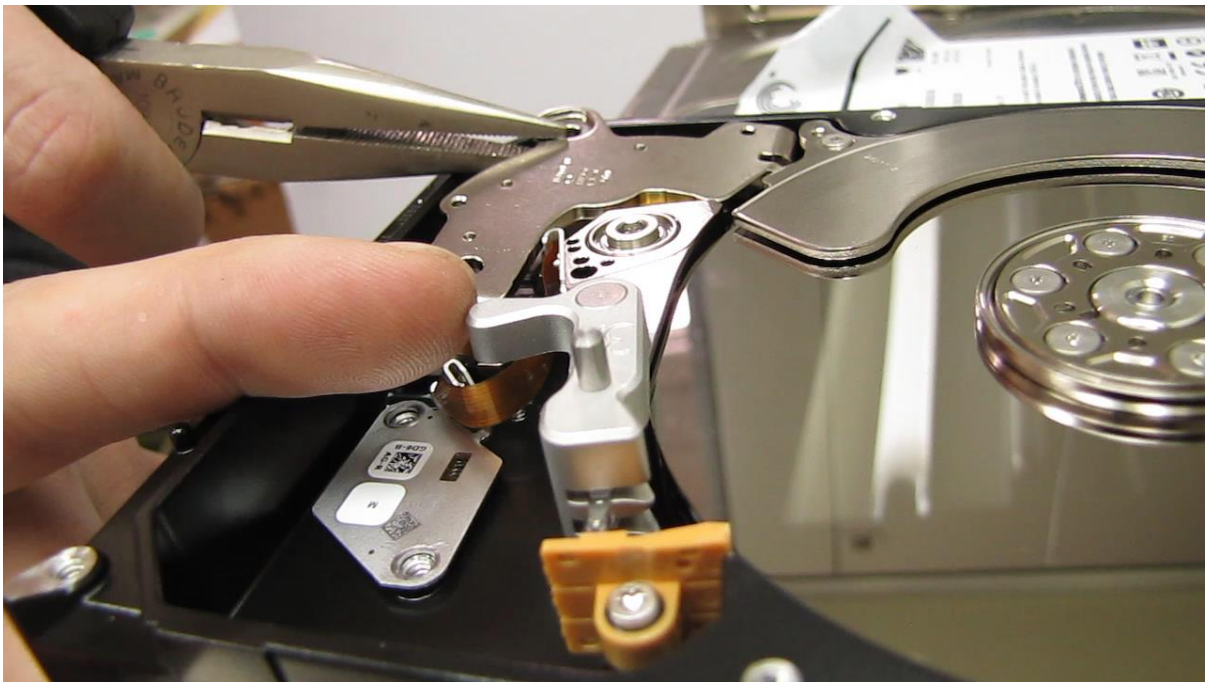
When the head arm is in its place, screw the head arm from the bottom. Be sure to tighten this screw to assure good connection between the head arm and the hard drive casing.



Picture 6. Mounting the heads in a patient drive

Step 6 – Moving the heads to the ramp

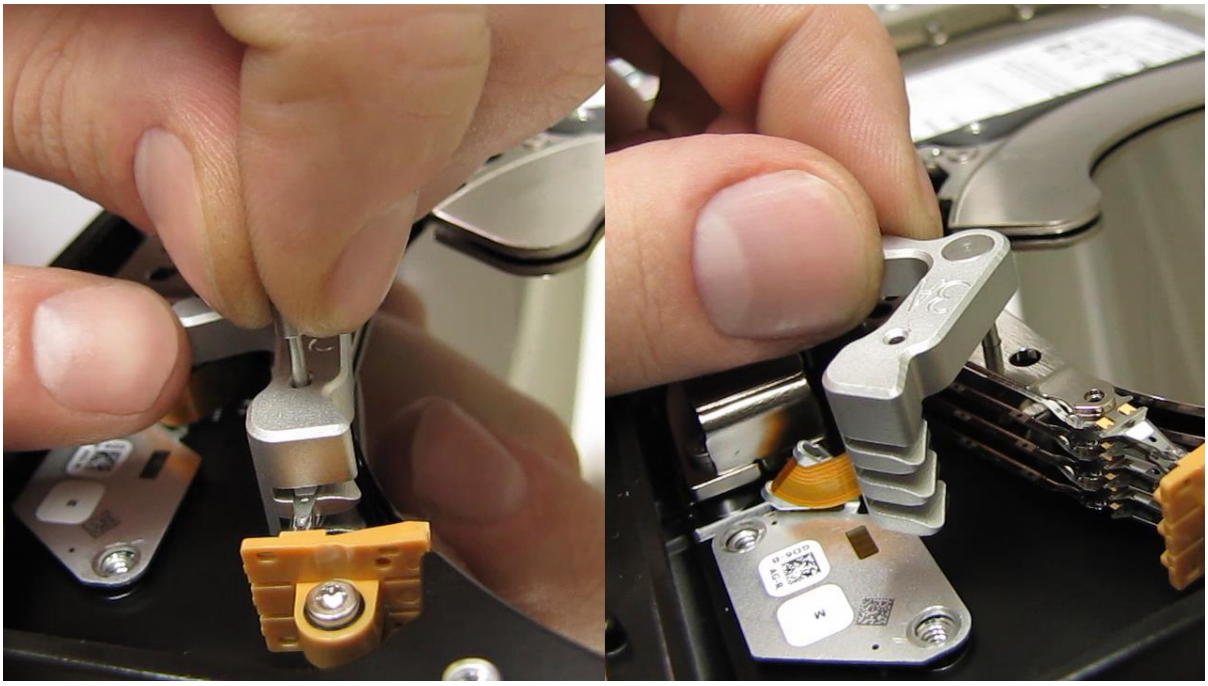
Push the heads over the ramp. While holding the heads on the ramp, return the magnet to its place. Be very careful in this step because the magnet might damage the heads if it lands on the magnetic coil of the head arm.



Picture 7.Moving the heads to the ramp

Step 7 – Dismounting the tool

Remove the security pin from the tool. 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 8. Dismounting the tool

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