

# 5 MAINTENANCE

## 5.1 Cleaning

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Keep your centrifuge clean to ensure good operation and to extend its life. Clean the entire sample chamber, rotor, and lid at the end of each workday, and also right after any spill.

To clean the sample chamber, use a damp sponge, warm water, and a mild liquid detergent suitable for washing dishes by hand, such as Ivory® liquid. Do not use caustic detergents or detergents that contain chlorine ions, since these attack metals. Remove stubborn stains with a plastic scrub pad. Do not use steel wool, wire brushes, abrasives, or sandpaper, since they create corrosion sites. Never pour water directly into the sample chamber. Scrub the rotor's tube cavities with a stiff test-tube brush that has end bristles and a nonmetallic tip. After cleaning any part, dry it properly, preferably using a clean, absorbent towel.

**Corrosion** IEC manufactures and finishes rotors and structural accessories to give maximum resistance to corrosion. However, maximum equipment life requires that you continually inspect the rotor cavities for corrosion, especially after using chloride ion solutions, such as sodium chloride (saline), and sodium hypochlorite (household bleach). These solutions attack most metals. Clean the rotor, rotor chamber, and accessories (particularly the sample compartments and bucket cups) thoroughly after each such use. Inspect all surfaces under bright light for corrosion; small crevices will grow deeper and cause failure.

If you see any corrosion, remove it immediately as follows:

1. Follow the cleaning procedure at the start of this section. Soak the part in the mild hand-dishwashing detergent. Scrub the part thoroughly with a stiff test-tube brush having end bristles and a non-metallic tip.
2. Soak the part again in clear warm water for at least an hour.
3. Rinse the part thoroughly in warm water first, then in distilled water.
4. Dry the part thoroughly with a clean, absorbent cloth.
5. If this procedure does not remove the corrosion, **discontinue use of the part.**

**Storage** Store parts on a soft surface to avoid damaging finished surfaces. Rotors and other parts should be clean and dry for storage. Store them open to the atmosphere, not in a plastic bag, so that any residual moisture will evaporate. The parts should face downward to avoid retaining moisture in the cavities.

**Decontamination** Decontamination is called for if tube breakage occurs and infectious, pathogenic, or radioactive material is released into the unit. Some rotors or accessories totally contain the sample tubes. In this case, spillage is usually confined, and it may be sufficient to decontaminate only the rotor or accessory.

The Decontamination Table lists the sensitivity of various materials to common sterilization procedures. When using a 1-to-10 dilution of household bleach (sodium hypochlorite) to decontaminate metal rotors or accessories, follow decontamination by the corrosion cleaning procedure given earlier, since chloride ions attack most metals.

Always decontaminate for the minimum recommended time. If you observe corrosion, remove it as described earlier, discontinue use of the sterilization method, and use an alternate decontamination procedure.

Sterilization of polypropylene rotors can be done by autoclaving. Remove any sample tubes before autoclaving, unless they are completely full of sample, or remove caps, stoppers, and other tube closures, before autoclaving to keep the tubes from collapsing under pressure. Autoclave the rotor and accessories at 121° C @ 15 psig for 20 minutes. Do not stack polypropylene rotors during autoclaving. After the rotor is cool to the touch, do a normal cleaning operation as described above.

Repeated autoclaving will seriously degrade the performance of polycarbonate materials.

## 5.2 Brush Replacement

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Refer servicing to qualified personnel only. Brush replacement is required when the length of the brush not including the spring is less than 1/4 inch long. **Order additional sets as IEC Part Number 1780A.**

**WARNING      DISCONNECT POWER CORD BEFORE REMOVING THE BRUSHES.**

First, remove all rotor and accessories from the chamber. Gently tilt the unit onto its side and remove the four screws which secure the baseplate. The brush caps are located on either side of the motor housing. Unscrew each cap with your fingers (or use a small flat screwdriver) and remove the brushes. There are two black caps which can be removed from the housing to allow use of a large screwdriver. Measure the length of the brushes and replace both brushes if either one is less than 1/4 of an inch long. Be sure to reinstall all parts removed.

It is important to check the brushes periodically since damage to the motor can occur if the brush is allowed to wear down to the spring.

**CAUTION: WHEN REINSTALLING INSPECTED BRUSHES**

When brush replacement is not required, it is important that the brush be inserted in the same position as it was removed. The trailing edge of the brush must be positioned properly. The trailing edge may be identified by the presence of a dark deposit of carbon along that side.

Note: New brushes may require a burn-in period of up to a half hour.

### 5.3 Fuse Replacement

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Refer servicing to qualified personnel only. First, remove all rotor and accessories from the chamber. Gently tilt the unit onto its side and remove the four hex head screws which secure the baseplate. Unscrew and remove the four rubber feet and lift the baseplate off. The fuse(s) is mounted to the cabinet housing. Replace fuse(s) with:

|                 |                        |                    |
|-----------------|------------------------|--------------------|
| For 100/120 VAC | 1 - 4A, .25 x 1.25 in. | IEC part no. 40340 |
| For 220/240 VAC | 2 - 2A, .25 x 1.25 in. | IEC part no. 40794 |

### 5.4 Cover Interlock Bypass

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The Centra-CL2 has an interlock bypass for easy sample retrieval in the event of a power failure. To bypass the safety interlock, unplug the centrifuge and pry off the plastic plug located on the bottom of the control panel. Pull downward on the cord to release the interlock. Do not perform this bypass routinely. The cover interlock provides user safety and allows the cover to be opened promptly whenever rotation has stopped.

### 5.5 Calibration

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The speed sensor used in the Centra-CL2 requires no calibration. IEC recommends verifying its speed once every 24 months. This can be done easily using an optical tachometer through the clear plastic viewport in the lid. If this measurement indicates instrument failure, please notify IEC Technical Service.

### 5.6 Power Cord Replacement

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Inspect the power cord every four months for signs of wear. Refer servicing to qualified personnel only. Replace power cord with IEC part number 44392 only.