

#GetCreativeWithPorsche: Automotive design

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14/04/2020 In part 2 of the #GetCreativeWithPorsche series, Michael Mauer, Head of Design at Porsche, talks through how to sketch the Porsche 911 from scratch.

Michael Mauer is never without a notebook. In meetings, he is always drawing and doodling – working things out on paper. "I drive my wife crazy," admits the 58-year-old. "Even at breakfast I'm sketching, and it's almost always cars: I can't help myself."

It may sound like a cliché, but the man in charge of design at Porsche since 2004 lives and breathes design. During lockdown, his thumbnail sketches are piling up faster than ever and as he talks through how to draw the greatest Porsche icon – the 911 – for a new series aimed at honing enthusiasts' skills from home, his pencil glides effortlessly across the paper in front of him, as if with a mind of its own.

“As a designer, you can work through a lot of problems by sketching,” he says. “Sometimes we’ll review a model during the design process – whether it’s a clay model or a VR model – and we realise something is not quite right. Maybe we’ve pushed the roofline too low or a technical challenge presents itself. When this happens I get my pencil out and sketch around the details – around the element that isn’t quite working – and I try to solve the problem by sketching.

“When I met Doug Chiang (the legendary Star Wars designer) he mentioned a term that I liked very much: ‘happy accidents’. I do so many sketches – hundreds and thousands – and often I look at what my right hand is putting down on paper and I’m surprised by what I see. When you look at a sketch and realise ‘I’m onto something here’, that is a happy accident.”

The ground-breaking Taycan is perhaps the ultimate example of Chiang’s theory. Almost unbelievably, the design of Porsche’s first fully electric car developed after Mauer misinterpreted a technical sketch of a 918 for a new idea and a seed was planted.

“One day I was walking through the studio and passed a young designer’s desk. At the time we’d just finished work on the 918 and I saw this very rough sketch and thought: ‘Wow’. I said to the guy “that’s cool: an idea for a four-door 918. I never thought of doing a super sports car with more than two seats” and he looked at me blankly. I pointed to this line he had drawn and told him that the next generation of super sports car was right there in front of us. He said “no, no, no” and explained that it was simply there to show the clay modeller where he wanted to see more positive surface treatment in the model of the 918 they were working on. For me, it was the shutline of the rear door.

“We didn’t realise it at the time but that moment was the start of the Taycan. We further developed the idea of a car with the proportions of a super sports car but with four seats and, a little later, when we were discussing the first fully electric Porsche, we came back to the sketch I had misinterpreted. That was really a very happy accident. When I see the Taycan I think of that moment.”

Mauer and his team are already working on designs for cars two generations down the line, with an eye on how mobility might look in the year 2030. But for now, with restrictions on movement to help contain the spread of Covid-19, he shares some of the tricks of his trade.

Michael Mauer shares some of the tricks

“One of the key things to think about when sketching cars, is getting across the three dimensional aspect,” he says. “Sometimes you even have to add more emphasis. Exaggerate. Think of a caricature: you immediately know it is someone if the nose has been exaggerated and made extremely big or long. That person doesn’t have such a big nose in reality, but maybe it’s the feature that makes them most recognisable. This is a bit like sketching a car. For example, consider drawing the wheels a bit bigger. Visualise the character you’d like the car to have.

“Sometimes I try to sketch archetypes from car history. I think about a car – not a 911 as I know it so

well – but maybe a [Land Rover] Defender. What are the two, three or four lines that – if you didn't add any further detail or colour – are so characteristic that they would define that car? There are cars that are very simple, and there are cars that are very complicated. Sometimes these cars – the complicated ones – don't have such a strong identity. If a car doesn't have a strong identity, it's hard to create brand identity with the design. It is really helpful when you are designing a car to understand what the key lines are. Here I'll talk you through the stages of sketching the icon that is the 911."

Sketch 1

If you asked ten car designers to explain this process of sketching you would get five different approaches. Some designers start with both wheels, some start with the front wheel and then start to sketch the front of the car and put the second wheel in later. You can approach it however you choose but I always start with both wheels because one of the challenges of drawing a car is defining the wheelbase and the correct proportions. You have to have an idea of where the rear wheel is supposed to be. With this method, I sometimes continue to sketch and realise the rear wheel is in the wrong position so I erase it and start again. When you draw your wheels it is up to you whether you start with two simple circles or add a little more: in this case I've started to think about the idea of a five-spoke wheel.

Sketch 2

Once your wheels are in place, the next step is to put the car on the ground: draw the line between the wheels. From there, you can start to build up the outline. Designers and engineers talk about the "Y zero section", which basically means the silhouette. It is very iconic in the case of the 911. Sometimes you'll find the silhouette and the wheelbase don't match, and you have to think about moving the rear wheel but that's no problem: that's why we have erasers.

Sketch 3

Gradually we are beginning to add details, step-by-step. Designers often refer to the window as the DLO: the daylight opening. I think this term was invented so that we could have conversations no one else would understand. The DLO on the 911 is iconic and very different to a Cayenne or a Panamera, since they are four-seaters. This is one of the first details I add, followed by the front headlamp, and then more detail at the rear end. You can see the shape of the bumper has been added, and the rear lamp.

Sketch 4

Sketching a car is all about adding layers, gently adding more detail. The biggest challenge is always to stop sketching: sometimes a sketch is nicer when you apply the "less is more" principle. At this stage,

the headlamp is now ellipse. I've added the lower air intake and the bottom of the door is starting to show more shape. Note the air outlet in the lower area of the bumper and the detail on the rear fender. I'm trying to create a feeling of a strong rear shoulder. There's a very fine line between the wheels now, just below the belt line. It's very fine and doesn't exist in the previous image. This very fine line gives the side – the surface between the wheels – a more three dimensional feel. It's not an accident that this very fine line, when it comes closer to the rear wheel, is dropping. It doesn't mean that on the final product the line drops, it's just a way of visualising and giving the person that's looking at the side view an impression of how the car might look in the flesh. If you look at the 911 from above, the rear track of the car is a little wider and these fainter lines help to indicate this.

Sketch 5

You'll see we are adding more and more detail at this stage. The door handle is there, along with some more lines of varying thickness, to add or remove emphasis. It is all about creating a three dimensional feel. If you are able to, park your car against a nice background and take a photograph of it. You'll see lines that indicate the positive and the negative surface treatment. Try to imitate those lines in your drawings and it will help to bring your sketch to life.

Sketch 6

The first five sketches have been lines but now it's time to add shadow and contrast. The shoulder is still completely without colour because we want to give the impression that this is reflecting light. Study photographs of cars and look at the areas that are highlighted, and which areas fall into shadow. In part 1 of the #GetCreativeWithPorsche series the automotive photographer Richard Pardon talked about how light can be used to really showcase a car's design and this is what we're trying to get across now, in sketch form.

Sketch 7

The next step is fun: it's where we start to add colour and bring everything together. If you work with Photoshop it's like adding another layer. The blue colour on the upper part of the car reflects the sky, while below the line, where it's darker, we reflect the floor. This creates the impression of the car being grounded. You don't need Photoshop – I'm actually not very good with it – try using watercolour paint or crayons. When I am sketching it is often in a meeting, and I only have a pencil and paper with me.

Sketch 8

Each designer has their own way of treating glass but I like to colour it black at this stage, and the same with the wheels. We can add highlights in the next step. I usually draw thumbnail-sized sketches. When

you're starting out you might find it easier to do the same as you have more control.

Sketch 9

Consider here the DLO – the daylight opening. Here the side window is split, so that the upper part is black, and the lower part is lighter. This creates the impression that there is curvature. On very old cars the glass surface was completely straight but the side windows now have a curve in the glass. You can demonstrate this with a subtle change in colour. The rendering stage takes the drawing from a pencil sketch to something much more sophisticated.

Sketch 10

When you're working on paper, in one dimension, you need to apply tricks using colour and shade to create depth and an impression of the final, three dimensional product. Look again at the photo you took of your car. Look at where you can see through the glass, or where the bodywork shows reflection. This changes, depending on where your car is parked but it's useful to study how shadow appears on the different surfaces. Here, we use white paint to lift key areas, and a little colour is creeping into the lights and callipers. Consider adding a steering wheel. Or maybe you can see part of the seat.

"Keep your sketches," says Mauer. "Sometimes it's fun to look back at these and I can see immediately whether I was in a meeting, and whether it was interesting, or less relevant to my department, or," he laughs, "if budgets were discussed. Sometimes I think "oh that is horrible" or "oh I had a bad day this day" but design is always about trial and error and I encourage anyone to pick up a pencil and have a go."

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