
Genie Insights Solar System Aftercare Guide

Your Genie Insights solar system has been designed for use in demanding commercial vehicle environments. As with other vehicle-mounted equipment, appropriate care and periodic visual inspection can help protect the system and identify potential damage at an early stage.

The following guidance sets out Genie Insights' recommended good practice for looking after the solar panel and associated system components throughout their service life.

These recommendations are intended to complement the vehicle owner's existing maintenance, inspection and driver walkaround procedures. Vehicle operators remain responsible for determining appropriate inspection and maintenance arrangements for their vehicles and for carrying out their own risk assessments.

If damage to the solar panel or any associated component is suspected, we recommend that the system is inspected by a suitably competent person and that Genie Insights is contacted for advice where appropriate.

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Vehicle Washing and Solar Panel Care

The solar panels are designed for use in commercial vehicle environments and feature an ETFE surface which helps them remain clean during normal use. In most circumstances, rainfall and normal vehicle washing should be sufficient and no separate routine cleaning of the solar panel is required.

The presence of the solar panel should not prevent the vehicle from being cleaned as part of its normal washing regime. However, as with other externally mounted vehicle components, reasonable care should be taken to avoid cleaning methods which could damage the panel or associated electrical components.

When Washing the Vehicle

We recommend avoiding:

- Abrasive cleaning methods or materials which could scratch, wear or otherwise damage the panel surface.
- Aggressive or caustic chemicals, solvents or acetone on the panel or associated components.
- Any cleaning equipment or process which could catch, lift, snag or physically damage the panel, cables, connectors or other components.

Automatic and Commercial Vehicle Washes

Solar-equipped vehicles may be cleaned using automatic or commercial vehicle washing systems, subject to the suitability of the particular washing equipment and process being used.

As vehicle washing systems vary in their operating pressure, brush type, chemicals and method of operation, vehicle owners/operators should satisfy themselves that the system being used is suitable and will not expose the solar panel or associated components to excessive pressure, aggressive chemicals, abrasive contact or any other treatment likely to cause physical damage.

Any damage resulting from the use of an unsuitable washing or cleaning process is the responsibility of the vehicle owner/operator.

In the event that an automatic or commercial wash is used, drivers should take time to carry out a visual check of the panel and external connectors afterwards to ensure everything looks as it should.

If Additional Panel Cleaning Is Required

Although the ETFE panel surface is designed to help minimise the accumulation of dirt, there may occasionally be circumstances where additional cleaning is beneficial, for example, following extended periods without rainfall or where there is a significant build-up of bird fouling, leaves or other material obscuring the panel.

Where additional cleaning is required, we recommend using clean water and, if necessary, a mild, non-caustic vehicle cleaning solution. Any contact with the panel should be gentle and non-abrasive. Stubborn contamination should be removed carefully without scraping the panel surface, and care should be taken not to pull, snag or disturb any accessible cables or electrical components.

There is no requirement for the panel surface to be kept cosmetically spotless. Cleaning should only be undertaken where necessary and using a method that will not damage the panel or associated components.

Pressure Washing

High-pressure water jets **should not be directed at close range onto the solar panel or directly at associated electrical components**, particularly:

- panel edges;
- junction boxes;
- electrical connectors;
- cable entry points; or
- exposed wiring.

This is particularly important when the nozzle is being used at close range.

In summary: the solar installation should not be subjected to cleaning methods that could physically damage the panel or force water into electrical components or connections.

Driver Walkaround Check

We recommend incorporating a simple visual check of the solar installation into the vehicle's normal driver walkaround inspection.

This is **not intended to be a technical inspection**, and drivers should not climb onto the vehicle or access the roof unless this forms part of an employer-approved safe system of work.

Where the panel or associated equipment can be seen safely from ground level or from an existing approved inspection position, drivers should look for obvious signs of:

- damage to the solar panel;
- lifting or detachment of the panel from the vehicle;
- loose, hanging or damaged cables;
- loose or displaced connectors or components;
- damage caused by impact with trees, branches, loading equipment or other objects; or
- anything else about the installation which appears materially different from its normal condition.

If Damage Is Suspected

If a driver identifies or suspects damage, the issue should be reported in accordance with the operator's normal vehicle defect reporting procedure.

The driver should not attempt to repair, reconnect, remove or otherwise interfere with the solar panel, cables, connectors or charge controller.

As with all roof-mounted equipment, any signs that the solar panel or associated components are no longer securely attached should be reported immediately. **As a precaution, the vehicle should not be driven until the installation has been inspected by a competent person and confirmed as secure.**

Genie Insights can be contacted for advice.

Periodic / Annual Solar System Inspection

In addition to routine driver observations, Genie Insights recommends that the solar installation is inspected periodically by a suitably competent person.

For commercial vehicles, this could conveniently be incorporated into an existing scheduled maintenance or annual inspection programme rather than requiring a separate maintenance visit.

The inspection should include, where applicable:

Solar Panel

Inspect the overall condition of the panel, checking for:

- visible physical damage;
- damage to the panel surface;
- signs of delamination;
- lifting or loss of adhesion between the panel and vehicle surface; and
- damage around the panel edges, junction box or cable exit points.

If any part of the panel is no longer fully adhered to the vehicle or there are signs of delamination, contact Genie Insights for advice.

Connectors

Inspect the MC4 solar panel connectors and confirm that:

- positive and negative connections remain secure (this can be assessed via a simple tug test on both connectors);
- connectors show no obvious physical damage;
- there are no signs of water ingress or corrosion; and
- associated cables remain appropriately secured.

Cabling

Inspect accessible solar system cabling, including cables running to and from the charge controller.

Check for:

- chafing;
- cuts or abrasion;
- damaged insulation;

- loose or unsupported cables;
- evidence of cables being trapped, stretched or pulled; and
- deterioration or damage to protective sleeving or heat shrink.

Battery Connections

Where the system is connected to an auxiliary or vehicle battery, inspect accessible connections and check that:

- cable connections remain secure;
- there is no obvious corrosion; and
- protective heat shrink and insulation remain correctly positioned and undamaged.

Fuse and Fuse Holder

Inspect the fuse and fuse holder for:

- correct fitment;
- damage;
- corrosion;
- overheating or discolouration; and
- deterioration of the fuse holder or associated wiring.

The correct fuse rating should be confirmed against the specification applicable to the particular solar installation.

Charge Controller

If accessible, inspect the general condition and security of the solar charge controller and its connections.

Check for:

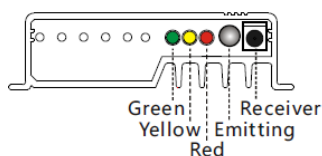
- physical damage;
- loose connections;
- damaged wiring;
- corrosion or evidence of moisture ingress;
- abnormal heat damage or discolouration; and
- any abnormal warning or status indication.

Please note: on an LCV, the charge controller is typically fitted behind the glovebox.

Where the charge controller incorporates LED status indicators, Bluetooth monitoring or another diagnostic function, its operating status should be checked against the instructions applicable to that controller.

Ensure LED on charge controller module is displaying correct status:

9.LED indicators, Faults & Alarms



9.1 LED Display Explanation

LED	Status	Function
Green LED	On	Not charged
	Flash fast(0.1/0.1s)	MPPT charging
	Flash(0.5/0.5s)	Equal or Boost charging (Gel, Liquid or AGM)
	Flash slowly(0.5/2s)	Charging
Yellow LED	Off	Over voltage protection
	On	Battery is normal
	Slow flash(0.5/2s)	Battery voltage is low
	Fast flash(0.1/0.1s)	Low voltage protection
Red LED	On	Work normal
	Off	The output power is 0.
	Flash(0.5s/0.5s)	Over temperature
	Fast flash(0.1/0.1s)	Short circuit or over current protection *

* Detailed fault information can be read by S-Unit remote controller.

PLEASE NOTE: Some controller types may differ, particularly on larger solar array systems, but the instructions above relate to the majority of controllers fitted to Genie Insights' 50w HV solar systems. If you require any advice regarding LED indicators for an alternative system, please contact Genie Insights.

How to Download Charge Controller Data & Review Performance

Watch video below or [click here](#) to access:



Electrical Performance

Where appropriate, the operation of the solar system should be checked by a suitably competent person using appropriate electrical test equipment.

Expected voltages and test procedures will depend upon the solar panel, charge controller, battery voltage and system configuration installed on the particular vehicle and should therefore be checked against the relevant system specification.

Where monitoring or downloadable charge-controller data is available, this may also be reviewed to identify abnormal operation or changes in system performance.

Accidental Damage and Vehicle Repairs

The solar panel should be treated in the same way as other externally mounted vehicle equipment when assessing accidental or environmental damage.

We recommend inspecting the solar installation following any event which could reasonably have affected the panel or associated components, including:

- roof or body impact;
- collision damage;
- contact with trees, branches or overhead objects;
- damage to the area of the vehicle through which solar cabling is routed;
- significant body or roof repairs; or
- other work which may have disturbed the panel, cabling or electrical connections.

If bodywork, refrigeration equipment, batteries or other equipment associated with the solar installation is being repaired or replaced, the repairer should be made aware that a solar system is fitted before work begins.

The solar system should be disconnected prior to any work commencing.

Do Not Modify the Solar Installation

We recommend that the solar panel, charge controller, wiring, connectors, fuses or other components are not modified, disconnected, relocated or replaced without appropriate technical advice.

Unauthorised changes may affect the operation, safety or warranty status of the system.

If modifications to the vehicle are planned which may affect the solar installation, please contact Genie Insights for advice beforehand.

When to Contact Genie Insights

Please contact Genie Insights if you identify or suspect:

- panel lifting or loss of adhesion;
- delamination or significant panel surface damage;
- damaged or loose electrical connectors;
- damaged, cut or heavily chafed wiring;
- corrosion or evidence of water ingress;
- damage to the charge controller;
- repeated fuse failure;
- abnormal charge-controller warnings;
- an unexplained reduction or loss of solar charging; or
- any other condition where the integrity of the solar installation is uncertain.

Where possible, photographs of the panel (including one showing the serial number sticker) and affected components can help us assess the issue and advise on the appropriate next steps.

For further assistance, please Genie Insights on:

Tel: +44 28 9360 3683

Email: info@genieinsights.com

Important

This guide provides Genie Insights' recommended good practice for the care and inspection of an installed solar system. It does not replace the vehicle manufacturer's instructions, the requirements of individual component manufacturers, statutory vehicle inspection requirements, workplace risk assessments or an operator's own maintenance procedures.

The vehicle owner/operator remains responsible for the operation, inspection, cleaning and maintenance of the vehicle and for determining whether its chosen cleaning and maintenance processes are suitable. If you are unsure whether a particular cleaning, maintenance or repair process is appropriate for a Genie Insights solar installation, please contact us before proceeding.

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