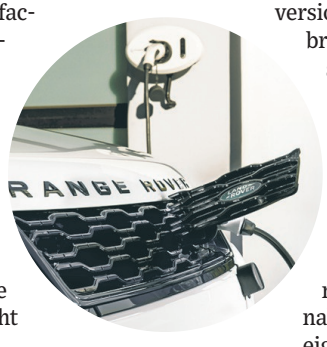
LEAD FOOT Range Rover's PHEV is 360 pounds heavier and a full two seconds slower from 0-60 mph than the gas-powered Sport SVR model.

RUMBLE SEAT / DAN NEIL

Range Rover's Hybrid SUV Could Use a Jump Start

IN DECEMBER 2002 the Norwegian-flagged cargo ship Tricolor sank in the English Channel, taking to the bottom a load of nearly 3,000 cars, including factory-fresh BMWs, Volvos and Saabs. In 2006, the car transporter Cougar Ace tipped on its side in the North Pacific, scrapping a shipment of 4,700 Mazdas. And in March of this year the Grande America caught fire and sank off the coast of France, consigning its load of Audis and Porsches—including a clutch of GT2 RS supercars—to the briny deep.



SHORT CIRCUIT Even fully charged, the PHEV only gets an estimated 25 miles of range.

Here I shake my fist at the sky: Why, why couldn't my test car—a Range Rover Sport HSE P400e—have been among them? It already feels a bit waterlogged.

The what: The Range Rover Sport ($69,500 to $114,500) is Jaguar Land Rover's premium-luxury midsize SUV. The Sport model is withal a swanky and capable performer, with lovely silver and saddlery inside and mad prestige on the outside. Note its blacked-out roof pillars and dark glazing that creates an effect like a bandit's mask. This is the Range Rover that looks so good Ford up and copied the design.

Let me walk you through the brochure: The Sport is available in five trim levels (from SE to SVR) with a range of six powertrain options: two supercharged V8s (515 hp or 575 hp, depending on the chip tuning); a turbodiesel V6 (254 hp); two versions of the mild-hybrid 3.0-liter gas in-line six (355 hp and 395 hp); or this hot mess of parts, a plug-in hybrid.

Under the hood is a hardworking 296-hp turbo 2.0-liter four-cylinder, mounted longitudinally, buttoned to an eight-speed transmission and all-wheel drive. Baked into the guts of the transmission housing is the 141-hp electric motor, which provides quiet, seamless propulsion and regenerative braking throughout the driving cycle, optimizing for efficiency.

The smoothness and smarts of the hybrid hardware can't be faulted. The torque boosting, blending and braking are all unobtrusive and transparent, even though power levels are significantly higher than, say, a Toyota Prius. The fact is, the Range Rover brand and electrification have a lot of common cause: cabin quiet and refinement, accelerative torque, and even off-roading. Because electric torque can be more precisely modulated at the throttle and at each tire's contact point, EV-ified Range Rovers promise to be better climbers than their gas-only forebears. Rechargeable in the field, too.

The P400e's system net maximums are 398 hp and 472 pound-feet of torque. Those worthy numbers are pitted against the vehicle's curb weight of 5,430 pounds, before options! And now it all goes somewhat south. For reference, the Sport SVR—with a blown 5.0-liter V8, radiators for days and a wheel-and-tires set you can see from space—weighs 360 pounds less (5,070 pounds). The SVR has only about 10% more torque but hits 60 mph a full two seconds faster (4.3 seconds) than the plug-in hybrid (PHEV), and makes a lust-incarnate sound doing it.

The PHEV's problem is the technical overhead relative to its delivered performance. At the absolute best, fully charged, the Sport P400e can squeeze maybe 25 miles of all-electric from its 13.1 kW/h battery—though I never saw close to that in my time in the car. Even in the first few miles of low-to-moderate speed urban driving—like I'm on my way to a funeral in Eco mode—the little turbo four would drum to life. Dang. That was a short virtuous spiral.

The EV mode button acts more as a powertrain bias selector—EV and gas—telling the control modules which batch of algorithms to favor. Once the battery-assisted range is depleted, the P400e's hybridization becomes transparent and integrated, with brake and throttle responses like any Sport that might have anvils under the cargo floor.

2020 RANGE ROVER SPORT HSE P400E PHEV

Base Price $79,000
Price, as Tested $93,200
Powertrain Plug-in hybrid system, with front longitudinally mounted dual-overhead-cam 2.0-liter in-line four-cylinder gas engine; eight-speed automatic transmission with integrated AC motor; permanent AWD
Curb Weight 5,430 pounds
Max System Power/Torque 398 hp/472 pound-feet of torque
Length/Width/Height/Wheelbase 192.1/81.6(with mirrors folded)/71.0/115.1 inches
0-60 mph 6.3 seconds
Towing Capacity 5,511
Cargo Capacity 24.8/56.8 cubic feet (behind 2nd/1st row)

The Range Rover Sport wasn't future-proofed for electrification. Thus the weak battery, shoved where the sun don't shine.

Why is the Range Rover's PHEV system underbaked? One must avoid monocausal explanations. For one thing, any car is a time machine, a look at a company's resources and technical mind-set about five years ago. At that time, JLR and the management of the conglomerate Tata Motors had doubled down on diesel technology, spending millions on research and production, at the expense of electrification. But diesel sales collapsed in Europe, post Dieselgate. So that bet didn't pay off.

More context: When JLR engineered this, its first PHEV system, its electric range targets were much lower. That permitted the engineers to use prismatic pouch-style cells that—while less energy-dense than cylindrical-style cells, typically—are safer and easier to package.

That was before China—the world's largest car market—began to upwardly revise PHEV range requirements to avoid import penalties, stipulating a minimum 50 km of range. JLR, BMW and other Europe-based car companies have found themselves with a lot of noncompliant plug-in technology to amortize. In any event, this is a portrait of commercialized lithium batteries circa five years ago.

The Range Rover Sport is a longstanding design that wasn't future-proofed for electrification packaging, as Volvo's SPA platform was. Thus the relatively weak and bitsy battery pack, shoved where the sun don't shine, between the rear air suspension uprights. The P400e version gives up 2.7 cubic feet of cargo space over other Sport models.

The battery inverter and charge inverter (7 kW)—both pretty small—are under the front seats. The charge port is concealed behind a panel in the grille panel.

But for me the P400e's marquee number is its wading depth of 33.5 inches, at which point all of these high-power electronics are submerged. I'm sure that's fine.

I don't want to tax JLR too badly for the gooey centered P400e. After all, JLR was the first premium-luxury car company to go after Tesla, with the excellent I-PACE electric crossover. And, for the conscientious owner with short-range daily use cycle, the P400e can return remarkable economy, provided he or she remembers to plug in at night. Under the right conditions, the Sport can get 70 mpg or better.

But if you forget, or ignore the plug, the mileage sinks like a cargo ship full of...well, you get the idea.

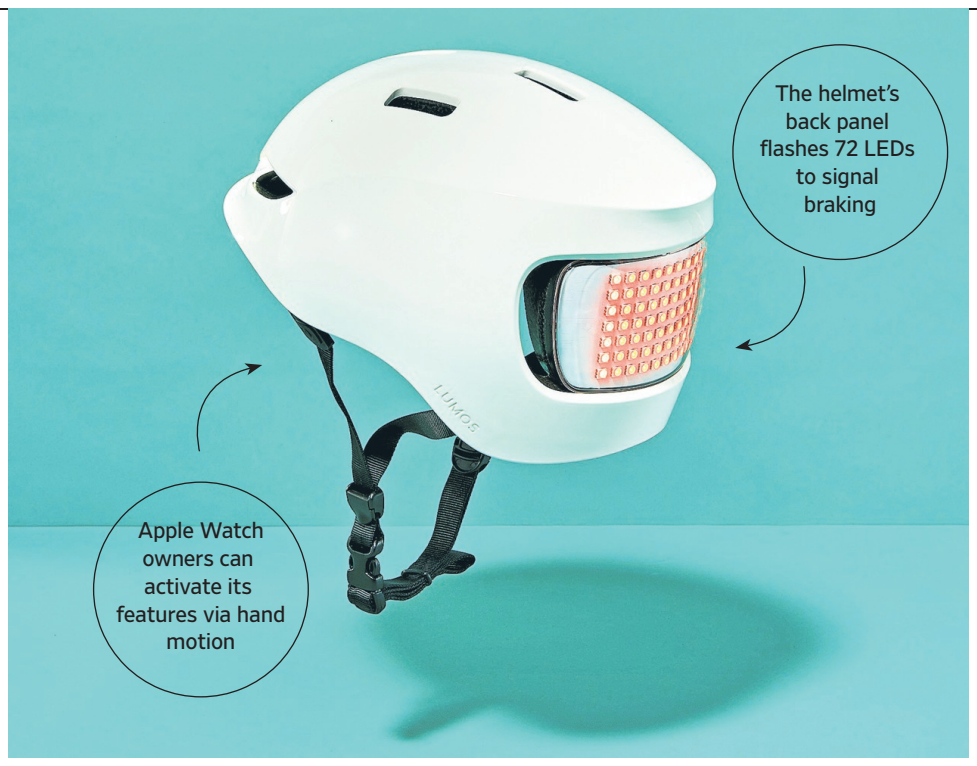
Keep Your Head In the Game

Smart helmets can help cyclists feel safer on city streets. Is that worth $249?

CYCLISTS ARE RIDING into the future on smart bikes outfitted with pedal-assist motors, superpowered batteries, LED lights and Bluetooth controls. Why should what they wear to protect their heads be any different?

The Lumos Matrix helmet, launching this week, was specifically designed for the tech revolution in urban cycling. A next-level upgrade on last year's Lumos model—the first helmet to be sold in Apple stores—it looks, for better or worse, like something a Storm Trooper would wear. For visibility, it's twice as bright as the previous generation, with a strip of white lights spanning the brow, and 72 LEDs embedded in the back to flash animated turn signals or indicate that you're braking.

Apple Watch wearers can sync their devices to the helmet, so when they raise their arm for a right or left turn, the corresponding indicator flashes on the helmet's back. You can get the same functionality by attaching a simple touchpad (included) to your handlebars. The Matrix can also record ride data to your Apple Health and Strava apps and sense when you're slowing down, thanks to an accelerometer in the touchpad, and engage the brakes.



SERVES YOU BRIGHT The Lumox Matrix Helmet, *$249, lumoshelmet.co*

It isn't the first smart helmet to hit the market; the Livall Bling BH60 *($50, livall.com)* also features turning indicators and both it and the Coros Omni *($150, coros.com)* have LED taillight strips that can be controlled via a remote, as well as automatic SOS alerts that call 911 when they sense a crash. But in a lineup, those souped-up versions of a standard helmet pale next to the Matrix.

At this point, companies shouldn't really need to sell consumers on the safety benefits of helmets. An August 2018 meta-analysis in the journal Accident Analysis & Prevention found they reduced serious head injuries by 60% and cyclist fatalities and other serious injuries by 34%. There aren't any stats yet on whether smart helmets can further improve those numbers, but it's reasonable to assume that increased visibility and illuminated turn indicators would decrease your chances of being hit, said Steve Rowson, director of the Virginia Tech Helmet Lab.

With all its bells and whistles, the Matrix *is* pricey, but not unreasonable. "Good helmets can cost anywhere from $50 to $200," said John MacArthur, a research associate at Portland State University's Transportation Research and Education Center. The current top three helmets (sans fancy tech), as rated by Mr. Rowson's researchers, cost $75, $150 and $200. And if lights aren't built into a helmet, "you could pay anywhere from $40 to $300 for them," Mr. MacArthur added.

"Approximately 25% of bike crashes occur in the dark and 20% occur in wet conditions," he said. "Yes, this helmet would reduce the risk to cyclists; by how much needs to be studied." Better safe than sorry, even if you might look like a Cyborg-mutant dweeb.

—Ashley Mateo

F. MARTIN RAMIN/THE WALL STREET JOURNAL