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The Electric Slide



How Body Shops are Safely and Efficiently Stepping Into Electric Vehicle Refinishing

For the past decade, car manufacturers have envisioned electric vehicles becoming mainstream, on roads from the U.S. to Europe to China. Suddenly, yesterday's dream is close to becoming tomorrow's reality.

The International Energy Agency (IEA) projects 145 million electric vehicles on the road worldwide by 2030 – a drastic rise from 3 million electric vehicles in 2017. And as car makers attempt to win the confidence of consumers who may be skeptical about electric vehicles, automotive body shops and collision repair centers are trying to determine how best to repair them.

Despite the influx of electric vehicles, paint repairs on electric vehicles continue to be challenging. Because of the powerful battery, electric vehicles are unable to be cured in paint booths at high temperatures. As a result, shops have uncovered more innovative curing methods on electric vehicles, including the implementation of short wave electric

infrared (IR) technology, capitalizing on time-saving and revenue-boosting benefits in the quest to stay ahead of the competition.

Electric Vehicles Quickly Gaining Market Share

Fast-tracking the need for shops to be able to accommodate electric vehicles are projections by industry analysts that more than 50 percent of new car sales worldwide will be electric within the next eight years.

Worldwide electric vehicle growth has spiked the past three years – from 2.2 million in 2019 to 3 million in 2020 to 6.6 million in 2021, according to the IEA. Electric vehicle sales in 2021 represented 8.5 percent of the global car market, despite supply chain bottlenecks that stymied car manufacturers amid the COVID-19 pandemic.

With 16 million electric vehicles on roads around the world, including more than 1 million in the U.S., electric vehicles are rolling into collision repair shops more than ever. Without the proper equipment to repair electric vehicles, shops are forced to turn away business or bite the bullet on production-crippling backlogs that can be caused by electric vehicles.

How Your Shop Can Capitalize on Amazon Going Electric

Another motivating factor for shops to equip themselves to repair electric vehicles is the Amazon effect. Amazon has contracted Rivian to produce 100,000 electric delivery vans, with the first 10,000 hitting the road by the end of 2022. Rivian is developing three vans capable of carrying between 500 and 900 cubic feet of packages, with roominess similar to the Mercedes-Benz Sprinter and Ford Transit delivery vans.



Repairing Rivian Prime vans – rollout commenced in 15 major markets in 2021 – is very tedious without the proper equipment. Assuming Amazon’s venture into electric vehicles is successful, other delivery companies are likely to follow suit. Already, Rivian has stated it will begin taking orders from other fleet customers in 2022, with delivery of its electric vans in early 2023. This presents more service opportunities for shops well-positioned to handle electric vehicles.

It’s Electric (and it’s a curing problem)

The challenge for shops repairing electric vehicles is the high-voltage system must be disconnected to ensure the safety of technicians. This makes electric vehicles susceptible to overheating, as the battery’s cooling system is disengaged.

Maximum drying temperatures for high-voltage batteries vary among car manufacturers. Major car manufacturers have released statements warning against overheating the battery. These statements specify that curing temperatures for electric and hybrid vehicles should not exceed 140 to 150 degrees Fahrenheit.

Curing temperatures for electric and hybrid vehicles should not exceed 140 -150° F.

Since electric vehicles are unable to be cured in a normal paint booth cure cycle, an extended low cure cycle is typically used. However, an extended low cure cycle doubles the bake time, reducing overall throughput and significantly slowing down operations. Even when using an express-style clear coat, paint quality issues arise – a problem that is magnified when working on luxury vehicles.

Considering the average U.S. work order is around \$3,000 and the average gross profit is 40 percent, one less car through a shop – possibly because of a prolonged electric vehicle repair – translates to \$1,200 less in gross profit. It is a troubling outlook for shops that may already be struggling to stay ahead of the competition due to aging equipment or pandemic-driven staffing shortages.

A Safe Way to Quickly Cure Electric Vehicles

To quickly cure electric vehicles without causing damage, the best solution is short wave electric IR technology, such as REVO Accelerated Curing Systems from Global Finishing Solutions (GFS). These systems offer a safe solution for curing electric vehicles, while increasing throughput.



When using REVO Systems, temperatures on the exterior of the vehicle might eclipse 200 degrees, but the interior of the vehicle will not surpass 100 degrees. Therefore, the battery will not overheat, protecting the vehicle and technician. REVO Systems are also safe to use on vehicles with curtain airbags or child safety seats.



Not having to disconnect the high-voltage system or use an extended low bake cycle or express-style clear coats speeds up shop processes. Additionally, electric IR technology reduces drying time for both the prep and paint phases of repair by hours, freeing technicians to complete more repairs.

Gas Catalytic Dryers vs Electric IR

There are two types of IR drying technology – electric and gas – that can reduce cycle time and increase throughput. The basic differences between electric IR and gas dryers are the size of the IR wavelengths they produce and the way the systems generate energy, which lead to different throughput times and quality results.

Short wave electric IR energy costs are a fraction of the costs to run a conventional system.

The reaction that occurs in gas units produces mostly long IR wavelengths. Since the longer wavelengths do not penetrate through the coating, the surface of the coating dries before the coating closest to the substrate, trapping solvents inside. This is a major issue when curing thicker coatings, such as primer or clear coat. Body filler is also finicky with long wave systems, so gas catalytic IR dryers require multiple passes over each layer being cured.

On the other hand, short wave electric IR cures up to three layers with one pass, without skinning or solvent popping the top layer. Short wave electric IR energy costs are a fraction of the costs to run a conventional system. These savings come from being able to concentrate the drying energy on just the panels needing repair and from the ability of the technology to dry both filler and coatings much quicker. With short wave electric IR technology, there is no need to add expensive accelerators to speed dry time.

Faster Curing & Better Finishes with REVO Systems

Penetrating directly to the surface of the substrate – whether metal, plastic or another material – short wave electric IR technology heats the coating and rapidly cures it from the inside out. REVO Systems produce mostly short waves that heat the surface; however, a small number of medium waves simultaneously cure the top layers. By concentrating heat only on panels in need of curing, rather than the entire vehicle, the end result with REVO Systems is a fast, complete cure, with no temperature rise inside the vehicle.

Not all electric IR units on the market function the same. Some produce only medium waves, which do not have the same impact as a combination of short waves and medium waves. A lot of electric IR units that produce short waves lack temperature control, making it difficult to determine how much power you are bringing to a panel when curing. This could result in an improper cure and damage the vehicle.





With temperature control on REVO Systems, shops have the comfort of knowing the coating is completely cured but not over-cured. Rework is often reduced, eliminating slowdowns in your shop and increasing customer satisfaction. Curing primer, sealer and paint above 120 degrees with REVO Systems also produces a shinier gloss finish.

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As electric vehicles keep gaining popularity, a significant impact is being felt in the collision repair industry. Shops need to adapt their processes and equipment for refinishing electric vehicles, both to keep up with rising demand and to avoid losing business to their competition.



With short wave electric IR technology, shops can safely repair electric vehicles, while benefiting from substantial improvements

in efficiency and quality. REVO Systems evaporate volatile compounds that can impact the quality of prep and paint jobs. With high-quality curing of each layer using REVO Systems, fewer reworks come back to the shop, and more importantly, fewer customers experience these problems.

REVO Systems reduce out-of-dust time to just minutes, so the need for buffing is minimized. REVO units do not stay in the booth when not in use, where contaminants typically reside, so fewer contaminants may be introduced during operation. They can also be easily implemented into a shop's existing processes and layout, preventing the need for a shop to overhaul their space.

To learn more about how REVO Infrared Curing Systems can improve an electric vehicle's final finish, visit globalfinishing.com.



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