

# Changing of the Working Cylinders in the STable (©) Active Pneumatic Vibration Isolation Tables

**You must work with special attention, because there is a huge value microscope system installed on the table! On the one hand the lifting trolley should be rolled very circumspectly, in order that it should not jolt on the floor, because the settings of the microscope might misalign. On the other hand you should take special care that you must not tilt or turn over the top plate together with the microscope system.**

You should unpack the new working cylinders and make the lifting trolley ready. The four working cylinders are packed in two wooden boxes, and they are surrounded by plastic foam tubes, which should be removed.

The new working cylinders should be continually kept upside down, (on a clean place) in order that the bottom side copper tube connectors should not be damaged. The masking tape on the tube connectors of the new working cylinders should be removed.

The leg system of the table should remain on its original place during the whole process of reparation.

Quiet Air Compressor should be turned off and unplugged.

You should begin the whole process by the preparation of the working environment. Empty room of about 1.5 meters must be prepared in front of the table.

On both sides of the table 0.5 meters of space should be emptied.

The arm rest should be removed. After removal it should be put on a secure place in order that it should not be damaged. During the removal of the arm rest the M8 screws should be removed one by one on both sides of the arm rest in order that the arm rest should not fall down abruptly. The arm rest should be held by hand during the process of removal. It should be removed from the four long holding screws by pulling it horizontally toward oneself. The long holding screws should be left on.

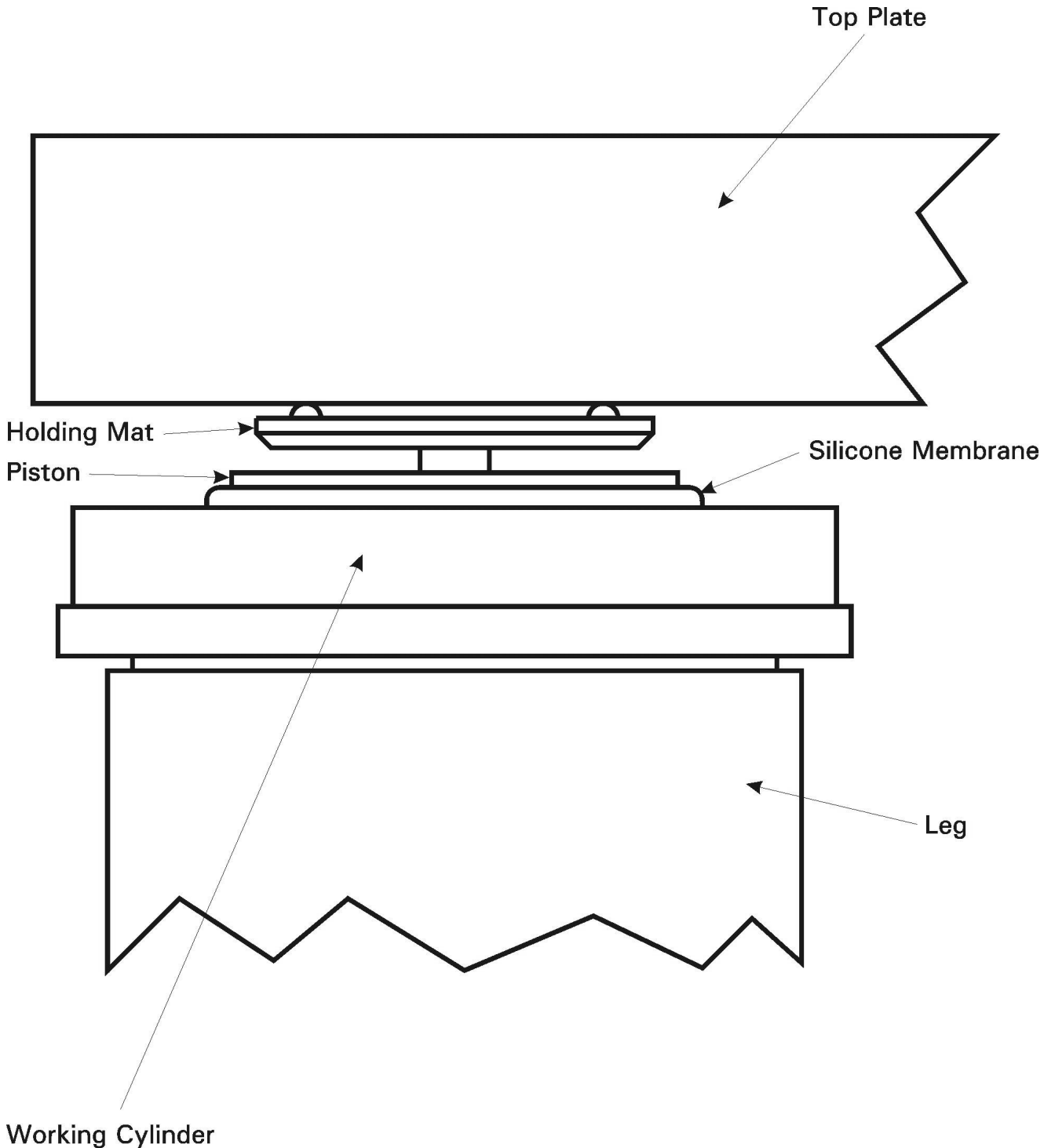
The electrical wires and optical cables of the instruments located on the top plate should be disconnected in order to let the top plate move one meter of distance forward.

The lifting trolley should be pushed under the top plate to that extent that its back side should clash with the lower horizontal beam. If the lifting trolley is clashing with the lower horizontal beam, then during the rolling back of the top plate after reparation it arrives back to its original position.

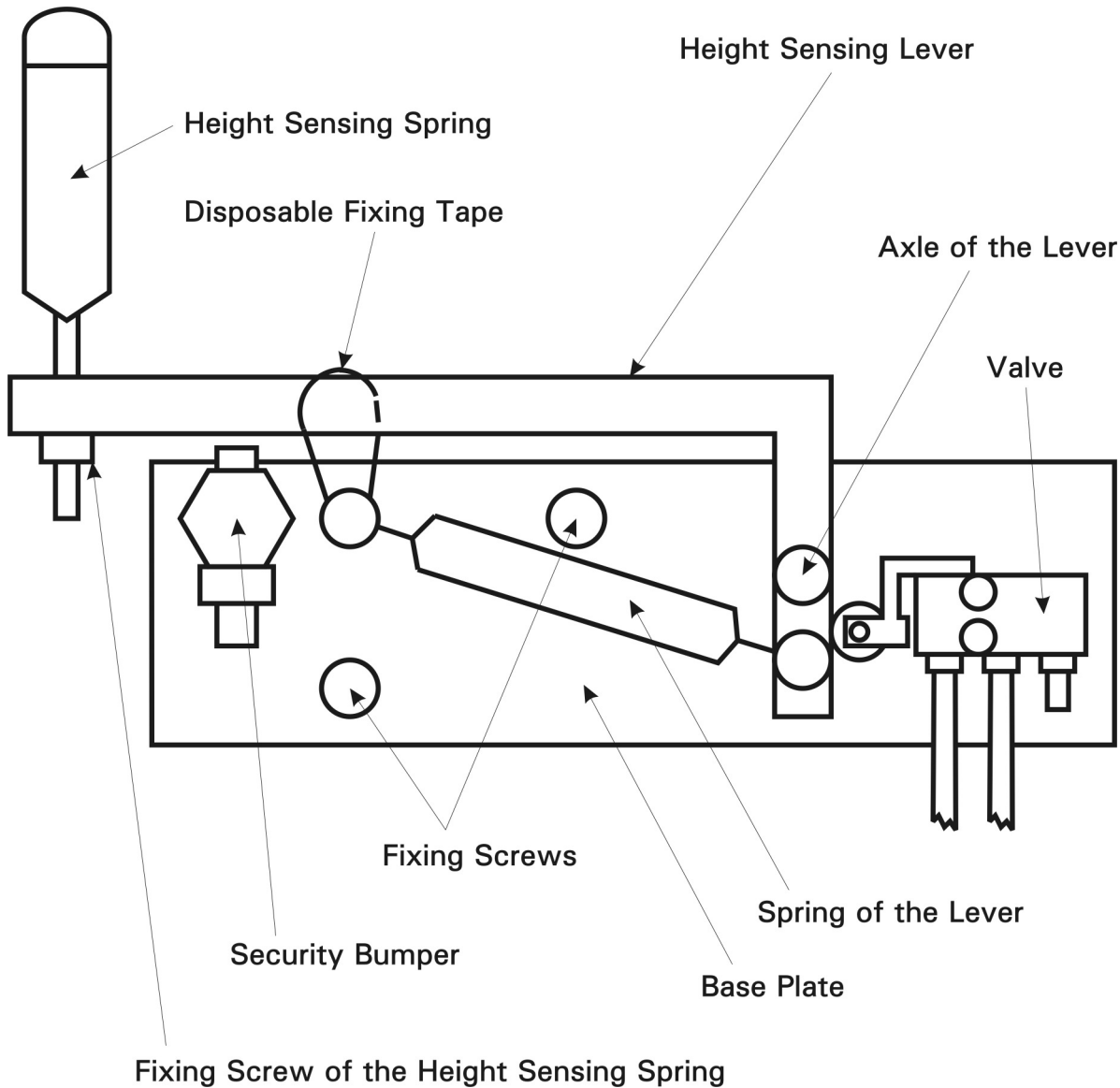
**During moving of the top plate also the burden's place on the table must be kept in mind, in order the top plate should keep its balance!**

With the help of the lifting trolley the top plate should be lifted to that extent that from all four working cylinders the air can be let out by the valves. The lifting of the top plate can be done on all four sides of the lifting trolley gradually with the help of a 24 mm hex socket insert put

on a hex socket wrench ratchet. The holding mats come off from the underside of the top plate, or if they do not, because the O-rings stick to it, then they should be removed by hand from the downside of the top plate. At this time the holding mats will temporarily stay in the working cylinders.



The air should be completely let out from the working cylinders by lifting the height sensing levers. Then, after releasing the air from the working cylinders, the height sensing levers should be fastened to the security bumpers by rubber O-rings or fixing tape. It is important because this way, when moving the top plate on the lifting trolley, the height sensing springs and levers will not be damaged.



The top plate should be pulled carefully forward with the help of the lifting trolley, until all four working cylinders become visible.

**You must take great attention continuously that the top plate with the microscope on it must not be jolted or tilted on the lifting trolley, while you are walking around the lifting trolley and the table!**

The holding mats should be removed from the working cylinders and they should be temporarily put aside (upside down).

The exchange of working cylinders should be done one by one. The old (used) working cylinder should be carefully lifted out from the leg system until the bottom tube connector can be reached.

**Pay attention that the thin blue tube is not too long, the working cylinders cannot be taken too far from the leg system!**

After lifting out the working cylinder, the thin blue tube should be cut by scissors 0.5 inch far from the tube connector. The old working cylinder should be put aside. The new working cylinder should be got hold of, and the end of the tube which has been cut, should be

pushed on the bottom side copper tube connector of the new working cylinder by hand. Then the new working cylinder must be put back into the leg system.

**Meanwhile you must pay attention that the thin blue tubes do not bend sharply. This is important, because if air cannot pass through the tube, then that working cylinder will not work, however this only becomes apparent after the restoration of the top plate. If this is the case, that one of the working cylinders does not lift, because the blue tube is bent too much and blocked, then you must begin the whole process of lifting and moving the top plate again. So pay attention to the thin blue tube.**

After the exchange of all four working cylinders, the holding mats should be placed back into the working cylinders.

The top plate should be pushed back with the help of the lifting trolley into its original position. When the lifting trolley clashes the lower horizontal beam of the leg system, then it is precisely in the position in which it has been before being lifted regarding its movement backward and forward. Because the lifting trolley was moving into sideward direction, as well, the top plate's symmetry sideways must be determined with the help of a measuring tape. The hang out of two sides of the top plate must be set equal on both sides compared to the leg system.

The top plate should be lowered with the help of the lifting trolley onto the holding mats within the working cylinders.

The lifting trolley should be removed from below the top plate.

You should remove the binding of the height sensing levers.

**It is very important, because if the free movement of the height sensing levers was prohibited, then the silicone rubber membranes of the new working cylinders would blow up just after turning on the air!**

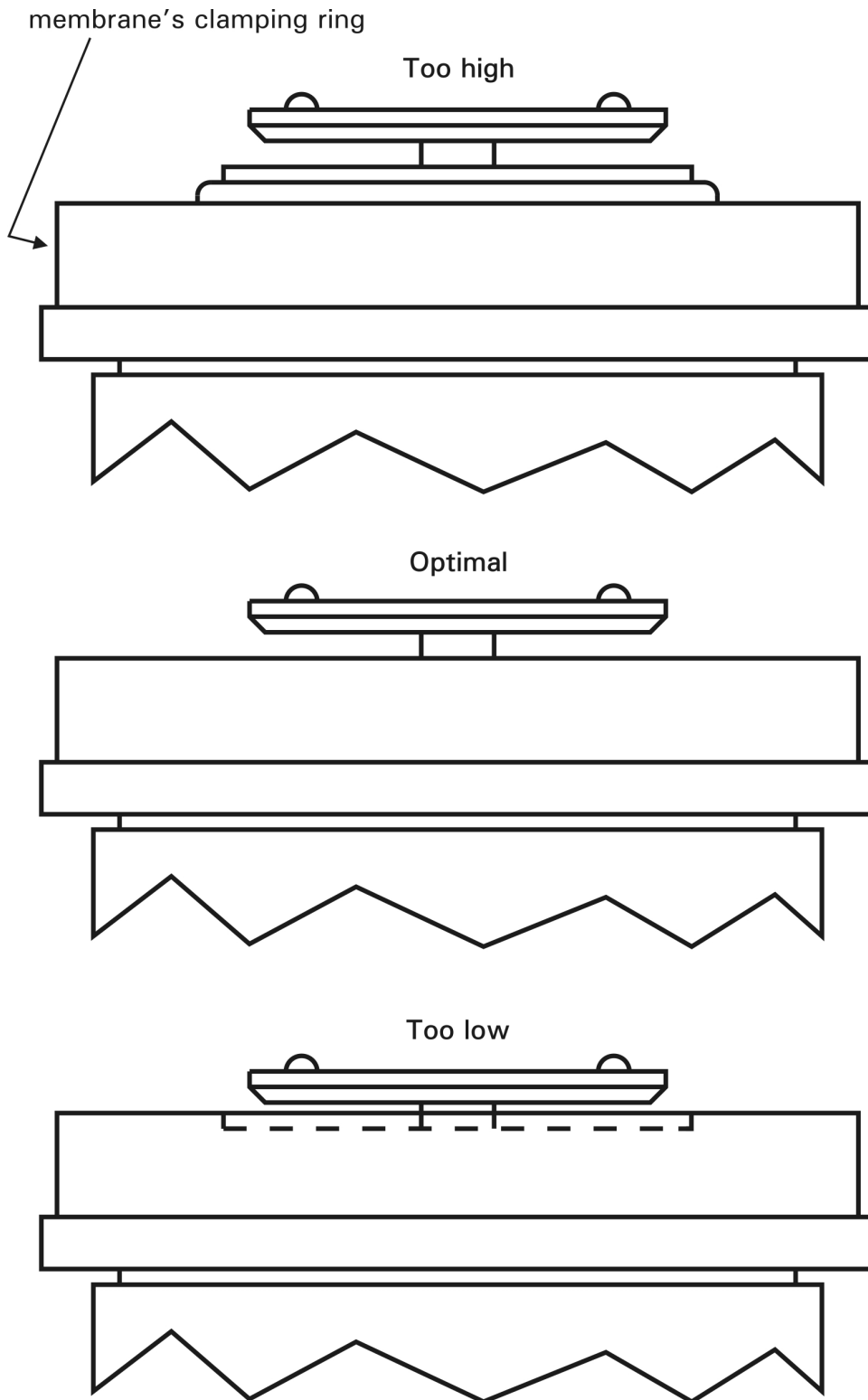
The arm rest should be reassembled. The most usual position is if the first screw goes into the third hole from the top side of the arm rest, but you can modify the height of the arm rest according to your preference. The long holding screws can be loosened a little bit by hand if the arm rest does not fit accurately. After putting the arm rest onto the long holding screws, the long holding screws should be retightened by hand. The M8 screws can be fastened by a 13 mm spanner. Finally the plastic caps should be put on.

Let us suppose that during the original installation of the table the horizontal position of the leg system was set correctly, which is necessary for the proper operation of the table. But if we are already over there, this can also be checked. If it must be corrected, then adjust the perfect horizontal position of the leg system with the help of steel rods and a spirit level (enclosed in the toolbox) according to Figure 1. in the User Manual. During adjustment of horizontality the spirit level should be put onto the lower horizontal beams of the leg system diagonally.

Quiet Air Compressor should be plugged into the mains and it should be turned on.

**Be very careful at this step! If you make any mistake during the first application of the air after repairing the table, you can overload a working cylinder, and the silicone rubber membrane of the overloaded working cylinder will blow up!**

Crouch in front of the table in order to be able to see all working cylinders at the same time. Switch on the air supply for short periods. Meanwhile, PAY ATTENTION that every working cylinder moves, but they don't rise too high. It is advised to make this observation while somebody's taking care of the switch of the source of the air supply. In case a cylinder "stays upwards" the pressure supply must be switched off WITHOUT DELAY, and the height sensing lever of the actual valve have to be pushed high to release the air from the "stayed upwards" working cylinder. Leaving the pressure overload in the "stayed upwards" working cylinder will result the silicone rubber membrane blowing up!



If neither of the cylinders was “stayed upwards”, switch on the Quiet Air Compressor permanently.

The optimal setting of the working cylinders is shown in the above drawing. Make sure that the upper plane of the working cylinder’s piston is not only at the same height but also in the same plane as the upper plane of the rubber membrane’s clamping ring. This assures the table’s “self-adjusting” mechanism during use. About this aspect you can see the details in the User Manual.

Please check all the legs whether the working cylinders are in “optimal” position. If any adjustment seems to be necessary, apply the next sentences on the appropriate valve assembly. Adjust the height of the piston in the working cylinder on that leg, where the position is not “optimal”. You can adjust the height of the piston with turning the height sensing spring (after releasing its fixing screw). After adjusting the optimal height of the piston, fasten the fixing screw (lock nut) of the height sensing spring with an 8 mm spanner.

The disconnected electrical and optical cables of the microscope system should be connected to their original connectors.

The lifting trolley and the old (used) working cylinders should be packed for transportation.

If a task described in this instruction leaflet cannot be carried out properly, the process has to be stopped at that point at once. In such a case ask for help by phone: +36 20 9234 386, or by email: [office@superte.ch](mailto:office@superte.ch) or [office@supertechinstruments.co.uk](mailto:office@supertechinstruments.co.uk)

Please send back the old, faulty working cylinders to the factory. We will examine them in detail, because we have to find the reason of the fault. We make huge efforts to improve the quality and reliability of our vibration isolation tables. This feedback of faults is a very important point in the process of quality improvement.