

Model: All

Vehicle System: 17 - Electrical

Region: All

Tech Note: Guidelines for Replacing Exterior Lights due to Water Ingress

Tech Notes are announcements that help to communicate and track new information about Tesla Service concerns. Such concerns may or may not be VIN specific. These instructions assume knowledge of motor vehicle and high voltage electrical component repairs, and should only be executed by trained professionals. Tesla assumes no liability for injury or property damage due to a failure to properly follow these instructions or for repairs attempted by unqualified individuals.

Occasional condensation within exterior light lenses might be present in any vehicle due to changes in atmospheric conditions, and can be intermittent. Condensation is normal and will clear over time. The clearing process is accelerated when the lights are in dry, high temperature environments, and when the vehicle is moving. Water ingress is not normal and can be caused by damage to the light (for example, in the event of an accident) or by a quality issue with the part.

- Certain environmental factors may increase the likelihood of normal condensation, such as a temperature drop at dusk or high humidity in the environment.
- LEDs produce very little heat at the lens surface, which can result in condensation remaining in place longer when compared to traditional bulb lights. LEDs are an important enabler of Tesla's light design.
- Original Equipment Manufacturer (OEM) taillights often use red outer lenses, which may decrease the visibility of normal condensation when compared to clear outer lenses. Tesla taillights feature clear outer lenses to achieve their distinctive look.

Use the information in this document to determine whether the exterior lights exhibit symptoms of normal condensation, which does not require replacement, or water ingress, which does require replacement.

NOTE: Model S taillights have an open-back design. These lights share air with the vehicle cabin. Increased moisture in the cabin for any reason (a water leak, for example) can result in taillight conditions that resemble water ingress, even though the light is intact. Inspect for potential moisture sources (leaking window, liftgate, sunroof, or door seals; a broken or clogged HVAC drain; or an open footwell drain, for example) before replacing Model S taillights. Model X and Model 3 taillights are not impacted by this, as they feature a closed-back design.

Normal Condensation (Acceptable)

The following are signs of normal exterior light condensation; the lights are good and should not be replaced:

- No streaks are present.
- Limited water droplets, if any.

NOTE: In general, if two or more lights show similar levels of condensation, this is likely normal condensation.

Figure 1 and Figure 2 show examples of normal condensation inside the headlight.



Figure 1 Acceptable headlight condensation



Figure 2 Acceptable headlight condensation

Figure 3 and Figure 4 show examples of normal condensation inside the taillight.



Figure 3 Acceptable taillight condensation



Figure 4 Acceptable taillight condensation

Water Ingress (Unacceptable)

The following are signs of exterior light water ingress; the lights are not good and should be replaced:

- Streaks are visible.
- Water droplets are large and widespread.

NOTE: If only a single light is affected, there is an increased likelihood that the issue is water ingress.

NOTE: For Model S taillights, investigate the root cause of the source of ingress before replacing the light.

Figure 5 and Figure 6 show examples of water ingress inside the headlight and fascia (fog) light.



Figure 5 Unacceptable fascia (fog) light water ingress



Figure 6 Unacceptable headlight water ingress

Figure 7 and Figure 8 show examples of water ingress inside the taillights.



Figure 7 Unacceptable taillight water ingress



Figure 8 Unacceptable taillight water ingress

Direct Comparison of Normal Condensation and Water Ingress

Figure 9 shows an example of normal condensation; Figure 10 shows an example of water ingress.



Figure 9 Normal condensation



Figure 10 Water ingress

Replace the Headlights or Taillights

If a headlight or taillight exhibits water ingress, replace the light assembly using the appropriate Service Manual procedure.

NOTE: If the headlight or taillight exhibits normal condensation, the headlight or taillight should not be replaced.

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