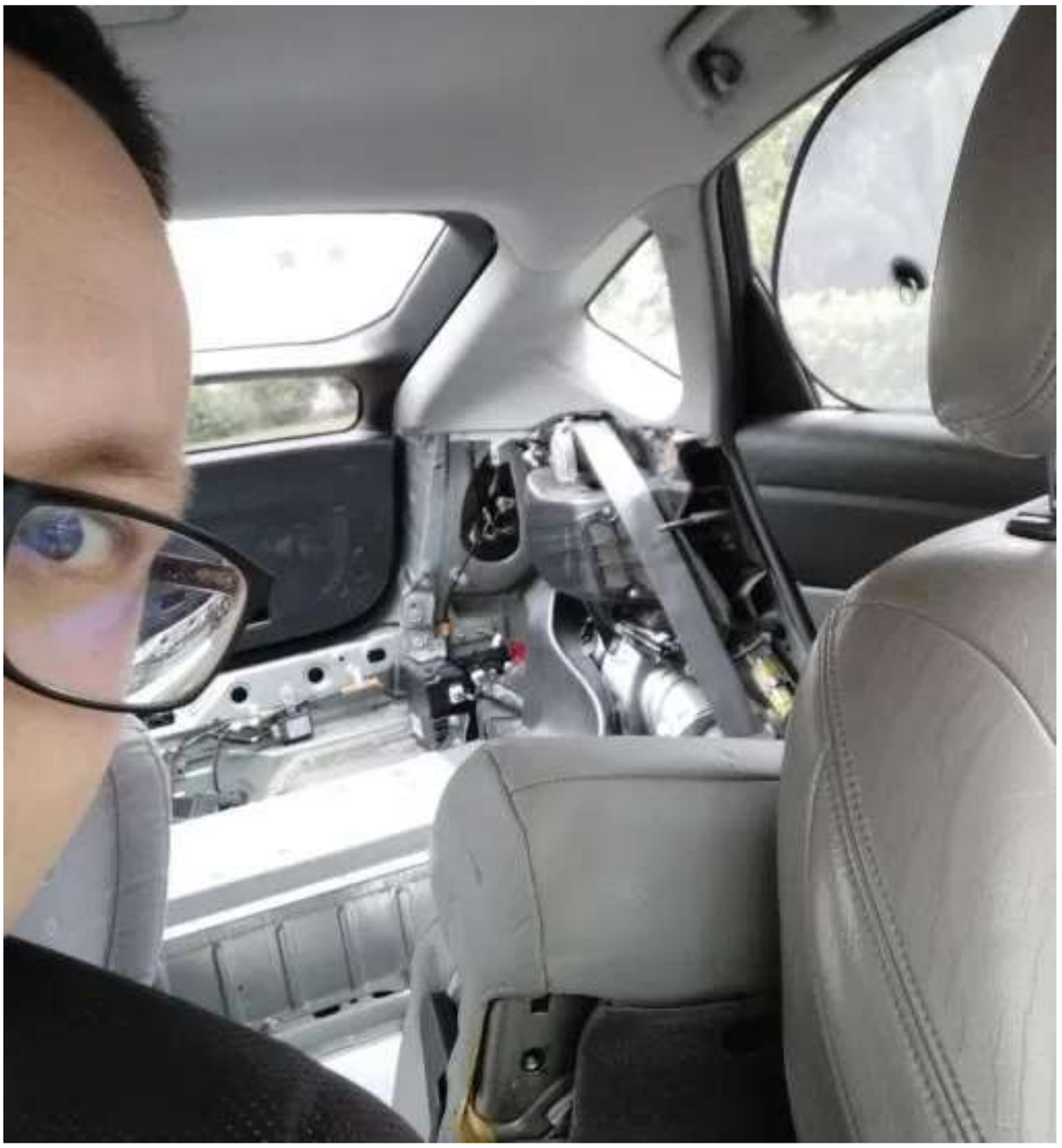
Mindaugas Markauskas

Hobbies and discoveries I want to share with everyone

Prius Gen2 - great HV battery repair / s

4 **06** 2019

Almost 5 years ago, I switched (https://mindogas.wordpress.com/2015/01/09/kaip-rinkausi-automobili/) to the 2007 T oyota Prius hybrid (https://mindogas.wordpress.com/2015/01/09/kaip-rinkausi-automobili/) . At the time, everyone around me was wondering what I would do when that luxury battery went away, and of course I told everyone that the thing was reliable and that its price would be used as a diesel clutch, and maybe even a nozzle change. Well it's time to see with your own eyes how here really is.



(https://mindogas.files.wordpress.com/2019/06/img_20190526_142957.jpg

What happens when the HV battery fails

First there is a big exclamation point on the panel like what just happened to me:

(https://mindogas.files.wordpress.com/2019/06/img_20190524_075958.jpg

What then? Well then we drive like we did. A day, maybe two. Then the car doesn't like it at all anymore and the HV battery stops charging, its charge level drops to a minimum of 30proc (i.e. one red bar on the LCD screen), and stays there until we clear the errors on the computer. At that time, the car uses a petrol engine for everything, and in doing so, it is not caught and therefore runs up to 50km / h in about 20 seconds and the like. In order to be able to drive normally, you can clear bugs every few minutes and roll around the city in the hope that the "grandfather" mode will not start, but it is a bit dangerous as we will see later.

Diagnosis

When the OBD2 is switched on in the phone, we see an error which, as it turns out, later sends to replace the HV battery:

(https://mindogas.files.wordpress.com/2019/06/screenshot_20190521-125039.jpg)

Looking at the HV battery data we see that something is wrong with the 7 module. when charging the battery it shows a slightly higher voltage of 17.9V, where the rest is about 17.6V:

(https://mindogas.files.wordpress.com/2019/06/screenshot_20190524-191841.jpg)

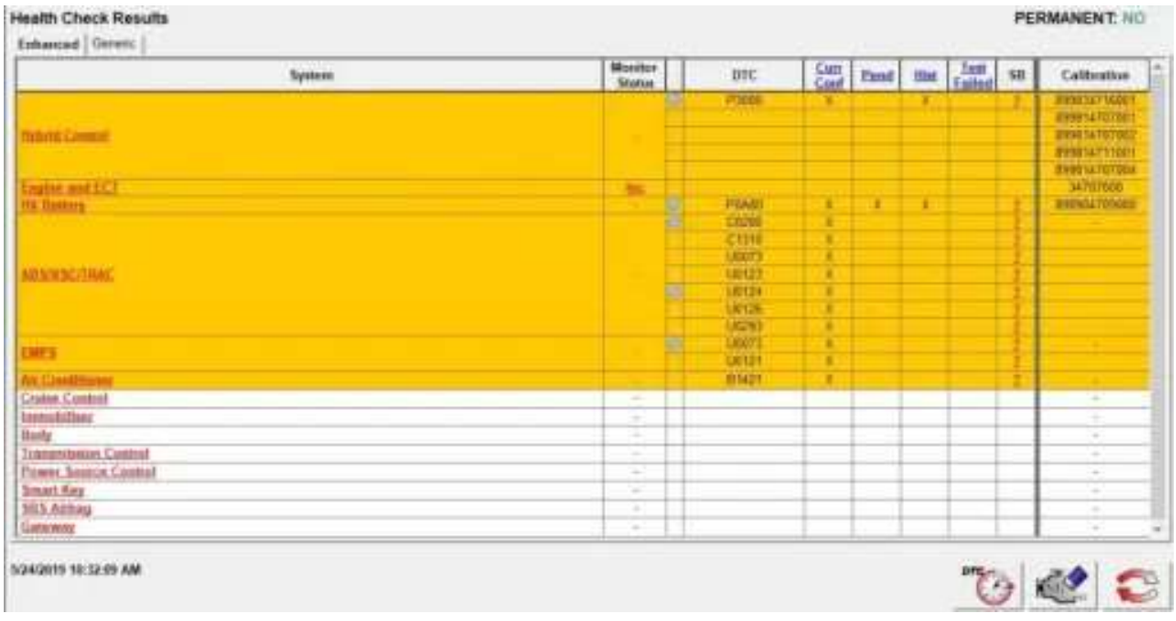
When charging is complete, the situation is fully visible, as now this module in the idle state becomes the weakest, 15.3V, where others have 16.5-16.6V:

(https://mindogas.files.wordpress.com/2019/06/screenshot_20190524-192403.jpg)

Here we have a 1.3V difference at rest, and a red triangle is thrown when a 2V difference between the highest and lowest voltage modules is reached a couple of times. Of course it will be here. The conclusion is that one of the modules in pair 7 died.

Note the HV battery temperatures as well. They reach over 52 degrees, the battery ventilation fan is currently running at 5. And that's not the end, the temperature rises to 55 and above while driving, and the fan starts running in the most powerful 6 mode. For these reasons, as I mentioned earlier, driving such a car for longer distances becomes dangerous.

Everything can be seen in more detail when the computer is connected. There are more errors here, but most of them occur in conjunction with system voltage faults:



(https://mindogas.files.wordpress.com/2019/06/c32ccb7f-4b29-429b-9e7f-7216b4b4375e.png.jpg)

The worst here will be this:

Diagnostic Code:

	Code	Description	Current	Pending	History	Permanent	Summary
	P0A80	Replace Hybrid Battery Pack	X	X	X		

(https://mindogas.files.wordpress.com/2019/06/f41f6aad-08ac-4883-b14b-468d68ef2df9.png.jpg)

Here's a look at what's going on with the HV battery:

Parameter	Value	Unit	Parameter	Value	Unit
Engine Coolant Temp	94	C	Battery Block Num	14	
Engine Revolution	860	rpm	Batt Block Minimum Vol	15.04	V
Vehicle Spd	0	km/h	Minimum Batt Block No	7	
Engine Run Time	460	s	Batt Block Max Vol	16.59	V
+B	14.130	V	Max Battery Block No	1	
DTC Clear Warm Up	0		Battery Block Vol -V01	16.56	V
DTC Clear Run Distance	0	km	Battery Block Vol -V02	16.44	V
DTC Clear Min	0	min	Battery Block Vol -V03	16.47	V
MIL on Engine Run Time	5	min	Battery Block Vol -V04	16.43	V
MIL Status	ON		Battery Block Vol -V05	16.47	V
Mileage after Malfunc	0	km	Battery Block Vol -V06	16.44	V
Battery State of Charge	48.5	%	Battery Block Vol -V07	15.99	V
Delta SOC	36.5	%	Battery Block Vol -V08	16.47	V
Batt Pack Current Val	2.56	A	Battery Block Vol -V09	16.48	V
Inhaling Air Temp	27.4	C	Battery Block Vol -V10	16.43	V
VMF Fan Motor Voltage	5.0	V	Battery Block Vol -V11	16.41	V
Auxiliary Battery Vol	14.9	V	Battery Block Vol -V12	16.48	V
Charge Control Val	0.0	KW	Battery Block Vol -V13	16.48	V
Discharge Control Val	10.5	KW	Battery Block Vol -V14	16.53	V
Cooling Fan Mode	5		Internal Resistance R01	0.019	ohm
ECU Control Mode	0		Internal Resistance R02	0.019	ohm
Charge Control Signal	ON		Internal Resistance R03	0.019	ohm
Equal Charg Out Rly Sig	OFF		Internal Resistance R04	0.019	ohm
EQTR Charge Perm Sig	OFF		Internal Resistance R05	0.019	ohm
Standby Blower Request	OFF		Internal Resistance R06	0.019	ohm
Temp of Batt TB1	10.7	C	Internal Resistance R07	0.019	ohm
Temp of Batt TB2	14.8	C	Internal Resistance R08	0.019	ohm
Temp of Batt TB3	49.8	C	Internal Resistance R09	0.019	ohm

(https://mindogas.files.wordpress.com/2019/06/096d6438-a7f9-4e98-850b-cbd321e1df14.png.jpg)

Parameter	Value	Unit
Internal Resistance R10	0.019	ohm
Internal Resistance R11	0.019	ohm
Internal Resistance R12	0.019	ohm
Internal Resistance R13	0.019	ohm
Internal Resistance R14	0.019	ohm
Battery Low Time	0	
DC Inhibit Time	0	
Battery too High Time	0	
Hot Temperature Time	0	
Compliance Regulation	OBD2	
Emission DTC Num	2	
The Stored DTC Num	1	
Calculate Load	33.7	
Throttle Position	14.8	%
Complete Parts Monitor	Avail	
Component Monitor CMPL	Complete	
Component Monitor ENA	Enable	

(https://mindogas.files.wordpress.com/2019/06/54a38e5a-4b5f-4b8c-a081-72f3427e9fb0.png.jpg)

Here we see that module 7 has a lower voltage, but there is still additional information. E.g. 36.5proc Delta SOC tells us what the percentage difference is between the pair of most charged battery modules and the least. You can also see that although a level 5 cooling

fan is blown into the battery, the incoming 27.4 temperature air is not enough to cool the modules, which heat up to 54.8 degrees in the central part, where there is that 7 pair.

For fun, I found a phone picture taken after a recent purchase of a Prius (https://mindogas.wordpress.com/2015/06/15/antrasis-automobilis-toyota-prius-gen2/) :

(https://mindogas.files.wordpress.com/2015/06/wpid-wp-1433662248565.jpeg)

I don't remember how much was driven before the photo was taken, but we see a 7 pair here is good, the temperature is normal and the Delta SOC deviation is 0 percent.

Correction number 1

The first thing I decided to do was at least look at what was going on inside that battery. I won't go into much detail about the disassembly itself, if anyone disassembles let it resemble Youtube or something. I will give just a few details.

So, in the trunk of the car you first need to remove the entire interior:

(https://mindogas.files.wordpress.com/2019/06/img_20190524_185654.jpg

And when it comes time to disconnect the HV service connector and the HV wires themselves, it's worth thinking about gloves for working with high voltage:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_183406.jpg

Yes, a person who knows what they are doing (or maybe just doesn't understand what they are doing) will do without them, but don't forget that you are working with potentially ~ 210V DC. I had up to 500V

gloves with check. If without inspection - I would recommend 1000V gloves. To make the work comfortable, I advise you to put cotton (white in the picture) gloves on your hands under the rubber so that we sweat less and if we sweat more comfortably it will be removed and put on the rubber. On top of that, I advise you to put on even thin, turned leather gloves (dark in the photo) to protect her rubber gloves from sharp metal corners. Also, the use of gloves is not always necessary, but only when disconnecting the HV wires and later when unscrewing the battery modules.

Soon the battery had already been removed and taken to the basement for further dismantling:

(https://mindogas.files.wordpress.com/2019/06/img_20190524_213335.jp

The first interesting thing about disassembling the battery itself is whether the cells in it have not been changed and how old it is:

(https://mindogas.files.wordpress.com/2019/06/img_20190525_121500.jp

Here we see each module starts with 12ZG, which means 12-12-2005 (source: https://priuschat.com/threads/hv-battery-date-code.198957/ (https://priuschat.com/threads/hv-battery-date-code.198957/)). Served for 14 years.

Inside, I still found what I was hoping for, the terminals connecting the fairly strongly oxidized modules:

(https://mindogas.files.wordpress.com/2019/06/img_20190524_214234.jp

Copper terminals are used here for better resistance, which do so in the presence of moisture. Stainless steel contacts would be perhaps better here, but its electrical properties are poor. So I put on the protective gloves again and disconnect everything:

(https://mindogas.files.wordpress.com/2019/06/img_20190525_093441.jpg

I still saw the voltage of each module and for some reason I didn't see much disconnection, I was hoping at this point that it would only be enough to clean the contacts. I cleaned them with a solution of hydrogen peroxide and hydrochloric acid used for PCB etching:

(https://mindogas.files.wordpress.com/2019/06/img_20190525_094120.jp

After just 15 seconds of rinsing, it was enough to remove plaque:

(https://mindogas.files.wordpress.com/2019/06/img_20190525_094302.jp

Then I neutralized the acid with baking soda and with 400 sandpaper I further cleaned the plates:

(https://mindogas.files.wordpress.com/2019/06/img_20190525_113059.jp

I put the battery back, installed it in the car but unfortunately the problem was not solved. However, that pair of 7 modules was really weak and here is not the option that their bad readings due to contacts.

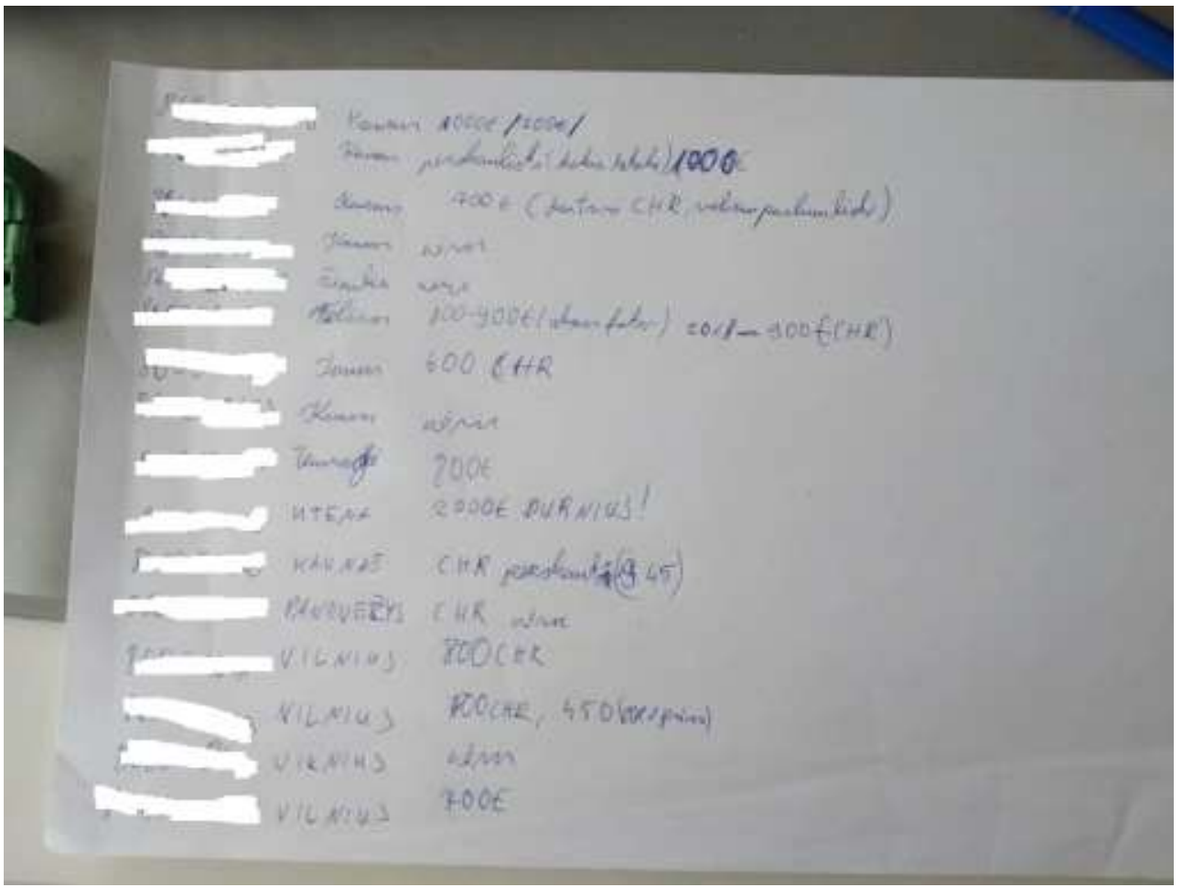
Search for alternatives

At this point, I had to decide how much I wanted to invest in the 2007 car. Here were a few options and will sort them in ascending order:

1. Change one module which costs about 30Eur. It's the cheapest, but balancing modules to do well would take a long time, and the end result provides little long-term guarantee.
2. Replace the entire battery from a broken 2005-2009 Gen2 Prius for 150-400Eur. This would save a lot of time, but again does not provide a long-term guarantee.
3. Replace all battery modules from a broken 2009-2015 Gen3 Prius for 350-500Eur. The newer Priuse has a different battery case, wires and ECU, but the NiMH modules are the same. I would have to spend some time overdoing them with the module, but here we are already winning a bigger warranty as the modules will be newer (although the truth is that Gen3 Pruss batteries are already starting to die out).
4. Replace all battery modules from a broken 2015-2019 Gen4 Prius (three TWO with NiMH modules) for 600-1000Eur. In terms of time, we have work to redo the cells here again, but we have a particularly good guarantee of the longevity of the modules.
5. Replacing it with a new battery bought from a Toyota dealer for around 1500Eur (otherwise I don't know the price but without the work in the UK it costs 1200 their money, so we can imagine how much it would cost to convert and add the work). In terms of time, here is the best solution, guarantees as well.

Based on the criteria of speed and reliability, and keeping in mind the economic logic of repairing the 2007 car, I decided to choose option 4. Why? Because I am happy with my Prius. Not a bad set, especially the leather interior, a relatively reliable car (maybe only spent a few days in the service in those few years replacing the brakes, shock absorbers, bearings and water pump). I plan to ride it for a few more years, so I need a warranty. Dismantling modules is not a problem for me because as we have seen experience already exists. And what about the price of a Gen4 Pruss battery is available for 600Eur, which shows me no more than the price of Gen3 batteries.

So I moved too many ads and compiled the following list:



(https://mindogas.files.wordpress.com/2019/06/img_20190527_115722.jp

Here is a list of only the latest Prius. The salesman from Utena was especially stuck, who spoke similarly about what he was talking about but talked nonsense and wanted 2000Eur for probably the 2016 Prius battery. I was still trying to figure out if the whole Prius would be with the battery, maybe the Plug-In battery wanted to sell me, or maybe he was making fun of me here in some way (maybe someone made fun of him yesterday?), But without explaining anything, I noticed that no longer dominoes. After a few calls I found what else to look for and you see a few hints on the list - the 2016-2019 Toyota CH-R. They have exactly the same NiMH battery as the Gen4 Prius, and there are many broken ones in Lithuania. When buying, it should be clear that it has not been in stock for a very long time, otherwise there may be problems with its deposition.

(https://mindogas.files.wordpress.com/2019/06/img_20190527_124016.jpg

So, we buy a 2018 CH-R battery for 550Eur and drive home. The battery itself next to the old one may look suspiciously different in size, but later you will see that everything is fine:

(https://mindogas.files.wordpress.com/2019/06/img_20190527_173404.jpg

And yes, I still drive the same Prius deleting bugs on my phone at the touch of a button 🙂

When choosing a battery for used cars, it is still important to know what you need. There are several hybrids that use Lion batteries so you should ask / check if there is a NiMH marking on the wick:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_182207.jpg

As for the battery itself, I'm impressed with how Toyota has evolved since the days of Gen2 (or even Gen1). The battery has become as flat as possible while using the same modules, and the Service Plug has become miniature:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_182216.jp

The air supply now develops from one side:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_182232.jp

And the way out of the next:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_182224.jp

And after removing the tin, it turns out that the air ducts are also used for overpressure ventilation of the modules by giving up two additional hoses:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_183003.jpg

By the way, we can see here that the temperature sensors in the new battery are at the top and in the new one at the bottom. Also the battery ECU is now moved to the other side, but that's not very important to me. What's interesting is the production date:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_182810.jpg

203S says that the modules must be in production on 2017-02-20.

Correction number 2

Now we put on protective gloves and strip the new battery:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_185211.jpg

I'm a little nervous about doing this because these battery contacts are like new. This means that I could use them for an old battery without getting tired of cleaning old contacts:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_183333.jpg

To remove the entire module pack, 14 nuts must be unscrewed on both sides from below:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_185228.jpg

And then we can put the whole package of modules until we dismantle the old battery:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_190306.jpg

It was thought that I might overdo the whole package of modules because its dimensions are very similar, but when I finished stripping the old battery, I noticed that the closest contact to the ECU in the new battery is Plus, and in the old Minus .:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_194902.jpg

So the modules will have to be changed anyway. Now I unscrew the lower screws and do what can't be done with the old battery, which is still warm - I loosen the 4 screws that press the pack from the sides before removing the whole pack and frame:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_200229.jpg

Here you can see that the frame bolts at the bottom did not allow the last module to be placed and the modules that expanded from the heat became such a worm:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_200233.jpg

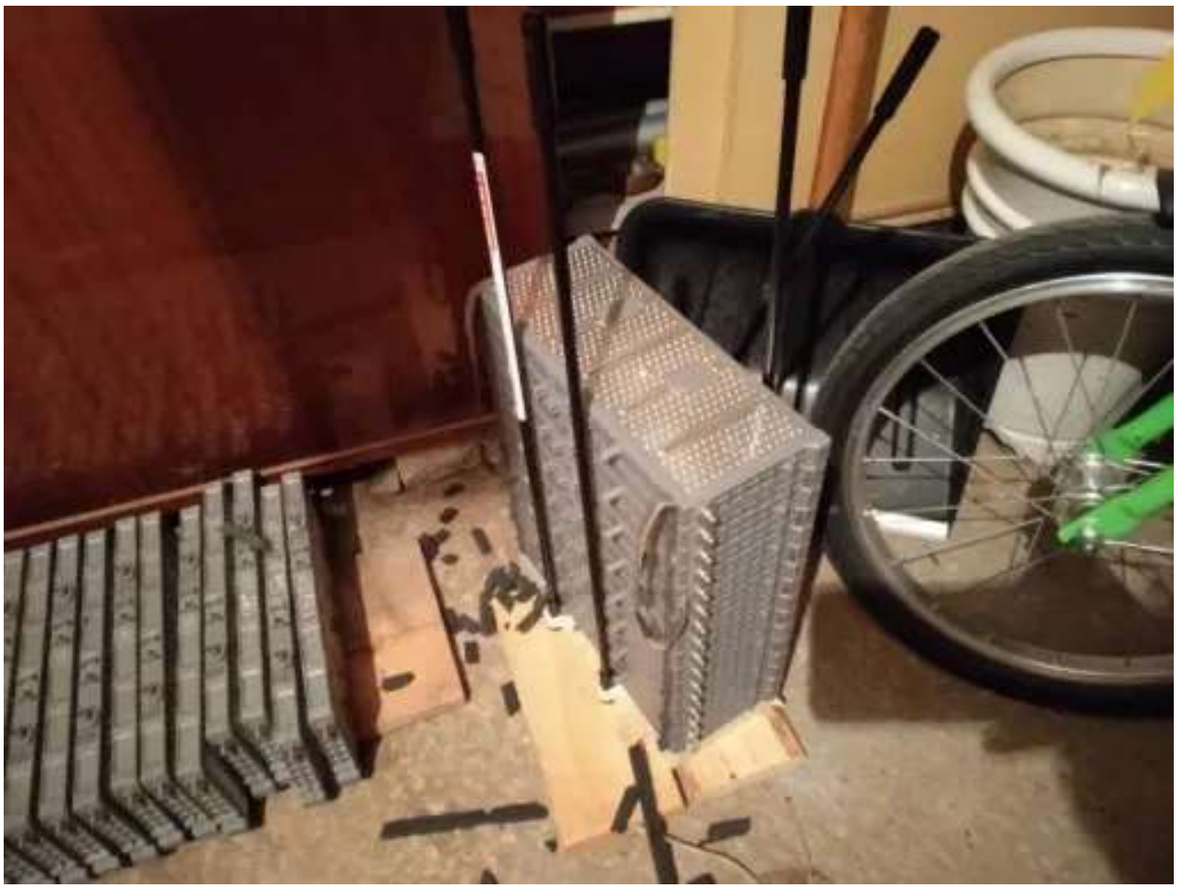
To avoid this, either wait a few hours for the modules to cool down, or lift the package vertically before disassembling so that the modules shoot upwards as they expand.

Finally, after scratching this pushed corner, I removed all the cells and stood up without disturbing the sequence to the side:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_200632.jpg

While I was doing the following work, those cells kept whispering as they shrank, but eventually acquired their original size.

Now the task is simple - let's take one module from the new package:



(https://mindogas.files.wordpress.com/2019/06/img_20190528_201406.jpg

And we stack them in the old frame built vertically:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_203626.jpg

It is very convenient to attach the temperature sensors at the beginning, middle and end, and to screw the package with screws one pleasure.

Later, I laid the package back in the frame, screwed in the 28 screws from the bottom, and it was time to put on protective gloves and start screwing the contact terminals into the chain. Here I made one mistake - I turned the screws with a screwdriver and in doing so I hurriedly damaged the thread of one of the modules:

(https://mindogas.files.wordpress.com/2019/06/img_20190528_211219.jpg

So I had to unscrew the whole strip of terminals and try to carefully fix the thread with a tap:

(https://mindogas.files.wordpress.com/2019/06/img_20190529_095151.jpg

It didn’t quite work out, the nut stuck anyway and didn’t catch the road. So I had to use my brother's advice - to sand the beginning of the thread with a pencil as if you were carving a pencil. After removing one or two turns of the thread in this way, the nut was successfully fitted. If it failed then the headache would be very much as losing one module would be no good. I would advise you to use the screwdriver only to loosen the bolts and nuts, because there are really a lot of them, but it is better to give yourself time and do everything more carefully to tighten it.

Next, everything is as simple as the battery traveling in the car.

Results

We turn on the car - no warning triangle. We're driving - no problem. The transplant was successful! Are there any changes in driving? Gal. The increase in capacity is most noticeable, as the battery really lasts from 52% to 40% longer when standing in a cork when the petrol engine starts to charge it. Maybe for the same reason it seems that fuel consumption has dropped, but I can’t comment on the numbers without wanting to pretend.

Now it's time to take a look at ODB2 after a half-hour ride:

(https://mindogas.files.wordpress.com/2019/06/screenshot_20190529-120345.jpg)

We see that the voltage of all modules is balanced. That must be the case, because I tried to make sure that even the pairs of modules would coincide during the transplant. The temperature is completely low, only 25 degrees in the center. That's the way it should be, because the modules are almost new, and to some extent (but I don't guarantee) its new production has ~~bigger~~ lower internal resistance (https://priuschat.com/threads/gen3-hv-batteries-for-gen2.137902/) and this would allow them to give up or absorb more energy and emit less heat. By the way, did you notice the new Fault Clear button? That's what I often printed on while driving with a faulty HV battery.

I also connected PC diagnostics to see what's more interesting there:

Parameter	Value	Unit	Parameter	Value	Unit
Engine Coolant Temp	91	C	Battery Block Num	12	
Engine Revolution	0	rpm	Batt Block Minimum Vol	15.73	V
Vehicle Spd	0	km/h	Minimum Batt Block No	9	
Engine Run Time	631	s	Batt Block Max Vol	16.87	V
+B	14.112	V	Max Battery Block No	14	
DTC Clear Warm Up	1		Battery Block Vol -V01	16.83	V
DTC Clear Run Distance	0	km	Battery Block Vol -V02	16.81	V
DTC Clear Min	23	min	Battery Block Vol -V03	16.79	V
MIL on Engine Run Time	0	min	Battery Block Vol -V04	16.82	V
MIL Status	OFF		Battery Block Vol -V05	16.81	V
Mileage after MalFunc	0	km	Battery Block Vol -V06	16.80	V
Battery State of Charge	60.0	%	Battery Block Vol -V07	16.76	V
Delta SOC	0.0	%	Battery Block Vol -V08	16.84	V
Batt Pack Current Val	1.14	A	Battery Block Vol -V09	16.80	V
Intaking Air Temp	25.7	C	Battery Block Vol -V10	16.81	V
VMF Fan Motor Voltage	9.6	V	Battery Block Vol -V11	15.73	V
Auxiliary Battery Vol	14.0	V	Battery Block Vol -V12	16.85	V
Charge Control Val	-20.0	KW	Battery Block Vol -V13	16.79	V
Discharge Control Val	21.0	KW	Battery Block Vol -V14	16.86	V
Cooling Fan Mode	3		Internal Resistance R01	0.021	ohm
ECU Control Mode	0		Internal Resistance R02	0.021	ohm
Charge Control Signal	ON		Internal Resistance R03	0.021	ohm
Equal Charg Out Rly Sig	OFF		Internal Resistance R04	0.021	ohm
EGTR Charge Perm Sig	OFF		Internal Resistance R05	0.021	ohm
Standby Blower Request	OFF		Internal Resistance R06	0.021	ohm
Temp of Batt TB1	42.4	C	Internal Resistance R07	0.021	ohm
Temp of Batt TB2	43.9	C	Internal Resistance R08	0.021	ohm
Temp of Batt TB3	41.9	C	Internal Resistance R09	0.021	ohm

(https://mindogas.files.wordpress.com/2019/06/c9ebbf41-581d-4e08-8815-9e92e3ca645c.png.jpg)

Here you can see the voltages of the modules are quite similar to those of the phone. I connected to the PC after an intense ride, the temperature has already risen to 43.9 degrees. It is clear that Delta SOC has become 0 percent.

I drove the first hundred kilometers in the city and another hundred on the highway without assembling the interior. For all the anger, if everything had to be dismantled again. Finally, without any problems, I gathered everything:

(https://mindogas.files.wordpress.com/2019/06/img_20190601_115738.jp

There are still some details left in the basement:

(https://mindogas.files.wordpress.com/2019/06/img_20190529_150240.jpg

Ką daryti su likusiais moduliais? Juos sudėjau eilės tvarką į naujos baterijos rėmą ir jau pradėjau testuotis modulius su vieninteliu turimu iMax B6 pakrovėju:

(https://mindogas.files.wordpress.com/2019/06/img_20190603_193114.jpg

Su vienu pakrovėju tai truks apie mėnesį laiko, nes jis iškrauti gali vos 0,7A prie 7V (t.y. ~5W). Gal kam reikia modulio vieno kito? 🙂

Orams atšalus reiks pasidaryti naujos HV baterijos testą (https://mindogas.wordpress.com/2015/12/03/prius-gen2-didziosios-hv-baterijos-testas/). Dabar pernelyg pavojinga tai daryti nes stovint HV Inverteris gali imti ir perkaisti tiek ilgai jį laikant apkrautą maksimaliai.

Tai kaip manote, ar labai baisi ta HV baterija? Man vis dar ne. Nors pinigų aišku kainuoja, kaip ir viskas kita.

Veiksmai

- Comments RSS
- Citata

Informacija

- Data : 2019/06/04
- Žymos: HV baterija, prius, remontas, toyota
- Kategorijos : Automobilis, Pasidaryk pats

22 responses

4 06 2019
Žilvinas (09:59:37) :
Sveikas Mindaugai,
Na tu čia didžiulį darbą nuveikei. Aš pats tikrai nesiimčiau nieko burti su baterija, o tu dar ir nuo kito modelio pritaikei, – šaunuolis.
Na man kaip paprastam vartotojui įdomiausia tai, – kiek pakito kuro sąnaudos ir nuvažiuojamas atstumas EV režimu, pakeitus bateriją?

Atsakyti
4 06 2019
mindogas (10:05:18) :
Dar tik savaitė te praėjo, tai apie sąnaudas anksti kalbėti. Jos truputi matosi pavieniuose pasivažinėjimuose bet skaičių nėra. EV rėžimo irgi nebandžiau bet vėlgi čia kvailokas skaičius bus. Nenūtaralu tiesiog dirbtinai įkraudinėti baterija iki 80 proc. ir žiūrėti kiek su EV nuvažiuosi 😀 Labiau planuočiau talpos testą pasidaryti nes tai bent jau kažką pasako.

Atsakyti
22 03 2020
Julius (10:43:10) :
Dėl sumažėjusių kuro sąnaudų, manau nėra čia jokio stebuklo.. elementari fizika t.y. senosios celės garantuotai buvo praradę tikrąją realią talpą ir to pasekoje ne visa stabdymo metu regeneruojama energija atsidūrė baterijoje, t.y. dalis tiesiog tiesiog “šildė“ gamtą kaitinant stabdžių diskus kaip paprastame VDV… pakeitus

naujomis celėmis, “grįžo“ bendra reali baterijos talpa t.y. kuo daugiau stabdymo energijos buvo sukaupta į bateriją, tuo daugiau jos po to buvo galima išnaudoti pajudant/važiuojant…

Atsakyti

4 06 2019

Egidijus Narkus (10:11:11) :
dekui uz issamu straipsni,
o BMS neskaiciuoja kiek buvo atliktu ciklu, arba kiek bendrai buvo kWh ikrauta ir iskrauta? taip butu galima isivertinti bandra nusidevejima.
Dar idomu, kad to 7 modulio apskaiciuota vidine varza tokia pati kaip kitu, manau senstant moduliui ji turetu dideti.
Bei dar idomu, kad naujesnes baderijos moduliu varza didesne nei senesnes. Bet gal cia specialiai gamina didesnes, kad viduje moduliai lengviau balansuotusi.
O didesne vidine varza, reiskia, modulis labiau kaista.

Atsakyti

4 06 2019

mindogas (10:28:55) :
Velniai žino ką tas HV baterijos ECU daro. Panašu jis tik renka informacija, valdo aušinimo ventiliatorius ir modulių mirties atveju rėkti moka kitoms sistemoms kad negalima važiuoti kaip anksčiau važiavome. Kas liečia tą vidinę varžą tai ją kompas nematuoja, o skaičiuoja priklausomai nuo įtampos ir naudojamos srovės. Taigi kas ten žino kodėl ji 7 poroje nebuvo pakitusi. Tikėjausi ir aš kad bus kitokia, bet matome ką matome.
Kas liečia naujus modulius tai ten busiu suklydęs ar ne taip išsireiškęs. Anglų forumuose teikiama, kad varža Gen3 ir Gen4 Priusų moduliuose yra “lower resistence“, tai reikškia kad yra mažesnę, o ne didesnė. Taip gaunasi vietoj seniau 0,019Ohm, dabar priskaičiuoja kompas tuos 0,022Ohm. Realiai man šitoje vietoje sunkiai galvojasi 🙂 Jei kokį paaiškinimą logišką ir teisingesnį turi rėžk ir visiems bus naudinga žinoti.

Atsakyti

4 06 2019

tomas (12:30:24) :
geras straipsnis!!! lauksim ziniu kaip pasikeite kuro sanaudos!

Atsakyti

20 06 2019

Audrius (16:32:15) :
O kaip ptaip pas Jus veikia torque kad rodo hv. Pas mane ikonos yra bet nieko panasaus nerodo visur 0

Atsakyti

20 06 2019

mindogas (21:26:15) :
Gal su BT adapteriu kas negerai.

Atsakyti

1 07 2019

Sigita (17:41:47) :
Sveiki, sumanusis meistre. Reikia 6-to modulio. Jis pas mane vis meta klaidą. Remontui jau sukišta nemažai, bet… vis įsijungia didelis raudonas šauktukas!

Atsakyti

1 07 2019

mindogas (21:19:07) :
Sveiki, 6 ar 9 ar be toks kitas is tu 28 moduliu jokio skirtumo, jie vienodi visi. Beda tik tame kad taip paprastai negalima ju imti ir kaitalioti. Jei jau keiciame tai turim subalansuoti senus ir naujus modulius kad jie neissiskirtu, kitaip iskarto ar po keliu menesiu vel bedos prasides. Vienaip ar kitaip toks moduliu keitimas mano nuomone yra tik tiems kas pats turi laiko ir noro automobili remontuoti, nes garantija nekokia. Geriausias sprendimas keiti visus modulius is kuo naujesnio Prius.

Atsakyti

30 10 2019

SauliusBig (13:52:53) :
Labai įdomu kaip sekasi dabar, gal jau yra degalų sąnaudų statistikos? Labai trumpai, kaip atliekamas senų ir naujų modulių balansavimas?

Atsakyti

30 10 2019

mindogas (19:45:07) :
Sekasi gerai, o apie sanaudas greit bus irasas. Tikiuosi 🙂 Man balansuoti nereik4jo, nes visos celes buvo ir to paties pako. Kai balansuoti reikia tai metodu yra keli, bet nelabai noriu cia plestis apie visa tai, nes pats tik teorijomis esu galva prisipildes, o praktikoj nieko nedares.

Atsakyti

26 01 2020

seodeep (@seodeep) (11:57:54) :
skaiciau pas amerikonus nuomoniu kad po X metu eksploatacijos verta kas pusmeti subalansuoti celes, kad ir bukai ikraunat visa baterija pilnai.

Atsakyti

4 11 2019

Darius (20:31:09) :
Labas, kaip tik užsikabinau ant Prius pirkimo, pradėjau domėtis apie baterijas, patikimumą ir t.t. Biudžetas – apie 5 k. Jūsų nuomone, įmanoma, verta ? Kol kas BMW e39 525i su dujomis, 12 / 100 km., bet ateina laikas keistis. Taip pat suprantu, kad perkant tokio senumo auto baterijos remontas neišvengiamas… Sunku rasti tokią 2018 metų gyvą celių pakeitimui ?

Atsakyti

4 11 2019

mindogas (21:58:34) :

Nelabai įsivaizduoju šių dienų kainu ir ką gero tie 5k gali duoti. Kas liečia baterijas tai bent jau man nebuvo sunku. Diena laiko tereikia skirti skambučiams ir jau tą pačią diena gali ir tą bateriją turėti. Svarbiausia tik iašku žinoti ko tau reikia, o reikia užrašo NiMH ant baterijos naujos 😀 Keista man pačiam dar buvo kad laužynai dar nelabai žinojo ką parduoti ir jiem reikėjo aiškinti kad kodėl LiPo akūmuliatoriai nuo Prius+ ir naujesnių Gen4 Priusų man netinka.

Atsakyti

5 11 2019

Darius (12:45:06) :

Supratau, kuo toliau, tuo labiau linkstu į prius pusę. Mano specialybė taip pat elektronika, taigi problemų su pasikeitimu nematau, pagrindinis klausimas buvo celių availability 🙂 Kiek susirinkau info, tai dauguma pakeičia vieną / keletą labiausiai “pasėdusių“ celių ir kuriam laikui viskas veikia. Bet čia toks “iš bėdos “ variantas, jūsiškis man patiko 100 %.

Atsakyti

5 11 2019

mindogas (13:50:11) :

Taigi kad tas vienos ar kelių keitimas “iš bėdos“ ir labiausiai malonus tikriausiai prieš parduodant. Su dviem žmonėm rašinėjausi kurie keitėsi po kelis kartus celes ir mašina vis dar naudoja ir abieju jų galvoje kita karta keisti jau viska. Esmė tame kad po 3 tokių paremontavimu garažėlyje gaunasi visko pakeitimo kaina.

Atsakyti

8 01 2020

Paulius (11:35:27) :

Sveikas, kvailas klausimas jaučiu, bet kokios formos OBD naudoji? Kiek aš jų pirkau ir bandžiau man visi rodo nesąmones visiskas

Atsakyti

8 01 2020

mindogas (12:54:41) :

Sveiki, OBD2 “forma“ tai tik viena būna 🙂 Jei apie modeli kalti tai telefonuiaš pats iš Ali kažkoki pirkau kuris su Toque veikia.

Atsakyti

8 01 2020

Paulius (13:05:02) :

Aš turiu ir torque bet man rodo kad visi HVblokai -330 voltu čia gal su baterija nekas nors kartais parodo normalius skaicius

Atsakyti

8 01 2020

mindogas (13:16:54) :

Gal viename lange per daug paprametru rodote? Kartais adapteris nespeja tu duomenu sutvarkyti

Atsakyti

22 03 2020

Žilvinas (21:55:40) :
Hi Mindaugas,
Well, after so much time, you could reveal or reduce fuel consumption with a new battery.
PS Maniske tp Uzsilenke yesterday. Now I decide what to do. New 2100 eur with work and warranty.

Answer