



**HddSurgery**



*Tools for data recovery experts*

## ***Guide for using HddSurgery™ head change tools:***

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**HDDS WDC Venice, VeniceR / Carmel, CarmelR / ApolloCR**



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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 technique 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.

A donor selection process is not covered by these guidelines. If you have questions about compatibility, you can send them to HddSurgery™ support team on [support@hddsurgery.com](mailto: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™ WDC Venice(R)/Carmel(R), ApolloCR head change tools

HddSurgery™ WCD Venice(R)/Carmel(R)/ApolloCR represents a set of head replacement tools which can be used to safely and easily replace heads on the Western Digital 3.5” hard drives with 1, 2 or 3 platters which “park their read/write heads” on a ramp.

Set contains 3 pairs of head replacement tools: **WDC 3.5” ramp P1**, **WDC 3.5” ramp P2** and **WDC 3.5” ramp P3**.



### WDC 3.5” ramp P1

This head replacement tool can be used on 3.5” Western Digital hard drives from Venice, Venicer, Carmel, Carmelr and ApolloCR families with 1 (one) platter.



### WDC 3.5” ramp P2

This head replacement tool can be used on 3.5” Western Digital hard drives from Venice, Venicer, Carmel, Carmelr and ApolloCR families with 2 (two) platters.



### WDC 3.5” ramp P3

This head replacement tool can be used on 3.5” Western Digital hard drives from Venice, Venicer, Carmel, Carmelr and ApolloCR families with 3 (three) platters.





### 3. Supported models

<u>Venice</u>	<u>Venicer</u>	<u>Carmel</u>	<u>Carmelr</u>	<u>ApolloCR</u>
WD40EMAZ-51TKPBO	WD40EZZAZ-19SF3B0	WD20EFAX-68FB5N0		WD40PURX-64AKYY0
WD60EFAX-68SHWN0	WD60EZZAZ-00SF3B0			
	WD20PURZ-85AKKY0			
	WD30EFAX-68JH4N0			
	WD30PURZ-85AKKY0			
	WD40EFAX-68JH4N0			
	WD40EFAX-68JH4N1			
	WD40EZZAZ-00SF3B0			
	WD40PURZ-85AKKY0			
	WD60EDAZ-11U78B0			
	WD60EDAZ-11BMZB0			
	WD60EFAX-68JH4N1			
	WD60EFAX-68JH4N0			
	WD60EZZAZ-00SF3B0			





## 4. 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 (*picture 1*).

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 (correct tool handling)*





## 5. Head replacement process

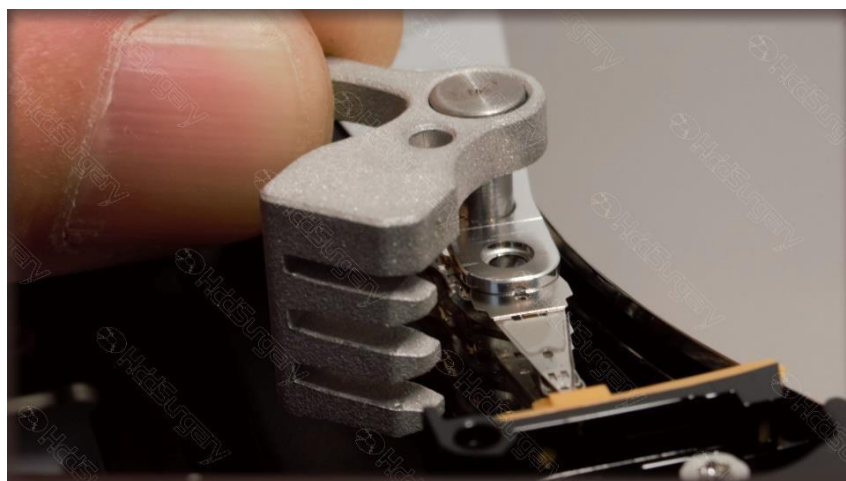
### Step 1 - Mounting the tool on actuator arm

Using a needle-nose pliers carefully remove the magnet by lifting upwards and away from the magnetic coil, using a housing as a leverage point. Move and secure the flat cable connector to make room for the tool. Fasten the head arm screw to secure it in place (*picture 2*).



*Picture 2 (removing the magnet and securing the head arm with a screw)*

Carefully center the axis of the tool over the hole on the head arm (Picture 3). 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.



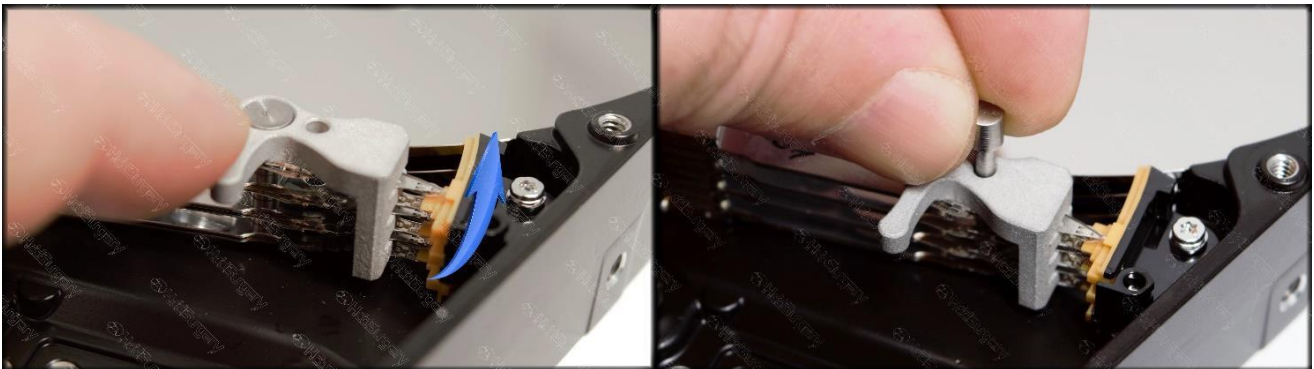
*Picture 3 (mounting the tool on actuator arm)*





## 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 provided securing pin (*picture 4*). Pin should go through the hole easily.



Picture 4 (securing the heads with the tool)

## Step 3 - Moving the heads off the ramp

Remove the brake and scroll the heads off the ramp (*picture 5*). When heads are off the ramp, tool will prevent the heads from touching each other. Remove the head arm screw while holding the head arm with your other hand to prevent the heads from going back to the ramp area. Head assembly can now be safely and easily transferred to another drive.



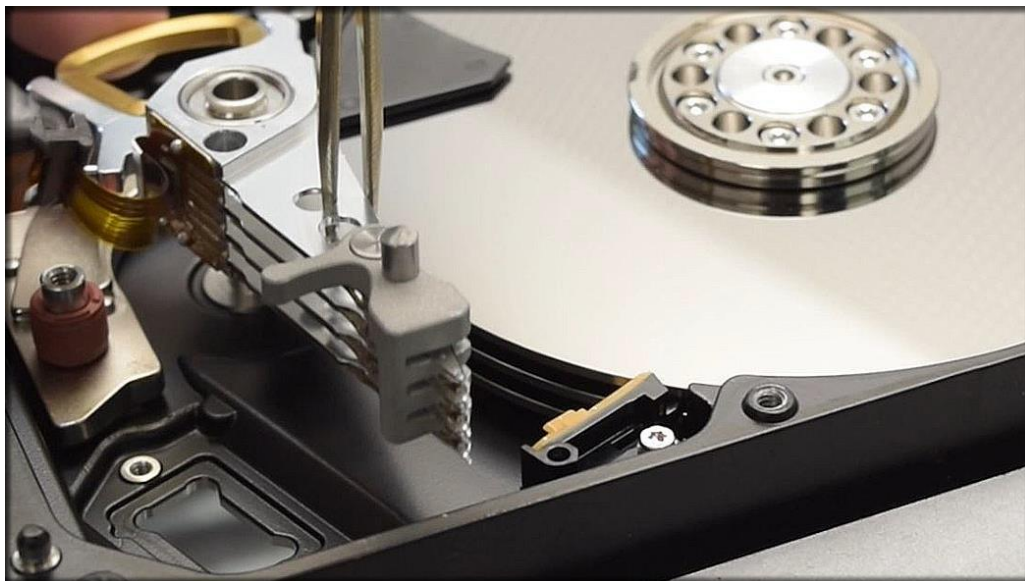
Picture 5 (removing the brake and scrolling the heads off the ramp)





## Step 4 - Dismounting the heads

To lift the head assembly, tweezers are needed. Use tweezers to grab the head assembly through 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 (*picture 6*). Don't try to dismount the heads by pulling the tool.



*Picture 6 (dismounting the heads)*





## Step 5 - Mounting the heads in a patient drive

Place the head assembly to its place in a patient hard drive using the tweezers. Assist the process with your other hand (*picture 7*).

When the head arm is in its place, screw the head arm to secure it from moving. Push the heads over the ramp and insert the brake.



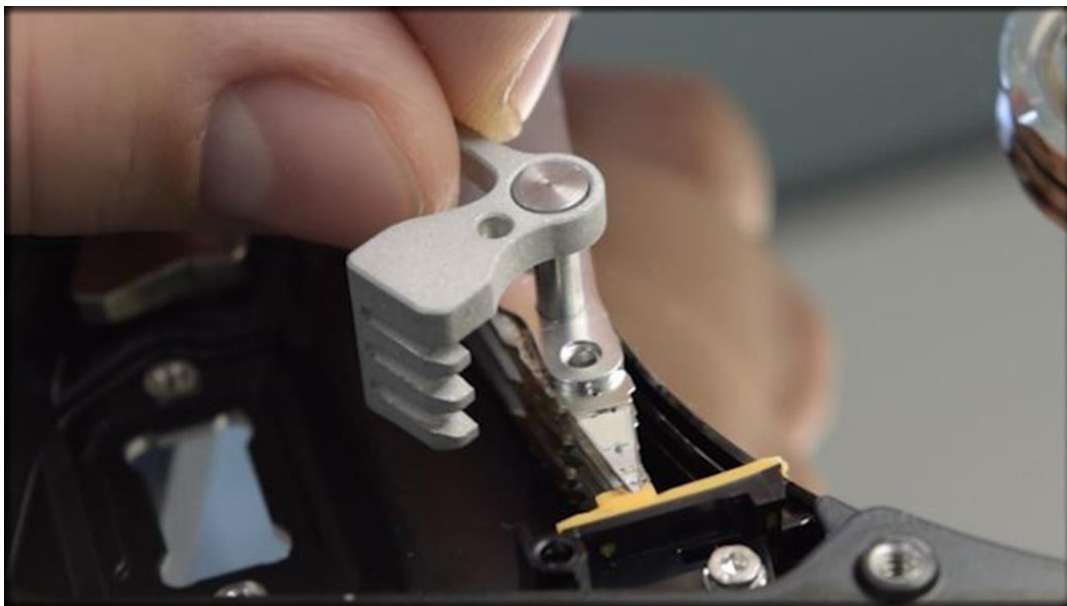
*Picture 7 (mounting the heads in a patient drive)*





## Step 6 - 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*).



*Picture 8 (moving the heads to the ramp)*

Put the flat cable connector back to its place and screw it down. 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. Remove the head arm screw.

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

You can find more information about this tool and many other tools used for data recovery on our website: <http://www.hddsurgery.com/>

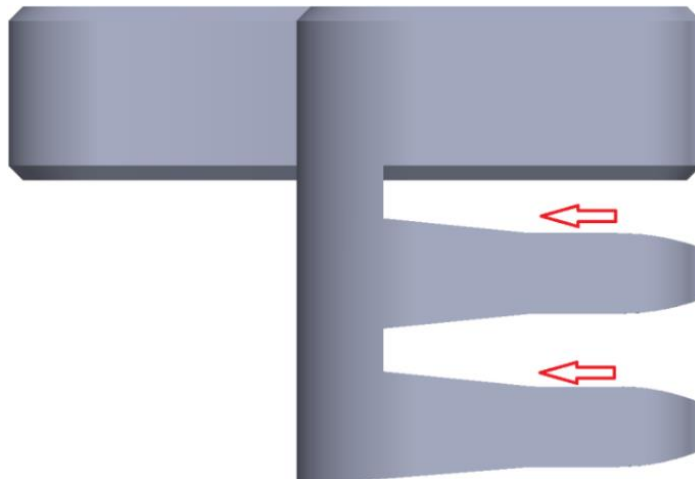
Also, you can watch the videos that show how this tool works on our YouTube channel: <http://www.youtube.com/user/HddSurgery>





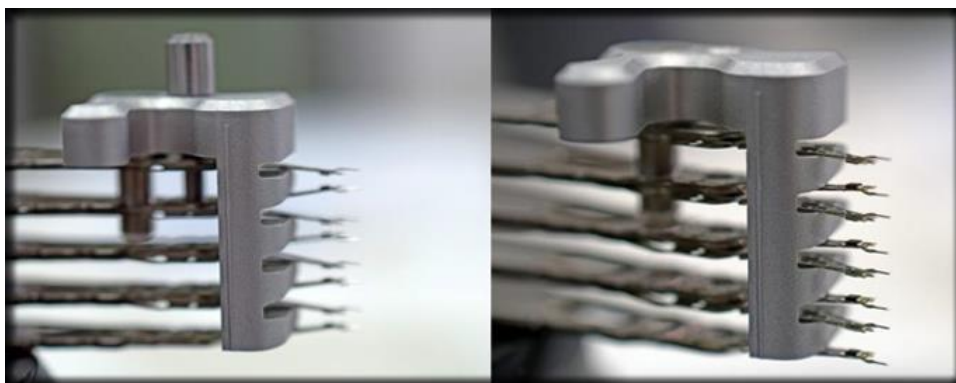
## What's new?

HddSurgery™ pays a lot of attention to the feedback of our customers, and the result of that is an innovation which allows better inspection of the heads and creates more room for safer manipulation.



*Front view of a tool with the "Peter slope"*

Our esteemed customer, colleague and friend Peter Magyar from Adatmentes pointed out that adding a slope to the combs could increase the efficiency of the tool in the ways we mentioned above, and HddSurgery™ acknowledged the benefit of this improvement and named it "Peter Slope" to honor his contribution. Sometimes, that extra space which this slope provides makes the whole difference while inspecting the heads, in other cases, the tool should be used normally.



*"Peter slope"*

