

# ***HDD Surgery™***

*Tools for data recovery experts*



## ***Guide for using HddSurgery™ tools***

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### ***Samsung head change tools***



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## HDD Surgery™ – guide for using tools

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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 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](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.

## 1. HddSurgery™ Samsung head change tools

Samsung 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 Samsung head change tool is to enable safe heads passage over the "data" area above platters surface, and to provide non-contact transfer to patient disc.

Currently we have in our offer two types of tools for the following types of Samsung hard drives:

- T133
- T166
- F1
- F2
- F3

Samsung is using HDA assembly of the same dimensions for series T133 and T166. Also the same HDA assembly is used for series F1, F2 and F3. Depending on the type, it is necessarily to use appropriate tool. These tools are different and not compatible. The difference is in thickness of platters and distance between heads, and the different length of actuator arms. As there is no conceptual difference between these tools, we will explain only the example of T133-T166 series tool.

For the case of F1, F2 and F3 apply the same procedure.

## 2. Supported models for HddSurgery™

### Samsung Head change tools T133-T166 and F1-F2-F3

<u>Samsung T133-T166 Head change tool</u>		<u>Samsung F1-F2-F3 Head change tool</u>	
PATA	SATA	PATA	SATA
HD300LD HD400LD	HD300LJ HD400LJ HD301LJ HD401LJ HD250KJ HD320KJ HD321KJ HD500LJ HD501LJ		HD501IJ HD502IJ HA501IJ HE502IJ HD502JI HA502JI HD642JJ HA642JJ HD642JI HA642JI HD753LJ HA751LJ HE753LJ HD753LI HA753LI HD103UJ HA101UJ HE103UJ HD103UI HA103UI HD102SI HD103SI HD153UI HD154UI HD754JJ HD754JI HD103SJ HD105SI HD153WI

## 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. Tighten the screw 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. (raising 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 bound between tool and actuator arm . Securing is being done with the securing pin.



Picture 3. ( securing the tool)

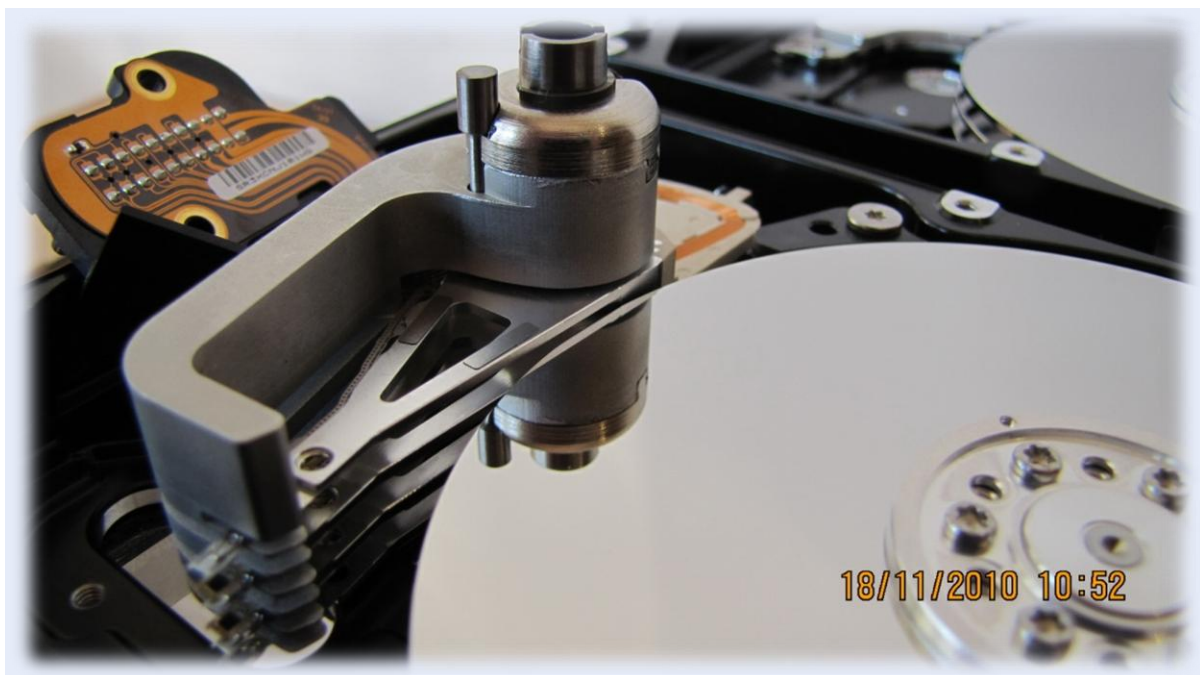
### !!!IMPORTANT!!!

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. (secured tool with heads outside of platters area)

### 3.e. Step 5. Dismounting the heads

With the help of a standard flat screwdriver unscrew the tool together with the heads. Hold the tool with one hand because of the possibly contact with the platters. Turn screw driver counter clockwise until heads are free.



Picture 5. (dismounting the heads)

### 3.f. Step 6. Mounting the head in a new drive

Use the same screwdriver to screw the heads on new hard drive. When screwing the heads tighten the screw too, just in case it got loosen up during the manipulation. This operation is necessary because of possible changes in height! Turn the screw driver clockwise.

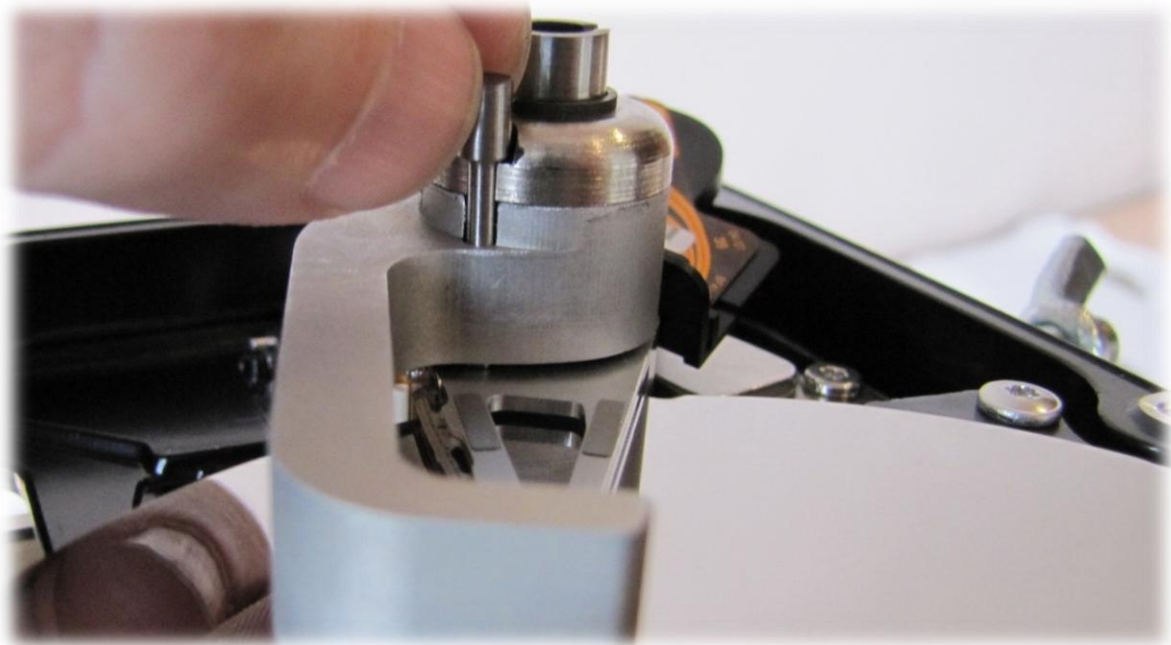


Picture 6. (mounting the heads on a patient drive)

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.