

# Visual Inspection Work Instruction

## Safety Notes

Enhanced Safety Notes — HV Battery Underside Inspection (Model 3 / Model Y)

Applicable Models: Model 3 & Model Y (Non-Structural HV Battery Packs)

### **High Voltage Awareness**

HV batteries contain up to 400V DC. Direct contact can result in serious injury or death.

Only technicians certified in HV safety should perform inspections.

### **Personal Protective Equipment (PPE)**

Wear Class 0 (1000V rated) electrical gloves with leather over-gloves.

Use safety glasses, long sleeves, and insulated footwear during inspections.

### **Pre-Work Preparation**

Complete battery HV Disablement Procedure before starting work.

Review vehicle history for prior alerts or service entries involving battery or impact damage.

Familiarize yourself with Emergency Response Guide.

### **Work Environment and Lifting**

Use a certified battery lift with all safety locks engaged.

Ensure the area under and around the vehicle is dry and free from conductive materials.

Use adequate lighting to identify corrosion, fluid leaks, or structural damage.

### **Hazard Identification**

Do NOT touch or probe any damaged, ruptured, or leaking battery components.

If thermal event indicators (smoke, burnt smell, heat, melted parts) are observed:

Do NOT energize the battery.

Evacuate the work area and notify a HV specialist immediately.

Refer to Tesla's Thermal Event Response procedure.

### **Prohibited Actions**

Do NOT attempt to open the HV battery pack.

Do NOT drive or deliver a vehicle with visible HV damage without engineering authorization.

Do NOT apply power, perform diagnostics, or connect chargers until battery safety is confirmed.

### **Documentation and Escalation**

Photograph and measure all identified damages.

If damage breaches the enclosure or reveals internal components, escalate to engineering and recommend immediate replacement.

### **Emergency Response for Thermal Events**

If signs of escaping gases, smoke, flames, excessive heat, sparks, or arcing are present:

Contact the local emergency department.

Refer to the Emergency Response Guide (TN-13-16-007 R2).

Gases or smoke exiting a lithium-ion HV battery are likely flammable and could ignite at any time. Avoid contact with escaping gases; vent gas temperatures can exceed 600°C.

## **Storage and Handling of Damaged Batteries**

Store damaged HV batteries at least 15 meters away from flammable materials, structures, other vehicles, and other HV batteries.

Avoid storing standalone HV batteries below -20°C or for over 10 days above 35°C.

Do NOT charge or discharge a standalone HV battery below 0°C.

Do NOT store standalone HV batteries for over 30 days at full state of charge (SOC) or completely discharged.

Do NOT charge a damaged or potentially unstable HV battery.

Do NOT weld near HV batteries

Remember: High voltage safety is paramount. Adherence to these guidelines ensures the safety of personnel and the integrity of the vehicle.

# Visual Inspection Work Instruction

This sheet supports consistent, location-based documentation of damage on top, bottom, and side views of the battery pack.

## 1. Battery Area Identification

Use grid coordinates to indicate the exact location of observed damage:

Top View Grid: A1-K7

Bottom View Grid: A23-K31

Side View Grid: (Front: A8-A16, Rear: K32-K39)

## 2. Damage Classification Guide

Damage Type	Description	Critical Tolerance
<b>Scratch / Abrasion</b>	Surface-level damage caused by scraping, gouging, or rubbing action. May appear as linear marks, exposed base metal, or scuffed coating. Important to assess whether protective layers or seals are compromised.	Damage that impacts IP ratings = Moderate. Breach of enclosure = Critical
<b>Dent</b>	Local surface deformation not penetrating casing	Contact with modules / structural = Critical Deformation > 2mm = Moderate
<b>Crack</b>	Linear fracture with or without penetration	Any visible crack = Critical
<b>Hole / Puncture</b>	Visible breach of metal casing (open to air or moisture ingress)	Any through-hole = Critical
<b>Corrosion</b>	Rust/oxidation; often brown or white powdery residue.  Any evidence submersion, corrosion identification on nickel plated components such	>10 mm <sup>2</sup> area or active flaking = Major Submersion evidence (corrosion of nickel surfaces) = Critical.
<b>Fluid Leak</b>	Coolant/electrolyte presence; visible fluid or stains	Any leak = Critical
<b>Thermal Damage</b>	Burn marks, melted surfaces, discoloration, or blistering	Any evidence = Critical
<b>Loose/Missing Fastener</b>	Mounting bolt or screw loose, absent, or backed out	Impact on IP rating = Moderate Structural = Critical
<b>Other</b>	Describe in Notes	Use best judgment + escalate if unclear

### 3. Preliminary Risk Level

Risk Level	Description	Action
Low	Cosmetic only; within tolerance	Document.
Moderate	Outside tolerance but <b>no</b> breach/heat/leak signs	Engineer review / risk assessment.
Critical	Penetration, fluid loss, thermal, or corrosion breach	Escalate immediately / quarantine.

### 4. Post-Inspection Checklist

- Grid locations of all findings recorded
- Photos captured and uploaded
- Risk level assessed for each damaged area
- Recommendations provided or escalated

### 5. Visual Inspection of HV Battery Underside

- Dents, Holes, Cracks, or Tears: Look for any physical deformities.
- Corrosion or Moisture Accumulation: Check for signs of water ingress or rust.
- Thermal Event Indicators: Identify smoke residue, discoloration, deformation, melted seals, metallic splatter, or abnormal odors.
- Rupture or Disassembly: Ensure the battery enclosure is intact.
- Coolant or Electrolyte Leakage: Look for any fluid leaks.

### 6. Photographic Documentation


High-Resolution Images: Capture clear photos of any identified damage.

Measurement Documentation: If damage isn't visibly open, measure and record the depth of the enclosure damage.

### 7. Damage Assessment and Recommendations

- Minor Damage: If damage is superficial (e.g., minor dents without enclosure breach), document and monitor.
- Significant Damage: For breaches, significant dents, or compromised components, quarantine for battery for disposal.

## 2. Inspection Findings Table

 Reminder: All damage must be photographed and uploaded to the session. Include a ruler or reference object when possible.

Battery SN: TG323092000XJK - 'Bessie'

Part Number: 1666969-00-D

Inspection Date: 03/06/2025

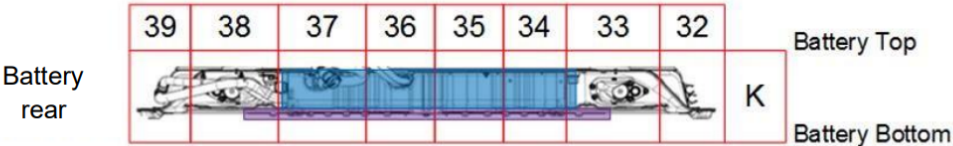
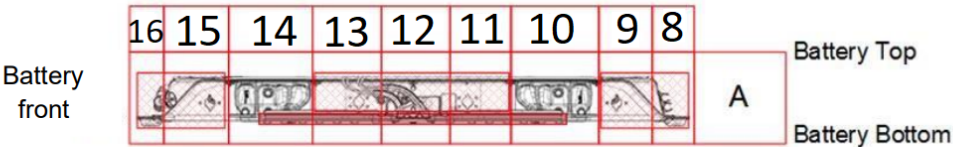
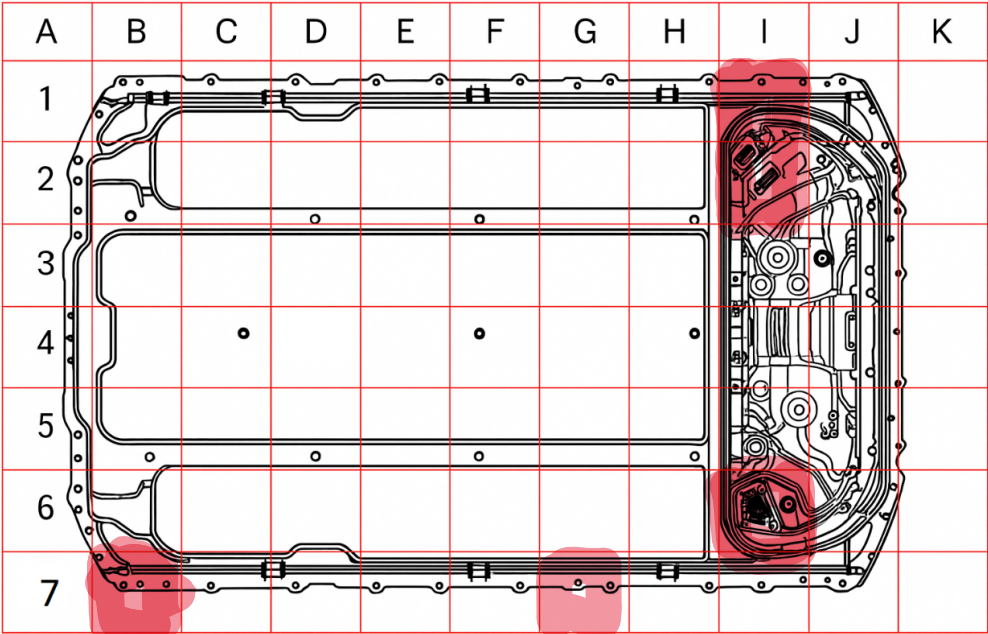
Inspector: Sam Hamilton-Smtih

View Type	Grid Location	Damage Type	Risk Level	Notes / Photos
Top	i1	Dent	Moderate	The penthouse enclosure has sustained damage during removal from the vehicle. No damage to internal components.
Top	i2	Dent, Scrach	Moderate	The interface between the sealing surface has been compromised and outdoor sikaflex has been used to maintain IP
Top	i6	Dent	Moderate	As per i1 and i2. Slight change in form of the penthouse enclosure. No damage to internal components, sikaflex used to ensure IP.
Top	i6	Crack	Moderate	DC charging port baseplate is cracked from contact with car chassis during battery removal.
Top	B7	Dent, Abrasion	Low	Cosmetic dent and abrasion.
Bottom	J31	Abrasion	Low	Abrasion at jacking point.
Bottom	J23	Abrasion	Low	Abrasion at jacking point.
Top	G7	Abrasion	Low	Abrasion at outer bolt hole.

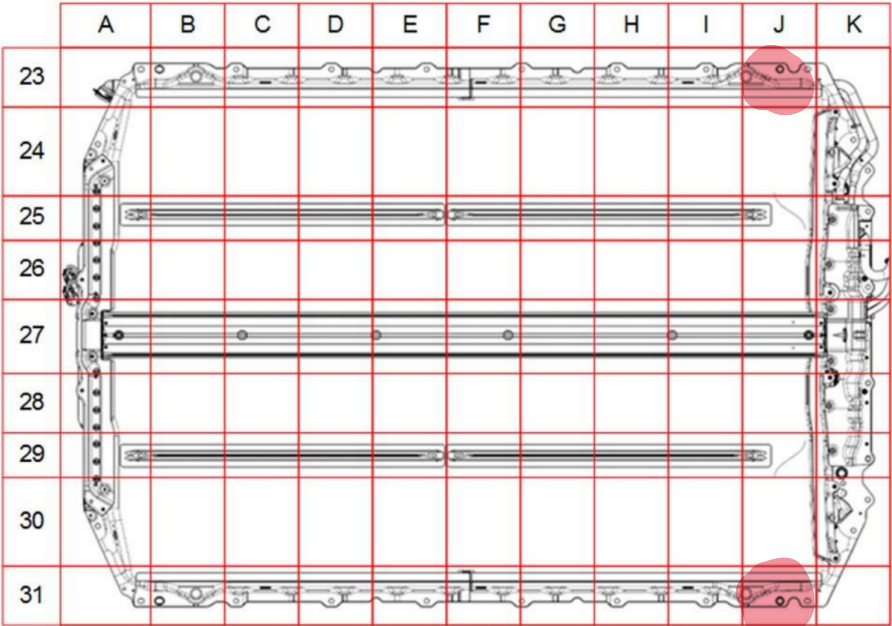
Battery is a suitable candidate for function testing.



**Battery Top**



**Battery Bottom**





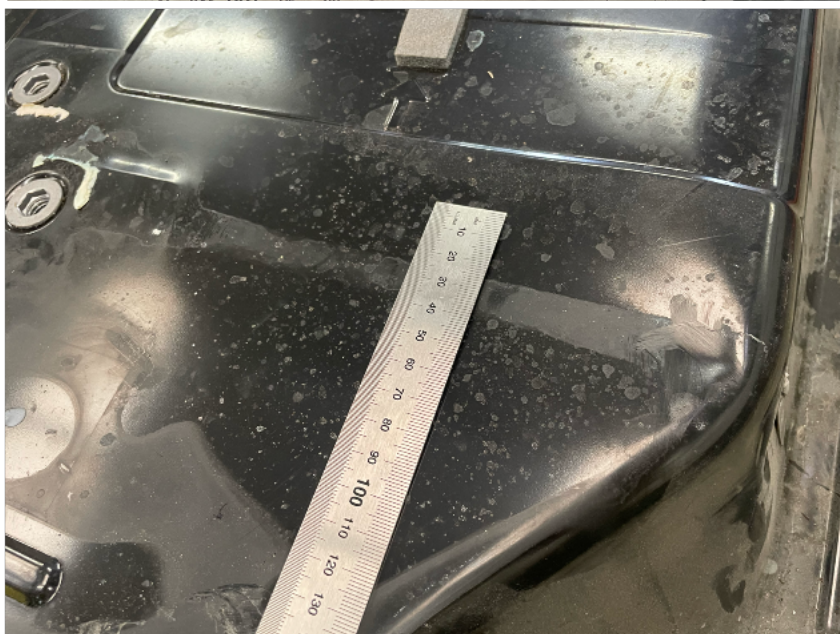
### Assessment Summary Findings



damage at i1  
after sika flex repairs.  
considered cosmetic  
warranty retained.

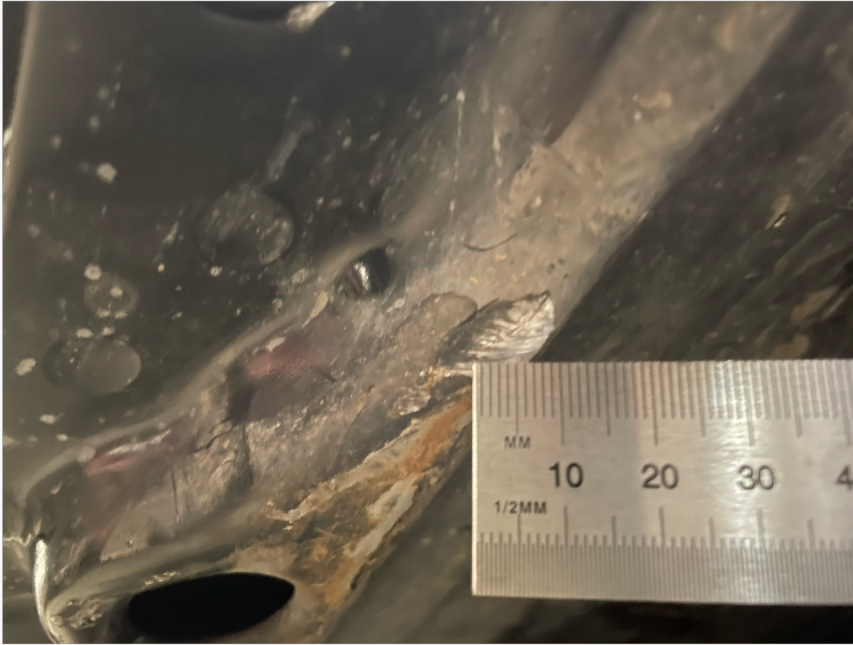


damage of i6  
after sika flex repairs  
considered cosmetic  
warranty retained.

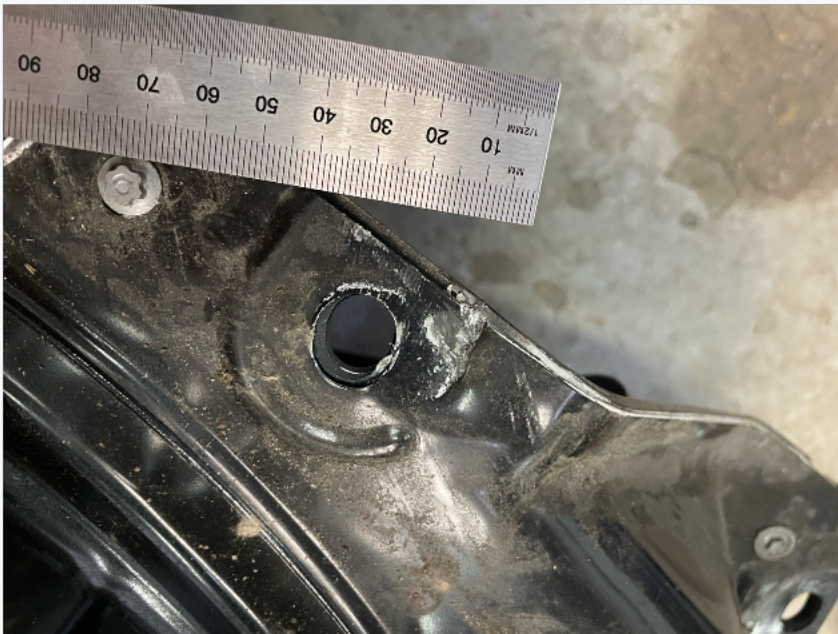


B7 cosmetic damage





J23 & J31 at  
lifting points  
cosmetic.



G7 abrasion