

Hybrid & EV Cheat Sheet

We solve hybrid electric vehicle problems all day, every day. We specialise in high voltage batteries, inverters, and electric motors. Our goal is to get your customer back on the road as quickly as possible, with the peace of mind that only exceptional customer service and a quality product with 3-year warranty can offer. That's why we're sharing our internal cheat sheet with you.

Our replacement batteries are true plug-and-play: they come fully assembled with all the components required to make them work. No extra wiring, no extra purchases, no hassle. It's almost impossible to do something wrong. Plus our team of hybrid specialists are ready to help Australia-wide. Give us a call on **0439 360 360**

BATTERY TYPES

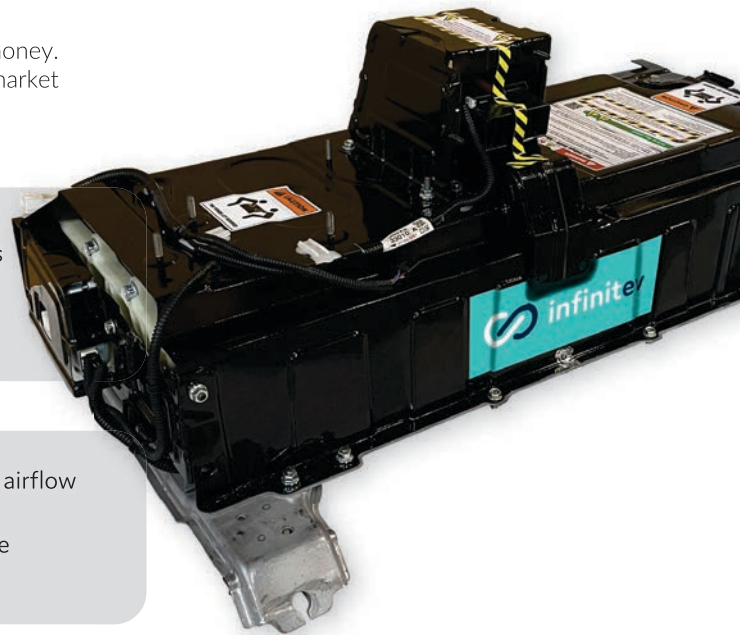
Our range of rebuilt replacement batteries offers outstanding value for money. In some cases, we also offer a replacement battery made from new aftermarket cells for high-intensity applications like rideshare vehicles.

REBUILT

- Uses high quality used modules
- Environmentally friendly
- Cost Effective

NEW AFTERMARKET

- Improved design with increased airflow
- Maximum life
- Ideal for commercial vehicles like taxi and rideshare



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OUR BATTERY EXPERTS ARE HERE TO HELP.

Call us for advice on selecting the best battery for you customers, or tech support on how to safely replace batteries.

Call us on **0439 360 360**.

SERVICING

Moving an EV

Driven wheels must be off the ground as the electric motors can generate a current.

- If HV system *enabled*: use flatbed truck
- If HV system *disabled*: use wheel dollies at walking pace
- Disable vehicle when encountering high voltage components
- Ensure cabling is not pinched when using hoist

For HEV such as a 50 series Toyota Camry hybrid the maintenance items are listed below:

- Clean hybrid battery air intake filter
- Check inverter reservoir water level
- Check inverter coolant quality
- Check inverter water pump functions correctly

Maintenance mode for Toyota and Lexus vehicles

1. Hit the power button twice without your foot on brake pedal to get the vehicle to IG on (Ready off)
2. Press throttle pedal to floor (full throttle), release and push throttle pedal to floor again (2 times total)
3. Put vehicle into neutral
4. Repeat step 2 by pushing throttle pedal twice
5. Put vehicle into park
6. Repeat step 2 by pushing throttle pedal twice
7. Vehicle should now show the message 'maintenance mode'. Put your foot on the brake pedal and hit the power button once to get vehicle into 'ready' mode. The combustion engine will now continually run; **the High Voltage system is still live!**

If you do not have the appropriate experience, training, proper tools and safety equipment or access to authorised original equipment service information, please do not attempt to replace the battery in your hybrid or electric vehicle.

Improper handling may result in serious injury.

You can always contact us on **0439 360 360** or hello@infinitev.au for tech support.

HOW TO DISABLE AN EV

1

Disconnect
12 Volt Battery

2

Disconnect
Service Plug

3

Wait at least
10 minutes

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OTHER KEY COMPONENTS

Service Plug: If it's not plugged in correctly, you will have a P0A0D fault code. The service plug will disable the battery and isolate the battery from the high voltage system. Even with the service plug out, a battery should always be treated as live and tested before conducting work.

ABS System: Brakes on a hybrid vehicle work differently to a traditional vehicle as they utilise regenerative braking. The 'pressure' that is applied to the brakes is supplied by an accumulator with an electric motor. The accumulator is responsible for generating the pressure, the master cylinder unit is responsible for distribution to the relevant wheels. This system needs to be free of leaks, have a strong pump motor and be programmed correctly. Common ABS codes are listed in the common codes section. Best to call Infinitev and we can step you through your specific issue. We can rebuild the ABS systems for you as well.

Transmission: Don't leave vehicles that are turned on in neutral; the battery will go flat. The combustion engine will have no way to charge the battery if the vehicle is in neutral. This may be an issue when moving vehicles onto hoists.

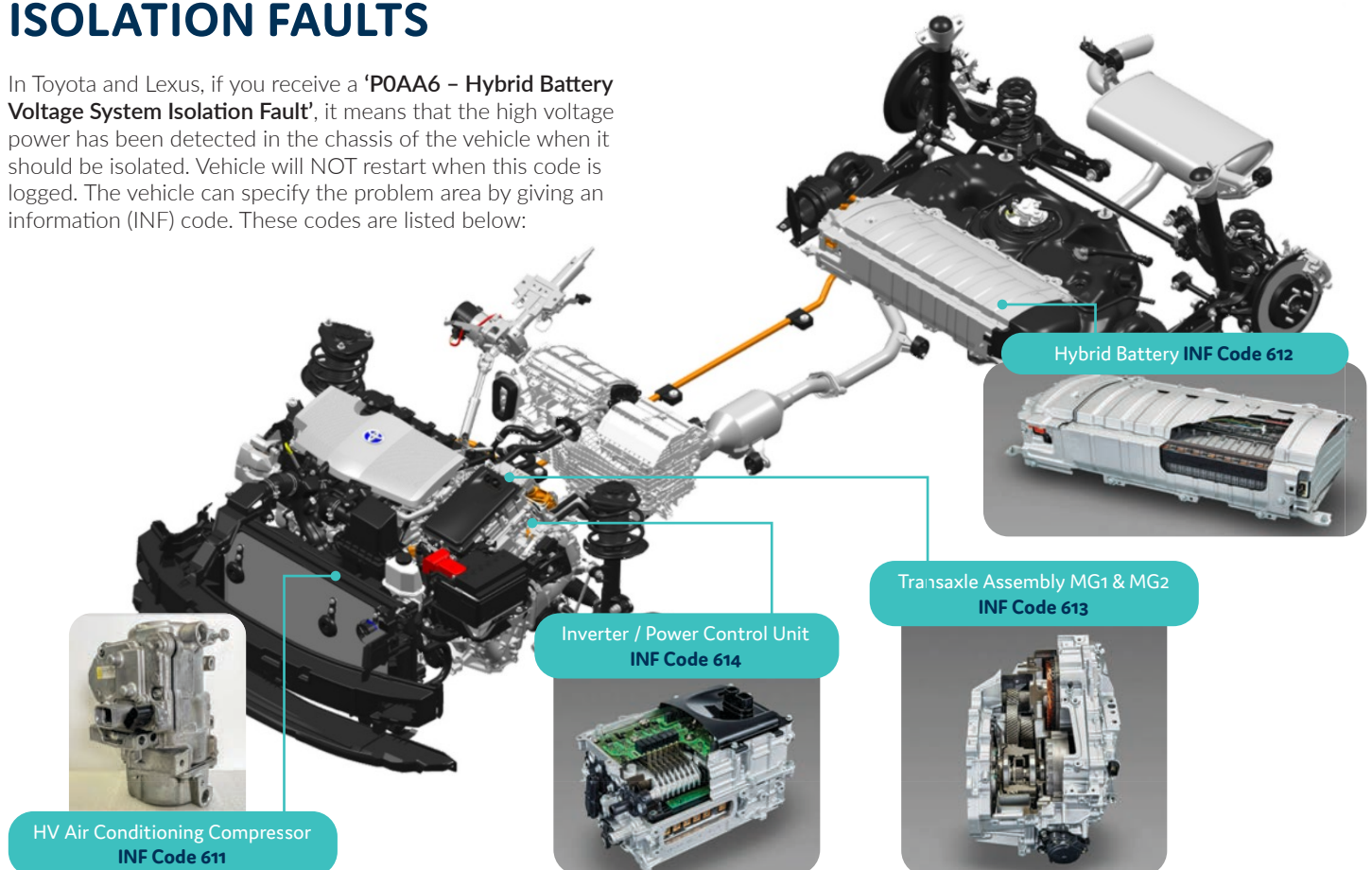
Battery Corrosion: When researching batteries, many people suggest that cleaning the battery corrosion of the terminals will fix the battery. Corrosion makes little difference to the overall performance of the pack. Vehicles from 2010 or newer, rarely have issues caused by battery corrosion.

Air-Conditioning System: Hybrid and EV air con systems are high voltage! Disable the vehicle before touching these systems.

12 Volt Battery: Depending on vehicle make, the 12-volt battery may not be responsible for starting the combustion engine. All Toyota and Lexus vehicles use the hybrid battery to start the car. It is important to remember this when running vehicle diagnostics.

ISOLATION FAULTS

In Toyota and Lexus, if you receive a 'P0AA6 - Hybrid Battery Voltage System Isolation Fault', it means that the high voltage power has been detected in the chassis of the vehicle when it should be isolated. Vehicle will NOT restart when this code is logged. The vehicle can specify the problem area by giving an information (INF) code. These codes are listed below:



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COMMON CODES



BATTERY CODES

- P0A80** **Replace Hybrid Battery Pack**
Likely a battery; if other codes present, could be a consequential code. Call Infinitev for advice.
- P0A0D** **High Voltage System Interlock High**
Check service plug connector.
- P3000** **HV Battery Malfunction**
High level code, diagnose other codes first.
- P0A7F** **Hybrid Battery Pack Deterioration**
More common in early vehicles, call Infinitev for further explanation.



INVERTER CODES

- P0A93** **Inverter Cooling System Performance**
Commonly the water pump, Infinitev supplies water pumps for some hybrid vehicles, call to check your vehicle model.
- P0A94** **DC/DC Converter Performance**
This code comes up in a few different vehicles, each vehicle has a common problem area. Call us with the vehicle model, symptoms and sub codes to allow us to point you in the right direction.



ABS CODES

- C1252** **Brake Booster Pump Motor Time Abnormally Long**
Check ABS Pump Motor, Infinitev can rebuild these.
- C1256** **Accumulator Low Pressure**
Check ABS Pump Motor, Infinitev can rebuild these.
- C1391** **Abnormal Leak of Accumulator Pressure**
Likely a master cylinder, call Infinitev for testing procedure.
- C1392** **Stroke Sensor Zero Point Calibration Undone**
Requires recalibration, procedure in ABS ECU.



ENGINE CODES

- P0A0F** **Engine Failed to Start**
This code will usually be accompanied by some other powertrain codes, diagnose them first. Do not continually start the vehicle as you are draining the hybrid battery!
Call Infinitev for help.
- P261B** **Coolant Pump B Control Malfunction**
Check engine water pump assembly. If re-fitting, care should be taken to ensure the water pump is square and evenly fitted.