What is causing cracks and moisture inside my headlights?

Hello Paul, I park my car outside every night, and lately the headlights have developed tiny cracks inside the plastic covers. Water enters during rain and affects brightness. Is this caused by sunlight damage, poor-quality bulbs generating excess heat, or pressure changes inside the headlamp unit itself? Sarah Nansubuga

Hello Sarah, what you are experiencing is a common problem with modern plastic headlight units, and it is usually caused by several factors working together rather than one single issue. The tiny cracks and water leaks are mainly linked to ageing of the headlamp material, exposure to sunlight, heat buildup, and ventilation problems inside the headlight assembly.

The biggest cause is often ultraviolet (UV) damage from the sun. Most modern headlights are made from polycarbonate plastic, which is protected by a thin UV-resistant coating. In Uganda's strong tropical sunshine, especially when a car is parked outside daily, this coating slowly wears away. Once weakened, the plastic begins to deteriorate, turning cloudy and developing tiny cracks known as "crazing." These cracks often appear to be inside the lens because they form beneath the surface layer.

Heat stress is another major contributor. Standard halogen bulbs already produce significant heat, but the problem becomes worse if the vehicle uses high-wattage bulbs or poorly fitted aftermarket LED conversions. Repeated heating and cooling causes the air inside the headlamp to expand and contract, stressing the plastic lens over time. This weakens the material and speeds up cracking. However, factory-installed bulbs alone rarely cause damage unless they have been replaced with incompatible or overly powerful options.

Ventilation problems inside the headlamp can also worsen the issue. Headlights are designed with small breather vents that regulate pressure and allow hot air to escape. On rough or dusty roads, these vents can become blocked by dust, mud, or insects. When that happens, pressure builds up inside the unit during heating and cooling cycles, placing extra stress on the lens and seals. This can enlarge existing cracks and allow moisture to enter the housing.

Once cracks develop, even tiny ones, water intrusion becomes almost unavoidable during rain or car washing. The moisture causes fogging, dimmer headlights, and sometimes corrosion of internal reflectors and electrical connectors, which explains the reduced brightness you are noticing.

Age and minor road damage also play a role. Small stone chips from driving may create tiny fracture points that are not immediately visible. Over time, exposure to heat and UV rays causes these weak spots to spread into larger cracks.

The most likely cause in your situation

In your case, the problem is most likely caused by a combination of prolonged sun exposure, thermal stress from the headlight bulbs, blocked ventilation, and gradual wear from age and road debris. Pressure changes alone are unlikely to be the sole cause but can accelerate the damage.

As for repairs, polishing the lens may improve appearance temporarily if the damage is only on the surface, but it will not stop water leaks or fix internal cracks. If moisture is already entering the headlamp, the best solution is either resealing the unit with new gaskets and cleaning the vents, or replacing the entire headlamp assembly if the internal structure is badly damaged.

To prevent future problems, park under shade whenever possible, avoid using overly powerful aftermarket bulbs, and have the headlamp vents checked and cleaned during routine servicing.