Note

- Carefully attach the suction cups with a bent tweezers to avoid damage to the new suction cups.
- Make sure that the suction cups fit correctly. It could be impossible to attach the coverglasses if are not deposited properly.
- We recommend having a rack filled with empty slides coverslipped for a function check.

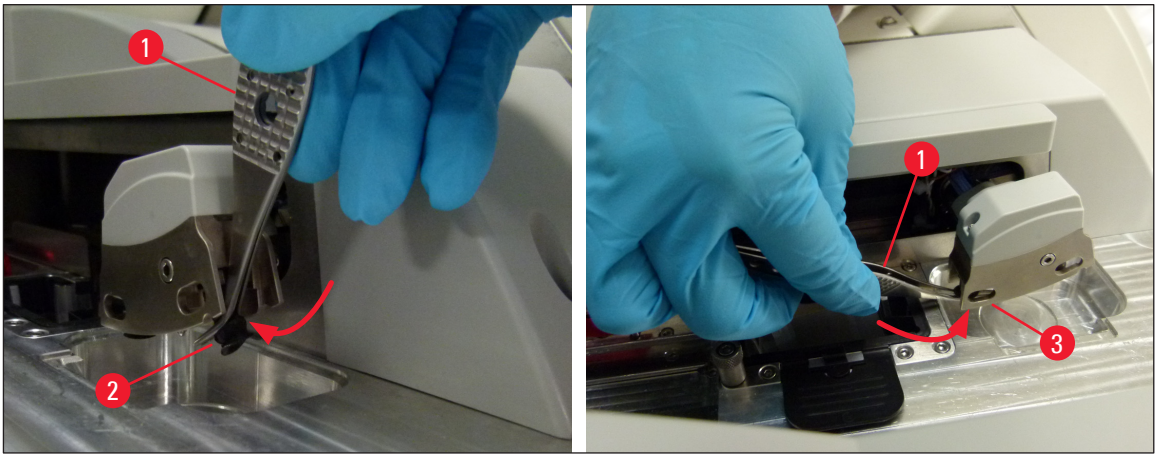

Fig. 93

7.2.12 Cleaning the waste tray

Warning

Wear cut-resistant safety gloves (→ P. 19 – 3.1 Standard delivery – packing list) for emptying the waste tray!

For handling, removing and re-inserting the waste tray, see (→ P. 87 – 6.3.4 Emptying the waste tray).

» Soak a lint-free cloth with a compatible solvent and remove any mounting medium residue that may be present.

Note

Dispose of glass shards, splinters and dust in accordance with laboratory specifications.

7.2.13 Cleaning the reagent vessels

1. Remove the reagent vessels individually from the load drawer by the handle. Ensure that the handle is in the correct position (→ P. 38 – 4.6.3 Prepare the reagent vessel, fill it and insert it into the load drawer) to prevent spilling the reagent.
2. Dispose of filled reagents in accordance with the local laboratory specifications.
3. All reagent vessels can be cleaned in a dishwasher at a maximum temperature of 65 °C using a standard, commercially available detergent for lab dishwashers. The handles can remain attached to the various vessels when doing so.

Warning

- Reagent vessels are to be pre-cleaned manually before cleaning in a dishwasher. Any staining residue that may be present is to be removed to the greatest extent possible to prevent discoloration of the remaining reagent vessels in the dishwasher.
- Never clean plastic reagent vessels at temperatures higher than 65 °C since this can deform reagent vessels!

7.2.14 Rack and handle

ⓘ The racks are to be checked regularly for mounting medium residue and other possible contamination.

1. The colored handle must be removed from the rack for cleaning.
2. To remove small amounts of residual mountant, soak a lint-free cloth with a compatible solvent and clean the racks.
3. For stubborn dirt, you can place the racks in a compatible solvent bath for up to 1–2 hours to remove dried out residual mountant.
4. The solvent can then be washed off with alcohol.

✓ Completely rinse the racks with clean water and then dry them.

ⓘ A dishwasher can also be used for the cleaning process. The maximum temperature of 65 °C must be observed.

Note

The maximum exposure time in a solvent bath is 1–2 hours. Completely prime the racks with water, then dry them. If an external drying furnace is used for drying, the temperature must not exceed 70 °C.

Warning

- The racks and handles may not remain in the solvent for a long time frame (e.g. several hours or overnight), because this can lead to deformation!
- It is essential to ensure that the solvent being used is compatible with the mounting medium. Xylene-based mounting media can be removed using a xylene bath.

7.2.15 Changing the active carbon filter

Note

The active carbon filter installed in the instrument helps reduce the amount of reagent vapors in the exhaust air. The life cycle of the filter can fluctuate strongly depending on intensity of use and the reagent configuration of the instrument. Therefore, replace the active carbon filter regularly (every 2-3 months) and dispose of it properly in accordance with the laboratory regulations applicable in the country of use.

1. The user can access the activated carbon filter (→ Fig. 94-1) from the front of the instrument by opening the upper cover (→ Fig. 94-2).
2. The activated carbon filter can be accessed without any tools and can be removed by pulling on the pull tab.
3. Write the insertion date on the white adhesive label on the front side of the activated carbon filter (→ Fig. 94-3).
4. Insert the new activated carbon filter in such a way that the pull tab is visible and reachable even after it is completely pushed in.
5. The active carbon filter must be pushed in until you feel it make contact with the rear panel of the instrument.
6. Close the cover (→ Fig. 94-2) again.

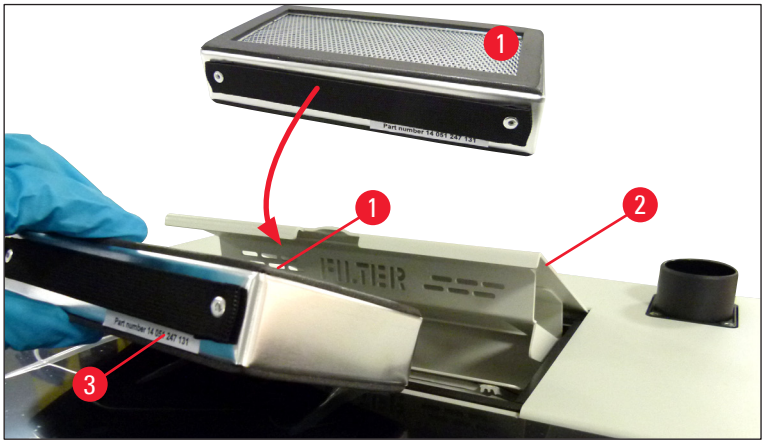

Fig. 94

7.2.16 Cleaning reagent vessels in the load drawer

- Open the load drawer and individually remove the reagent vessels by the handle. Ensure that the handle is in the correct position (→ P. 38 – 4.6.3 Prepare the reagent vessel, fill it and insert it into the load drawer) to prevent spilling the reagent.
- Dispose of reagents in accordance with the local laboratory specifications.
- All reagent vessels can be cleaned in a dishwasher at a maximum temperature of 65 °C using a standard, commercially available detergent for lab dishwashers. The handles can remain attached to the reagent vessels during this process.

Warning

- Never clean reagent vessels at temperatures higher than 65 °C since this can deform reagent vessels!

7.3 Preparing the hose system for priming and cleaning

Note

- The user must flush the hose system during daily instrument setup and when inserting a new mounting medium bottle. This ensures that the needle allows material through and the internal hose system is free of air bubbles.
- During a scheduled, prolonged break in instrument use (more than 5 days), the user must carry out a complete cleaning of the hose system (→ P. 127 – 7.3.3 Cleaning the hose system) to prevent damage to the system.
- The second line of processing is also interrupted during the priming process or during the cleaning process. slides could dry out on that line. For this reason, Leica recommends priming or cleaning only if all racks have been removed from the instrument and with the instrument in sleep mode.

Priming preparation

1. To get to the menu, press the **Module Status** (→ Fig. 95-1) button in the main menu.
2. Following this, press the **Prime/Clean** button of the respective left (→ Fig. 95-2) or right (→ Fig. 95-3) coverslip line and acknowledge the warning message with **Ok** (→ Fig. 96).

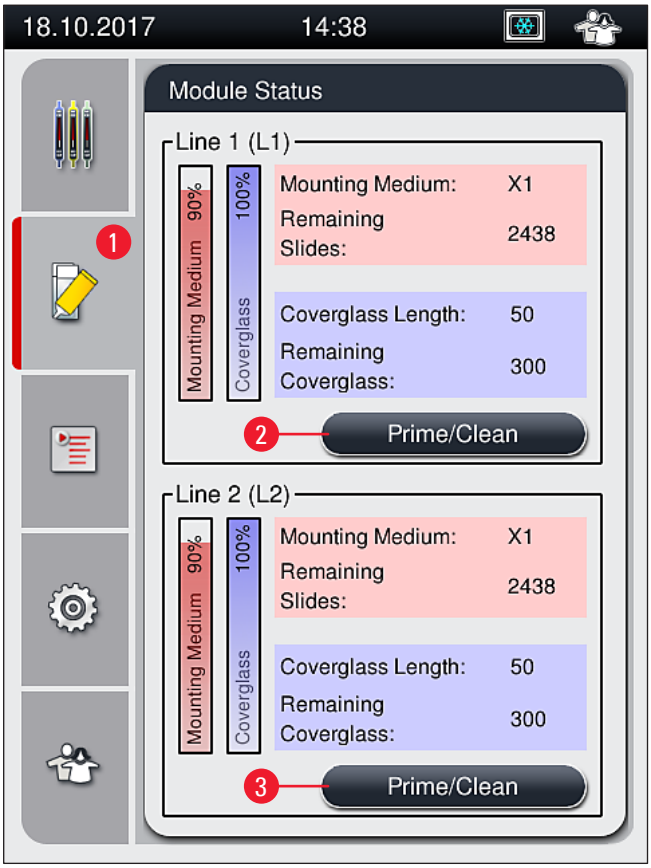

Fig. 95

Fig. 96

3. Observe the following information message (→ Fig. 97).

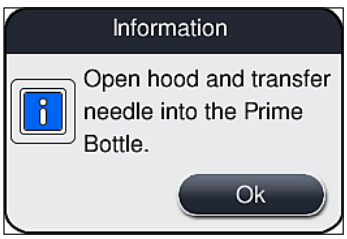

Fig. 97

4. Open the instrument hood and remove the needle (→ Fig. 98-1) from the holder (→ Fig. 98-2).
5. Stick the needle unit (→ Fig. 98-1) in the prime bottle (→ Fig. 98-3) and acknowledge the information message (→ Fig. 97) with **OK**.

Warning

Do not close the hood while the needle is inserted in the prime bottle in order to avoid kinking the hose or bending the needle.

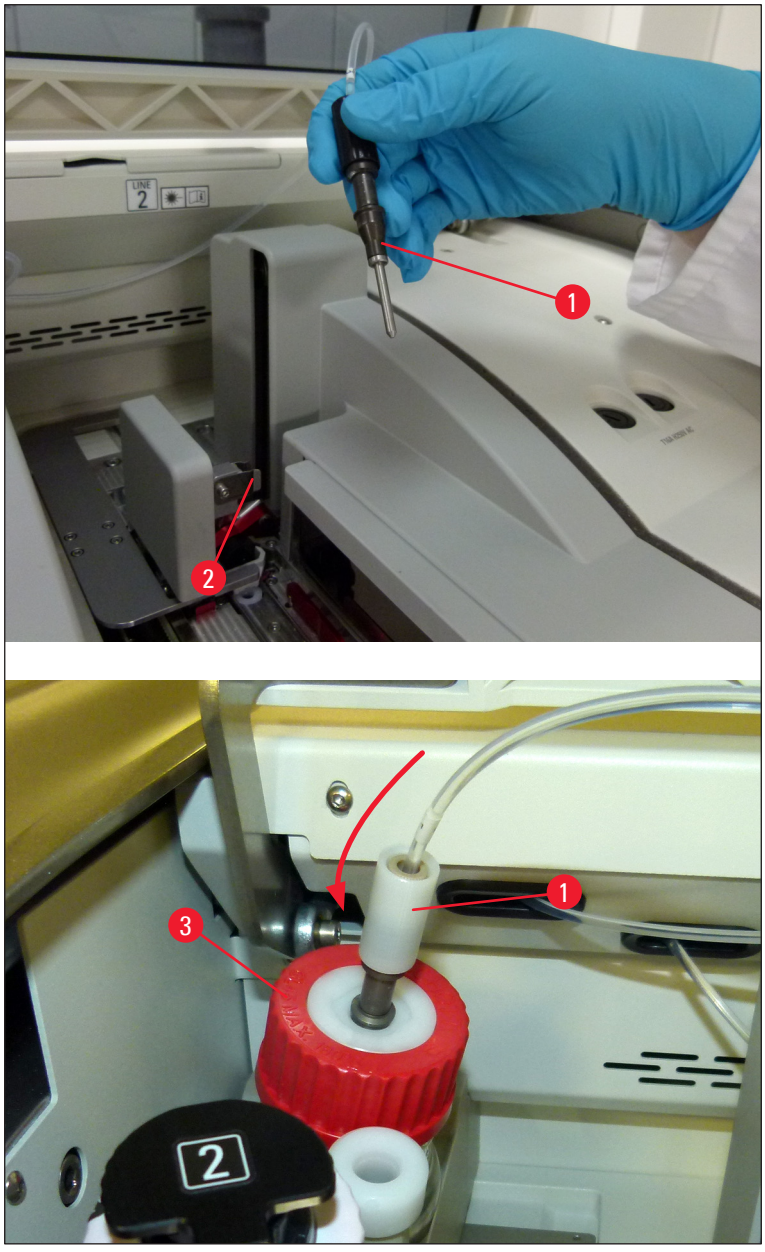

Fig. 98

✓ In the following menu (→ Fig. 99), three different priming/cleaning programs are available.

Note

The individual rinsing programs are clarified in the following, using the coverslip line L1 (→ Fig. 99-1). The same procedures also apply for the coverslip line L2.

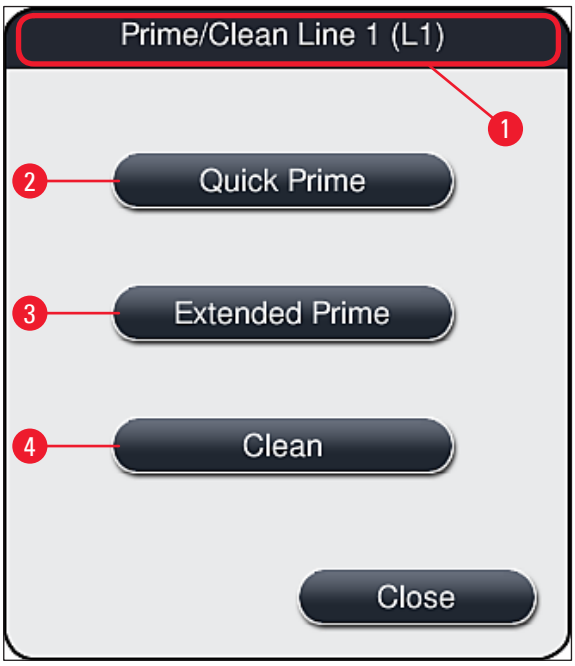

Fig. 99

7.3.1 Quick Prime

Note

At the start of operation, the user is prompted after starting the instrument to carry out the Quick Prime (→ Fig. 99-2) rinsing program. This step is necessary to ensure the flow rate of the mounting medium through the needle system. The respective coverslip line is ready to operate only after Quick Prime.

1. After the steps under (→ P. 122 – Priming preparation) have been completed, press the Quick Prime (→ Fig. 99-2) button.
2. Priming lasts approx. 35 seconds and uses approx. 2 ml of mounting medium. This quantity is taken into account by the CMS.
3. After the rinsing process has been completed, reinsert the needle unit into the holder (→ Fig. 88) and confirm the corresponding information message with OK.

Note

The needle has a notch (→ Fig. 88-3) that fits exactly in the holder. The Attention symbol (→ Fig. 88-4) on the holder (→ Fig. 88-2) indicates to the user that utmost care is required when inserting the needle into the holder. The needle must be inserted straight and all the way in order to make sure that no negative impact on the samples arises during processing.

4. Repeat steps 1-3 for the second coverslip line (L2).
5. Finally, close the hood.

✓ After checking the fill level, the instrument is ready to operate and can begin processing.

7.3.2 Extended Prime

Note

- The Extended Prime (→ Fig. 99-3) rinsing program must be carried out after each time a mounting medium bottle is replaced (→ P. 79 – 6.3.1 Changing the mounting medium bottle) for the respective coverslip line L1 or L2.
- During an Extended Prime process, mounting medium is pumped through the entire hose system to ensure that no air remains in the hose system as a result of the replacement.
- After the replacement of the mounting medium bottle, the Quick Prime (→ Fig. 99-2) and Clean (→ Fig. 99-4) buttons are inactive (grayed out).

1. To change the mounting medium bottle, proceed the same way as in (→ P. 79 – 6.3.1 Changing the mounting medium bottle) and close the hood.
2. Take note of the information message that follows (→ Fig. 100) and acknowledge with the Ok button.

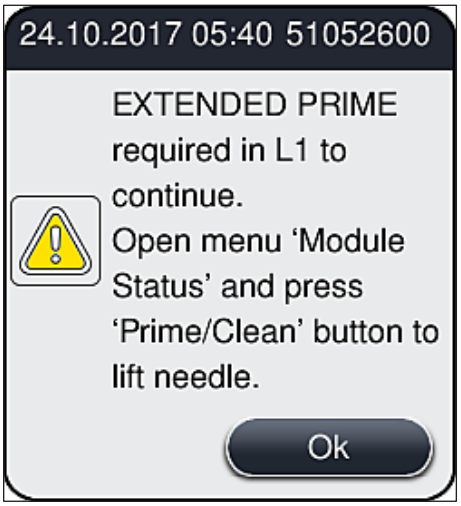

Fig. 100

3. After the steps under (→ P. 122 – Priming preparation) have been completed, press the Extended Prime (→ Fig. 99-3) button.
4. The priming lasts approx. 3 minutes and 30 seconds and uses approx. 14 ml mounting medium. This quantity is taken into account by the CMS.
5. After the rinsing process has been completed, reinsert the needle unit into the holder and confirm the corresponding information message with OK.

Note

The needle has a notch (→ Fig. 88-3) that fits exactly in the holder. The Attention symbol (→ Fig. 88-4) on the holder (→ Fig. 88-2) indicates to the user that utmost care is required when inserting the needle into the holder. The needle must be inserted straight and all the way in order to make sure that no negative impact on the samples arises during processing.

6. Finally, close the hood.

7.3.3 Cleaning the hose system

Note

The **Clean** (→ Fig. 99-4) function is required if the HistoCore SPECTRA CV is to be prepared for transport or to be left idle for a prolonged time frame (longer than 5 days). The mounting medium in the hose system is washed out using a cleaning solution. This process requires a minimum of 125 ml cleaning solution (xylene). The safety notes for safe reagent handling (→ P. 16 – Warnings – Handling reagents) must be observed!

The cleaning using the coverslip line **L1** (→ Fig. 99-1) is clarified in the following. The same procedures also apply for the coverslip line **L2**.

Cleaning preparation

1. Drain prime bottle and reinsert it.
2. Change in the **Module Status** (→ Fig. 95-1) menu.
3. Press the **Prime/Clean** (→ Fig. 95-2) button of the coverslip line **L1**.
4. Note the following information messages (→ Fig. 96), (→ Fig. 97) and (→ Fig. 101) and confirm each with **Ok**.

Fig. 101

5. Remove the cannula from the mounting medium bottle for the coverslip line **L1** and place in the parking location (→ Fig. 60-3).
6. Press the **Clean** (→ Fig. 99-4) button.
7. Take the mounting medium bottle out of the bottle sledge, close and store safely.

8. Fill the bottle for cleaning solution (→ P. 19 – 3.1 Standard delivery – packing list) with at least 125 ml of cleaning solution (xylene) while it is outside the instrument and place it in the position of the mounting medium bottle in the bottle sledge.
9. Take the cannula out of the parking location and insert it into the cleaning bottle.
10. Then confirm the information message (→ Fig. 102) with **OK**.

Fig. 102

✓ The cleaning process begins.

Note

The cleaning process lasts approx. 45 minutes. The information message (→ Fig. 103) is displayed on the display while the cleaning process is running. It disappears as soon as the cleaning process is concluded.

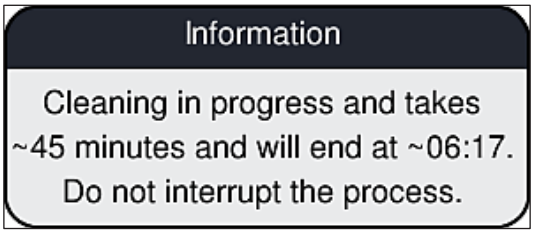

Fig. 103

Cleaning process finished, continuing processing

Note

After the cleaning process has been completed, the user is asked if a new bottle of mounting medium is to be used to continue with the coverslipping (→ Fig. 104).

ⓘ If you want to continue with the coverslipping, press the **Yes** (→ Fig. 104-1) button.

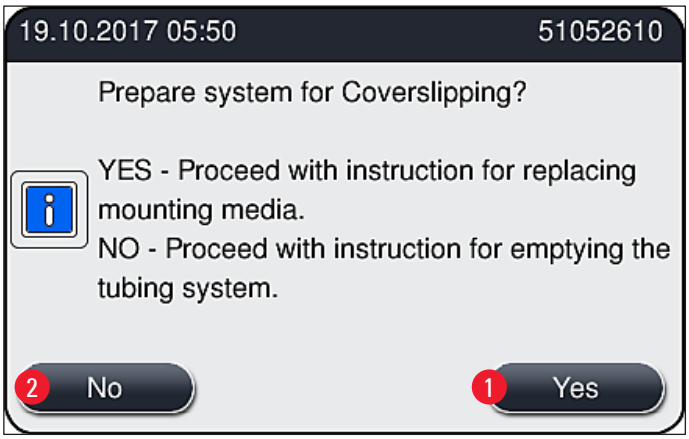

Fig. 104

Note

The L1 coverslip line must be prepared for processing again by extended priming (→ P. 126 – 7.3.2 Extended Prime).

» Following this, the user is prompted to remove the cleaning bottle from the instrument and to insert a new bottle with mounting medium. After the insertion, acknowledge the information message (→ Fig. 105) with Ok. Dispose of the contents of the cleaning bottle in accordance with laboratory regulations.

Fig. 105

Cleaning process finished and preparation for transport or storage

1. After the cleaning process has been completed, remove the prime bottle from the instrument and dispose of the contents according to laboratory specifications.
2. Insert the empty prime bottle back into the instrument again.

Note

After the cleaning process has been completed, the user is asked if a new bottle of mounting medium is to be used to continue with the coverslipping (→ Fig. 104).

3. If the instrument is to be prepared for transport or storage, press the No (→ Fig. 104-2) button.
4. Take note of the next information message (→ Fig. 106), which contains instructions, and acknowledge with the Ok button.

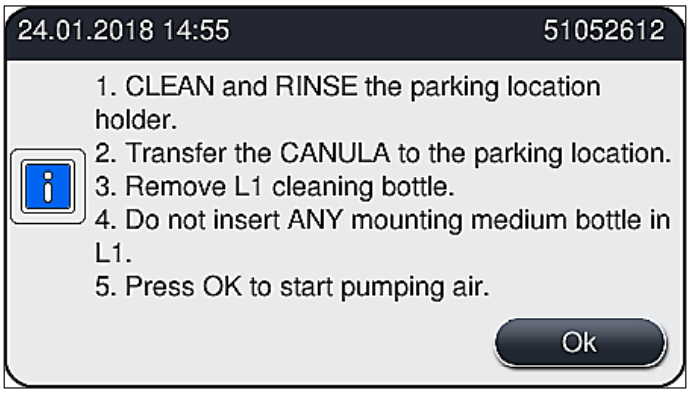

Fig. 106

5. After pressing the OK button, the instrument immediately begins pumping air through the hose system.
6. On the screen, an information message (→ Fig. 107) appears informing the user about the duration. This message disappears as soon as air pumping has been completed.

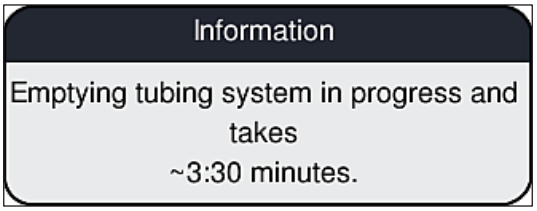

Fig. 107

7. Repeat the procedure with the L2 coverslip line.
8. After the air pumping has been completed for both coverslip lines, remove the remaining coverglass cartridges and needle cleaning containers and close the instrument hood.

9. The instrument software identifies that no mounting medium bottles, coverglass cartridges and needle cleaning containers are inserted, and indicates this to the user through error messages for each coverslip line. Confirm these messages with **OK**.
10. Finally, shut down the instrument, switch it off at the **power switch** and disconnect it from the power grid.

✓ The instrument is now ready for transport or for storage.

7.3.4 Recommissioning after transport or storage

Note

For recommissioning after a transport or after long-term storage, proceed as described in (→ P. 25 – 4. Installation and Instrument Setup) and (→ P. 76 – 6. Daily Instrument Setup).

7.4 Recommended cleaning and maintenance intervals

Warning

- It is mandatory to observe and carry out the following cleaning and maintenance intervals and cleaning tasks.
- In case of non-compliance with the maintenance intervals, the proper function of the HistoCore SPECTRA CV by Leica Biosystems GmbH cannot be guaranteed.
- The instrument should be inspected once per year by a qualified service technician authorized by Leica.
- Always wear suitable protective clothing (lab coat, cut-resistant gloves, safety goggles).

To ensure trouble-free operation of the instrument over a long period of time, it is strongly recommended that you conclude a maintenance contract after the warranty period has elapsed. For more information, contact the relevant customer service organization.

7.4.1 Daily cleaning and maintenance

A	**Coverglass cartridge:** • Check the coverglass cartridge for broken glass (→ P. 83 – 6.3.3 Checking and replacing the coverglass cartridge) and clean if necessary. • Check that the coverglass is seated correctly in the coverglass cartridge (→ P. 83 – 6.3.3 Checking and replacing the coverglass cartridge).
B	**Waste tray:** • Check the waste tray for broken glass (→ P. 87 – 6.3.4 Emptying the waste tray) and drain if necessary.
C	**Pick&Place module:** • Check the skids, suction cups and coverglass sensor pin for residual mountant and broken glass (→ P. 88 – 6.3.5 Inspect Pick&Place module) and clean if necessary (→ P. 118 – 7.2.10 Cleaning the Pick&Place module). • Replace deformed and/or damaged suction cups (→ P. 118 – 7.2.11 Exchange suction cups).

D	**Alignment pins:** • Check for residual mountant and clean if necessary (→ Fig. 4-12).
E	**Coverslip lines L1 and L2:** • Check for surface-dried residual mountant and clean if necessary.
F	**Reagent vessels in the load drawer:** • Replace the reagent in the reagent vessel (→ P. 33 – 4.6 Refilling consumables).
G	**Unload drawer:** • Check if there are still racks in the unload drawer and remove (→ P. 111 – 7.2.4 Interior cleaning).
H	**Surfaces of the instrument:** • Check surfaces of the instrument for residual reagent in the area of the load drawer and clean if necessary. For this purpose, commercial household cleaner can be used (→ P. 109 – 7.2.1 Exterior surfaces, varnished surfaces, instrument hood).
I	**Prime bottle:** • Check the fill level of the prime bottle and dispose of the contents in accordance with the laboratory specification if necessary.
J	**Shifter and shifter tongue:** • Check the shifter and shifter tongue (→ Fig. 4-14) for contamination and dried out mounting medium. Soak a lint-free cloth with a compatible solvent and remove any mounting medium residue that may be present.

7.4.2 Weekly cleaning and maintenance

A	**Needle cleaning container:** • Drain the needle cleaning container, clean and refill with solvent (→ P. 114 – 7.2.8 Filling and changing the needle cleaning container).
B	**Reagent vessels in the load drawer:** • Drain reagent vessels and clean at a maximum of 65 °C using a lab rinsing machine (→ P. 119 – 7.2.13 Cleaning the reagent vessels). • Then, refill the reagent vessels and re-insert into the load drawer (→ P. 38 – 4.6.3 Prepare the reagent vessel, fill it and insert it into the load drawer).
C	**Needle:** • Check the needle for surface-dried residual mountant and clean it with a compatible solvent if necessary (→ P. 113 – 7.2.7 Cleaning the needle).
D	**Touchscreen:** • Check for dirt and clean if necessary. For this purpose, commercial household cleaner can be used (→ P. 110 – 7.2.2 TFT touchscreen).
E	**Racks:** • For small amounts of dirt: Clean the racks with a lint-free cloth soaked in solvent (→ P. 120 – 7.2.14 Rack and handle). • In case of heavier soiling: Immerse the rack in a compatible solvent for a maximum of 1–2 hours in order to remove dried residual mountant. • Clean the rack in the dishwasher at 65 °C.
F	**Workstation:** • Check the transfer station in the HistoCore SPECTRA ST. For additional information, refer to the Instructions for Use of the HistoCore SPECTRA ST.
G	• Check the drawer inserts for broken glass and clean if necessary (→ P. 111 – 7.2.4 Interior cleaning).

Warning

Never place reagent vessels, racks and rack handles in a solvent for a prolonged period (e.g. overnight) because this can cause deformation and trouble-free operation can no longer be ensured.

7.4.3 Quarterly cleaning and maintenance

A **Changing the active carbon filter:**

- Replace the active carbon filter (→ P. 121 – 7.2.15 Changing the active carbon filter).

7.4.4 Cleaning and maintenance as necessary

Warning

- Attention: Wear cut-resistant gloves (→ P. 19 – 3.1 Standard delivery – packing list)!
- Clean the interior of the instrument in the event of broken glass.
- A lint-free cloth moistened with compatible solvent can be used to clean off any adhesive residue. You can use the brush included in the delivery package to brush any glass shards and splinters free of adhesive residue toward the drawer outlet and then use a commercially available vacuum cleaner to carefully clean them up.

A
- Make sure the instrument is idle (→ P. 77 – 6.2 Switching on and shutting down the instrument):
- Cover reagent vessels
- Ensure there is enough solvent in the needle cleaning container to prevent the needle from drying out (→ P. 82 – 6.3.2 Monitoring and refilling of the needle cleaning container).

B
- Prime the hose system with solvent (→ P. 127 – 7.3.3 Cleaning the hose system).

C **Pick&Place module:**

- Replace the suction cups if they have severe deformation or are very dirty (→ P. 118 – 7.2.11 Exchange suction cups).

D
- Cleaning the interior of the instrument (→ P. 111 – 7.2.4 Interior cleaning).

8. Malfunctions and Troubleshooting

8.1 Troubleshooting

Problem/malfunction	Possible cause	Correction
Black screen	• Software crash	• Remove all racks from the instrument and restart the instrument.
	• Power failure	• See (→ P. 139 – 8.2 Power failure scenario and instrument failure)
Needle cleaning container cannot be removed using the knurled screw	• Needle cleaning container is stuck due to mounting medium residue in the holder.	• Remove the needle cleaning unit and immerse it in xylene until the needle cleaning container has loosened and can be taken out (→ P. 115 – 7.2.9 Removing the complete unit of the needle cleaning container).
Consumables cannot be scanned	• RFID chip is dirty	• Carefully remove any contamination from the RFID chip and re-scan the consumables by closing the hood.
	• RFID chip is defective	• Try again with new consumables. • There may be an instrument defect present if the problem persists. Please contact Leica Service.
Load/unload drawer is sticking	• Possible contamination in or on the respective drawer	• Carefully remove any contamination (mounting medium residue, glass shards and splinters) (→ P. 109 – 7.1 Important notes about cleaning this instrument), remove all racks from the instrument and restart the instrument.
Transport arm reports an error	• Malfunction in the instrument	• Follow the instructions in (→ P. 141 – 8.3 Manual removal of a rack in the event of instrument malfunctions) and pull the transport arm to the unload drawer. Remove the rack from the transport arm.

Problem/malfunction	Possible cause	Correction
Intact coverglass is conveyed into the waste tray.	• Coverglass sensor pin contaminated.	• Check the coverglass sensor pin for dirt; if necessary, clean it with a lint-free cloth soaked in xylene (→ P. 118 – 7.2.10 Cleaning the Pick&Place module).
Air bubbles between the specimen and coverglass	• Needle partially stuck/blocked	• Remove any stuck mounting medium and perform a **Quick Prime** (→ P. 125 – 7.3.1 Quick Prime). If the problem persists, carry out a complete cleaning of the hose system (→ P. 127 – 7.3.3 Cleaning the hose system).
	• A reagent not compatible with the mounting medium has been filled in the reagent vessel in the load drawer.	• Leica recommends the use of xylene for the reagent vessels in the load drawer. • Ensure that a solvent compatible with the Leica mounting medium (such as xylene) is being used both in the reagent vessel in the HistoCore SPECTRA CV load drawer and in the last steps of the preceding staining process in the HistoCore SPECTRA ST. • Dispose of non-compatible reagent in accordance with the applicable local regulations, clean the reagent vessel and fill it with xylene outside the instrument. Finally, set the reagent vessels back in the load drawer.
	• The needle is bent.	• Notify Leica Service and replace the bent needle with a new one.
	• The specimens were not kept sufficiently moist	• Check the fill level of the reagent vessels in the load drawer (→ P. 39 – Correct fill level of the reagent vessels) and refill reagent if necessary (→ P. 16 – Warnings – Handling reagents).

Problem/malfunction	Possible cause	Correction
	• The coverslipping operation has been interrupted by the user and resumed.	• Problem should no longer occur for the next rack. In general, the coverslipping operation should not be interrupted to perform tasks such as refilling consumables.
	• Leaks in the mountant hose system.	• Remove mounting medium bottle, check that the cannula fits correctly and ensure that you can feel it click in place.
Insufficient mounting medium is applied to the slides	• Quantity of mounting medium is set too low.	• Adjust the application quantity of the mounting medium in the parameter set (→ P. 72 – 5.9.5 Adjustment of the application volume) or change it using the **Volume calibration** (→ P. 60 – 5.8.6 Volume calibration) menu.
Too much mounting medium is dispensed on the slides, or there is excess mounting medium on the coverglass	• Quantity of mounting medium is set too high.	• Adjust the application quantity of the mounting medium in the parameter set (→ P. 72 – 5.9.5 Adjustment of the application volume) or change it using the **Volume calibration** (→ P. 60 – 5.8.6 Volume calibration) menu.
	• Mounting medium residue on the shifter or the shifter tongue (also below the shifter tongue).	• Check the shifter and shifter tongue (also below the shifter tongue) for contamination, clean with a lint-free moistened in xylene if appropriate
During application of the mounting medium, the specimen on the slide was damaged	• Needle height not set correctly.	• Do not begin any further coverslipping operations in the respective coverslip line and notify Leica Service. The needle height can be changed and calibrated only by Leica Service.

Problem/malfunction	Possible cause	Correction
The Pick&Place module allows coverglass to fall	• Dirty or deformed suction cups	• Check the suction cups on the Pick&Place module for contamination and deformation (→ P. 118 – 7.2.10 Cleaning the Pick&Place module). Clean the suction cups or replace them with new ones (→ P. 118 – 7.2.11 Exchange suction cups). • Additionally, observe the procedure in (→ P. 144 – 8.3.1 Malfunction at the coverglass receptacle).
	• coverglass in the magazine have been moistened and can no longer be removed individually.	• Remove the cover slip magazine and replace it with a new one (→ P. 83 – 6.3.3 Checking and replacing the coverglass cartridge).
Drying out of the needle	• Malfunction in a coverslip line, the needle could not be moved to the needle cleaning container.	• Remove the needle from the needle holder and set it in the needle cleaning container.
The fill level indicated in the **Module Status** for the mounting medium bottle is too low	• Quick or extended priming has failed multiple times.	• Upon each priming attempt, the instrument software takes the amount necessary for priming from the fill level of the mounting medium bottle. • Change the mounting medium bottle. • Check the needle's ability to allow material to flow and, if necessary, place it in a solvent for a longer period of time. If the needle remains clogged for a prolonged period, arrange for a Leica service technician to replace the needle unit.
Error message "L1/L2 mounting medium not detected"	• Bottle sledge (→ Fig. 17-1) not inserted until it clicks in place.	• Slide the bottle sledge (→ Fig. 17-1) back until you feel it click into place.
Error message "Unload drawer malfunction" after the transport of a rack into the unload drawer	• RFID chip in the rack handle is defective.	• Observe the message and remove all racks from the unload drawer. Disengage the defective rack handle from the rack (→ P. 91 – Detach the handle from the rack.) and dispose of it in accordance with applicable local laboratory regulations.

8.2 Power failure scenario and instrument failure

Warning

In the event of a software crash or an instrument malfunction, a previously defined audible warning signal will sound. In this case, the user has to remove all racks from both instruments, HistoCore SPECTRA CV and HistoCore SPECTRA ST, as well as restart the instruments afterwards.

Note

- In the event of a prolonged power failure (> 3 sec.), the internal battery ensures that the HistoCore SPECTRA CV is shut down in a controlled manner and any negative impact on the specimens is avoided.
- The fully charged internal battery can bridge two successive power failures (> 3 sec.). After two successive power failures and once the power supply has been re-established, the internal battery is recharged when the instrument is started up. The user is notified of the charging process by a note on the screen. The instrument is not ready for use again until after charging.
- After the power supply has been restored, the instrument automatic performs a restart. The user is notified of the power failure by an information message (→ Fig. 108) on the screen, and the event is entered into the event log.
- An external UPS (uninterruptible power supply) ensures a long-term bypass, depending on the specifications of the connected UPS (→ P. 27 – 4.2.2 Using an external uninterruptible power supply (UPS)).

In case of a power failure, the instrument carries out the following steps regardless of whether just one or both coverslip lines are in use:

1. The software shuts the screen down.
2. The slides currently being processed in the coverslip lines L1 and L2 are still completely covered and pushed back into the rack.
3. The rack in the coverslip line L2 is transported by the gripper arm into the unload drawer. After this, the gripper arm moves into the secure position behind the oven.
4. The rack remains in the elevator in the coverslip line L1.
5. The instrument is then shut down by the software in a controlled manner (→ P. 31 – 4.5 Switching on and shutting down the instrument).

ⓘ After power supply has been restored, the instrument restarts automatically. An audible warning signal sounds and a warning message is displayed on the display (→ Fig. 108).

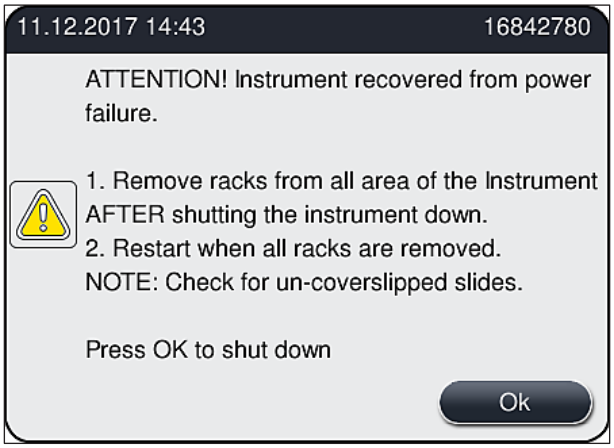

Fig. 108

6. Confirm this message with **OK**, whereupon the instrument shuts down in a controlled manner.

Then follow the instructions in the information message (→ Fig. 108) and remove the slides from the instrument.

Note

- After the restart of the instrument, the oven is shut down, and the user must reactivate it in the Oven Settings menu (→ P. 56 – 5.8.5 Oven settings). The user is notified by a information message upon the setting of a rack.
- For a safe and easy removal of the racks from the instrument, the instrument must be shut down. Following shutting down, the user can, for example, easily move the transport arm in order to carry out the necessary steps for removing the racks.
- Check the removed racks for un-coverslipped slides and coverslip those slides manually. In doing so, observe the sequence in which the individual slides are processed in the coverslipping process (→ P. 96 – 6.6 Starting the coverslipping operation) and (→ Fig. 75).
- The following chapters shall be observed for removal of the rack remaining in the instrument.

Position	See
Load drawer	(→ P. 141 – 8.3 Manual removal of a rack in the event of instrument malfunctions)
Rotator	(→ P. 151 – 8.3.5 Removal of the rack from the rotator)
Elevator	(→ P. 146 – 8.3.2 Removing a rack from the elevator of the coverslip line)
Gripper arm	(→ P. 141 – 8.3 Manual removal of a rack in the event of instrument malfunctions)
Oven	(→ 8.3.4 Removing the rack from the oven or from behind the oven)
Unload drawer	(→ P. 141 – 8.3 Manual removal of a rack in the event of instrument malfunctions)

8.3 Manual removal of a rack in the event of instrument malfunctions

Warning

- Risk of injury! Always wear personal protective clothing (lab coat, cut-resistant gloves, safety goggles)!
- We recommend calling in a second person for support.
- The instrument software provides instructions on the screen. Compliance with these is mandatory.
- If a manual removal of a rack from the right-side L2 coverslip line is necessary, the transport of racks in and out of the oven is interrupted for safety reasons. racks may remain in the oven for longer than 5 minutes as a result.

Note

In the event of instrument malfunctions requiring the user to remove a rack from inside the instrument manually, note that the instrument software cannot precisely locate a rack inside the instrument and therefore only gives general instructions regarding manual removal. If the user can readily identify the rack to be removed upon looking inside the instrument, the user can carefully remove it without following the instruction on screen if there is no risk of damage to the specimens or the instrument from doing so.

Manual removal of a rack from the interior of the instrument:

1. Open the load drawer.
2. Open the unload drawer and remove all racks contained (→ Fig. 109-1).
3. Pull the red retaining lever upwards (→ Fig. 109-2). Pull out the drawer entirely and lower it into the rescue position (→ Fig. 109-3).
4. Locate rack by looking through the shaft of the unload drawer. (→ Fig. 109-4).
5. Insert your hand into the shaft and try carefully to feel around for the rack.

Warning

- There can still be un-coverslipped slides in the racks. Proceed with utmost caution and care.
- If the elevator interferes with the removal of a rack, then the user must manually lift the elevator upward (→ P. 146 – 8.3.2 Removing a rack from the elevator of the coverslip line).

6. Lift the gripper with the rack to the very top if necessary and push/pull the gripper arm to the center of the instrument (→ Fig. 109-5).
7. Carefully lower the gripper with rack downwards (→ Fig. 109-6).
8. The rack is now in a position (→ Fig. 109-7) that facilitates secure removal.
9. With one hand, secure the gripper so it does not fall down and grasp the front part of the rack with the other hand.
10. Lightly lift the front of the rack to release it from the gripper (→ Fig. 109-8).
11. Finally, hold the rack upwards in a tilted fashion (→ Fig. 109-9) and pull it forwards out of the gripper (→ Fig. 109-10).
12. Place the gripper in the secure position behind the oven.
13. Close the unload drawer and acknowledge the information message that follows with **Ok**.
14. Afterwards, the instrument is re-initialized.
15. A **Quick Prime** (→ P. 125 – 7.3.1 Quick Prime) must always be performed after initializing.

Note

Place the extracted rack outside of the instrument and secure the slide against drying out.

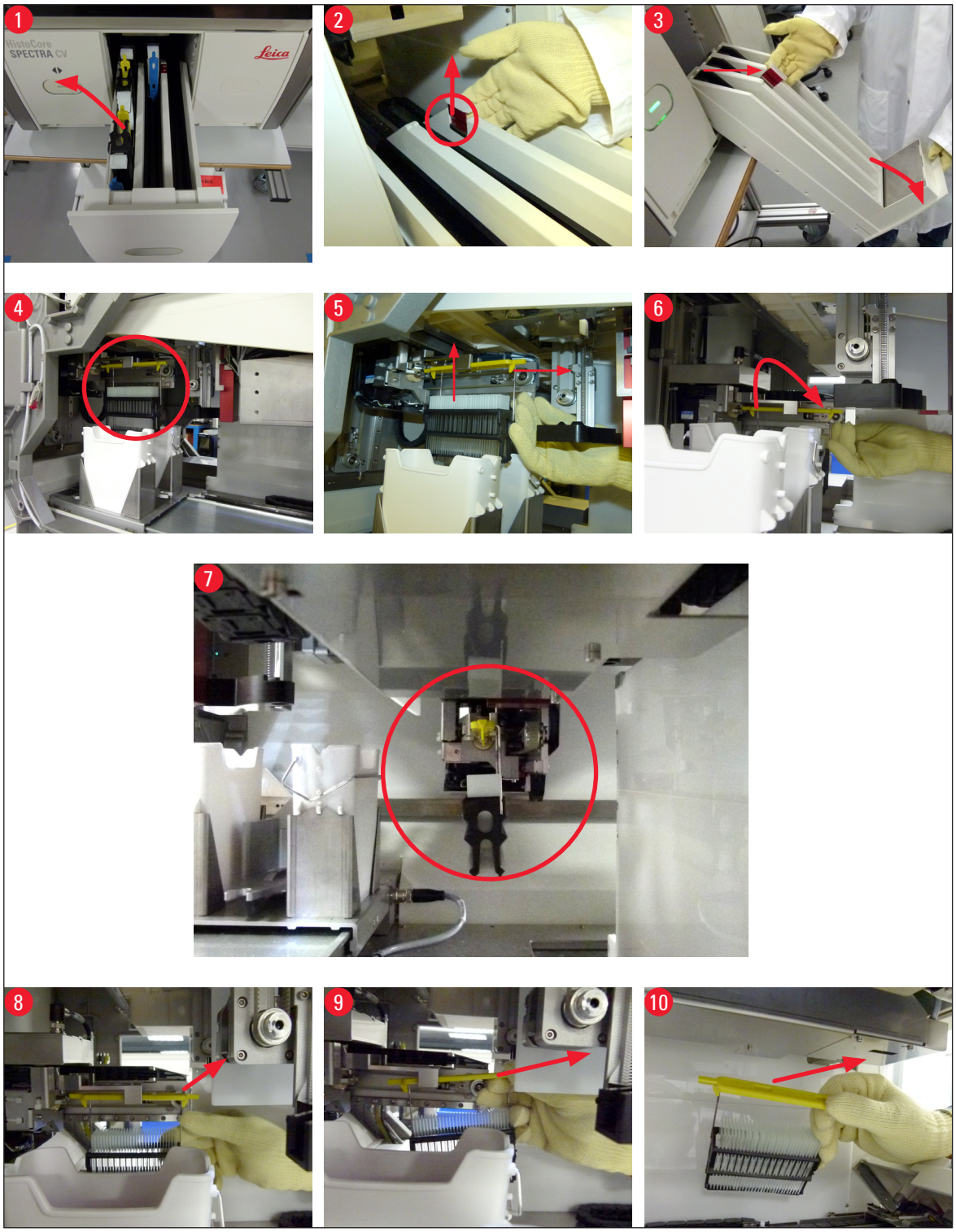

Fig. 109

8.3.1 Malfunction at the coverglass receptacle

If the Pick&Place module loses a coverglass during transport to the slide or if the Pick&Place module cannot remove a coverglass from the coverglass cartridge after 3 attempts, the user is notified of this through an error message (→ Fig. 110).

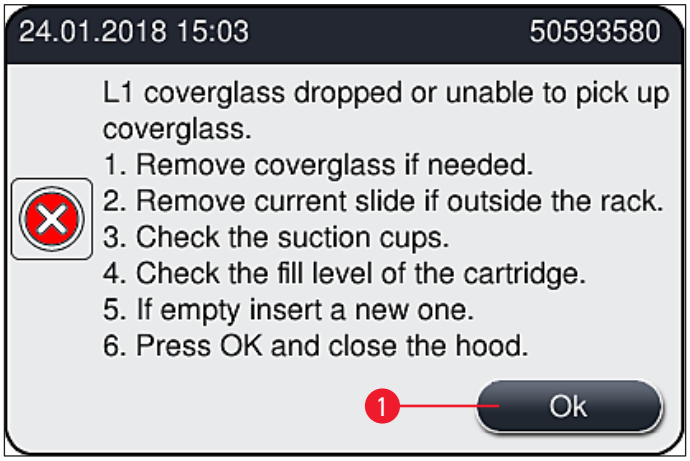

Fig. 110

Note

Processing in the respective coverslip line is interrupted in order to prevent damage to the specimens. Specimens may become dried out during the interruption.

ⓘ If this message (→ Fig. 110) is displayed, the user must first check whether a coverglass has been lost during transport to the slide or whether the Pick&Place module was unable to take a coverglass from the coverglass cartridge.

1. To do this, start by opening the hood of the instrument and checking whether or not a coverglass has been lost while being transported to the slide.
2. To remove the slide, press the red bar to the far right (→ Fig. 111-1) and hold it in this position.
3. Make sure that the shifter (→ Fig. 111-2) does not obstruct the safe removal of the slide. Move the shifter all the way forward or back if necessary.
4. Carefully remove the slide that has not yet been coverslipped from the instrument (→ Fig. 111-3) and store it safely outside the instrument. After correcting the malfunction, the slide can be coverslipped manually.

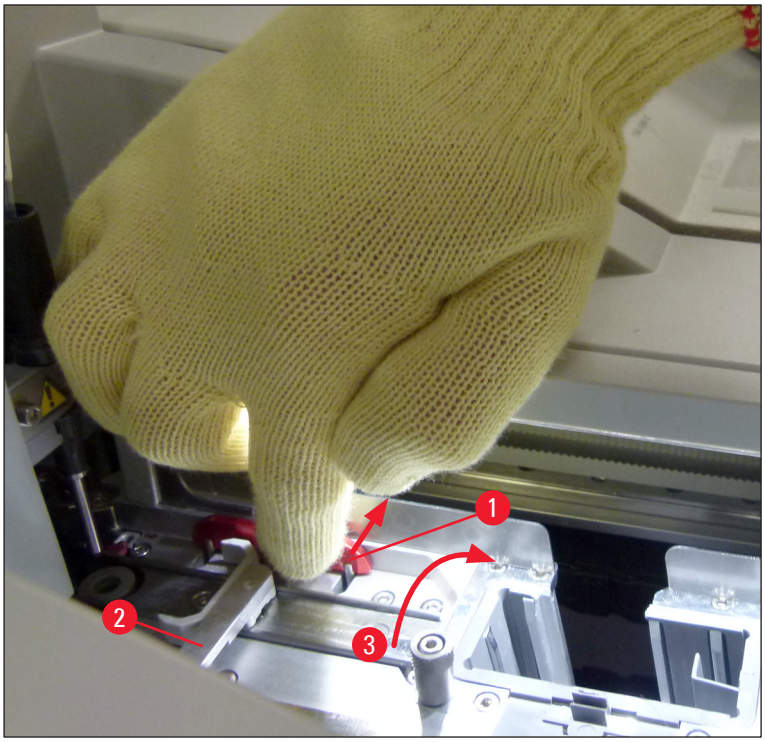

Fig. 111

5. Check the coverslip line for broken glass and clean if necessary.
6. If the Pick&Place module was unable to remove a coverglass from the coverglass cartridge, check the suction cups on the Pick&Place module for contamination or damage and, if necessary, clean or replace the suction cups with two new ones.
7. Then check the fill level of the coverglass cartridge as well. If there is no longer enough coverglass present, insert a new coverglass cartridge.
8. If the steps listed above have been carried out, press the OK button and close the hood.
9. The instrument software performs a fill level scan. The user receives an information message when the check is finished (→ Fig. 112).
10. If the processing was interrupted for too long, it can be canceled by pressing Yes (→ Fig. 112-1). The rack in question is transported to the unload drawer and can be removed by the user there.
11. To continue processing, press the No (→ Fig. 112-2) button. Processing is continued as normal.

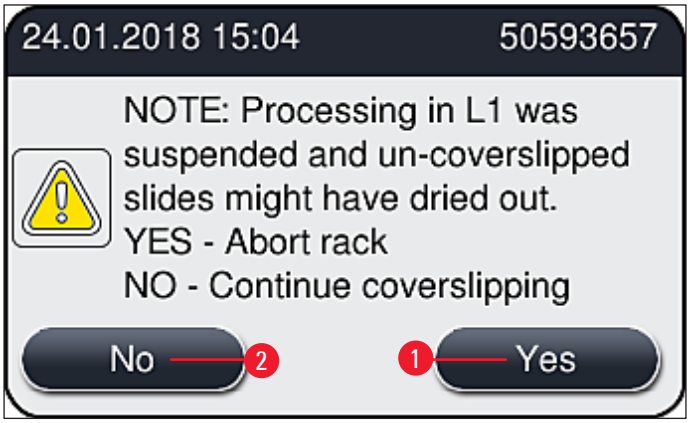

Fig. 112

Note

If the error cannot be remedied by the user using the specified procedure, notify a Leica service technician and remove the coverslip line in question from service for the time being.

8.3.2 Removing a rack from the elevator of the coverslip line

Warning

- If, during operation, a malfunction occurs in one of the two coverslip lines, the user will receive information messages from the instrument, which will provide the user with instructions for the potentially necessary removal of a rack from the elevator. Compliance with the information messages is mandatory.
- Risk of injury! Always wear personal protective clothing (lab coat, cut-resistant gloves, safety goggles)!
- Specimens may become dried out during the interruption.

1. Open the hood.
2. Take the needle of the respective coverslip line from its holder laterally and insert it into the parking location.
3. Ensure that the Pick&Place module is located above the waste tray. If this is not the case, carefully push the Pick&Place module manually over the waste tray.
4. Check the respective coverslip line for possible locks and remove it carefully.
5. If a slide has canted in the coverslip line (→ Fig. 113-1), push the shifter (→ Fig. 113-2) forwards. To do so, press the red bar to the far right (→ Fig. 111-1) and hold it in this position. Then carefully pull the canted slide forwards (→ Fig. 113-3), remove it from the instrument (→ Fig. 113-4) and coverslip it manually.

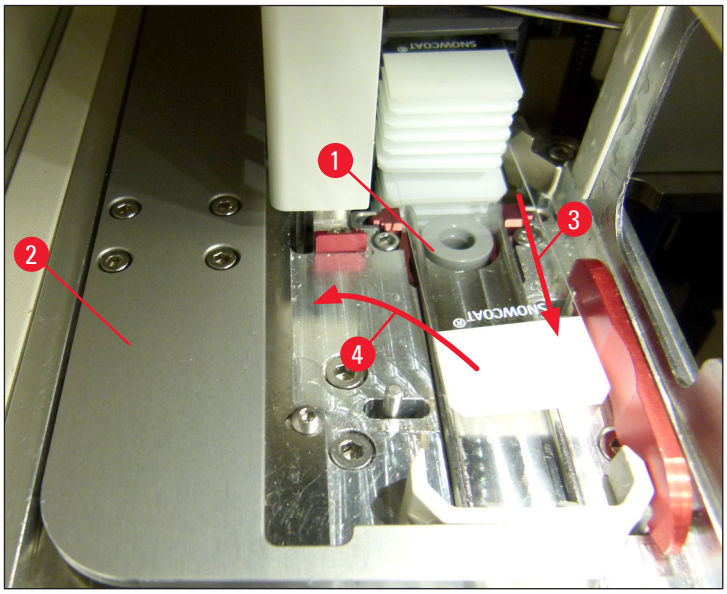

Fig. 113

6. Align the shifter (→ Fig. 114-1) with the red barrier (→ Fig. 114-2). This ensures that user can move the elevator upwards manually.

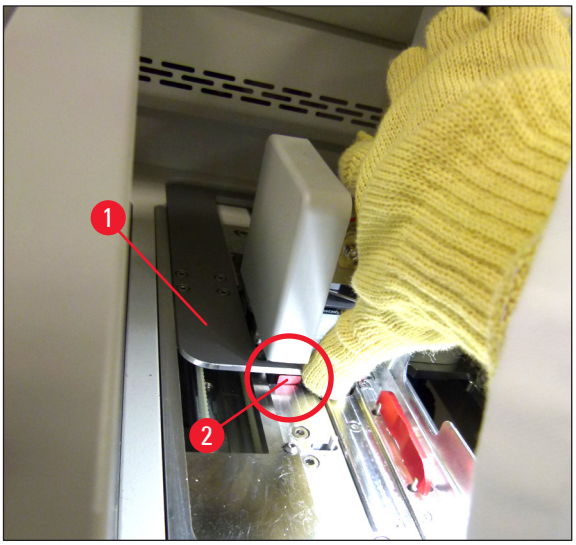

Fig. 114

7. Close the hood.
8. The instrument now attempts to move the rack to the uppermost position.
9. Reopen the hood and check whether the rack is in the upper position.
10. If this is not the case, the user can pull the elevator upwards manually. To do so, grasp the red lever (→ Fig. 115-1) and carefully pull the elevator with the rack upwards.

Warning

While exercising caution, pull the elevator upwards slowly and without jerky movements.
Pay attention to protruding or interfering slides and push them carefully back into the rack.