**Clinical Surgical Pathology - Gross Room Procedure**
surgpath04.01

### Cryostat: Routine Maintenance

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<th>Final Approval: August 2010</th>
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#### List all stakeholder(s) and dates of approval:

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<tr>
<th>Stakeholder Name(s)</th>
<th>Date: 08.2010 Reviewed</th>
<th>Stakeholder Name(s): Mark Magilner, MD Date: 5.2010 Reviewed</th>
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### Purpose/Policy Statement:

For optimum infection control and mechanical operation, cleaning, lubrication, and validation of instrument operation shall be performed daily on each Pathology Department cryostat instrument.

### Definitions:

- N/A

#### STEPS / KEY POINTS

**INSTRUMENTATION OR EQUIPMENT:**

**CRYOSTAT**

- ThermoShandon - Cryotome electronic
- Cryotome FE

CAUTION: SUB-ZERO TEMPERATURE, BIOHAZARD ENVIRONMENT

Wear appropriate protective equipment.

**MATERIALS, REAGENTS:**

- Absolute Alcohol (100% EtOH)
- Reagents blend of ethyl, methyl and isopropyl alcohols.
- 10% Formalin

CAUTION – FLAMMABLE LIQUID, IRRITANT, SUSPECTED CARCINOGEN.

Wear appropriate protective equipment.

CONTAINS FORMALDEHYDE.

Toxic by inhalation and if swallowed.

Irritating to the eyes, respiratory system, and skin.

May cause sensitization by inhalation or skin contact.

Risk of serious damage to eyes.

May cause cancer.

Repeated or prolonged exposure increases the risk.

Paper towels

Gauze 4 x 4 squares
PROCEDURE:

**D A I L Y**

1. Remove the disposable knife blade from the knife holder, rinse debris off with 100% EtOH and place in a secure location to be reinstalled after completion of the cleaning protocol OR disposed into a SHARPS collector.

2. Use forceps, brush, gauze, paper towel, etc.; remove frozen block shavings and other biological waste from the knife holder and cryochamber into an appropriate BIOHAZARD box container.

3. Remove instrument accessories: thermometer, heat extractors, knife guard, brushes, brush tray, waste tray and shelf units. Clean away frozen block shavings and other biological waste from these accessories into an appropriate BIOHAZARD box container and rinse with 100% EtOH to decontaminate. Cryostat accessories: DRAIN AND DRY THOROUGHLY.

4. Use 100% EtOH to similarly wipe down all exterior work surfaces of the instrument.

5. Return all thoroughly dried cryostat parts and accessories to their correct location inside the instrument; reinstall the microtome blade.


**W E E K L Y**

1. Select an appropriate-sized plastic specimen container that will accommodate the cryostat accessories and add 100% Ethyl Alcohol (EtOH).

2. LABEL THIS SECONDARY CONTAINER WITH THE IDENTITY OF ITS REAGENT CONTENTS.

3. Remove the disposable knife blade from the knife holder, rinse debris off with 100% EtOH and place in a secure location to be reinstalled follow cleaning OR dispose into a SHARPS collector.

4. Use forceps, brush, gauze, paper towel, etc.; remove frozen block shavings and other biological waste from the knife holder and cryochamber into an appropriate BIOHAZARD box container.

5. Remove instrument accessories: thermometer, heat extractors, knife guard, brushes, brush tray, waste tray, and shelf units. Submerge them into the container of 100% EtOH.

6. Remove the knife holder from the cryostat and submerge it into the container of 100% EtOH.

7. Clean from all cryostat accessories that have been submerged in 100% EtOH any excess O.C.T. product or tissue debris. Cryostat accessories: DRAIN AND DRY THOROUGHLY.

8. Advance the block holder to a forward position.

9. TURN THE INSTRUMENT OFF; perform steps 10 through 12 within 5 minutes.

10. Using gauze squares saturated with 100% EtOH, thoroughly wipe down all inner walls and work surfaces of the microtome, cryostat chamber and inner surface of the Sliding Window lid.

11. Remove any frost or ice deposits on the stainless steel inside walls and/or floor of the cryochamber by using a squirt-bottle to dispense 100% EtOH as a softening agent and dislodging with a plastic scraping tool. Wipe clean and dispose into BIOHAZARD box container.

12. If excess 100% EtOH in the chamber cannot be removed by absorbing with gauze squares, utilize the external drain (see Procedure Notes). Cryochamber: DRAIN AND DRY THOROUGHLY.

| RESUME INSTRUMENT USE ONLY WHEN THE INSTRUMENT AND CHAMER ARE COMPLETELY DRY. ALCOHOL VAPOR CONSTITUTES AN EXPLOSION HAZARD. HUMIDITY MAY CAUSE CONDENSATION, FREEZING AND INSTRUMENT MALFUNCTION. |

13. TURN THE INSTRUMENT ON.

14. Retract the block holder to a NEAR home position.

15. CLOSE the Sliding Window lid.

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16. Use 100% EtOH to similarly wipe down all exterior work surfaces of the instrument.

17. Dispose the 100% EtOH used for submersion of the cryostat accessories into the sink with copious amounts of running tap water.

18. Return all thoroughly dried cryostat parts and accessories to their correct location inside the instrument; position the knife holder within 1 inch of the retracted block holder.

19. Validate calibration and when the instrument reaches operating temperature, perform QUALITY CONTROL (see below).

20. PERFORM WASTE BOTTLE MAINTENANCE:


Model ThermoShandon Cryotome FE - EMPTY Waste Bottle contents, CLEAN the Waste Bottle and fill to designated level with 10% Formalin.


CALIBRATION:

1. Position the knife-holder blade angle at the “10” setting and install a new knife blade.

2. Following instrument cleaning and re-assembly, validate correct instrument settings:
   - TEMP = -20°C
   - DEFROST TIME = 0100 hours
   - TIME OF DAY = current accurate time.

   If necessary, refer to the Instruction Manual for each cryostat model.

QUALITY CONTROL: Following instrument cleaning and re-assembly validate satisfactory instrument operation by preparing a test block and achieving satisfactory cryotomy sectioning results. Sections must be of consistent high quality with no thick/thin instrument dysfunction. If this is not achieved, obtain assistance from another technologist; do not leave the instrument in an inoperable condition. Adjust the anti-roll device as necessary.

RESULTS: N/A

PROCEDURE NOTES:

1. Install the knife guard prior to working inside the cryochamber when a disposable knife is in the knife holder.

2. Lock the hand wheel prior to handling the disposable knife.

3. On cryostat models that utilize an external drain, place the open end of the external drain tube over a disposable container and remove the drain plug from the interior left floor of the cryostat. Allow excess liquid to drain from the chamber, through the tube, into the collection container. Dispose the collection container into a BIOHAZARD collection box. Replace the drain plug in the cryochamber.

LIMITATIONS OF PROCEDURE: NONE.

REFERENCES:

SUPPLEMENTAL MATERIALS: BIOHAZARD waste collection box, SHARPS collector.

DISTRIBUTION OF PROCEDURE: Histology Laboratory Policy & Procedure.

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Equipment/Supplies (If Applicable):
Disposable gloves
Laboratory Coat
Eye protection
Surgical mask or face shield
Ventilation hood with HEPA filter cartridge

Form Name & Number or Attachment Name (If Applicable):
surgpath04