



CAMERACAL SERVICES SENSOR CLEANING & LENS MAINTENANCE GUIDE

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Cameracal Services – Sensor Cleaning & Maintenance Guide

Over 10 years. Thousands of cleans. Complete transparency.

Your camera and lenses are precision instruments — tools that reward care and attention. This guide has been created to help you understand, maintain, and protect your equipment, sharing practical advice gained from over a decade of professional cleaning and calibration.

At Cameracal Services, we believe that prevention is better than cure. By learning how contamination occurs, how to minimise it, and when to seek professional help, photographers can avoid unnecessary repairs, reduce downtime, and maintain consistently sharp, clean results.

This isn't a sales pitch — it's an educational resource written to help you look after your gear with confidence, supported by the same expertise that defines our day-to-day work.

1. Think Before You Change Lenses

The moment you remove a lens, you open a doorway for airborne dust. A few simple habits can cut your risk almost completely:

- Switch the camera off first. This reduces static charge that attracts dust — particularly important for mirrorless cameras with an exposed sensor and no dust shield.
- Point the camera downward during lens changes — gravity helps keep debris out.
- Prepare the next lens before detaching the current one; avoid leaving the body open.
- Outdoors, shield the camera from wind or dust, or change lenses inside your jacket/bag.
- Refit lens and body caps immediately.

2. Store Smart

Where and how you store your equipment has a direct effect on long-term reliability and cleanliness.

- Keep your camera and lenses in a clean, closed environment such as a cabinet or dedicated case.
- If you use a camera bag, place a few sachets of silica gel inside the compartments to control humidity.
- Vacuum or wipe out the inside of your bag periodically; lint, fibres and sand accumulate quickly.

- Always fit front and rear caps when lenses are not in use.
- Avoid storing rear lens caps in pockets — fibres and fine particles from fabrics can collect inside the cap and transfer straight onto the rear element. When the lens is mounted, this contamination is then transferred into the camera body, which is especially problematic for mirrorless models without a dust guard or sensor shield.
- Do not leave a camera body open without either a lens or a body cap fitted.

To make storage even cleaner, Cameracal Services has developed ****Cameracal Dust Catchers****: discreet, double-sided discs that fit neatly inside rear lens caps to trap and retain dust or loose particles before they reach the rear element or sensor chamber. Available to purchase shortly.

3. Handle the Exterior Properly

- Wipe camera bodies gently with a slightly damp microfibre cloth — never alcohol or ammonia-based wipes.
- Use a clean, filtered air blower to remove loose dust before wiping any glass surface.
- Avoid blower brushes with filaments — bristles can shed/moult and cause contamination, especially on rear elements.
- Never insert a brush into the mirror box of a DSLR — it can contaminate the mirror box, which will feed back to the shutter and eventually the sensor.
- Never use a blower brush directly on the sensor surface (for the reasons as mentioned above)
- Never blow with your mouth; moisture and saliva are far more damaging than dust.
- Avoid tissues or paper towels; they can scratch coatings.
- Keep lens hoods fitted — they reduce lens flare, provide a secondary barrier against knocks, and offer limited protection from light rain or airborne dust.

4. Lens Care – Front and Rear Elements

Every lens benefits from regular checks and careful handling. Contamination on either element can degrade image quality and transfer into the camera body.

- Inspect lenses regularly under good light or with a small LED torch — especially the rear element, which often gathers dust when lenses are swapped.
- During inspection, check for signs of mould or a musty smell on front or rear elements, particularly if the lens has been used or stored in damp or humid conditions. Use silica-gel sachets in your bag or cabinet to keep things dry.
- Always ensure lenses — particularly the rear element — are free from fingerprints or smudges. Even a faint smear of skin oil can severely affect contrast and sharpness, and cannot be fully corrected in post-production.
- Use a clean microfibre cloth or dedicated lens tissue for light marks; apply reputable lens-cleaning fluid sparingly for stubborn contamination.
- If you use filters, clean both sides and check for trapped dust between filter and front element. Avoid stacking multiple filters.

- Before mounting, check that the rear cap and lens mount area are clean and free of debris to further minimise risk, fit Cameracal Dust Catchers inside rear caps to trap loose particles.

5. Understand What You See

Not every mark or spot in an image means there's something seriously wrong. Understanding what you're seeing helps you decide whether the issue needs professional attention or simple monitoring.

- Dust Spots — small, round or slightly fuzzy marks, most visible on plain backgrounds at f/11–f/16. Caused by dry particles on the sensor surface.
- Oil or Grease Spots — darker marks, sometimes with a halo. Originating from shutter/mirror lubrication; they resist vibration cleaning and require professional removal.
- Smears or Haze — uneven patches or streaks from moisture/residue on the sensor or rear element; cause loss of contrast and uneven tonality.
- Pollen or Fibres — elongated or irregular, sometimes semi-transparent, may shift between frames; usually indicate the chamber needs attention.
- Sand and Salt Contamination — coastal/beach use can deposit airborne sand mixed with salt spray. These can bind to the glass and must not be dragged with a swab — risk of permanent scratches. If a filtered blower doesn't remove it, stop and consult a specialist.

Contamination Seen in the Viewfinder (DSLR Models)

If marks are visible through a DSLR viewfinder, the contamination is on either side of the focusing screen, not on the sensor.

- Test: Remove the lens, point the camera upwards to a light source, and look through the viewfinder.
- If particles appear out of focus, they're on the front side of the focusing screen and can often be removed with a filtered air blower (never a rocket blower).
- If particles appear sharp/in focus, they're on the rear side of the focusing screen and should not be user-cleaned.

Focusing screens are not environmentally sealed, so gradual build-up is normal. We inspect and clean the accessible side as part of our service.

When to Check for Contamination

- After lens changes in dusty, coastal, or windy conditions.
- If the camera has been unused for several months.
- Before important shoots or travel.
- Whenever new or repeating patterns of spots/streaks appear.

How to Confirm

- Photograph a plain, light surface (white wall/sky).

- Use manual focus at infinity, with an aperture of f/16–f/22, and the lowest ISO setting.
- Review the file at 100% magnification; repeatable marks indicate contamination.

What's Normal

A few small dust spots visible only at smaller apertures are normal and not a defect. If contamination is visible at wider apertures (f/5.6–f/8) or spreads, schedule a professional clean.

6. Don't Be Fooled by "Automatic Sensor Cleaning"

Most modern cameras include a sensor--cleaning or sensor-shake function, which can be manually invoked via the camera's menu under the "Sensor Cleaning" section. While helpful, it is often misunderstood and over-relied upon.

What It Actually Does

Vibrates the protective glass over the sensor at high frequency to dislodge dry, non-adhesive contamination, which then falls onto a sticky collector strip in the chamber.

What It Cannot Do

- Remove oil or lubrication residue.
- Remove moisture-bound dust or pollen.
- Remove static-charged contamination.
- Remove heavy/bonded particles such as sand or salt crystals (risk of scratching if disturbed).
- Remove anything firmly bonded to the sensor glass.

When It's Useful

- Helps reduce minor, non-adhesive contamination if lenses are changed in a dusty environment.
- Can delay the need for a professional clean between services.
- Assists in keeping the lightest surface particles under control.

Our Approach — Demonstration and Education

We demonstrate where the menu option is found, how to invoke it manually, and when it can (and cannot) be useful. For Canon DSLR and mirrorless models, we record a Dust Delete Data reference after cleaning for use with Canon DPP batch/single image correction. This does not replace physical cleaning.

7. Schedule Preventive Care

Preventive maintenance preserves image quality and avoids downtime. Recommended intervals vary by camera type and environment.

- DSLRs & mirrorless with a physical shutter: every 6–12 months depending on use. Mirror boxes and shutters can trap and recirculate dust over time.
- Mirrorless without a physical shutter: typically every 3–6 months, especially with frequent lens changes or outdoor use.

- High-risk environments (coastal/sandy/industrial): inspect and, if needed, clean every 3–4 months or immediately after exposure.

Environmental Factors

- Humidity encourages fungus in optics.
- Temperature swings cause condensation that traps airborne dust.
- Static build-up attracts fine particles, especially in dry conditions.

Store in a dry cabinet or bag with silica gel; handle lenses carefully to reduce risk.

Professional Inspection

- Examines the mirror box / sensor chamber and focusing screen, and cleans as appropriate.
- Checks for early signs of oil misting or mechanical residue (applicable to DSLRs and mirrorless with a physical shutter).
- Dry-fires the shutter several times to release contamination trapped behind the shutter blades; we repeat cleaning/testing until no further contamination is present (DSLR/mechanical-shutter models only).
- For Canon models, records a Dust Delete Data reference for DPP batch/single correction (not a replacement for physical cleaning).
- Fits Cameracal Dust Catchers to rear lens and body caps by default after cleaning.
- Advises on usage-related risks and demonstrates built-in maintenance features.

8. Professional Help When Needed

Some contamination requires specialist facilities, tools, and expertise. DIY attempts can worsen the problem or cause permanent damage.

Why Professional Cleaning Matters

- Bonded or abrasive particles (e.g., sand/salt crystals) can scratch the sensor's protective glass if dragged. Once scratched, replacement can be exorbitantly expensive — often several hundred pounds, sometimes approaching the cost of a new body. Specific specialist tools and controlled techniques are required.
- Oil mist or lubrication residue (DSLR/mechanical-shutter mirrorless) must be removed using specialist swabs designed for the purpose.
- Incorrect fluids — particularly water-based — can cause smearing or residue that's hard to remove.
- Unfiltered air or re-used swabs can introduce new contamination.

The Cameracal Services Approach

- Purpose-built, HEPA-filtered cleaning cabinet with controlled airflow.
- Filtered, static-safe air blowers for dry debris removal.
- Vacuum-sealed, single-use swabs only.
- Non-water-based cleaning fluid that evaporates without residue or streaks.
- High-magnification inspection loupes to verify a genuinely clean result.

Our Commitment to Transparency

We demonstrate each stage where possible and explain what we're doing and why. If we find issues needing extra attention (sensor scratches, bonded salt, internal fungus), we will show you clearly before any further work.

9. Check for Yourself – Cameracal Dust Analysis App

A desktop tool to help you assess, understand, and document sensor contamination between professional services.

- Clearly highlights each area of contamination on a visual sensor map.
- Detects and classifies dust, fibres, grease, and oil.
- Calculates percentage sensor coverage per tested aperture.
- Displays visibility at f/5.6, f/8, f/11 (note: not at f/2.8).
- Provides automatic and manual cloning options using familiar retouching tools.
- Generates a comprehensive report summarising type, severity, and coverage for reference or service.

Availability: The Cameracal Dust Analysis App (desktop) will be available to purchase shortly. To be notified on release, email:

info@cameracalservices.co.uk — subject: "Notify me when the Dust Analysis App is available" and body: "Yes, please notify me when the Dust Analysis App is available."

10. Final Word

Your camera and lenses are among the most important tools in your creative process — and like any precision instruments, they perform best when cared for correctly.

Regular inspection, proper storage, and professional cleaning preserve image quality and protect your investment. Our reputation is built on transparency, expertise, and trust. From bonded salt removal to Canon Dust Delete Data and fitting Cameracal Dust Catchers, every detail matters.

Whether you're a professional in demanding conditions or an enthusiast who values clean, sharp results, Cameracal Services offers the most thorough and transparent sensor and lens cleaning in the UK.

For complete peace of mind, we can also inspect and clean lenses during the same appointment for a small additional fee.

Contact Us

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