



Electric car enthusiast: Michael Richardson from e-DriveRetro even with two electrified classics and know them at the EV Summit in Oslo (Photo: ORV)

NORDIC EV SUMMIT 2018 - E-DRIVERETRO

## Hearing, blasphemy, madness or brilliant? Michael builds on classic sports cars for electric power

Old English sports cars get better run, more reliable and get a new green life.



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Many people say it's pure vandalism, vandalism, blasphemy and much more, but Michael Richardson from e-DriveRetro thinks something different.

**The Estonian company to the American, who lives in Helsinki, buys old English sports cars and rebuild them to electric cars. Not only that. They make some modification as well as make them more modern vehicles.**

"This is like taking a defective knee and inserting a new one in modern materials," he says when we meet the electric car enthusiast at TU and the Elbil Association's Nordic EV Summit at the Plaza Hotel in Oslo.

- **Fresh debate:** [- The more you talk about electric cars, the more the oil price goes up](#)

ARTIKKELN FORTSETTER UNDER ANNONSEN



ANNONSØRINNHOLD

**In the next few years it will be built for NOK 750 million a month**

COWI

## Respectfully remodeled

"We have great respect for the original and will not create any Frankenstein monster that others have done when they have restored cars. These are veteran cars and they will continue to be, but we upgrade them to satisfy environmentally conscious enthusiasts, he emphasizes.

And truthfully, both of the cars he exhibits look very original if you do not touch the hood.

**Then you see that something has been done, but the entire engine, inverter and the rest of the electronics are designed as a piston engine. It might have been unclear, but maybe they would have known if they had opened the gasoline cap and saw the charging contact.**

Richardson indicates that they do nothing but the hotrod's have done for decades. They also buy old cars and give it a thorough renovation, while replacing very much of what was original.

"We are much more gentle in what we do than these," he says.

- **GT racing:** [Removing 500 kg made the Tesla exactly as fast as Musk calculated](#)

## renovating

If something is going to reveal the cars, they may look much nicer than the original. Small English sports cars from the 50s and 60s were not known for quality and finish.

The two exhibited cars are beautiful to look at. Far more beautiful than the time they rolled out of the factory.

**"We buy old unlisted cars on the market and do a thorough renovation according to all the rules of the art. We stick to cars that were mass produced at the time and would never find out about building a rare classic as it was produced in a handful of, Emphasizes Richardson.**



Electrified: Not easy to see this is not an original MGA. (Photo: Electrified)

These are cars for people who have a good chance money and want a classic but not one with a legendary bad gasoline engine. Customers e-DriveRetro aims to run green and electric.

"We have our workshop outside Helsinki, close to another company specializing in restoring English sports cars. Once they have done their job we come in and electrify the car. But without it appearing on the outside. These are veteran cars, although they are rebuilt, he says.

- **By 2016, 3 out of 10 registered new cars in Norway were rechargeable: in 2017 the same was 4 out of 10. This year, more than half should be**



Before: Decelerated, old and petrol-driven (Photo: e-DriveRetro)



Now: Dedicated, New and Electric (Photo: e-DriveRetro)

## Retained appearance

One may wonder how old instrumentation fits into an electric car. Because it has not been replaced.

"Of course we have adapted the instruments to the new drive. Easiest was with the fuel meter. It now shows the charging state of the battery. The tachometer and speedometer are no longer powered by a wire. Now there is a small servo engine that drives the needles. The tachometer shows the engine speed, but an algorithm





calculates how the speed would be with the original engine. It is a servomotor that shows the speed as well. And it also operates the trip counter and mileage counter. The data from the instruments is logged in the diagnostic system, he says.

Original: It is not easy to see that this is not original other than that it is very well restored. Even the instruments are original, but connect to the digital computer system with step motors. (Photo: e-DriveRetro)

Even if the original gear lever is in place, there is no gearbox. It seems like there was an automatic box in the car.

**e-DriveRetro does its utmost to ensure that electrification does not affect the feeling of running an original more than necessary. They even adjust the regenerative braking of the electric motor to match the braking power the original engine had when unloading the gas and closing the damper.**

Even with batteries, the weight is approximately equal to the original car and the maximum engine power quite similar.



Sitting well: The seats are probably renovated far beyond the original, and they have been given seat heat. The handbrake has been renewed to handle disc brakes. (Photo: e-DriveRetro)

"They feel plenty of speakers because the torque curve is much flatter, but we do not overload what's left of the drive because we do not apply higher power levels than it's intended for," he says.

- **Clear message from charging operators: [Do not buy electric cars with low battery and think we'll build 400 new chargers](#)**

## Changes what's needed

When installing an electrical drive, they use a proprietary solution that contains engine, inverter and all electronics. Under the hood it actually looks like a piston engine and that's also the purpose. They call it a virtual engine.

The new drive is connected to the car's original at the differential. That means they produce a new drive shaft for the individual car.

**"We have patented the virtual engine and we will sell these to others who want to electrify older cars. This is scalable so we can supply engines from 100 to 500 kW on this principle that can replace engines from 4 to 12 cylinders, he says.**

The Triumph was the first car they built, but it is the further development of the MGA they will focus on in the future. The 1100kg heavy car has a 26kg heavy engine power limited to 100kW. Potentially, it can produce significantly more, but with a torque of 360 Nm, acceleration is not a problem.

When they refurbished the Triumph they found that the original brakes and the suspension held a goal after the overhaul. In the MGA there were a lot of limitations, so here they have exchanged the suspension and put on a new differential. It was also rebuilt with disc brakes. It was necessary because of driving and safety.

- Audi's Electric Vehicle Manager: [- Suppliers have probably thought Audi has gone out of control](#)

## Battery a little over everything

It is not easy to place the battery in such old cars. Therefore, they have developed modules that can be placed around the car where there is natural space for them.

In the GT6 they have accommodated 19.2 kWh, while the MGA has 22 kWh. It has a further developed battery pack based on small cylindrical lithium ion cells.

**- The batteries last somewhere between 10 and 15 miles. It holds for most, but we have thought about the future too. There are major changes on the battery side and it will be easy to switch to new technology with much larger capacity when it comes to time. We do not freeze technology development when we sell cars, says Richardson.**

For those who want such a car, they have to say goodbye to around 150,000 euros. And it can not be delivered from stock. The cars are manufactured by order, so it takes about half a year to get a claw in one.

A little late for this season, because this is not winter cars. Admittedly, they are equipped with seat heat, but other heater does not exist.

- Nissan Electric Vehicle Manager: [- If the manufacturers had managed to deliver what they promised, there would be more electric cars on the roads](#)



Virtual petrol engine: The engine, inverter and all electronics are assembled in something they call a virtual engine. It will remind the original of those who want to see under the hood. (Photo: e-DriveRetro)

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