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**Charge Pod enables our patrols to help stranded EV drivers at the roadside with a power boost equivalent to a top-up from a fuel can for a petrol or diesel car.**

Chris Millward - Technical Development Manager - RAC



## What IS Charge Pod?

Charge Pod is a mobile electrical boost system designed to provide flat or severely charge-depleted electric vehicles with a roadside power boost so EV drivers can drive to the nearest static charging point rather than being picked up and recovered on a flatbed truck.



## Lightweight

The combined weight of all components for the Charge Pod system is just c.35kg, making the system incredibly popular with fleet operators and roadside assistance companies where space and payload are vital issues.

## Compact

The dimensions of the Charge Pod box are 39cm x 25cm x 19cm - this eliminates the need to purchase patrol vehicles specifically for EV support. Instead, fleets can incorporate the system into their existing vehicles and carry the same amount of tools and equipment already in the vehicle.

## 100% duty cycle of power

Unlike alternatives like portable batteries, the Charge Pod system never runs out of power and is always available and ready to use.



## The Problems with Other Solutions

### Portable batteries

Portable batteries are bulky and heavy, meaning they take up valuable space and payload in a vehicle.

Portable batteries can run out of charge before providing an EV with enough charge to reach a static charging station. What happens if it becomes flat halfway through charging? Charge Pod has a 100% duty cycle.

Once the battery pack is flat, it is an unusable resource that wastes fuel and money to transport on the vehicle, which would mean the patrol cannot attend to additional EVs that run out of charge.





## The Problems with Other Solutions

### Flatbed recovery trucks

The CO<sub>2</sub> emissions of deploying a flatbed recovery truck are up to 30 times higher than when a standard patrol vehicle assists. An average flatbed recovery truck produces 33,248 grams of CO<sub>2</sub> per recovery.\* In contrast, an average of 1,294 grams of CO<sub>2</sub> is produced from a 20-minute charge from Charge Pod - equivalent to the CO<sub>2</sub> produced by just two humans exhaling per day.

It is not possible to access customers in specific locations. For instance, some narrow streets and multi-storey car parks are very restricted in space.

Although some EVs have a tow mode, those without this mode risk being damaged if all four wheels are not lifted off the ground.



\* CO<sub>2</sub> statistics are based on a standard MAN flatbed recovery truck and a Ford Transit Custom patrol vehicle.



## Why Charge Pod?

### Charging infrastructure problems

Problems with the charging infrastructure have been and will continue to cause range anxiety. For example, if an EV driver reaches a static charging point that is not working, drivers are rightly concerned about what will happen if their vehicle becomes stranded.





## Why Charge Pod?

### It fits onto standard Patrol Vehicles

We have designed Charge Pod to be as light and compact as possible so it can be installed onto standard fleet vehicles currently in service.

### People run out of fuel, so they'll run out of charge:

On average, the UK alone records approximately 827,000 breakdown cases because the driver ran out of fuel each year. Omitted from these statistics are people who may have called on friends, family or colleagues to provide a jerrycan of petrol/diesel and been topped up from the roadside that way.

In reality, this statistic is likely to be far higher. So, as the use of EVs is increasing, a quick and straightforward solution must be readily available.

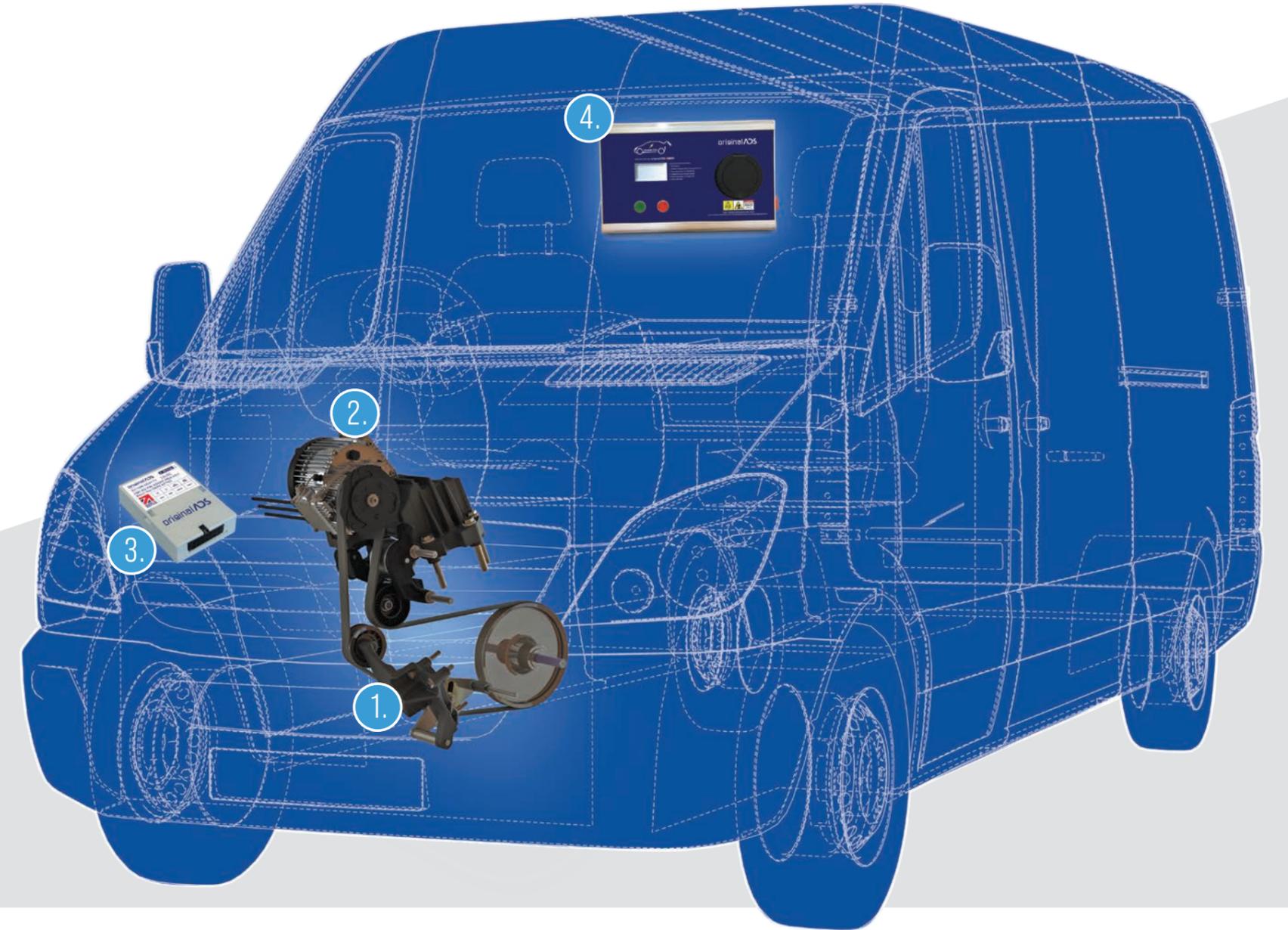




## How Does Charge Pod Work?

Four main components make up the EV Charge Pod system

1. Engine mount kit
2. Generator
3. RPM controller
4. The Charge Pod



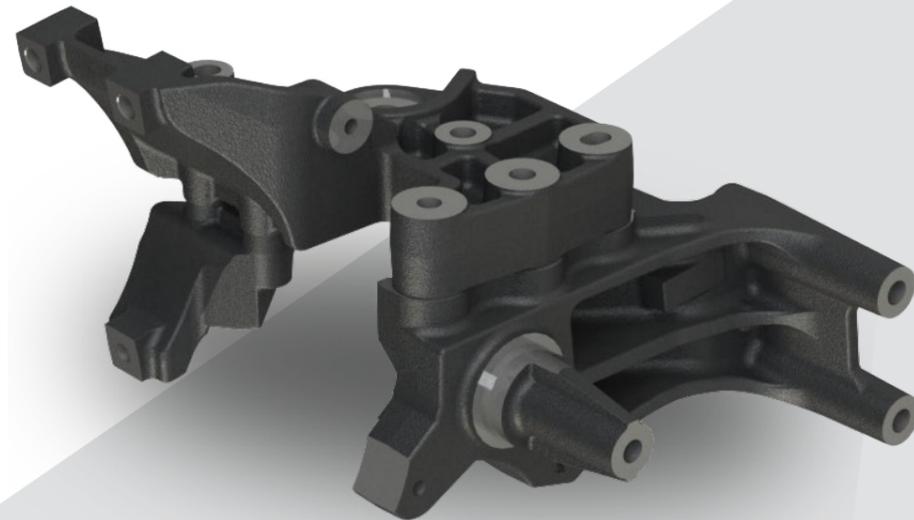


## 1. Engine Mount Kit

Our Engineers design specific engine mount kits to mount the Charge Pod generator onto the patrol vehicle engine.

With over 25 years of experience designing mount kits, our kits set the industry standard benchmark.

All of our designs closely follow OEM guidelines and have a lifetime warranty.

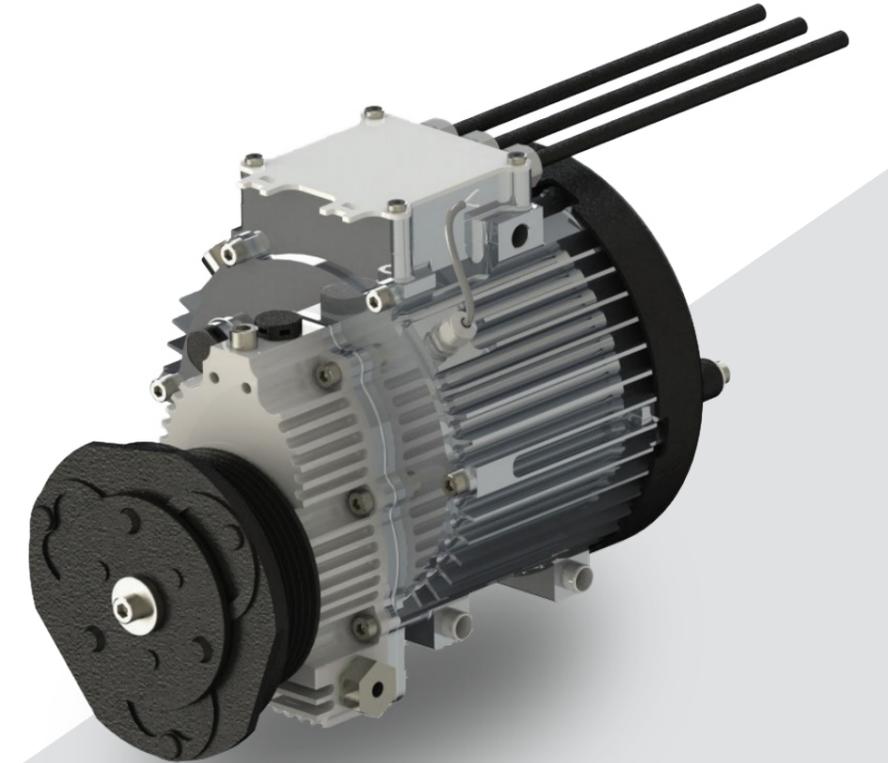


*Volkswagen Transporter bracket*

## 2. Generator

The generator provides the Charge Pod system with the electrical power delivered to the flat or severely depleted EV.

Depending on customer requirements, the Charge Pod system is available as a 5kW and 7.5kW system.





### 3. RPM Controller

The RPM controller is designed to increase the patrol vehicle engine revs to spin the generator at the correct speed to produce the power required when the Charge Pod box is activated.



### 4. The Charge Pod

The Charge Pod box is where all the essential communication happens between the Charge Pod system and the electric vehicle.

Without the Charge Pod box, the EV would not charge.





## POWERGEN

The lightest, most compact 10kW generator the world has ever seen.

The optimum power level for an EV AC charge is 7.5kW. To provide the best possible balance of cost, efficiency and charging time at the roadside, we designed Charge Pod to supply an EV with a full 7.5kW charging capability.

However, ordinary 10kW generators are far too big and heavy, which would compromise the weight and size of the system. Therefore, POWERGEN was created - a pioneering 10kW generator designed with permanent magnetism, making it lighter and more power dense than anything else currently on the market. Weighing just 9kg, POWERGEN is considered revolutionary in mobile power generation.



“Addressing a serious problem, **Charge Pod** has sought to meet a distinct need that will only become more important as we move into the age of electric vehicles.

British Engineering Excellence Awards Judges



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