tools for datarecovery experts

Tools for data recovery experts

Guide for using HddSurgery™ head unstick and replacement tools:

- **HDDS WDC 3.5" Ramp p2-3 (2 or 3 platters)**
- **HDDS WDC 3.5" Ramp p4 (4 platters)**

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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 come 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 that 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 by 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.

This tool doesn't solve the head compatibility problem. It 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.co.kr

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™ head unstick and replacement tools

Western Digital hard drives from families Tornado, Tornado PATA, Tornado 2R, Tornado 2PMR, Tornado 2D, Atlantis, Atlantis PATA, Spider, Gekko, DragFly2, DragFly3, Kermit, Sadle G6, Sadle 2D and Sadle BK, but also DragFly4, Hulk and Jupiter belong in the category of disks that "park heads" on a ramp. Sometimes, due to a shock or malfunction, heads don't get back to the ramp and they stay on the platters and stick to them. This prevents the motor to start rotating the platters and hard drive emits a "buzzing" sound.

HddSurgery^{TM} **head unstick tools** can be used to safely and easily unstick the heads from the platters and transfer them to the ramp. During the whole procedure of head unsticking, heads and platters have no contact. Heads are lifted over NON-data area and safely guided over the platters back to the ramp. **Head replacement tools** can be used to safely and easily replace the heads on hard drives which park heads on a ramp.

▪ HDDS WDC 3.5" Ramp p2-3

These head unstick and replacement tools can be used on Western Digital hard drive models AAKS, AAJS, AAJB, AAKB, EADS, EARS and all other models with 2 or 3 platters from families: Tornado, Tornado PATA, Tornado 2R, Tornado 2PMR, Tornado 2D, Atlantis, Atlantis PATA, Spider, Gekko, DragFly2, DragFly3, Kermit, Sadle G6, Sadle 2D and Sadle BK.

▪ HDDS WDC 3.5" Ramp p4

These head unstick and replacement tools can be used on Western Digital hard drive models AAKS, AACS, EADS, EARS, EACS, EZRX and all other models with 4 platters from families: Jupiter, Hulk and DragFly4. As there is no conceptual difference between these two tools, we will explain only the functioning of HDDS WDC 3.5" Ramp p2-3 tool. In the case of HDDS WDC 3.5" Ramp p4, apply the same procedure.

3.   Supported models

HDDS WDC 3.5" Ramp p2-3 (2 or 3 platters)

This tool can be used on Western Digital hard drive models AAKS, AAJS, AAJB, AAKB, EADS, EARS and all other models with 2 or 3 platters from following families:

(two-letter marks can be found in model names - ex. WD5000AAKS-00**TM**A0)

Tornado	Tornado PATA	Tornado 2R	Tornado 2PMR	Tornado 2D
TA, TP, TB, TR, TC, TS, TH, TJ, TK, TL, TM, TN, RY, RZ, SB, SC, SD, SE	TV, UF, TW, UG, TY, TZ, UJ, UA, UK, UB, UL, UC, UM, UD, UN, UE, UP, UH	YE, YF, YG, YH, YJ, YK, YL, YM, YN, YP, YR, YS, YT, YU, YV, YW, YY, YZ, C8	WF, WG, WH, WJ, WK, WL	VV, VW, VY, WC, WD, WE, B9, C9
Atlantis	**Atlantis PATA**	**Spider**	**Gekko**	**Kermit**
D2, E7, A7, A8, A9, B0, B1, B2, C1, C2, C3	H8, H9, J0, J1	ZS, ZT, ZU, ZV, ZW, ZY, ZZ, D0	G8, G9, H0, H1	D6, D7, E0, E1
DragFly2	**DragFly3**	**Sadle BK**	**Sadle G6**	**Sadle 2D**
M2B, 3BB, Y5B	P8B, Z5B	MVWB	MVWB	N0YB

HDDS WDC 3.5" Ramp p4 (4 platters)

This tool can be used on Western Digital hard drive models AAKS, AACS, EADS, EARS, EACS, EZRX and all other models with 4 platters from following families:

Hulk	Jupiter	DragFly4	Other
ZJB, ZKB, C7B	RCA, RBA	S2B, S8B, R6B	MMMB, J2GB, U2B, S0XB, T3B, J99B, R8UY, KEZB, Z9B

4. Head unstick process

Step 1 – Handling the tools

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

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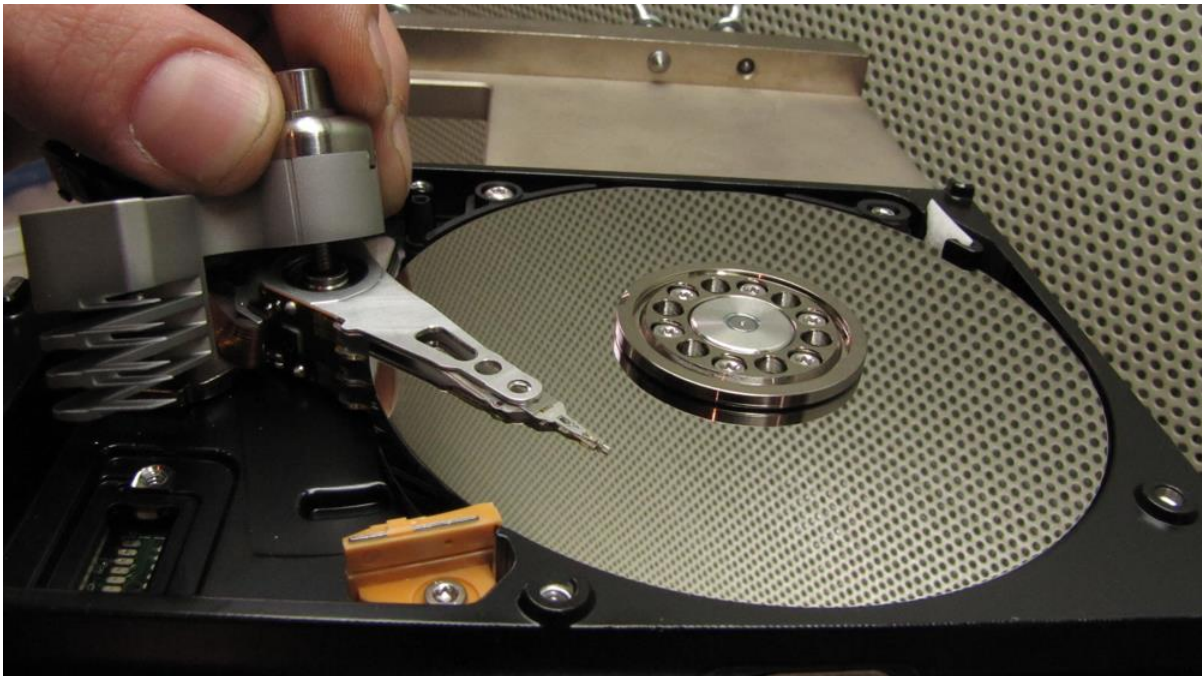

Picture 1. (handling the tools)

Step 2 - Mounting the tool on actuator arm

Remove screws holding flat cable contact and with a finger push contact from the bottom upwards to release it. The pressure from below may cause flat cable contacts to pop out and possibly damage platters, so hold firmly top of a flat cable contact with another hand while pushing related plastic. Before applying pressure, remove screws from their holes.

Carefully center the tool over the center hole of the hard disc head arm. Take care that the notch on the bottom of the tool coincides with the notches on the actuator arm base. Tighten the screw to perform tool installation.


Picture 2. (mounting the head unstick tool)

With your right hand make sure that the tool shank with snouts remains in the area outside of the platters.

!!! IMPORTANT !!!
Be sure to tighten the screw in order to ensure good contact and proper tool height.

Step 3 - Lifting the heads

While holding the back side of the head arm with one hand, horizontally move the tool shank to slide it over platters. Hold the back side of head arm (magnetic coil) to assure that the tool lifts the heads and not push them. Construction of the tool snouts enables them to lift the heads by relatively small force. If you feel that the necessary force is greater than the expected, check tool positions and possible damage to the HDA assembly. Push the tool as far as possible until the snouts lift the heads completely. The heads are now unstick from the platters.
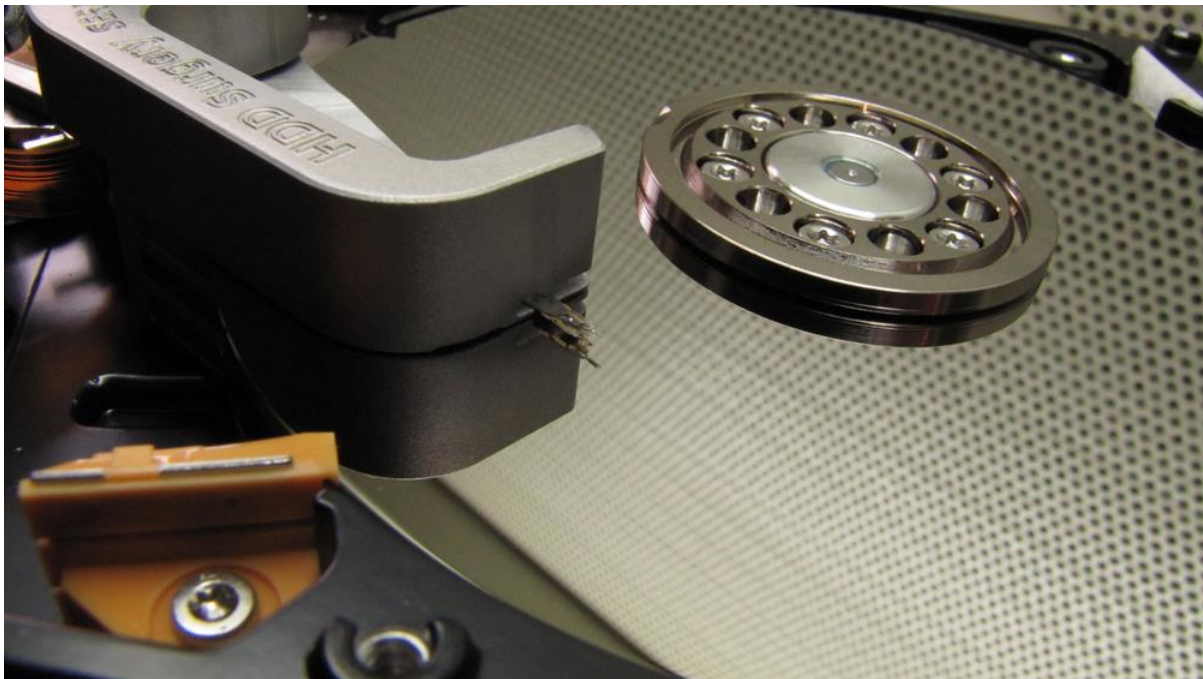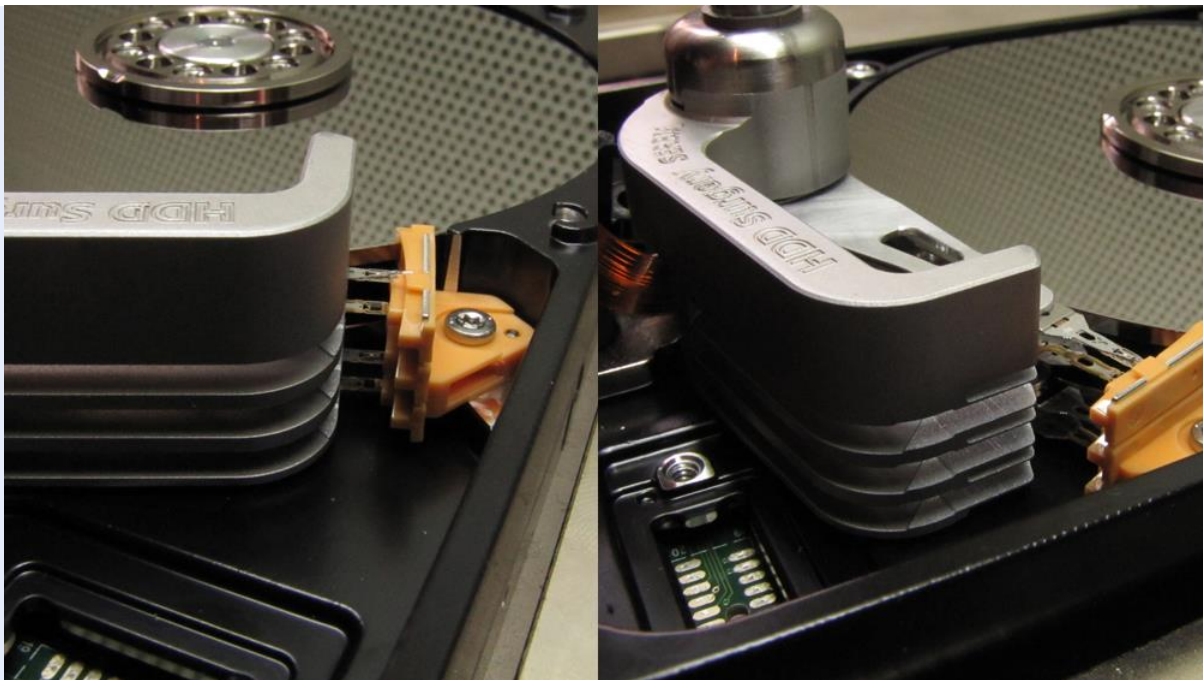

Picture 3. (lifting the heads)

Step 4 - Moving the heads to the ramp

Move the tool with heads out of the platter area and over the ramp. Push the back side of the head arm (magnetic coil) together with the tool itself to prevent heads from slipping until they reach the ramp. When the heads are over the ramp, hold the back side of the head arm (magnetic coil) and move the tool horizontally so the heads slide from the snouts to the ramp.

Picture 4. (moving the heads to the ramp)

Step 5 – Dismounting the tool

Remove the screw that's holding the head and tool attached to the drive itself. While unscrewing this screw, hold the back side of head arm (magnetic coil) and make sure that the heads stay on the ramp. Also, take care that the tool remains away from the heads and platters while removing it. Now the tool can be removed.
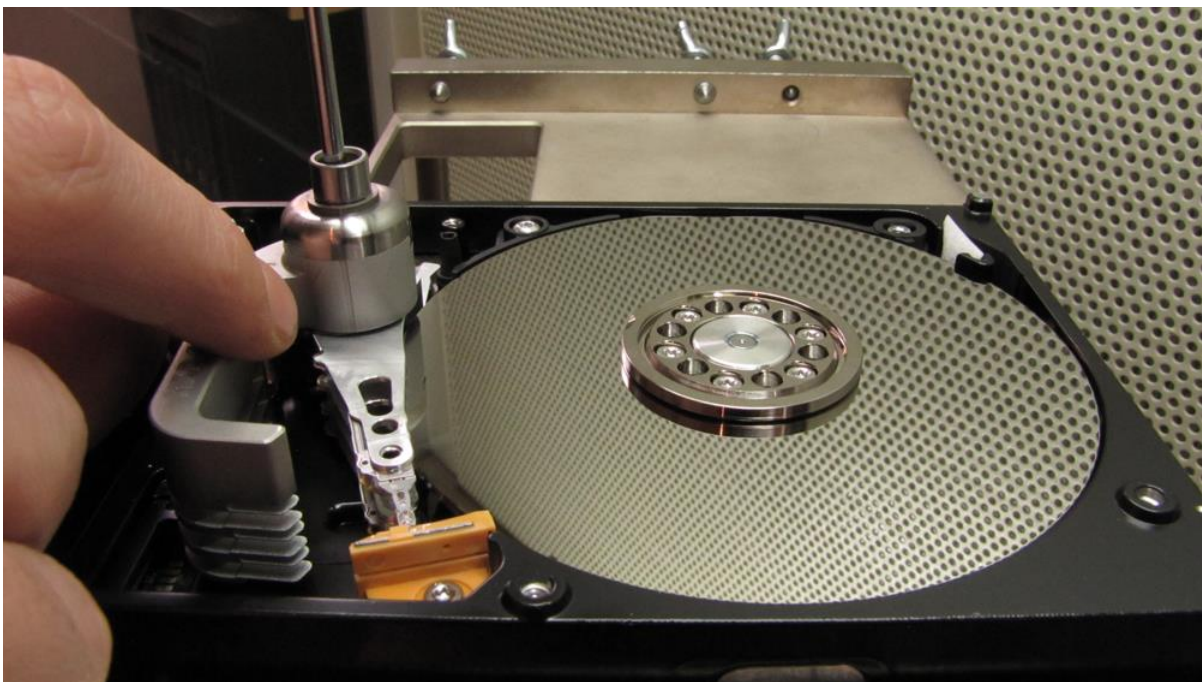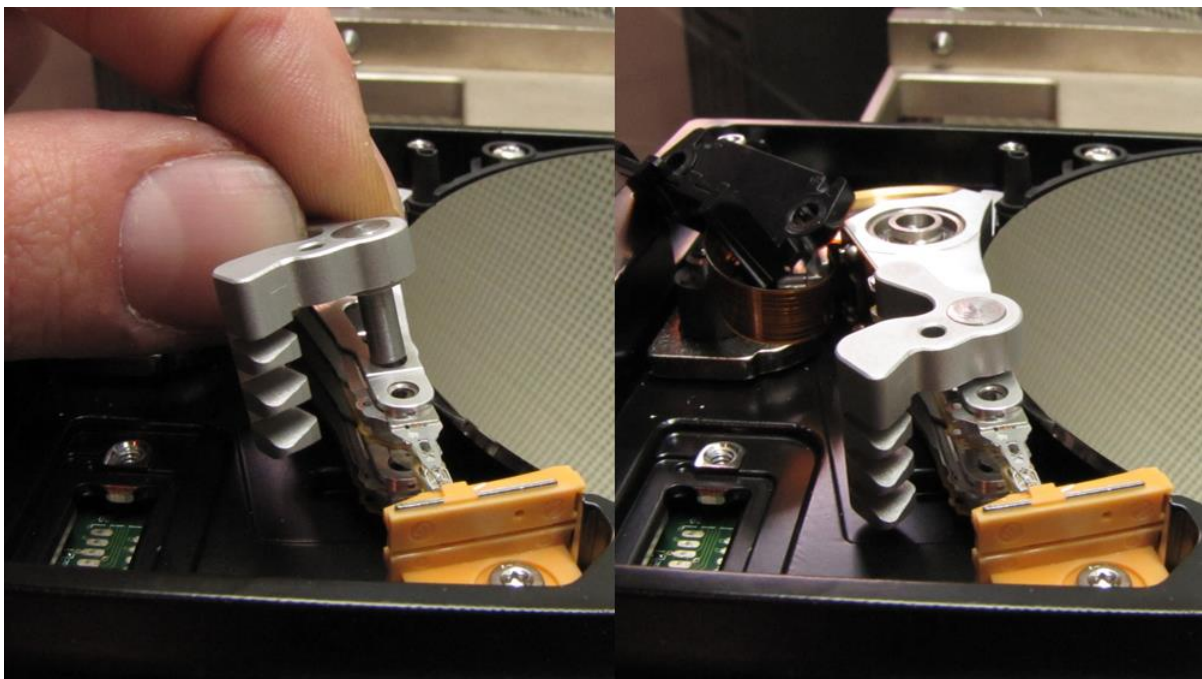

Picture 5. (dismounting the tool)

![HddSurgery logo]
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5. Head replacement process

Step 1 – Mounting the tool on actuator arm

Remove screws holding flat cable contact and with a finger push contact from the bottom upwards to release it. The pressure from below may cause flat cable contacts to pop out and possibly damage platters, so hold firmly top of a flat cable contact with another hand while pushing related plastic. Before applying pressure, remove screws from their holes.

Carefully center the axis of the tool over the larger round hole near the top of the head arm (near the heads themselves). Take care that the snouts stand 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 6. (mounting the head replacement tool)

Step 2 – Securing the heads with the tool

Push the tool so the snouts go between the heads. Snouts should not move or lift the heads. They will just keep the distance between them and assure that the heads don't touch each other. Secure the tool in this position with provided securing pin. Pin should go through the hole easily.
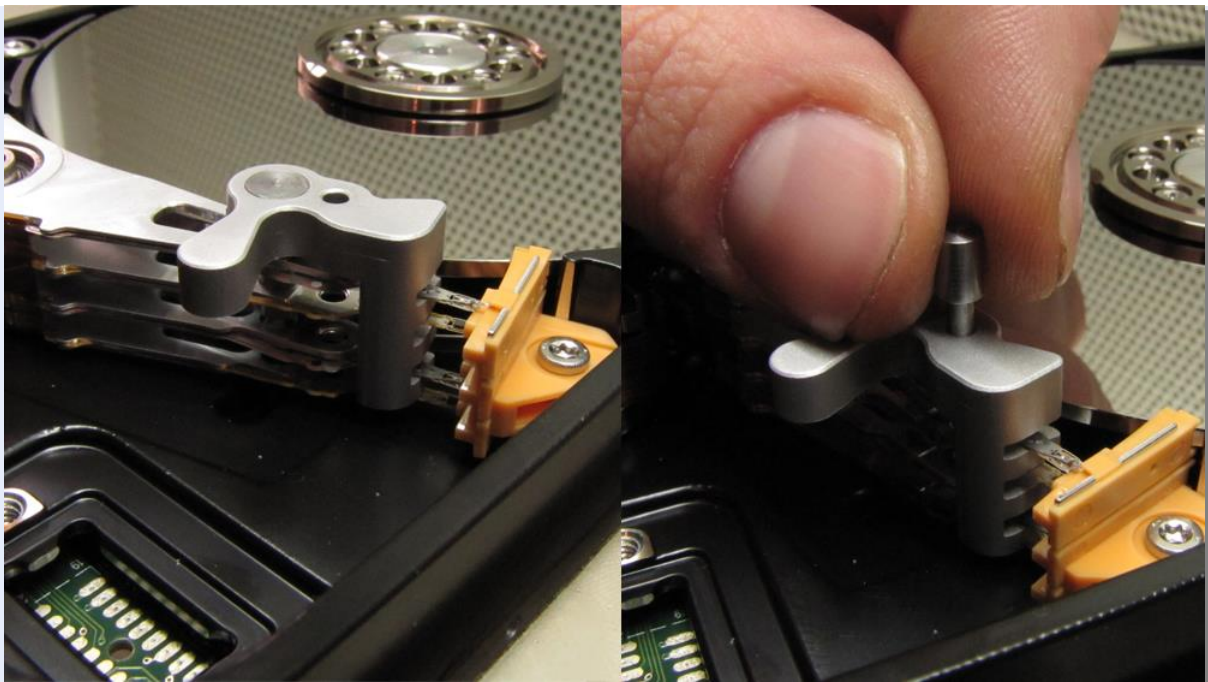
Picture 7. (securing the heads with the tool)

Step 3 – Moving the heads off the ramp

Remove the security brake and scroll the heads off the ramp. When heads are off the ramp, tool will prevent the heads from touching each other and head assembly can be safely and easily transferred to another drive.
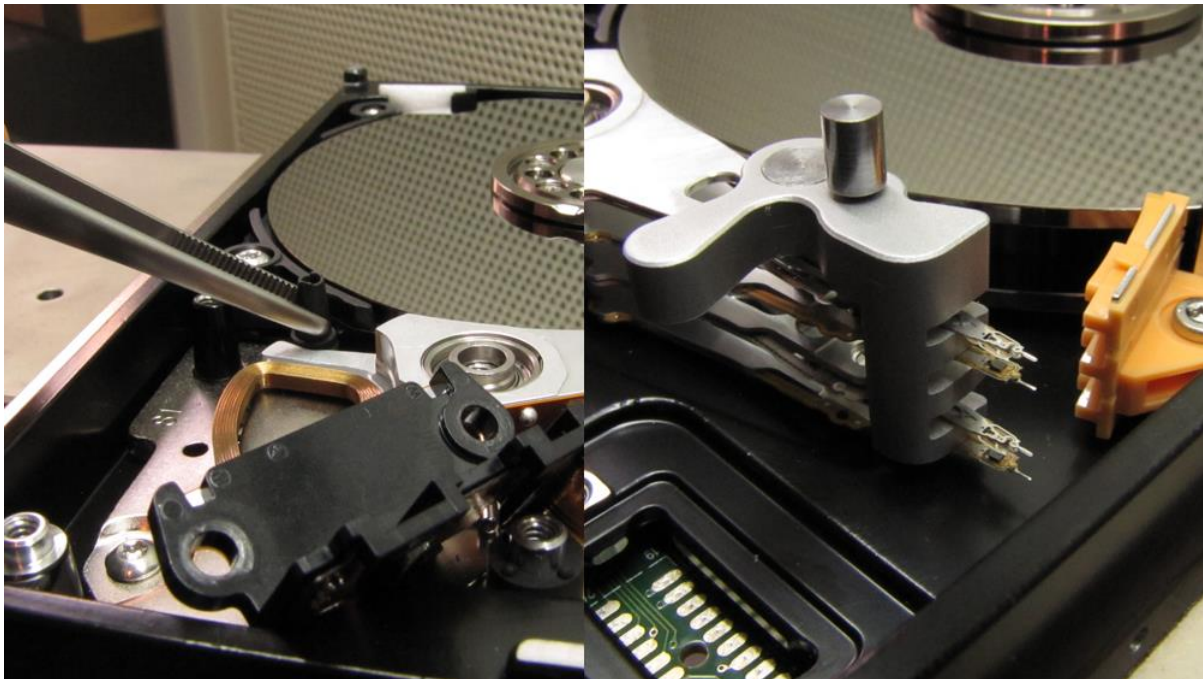
Picture 8. (moving the heads off the ramp)

Step 4 – Dismounting the heads

To lift the head assembly, tweezers are needed. Use tweezers to grab the head assembly through one 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 9. (dismounting the heads)

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# Step 5 – Mounting the heads in a patient drive

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

Picture 10. (mounting the heads in a patient drive)

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Step 6 – Moving the heads to the ramp

Push the heads over the ramp. While holding the heads on the ramp, use tweezers to return the security brake to its place.
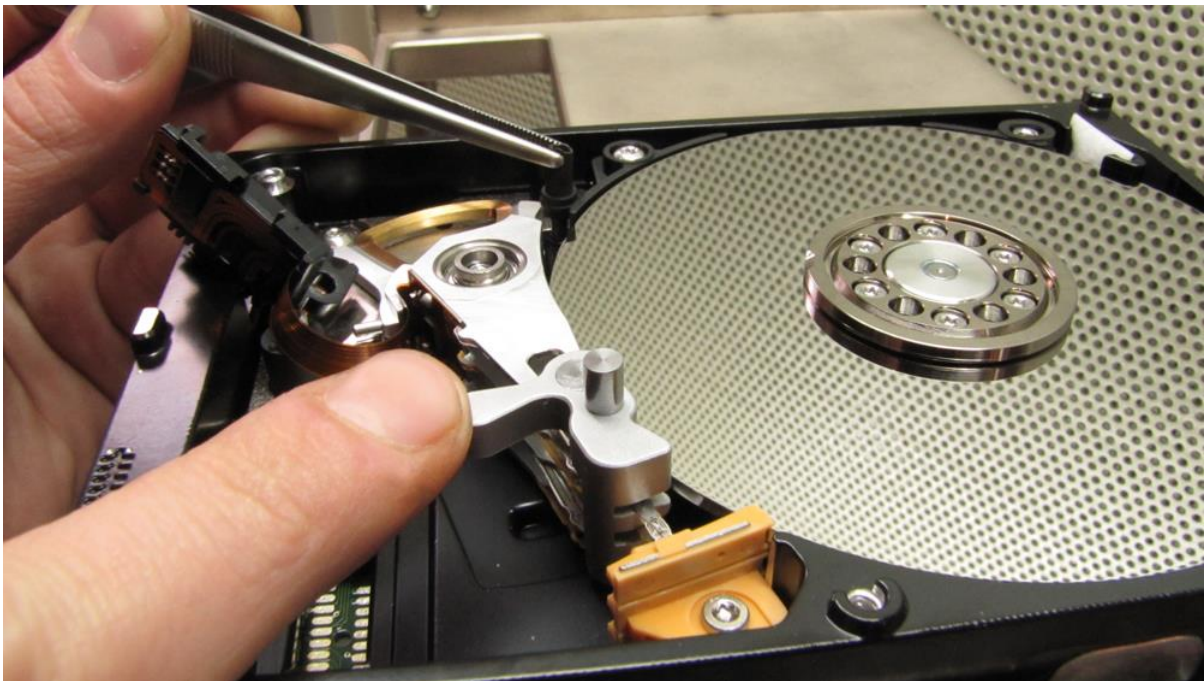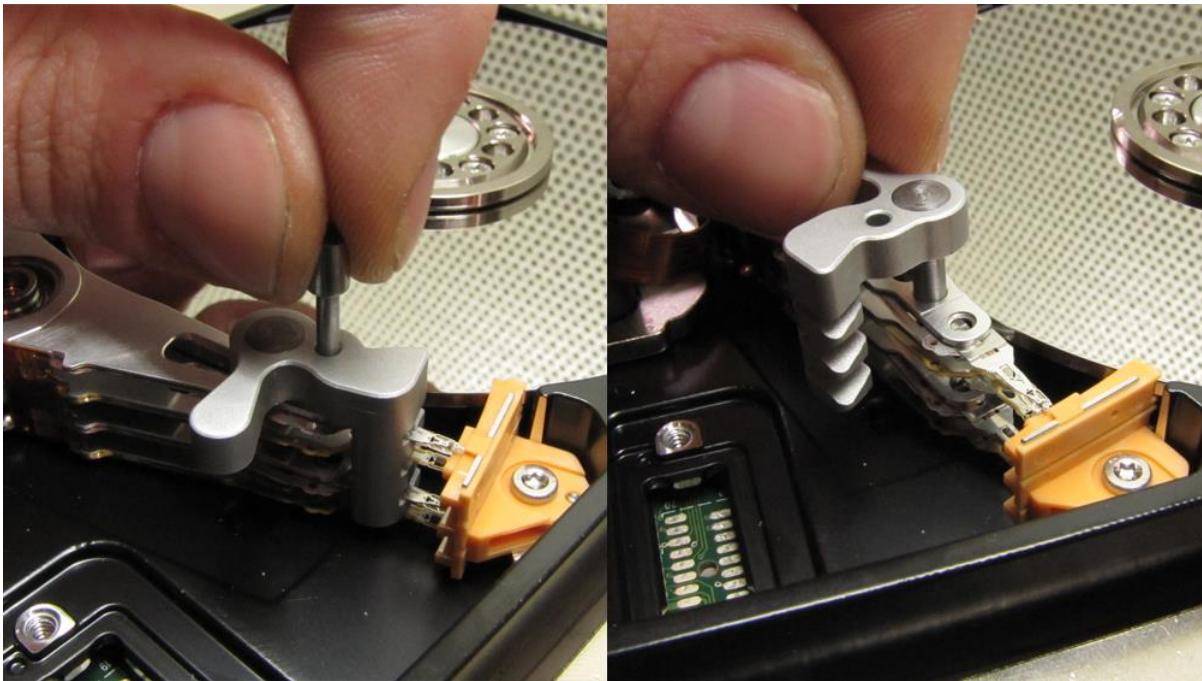

Picture 11. (moving the heads to the ramp)

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 12. (dismounting the tool)

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