

# 20. Maintenance

## 20.1 Technical Descriptions

For technical descriptions of this system, refer to the following manuals.

- Installation manual
- Maintenance manual
- Disposal manual

## 20.2 Outline of Preventive Maintenance

Daily checks, periodic inspection, and replacement of consumable parts are included in preventive maintenance. For replacement of parts, special techniques are required because special tools are used or there are special risks involved.

Canon Medical Systems provides preventive maintenance services requiring special techniques on a pay-for-service basis.

Canon Medical Systems requests that the user sign a preventive maintenance contract to arrange for periodic inspection and cleaning by Canon Medical Systems service personnel in order to ensure reliable system operation.

If you have any questions concerning preventive maintenance or preventive maintenance contracts, contact your Canon Medical Systems service representative.

**⚠WARNING:** Never perform service and maintenance operations while a patient is being examined. Doing so may subject the patient or operator to electric shock or cause damage to the system.

**⚠CAUTION:**

1. If preventive maintenance is performed by the user, special care must be taken to ensure safety.
2. If any abnormality of the system is found during inspection, stop using the system and contact your Canon Medical Systems service representative for repair.

**NOTE:** The message below is displayed in the information display area when the period of operation set for the system has elapsed (default setting: 600 hours). When this message is displayed, it is recommended that the user requests inspection by a service engineer. The interval for display of this message can be changed. Contact your Canon Medical Systems service representative.



System inspection is recommended. A long time has passed since last system inspection.

## 20.3 Preventive Maintenance Performed by the User

### 20.3.1 Cleaning the system

- ⚠ CAUTION:**
1. Before cleaning the system, be sure to disconnect the system power plug from the outlet of the facility. If the system is defective, an electric shock may occur.
  2. Do not spill or spray liquids such as water onto the system or peripheral units. If a liquid such as water enters the system or peripheral units, an electric shock may occur.

**NOTICE:** Do not use solvents (such as paint thinner, benzene, or alcohol) or abrasive cleansers to clean the system. These substances may cause deterioration or discoloration of the system.

#### 1 Cleaning the transducer



Clean, disinfect, and sterilize the transducer referring to the operation manual provided with the transducer.

#### 2 Cleaning the transducer holder and gel holder



- (a) Wipe off any stains on the transducer holder and gel holder using a soft, dry cloth.
- (b) If it is difficult to remove stains, wipe them off using a soft cloth moistened with mild detergent.

### 3 Cleaning the reference signal cable

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- NOTICE:**
1. Do not allow the clips to become wet. If wet clips are used, the ECG tracing will not be displayed correctly.
  2. Do not immerse the connector in water. Wipe the connector with a dry cloth only. If moisture enters the connector, the system may fail.



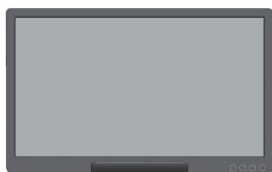
Clean the reference signal cable regularly.

- (a) Wipe off any stains using a soft cloth moistened with mild detergent and then tightly wrung out.
- (b) Then wipe the reference signal cable with a dry cloth and let it dry completely.

### 4 Cleaning the monitor

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- NOTICE:**
1. Do not hit or apply excessive force to the LCD screen during cleaning. Doing so may damage the monitor.
  2. Never use a stiff or hard cloth to clean the monitor. Doing so may damage the monitor cover or LCD screen.
  3. Do not allow liquid droplets to remain on the LCD screen. The droplets may cause small stains when they dry or may enter the LCD screen, possibly resulting in failure.



- (a) Monitor cover
    - Clean the monitor cover using a soft cloth moistened with mild detergent.
  - (b) LCD screen
    - Use a soft cotton cloth or lens cleaning paper to clean the LCD screen.
    - If stains on the LCD screen are difficult to remove, wipe the screen gently with a soft cloth slightly moistened with water or mild detergent and then wipe it dry with a soft, dry cloth.
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## 5 Cleaning the surface of the touch panel

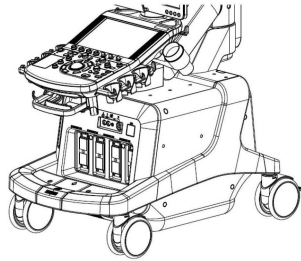
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- (a) Clean the surface of the touch panel using a commercially available lens cleaning cloth (non-woven rayon cloth etc.).
- (b) If necessary, use a piece of soft cloth moistened with water or neutral detergent and then tightly wrung out.

## 6 Cleaning the system, main panel, and transducer connector

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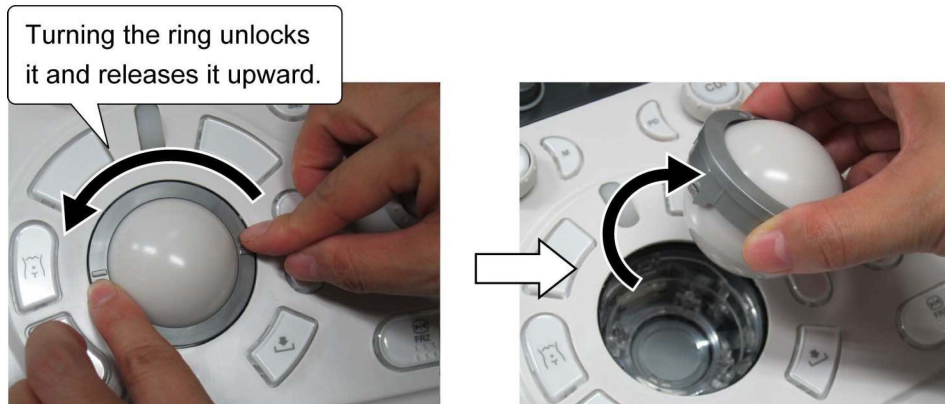


- (a) Wipe the system using a soft cloth moistened with mild detergent.
- (b) Clean around the switches or keys on the main panel using cotton buds.
- (c) Wipe the transducer connector with a soft, dry cloth. If it is difficult to remove all the stains with a dry cloth, use a soft cloth moistened with water.

## 7 To clean the trackball

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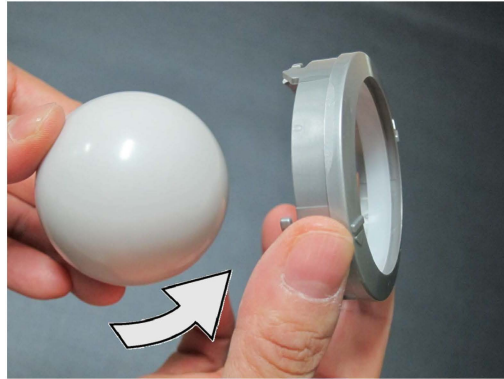
- (a) Turn the trackball ring in the direction of the arrow in the left figure below and remove it together with the trackball.



**NOTICE:** To prevent malfunction, be careful when removing the ring.

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- (b) Remove the ball from the ring, taking care not to damage the ball.



\* Keep the removed ball in a box to prevent it from being dropped inadvertently.

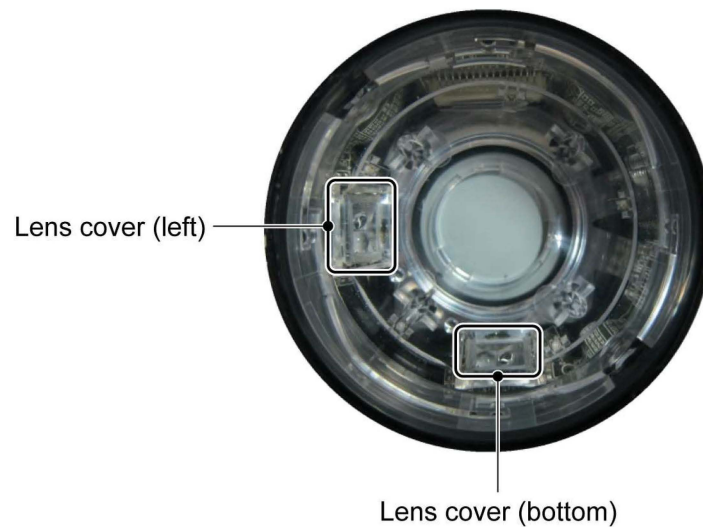
- (c) Remove the inner ring (dustproofing) from the ring and remove any dust and dirt on the contact surface.



Contact surface

Inner ring

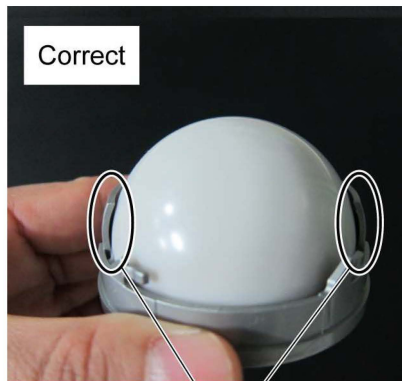
- (d) Remove all foreign matter from the ball and from the interior of the case using a soft cloth or gauze.  
Do not use sharp or hard materials to clean inside the case.  
In addition, use a microfiber cloth to clean lens cover sections (left and bottom).



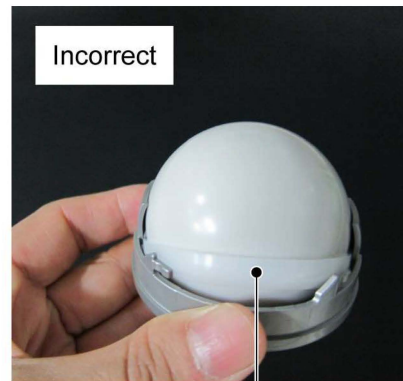
- (e) Set the ball in the ring.




**NOTE:** Be sure to insert the inner ring when setting the ball. If the inner ring is not fitted properly, the ball may not rotate properly. Be sure to fit the inner ring properly.



Tall flap



Inner ring

- (f) Gently set the ring in the unit and rotate the ring so that the  mark is at the position shown below.



Make sure that there is no foreign matter inside the trackball assembly.



- (g) Turn the ring in the direction of the arrows until it is locked (fixed).



- (h) After the trackball is installed, check the following.
- Operate the ball and confirm that there is no unevenness in the operating force required, that there is no noise during operation, and that the ball does not come loose during operation.
  - Turn ON the power and confirm that the trackball operation is normal.

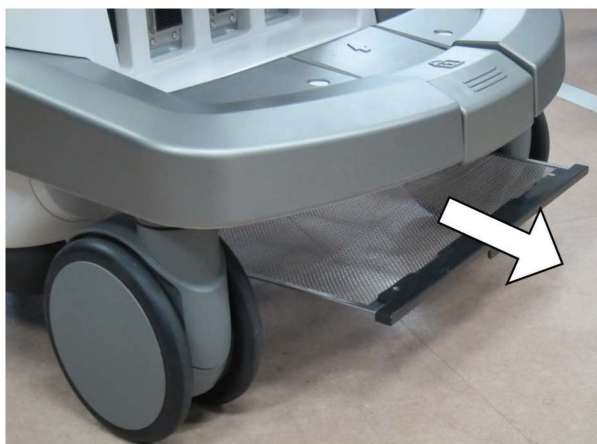
## 8 Cleaning the air filter

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Check and clean the air filter to prevent overheating of the system or reduction in system performance/reliability due to clogging of the filter.

<b>NOTICE:</b> Do not boot up the system while the air filter is removed. The system may malfunction.
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- (a) Remove the air filter (1 location).



Air filter

- (b) Remove all dust from the filter using a vacuum cleaner at a location away from the system.
- (c) Remount the air filter.
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## 20.3.2 Disinfecting the system

This subsection describes the procedures and precautions for disinfecting the system.

For disinfection of transducers, refer to the operation manuals provided with the transducers.

**⚠ DANGER:** After disinfecting the system, ventilate the room fully before turning the system ON.  
If a flammable or explosive gas remains near or in the system, it may cause a fire or explosion.

**⚠ WARNING:**

1. Before disinfecting the system, be sure to disconnect the system power cable plug from the outlet of the facility.  
If the system is defective, an electric shock may occur.
2. Do not spill or spray liquids such as water onto the system or peripheral units. If a liquid such as water enters the system or peripheral units, an electric shock may occur.

**⚠ CAUTION:**

1. Observe the following precautions to prevent infection.
  - Wear sterile protective gloves.
  - Wear new sterile protective gloves each time disinfection is performed.
2. Do not disinfect the system using a method or chemical other than those specified in this manual. Doing so may result in the system not being disinfected properly or in the surface of the system deteriorating or becoming discolored.
3. After chemical disinfection, dry the surface of the system fully.
4. The efficacy of disinfectants is not guaranteed by Canon Medical Systems. Contact the manufacturer of the relevant chemical for information on its efficacy.
5. Determine the effectiveness of the chemical based on the criteria (effective period, number of times of use, discoloration of the chemical, results of testing using effectiveness test kits, etc.) described in the documentation provided by the manufacturer of the chemical.

**NOTICE:**

1. When chemical disinfection is repeated over time, the surface of the system changes gradually.
2. If any abnormality related to functions of the product is observed after disinfection, stop using the product and contact your Canon Medical Systems service representative for repair.

## 1 Chemicals permitted for use

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The chemicals listed below are permitted for use. For details of the handling procedures for a chemical, refer to the documentation provided by its manufacturer.

- Quaternary ammonium compound (0.75%): Cleanisept® wipes
- Quaternary ammonium compound (0.50%): SUPER SANI-CLOTH®
- Quaternary ammonium compound (0.25%): SANI-CLOTH® PLUS
- Sodium hypochlorite (0.65%) : Dispatch® Hospital Cleaner or Clorox Healthcare™ Bleach Germicidal Cleaner
- Effervescent chlorine tablets, sodium dichloroisocyanurate (NaDCC) : BIOSPOT®\* (5000 ppm)  
\* Not available in the USA.
- Isopropyl alcohol 70%
- Ethanol 78%

## 2 Area that can be disinfected

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The entire system can be disinfected.  
However, the following parts cannot be disinfected. Clean these parts using neutral detergent as required.

- Screen of the LCD monitor
- Casters
- Footswitch
- Peripheral devices (printer, etc.)  
Refer to the documentation provided with the peripheral devices.
- Cables

## 3 Disinfection procedures

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Perform the disinfection work according to the instructions of a disinfection professional.

- (a) Turn the system power OFF and disconnect the power cable plug from the outlet of the facility.
  - (b) Wear protective gloves to prevent infection. Wear new sterile protective gloves each time disinfection is performed.
  - (c) Be sure to perform cleaning before performing disinfection.
  - (d) Moisten a piece of soft cloth with a liquid chemical disinfectant, squeeze it lightly, and wipe the surface of the unit. Be extremely careful not to allow the detergent to enter the unit.
  - (e) After chemical disinfection, dry the surface of the system fully.  
Do not heat the unit to dry it.
  - (f) Confirm that the disinfected parts are not damaged or deformed.
  - (g) After disinfecting the system, ventilate the room fully before turning ON the system.
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