



## Case Study:

# Premium Custom Car Restoration Leader, Kindig-it Design, Can Dig It Thanks to FARO 3D Measurement Solutions



KINDIG-IT DESIGN | [WWW.KINDIGIT.COM](http://WWW.KINDIGIT.COM)

**“We really have grown to trust the scanning process...the amount of time saved is about 90%”** – Greg Hebard, Digital Fabrication Specialist, Kindig-it Design

For the talented men and women who call Salt Lake City-based Kindig-it Design their home away from home, the above quote speaks volumes about how they approach their work — a high-octane day job which mixes lifelong automotive passion with precision detail in equal measure.

That’s because in the business of custom car restoration and remodeling, every component of a car matters. And every customer’s dream for what they envision as the perfect vehicle — custom dash, custom mirrors, custom roof, custom engine, etc. — needs to be given serious thought before those hopes and desires can be brought to life. It’s what energetic company founder and CEO, Dave Kindig, might call a “bitchin’ ride,” borrowing from the namesake of his hit reality TV show *Bitchin’ Rides*, as seen on the MotorTrend television network.



Now in its 9th season with 125 episodes under its (timing) belt, the Kindig-It team has learned a thing or two in its almost decade-long run. Chief among those lessons is the need to remain abreast of the competition and that despite working with classic cars that date from the 1920’s to now — Roadsters,

Camaros, Lamborghinis, Corvettes — staying current with the latest technology to help get their jobs done safer, faster, and more accurately than ever before. That's why since 2017, the company has worked with FARO Technologies, Inc., a global leader of 3D measurement, imaging and realization solutions for the 3D Metrology market.

## Taking It to the (Quantum) Max



From Greg Hebard's perspective, Kindig-it's Digital Fabrication Specialist, the most important tool they've come to embrace is the Quantum Max FaroArm, the world's leading portable coordinate measuring machine (CMM). The Quantum Max an advanced portable measurement tool that features three purpose-built hot-swappable Laser Line Probes (LLPs), and is designed to meet a variety of small and medium-sized measurement needs, ideal for custom car design.

"What we usually use the Quantum Max for is as a reference tool to design around," Hebard explained. "Classic vehicles are going to have a ton of complex organic shapes on the body, on the dash, etc. So to be able to design a part and trust that it fits onto the existing body, taking out the guesswork or relying on paper templates, is really impressive."

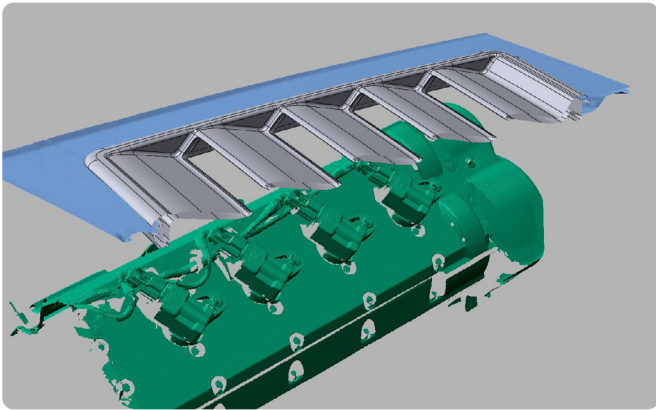
The Quantum Max boasts a productivity boost of over 30% and LLPs enhanced with FARO's CLR (Continuous Light Rectification) technology, which provides users the highest quality scan data on dark, translucent, and reflective surfaces. This advantage eliminates the need for sprays, time-consuming surface preparation, and cleanup while avoiding finished product contamination.

"We really have grown to trust the scanning process," Hebard continued. "Today we can scan a car while it's in bare metal design, a taillight or trim pieces, and we can trust that they'll just go on the car right away once it's painted, which is nice, because traditionally you're going to have to have the vehicle in front of you to build the parts. So to be able to capture that data and then design while other people are working on the car saves us a ton of time and opens up the possibility to build more parts for the car and get the project done more quickly."



In a recent example, Greg and team used the Quantum Max to scan a dashboard for a car and a center console that was entirely 3D printed, a type of additive manufacturing process where the actual automotive part is built layer by layer from a CAD or digital 3D model. Traditionally these parts could have been built out of foam or fiberglass. But now parts like this can be built without the actual car on hand. What happens is that parts from other cars can be scanned and used as a template to create that 3D model and later 3D printed from that digital blueprint. Before long, in an almost "Franken-car-like" fashion, unique new parts are then "grafted" (in reality, welded) onto the restored new car body, mixing and matching and combining styles from other vehicles to create something entirely unique that is as much art as it is automotive science.

In another example, Kindig-it scanned several hood vents on a 1969 Camaro. And the way the company would traditionally work would be to cut apart the hood, build the parts out of sheet metal and then tackle all the hood structures as well. The goal, of course, is to make sure a vehicle's add-ons look seamless – as if the car came like that right off the assembly floor, stamped out of steel.



“So on this Camaro, I just scanned the hood before we cut any holes in it, and I designed a piece that goes in the top that fits to the hood, which has a slight curve,” Hebard explained.

*“And then I also designed a cap for the bottom side that would follow the contours and all the structure of the hood and clamp it into place. The amount of time saved is about 90%. It’s unreal.”*

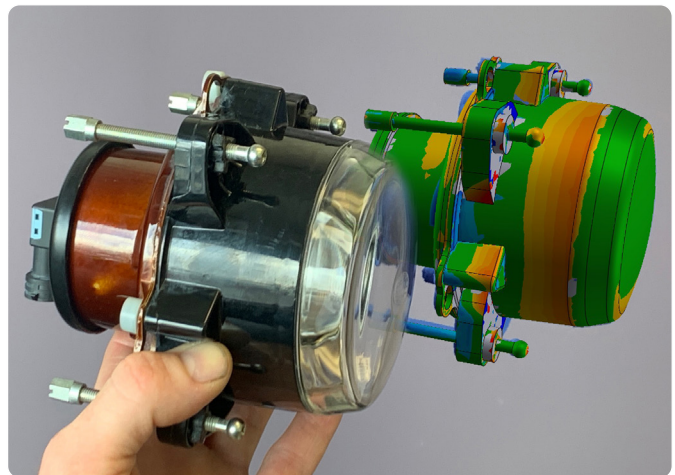
Greg Hebard  
Digital Fabrication Specialist, Kindig-it Design

## Reducing Rework, Waste, Scrap and More

One of the key benefits of the Quantum Max (and for that matter, any quality made PCMM) is that there is no time — or accuracy — lost on moving a part from the assembly floor to a separate CMM room. Nor is a computer expert required on hand to process and interpret the scanned data. It’s also safer for employees as moving large parts or supervising machines to move the part/s can be dangerous, as well as time consuming.

Then there’s the benefit of reducing rework, waste and scrap, a trifecta of particular concern in an age of high inflation, lingering (but recovering) supply chain sluggishness, and a strong US dollar. As one might anticipate, additive manufacturing and 3D printed parts can be expensive. And any savings here really add up. For small to medium-sized operations like Kindig-it Design, a company which produces approximately 10 custom full builds per year along with 4-5 smaller projects and employs 36 specialists, the amount of 3D printed parts can easily be in excess of \$30,000 per project. With tight margins parts simply have to fit, the first time. And they must be scanned with a device that delivers unprecedented ease-of-use. There really is no room for wasted material and cost-multiplying/learning curve inefficiencies.

“I really like that we don’t have to put reference targets and align multiple scans like some of the scanners and that we can pull the scanner out to scan a few small things that we have to put into a larger design,” Hebard said. “I can scan a headlight area on one side and then I don’t have to scan everything in between. I can just scan the other headlight too, without moving the scanner.”

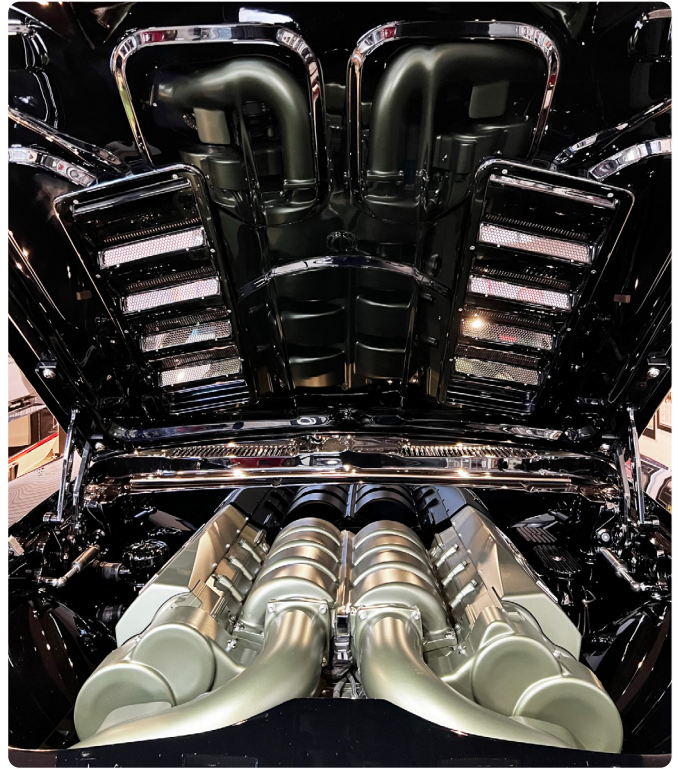


While Greg might ultimately describe himself as a traditionalist when it comes to custom design, the Motor City native is also certain that the future lies with incorporating 3D tech throughout the automotive manufacturing process. And tools like the Quantum Max FaroArm are leading the way.

"I think that some people, at least in my mind, think that when you're building a classic car that the latest technology interferes with using one's hands and diminishes the 'classic-ness' of the vehicle," Hebard concluded.

*"But nothing could be further from the truth. The FARO Quantum Max has really been a game changer allowing us to do better work, faster. And in my opinion, it's where the entire automotive industry is heading."*

Greg Hebard  
Digital Fabrication Specialist, Kindig-it Design



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