



Tools for data recovery experts

Guide for using HddSurgery™ head change tools:

- ***HDDS WDC BB/JB/JD/JS p2-3 (2 or 3 platters)***
- ***HDDS WDC KD/KS/YS 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.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™ head change tools

Western Digital hard drives from families Sabre, Hawk, Starling, Buccaneer, Raider and Zeus belong in the category of disks that "park heads" above the magnetic platters. That way of functioning implies that, in a situation when the drive is powered off, the heads are located on the surface that has no sensitive magnetic material. This allows drive to start the motor to the required speed.

The purpose of HddSurgery™ head change tools is to enable safe heads passage over the "data" area above platters surface, and to provide non-contact transfer to patient disc.

- **HDDS WDC BB/JB/JD/JS p2-3 (2 or 3 platters)**

This head change tool is made for safe and easy head replacement on Western Digital hard drive models BB, JB, JD, JS and all other models with 2 or 3 platters from families: Sabre, Hawk, Starling and Raider.

- **HDDS WDC KD/KS/YS p4 (4 platters)**

This head change tool is made for safe and easy head replacement on Western Digital hard drive models KD, KS, YS and all other models with 4 platters from Zeus family. As there is no conceptual difference between these two tools, we will explain only the functioning of HDDS WDC KD/KS/YS p4 tool. In the case of HDDS WDC BB/JB/JD/JS p2-3, apply the same procedure.

During the whole procedure of head replacement, heads and platters do not have contact. Heads are lifted over NON-data area and safely guided over the platters. In process of installing back the donor head, same procedure needs to be done. Heads are guided over platters with no contact and safely deployed in non-data area.

3. Supported models

HDDS WDC BB/JB/JD/JS p2-3 (2 or 3 platters)

This tool can be used on Western Digital hard drive models BB, JB, JD, JS 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)

SABRE	HAWK	STARLING	RAIDER
JH, JK, KS, LN, MG JJ, JL JM, JP JN, JR JU	MH, ML, MV, MZ, NC, NF, NG, NK MJ, MK, MW, MY, ND, NE, NH, NJ NT, NV, NY, PA NU, NW, NZ, PB RP	RD, RJ(2) RE, RF, RK(2), RL(2)	PC PD, PE PF, PG

HDDS WDC KD/KS/YS p4 (4 platters)

This tool can be used on Western Digital hard drive models KD, KS, YS and all other models with 4 platters from Zeus family:

MN, NA, NS, PL, MP

4. Head replacement process

Step 1 – Handling the tool

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 correctly.

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.

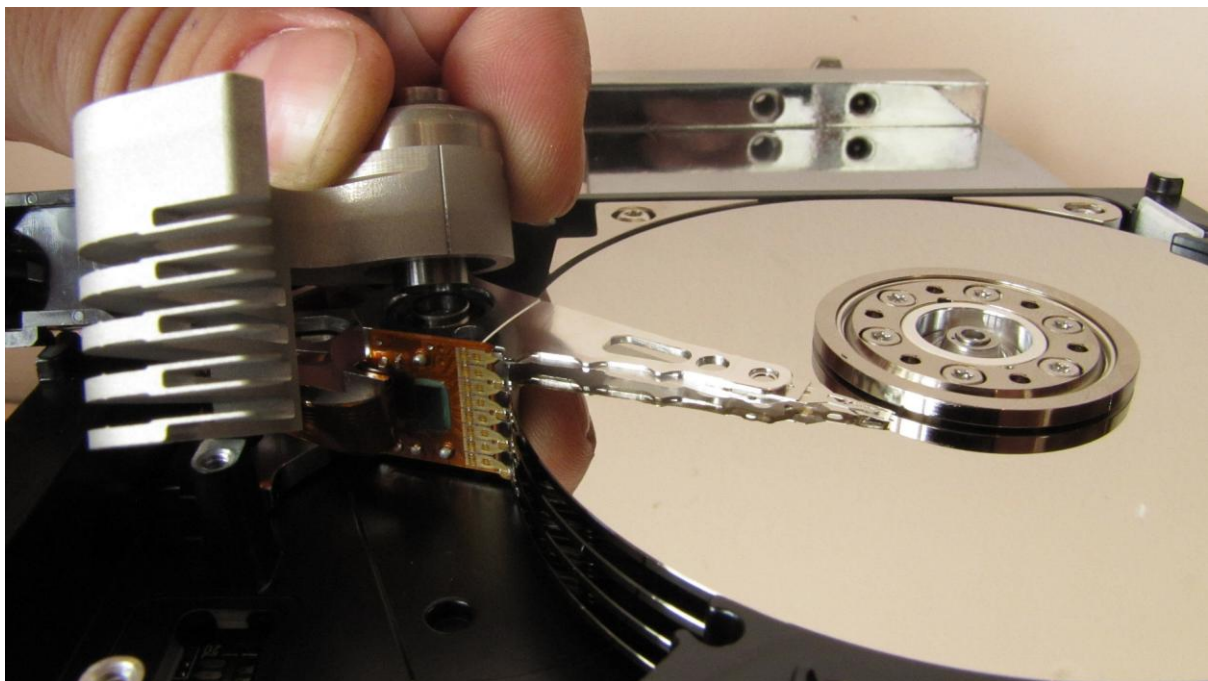


Picture 1. (handling the tool)

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. Do not remove the security brake because the heads move easily and might slip out of platters while moving the flat cable.

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



Picture 2. (mounting the 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

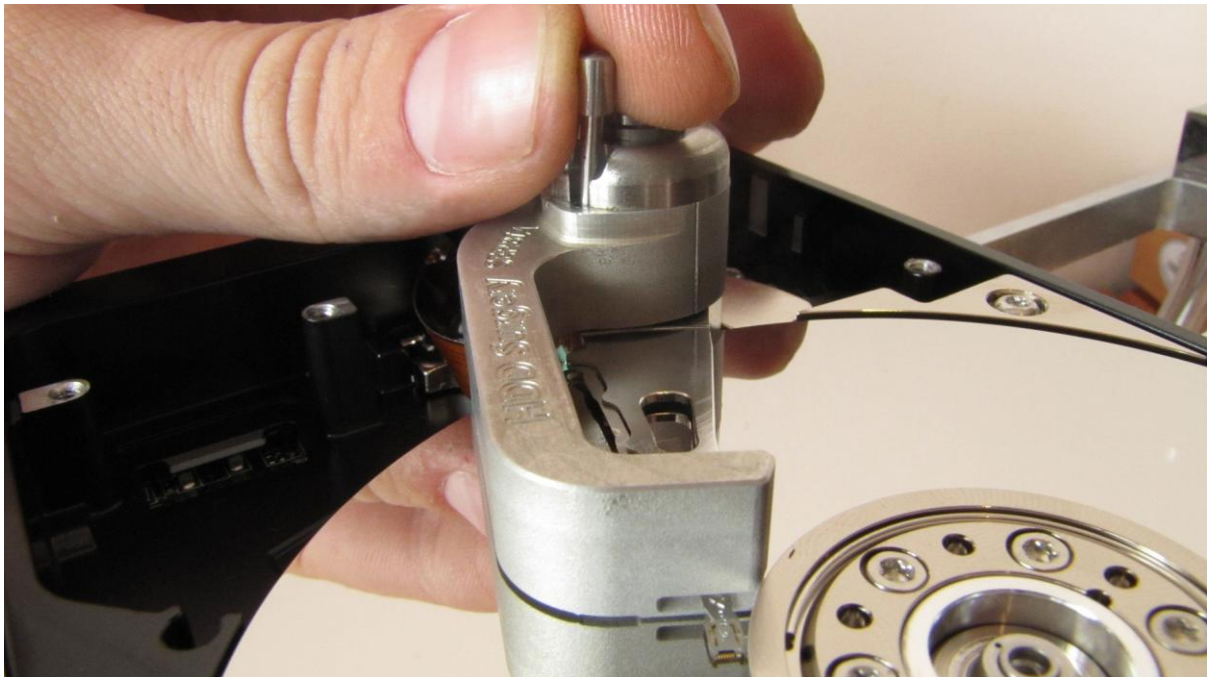
By horizontally moving tool shank we slide the tool over platters. Construction of tools enables heads to lift on tool snouts by relatively small force. If you feel that the necessary force is greater than the expected, check tool positions and possible damage to the HDA assembly. Push the tool as far as limiter is allowing.



Picture 3. (lifting the heads)

Step 4 - Securing the tool

The tool has a hole at its edge, which coincides with the hole in the head arm. Some Western Digital hard drives have this hole in their head, and some don't. For drives that have this hole, place the securing pin as an additional measure of security. The leftmost position is necessary to ensure the bound between tool and actuator arm.



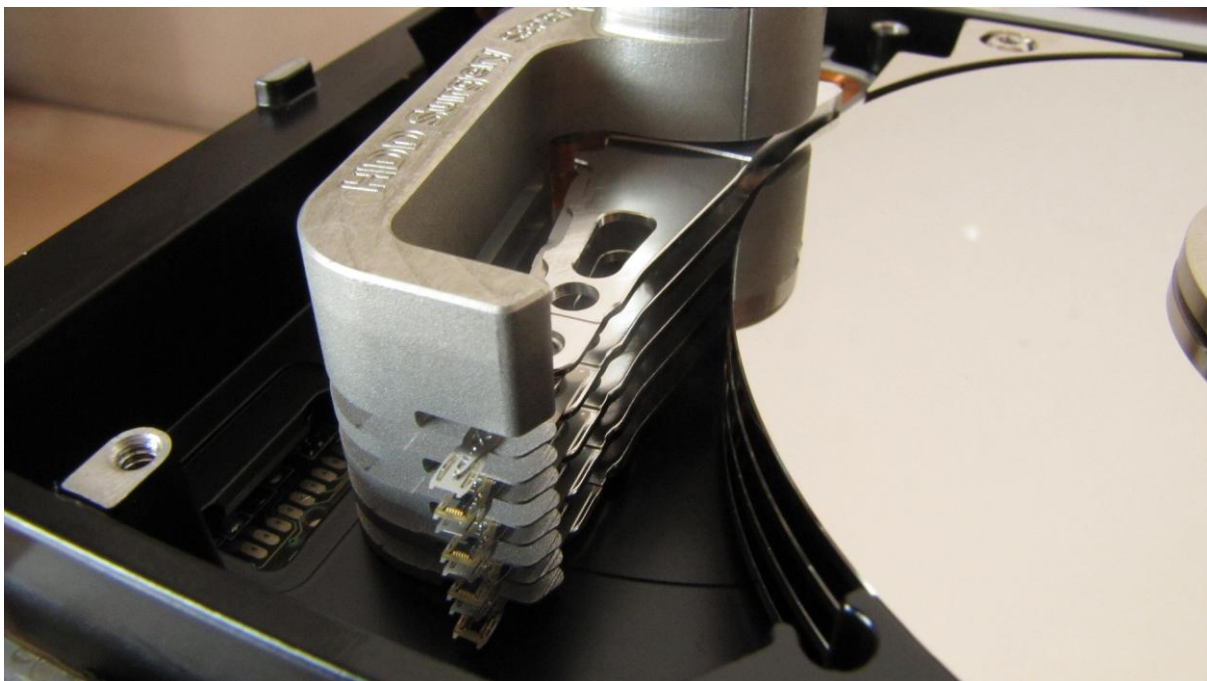
Picture 4. (securing the tool)

!!!!IMPORTANT!!!!

If the connection of the tool and actuator arms is not properly engaged, heads slipping is possible during disassembling.

Step 5 - Moving the tool outside of platters area

Remove the security brake with magnet that's holding the head arm in the parking position. By vertical scrolling move the tool (previously secured by pin) to the initial position. If the head arm doesn't have a hole in which you could place the pin, push the back side of the head arm (magnetic coil) together with the tool itself to prevent heads from slipping.



Picture 5. (moving the tool with heads outside of platters area)

Step 6 – Unscrewing the head assembly

Remove the screw that's holding the head and tool attached to the drive itself. Now the head assembly can be lifted.

!!! IMPORTANT !!!

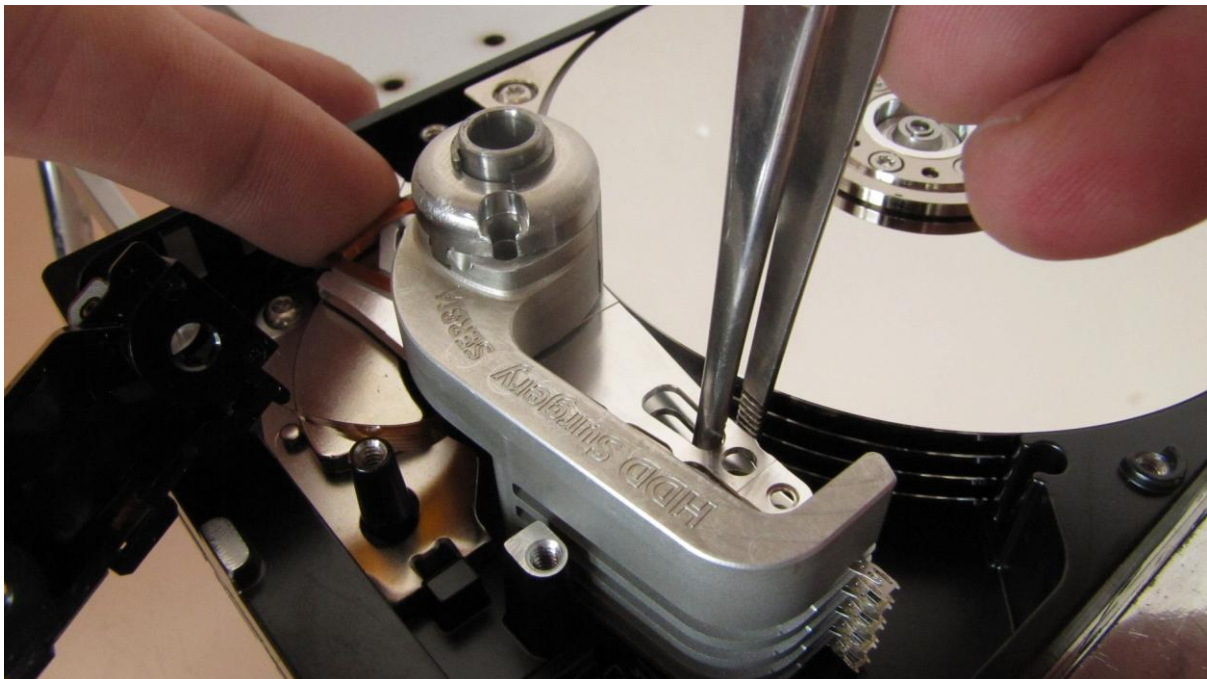
When this screw is removed, heads and tool are not having a tight connection anymore. Do not try to dismount the heads by pulling the tool.



Picture 6. (unscrewing the head assembly)

Step 7 - 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 simultaneously (side where the coil is). Don't try to dismount the heads by pulling the tool.



Picture 7. (dismounting the heads)

Step 8 - Mounting the heads in a new drive

Place the tool with head assembly to its place in new hard disk using the tweezers. Screw the screw to tighten the tool with head arm to the disk.



Picture 8. (mounting the heads on a patient drive)

Step 9 – Moving the heads to the parking zone

Push the tool to scroll the heads back to their place above the platters. Return back the security brake and make sure that the heads are in the parking position.



Picture 9. (moving the heads to their place)

Step 10 - Removing the pin

If your drive had the hole for the securing pin, carefully remove it when heads are above the parking zone.



Picture 10. (remove the securing pin)

Step 11 - Moving the tool outside of platters

Horizontally push tool shank with a finger to return the tool outside of platters.

!!! IMPORTANT !!!

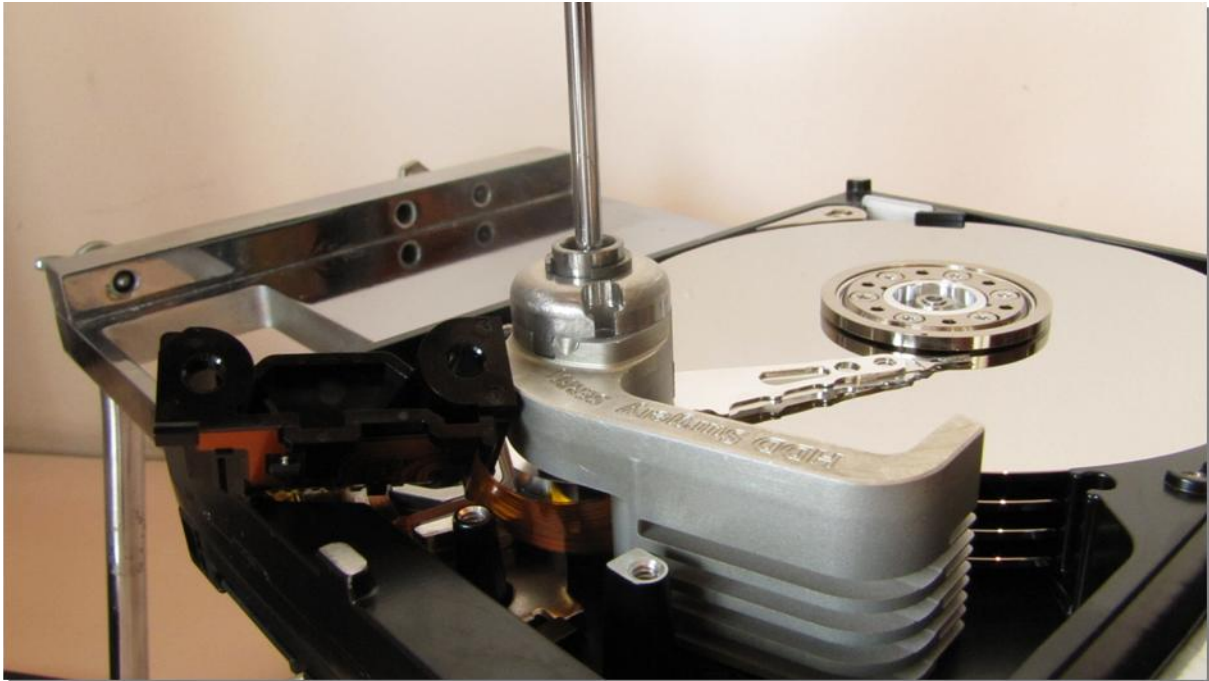
With your other hand, hold back side of the head arm (magnetic coil) to prevent heads from moving.



Picture 11. (returning the tool outside of platters)

Step 12 - Dismounting the tool

Take out the screw and remove the tool.



Picture 12. (removing the tool)

Put the lid back and close the disc. 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>