

HDD Surgery™

Tools for data recovery experts



Guide for using HddSurgery™ tools

Seagate 7200.11 head change tools

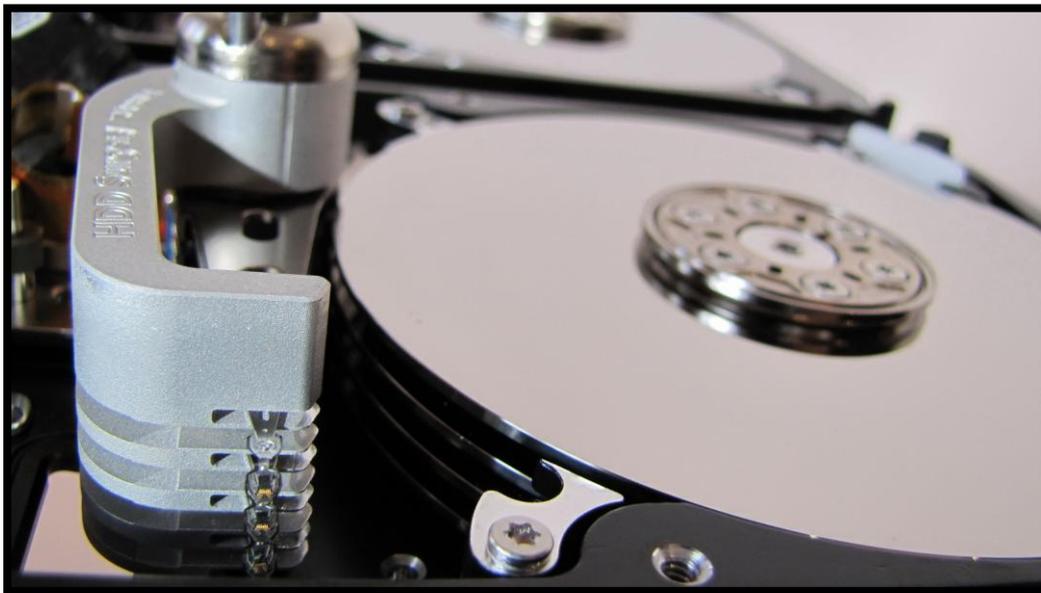


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HDD Surgery™ – guide for using tools

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. The processes which are known in many cases are effective and sufficient. The idea from which HddSurgery tools are incurred was to secure that process of replacing of damaged hard drive heads goes with no errors. Using 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 making procedures and the short training it is possible to let junior data recovery technicians handle complex tasks. With development of these tools, we are trying to eliminate the elements of luck that usually follow data recovery processes.

Experienced data recovery technician or engineer can have great success without our tools, but he can have absolute security only by using HddSurgery tools.

Non-contact read/write head replacement implies that there is no contact between heads, 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 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 the HddSurgery 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.

1. HddSurgery™

Seagate 7200.11 head change tools

Seagate hard drives 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, 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 Seagate 7200.11 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.

HddSurgery Seagate 7200.11 head change tools are tools made for safe and easy read/write head change on Seagate LP , Seagate 7200.11, Seagate 7200.ES, Seagate ES.2 SATA drives with 2 platters and Seagate 7200.12, Seagate 7200.11, Seagate 7200.ES, Seagate ES.2 SATA drives with 3 or 4 platters. It was needed to have two tools for these families of Seagate drives because of different design. HddSurgery Seagate 7200.11.2 head change tool and HddSurgery Seagate 7200.11.4 head change tool. As there is no conceptual difference between these tools, we will explain only the example of 7200.11.4 series tool. For the case of 7200.11.4 apply the same procedure.

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

NOTE:

Because of possible dust contamination during the transport, before using HddSurgery™ read/write head change tools please perform mild cleaning of the tool with cotton wool and alcohol.

2. Supported models for HddSurgery™ Seagate 7200.11 head change tool

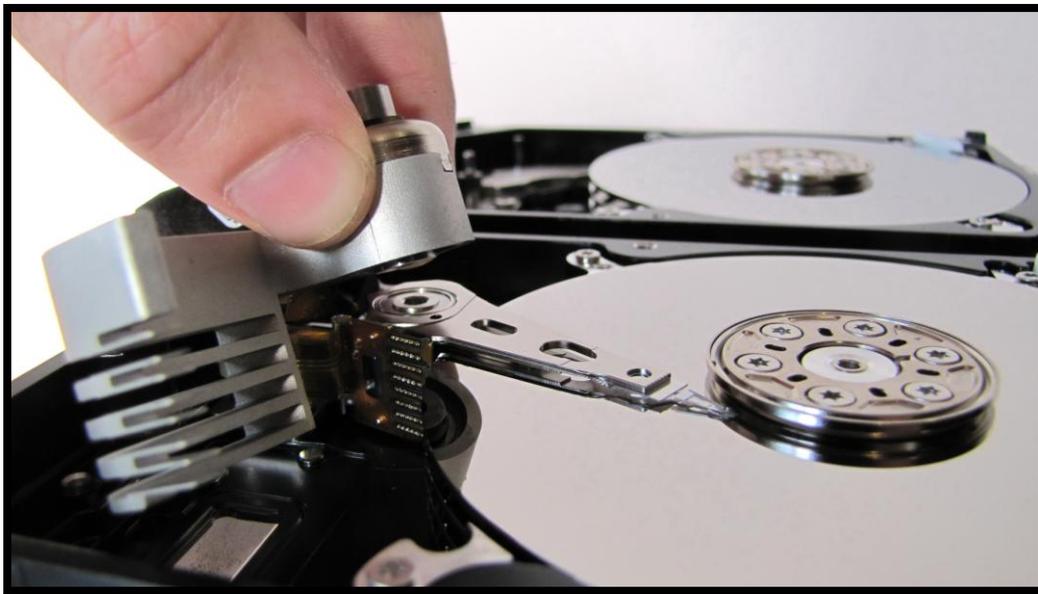
Seagate 7200.11.2 head change tool (2 platters)	Seagate 7200.11.4 head change tool (3 and 4 platters)
<p>SATA</p> <p>ST3640323AS ST3640623AS ST3500320AS ST3500620AS ST3500820AS ST31000528AS ST3750528AS ST31000520AS</p> <p>ES.2 SATA</p> <p>ST3500320NS</p> <p>ES.2 SAS</p> <p>ST3500620SS</p>	<p>SATA</p> <p>ST31500341AS ST31000340AS ST31000640AS ST31000333AS ST3750330AS ST3750630AS ST32000542AS ST31500541AS ST32000641AS</p> <p>ES.2 SATA</p> <p>ST31000340NS ST3750330NS</p> <p>ES.2 SAS</p> <p>ST31000640SS ST3750630SS ST3500620SS</p>

3. Head replacement process (9 steps)

3.a. Step 1. Mounting the tool on actuator arms

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. Take care that the notch on the bottom of the tool coincides with the commas in the actuator arm base. Take the screw of actuator axis and insert it into the intended hole on the tool. Tighten the screw with the screwdriver to perform tool installation.



Picture 1. (mounting the tool)

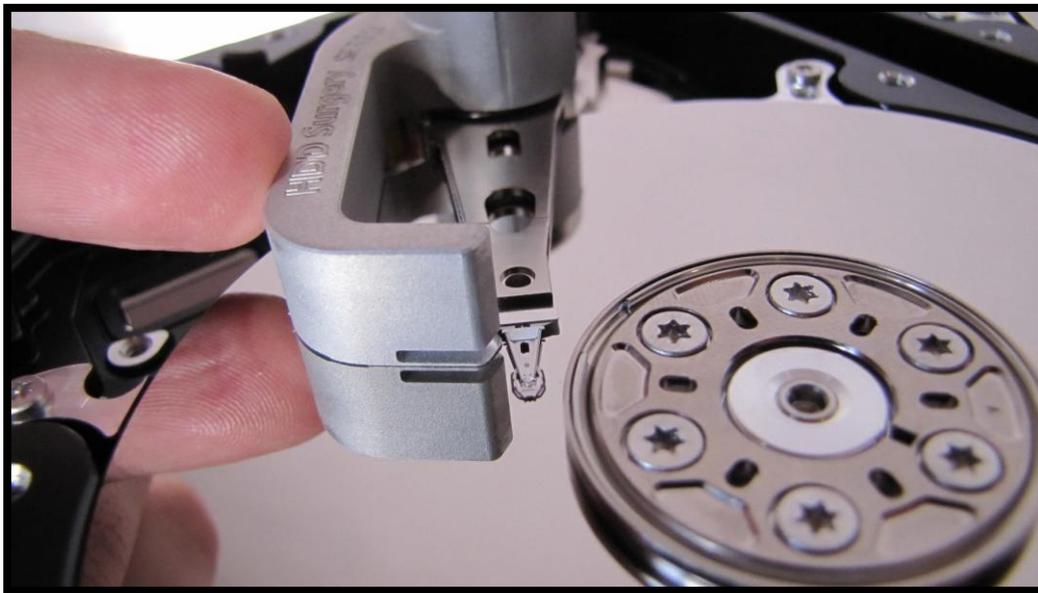
With your right hand make sure that the tool shank with snouts remains in the area outside of the platters.

!!! IMPORTANT !!!

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

3.b. Step 2. Lifting the heads

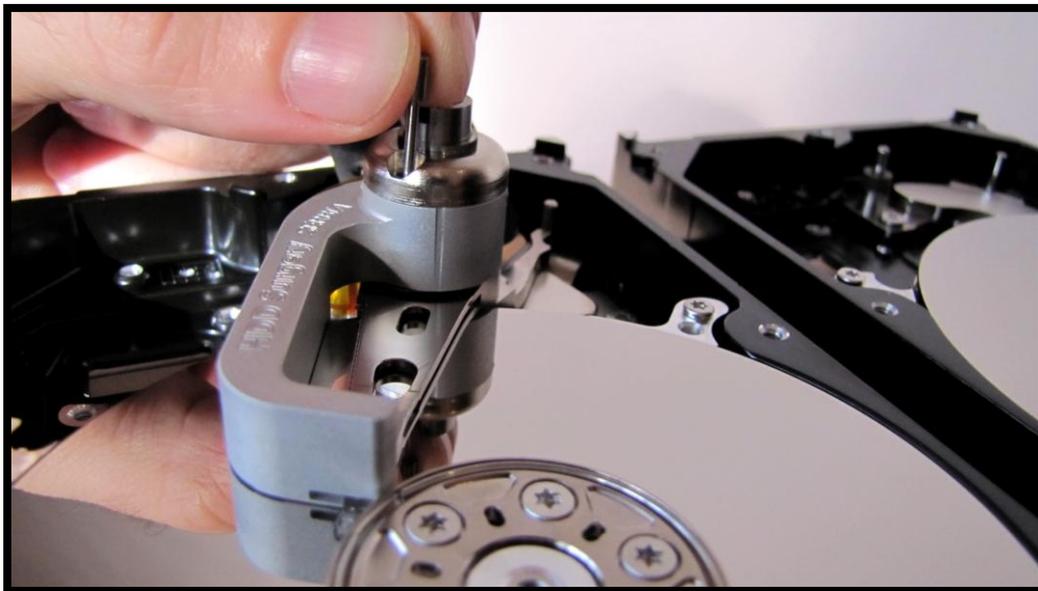
By horizontally moving tool shank we slide the tool over platters. Construction of tools enables heads to lift on tool snouts by relatively small force. If you feel that the necessary force is greater than the expected, check tool positions and possible damage to the HDA assembly. Push the tool as far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



Picture 2. (lifting the heads)

3.c. Step 3. Securing the tool

The tool has a hole at its edge, which coincides with the hole in the head. The leftmost position is necessary to ensure the bond between tool and actuator arm. Securing is being done with the securing pin.



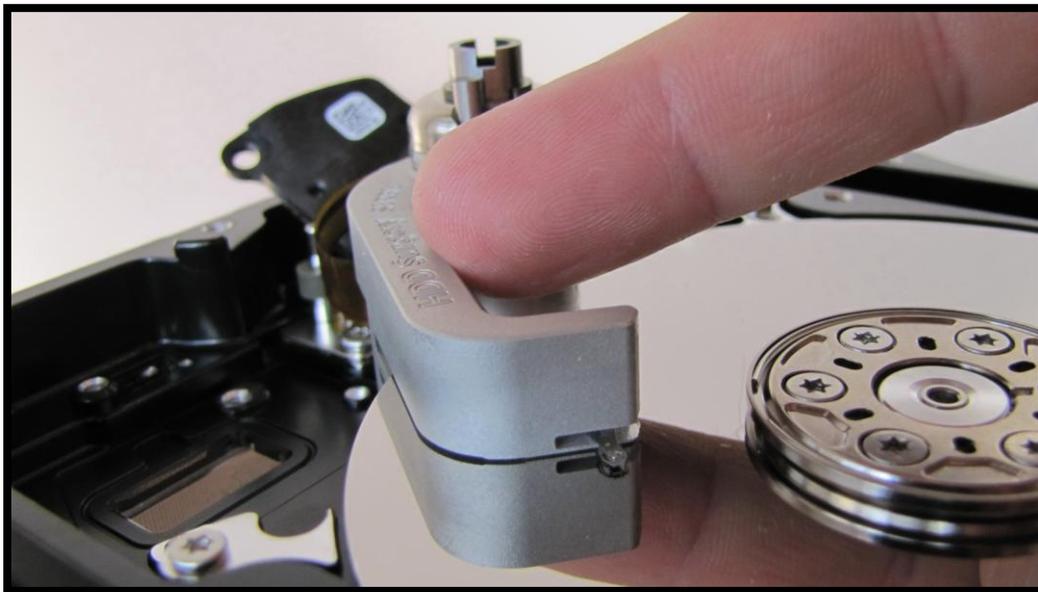
Picture 3. (securing the tool)

!!!IMPORTANT!!!

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

3.d. Step 4. Moving the tool outside of platters area

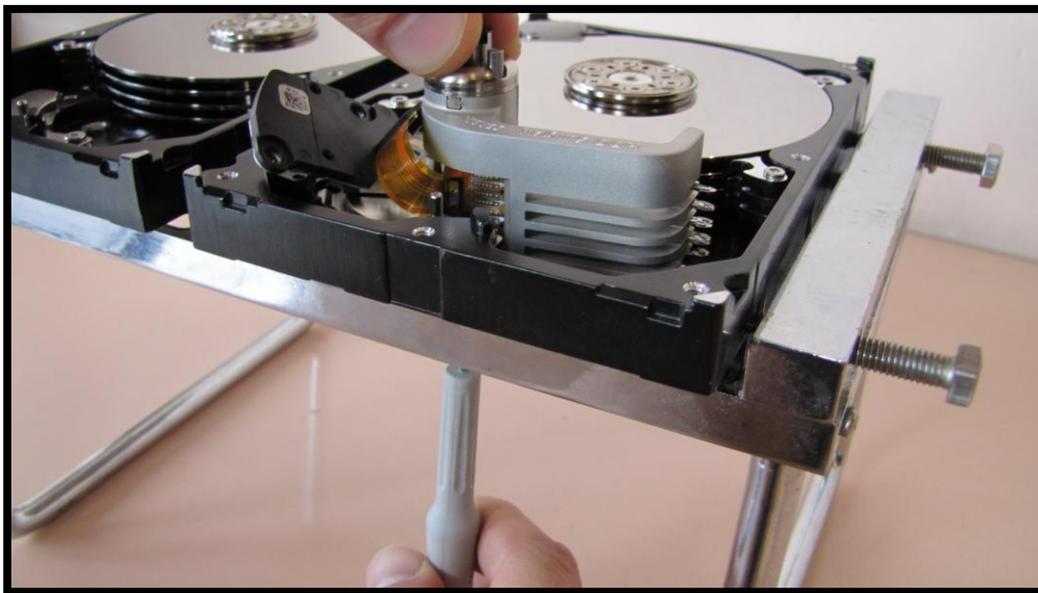
By vertical scrolling move the tool (previously secured by pin) to the initial position.



Picture 4. (moving secured tool with heads outside of platters area)

3.e. Step 5. Dismounting the heads

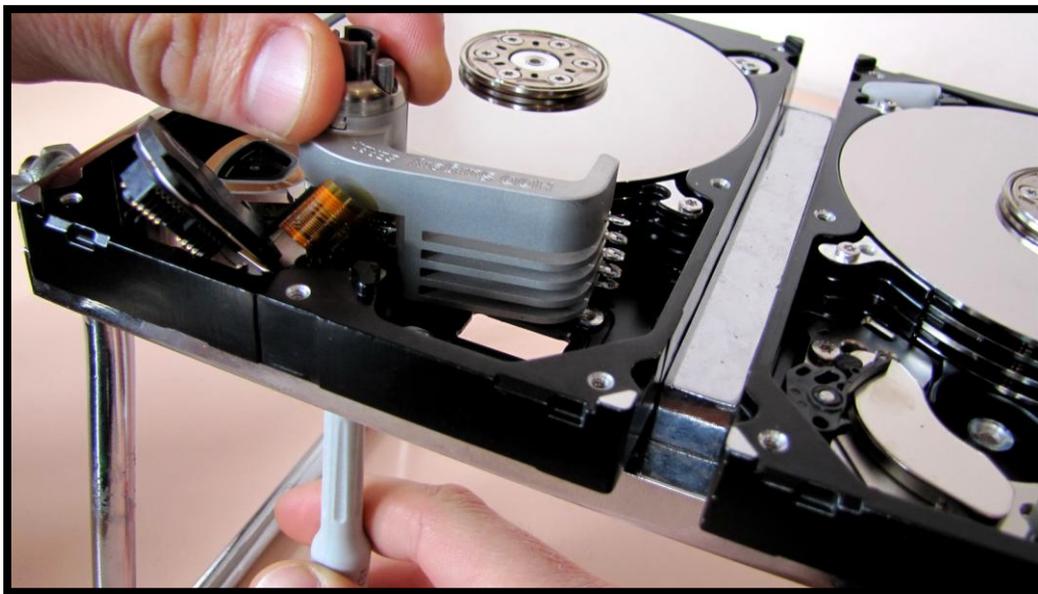
From the bottom side of hard disk unscrew the screw of actuator axis to dismount actuator arm with read/write heads. Hold the tool with one hand because of the possibly contact with the platters.



Picture 5. (dismounting the heads)

3.f. Step 6. Mounting the heads in a new drive

Place the tool with actuator arm to its place in new hard disk. Screw the arm from the bottom side of the hard disk. Tighten the upper axis screw too, just in case it got loosen up during the manipulation. This operation is necessary because of possible changes in height!



Picture 6. (mounting the heads on a patient drive)

By horizontal force return the head back towards the central section of the platters.

3.g. Step 7. Removing the pin

Carefully remove the securing pin when heads are above the parking zone.



Picture 7. (remove the securing pin)

3.h. Step 8. Removing the tool outside of platters

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

!!! IMPORTANT !!!

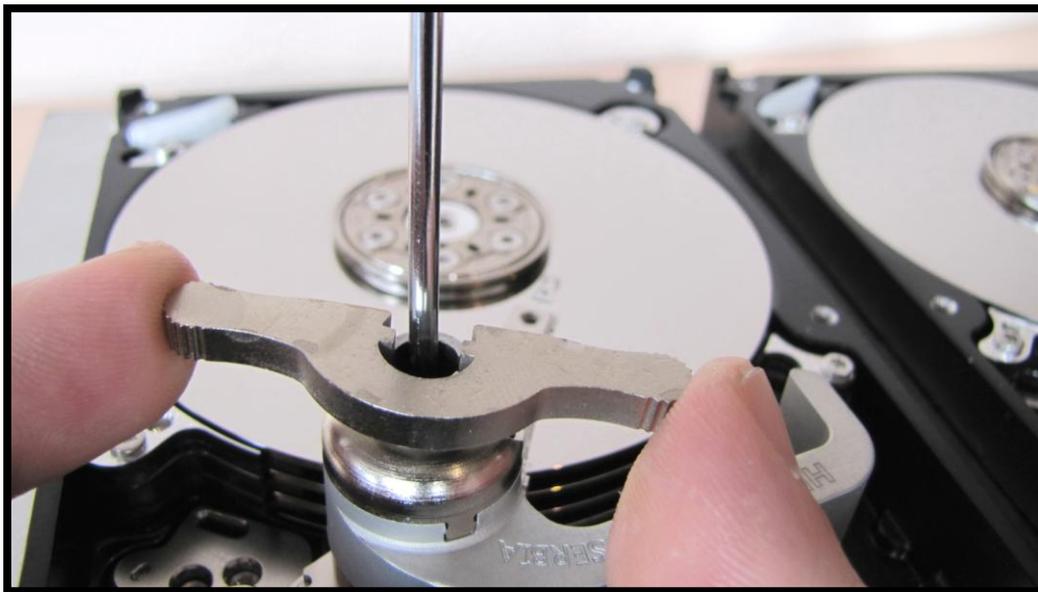
With another hand hold back side of head arm (magnetic coil) to prevent heads from moving.



Picture 8. (returning the tool outside of platters)

3.i. Step 9. Dismounting the tool

Takeout the screw and remove the tool. While loosening use the assisting tool to make counter force.



Picture 9 (removing the tool, using the assisting tool)

Put the lid back and close the disc. Put pcb back and clone the drive.

Thank you for your interest in HddSurgery data recovery tools.

More details you can find on our site www.hddsurgery.com and send your question and suggestions to support@hddsurgery.com