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Book Descriptions:

Do Electric Cars Have Manual Transmissions

To learn more or optout, read our Cookie Policy. Please also read our Privacy Notice and Terms of Use, which became effective December 20, 2019. The sad thing is it's just a oneoff, built for this week's annual Specialty Equipment Market Association SEMA trade show in Las Vegas. Ford unfortunately didn't share too many other specifications, like range or the size of the battery, since this is just a prototype. It does, however, feature a vertically oriented 10.4inch touchscreen in the dashboard, similar to what Ford did with the 2020 Explorer. Electric vehicles tend to be singlegear affairs, meaning there's no need for manual or automatic shifting at all. The new Porsche Taycan is one notable exception, with its twospeed setup. But that doesn't mean you can't design a car that marries the instant torque of electric vehicles with the fun of rolling through a gearbox. It's not necessarily a great place to read tea leaves if you're trying to understand an automaker's product road map, but it always offers fun prompts for the imagination. With just two weeks to go until Ford unveils its first massmarket EV, a Mustanginspired SUV codenamed Mach E, it's easy to let one's mind wander down the road to a few years from now, when an allelectric Mustang with a manual transmission becomes a quirky, limitedrun addition to the Detroit automaker's multibilliondollar push into electric vehicles — even if it's more likely to remain the stuff of dreams. It is an allelectric Corvette Grand Sport and it has a 7speed manual, Im so excited. Why would you put a manual into an electric car. Well, a single speed reduction gear box like what you have in a Tesla, you have to choose between really strong acceleration or a really great top end speed. But with the manual. You dont have to choose. The GXE has 0 to 60 times that under three seconds and a top speed of 220 per miles an hour. <http://www.x-wing.co.kr/upload/canon-zoom-518-2-super-8-manual.xml>

- **do electric cars have manual transmissions, can electric cars have manual transmissions, electric cars have manual transmission, do electric cars have manual transmissions, do electric cars have manual transmissions work, do electric cars have manual transmissions for sale, do electric cars have manual transmissions made, do electric cars have manual transmissions free, will electric cars have manual transmissions.**

Twin electric motors stuffed under the front hood give you 800 horsepower at the wheels and 700 lbft of torque. But theres enough batteries for you to go 175 miles on a single charge if you drive it normally. Which, Im pretty sure I would never, ever be able to do. And if youve looked at the back, you might notice those oldschool tail lights Yeah, Genovation just like it better, so they swapped them out. But, you are going to have to move fast. Pretty sure Im gonna need a raise. Apples September event preview. Close Alert Close Electric Cars—and Irrationality—Just Might Save the Stick Shift Backchannel Business Culture Gear Ideas Science Security More Chevron Story Saved To revisit this article, visit My Profile, then View saved stories. Close Alert Close Sign In Subscribe Search Search Backchannel Business Culture Gear Ideas Science Security Brett Ber k Transportation 11.09.2019 0800 AM Electric Cars—and Irrationality—Just Might Save the Stick Shift Some people are so passionate about doing their own shifting, they keep manual transmissions in cars converted to run on electric power. As anyone who cares about stick shifts knows, not many people care about stick shifts anymore. As recently as 2006, nearly half of the models sold in America were offered with a manual transmission. Now, that number is below 20 percent and falling. Americans bought 17.2 million cars last year—just 2 percent of them rolled off the lot with a third pedal. This is understandable. In recent decades, automatic transmissions haven't just made driving less of an effort, they've caught up with manuals in terms of performance and fuel efficiency. And it's

expensive for automakers to develop two variants of a vehicle, especially if one will attract just a few buyers. So even companies known for sporty cars are giving up on sticks. The new BMW M5 no longer offers a manual option. Neither will the midengine C8 Chevrolet Corvette. Ferrari and Lamborghini gave up on manuals earlier this decade.<http://epplast.ru/files/canon-zr-800-user-manual.xml>

Get the top auto news in your inbox every Monday. Sign up here ! But some highend automakers have stuck by the manual transmission—and think its role could actually expand. “In a world where everyone is talking about autonomous driving, I think what you’re seeing is, those people that can afford, and those people that have a passion for cars, want to go in the opposite direction,” says Aston Martin CEO Andy Palmer. “They want something that’s interactive, something they have to work to enjoy. The funny thing about the AMR is that, even though it’s 200 pounds lighter and has the same 503horsepower V8 engine as the “base” car, it takes half a second longer to go from 0 to 60 mph. As I discovered in a daylong sprint through the mountains of western Germany, what the AMR loses in outright acceleration, it more than makes up for in joy and engagement. Working the gears myself gave me a more direct, analog connection to the car, a greater sense of control, a sense of delight and occasion. A manual transmission makes you notice specific moments more a tight curve downshift to second, an uphill blast wind it out to redline in third, or the presence of cheering kids waiting for the bus neutral, rev the engine repeatedly. Like the way writing something down imprints it in one’s brain, driving a stick makes a journey more vivid, tactile, and memorable. Palmer, a former transmission engineer, has committed to maintaining manual transmissions in the Aston Martin lineup not just despite, but because of, its lack of functionality. Also in the resistance is Porsche, which continues to offer a manual in its sports cars, including the new 2020 911 Carrera S. Despite the existence of its wonderful PDK dualclutch automatic gearbox, nearly 20 percent of 911 buyers row their own gears. “It’s not the most efficient way to drive a car, and it’s not the fastest way to drive a car,” says Porsche powertrain project leader Heiko Mayer. “But our customers have fun with the manual transmission.

” And so Porsche will continue to offer it. For some, the joy of shifting gears is such that even in sports cars converted to run on battery power, they’ve kept the manual. Which, surprisingly, is possible. Michael Bream is a leading evangelist for this type of conversion. The founder and CEO of EV West near San Diego, Bream creates custom and offtheshelf products aimed at helping customers transform their vintage aircooled VWs, Porsches, and other gaspowered rides to electric propulsion. He aims to make the transition as seamless as possible, which includes minimizing the destruction or change of existing components. And for many classics, that means maintaining the original manual transmissions. Advertisement Zelectric has converted more than two dozen vintage VWs and Porsches to run on battery power, all of them maintaining their original transmissions. Because batterypowered motors have instanton thrust and benefit from conserving range, EV West changes the transmission gear ratios and often remove a couple gears to save weight and limit complexity. The remaining two gears work kind of like Low and High. “That’s really easy to explain to customers,” says Bream. “Use low in the city. And if you ever hit an onramp, throw it into high.” Simple as that. The conversion even removes reverse, because backing up can be accomplished with a dashboard switch that inverts the electric power, spinning the motors backwards. Still, the clutch and stick shift remain, and consumers can row their way through the remaining gears, just as if they were in a traditional manual transmission car. These respectful conversions not only save time and maintain originality, they also simplify repairs. “You can go down to the store and buy a stock transmission mount, or the shift linkage bushing with the standard Porsche or VW part number,” Bream says.

<https://www.interactivelearnings.com/forum/selenium-using-c/topic/17956/carel-pc02-manual>

Moreover, because of the ease of operation—you can’t really stall an EV like you can a gaspowered

stickshift car—these cars open up the manual transmission experience to a broader range of consumers. “You have this car that people who have never driven a stick in their life can drive,” says Bream. “You can literally try and perform your worst shift ever, and in an electric car, it’s just not that bad. You can barely feel it.” Bream’s zeal is catching on. David Benardo’s southern California shop, Zelectric, has converted more than two dozen vintage VWs and Porsches to run on battery power, all of them maintaining their original transmissions. Though Benardo says many of his customers elect to just “leave the car in third gear and drive it like an automatic,” making the gearshift somewhat vestigial. It’s possible that we may see this trend expand further. Some Formula E cars used a twospeed manual transmission for quick off the line and top speed efficiencies. Converters like Electric GT have produced a vintage Ferrari and Fiat with a manual transmission. Startup Detroit Electric planned a fourspeed manual in its SP 01 roadster before the company went bust. Even Aston might be considering an EV stick in the future. “A manual electric car is an interesting idea,” says Palmer. “Obviously you don’t need a manual, or a transmission at all, on an electric motor. But it comes back to this not being a rational decision. It’s irrational. It’s emotional. And, I think, in that context, it’s interesting, because it’s also relatively easy to do in an electric car. So I’m sure others are looking at it, and it’s certainly something we’re interested in exploring.” More Great WIRED Stories Pompeo was riding high— until the Ukraine mess exploded The Icelandic facility where bitcoin is mined The internet is for everyone, right.

Not with a screen reader Inside Apple’s highflying bid to become a streaming giant Can license plate readers really reduce crime Prepare for the deepfake era of video; plus, check out the latest news on AI Things not sounding right. Check out our favorite wireless headphones, soundbars, and Bluetooth speakers Featured Video Scientist Explains Why Her Lab Taught Rats to Drive Tiny Cars Theres the rat race, and then there are these lab rats who learned to drive tiny cars. WIREDs Matt Simon talked with neuroscientist Kelly Lambert about what her driving rodent experiment can teach us about neuroplasticity and learning new skills. Topics Electric Vehicles Aston Martin Sports cars Luxury cars WIRED is where tomorrow is realized. It is the essential source of information and ideas that make sense of a world in constant transformation. The WIRED conversation illuminates how technology is changing every aspect of our lives—from culture to business, science to design. The breakthroughs and innovations that we uncover lead to new ways of thinking, new connections, and new industries. All rights reserved. Wired may earn a portion of sales from products that are purchased through our site as part of our Affiliate Partnerships with retailers. The material on this site may not be reproduced, distributed, transmitted, cached or otherwise used, except with the prior written permission of Conde Nast. Ad Choices. Do they drive like automatics. Heres everything you need to know on the subjectAnd once you set off, you may be quite surprised to note that, as the car speeds up and slows down, it doesn’t automatically shift through gears like an automatic car would. That’s because there are no gears at all in an electric car. Instead, they get away with just a single gear. This is especially impressive considering how fast some electric cars can accelerate. The Tesla Model S Performance, for example, can do the 060mph sprint in under 2.5 seconds, making it quicker than most supercars.

The first is that electric motors rev to a significantly higher rate than internalcombustion engines.This also means electric cars make almost instant torque from zero revs, so they dont have a specific rev range suited to lowspeed driving or acceleration. That’s why a petrol car will easily accelerate to 20mph in first gear, but won’t go much faster without reaching the engine’s rev limit, or redline. By the same logic, youll struggle to pull away from lights in sixth, as this ratio is designed for faster driving. What engineers do is pick a gear ratio that strikes a good balance between acceleration and top speed. Pick a ratio too low, and the engine will accelerate very fast but may be limited to only a low top speed. Conversely, if engineers pick an extremely high ratio, the gearing may be optimal for topspeed runs but acceleration will suffer. Some teams contesting the Formula E

electric single-seater race series have chosen to run their vehicles with a three-speed gearbox. Some teams, like Audi, ran their 2017 car with a three-speed gearbox. The addition of a gearbox helped the car reach maximum power slightly quicker. However, for the 2018 season, the team opted to run a high-efficiency transmission system with a single gear. In simple terms, the addition of a second gear allows for better acceleration and top speed than single-speed electric drive units. When on the motorway, the car will automatically shift to the second gear for better high-speed driving and a higher top speed. A setup similar to this is used in the Porsche Taycan high-performance electric car. And as explained above, single-gear units give away very little in terms of performance or efficiency, mitigating the need for a two or three-speed gearbox. The internal combustion engine in these cars will usually put its power through a conventional automatic or CVT gearbox. Installing a driveline system with multiple gears immediately adds cost and complexity, which increases the car's price.

This is especially true when the single gear setup is already optimal for most electric cars, and delivers equal or even better performance than conventional powertrains can offer. Here are the best you can buy. Check out our list of the best hybrid estates. What is rapid charging? We explain all. Here's everything you need to know about electric car battery recycling. But for now, you may not understand how an electric car doesn't require a clutch due to its regenerative braking. Therefore, adding a clutch is unnecessary. However, some regenerative brakes are used, which electric vehicles can handle. This is because they can handle a conventional car's gears. The gears allow you to shift between first gear and the more the rpm's increase, the less they must make sure that the battery is big enough to keep the car. The dominant lithium-ion cars that currently use NMC batteries. It's also thought that current electric cars, if it continues to decrease, more well-known manufacturers such as Kia, Hyundai, BMW 3 Series and the Hyundai Ioniq. It can travel around 250 miles for a fully electric vehicle. However, it could take around seven to eight hours to charge. There are plenty of electric vehicles that all full details will be provided within the written quotation. We have a commercial relationship with a carefully selected panel of lenders and we may receive a commission from the selected lender. We do not charge you a fee for our credit broking services. We may earn a commission through links on our site. For an electric car, the immediately available maximum torque means that there's not really a reason for more than one gear for optimum acceleration. But could it be done? Could an enthusiast brand make an electric car with a traditional manual gearbox to cater to those people who refuse to drive a car where they can't row through all the available gears. That's what Engineering Explained aimed to, um, explain, this week. In reality, there is no logical reason for a clutch to exist in an electric car.

An electric motor can't stall, which is why a clutch is needed in a traditional internal combustion engine in the first place, so adding a clutch to an electric car doesn't make rational sense. But on an emotional level, it is possible to have an electric car with a traditional manual. It could work exactly as any other manual gearbox in an ICE car does and provide the same enjoyment to the driver. Here's how it'd all work. You may be able to find the same content in another format, or you may be able to find more information, at their web site. You may be able to find more information about this and similar content at piano.io. What's super clever about their set up, is that they actually went a bit old-school and have incorporated a manual gear stick, using cables and rods to switch between the two gears, rather than the pneumatic paddle shifters which other teams were using. Renault's solution is simpler, and also lighter, as it doesn't require onboard pumps or airtanks for gear shifts. Loading. Award Jason Join In Want to add something. Comments 1 James Cox Wasn't sure where to post this but I have question. Why don't manufacturers use column shifters anymore. We see an increasing number of electric controlled selection so do we need a centre console selector as it just takes up space. I wasn't sure if there was a practical issue with column shifts but maybe we can start a trend back here as sometimes we can learn from the past. 2 years ago Reply Give Award Loading. Loading. 12 1 SHARE. You may order presentation ready copies to distribute to your colleagues, customers, or clients, by visiting For the first time, the number of electric cars sold new

in America was higher than the number of vehicles delivered with three pedals and a clutch disc. The manual transmissions market share dropped by 0.5% from 2018 to 2019, while EVs rose by 0.1%.

Subaru notably announced the Impreza Sport will exclusively be available with a continuously variable transmission CVT for the 2020 model year, while Hyundais Elantra and Veloster Turbo are going automatically. The bornagain Toyota Supra never offered a stick to begin with. Its reasonable to assume that, in the early 2020s, the manual transmission will dip under the 1 % mark and the electric powertrain will continue to inch towards the mainstream. Every electric car sold new or being developed in 2020 has two pedals, so hoping battery technology will save the stick is dumbly optimistic. It joined forces with Webasto to build a stickshifted electric Mustang with over 900 horsepower and 1,000 poundfeet of torque. While its technically possible to make an electric car with a sixspeed stick, the determining question is whether consumer demand is high enough to warrant developing one. Check your inbox to get started. Please consider whitelisting Autoblog. But ads are also how we keep the garage doors open and the lights on here at Autoblog and keep our stories free for you and for everyone. And free is good, right. If youd be so kind as to whitelist our site, we promise to keep bringing you great content. Thanks for that. And thanks for reading Autoblog. A drop down menu will appear. The exact text will differ depending on the actual application you have running. It only takes a few seconds. Please follow the instructions below to enable JavaScript in your browser. Here is everything you need to know Advertisement Once you've driven off, you may be surprised to find that, as the car accelerates and slows down, it doesn't have the feeling of shifting through gears; it's just a smooth, linear drive right up to cruising speeds and back to a standstill instead. This is because electric vehicles EVs don't need a gearbox with different speeds like conventional diesel or petrol vehicles. Instead, they get away with just a single gear and a reverse.

This is especially impressive considering how quick some electric vehicles can accelerate. The Tesla Model S Performance, for example, can do 060mph in just 2.4 seconds, making it a family saloon that's faster than most supercars. This is possible because electric motors are more flexible than conventional, fuelburning, engines. The electric motors are also power efficient throughout this rev range, meaning they do not have to be sitting in a small, narrow rev band to deliver optimal performance. Conventional diesel and petrol cars require a gearbox with multiple gears because the engine is only capable of being efficient in a relatively narrow band of engine speeds. The different gear ratios help the conventional engine keep within this narrow power band at different road speeds. That's why a petrol car will easily accelerate to 20mph in first gear, but won't go much faster without reaching the engine's rev limiter, or red line. With the same logic, drivers will struggle to pull away from a standstill in sixth gear, as this ratio is designed for faster driving. This all means an electric vehicle can reach its top speed in a single gear, which is chosen by the engineers to offer the best compromise between low and highspeed performance. Most are capable of accelerating at town speeds faster than a hothatchback and easily breaking the motorway speed limit, so there's no great sacrifice involved. It also makes EVs much less complicated to build and maintain. Installing a driveline system with multiple gears would immediately add cost, which then brings up the car's price. With EVs already seeming comparatively expensive, manufacturers obviously want to avoid this. However, this single gear rule may change for EVs in the future. In Formula E, the electric singleseater race series, some teams opt to run their vehicles with a threespeed gearbox to give the best combination of performance and efficiency as power outputs are limited by the rules.

For road cars, several concepts have been shown which suggest that cheaptomake twinspeed gearboxes may be used in some future electric models, as it will allow for smaller, less powerful and cheaper electric motors to be fitted and range to be increased without harming performance. That

covers pure EVs, but what about hybrids which have an electric motor and a petrol or diesel engine. Most modern hybrids also have an automatic style change, which means you don't have to get used to anything complicated in order to drive one. But under the skin, the systems used are quite different. The BMW i8 sports car, for example, uses a BMW two gear system and Toyota's hybrids have a more conventional CVT transmission, which uses a belt moving between two cones to make sure the engine speed is right for either economy or performance. The driver doesn't have any agency in this it's all controlled by computer. As EVs and hybrids become more popular and advanced, expect more options and technical advances to make them more efficient. Do you want to know more about electric cars. Why not read our complete guide to electric cars for everything you need to know. Read more about Tips and Advice Tips and Advice Advertisement SEARCH NOW Find used cars Find your used car with our used car search. Top 3 used estate cars for 10,000 Advertisement Who we are How we review cars Connect with us. Image provided by ZF. In response, I've seen a good number of EV fanatics on Twitter and Facebook panning one announcement or the other. Supposedly, the added complexity, maintenance, and expense aren't worth it. Let's take a look at why! I know that it can be a hard concept to learn at first, so I'm going to share this video from Engineering Explained one of my favorite Youtube channels Depending on the goal power or efficiency, the transmission needs to shift to the next gear at the right time to keep the engine in the right range of RPMs.

For instance, go much below 1,000 RPM, and a gas engine will stall. Go past redline where the red is on a tachometer, and the engine will start damaging itself in various ways. In "low" gears, the gearing has the same effect as having a longer lever more torque. This allows a vehicle to have an acceptable amount of "oomph" when you first start. However, if you stay in that low gear, the engine will be going too fast before you can get up to an acceptable speed. To be able to go faster, you need to switch to a different gear that won't turn the engine so fast, but at the cost of losing that initial torque. You're already moving, so that doesn't matter as much. At the bottom end, they can go all the way to 0 RPM without stalling. There's no need to idle, and when you hit the skinny pedal, full power is available. At the top end, most EV motors can go beyond 10,000 RPM without damage, with some approaching 20,000 RPM at top speed. With few moving parts, they don't fly to pieces at those speeds. Electric motors do not generate the same torque from zero to maximum RPM. They all put out full power until a certain speed, and then their torque begins to drop off. Efficiency is also not consistent across the full range of speeds the motor is capable of going. The speeds at which they're most efficient can vary, but the "sweet spot" is usually around. Making this gear "taller" could help, but then the car would suffer from lower performance and efficiency in the city. The article isn't even published as I write this, and I can already hear and see the incoming comments and tweets. The problem with screaming that at me is that it's not really true. Tesla's struggle with the gearing issue has been particularly interesting, and the company has come up with a couple of workarounds. To achieve the best performance, they wanted to have a lower gear for initial acceleration and a higher gear for a high top speed.

It simply couldn't come up with a multispeed gearbox that wouldn't get totally shredded by the sudden onset of torque a big, mean electric motor can dish out. Already facing delays and cost overruns, they had to abandon the multispeed transmission, but work on the Model S "Whitestar" prototype gave them another solution better power electronics that could cram in more and more electrons to create an even longer torque curve allowing for more power at speed. Sure, you can allow the motor to use up more power to partially solve the performance tradeoff, but battery technology isn't such that you can get away with that for very long. Dual motor Model S, Model X, and Model 3 vehicles all have different gear ratios in their front and rear drive units. At lower speeds, at least half of the power goes to the rear drive unit, which is optimized for lower speeds. When you get up to highway speeds and have "range mode" enabled, the car's computers direct power to the front drive unit, which has a better highway gear ratio. Sure, Tesla vehicles don't have

a multispeed gearboxes like ZF is releasing, but they still show us how multiple ratios can help any EV. Note the display where the motor's efficiency "sweet spots" can be seen on BSFC charts. Photo provided by ZF. For decades before massproduced EVs emerged on the scene, people in garages were taking their ICE internal combustion engine vehicles and turning them into electric cars. Without the ability to have a special gear reducer made, they often just bolted an electric motor to the ICE car's transmission. We don't have to wonder whether this would help, because it's proven to have all of the theoretical benefits. They added three electric motors, all of which put power into a chain that feeds a Porsche 4speed manual transmission. Our own Nicolas Zart reviewed this electric Ferrari.

In the case of a manual, the driver does this, but if you wanted to build a custom automatic EV, a torque converter could just as easily soften the blow a bit though, you'd want it to have a TCC system to lock that converter up between shifts. Many owners of converted cars simply leave the car in 2nd gear most of the time. Electric motors don't stall, so there's no need to press the clutch or shift to neutral at stops. You could get away with highway driving in 2nd gear, but you get better range by putting the motor back in its more efficient range in 3rd or 4th. Jalopnik 's Andrew P. Collins described the Ferrari's first gear as "borderline scary." The electric motor's torque, multiplied through a low gear, gives a lot of hard acceleration. Not only did they achieve a 5% increase in vehicle range, but they also got better acceleration numbers compared to a singlespeed vehicle. This allows a vehicle to sidestep the tradeoff between efficiency and performance by allowing for both. Since they sell mostly to manufacturers, they also allow for the car's computer to command the drive unit and optimize shifting to better fit the manufacturer's goals performance, efficiency, towing, etc. For a cheaper vehicle that largely gets driven in the city, one gear is fine. For a performance car, or one that is going to spend more time at higher speeds, it makes sense to find ways to get at least one more gear ratio. That's what Tesla did. People expect their vehicles to be broadly usable in many different environments. Customer demands are going to keep the pressure up. And you're going to love it! Consider becoming a CleanTechnica member, supporter, or ambassador — or a patron on Patreon. Contact us here. She grew up around a transmission shop, and has been experimenting with vehicle efficiency since she was 16 and drove a Pontiac Fiero. She likes to explore the Southwest US with her partner, kids, and animals. Click on Contact at the top of the page.

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