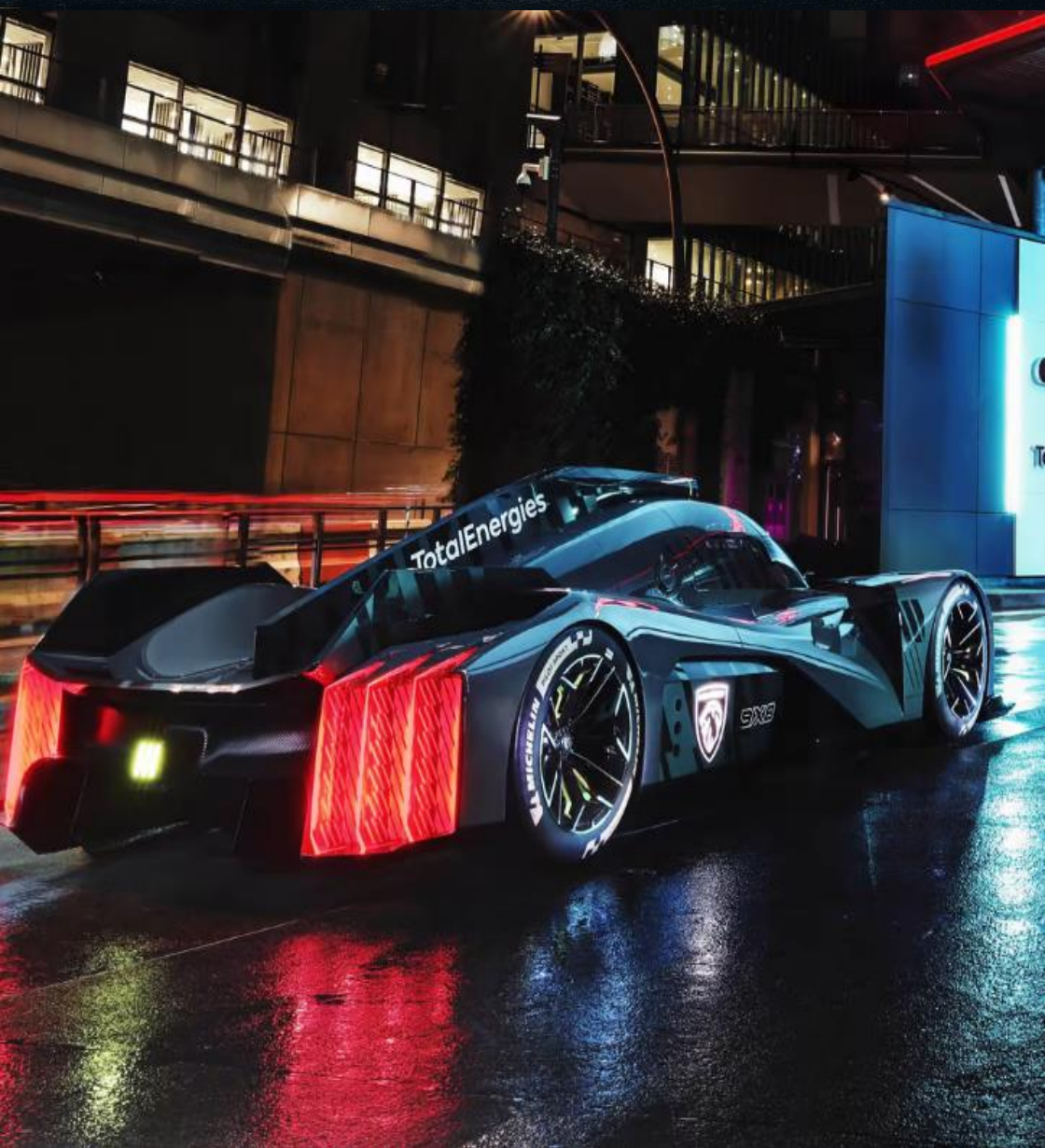




Peugeot Car Club (Auckland)

Peugeototex[©]



Volume 36, #6 July 2022



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Front cover – Peugeot 9x8 hypercar
Above – Steve Cornwall

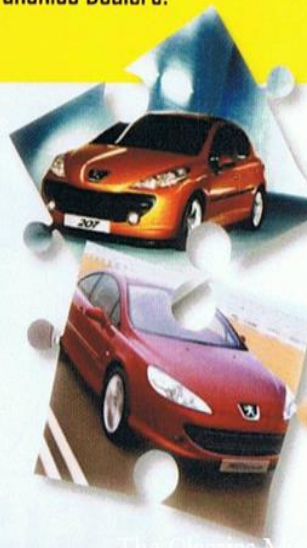
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11 Railside Place
Hamilton

Peugeot Car Club (Ak) Inc
P O Box 29002
EPSOM, Ak 1023

Patrons

Don Hadfield, Ray Williams,

President

Brent Druskovich, 09 638 9421
brentdruskovich@gmail.com

Vice-president

John Cooney, 021 686 191.
coanna@xtra.co.nz

Secretary

Jeanette Grant, 09 638 8566
jeanette_grant@hotmail.com

Membership Secretary

Soo Land Wong, 09 625 5189
sojewong@gmail.com

Treasurer

Steve Cornwall, 09 402 5006
jensteve@xtra.co.nz

Webmaster

Kevin Hardie, 09 817 7033
kevin@azorah.co.nz

Committee

John Grant, 09 638 8566
jeanette_grant@hotmail.com
Peter Hagglund, 09 280 5737
haggy251@gmail.com

Immediate Past President

Greg Winkley, 09 483 4023
gregwinkley@hotmail.com

Technical Officers

John Grant, 09 638 8566
Dennis Lowe, 09 267 6461

Club Shop

Brent Druskovich - 09 638 9421

Peugeotex Layout

Jeanette Grant, 09 638 8566
jeanette_grant@hotmail.com

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COMING EVENTS

peugeotclub.org.nz

**For updates on events, keep
an eye on our website
peugeotclub.org.nz**

July 16 – Bastille Day Dinner

August 20 – AGM – Armstrongs 1pm

October 15-16 – Targa South Is

October ? – Pride of Ownership

November 11-14– Far North Weekend

**November 20 - Tricolore Trophy Navigation
Trial**

THOUGHT FOR THE MONTH

**A clear conscience is usually the sign of a bad
memory. (Boris Johnson please note)**



P O BOX 29002
Epsom
Auckland 1023

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Peugeot Car Club (Ak) Inc. The Club accepts no
responsibility for any views expressed in it.

PRESIDENT'S RAMBLE

I think this is version three of this month's Ramble; versions one and two have been scrapped, though some of the following has been retrieved from them. To say the least my writing to you hasn't gone that well. This is the final version no matter what; apologies if it isn't to my usual standard.

I suspect one of the major reasons for a lack of Ramble inspiration has been a lack of rambling, both physically and mentally. This month so far my travels have been confined to what is a very small amount of Auckland, let alone out into the wild blue yonder. I have got no further than the following locations; Pakuranga to the East, Mangere International Airport to the South, Mount Albert to the West and Victoria Park to the North. Not a lot of variation. Then there has been work. Currently I am working seven days a week (not necessarily full days, but for at least a few hours minimum) trying to catch up, or maybe it is keeping up with my work. I have had little time to think of anything else.

What does come to mind is an element of excitement for November. Details have been

released about the upcoming Northland trip away. I am just about salivating at the corner of my mouth thinking about it. I hope to see many of you on it - even better if I could see all of you at it.

It will be so nice to have Car Club Weekend away again. Peter and Dave have put some real effort and thought into this, so let's support them and each other and come away for the weekend. It is designed to be a long weekend - but not during one of the government's long weekends, so please try and get organised with your leave if you need it.

Dates to remember November 11 to 14, contact Peter Vuletich - peter.vuletich@slingshot.co.nz and get your place booked. Dave Duirs is even threatening (or is that promising?) another day's touring after it is over should you want to take it up. And even if you can't make the whole weekend, remember you can travel for a portion of it. Comings and goings to the Peugeot Road Train are welcome. I will see you there - in Dargaville, a place I have long espoused as being the Centre of the Universe - just ask my family - it's all true, they will just tell you I am mad.

More importantly the AGM. We - the committee - would love a couple of new members, just to

help spread the load and ensure we have a quorum. The AGM is coming up soon. Book yourself to come to Armstrongs Peugeot dealership at 500 Great South Road, Greenlane, for 1pm on Saturday the 20th of August.

Please contact Jeanette or John Cooney if you plan to come as Armstrongs are putting on drinks and nibbles and need an idea of the number to expect.

We have put the trophy winners' list in this issue to make sure recipients know that they have won.

Mau tere haumaruru (Safe travels), nga mihi nui,

Brent

1969 404 FOR SALE

SADLY, my 1969 404 is up for sale and I hope someone in the club might like it.

I think at 94,000 genuine miles and in almost new condition (even the clock still works), this must find a new enthusiast's home.

I don't have to sell just yet, so will not be giving it away. [My 403 went to someone who reckoned he wanted it - but promptly remarketed it and doubled his dollars.]

I will be offering it on Trade Me shortly.

Regards, Dave DUIRS
0274068812
dave.duirs@xtra.co.nz



COMING EVENTS

16 July - 6pm	Bastille Day Dinner at Le Bistro des Gourmets, 237 Parnell Rd, Parnell. Two course menu; \$57 head (dessert available at extra cost). Book with Lawrence of Citroen – 021 217 0585 lozza164@hotmail.com
20 August	AGM – 1pm - Armstrongs, 500 Gt South Rd, Greenlane
29-30 October	Targa's South Is event in Tasman/Nelson
October	Pride of Ownership; TBA
11-14 November	Weekend up North; meet at the Northern Wairoa Hotel in Dargaville on Friday afternoon; a flyer has been emailed.
20 November	Navigation Trial; TBC



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JEANETTE'S JOTTINGS

Scientists experimenting with the makeup of metal alloys used for medical implants have made a significant breakthrough, resulting in a biomaterial with the flexibility and wear resistance needed for long-term stints in the human body.

Walmart is pressing ahead with its ambitions in aerial cargo transport, announcing plans to offer a same-day drone delivery service in six US states where goods will be dropped off in as little as 30 minutes.

A new study has found that type 2 diabetes significantly accelerates brain aging.

The liver can regenerate itself after taking damage, but whether that ability fades with age is unknown. A new study has found that age doesn't slow down the liver's regeneration, and whether you're 20 or 80, your liver is on average just three years old.

Interest is growing in alternative fuel sources for heavy-duty vehicles that help sidestep heavy diesel pollution, and Amogy has broken new ground in this area by fitting its ammonia-fuelled zero-emissions energy system to a John Deere tractor.

Owners of pigs in France are forbidden from calling it Napoleon, out of respect for Napoleon Bonaparte.

In Japan, officials created a curfew for the public display of cats, making it illegal for cats to be seen outside after 8 pm.

According to Australian law, you're only allowed to name an animal if you intend to keep it as a pet, not if you plan to eat it.

The 96-year-old Q Elizabeth - who recently celebrated her Platinum Jubilee - has overtaken King Bhumibol Adulyadej of Thailand, who reigned for 70 years and 126 days, between 1927 and 2016. However, the Queen - who is the longest-serving British monarch - remains some way behind Louis XIV of France, who reigned for 72 years and 110 days.

Great Salt Lake in Utah is drying up and if it continues like this, it will be a new Aral Sea, a body of water that has disappeared forever. The consequences go beyond desertification. The New York Times has warned about what is described as an "environmental nuclear bomb".

As the water level of the lake has lowered drastically, the mud of the lake has become exposed, which, when it dries, turns into a dust that can be highly toxic.

A huge natural gas tanker has become the first large ship to make an ocean passage of more than 10,000 km under autonomous control. During its record-breaking run, the 122,000-tonne Prism Courage was able to locate and avoid other ships over 100 times.

FOMC AGM

Note change of venue

Dear NZ FoMC member club,

We remind you of the NZ Federation of Motoring Clubs' 27th Annual General Meeting, to be held at 10:30am on Sunday 24 July 2022 at the **North Shore Vintage and Classic Car Club, 40 Masons Road, Albany**. [The VCCC rooms in Penrose are currently unavailable due to flood damage]

Morning tea is from 10:00am, with the meeting starting at 10:30. It is expected to finish mid-afternoon.

This year, we are privileged to have the following guest presenters, so we especially encourage all member clubs in close proximity to attend. Additional attendees are welcome as observers.

11am. The Hon. Michael Wood (Minister of Transport) is our guest speaker.

1:00pm, Garry Jackson will talk on "The NZ Motor Industry over the Years: an insider's view." Garry spent much of his professional career with Ford locally and internationally in marketing, sales and business development. He is president of the Canterbury Mustang Owners Club.

Thanks to those who have registered (22 attendees across 16 clubs so far)

Attendees can be viewed here:
<https://fomc.nz/agm-attendees/>

If you are still planning to attend, please register online by 5pm Sunday 17 July at <https://fomc.nz/events/agm2022/>

Lunch is \$20.00 per person, prepaid as part of the registration process.

For those already registered, please note the change of venue and adjust your travel time as if travelling from the South of Auckland, it is about 40 mins extra drive time to Albany. There is ample off-street parking there.

Thanks also to the many member clubs who have renewed their subs.

The following AGM documents are available by asking Jeanette Grant to forward them to you...

1. Agenda for the 27th AGM
2. Minutes of 26th AGM (2021)
3. Financial Statements & Audit Report for year ended 28 Feb 2022

Thank you again.

Kind Regards,
Chris Butler
Secretary

NZ Federation of Motoring Clubs

E: secretary@fomc.nz

M: +64 21 506 199

W: <https://fomc.nz>

TRICOLORE TROPHY RESULTS 2021-22

Navigation Trial aka Rotorgaine
Citroen 187.5 points
Peugeot 100.5

Gymkhana
Citroen 66 points
Peugeot 191

Totals
Citroen 253.5
Peugeot 291.5

FIRST SOLAR CAR?

Dutch company Lightyear has unveiled what it claims is the world's first production-ready solar car. The Lightyear 0 is a family sedan with 5 sq m (53.8 sq ft) of solar panels built in, capable of generating up to 70 km (44 miles) of charge-free driving a day.

Having scaled its workforce up to 500 people and hooked up deals with more than 100 suppliers, Lightyear is deadly serious about this venture and ready to start manufacturing. Its first car is this four-door fastback electric sedan, with enough onboard battery to deliver a very solid 560 km (348 miles) of freeway driving at 110 km/h (68 mph), even without the sun shining.

That's a pretty impressive number; in WLTP testing, the Lightyear 0 delivers 625 km (388 miles) of range, or nearly 4 percent more than Tesla's Model 3 Long Range AWD. Lightyear says it's developed the most efficient electric drivetrain ever, and that these range figures come from a battery pack holding just 60 kWh. For comparison, the Model 3 Long Range AWD is reported to run an 82-kWh pack.

So even if that WLTP range is a fair way short of what the company was hoping for during high-speed testing back in February, the Lightyear still pulls more range out of significantly less battery than the Tesla, using just 10.5 kWh per 100 km

(62 miles) while doing 110 km/h on the highway. Part of this comes down to low drag; Lightyear says the 0's drag coefficient of 0.19 makes it the most aerodynamic family car ever built. Part of it comes from specially developed Bridgestone tires designed to reduce rolling resistance.

But part of it also comes from a deliberate focus on efficiency at the expense of performance: the 0 takes a full 10 seconds to accelerate from 0-100 km/h, and will top out at just 160 km/h (99 mph). Tesla has trained us to expect hair-raising acceleration, and the Model 3 Long Range AWD can get you to 100 in four seconds flat on the way to a top speed of 233 km/h (145 mph). Lightyear has no interest in playing these games. It'll feel flat-out slow next to a Tesla.

But it'll spend far less time on a charger. Solar panels can't give you a full battery charge on a sunny day, but they can certainly make a contribution – and here's where Lightyear's efficiency-first approach pays off. Under ideal conditions, the solar panels covering the hood and the fastback roof can chip in up to 1.05 kW of constant trickle charging.

Over the course of a full summer's day, Lightyear says that can power up to 70 km of driving. That's twice as far as the lightning-quick Roman legions could march in a day. Add in a fully topped-up battery, and Lightyear says that if your daily commute's less than 50 km (31 miles), you can run this thing for months, and thousands of kilometers, before needing to plug it in.

The solar charging can contribute up to 10 km (6.2 miles) of range per hour. On a household plug, it'll charge at 32 km/h (20 mph), and it'll fast-charge at up to 520 km/h (323 mph) where the infrastructure's available.

The rest of the car looks ... well, fine, I suppose. Seats for five, plenty of luggage space, and the vegan interior, made out of plant-based leather, recycled PET bottles and rattan palm, looks nice enough. There's a 10.1-inch touchscreen to handle navigation and infotainment, and it's all pretty cushy-looking.

For a reality check, the solar charging figures above all assume the system's performing at its absolute peak, and as anyone who runs rooftop solar can tell you, it's rare to have your system smashing out peak power. So it'll be fascinating to learn how well this thing does the job in real-world conditions over the course of a year.

The Lightyear 0 is also ludicrously, unforgivably expensive. Only 946 will be built, with deliveries to start in November, and each one's asking a ridiculous €250,000 (US\$266,000). Should they sell, the company says it'll be set up and ready to move forward with a solar car for the people, with a starting price point of €30,000 (US\$32,000) and a target production date around the start of 2025. We feel like we've heard this one before. Ah well, I guess there's always the little Squad solar car for US\$6,500, or the Sono Sion solar hatch for US\$31,000.

Still, Lightyear's hyper-efficient machine definitely brings some goodies to the table, and it's an intriguing first offering from a company that seems genuinely ready to give solar motoring a proper shot

Source: Lightyear



PEUGEOT 9X8 HYPERCAR UPDATE

Peugeot's eye-popping 9X8 hypercar is finally set to roll. It'll join the FIA World Endurance Championship for the season's fourth race at Monza in a couple of weeks, bringing a truly outrageous look to the hypercar class if nothing else.

Performance-wise, the 9X8 will work against the same limits the Toyota, Alpine and Glickenhaus hypercars have to: Michelin tires, a minimum weight of 1030 kg (2271 lb), and a limited maximum of 500 kW (671 hp), split between a combustion engine and an electric motor.

Peugeot has gone for a 2.6-liter biturbo V6 engine at the rear wheels – the smallest engine in the class so far, but it's capable of a peak 520 kW (697 hp) all by itself if the limiters are taken off. The electric motor driving the front wheels, meanwhile, peaks at 200 kW (360 hp), running off a high-density 900-volt battery pack designed in conjunction with TotalEnergies, Saft and ACC.

Peugeot has had some success in world-class endurance racing in the past, probably peaking in the early 90s, with a World Endurance Championship constructors' title in 1992 and total ownership of the podium at the 1993 24 Hours of Le Mans.



Time will tell if the 9X8 has similar championship DNA, but on looks alone this thing will make a splash. Completely devoid of a rear wing, it looks like it could take off and fly you to Coruscant at any minute, and its enormous triple-slash headlights and shard-like taillights (designed to echo the Peugeot Sport logo) look absolutely wicked.

Its first race will be the relatively brief six hours of Monza in Italy on 10 July this year.

BELIEVE IT OR NOT

The NZ Transport Agency (Waka Kotahi) has confirmed it will increase the speed limit for the Waikato Expressway between Hampton Downs and Tamahere.

Waka Kotahi said **increasing the speed limit on State Highway 1 from 100km/h to 110km/h** from July 13 was safe because the road "can support higher travel speeds without compromising safety" and has the backing from the police, iwi and local councils.

In the submission, police said it supported "the setting of speed limits in alignment with safe system principles and the need for our transport system to be forgiving in the event that a mistake is made, and a crash should occur".

"The features making it safer for travelling at higher speeds include having at least two lanes in each direction, a central median barrier and no significant curves."

TROPHY LIST 2021-2022

Arthur Brinton Cup for Services to the Club	Jeanette Grant	
Cooper Cars Attendance Trophy	1 Brent Druskovich 2 Wynne Howarth 2 Don Howarth	
Pride of Ownership Cup – '04'	Don Howarth	
Pride of Ownership Cup - "07"	Dennis Lowe	
Pride of Ownership Cup - "08"	1 Graham Pooley 2 John Cooney 3 Andrew Corbett	
Gymkhana Shield	1 Brent Druskovich 2 Greg Winkley 3 Craig Pye	
Ian Grimmer Memorial Trophy for Long Distance Attendance	1 Graham Pooley 2= Ray & Ann Cotterill 2= Mary Pullman	
Inchcape Trophy for Club Competition	1 Brent Druskovich 2 =Joshua Druskovich 2= Craig Pye	
Ladies Gymkhana Cup	1= Jessica Druskovich 1= Shayne Mathieson 3 Sophia Pye	
Marshall's Cup	1 John Cato 2=Wynne Howarth 2= Sophia Pye	
Hadfield-Sparkes Motul Cup for Interclub Competition	1 Brent Druskovich 2=Joshua Druskovich 2= Craig Pye	
Navigation Trial Cups	1 Kevin & Marissa Hardie 2 Mandy, Jessica & Brent Druskovich 3 Joshua Druskovich & Lauren Kats	
Youth Trophy	1 Jessica Druskovich 2 Sophia Pye 3 Marissa Hardie	
New Member's Cup	Craig Pye	
President's Award	Revealed on the day	

WARNING FROM STELLANTIS

Stellantis' CEO Carlos Tavares accustomed us to complaining about the direction and pace of electrification, highlighting various potential negative consequences.

It seems that Carlos Tavares is not the lone skeptic about BEVs at Stellantis, as this week he was joined by Chief Manufacturing Officer Arnaud Deboeuf.

According to Bloomberg, Arnaud Deboeuf warned that after the EU's deal to phase out new internal combustion engine cars by 2035, the automotive industry is "doomed"... unless electric cars get cheaper.

"If EVs don't get cheaper, the market will collapse," Deboeuf said at the company's Tremery factory in France. ***"It's a big challenge."***

Well, it would be really bad if electric cars do not become cheaper and, because of that, the market shrinks.

But let's be more realistic. Technological progress on one hand, and an unprecedented increase in the scale of production, on the other hand, must translate into lower costs per unit of batteries and electric cars. On top of that is always competition between the manufacturers, which is increasing now

after years of neglecting BEVs by many of them.

Even Arnaud Deboeuf noted that Stellantis is aiming to cut BEV production costs by 40% by 2030 (with five more years until the deadline), which was previously hinted at by Carlos Tavares.

Spreading fear is not fun at all, especially in the current circumstances. After all, in the worst-case scenario, politics can always tweak the deadline to smooth the transition.

Carlos Tavares pointed out also the issue of limited raw materials availability:

"While Stellantis will comply with the decision, policymakers appear to 'not care' whether automakers have enough raw materials to underpin the shift."

Another complaint is about the limited battery availability in the 2024-2027 time frame, which is expected to favor Asian manufacturers:

"Greater demand for EV batteries between 2024 and 2027 -- a period before more European capacity is due to come online -- will benefit Asian producers and 'put at risk' cell output in the West"

However, the question is why Stellantis did not invest in battery gigafactories earlier?

Source - Mark Kane from Inside EVs

STELLANTIS' DYNAMIC WIRELESS POWER TRANSFER

Source - Stellantis

Stellantis, parent company of Fiat, Chrysler, Dodge, Chrysler, Jeep, Opel, Peugeot, Ram, Maserati and many others, is a founding member of the Arena Del Futuro project in Chiari, a 1,050-meter (0.65-mile) loop of road near the Chiari exit of the A35 Motorway, about half an hour outside Milan in northern Italy. This "Arena of the Future" was built to test a number of forward-looking transport technologies, including advanced 5G connectivity and IoT ideas, V2X communications and road surface optimizations.

However, its primary goal was to test and prove the capabilities of wireless on-road charging systems like Stellantis's Dynamic Wireless Power Transfer (DWTP) technology. To install the DWTP, some small grooves need to be cut into the road surface, so that a series of flattish inductive charging coils can be laid down and connected to a power supply. Then, asphalt is poured back over the top.

When active, the coils send power to vehicles passing overhead, provided that they've been fitted with a receiver. Interestingly, at this stage it appears the energy is sent straight to the car's electric motor. So rather than charging up the battery, the DWTP system simply takes over supplying energy, so

that EVs above can cruise along at highway speeds without burning any battery.

Initial tests are complete, and Stellantis says the power transfer efficiency is "*comparable to the typical efficiency of fast charging stations.*" The magnetic fields involved, says the company, have "*no impact on the driver and passengers,*" and are safe for pedestrians to walk through. Running on DC means the DWTP can use relatively thin, compact cabling, and it can also be directly and efficiently connected to renewable energy sources without the need to convert back and forth from AC.

So it can be done, and it works. But there's no word on whether, or when, the DWTP system will be rolled out on public roadways. Getting a project like this off the ground at commercial scale poses a series of chicken-and-egg problems, and may well end up costing more than it can bring back in revenue. These things will only make sense if they're rolled out on very long stretches of high-traffic highway, if drivers can be accurately billed for their use, and if enough people buy compatible cars to make them worthwhile.

Stellantis says the technology "attracts interest for commercial development globally," since it can also be built into static EV charge stations, parking lots, airports and the like, but there's nothing concrete announced as yet.



Under the asphalt, the DWPT system has a series of inductive charging coils Stellantis

MISLEADING STATEMENTS

“It would be quite true to say of Peugeot production that the initial demand was high. On their first public appearance, Peugeot took orders for four times as many cars as there were in production. This sounds great but although it was true, the facts are that they had only built one car up to that date and took orders for four more.

Modern car advertising is frequently misleading to the man in the street and hilarious to the expert. Ford today is plugging double acting shock absorbers as the greatest thing out – but all shock absorbers are double acting and have been since 1940.

Holden also pushed radial tuned suspension – ignoring the fact it had also been around since the first radial

Michelin tyres appeared on the Citroens in 1949.

Tread wear indicators were another of Holden’s “latest safety features” but you can’t buy a tyre today that doesn’t have such wear indicators.

Any cars claiming exclusive use of power assisted front disc brakes are also advertising a universal characteristic”.

This article appeared in Peugeottex in February 1994

MEMBERSHIP

The committee would like to welcome Nathan Strawbridge of Mt Wellington to the club – ph 022 473 3215

It is with regret that we announce the death in June of Keith Wilkie, aged 93, one of our last foundation members.

NEW HILLCLIMB RECORD SET AT GOODWOOD

by Dan Mihalascu

Ever heard of the McMurtry Spéirling single-seater electric fan car? If not, that changes today as the wild-looking electric racer has broken both the official and unofficial hillclimb records at the 2022 Goodwood Festival of Speed on 26th June.

UK-based McMurtry Automotive has made motorsport history by setting a new all-time hillclimb record at Goodwood on Sunday and winning the event on its competition debut. Driven by former Formula One driver Max Chilton, the tiny EV completed the 1.16-mile (1.86-kilometer) course in a blistering 39.08 seconds, beating fierce competition in Sunday Shootout in front of 150,000 spectators.

The Spéirling broke both the previous official shootout record of 41.6 seconds, set by Nick Heidfeld in 1999 in the McLaren MP4/13 F1, and the unofficial outright record of 39.3 seconds set by Romain Dumas in 2019 in the all-electric Volkswagen ID.R. Remarkably, the McMurtry Spéirling is the first fan car to compete in officially sanctioned motorsport since the 1978 Swedish Grand Prix; by winning the event, the EV maintained the 100% win rate for fan cars spanning 4 decades.



FAR NORTH WEEKEND

The idea is that participants should meet on Friday afternoon at the Northern Wairoa Hotel, 70 Victoria St, Dargaville and check in for room, dinner and drinks. This will be our 'Base Camp'. The hotel has a Category 2 Historic Place listing with Heritage New Zealand. Over the years there have been several renovations and rebuilds, but many of the original features have been retained. The Northern Wairoa Hotel is still an important part of the township, with its sports bar, comfortable private bar, restaurant, accommodation, and free off street parking.

The hotel has a total of 29 rooms, they start off at \$90 per night for a double room standard, \$45 single room standard, \$130 deluxe room standard and \$145 family room standard, which sleeps 4. However, if we know the numbers attending the weekend with dinner Friday evening, well in advance, we would ask for a group discount.

We intend to fit in a visit to the Packard Museum and the Hundertwasser, plus several country runs and possibly a Gymkhana.

A flyer with details has been emailed to all members. Contact Peter Vuletich 0272 703 764

HYDROGEN CARS

from NRMA

Hydrogen. It's the most abundant element in the universe and the third-most on Earth but did you know it can also fuel cars?

Although the hydrogen car and its use in the fight against greenhouse gas emissions is still relatively niche, manufacturers are dedicating more resources to research and development leading to advances in safety and efficiency and new models in market.

While the expenses involved in rolling out hydrogen refueling infrastructure means it will more likely fuel long-haul trucks and trains than be freely available to motorists, hydrogen is set to play a crucial role in the future of transport and it's worth understanding this evolving technology.

What is a hydrogen car?

By its most basic definition, a hydrogen car is one powered by a chemical reaction involving hydrogen.

The most popular form of hydrogen car is known as a fuel cell electrical vehicle (FCEV), whereby hydrogen stored in an onboard tank undergoes chemical reactions in a fuel cell to create electrical energy which powers electric motors.

How does a hydrogen car work?

There are five main components that make a hydrogen car/FCEV work.

1. Hydrogen storage- The hydrogen storage system is the fuel tank of a hydrogen car. Made of composite materials like fibreglass, carbon fibre and aluminium, it is far stronger than LPG tanks or conventional petrol tanks, and can safely store hydrogen at 700 bar (10,000psi)

2. Battery - A high-voltage battery, like that found in a conventional EV, can store electricity generated from the fuel cell stack and be used to give the vehicle an extra boost under acceleration.

3. Fuel cell – The fuel cell stack is where the magic happens. Hydrogen stored in the vehicle's tank enters the fuel cell stack with oxygen from the atmosphere and is broken down to protons and electrons. The flow of electrons created in the fuel cell provides electricity, and the protons, electrons and oxygen combine to produce water molecules.

4. Inverter – The inverter converts high-voltage direct current from the cell into alternating current, which is used to operate the electric motor.

5 Electric motor(s) – The electric motor(s) and reducer are the powertrain that connects to the wheels and converts electric energy into mechanical torque. When the vehicle slows, the motor also converts mechanical torque into electricity stored in the battery. The reducer plays the role of a gearbox, amplifying torque by adjusting rotational speed of the motor.

So are hydrogen cars considered electric vehicles?

Hydrogen cars as they exist today are considered electric vehicles if they make use of a fuel cell. Seeing as one byproduct of the reaction in the fuel cell is electricity that drives electric motors, this puts the "EV" in FCEV.

However, some manufacturers – namely Toyota – have been testing hydrogen's application as the combustible fuel in an internal combustion engine (ICE), replacing the need for petrol or diesel. In this application, the vehicle would not be considered electric.

What are the pros and cons of hydrogen cars?

Hydrogen cars present some benefits compared to conventional types of EVs and ICE vehicles. Firstly, their range and

refilling time is comparable with ICE vehicles, exceeding the capabilities of current battery electric vehicles (BEVs). Toyota's Mirai FCEV, for example, has a claimed range of approximately 500km with a filling time between two and three minutes, while Hyundai's Nexo FCEV can cover 666km after a fill taking less than six minutes.

By comparison, a Tesla Model 3 Long Range takes roughly 90 minutes for a complete charge, with its 75kWh battery pack providing a claimed 547km of range.

Like BEVs, hydrogen cars have zero harmful tailpipe emissions. The only two byproducts of converted hydrogen are pure water and heat.

So – infrastructure permitting – hydrogen cars could provide all of the convenience of an ICE vehicle with all of the environmental benefits of an EV.

However, hydrogen also comes with cons. At this stage, Hydrogen refuelling infrastructure is considerably more expensive to roll out than EV refuelling infrastructure. Hydrogen is also very difficult to store and transport due to its low density and less efficient in energy transfer compared to an EV. Although technology and methods used to refine hydrogen are constantly improving, as it is now, the process is still also very energy-intensive.

Are hydrogen cars safe?

Hydrogen cars have received a bad rap in terms of safety due to the volatility of hydrogen and the large amount of energy it stores. While these concerns are not unfounded, the reality is all vehicles – including conventional ICE and electric vehicles – have inherent risks when involved in crashes.

Manufacturers specialising in hydrogen are constantly refining safety measures for hydrogen cars and they will only become safer over time. One leg-up in these efforts is the fact hydrogen is

roughly 14 times less dense than air, meaning any onboard hydrogen can be vented into the atmosphere rapidly if the car detects a serious accident has occurred. Often the most dangerous situation in a crash involving an ICE vehicle is flammable petrol or diesel pooling underneath a damaged car if a fuel line is ruptured. This is all but negated in a hydrogen car.

NEVER TOO OLD TO LEARN

by Steve Cornwall

When we were getting ready for the 2022 Winter Woollies in Wellsford I thought I had better check our Citroen's WOF and horror of horrors, it had lapsed. I phoned the garage in Kerikeri to book the WOF but was told that due to Covid staff shortages I would have to wait a few weeks for the check, five days before the Rally.

I made my own visual checks and everything seemed OK under the car and all of the electrics worked. Alas life and old cars don't always go as we would wish and the car failed the test.

When the car was on the hoist the mechanic saw that one front brake pipe had severe rubbing wear on its top side and there was a small blow from the exhaust.

It was a careful drive home before lifting the car onto four axle stands for the repairs.

A quick phone call to Autofrance had the new brake pipe on its way north and then it was off with the rear section of the exhaust system.

The pipe had broken half way through and was being held together by the large flexible hanger. Fortunately, it didn't break in two when I undid the clamps and hangers and I was able to wire the muffler and pipe before it broke

completely. Fell Engineering in Haruru is the only stainless steel welder in the Bay of Islands and are very good at fitting in small jobs for local customers. It was ready in 24 hours.

Now to the front left hand brake hose.

In my haste, I loosened off the 2 brackets nuts but not the male tube nut so unwinding the bracket nut merely twisted the brake pipe until it broke; silly me! So I said to Jen that we needed a quick trip to Whangarei to get the correct joiners.

Stop 1; Lamberts, sorry we haven't got the 3-piece joiner set; try Owens.

Stop 2; Owens sorry, try B.N.T

Stop 3; B.N.T. we have two tube nuts but no joiner.

Stop 4; Lamberts, we have the joiner.

One hour after arriving in Whangarei, Jen is chauffeuring me back home to Paihia with all the parts.

After a good night's sleep, it was down to the garage for the repair.

The Citroen Light 15 has a very narrow engine compartment; 6 inches narrower than the Big 15 so I couldn't remove the metal brake pipe without removing the engine and gearbox.

Fortunately, there was sufficient slack in the length of the metal pipe for me to manoeuvre the pipe under the mudguard. When I overhauled the brakes about three years ago I purchased the correct flaring, bending and cutting tools.

With the car at the maximum safe height of the axle stands I was able to "square cut" the end of the pipe and clamp the protective coil spring as far back as possible.

With great care I was able to fit the flaring tool under the mudguard to make the double flare. I also had to make up a short section of joining pipe which I bent 90 degrees with a tube bender.

I gave Jen one very important instruction before I started the flares.
"Make sure that I put the flare nuts on

first and around the correct way around".
Thank you Jen for checking on me!

The correct Citroen brake copper washers are slightly larger than normal and are impossible to buy now so I have a collection of copper washers that I have sanded level with 400 grit wet and dry paper. I then selected the three best washers.

Ron Anderson from the Northland VCC is a great source of knowledge for me and he suggested that I anneal the spare copper washers with a butane blow torch which would make them good again.

The flare was completed, the brake hose was fitted, everything was lined up and the tightening process was started. I was able to bleed the brakes with my "one-man kit" and everything seemed fine until I asked Jen to help with the final bleed. When she put her foot firmly on the brakes the trunnion began to leak quite badly. With care and determination, I kept tightening the trunnion until the leak stopped.

A quick road test down then back up Te Haumi Hill revealed a successful brake repair and a quiet exhaust.

From a failure WOF on Monday morning the car passed its WOF three days later and we were off to the Winter Woollies again.

I had been thinking about the annealing process and how to do it.

At the excellent Winter Woollies Rally I was speaking to Doug Grant of Northland VCC about annealing the washers and he said, "*get a brick and lay the washers on the brick while heating the copper with a butane torch*"

Eureka, after tinkering with cars for 50 years I have now learnt how to anneal washers and have successfully undertaken the task on my spare washers without burning my fingers.

Steve Cornwall
Paihia

THE TREE MOVED.

by John Cooney

My wife and I have lived in our home for 19 years and during that time I worked out I would have backed out of our garage at least 5000 times so I believe I have mastered the art.

So what made me take a much tighter exit a few week ago which resulted in making contact with the tree near the garage door? Obviously the tree had moved closer to the garage door! Alas not so. There it was, a small dent in the rear mudguard, no broken paint but an imperfection caused by me and it annoyed me. The only mark on the car.

After a few days I thought I'd go to our local panel beater whose services we have required a few times over the years to see what could be done. After carefully inspecting the damage the advice was yes it could be done, and it would take three or four days.

On asking what they would need to do I was advised they would sand the paint off, drill a hole in the dent then use a tool to pull the dent out, then beat the panel to get the correct shape, then fill the hole and prepare for painting. As an aside they would need to remove the rear bumper thus necessitating an auto electrician. Painting meant blending into the rear door, rear hatch and up onto the roof. I didn't get a proper quote but it was going to be

something well over \$1500 dollars thus requiring an insurance claim.

I decide to go to another panel shop, this time one which I'm told does a lot of work on new cars and certainly looks prestigious. The gentleman came out to look at the damage, took a few photos then went back inside to get a business card for a dent doctor who he said could do the job. The quote for this repair was \$260 to \$280 plus GST.

I told my son about the experience and he advised me of a dent doctor who does incredible work on hail damaged cars and would be less expensive. His recommendation was for Jeff Lee, the "Dent Dragon". I sent him a photo and he came back with a quote of \$160 incl.

He came to our home, did the repair, which took around 40 minutes and there is no way you would ever know there had been damage.

Subsequent to this job he has also removed a couple of supermarket dings from my wife's car.

So if your car has a couple of those annoying supermarket dents, I have no hesitation in recommending "Dent Dragon". Jeff can be contacted on 022 415 2848

MECHANICAL MYTHS

Electric cars are more susceptible to catching fire

BUT

There is no proof that electric cars are more likely to catch fire when compared with 'regular' cars.

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FAMOUS FEMALES

Helen Keller (1880–1968)

An illness contracted when she was just 19 months old left Keller blind and deaf. However, she went on to earn a Bachelor of Arts degree and became a prolific author, formidable political activist, and a highly respected lecturer.

JOKE OF THE MONTH

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