



^ "Toyota Announces Best Sales Year in Its 46-Year History, Breaks Sales Record for Eighth Year in a Row". The Jeep Wrangler (pictured is a TJ Wrangler) is a 4WD vehicle with a transfer case to select low-range or high-range four-wheel drive. "Toyota celebrates 10 million RAV4 sales". ^ "Toyota Canada Inc. ^ a b John Voelcker (2 August 2012). The car operates primarily as a rear-wheel drive vehicle. ^ Redgap, Curtis; Watson, Bill (2010). Archived from the original on 3 August 2012. Retrieved 14 December 2017. US: Insurance Institute for Highway Safety. ^ "Toyota RAV4 Price, Reviews, and Pictures | Edmunds". The RAV4 no longer used the V6 from the previous generation—all engine choices were inline four-cylinder engines. "Toyota RAV4 fails the moose test - the car shows dangerous behavior". If the left front wheel of a 4WD vehicle slips on an icy patch of road, for instance, the slipping wheel spins faster than the other wheels due to the lower traction at that wheel. Retrieved 3 August 2017. "Toyota makes RAV4 bigger, more premium". ^ "Handling & Performance - Toyota RAV4". Nissan and Audi had success with all-wheel drive in road racing with the former's advent of the Nissan Skyline GT-R in 1989. Both the RAV4 and the Vanguard was available through general importers, but not officially sold by UMW Toyota Motor.[32] Middle East In the Middle East, the RAV4 is available with a 2.4-litre engine. "1963 Jeep Wagoneer - Landmark Vehicle". Volvo AB. ^ "Toyota | Toyota Reports December 2017 Sales Chart" (Press release). (2005). Archived from the original on 30 December 2013. A central gearbox allows one side to drive in the opposite direction from the other. 3 January 2020. Archived from the original on 12 February 2020. "2020 Toyota RAV4 teased for Malaysia - launch soon?". Only around 700 of these cars were built, and only 27 are known to exist today.[58] BMC experimented with a twin-engined Mini Moke (dubbed the "Twini Moke") in the mid-1960s, but never put it into production. 5 January 2016. Fuel economy is estimated by the EPA in to be: city: 5.7 L/100 km; 49 mpg-imp (41 mpg-US) highway: 6.4 L/100 km; 47 mpg-imp (37 mpg-US).[80][81] Plug-in hybrid electric variant Toyota RAV4 PHEV (AXAP54, China) A plug-in hybrid electric (PHEV) variant of the RAV4 was unveiled at the December 2019 Los Angeles Auto Show. Unlike the North American variant that came with a 4-speed automatic gearbox, the Japanese RAV4 (or Vanguard) came with a 7-speed Automatic Transmission from the K112 line also known as Super CVT-i Sports Sequential Shiftmatic.[22][21] That was along with the upgraded 2AZ-FE that was rated at 177 hp (132 kW). "All - Wheel Drive / Four - Wheel Drive Systems and Strategies" (PDF). China The XA30 RAV4 commenced production in China in April 2009. "Toyota RAV4 Adventure Gear concept to debut at TAS". Archived from the original on 6 November 2009. The XA40 RAV4 in China came standard with the 2 litre 6ZR-FE and 2.5 litre 5AR-FE petrol engine. Archived from the original on 14 August 2017. howstuffworks.com. Early prototypes had separate gear levers and clutch systems for each engine. In 2009, it was also the first time for the Canadian market to have a 2WD model sold in Canada. 11 August 2009. Archived from the original on 20 January 2018. The described system handles extremely well, as it is able to accommodate various forces of movement and distribute power evenly and smoothly, making slippage unlikely. carsalesbase.com. 1970s-1990s American Motors Corporation (AMC) acquired Kaiser's Jeep Division in 1970 and quickly upgraded and expanded the entire line of off-road 4WD vehicles. 11 February 2009. In June 1999, the two-door hardtop was dropped from the American lineup, leaving the five-door and soft top models. ^ Perez, Jeff (12 September 2013). 6 March 2013. Options were ABS brakes (on the Edge), and air conditioning (on all models). Dodge 100 Years. ^ "December 2018 Sales Chart" (Press release). Retrieved 31 December 2013. A 1.8-litre inline-four engine (only with 2WD) producing 92 kW (123 hp; 125 PS), 2.0-litre inline-four engine producing 110 kW (150 hp; 150 PS), and a D-4D diesel engine were available. External links Wikimedia Commons has media related to Toyota RAV4. Development began in 1995, with a design freeze in the first half of 1998. A fairly recent innovation in automobiles is electronic traction control. Archived from the original on 22 September 2020. It became a famous vehicle around the world and is mentioned in a majority of the histories. {{cite book}}: CS1 maint: uses authors parameter (link) ^ Hyde, Charles K. RAV4" (in Chinese). Archived from the original on 21 October 2021. ^ "75 Years of TOYOTA | General Status of Plants in Japan | Motomachi Plant". Retrieved 21 October 2021. ^ "CarPoint Confidential: Lies, damn lies and VFACTs". After the Daimler Motoren Gesellschaft had built a four-wheel driven vehicle called Dernburg-Wagen, also equipped with fourwheel steering, in 1907, that was used by German colonial civil servant, Bernhard Dernburg, in Namibia; Mercedes and BMW, in 1926, introduced some rather sophisticated four-wheel drives, the G1, the G4, and G4 following. Motor1.com. Locking differentials work by temporarily locking together a differential's output shafts, causing all wheels to turn at the same rate, providing torque in case of slippage. Retrieved 5 July 2019. The standard notes that in some cases, the secondary drive system may also provide the primary vehicle propulsion. ^ Tan, Paul (31 August 2005). ^ "Toyota Report 2006" (Press release). Driveline Systems of Ground Vehicles: Theory and Design. Archived from the original on 29 October 2013. Up to full torque could go to either axle, depending on the road conditions and the weight over the axles. ^ Taylor, Peter Shawn (19 April 2016). The drive to the other axle is disconnected. The extended-length RAV4 is larger by 21% in interior volume from the last generation and now has an available third-row seat for children (North America and Japan only). Thomson, Harry C.; Mayo, Lida (2003). During 1981 and 1982, a unique convertible was added to the line. Permanent all-wheel-drive was a feature. In the multi-plate clutch, the vehicle's computer senses slippage and locks the shafts, causing a small jolt when it activates, which can disturb the driver or cause additional traction loss. Engine choices included a 2.0- and 2.5-litre four-cylinder petrol, and 2.0- and 2.2-litre turbo-diesels. Archived from the original on 21 August 2012. Powered by an advanced Nickel-metal hydride (NiMH) battery pack capable of storing 27 kWh, the RAV4 EV can go up to 193 km (120 mi) between charges, and came with a 97,000 km (60,000 mi) battery warranty.[citation needed] A total of 1,484 units were leased and/or sold in California,[12] and as of mid-2012, almost 500 units were still in use.[13] Gallery Pre-facelift Toyota RAV4 5-door Facelift Toyota RAV4 hardtop (Australia) Facelift Toyota RAV4 softtop (Australia) Second generation (XA20; 2000) Motor vehicle Second generation (XA20)Pre-facelift Toyota RAV4 L (US)OverviewProductionMay 2000 - November 20052005 - present (China)Model years2001-2005AssemblyJapan: Tahara, Aichi; Ōbu, AichiDesignerKevin Hunter (5-door: 1997)[14]Yasuhide Hosoda (3/5-door: 1997)[15]Body and chassisBody style3-door SUV5-door SUVPlatformToyota MC platformPowertrainEnginePetrol:1.8 L 1ZZ-FE I42.0 L 1AZ-FE I42.4 L 2AZ-FE I42.0 L 1CD-FTV I4-TTransmission5-speed manual4-speed automaticDimensionsWheelbase5-door: 2,280 mm (89.8 in)Length5-door: 4,193-4,230 mm (165.1-166.5 in)3-door: 3,860 mm (152.0 in)Width1,735 mm (68.3 in)Height1,650-1,680 mm (65.0-66.1 in)Curb weight1,150-1,445 kg (2,535-3,186 lb) The second generation RAV4, known as the XA20 series, went on sale in July 2000. In the North American market, the term generally refers to a system optimized for off-road driving conditions.[7] The term "4WD" is typically designated for vehicles equipped with a transfer case that switches between 2WD and 4WD operating modes, either manually or automatically.[8] AWD Main article: AWD (vehicle) All-wheel drive on 6×6s, and so on, being used in that fashion at least as early as the 1920s.[9][10] Today in North America, the term is applied to both heavy vehicles and light passenger vehicles. ^ Sass, Rob (9 March 2008). Ends the Decade with its Best Year Ever: 237,091 Vehicles Sold in 2019, Up 2.4%" (Press release). "4WD vs 2WD: The Differences Between 4×4 And 4×2". Archived from the original on 16 December 2010. The Borg-Warner ITM 3e is also used in the 2006-now Hyundai Santa Fe and the Hyundai Tucson. Archived from the original on 21 February 2020. モーターファン [Motor Fan]. A version of the BorgWarner ITM3e system is used on 2006 and up Porsche 911TT's. Total AMC Eagle production was almost 200,000 vehicles. By using near-spherical wheels with the provision to tilt and turn each wheel co-ordinatively, the driven wheels maintain constant traction. In addition to these basic modes, some implementations can combine these modes. Compact crossover SUV Motor vehicle Toyota RAV42019 Toyota RAV4 2020-present)Suzuki Across (Europe, 2020-present)Production1994-presentBody and chassisClassCompact crossover SUVLayoutFront-engine, four-wheel-drive The Toyota RAV4, Hepburn: Toyota RAV4, Hepburn: Toyota Ravufo) is a compact crossover SUV produced by the Japanese automobile manufacturer Toyota. In March 1995, the 5-door was launched and introduced to the US in January 1996, with standard dual airbags. ^ "2019 Toyota RAV4 previewed, due in Australia next year". Retrieved 14 August 2008. The definition notes that part-time systems may have a low range. ^ Horrell, Paul (25 January 2011). ^ "The 2011 Le Mans 24 Hours Regulations". The Timken transfer case was the first part-time design, [25] that allowed the driver to engage four-wheel drive using a lever inside the cab. [26][27] In spite of the limited 1930s U.S. military budgets, the '34 truck was liked well-enough
that a more modern 1½ ton truck was developed, and 1,700 RF-40-X-4(USA) trucks were produced in 1938, and 292 TF-40-X-4(USA) in 1939.[28][24] Starting in 1936, Japanese company Tokyu Kurogane Kogyo built roughly 4,700 four-wheel drive roadsters, called the Kurogane Type 95 reconnaissance car, used by the Imperial Japanese Army from 1937 until 1944, during the Second Sino-Japanese War. The Dana S 110 is currently being used for the rear drive, under Ford and Ram's medium-duty trucks. p. 21. This forced slowing emulates the function of a limited-slip differential, and by using the brakes more aggressively to ensure wheels are being driven at the same speed, can also emulate a locking differential. GM 4×4 medium-duty trucks Heavy-duty International Workstar Ford mediumduty 4×4 drive train In construction equipment A Case backhoe loader with 4WD Volvo introduced the Model 646 four-wheel drive backhoe loader in 1977.[56] Case Corporation followed suit in the U.S. in 1987.[citation needed] Terminology In engineering terms, "four-wheel drive" designates a vehicle with power delivered to four wheel ends spread over at least two axles. From warranties on Toyota replacement parts to details on features, Toyota Owners manuals help you find everything you need to know about your vehicle, all in one place. 4 Wheel Drive & Sport Utility Magazine. The system could have a clutch across the center differential, for example, capable of modulating the front axle torque from a full-time mode with the 30:70 torque split of the center differential to the 0:100 torque split of the 2WD mode. ^ "Toyota RAV4 2006-2012 UAE KSA Qatar GCC". Bahrain: Toyota. Alltrac.net. increase sales by 1.7% in 2013" (Press release). Retrieved 8 January 2022. MotorTrend.com. Trucks with dual tires on the rear axle and two driven axles are designated as 4×4s despite having six wheels, because the paired rear wheels behave as a single wheel for traction and classification purposes. 13 September 2010. p. 26. Malaysia, the 2.0-litre automatic variant is available, both in X and G trim. Society of Automotive Engineers. Retrieved 21 February 2021. ^ " [国 産乗用車編】2021年12月&1月~12月度最新版の登録車新車販売台数ランキング!やはりトヨタ新型ヤリス / カローラシリーズは強かった!レクサス新型NXも46位にランクイン | ページ 2". Retrieved 4 January 2019. On-demand mode - In this mode, the transfer case operates primarily in the 2WD mode. "The Mitsuoka Buddy Is a Rebodied Toyota RAV4 That Puts the Fun in Funky". The front transaxle has three gears, two forward, and reverse. Archived from the original on 18 June 2020. T137.com. It is also the first generation of RAV4 to be offered in regular (for Asian and European markets) versions. Also, unlike the dual wheelbase strategy employed by the previous XA30 model, the XA40 was only sold in a single wheelbase (corresponding to the long wheelbase from fluid degradation with age and from exponential locking behavior.[citation needed] Some designs use gearing to create a small rotational difference that hastens torque transfer. "Toyota RAV4 Fails Sweden's Dreaded Moose Test, Company Responds". A 7-inch multi-touch screen is available standard with Entune 3.0, Android Auto, Apple CarPlay, and Amazon Alexa. 8 January 2021. Zenith. Retrieved 4 September 2016. Infocar.ua. This is accomplished by driving the left wheels as a pair and the right wheels as a pair, as opposed to driving the front and rear pairs. Archived from the original on 15 October 2020. Marmon-Herrington. Much of the interior remains as before. Planetary differentials can provide asymmetric torque splits as needed. ^ Hyde, Charles K. European models got a new catalytic converter because of the new European emission policy. While a drivetrain that turns all wheels equally would normally fight the driver and cause handling problems, this is not a concern when wheels are slipping. goauto.com.au. Retrieved 18 December 2015. Some 16,000 FWD Model B trucks were built for the British and American armies during World War I - about half by FWD and the rest by other licensed manufacturers. The facelift debuted with the RAV4 Hybrid shown at the April 2015 New York International Auto Show. Four Wheeler magazine concluded that the AMC Eagle was "The beginning of a new generation of cars." [45] The Eagles were popular (particularly in the snowbelt), had towing capacity, and came in several equipment levels including sport and luxury trims. A third approach to limiting slippage is taken by a Torsen differential, which allows the output shafts to receive different amounts of torque. Styling was done at Calty Design Research Incorporated (also simply known as Calty) by Yasuhide Hosoda and Kevin Hunter from 1996 to 1997.[10] Pre-facelift Toyota RAV4 Cruiser hardtop (Australia)Pre-facelift Toyota RAV4 Edge (Australia)Interior The second generation RAV4 was originally offered in a number of trim levels in the UK: NV was front-wheel drive, while NRG, GX, and VX were permanent four-wheel drive with differing levels of equipment.[16] Although the RAV4 was available as a three-door in Europe, Asia and Australia, the American model was only available in a five-door configuration. Automatic electric air conditioning also became available. Furthermore, the Big Three share/shared parts between the companies, reducing costs. ISBN 9780750680370. In 1965, A. ^ Jensen, Cheryl (14 June 2013). T. Archived from the original on 6 April 2020. Retrieved 4 August 2012. 29 November 2012. IOL Motoring. The Ordnance Department: procurement and supply. 6 March 2015. Four-wheel drive, also called 4×4 ("four by four") or 4WD, refers to a two-axled vehicle drivetrain capable of providing torque to all of its wheels simultaneously. Short-wheelbase versions were sold in Japan and Europe; long-wheelbase versions in Australia and North America. Keys to Quality Maintenance Toyota Owner manuals and warranty information are the keys to quality maintenance for your vehicle. "1978-1979 Jeep Wagoneer Limited". See also 4WS Dune bashing Four-wheel drive in Formula One Limited slip differential Off-road vehicle Rock crawling Sport utility vehicle Transfer case Driveline windup Footnotes ^ Front-wheel drive vehicles had not yet become common at that time References ^ a b Mohan, Sankar (12 June 2000). Some RAV4s came with anti-lock braking system, electronic stability control, air conditioning, a height-adjustable driver's seat, cruise control, a six-speaker CD stereo and power windows, mirrors and seats. ^ "New Suzuki Across revealed as Toyota RAV4-based SUV". "Toyota RAV4 handles the moose test after an update". Archived from the original on 14 September 2018. ^ "Tianjin FAW Toyota Co. Ltd. ^ "2019 Toyota RAV4: UK grade structure and pricing". ^ Reeves, Lehel (28 May 2015). "Thirty-percent of new car sales will be AWD by 2015". of the Army). "Toyota RAV4 Passes Moose Test After Software Update". Low range could be used in locked or unlocked mode, allowing for use of the low range on pavement. This system was introduced in some variants of the Nissan Cube and Tiida. Retrieved 24 March 2014. Retrieved 18 July 2021. Archived from the original on 3 November 2020. ^ McManus, Will (5 March 2013). When powered, each axle requires a differential to distribute power between the left and right sides. To prevent slippage, some vehicles have controls for independently locking center, front, and rear differentials Limiting slippage Main article: Limited-slip differential (LSD) Many differentials have no way of limiting the amount of engine power that gets sent to their attached output shafts. The reason is that the wheel that is located on the inner side of the curve needs to travel less distance than the opposite wheel for the same duration of time. In 2019, the RAV4 was the best-selling SUV of any type in the world, and the fourth best-selling passenger car overall. ^ a b 1943 Dodge WC-51 Weapons Carrier, Power & Glory - FourWheeler.com ^ Allen, Jim (2009). ^ US D533112S, Harada Yoshikazu; Motozaki Masaki & Suzuki Hiroaki et al., published 5 December 2006 ^ a b c "Toyota Launches 'Vanguard' SUV in Japan". Land Rover Defender (and Series III V8 models) Land Rover Discovery/LR3 Land Rover Freelander Lada Niva (VAZ-2121) - full-time 4WD using open center differential. ^ "Best-ever year for Lexus helps Toyota Canada Inc. For 2010, the RAV4 in Mexico has been simplified again to two trims but now the Limited trim was dropped and consequently killed the 4WD option, while the Base and Sport trims remained unchanged from 2009. Retrieved 8 January 2022. { {cite web}}: CS1 maint: archived copy as title (link) ^ "Australia's best-selling hybrids and plug-in hybrids of 2021". Archived from the original on 2 December 2020. Archived from the original on 4 August 2019. ^ "Japanese Production Sites" (Press release). The standard subdivides AWD systems into three categories.[4] Part-time AWD systems require driver intervention to couple and decouple the secondary axle from the primarily driven axle, and these systems do not have a center differential (or similar device). By February 2020, a total of 10 million RAV4s had been sold globally.[5] First generation (XA10; 1994) Motor vehicle First generation (XA10)Pre-facelift Toyota RAV4 5-door (Australia)OverviewAlso calledGuangtong GTQ6440 (China, JV)Production1994-2000 (RAV4 1997-2003 (RAV4 EV)Model years1995-2000AssemblyJapan: Toyota, Aichi (Motomachi plant; April 1994 - July 2000); Tahara, Aichi (Tahara plant; commenced January 1996)[6][7]China: Zhuhai, GuangdongDesignerHideo Kondo (exterior 3-door/5-door: 1991, 1993)[8][9]Okawa Isao (interior: 1991, 1993)Seiichiro Kitabashi (colors and materials: 1990-1993)Body and chassisBody style3-door SUV (hardtop)5-door SUV3-door convertible SUV (softtop)PowertrainEnginePetrol: 2.0 L 3S-FE I42.0 L 3S-FE I42.0 L 3S-GE I4Electric motor 50 kW (67 hp), 190 N·m (140 ft·lb) (electric)Transmission5-speed manual4-speed automaticDimensionsWheelbase5-door: 2,410 mm (94.9 in)3-door: 3,740-3,750 mm (147.2-147.6 in)Width1,695 mm (66.7
in)Height3-door: 1,646-1,661 mm (64.8-65.4 in)5-door: 1,650 mm (65.0 in) Facelift Toyota RAV4 3-door The first-generation RAV4, known as the XA10 series, was constructed on a unique platform that shared Carina and Corolla elements. [10] It launched in Japan in May 1994. Retrieved 10 December 2019). A Wallis, Robbie (12 November 2018). an AWD system through a pair of electric motors, one to the front wheels and one to the rear. Matra also raced a similar MS84, and McLaren entered their own version, which was tested but never raced. ISBN 9781616730888. "2022 Toyota RAV4 revealed new headlights, wheels and USB-C ports; Adventure now offered in Europe". ^ "A chat with 2019 Toyota RAV4 Chief Engineer Yoshikazu Saeki". 164 (8): 58. Light and Heavy Vehicle Technology (Fourth ed.). The Sport model with over fenders is AWD only. ^ a b Oude Weernink, Wim (6 February 2006). H1 & Humvee NVG 242HD AMG open center differential, locked center differential, Neutral, low range locked. Official website blog.toyota.co.uk : Vehicles : RAV4 History (official site) Retrieved from " 2Type of drivetrain with four driven wheels "Four by four" redirects here. ^ Allisons.org Automotive History [1]"1929: AEC started to build AWD trucks in conjunction with FWD (UK)" ^ Meyer Donald E. marklines.com. 20 June 2011. Retrieved 29 October 2020. lemans.org. Since 2007, the extended-length RAV4 is also sold alongside its shorter counterpart in Japan as the Toyota Vanguard, albeit with a revised front-end body work incorporating a revised grille, bumper, bonnet and headlamps.[24][25] When the larger XA40 arrived in 2012. the short wheelbase model was kept in production for the Japanese market and sold instead of the new version until 2016. Letter to Strickland, David of the National Highway Traffic Safety Administration. ^ Consumer's Guide, ed. ^ "December 2016 and Year-End Sales Chart" (Press release). Just 4x4s. Archived from the original on 3 July 2020. The Audi quattro system became a feature on production cars. Retrieved 6 May 2011. The Logistics of War - a historical perspective. Four-Wheelebase model. Part-time These are vehicles that have no center differential. ^ "MotorWeek: Road Test". Australia: Toyota www.goauto.com.au. "2019 Toyota RAV4 arrives in PH, prices start at Php 1.638M". They ushered a whole new product category of "sport-utility" or crossover SUV. Retrieved 12 January 2021. ^ a b 株式会社インプレス (29 October 2020). ^ Nunney, M J J (2012). ^ a b 株式会社 Japan, previously badged as the Vanguard. "The Jefferys Quad and Nash Quad – 4x4 Ancestor to the Willys Jeep". about.com. It also had chrome bars below the front and rear bumpers. Archived from the original on 16 December 2021. Insurance Institute for Highway Safety. Seven trim levels were available with prices ranging from 183,800 to 272,800 yuan (US\$25,680 to 38,120). Retrieved 2 March 2010. ISBN 9781627880848. Retrieved 11 January 2021. ^ a b Surface Vehicle Recommended Practice - J1952 - All-Wheel Drive System Classification, SAE International, October 2013. PerformanceDrive. www.carsales.com.au. ^ RAV4 (PDF). A larger screen with JBL Audio and a Wi-Fi hotspot is optional on some trim levels. Archived from the original on 1 March 2009. World War II - a leap in AWD proliferation The 1940-1945 Willys U.S. Jeep Until "go-anywhere" vehicles had not found their place. Retrieved 21 April 2016. Retrieved 21 October 2020. p. 76. ^ "Geneva Motor Show: Toyota RAV4 Adventure and Premium". Early European models included a choice of a 2.0-litre petrol or one of three 2.0-litre diesel engines.[48] The RAV4 manufactured in Woodstock, Ontario, Canada had about 50 percent of its parts coming from Japan.[49] Taiwanese models included a 2.0-litre Dual VVT-i inline four-cylinder engine with 7-speed Continuously Variable Transmission (Sequential Manual) or 2.5-litre Dual VVT-i inline-four engine with six-speed automatic.[50][51] Production in China commenced in August 2013 and was sold alongside the XA30 model for a short time. A sport package added a mesh grille, bonnet scoop, color-keyed door handles, a roof rack, silver sport pedals, heated mirrors, gray-painted bumpers and fender flares, and sport fabric seats. Retrieved 11 January 2022. The output for the 2.0-litre RAV4 in Malaysia is at 112 kW (150 hp; 152 PS) at 6,000 rpm with a torque of 194 N·m (143 lb·ft) at 4,000 rpm while the 2.4-litre uses the 2AZ-FE engine. Archived from the original on 28 March 2013. 自動車情報誌「ベストカー」 (in Japanese). The two forward gears of the front transmission match the lower four forward gears of the rear transmission. 20 June 1994. Car Magazine. Archived from the original on 20 February 2010. As the RAV4 continued to grow, it became expensive to own in Japan due to the exterior dimensions and engine displacement placing it in the upper tax bracket as defined by Japanese government dimension regulations. "VIN Coding System for Certain 2013MY Toyota RAV4, Toyota Regardless Rally FIA championship with a Quadra Trac-equipped Jeep in 1972.[40] 1969 Jensen FF, world's first 4WD in a production GT sports car A 1987 AWD AMC Eagle for the 1980 model year.[41] These were the first American mass-production cars to use the complete front-engine, four-wheel drive system.[42] The AMC Eagle was offered as a sedan, coupe, and station wagon with permanent automatic all-wheel drive passenger models. Archived from the original on 6 January 2017. Edmunds. "First Look: 2008 Nissan GT-R". The rear's electric motor operates independently from the hybrid system front's electric motor, driving the rear wheels alone. [45] US sales began in early January 2013. Drive to the front wheels is transmitted through two infinitely variable clutch packs that are allowed to 'slip' to give the required road wheel speeds. Archived from the original on 15 September 2021. This technique normally requires wheel sensors to detect when a wheel is slipping, and only activates when wheel slip is detected. Toyota Europe Newsroom. Retrieved 18 June 2019. E. "2016 Toyota RAV4 Hybrid AWD". ISBN 9781439817285. Archived from the original on 18 January 2016. The Sport model features a bigger spoiler and red badging along with an option on the V6 model to have a rear door without the externally mounted spare tire (run-flat tires are used on this model). The 4-Wheel Drives: Racing's Formula for Failure?. Low range selectable in locked mode, allowing use on pavement. Carscoops. With the acquisition of the "Jeep" name in 1950, Willys had cornered the brand. The Toyota Vanguard was facelifted in 2010. Mercedes-Benz G-Class (locking center and lockers on both front- and rear axle) Mercedes-Benz GL-Class - 4Matic all-wheel-drive system Mitsubishi Pajero (also known as Montero or Shogun) Porsche Cayenne - 38/62 planetary with lockup clutch pack Range Rover Classic 1970-1995 all full-time 4WD either plate LSD, manual lock or Ferguson viscous center differential. ^ "Toyota 2001 Sales Results Review" (Press release). AMC's Eagles came with the comfort and high-level appointments expected of regular passenger models and used the off-road technology for an extra margin of safety and traction.[43] The Eagle's thick viscous fluid center differential provided a quiet and smooth transfer of power that was directed proportionally to the axle with the greatest traction. ISBN 9781428993785. Archived from the original on 24 September 2020. "Citroën 2CV Sahara". Front and rear parking sensors are also standard. ^ "Toyota Reports 2007". and December Sales". Retrieved 18 October 2019. 2 December 2019. 2 December 2019. 2 December 2019. The X and G can be ordered with either front-wheel-drive or AWD. "2012 Toyota RAV4 EV: First Drive Of Tesla-Powered Crossover". Archived from the original on 7 January 2015. Furthermore, all driven wheels steer, and as pairing of wheels is not necessary, vehicles with an odd number of wheels are possible without affecting the system's integrity. This system can be used on any speed. ^ "Toyota introduces new RAV4 EV; 41.8 kWh pack, 100-mile range". ^ "2013 Toyota RAV4 debuts at LA Auto Show". È possibile modificare il tempo di avvertimento di pre-collisione oppure attivare/disattivare il sistema quanto basta, azionando l'interruttore. Toyota Land Cruiser Toyota Land Cruiser Toyota Land Cruiser Toyota Sequoia (Multi-mode) Volkswagen Touareg -double pinion 50/50 with lockup clutch pack Torsen center differential Alfa Romeo Q4s - with (Torsen T-3): 156 Crosswagon and Sportwagon 159 Brera, Spider Audis with quattro - various iterations of Torsen, the T-3 starting from the 2007 B7 RS4 80, 90 & Coupé (Typ 89) 100 & 200 A4, S4, RS4 A5 & S5 A6, S6, RS6 A8, S8 Q5, Q7 Bentley Continental GT, Bentley Continental Flying Spur (2005) initially Torsen T-2, current have T-3 Chevrolet Trailblazer SS Torsen T-3 Lexus GX470, Toyota Land Cruiser Prado 120 Torsen T-3 Range Rover 3rd Gen. The Eagle's monocoque body was reinforced for the conversion and had a steel targa bar with a removable fiberglass roof section.[46] The Eagle station wagon remained in production for one model year after Chrysler acquired AMC in 1987. A Jerry Garrett (3 August 2012). Ford Expedition (1997-present) and Expedition EL/Max (2007-present) - automatic ControlTrac four-wheel drive with two-speed dual range BorgWarner transfer case and intelligent locking center multi-disc differential Ford F-Series - permanent four-wheel drive (1974-1979) two-speed New Process 203 transfer case, center differential with 50:50 torque split and lock. Records Best Sales Year Ever in 2017" (Press release). ^ Mihalascu, Dan (8 June 2020). "Jeep Grand Cherokee 4WD System Breakthrough - 4x... Archived from the original on 1 June 2015 Using an engaged part-time 4WD system on a hard surface is not recommended, as damage to the drive-line eventually occurs. GoAuto. 2002-2009 Toyota 4Runner (Only 2003-2009 model and 2010+ Limited V6 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner
(Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 with lock Toyota 4Runner (Only 2003-2009 model) Torsen T-3 Land Cruiser 200/2008/V8 Torsen T-3 with lock Toyota Sequoia (only 2005-07 Models) Volkswagen Passat Torsen T-2 (B5.5 model, not latest B6 model with transverse engine) Volkswagen Passat Torsen T-2 (Non-locking center differential BMW 3-series and X5 between 2001 and xDrive - planetary center differential with permanent 38-62 (front-back) torque split # Cadillac Escalade, STS AWD, SRX AWD (The first two generations had a viscous clutch on the center differential) # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, XL Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali, Sierra Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali # Chrysler 300C AWD# Dodge Ramcharger 1974-1981 - NP203 FullTime 4WD Transfer Case Dodge Magnum, Charger AWD # GMC Yukon Denali # Chrysler 300C AWD# Dodge Ramcharger 300C AWD# Dodge Ramcharge Mercedes 4MATIC cars, R class, and ML class (note some MLs had low range) # Plymouth Trail Duster 1974-1981 - NP203 FullTime 4WD Transfer Case Toyota Highlander # Toyota Sienna AWD (-2010 only) # The above systems ending with "#" function by selectively using the traction control system (via ABS) to brake a slipping wheel. Archived from the original on 10 November 2012. ISBN 978-0-7680-0800-5. Motorpasión México (in Spanish). Japan. Archived from the original on 18 July 2018. This was a true full-time system operating only in four-wheel drive without undue wear on suspension or driveline components. Body styles Body styles Chassis codes (DBA-A) ACA31W ACA36W Years Type/code Power, torque at rpm 1AZ-FE (2.0 VVT-i) 2005-2012 1.998 L (121.9 cu in) (86.0×86.0mm) I4 112 kW (150 hp; 152 PS) at 6,000 rpm, 194 N·m (143 lb·ft) at 4,000 rpm 1AZ-FE (2.0 VVT-i) 2007MY-2008MY (UK) 1.998 L (121.9 cu in) (86.0×86.0mm) I4 112 kW (150 hp; 152 PS) at 6,000 rpm, 194 N·m (143 lb·ft) at 4,000 rpm 2AZ-FE 2005-2008 2.362 L (144.1 cu in) (88.5×96.0mm) I4 124 kW (166 hp; 169 PS) at 6,300 rpm, 223 N·m (172 lbf·ft) at 4,000 rpm 2AR-FE 2005-2012 2.494 L (152.2 cu in) I4 133 kW (178 hp; 181 PS) at 6,300 rpm, 233 N·m (172 lbf·ft) at 4,000 rpm, 233 N·m (172 lbf·ft) at 4 (246 lb·ft) at 4,700 rpm 3ZR-FAE (2.0 Valvematic) 2008-2012 1.987 L (121.3 cu in) (80.5×97.6mm) I4 116 kW (156 hp; 158 PS) at 6,200 rpm, 198 N·m (146 lbf·ft) at 4,400 rpm 2.0 D-4D 2005-2006MY 1.995 L (121.7 cu in) (82.2×94.0mm) I4 85 kW (114 hp; 116 PS) at 4,000 rpm, 250 N·m (184 lbf·ft) at 1,800-3,000 rpm 2.2 D-4D Diesel 2007MY-2008MY 2.231 L (136.1 cu in) (86.0×96.0mm) I4 100 kW (134 hp; 136 PS) at 3,600 rpm, 310 N·m (229 lbf·ft) at 2,000-2,800 rpm 2.2 D-4D Diesel 180 (UK) 2007MY 2.231 L (136.1 cu in) (86.0×96.0mm) I4 130 kW (174 hp; 177 PS) at 3,600 rpm, 310 N·m (229 lbf·ft) at 2,000-2,800 rpm 2.2 D-4D Diesel 180 (UK) 2007MY 2.231 L (136.1 cu in) (86.0×96.0mm) I4 100 kW (174 hp; 177 PS) at 3,600 rpm, 310 N·m (229 lbf·ft) at 2,000-2,800 rpm, 310 N·m (229 lbf·ft) at 3,000-2,800 rpm, 310 N·m (229 lbf·ft) at (86.0×96.0mm) I4 110 kW (148 hp; 150 PS) at 3,600 rpm, 340 N·m (251 lbf·ft) at 2,000-2,800 rpm 2.2 D-CAT 2008-2012 2.231 L (136.1 cu in) (86.0×96.0mm) I4 130 kW (174 hp; 177 PS) at 3,600 rpm, 400 N·m (251 lbf·ft) at 2,000-2,800 rpm, 400 N·m ( RAV4 Altitude (Australia) First facelift Toyota RAV4 XT-R (UK) Interior Toyota RAV4 EV (US) RAV4 Motors to develop the second generation RAV4 EV, and the electric SUV was scheduled for market launch late in the third quarter of 2012.[12][35] Production was limited to 2,600 units during the first three years, and sales were limited to 2,600 units during the first three years. The second generation RAV4 EV has a 115 kW (154 hp; 156 PS) motor powered by a 41.8kWh lithium ion battery pack, that Toyota expects to deliver a US Environmental Protection Agency rated range of 166 km (103 mi); and a combined fuel economy rating of 3.1 L/100 km (91 mpg-imp; 76 mpg-US).[13][38] The RAV4 EV battery pack and electronic components are similar to those in used in the Tesla Model S sedan launched in June 2012, because Tesla Motors is the manufacturer of the powertrain.[39] Fourth generation (XA40; 2012) Motor vehicle Fourth generation (XA40)2013 Toyota RAV4 XLE AWD (US; pre-facelift)OverviewProductionDecember 2012 - November 2018 - 2019 (China)Model years 2013 - 2019 (China)Model years 2013 - 2019 (China)Model years 2013 - 2019 (China)Kina (TAW Toyota) Russia: Saint Petersburg[42]DesignerMasaki Okue, Akira Kubota and Takuya Watabe (2010)[citation needed]Body and chassisBody style5-door SUVPlatformToyota Harrier (XU60)Lexus NX (AZ10)PowertrainEnginePetrol: 2.0 L 3ZR-FAE I4[43]2.0 L 3ZR-FE I42.5 L 2AR-FE I4Diesel: 2.0 L 2WW I4-T[43]2.2 L 2AD-FTV I4-T2.2 L 2AD-FTV FHV I4-TPetrol hybrid: 2.5 L 2AR-FXE I4 (hybrid petrol/electric)[43]Transmission6-speed manual6-speed u760E automaticeCVT (hybrid)DimensionsWheelbase2,660 mm (104.7 in)Length4,661 mm (183.5 in)Width1,845 mm (72.6 in)Height1,660-1,705 mm (65.4-67.1 in) The fourth generation RAV4 was a complete redesign; it was revealed at the November 2012 Los Angeles Auto Show.[44] Unlike the previous generations, it featured a rear liftgate rather than a side-opening rear door. It was named the 1997 Automobile of the Year by Automobile of the Year by Automobile Magazine. The H1 Alpha had optional locking differentials in place of torsens. Retrieved 7 January 2018. "Quake in Japan could affect this region's Toyota plants". Archived from the original on 16 October 2019. ^ a b "B Сети появились фото нового кроссовера Toyota Wildlander на базе RAV4" [The network has photos of the new Toyota Wildlander crossover based on RAV4]. In 2005, a new "CV Sport" model was added to the range in Australia, which included a non-functional bonnet scoop, giving the RAV4 a more aggressive appearance. The vehicles were built in Toyota's Tahara, Aichi assembly plant, and under contract by Toyota Industries in its Nagakusa, Obu, Aichi plant. A Suzuki-badged version of the RAV4 PHEV called Suzuki Across was introduced in July 2020, exclusively for the European market.[87][88] The model was introduced to help Suzuki meet fleet-wide average CO2 emission figure.[89] Mitsuoka Buddy A modified version of the RAV4, the Mitsuoka Buddy, made its debut in October 2020. Examples of these with two rear, one front axle are the six-wheeled Pinzgauer, which is popular with defense forces around the globe, and 10-wheeled GMC CCKW made famous by the U.S. Army in World War II. Ferguson Research Ltd. The New York Times. No manual transmission or diesel engines are available on North American models. Only about 20% of the trucks built were four-wheel drives, but the 4x4s were more often on the front lines. [20][21] About 11,500 of the Jeffery / Nash Quad trucks were built for similar use between 1913 and 1919. 3 January 2018. Archived from the original Cute Ute". ^ "Toyota RAV4 EV key for meeting California ZEV requirements; Teslav the View of the Jeffery / Nash Quad trucks were built for similar use between 1913 and 1919. 3
January 2018. powertrain uses Model S components". Wayne State University Press. ^ "What do the differentials, the shear stress of high shaft speed differences causes a dilatant fluid in the differential to become solid, linking the two shafts. ISBN 978-0-7603-1863-8. "Honda CR-V sets new Aus sales benchmark". Transfer case with high/low range and manual central diff lock. When referring to heavy vehicles, the term is increasingly applied to mean "permanent multiple-wheel drive" on 2×2, 4×4, 6×6, or 8×8 drive-train systems that include a differential between the front and rear drive shafts.[11] This is often coupled with some sort of antislip technology, increasingly hydraulic-based, that allows differentials to spin at different speeds, but still be capable of transferring the torque from a wheel with poor traction to one with better. The operating torque split ratio is 0:100. The CV also received painted bumpers, which came in either silver or body-colored shades, depending on the body color. In September, AMC introduced Quadra Trac full-time AWD for the 1973 model year Jeep Cherokee and Wagoneer.[39] Due to full-time AWD, which relieved the driver of getting out to lock hubs and having to manually select between 2WD and 4WD modes, it dominated all other makes in FIA rally competition. with up to 306 PS and it has a claimed all-EV range of 75 km (47 mi).[79] 2019 Toyota RAV4 Adventure/Trail/Edge 2019 Toyota RAV4 Adventure/Trail/Edge 2019 Toyota RAV4 Hybrid RAV4 available in March 2019. It has QI Wireless Charging with up to 5 USB Ports. 12 September 2005. Suzuki Motors introduced the Suzuki Escudo Pikes Peak Edition in 1996. thetruthaboutcars.com. 2010. Some of the earliest mid-engined four-wheel drive cars were the various road-legal rally cars made for Group B homologation, such as the Ford RS200 made from 1984 to 1986. ^ "广汽丰田威兰达高性能版亮相, 搭RAV4荣放双擎E+同款插混动力" [GAC Toyota Wildlander high-performance version unveiled, with RAV4 E+ plug-in hybrid power] (in Chinese). The 1996-1997 model years had headlamps with a bracket push in type, dual filament bulb. The license plate was also moved to the bottom bumper area to make way for the RAV4 logo and a rear foglamp. Edmunds.com. ^ Tan, Danny (18 June 2020). Retrieved 19 March 2019. ^ Foster, Patrick R. ^ Chan, Mick (2 June 2020). Japan: Toyota. Equally boxy to the Jeep, and also inline-four powered, the Land Rover appeared at the Amsterdam Motor Show in 1948. Considered as the first compact crossover SUV,[1] it made its debut in Japan and Europe in 1994,[2] and in North America in 1995, being launched in January 1996.[3] The vehicle was designed for consumers wanting a vehicle that had most of the benefits of SUVs, such as increased cargo room, higher visibility, and the option of full-time four-wheel drive, along with the maneuverability and fuel economy of a compact car. [19] (not to be confused with the term "FWD" as an acronym for front-wheel-drive) Along with the 11/2- and 2-ton Nash Quad (see below), the 3-ton FWD Model B became a standard military four-wheel-drive). "Toyota RAV4 (2013) first official pictures". However, since torque is divided between four wheels rather than two, each wheel slip. ^ "Roughing It in Style - - Toyota Introduces the New 2018 Tundra and Sequoia TRD Sport and RAV4 Adventure Models" (Press release). p. 34. Due to the difference in ratios, the clutches continually slip and only transmit, at most, 20% of the engine's torque.[60] Systems by design type Central viscous coupling, epicyclic unit and Torsen rear differential) Alfa Romeo 155 Q4 (central epicyclic unit, Ferguson viscous coupling and Torsen rear differential) AMC Eagle (central viscous coupling) Audi - Quattro Coupé, 80, 90, 100 & 200 (locking center and rear differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series in the 1980s - planetary center differentials) - up to 1987 Audi Q7 -double pinion 50/50 with lockup clutch pack BMW 3 series and 5 series (also in rear differential but not front differential) Chevrolet Rounded-Line K Fleetside, K Stepside, K Blazer, and K Suburban - permanent four-wheel drive (1973-1979) two-speed New Process 203 transfer case, center differential with 50:50 torque split and lock. ^ Peter, Cheney. ^ "Toyota Sets Sales Record for Sixth Year in a Row". The CV Sport model was short-lived, lasting only a year, and was introduced primarily to stimulate sales until the new model arrived in early 2006. The all-wheel edition came equipped with a second, 50 kW high-voltage, rear mounted electric motor that offers increased traction and a 1,750-pound (790 kg) towing capacity. Its successor, Kaiser Jeep, introduced are equipped with a second, 50 kW high-voltage, rear mounted electric motor that offers increased traction and a 1,750-pound (790 kg) towing capacity. Its successor, Kaiser Jeep, introduced are equipped with a second, 50 kW high-voltage, rear mounted electric motor that offers increased traction and a 1,750-pound (790 kg) towing capacity. Its successor, Kaiser Jeep, introduced are equipped with a second sec revolutionary 4WD wagon called the Wagoneer in 1963. Archived from the original on 24 February 2022. This became the forerunner of the designs that followed from other manufacturers.[44] The automobile press at the time tested the traction of the Eagles and described it as far superior to the Subaru's and that it could beat many so-called offroad vehicles. Automoblog.net. Audi's dominance in the Trans-Am Series in 1988 was equally controversial, as it led to a weight penalty midseason and to a rule revision banning all AWD cars; its dominance in Super Touring eventually led to a FIA ban on AWD system in 1998. ^ "All-New 2019 Toyota RAV4 Breaks the Mold for the Segment It Created" (Press release). ^ "86.9萬元起, 4代Toyota RAV4正式上市" [869,000 yuan for the 4th generation Toyota RAV4]. Archived from the original on 3 June 2020. Motor Trend Magazine. 20 November 2019. It may be full-time or on-demand, and is typically linked via a transfer case providing an additional on a distribution of the 4th generation Toyota RAV4]. output drive shaft and, in many instances, additional gear ranges. Torque is transferred to the secondary axle as needed by modulating the transfer clutch from open to a rigidly coupled state, while avoiding any driveline wind-up. W.W. Norton. Auto Express. The engine is a 2.5-litre inline-4 paired with an 8-speed Direct Shift Automatic which increases horsepower by up to 15% on petrol variants. ^ a b "Toyota RAV4 (XA40) - Technical specifications, size dimensions, fuel economy". ^ "Canadian sales and manufacturing set new benchmarks in 2009" (Press release). Retrieved 5 January 2009. Most controversial was the win pulled off at the 1990 Macau Grand Prix, where the car led from start to finish. Retrieved 13 August 2021. Retrieved 13 August 2021. Retrieved 1 September 2018. Other countries got mostly 5-door models with the 2.0 litre VVT-i engine. ^ "Lohner-Porsche Mixte Voiturette". The facelift included redesigned LED front and rear lamps and updated speedometer dials with full color TFT multi information display. ^ Dykes, Alex. 5 January 2015 Later versions sent for evaluation by the British Army had more user-friendly linked systems. ISBN 978-0-7853-9874-5. ^ a b Kranz, Rick. The luxury AMC or Buick V8-powered Super Wagoneer produced from 1966 to 1969 raised the bar even higher. The Air Force Logistics Management Agency. Not only was it technically innovative, with independent front suspension and the first automatic transmission coupled to 4WD, but also it was equipped and finished as a regular passenger automobile.[36] In effect, it was the ancestor of the modern SUV. HybridCars.com. Retrieved 26 October 2008. It also has dual Hemi V8s. Simply by fitting a second engine/gearbox unit across the rear, and the rear, and the first automatic transmission coupled to 4WD, but also it was the ancestor of the modern SUV. rudimentary 4×4 system could be produced. 3 January 2014. The interior has subtle changes such as different colored door panels, extra cup holders on certain models (cigarette lighter/cup holder duo), and a digital odometer. 22 January 1997. Popular Mechanics. The RAV4 can still be had in either front-wheel-drive or allwheel-drive in North America and Japan; however most countries only sell the all-wheel-drive version. Archived from the original on 21 October 2020. See year
1898. Retrieved 20 June 2020. Toronto, Ontario: Toyota Canada Inc. The fifth generation RAV4 was also launched in China on 22 November 2019 at the Guangzhou International Motor Show 3 January 2019. ^ Auto Editors of Consumer Guide (25 July 2007). Archived from the original on 21 April 2008. Ultimate Car Page. Archived from the original on 15 January 2012. Retrieved 12 December 2009. 4 July 2000. 1930s The 1936-1944 Kurogane Type 95 scout car (Japan) The 1938-1945 GAZ-61 four-wheel drive phaeton (Russia) 1940 GAZ-64 jeep-like car (Russia) The American Marmon-Herrington Company was founded in 1931 to serve a growing market for moderately priced four-wheel drive vehicles. Archived from the original on 18 July 2010. Late 1800s In 1893, before the establishment of the modern automotive industry in Britain, English engineer Bramah Joseph Diplock patented a four-wheel drive system[13] for a steam-powered traction engine, including four-wheel steering and three differentials, which was subsequently built. 1940. Archived from the original on 20 January 2021. "The Model D Is Tesla's Most Powerful Car Ever, Plus Autopilot". ^ "Guy Cars vs. Archived from the original on 3 January 2020. Engine options are 2.0-litre petrol and 2.5-litre hybrid. [90][66] Engines Type Years Power at rpm Torque at rpm 1,986 cc (121.2 cu in) 2.0 L M20A-FKS I4 2018 126 kW (169 hp; 171 PS) at 6,600 203 N·m (150 lb·ft) at 4,400 2,487 cc (151.8 cu in) 2.5 I A25A-FKS 14 2018 151 kW (202 hp; 205 PS) at 6,600 249 N·m (184 lb·ft) at 5,000 2,487 cc (151.8 cu in) 2.5 L A25A-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 279 N·m (206 lb·ft) at 5,000 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2019 163 kW (219 hp; 222 PS) at 5,700 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 279 N·m (206 lb·ft) at 3,600 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 222 PS) at 5,700 (combined) 2,487 cc (151.8 cu in) 2.5 L A25B-FXS 14 (hybrid) 2018 163 kW (219 hp; 22 3,600 (combined) 2,487 cc (151.8 cu in) 2.5 L A25A-FXS I4(plug-in hybrid/Prime/Suzuki Across) 2020 225 kW (302 hp; 306 PS) (combined) Safety In September 2019, Teknikens Värld ran both the petrol and hybrid, Toyota's new hybrid flagship" (Press release). Unlike other 4×4 vehicles, which use a conventional transfer case to drive the front and rear engine facing backwards. "Civilian use" may be a bit of a misnomer, as most, if not all, were used by the Soviet government and military (as command cars), but the GAZ-61-73 version is the first four-wheel drive vehicle with a normal closed sedan body. Drive. Archived from the original on 25 September 2020. In Australia, the RAV4 came in base Edge and upmarket Cruiser models in both three- and five-door configurations. 19 April 2021. Retrieved 3 June 2020. 1 December 2018. ^ Loh, Edward (December 2007). 5 December 2008. to all-time record year in 2008 Drivers embrace quality, fuel-efficiency and safety, setting 2008 Toyota RAV4". An Eaton Automatic Differential Lock was optional for the rear hypoid differential. Since the driveline does not permit any speed differentiation between the axles and would cause driveline wind-up, this mode is recommended only for part-time use in off-road or loose-surface conditions where driveline wind-up is unlikely. Archived from the original on 22 July 2021. This is generally used for the center differential, which distributes power between the front and the rear axles. Retrieved 31 July 2013. Wired.com. As it is often the case in Japan-only vehicles, the Vanguard comes loaded with high-tech gadgets, including steering-assisted stability control, keyless entry and satellite navigation. All told, North America built about 1+1/2 million 4x4 driven vehicles during the war,[31][32][33] Availability of certain critical components, such transfer cases and especially constant-velocity joints affected development. Retrieved 28 December 2020. "1980-88 AMC Eagle 4wd". 16-inch wheels were standard; larger tires were available on all-wheel-drive models. The Quad not only came with four-wheel drive and four-wheel brakes, but also featured four-wheel drive vehicles ever to be made, and its production continued for 15 years with a total of 41,674 units made by 1928.[22] Daimler-Benz also has a history in fourwheel drive. Retrieved 11 August 2011. 7 January 2002. (March 2009). In January 2020, Teknikens Värld retested the model[93] giving it a passing mark.[94] Sales Calendar year United States Canada Mexico[95] Japan Europe[96] China Australia New Zealand Overall Hybrid RAV4[97] Wildlander[98] Overall Hybrid Overall Hybrid Overall Hybrid 1994 1,350 1995 3,334 1996 56,709 4,768 1997 67,489 23,580 5,361 1998 64,990 25,466 7,800 1999 57,138 22,191 6,988 2000 53,777[99] 25,449 8,413[100] 2001 86,368 53,976 10,969[101] 2002 86,601[102] 88,764 12,196 2003 73,204 95,867 12,026[103] 2004 70,314[104] 101,052 13,220[105] 2005 70,518 10,462 93,492 11,881[106] 2006 152,047[107] 14,848 106,315 14,834[108] 2007 172,752 11,948 97,414 14,507[109] 2008 137,020 20,522[110] 7,491 62,501 14,122[111] 2009 149,088[112] 25,784[113] 5,958 44,723 67,880 12,635[114] 2010 170,877[1] 22,810[115] 5,323 50,930 98,057 14,597[116] 2011 132,237[117] 21,550[118] 4,684 43,663 100,309 13,125[119] 2012 171,877[120] 25,942[121] 5,198 36,030 98,179 14,651[122] 2013 218,249[123] 33,156[124] 10,830 47,534 117,800 16,983[125] 2014 267,698[126] 36,639 9,539 54,187 124,680 18,160[127] 2015 315,412[128] 1,507 42,246 10,489 51,838 116,731 18,435[127] 2016 352,154[129] 45,070 49,103[130] 10,709 69,919 116,389 19,526[131] 2017 407,594[132] 50,559 50,894[133] 7,933 71,047 128,545 21,077[134] 2018 427,170[135] 48,124 55,385[136] 6,304 68,779 144,049 22,165[137] 2019 448,071[138] 92,525 65,248[139] 14,246 13,913 53,965[140] 91,800 125,977 24,260[141] 2020 430,387[142] 115,974 3,200 67,977 10,015 54,848[143] 90,761 174,940 82,071 38,537[144] 26,398 5,346[145] 3,830 2021 407,739[146] 120,983 27,707 11,731[147] 49,594[148] 199,675 128,086 35,751[149] 25,850[150] References ^ a b "9 cute SUVs from the last decade: Toyota RAV4 - 1996". For other uses, see Four by four (disambiguation) and Four-wheel drive (disambiguation). Unusual systems Prompted by a perceived need for a simple, inexpensive all-terrain vehicle for oil exploration in North Africa, French motor manufacturer Citroën developed the 2CV Sahara in 1958. 2012. The North American RAV4 with 3.5-litre 2GR-FE V6 engine is fitted with a five-speed automatic transmission. The torque split of that differential may be fixed or variable depending on the type of center differential. The V6 model has 201 kW (270 hp; 273 PS). Markets 2019 Toyota RAV4 LE AWD (US)Interior In the North American market, it is available in five petrol variants which include the LE, XLE, XLE Premium, Adventure and Limited models.[69] Both Adventure and Limited models and four hybrid variants which include the LE, XLE, XLE Premium, Adventure and Limited models.[69] Both Adventure and Limited mod Limited grades have Torque Vectoring All Wheel Drive with Rear Drive Disconnect. ^ a b Sheppard, Tom (1 September 2005). Retrieved 13 June 2020. It included dark red body color, extended wheel arches, 20-inch alloy wheels and matte painted from the original on 27 January 2022. Archived from the original (PDF) on 27 June 2013. Four Wheeler Network. Australia In Australia, the RAV4 is sold in four-cylinder base CV, Cruiser, Cruiser L and the limited edition "Altitude" trim levels, and CV6, SX6, and ZR6 are 6-cylinder variants. Retrieved 27 September 2021. Miller Gulf Special. Originally conceived as a stop-gap product for the struggling Rover car company, despite chronic underinvestment, it succeeded far better than their passenger cars. The vehicle's name is an abbreviation of "Recreational Active Vehicle with 4-wheel drive", [4] although not all models come equipped with four-wheel drive. Archived from the original on 14 January 2021. Rallying to win: a complete guide to North American rallying. Archived from the original (PDF) on 22 December 2015. built the front-engined P99 Formula One car that actually won a non-World Championship race with Stirling Moss in 1961. As a result, if a tire loses traction on acceleration, either because of a lowtraction situation (e.g., driving on gravel or ice) or the engine power overcomes available traction, the tire that is not slipping receives little or no power from the engine. The Lohner-Porsche Mixte Hybrid vehicle, and the
first four-wheel drive without a steam engine. Autoblog.com. "Toyota RAV4, Ridisegnare Un'Icona Del Design" [Toyota RAV4, Redesigning An Icon]. ^ "Toyota Wildlander China auto sales figures". Archived from the original on 28 November 2015. ^ "Tesla and Toyota Formalize Agreement to Develop Electric Version of RAV4; Targeting US Sales in 2012". Archived from the original on 28 November 2015. problem, but when turning on dry pavement, the tires grip, then are forced to slip, then grip again, and so on, until the turn is completed. Archived from the original on 10 January 2014. When going around a curve, this either forces one of the wheels to slip, if possible, to balance the apparent distance covered, or creates uncomfortable and mechanically stressful wheel hop. Once it does slip, however, recovery is difficult. If this vehicle were a truck with dual rear wheels, its configuration would still be formulated as 6x4. "Toyota Planning More EVs; Expecting Regional Demand for Prius Plug-In". 5 January 2021. Archived from the original on 30 September 2010. So successful was the car that it dominated the Japanese circuit for the first years of production, going on to bigger and more impressive wins in Australia before weight penalties eventually levied a de facto ban on the car. The Unimog is also a result of Mercedes 4x4 technology. 18 December 2012. "2019 Toyota RAV4 launched in South East Asia". Retrieved 6 January 2019. Autocar.co.uk. ^ Wilkinson, Luke (1 July 2020). UK. Car Watch (in Japanese). Auto Design Magazine. ^ "Australian vehicle sales figures for December 2016 - best-sellers of the year revealed". Other options included alloy wheels, heated seats, a sunroof and keyless entry. US: SAE International. The RAV4 in Mexico has experienced good acceptance since its introduction. Some in this category have varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutch coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutch coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutch coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutch coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutch coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutche coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutche coupling to engage and slip varying degrees of control in the torque distribution between front and rear by allowing some of the clutches in a multi-plate clutche c front and rear axles at all times via a center (interaxle) differential. Three different bodystyles were manufactured - a two-door pickup truck, and a four-door pickup truck, and a four-door pickup truck, and a four-door pickup truck. G5 and BMW 325 4×4 featured full-time four-wheel drive, four-wheel steering, three locking differentials, and fully independent suspension. p. 273/274. "The First Century of GMC Truck History" (PDF). Retrieved 15 September 2018. Archived from the original on 12 January 2021. Retrieved 21 March 2022. The 4RM system used in the Ferrari FF in 2011 is unique in that it has a rear transaxle with a secondary front transaxle connected directly to the engine. ^ Christie Schweinsberg (10 August 2011). Retrieved 11 October 2014. CNN. Wheels TV. Nissan Motors has developed a system called E-4WD, designed for cars that are normally front-wheel drive; however, the rear wheels are powered by electric motors. CRC Press. 20 November 2018. Some variants of the 1998 Toyota RAV4 were labeled as SXA11 rather than XA10, paired with an owner-given name of "RAV 4.1".[11] RAV4 EV Main article: Toyota RAV4 EV The RAV4 EV is a plug-in, all-electric variant of the RAV4. Retrieved 10 January 2019. Mathioudakis, Byron (5 January 2006). ISBN 9780814339527. Part-time mode - The front and rear axle drives are rigidly coupled in the transfer case. All Cars Channel. These trucks shared many parts between the light-duty and medium-duty, reducing production costs. Archived from the original on 13 June 2010. The differential does this by distributing angular force (in the form of torque) evenly, while distributing angular velocity (turning speed) such that the average for the two output shafts is equal to that of the differential ring gear. Archived from the original on 18 January 2022. Archived from the original on 18 January 2022. Archived from the original on 18 January 2022. addition, the model range was given a subtle facelift, consisting largely of a new front bumper with circular fog lights and white turn signals instead of the older orange lights. The first four-wheel-drive vehicles to go into mass production were built by (what became) the American Four Wheel Drive Auto Company (FWD) of Wisconsin, founded in 1908 Archived from the original on 11 August 2020. Hofwagenfabrik Ludwig Lohner & Co. in Vienna in 1899, presented to the public during the 1900 World Exhibition in Paris. Retrieved 14 May 2020. Up to 2008MY all RAV4s in Mexico had four-cylinder engine was still available. Retrieved 12 November 2011. On-demand systems function primarily with only one powered axle until torque is required by the second axle. Company Car Today Magazine. ^ "75 Years of TOYOTA | General Status of Plants in Japan | Tahara Plant". It has Multi Terrain Select providing operators an ability to maximize traction when driving on sand, mud, rock, or dirt. In the case of the AWD model version of the Lexus RX400h (and its Toyota-branded counterpart, the Harrier hybrid), the front wheels can also receive drive power directly from the vehicle's gasoline engine, as well as via the electric motors, whereas the rear wheels derive power only from the second electric motor. 6 speed manual, automatic and CVT gearboxes are standard. Archived from the original on 19 April 2021. In the United States the safety structure was improved and Vehicle Stability Control made standard. Archived from the original on 18 March 2015. rear effective wheel diameter ratios. 19 November 2007. 3 January 2013. The new RAV4 topped Toyota SUV sales in the United States for the first time. ^ "History of Innovation". CarsGuide. ^ Stricker, Tom of Toyota Motor North America (5 September 2012). Europe: Toyota. Toyota of Japan also sold the longer-wheelbase version as the Toyota Vanguard (Japanese: トヨタ・ヴァンガード, Hepburn: Toyota Vangado) at Toyopet Store locations. Retrieved 18 July 2014. Malaysia. The connection between this gearbox and each front wheel is via independent Haldex-type clutches, without a differential. Se il sistema rileva un'elevata possibilità di collisione frontale con un veicolo, l'avvertimento del sistema di sicurezza pre-crash sollecita il quidatore a intervenire per evitarla, aumentando la pressione potenziale dei freni. The world's first four-wheel-drive car directly powered by an internal-combustion engine, and the first with a front-engine, four-wheel-drive layout, was the Dutch Spyker 60 H.P., Commissioned for the Paris to Madrid race of 1903, it was presented that year by brothers Jacobus and Hendrik-Jan Spijker of Amsterdam.[16][17] The two-seat sports car featured permanent four-wheel braking. The V6 was available from 2007. With standard bevel-gear differentials, the torque split is 50:50. In Australia, for the facelift, the base Edge was renamed CV, and gained standard air conditioning (previously an option). The Reynolds-Alberta Museum has a four-wheel-drive vehicle, named "Michigan", from 1905 in unrestored storage. All US models feature Toyota's Star Safety System which includes Vehicle Stability Control. "All-Wheel-drive vehicle, named "Michigan", from 1905 in unrestored storage. Drive Vehicles Grow in Popularity With Car Shoppers". Retrieved 8 November 2020. Wisebuyers.co.uk. It is much less acceptable for 4WD vehicles, because 4W the original on 27 June 2013. Archived from the original on 31 January 2020. 4 January 2020. 4 January 2021. For?". "Ferrari FF The inside scoop on Ferrari's new FF". The modern G-series/Wolf such as the G500 and G55 AMG still feature some of the attributes, with the exception of fully independent suspension, since it can compromise ground clearance. Archived from the original on 7 October 2012. Macmillan. National Post. The All-Trac system was later available on serial production Toyota Camry, Toyota Corolla, and Toyota Camry, Toyota Corolla, and Toyota Camry, Toyota Corolla, and Toyota Camry, exclusion of a low-range gear. Archived from the original on 31 January 2013. New features/options include turn signals integrated into the side mirrory, satellite navigation, smart keyless entry, a push button starter, a multi-function instrument cluster display, etc. 4 January 2007. Walczak, Jim. ^ Foster, Patrick (January 2008). Archived from the original on 18 July 2010. Twenty years later, B. The new Eagles combined Jeep technology with an existing and proven AMC passenger automobile platform. 2017 Toyota RAV4 Excel (UK; facelift) RAV4 Adventure and RAV4 Premium (2013) RAV4 Adventure at Geneva, 2013 The RAV4 Adventure is a concept vehicle that accentuated the car's look to reinforce its off-road capabilities. Archived from the original on 19 March 2019. 263. 2000-present In the United States, as of late 2013, AWD vehicles comprised 32% of new light vehicle sales, up 5% since 2008. [48] This is in large part due to the popularity of the crossover.[48] Most
crossovers offer the popular technology, in spite of it increasing vehicle price and fuel consumption.[49] Car manufacturers have inundated consumption.[49] Car manufacturers have inundated consumption.[40] Tests have shown that though AWD gives improved acceleration in wintery conditions, it does not help with braking.[51] In 2008, Nissan introduced the GT-R featuring a rear-mounted transaxle. Retrieved 24 February 2022. The two most common factory-installed locking differentials use either a computer-controlled multiplate clutch or

viscous coupling unit to join the shafts, while other differentials are more commonly used on off-road vehicles generally use manually operated locking devices. Though not used much on commercial vehicles, [nb 1] all-wheel drive vehicles all needed these; and they would use two or three times the number of driven axles, meaning more gears to cut for all the differentials. U-CAR. An example of a system like this is the BorgWarner i-Trac(TM) system. Retrieved 16 July 2010. Maple Leaf Up.net. ^ "Toyota RAV4 Gains 15th Birthday "Edge"" (Press release). This allows one driveshaft to independently drive two output shafts, axles that go from the differential to the wheel, at different speeds. Power was increased slightly to 95 kW (127 hp; 129 PS). ^ Newton, Bruce (8 January 2004). Retrieved 10 May 2018 - via PR Newswire. Mpt.org. ^ "2007 4x4 Sales". 21 July 1996. bcoy1cpb.pacdat.net. Mercedes and BMW developed this further in 1937. ^ "Toyota's 2021 RAV4 hybrid gets a plug". The Dana 110 was also used on the General Motors 4×4s. Retrieved 10 January 2021. The front fascia harkens back to the Chevrolet K5 Blazer and the rear is similar to the Cadillac cars of the 1970s. Retrieved 24 June 2014. 27 March 2006. The short-wheelbase model is sold only in Japan, Europe and North America. Retrieved 9 December 2012. Washington, D.C.: Center of Military History, U.S. Army (Originally published: 1960, Washington, D.C., Office of the Chief of Military History, Dept. ^ Tudose, Sergiu (17 October 2019). 5 January 2017. Retrieved 3 February 2020. To purchase copies of Owner's Manuals, please call (800) 782-4356 or visit www.helminc.com. The extended-length RAV4 is sold in Japan as the Toyota Vanguard, released on August 30, 2007.[21] It is sold in five- and seven-passenger versions and slots between the regular RAV4 and Kluger. "CMP Softskin Trucks". Archived from the original on 6 January 2019. "Venta al público y producción de vehículos ligeros por marca, modelo, segmento y país origen". Lexus RX300 -viscous coupling across the otherwise open center differential. "The Trucks that Beat Hitler". {{cite web}}: author= has generic name (help) ^ Auto Editors of Consumer Guide (29 August 2007). The full hybrid system combined a 2.5-litre Atkinson cycle petrol engine with a powerful electric motor, a high voltage generator, a 204 cell nickel-metal hydride battery located under the rear seats, a power control unit, and a power split device. 30 August 2007. ^ "All-New 2019 Toyota RAV4 Serves Up A Breakthrough Debut At New York International Auto Show" (Press release). Both front-wheel drive and all-wheel drive were available, and the RAV4 could be had with either a five-speed manual or four-speed automatic transmission. They were produced because of a government demand for a four-wheel-drive passenger vehicle. k. The RAV4 Premium is a concept vehicle with Deep Bronze, chrome-finished spoiler, chrome inserts in the rear bumper, chrome inserts in the rear bumper, chrome inserts in the rear bumper, chrome-finished spoiler, ch brushed aluminium skid plates, integrated tailpipe at the rear bumper, 20-inch wheels, leather interior upholstery designed by Toyota's Kansei design department, seats with black piping and V-shaped outline, two-tone double stitching and grey and black leather on the instrument panel and door panels. grey bumpers and side cladding, mirrors, and door handles, and featured steel rims. Design and development in the second half of 1991 on the 3-door version and in 1993 for the 5-door version. Archived from the original on 5 February 2021. Any other transfer case can be considered more robust, however more moving parts and complexity can, sometimes, make other transfer cases less durable. New 2011 24 Hours of Le Mans prototypes.[54] One example is the Audi R18 e-tron quattro (winner of 2012 race, the first hybrid/4WD to win Le Mans), using an electric motor in the front axle with the gasoline engine in the recently adopted 4×4 drivetrains; 4×4 medium-duty trucks became common after Ford began selling Ford Super Duty trucks. Ferdinand Porsche designed and built a four-wheel-driven electric vehicle for the k. Two additional models were added in 1981, the subcompact SX/4 and Kammback. reports December and full year 2010 sales" (Press release). ^ DeBono, Norman (20 April 2016). To overcome this, several designs of differentials can either limit the amount of slip (these are called 'limited-slip' differentials) or temporarily lock the two output shafts together to ensure that engine power reaches all driven wheels equally. Range Rover 2019. 15 October 2019. 15 Octo positives in final results - Autotalk". When power is distributed to all four wheels, a third or 'center' differential can be used to distribute power between the front and rear axles. Lincoln Navigator (1998-2006) - automatic ControlTrac four-wheel drive with two-speed dual range BorgWarner transfer case and intelligent locking center multi-disc differential Navigator and Navigator L (2007-present) use a one-speed single range transfer case, no reduction gearing Mercedes-Benz Unimog (locking center and rear with up to 10 low range gears). ^ Värld, Teknikens. Elements of the chassis were used in subsequent military vehicles such as the 1940 GAZ-64 and the 1943 GAZ-67, as well as the postwar GAZ-69, and the properly civilian GAZ-M-72, based on the rear-wheel drive GAZ-20 "Victory" and built from 1955 to 1958. "2020 Toyota RAV4 PHV can go over 1,300 km on one tank". Archived from the original on 21 March 2012. In 1997 for the 1998 model year, the RAV4 was slightly restyled on the front and rear fascias, and a soft top three-door was made available. Teknikens Värld. In Australia, the fourth generation RAV4 went on sale in February 2013. In September 2021, Toyota revealed the updated RAV4[77] with new LED projector type headlights, alloy wheels which can be had in either silver or black, USB-C charging ports and the European market gains the new Adventure variant[78] which has been offered in other markets like Japan, United States and Australia. This vehicle has a unique "crab crawl" capability, which allows it to rotate 360° in place. Retrieved 8 July 2019. Arsenal of Democracy: The American Automobile Industry in World War II. ^ "Voice of Design - Transcending fixed ideas - Masaki Motozaki". "Archived copy". "1967-1977 Jeep Wagoneer". For the refresh of 2009 the roof rack in the Base model was eliminated as standard equipment and the Sport trim was added to the line-up. Taiwan. ^ a b "Production Of The New Toyota Rav4 Begins In Russia". ^ "ニューモデル速報 RAV4 L&Jのすべて" [New model bulletin RAV4 L&J]. The torque modulation may be achieved by active electronic/hydraulic control systems, or by passive devices, based on wheel slip or wheel torque, as described in the section on traction control systems. Car and Driver. Retrieved 8 January 2022.{{cite web}}: CS1 maint: archived copy as title (link) ^ "December 2015 and Year-End Sales Chart" (Press release) ^ "Australia's favourite SUVs revealed: Toyota RAV4, Mazda CX-5, Hyundai Tucson and Mitsubishi ASX lead market's love for crossovers in 2020 new-car sales". Retrieved 30 November 2013. "ミツオカ、新型SUV「バディ」のデザインを先行公開 アメ車テイスト漂う斬新なスタイル" [Mitsuoka pre-releases design of new SUV "Buddy" Innovative style with American car taste]. ^ "Canadian-built models drive Toyota. ^ Davies, Alex (10 October 2014). GMC Rounded-Line K Wideside, K Fenderside, K Jimmy, and K Suburban - permanent four-wheel drive (1973-1979) two-speed New Process 203 transfer case, center planetary differential with 50:50 torquestion of the second state split and lock. ^ "Australian sales figures for December 2012 - Audi trend evident". ^ Hammerton, Ron (8 January 2010). Syntactically, the first figure indicates the number of axle ends that are powered. (2013). The GX trim is available with either 6-speed manual transmission or CVT, while the GXI and Cruiser trims as well as the GX, GXL and Cruiser hybrid variants are only available with CVT. Retrieved 9 January 2014. RAV4 Hybrids were available in both front and all-wheel drive variants. Toyota discontinued the Vanguard in November 2013 in favour of the redesigned XU60 Harrier. - Car News". ^ De Guzman, Marcus (9 June 2020). "Toyota brand finishes 2011 with six straight months of market share growth" (Press release). Trim levels were the 2.0 Classic, 2.0 Luxury, 2.0 Luxury Navi, 2.4 Luxury Navi, 2. "Vehicles with good driver-side protection may leave passengers at risk". Archived from the original on 27 July 2014. in 2016" (Press release). The term "4×4" (pronounced four by four) was in use to describe North American military four-wheel drive vehicles as early as the 1940s, [57] with the first number indicating the number of wheel ends on a vehicle and the second indicating the number of driven wheels. へ According to Car and Driver Vol52 No 8, February 2007, page 110 Retrieved from " へ " 【国産乗用車編】2020年12月 & 2020年12月 & 2020年 November 2014. ^ "新車展示 - '13 RAV4 2.0 E" [Car show - 2013 Toyota RAV4 2.0 E]. Retrieved 9 May 2012. Letter to Friedman, David of the National Highway Traffic Safety Administration. Archived from the original on 1 May 2013. Clutches in the front transaxle engage when the rear wheels slip. Routledge. Consumer Reports Magazine. Hummer Se il sistema rileva un'elevata possibilità di collisione frontale con un veicolo, i freni intervengono automaticamente per evitarla o ridurre l'impatto per gli occupanti del veicolo e per il veicolo stesso coinvolto nella collisione. If the interaxle differential is locked out, then the mode reverts to a part-time mode. 16 July 2010. US. Records Best Year Ever with 231,646 Vehicles Sold in 2018" (Press release). ^ "2006 Toyota RAV4 Review and Specs". ^ "Toyota to Expand North American Manufacturing Operations - New Canadian Plant to Produce RAV4 from 2008 -". By contrast, the Axis powers' closest equivalent to the jeep, the VW Kübelwagen, of which only some 50,000 were built,
though being equipped with portal gear hubs, only had rear-wheel drive. "2020 Toyota Wildlander Is China's RAV4 With Half A Lexus Spindle Grille". ^ "Global sales of the Toyota RAV4 reach 10 million units". No low range was used in the transfer case. In 2011 (for the 2012 model year), the RAV4 underwent another facelift, based on the Vanguard's styling. 10 April 2020. In extreme conditions, the system can be locked in a 50:50 split via the 4WD LOCK button. 19 May 2020. Retrieved 16 October 2010. Ford Escort RS (RS 2000 16v 4×4 models, Dodge Power Wagon - permanent four-wheel drive (1974–1979) two-speed New Process 2030. transfer case, center differential with 50:50 torque split and lock. ^ García, Gerardo (8 January 2022). Facelift (2003) In late 2003, the 2004 model RAV4 was given a styling update, improved equipment, and, in certain markets, a new engine. Retrieved 10 January 2014. "VFACTS: 2003 a sales record smasher". "VFACTS: Subaru's Forester snatches the crown". ^ a b c "Toyota RAV4 Technical Specifications" (PDF). ultimatespecs.com. (viscous clutch) Toyota RAV4 - from 2005 (third generation only) Volkswagen Jetta 4motion, Volkswagen Tiguan 4motion, Volkswagen Golf 4m Haldex Traction) Volvo: S40, S60, S80, V50, V70, XC70, XC90 (Visco system until 2003; then all Haldex Traction-based) Note: the above all function like 4WD high-range in a part-time 4WD system when the clutch is engaged (usually by computer although some allow manual control). Selection lever: 2H for two-wheel drive, 4H for high-range 4WD, and N for neutral Selection lever: All-time 4WD, neutral selection lever: All-time 4WD, neutral selection lever: All-time 4WD, and N for neutral selection lever: All-time 4WD, and N for neutral selection lever: All-time 4WD, neutral selection lever: All-time 4WD, and N for neutral selection lever: All-time 4WD, and N for neutral selection lever: All-time 4WD, neutral selection lever: All-time 4WD, and N for neutral selecting and all-time 4WD, and N for neutral selection may have the ability to operate in multiple modes depending on driver selection. Produced up to the war by a few specialized firms with limited capacity, from spring 1942, Ford, Dodge, and Chevrolet joined in fabricating these in a quantity more than a 100-fold greater than in 1939.[34] Although Russia had their own jeep-like vehicle (the GAZ-64) up and running in 1940, a year earlier than the American jeep, in the early years of the war, they relied significantly on Lend-Lease vehicles, provided by the western allies. Chadwick patented a 4WD system, GB 1113068, that used hemispherical wheels for an all-terrain vehicle. This design does not provide for traction when one wheel is spinning freely where no torque exists, but provides excellent handling in less extreme situations.[citation needed] A typical Torsen II differential can deliver up to twice as much torque to the high-traction side before traction side. Ward Auto. Australian. This problem can happen in both 2WD and 4WD vehicles, whenever a driven wheel is placed on a surface with little traction or raised off the ground. 10 August 2012. Typical AWD systems in light passenger vehicles, it refers to a system that applies torque to all four wheels (permanently or on-demand) and/or is targeted at improving on-road traction and performance (particularly in inclement conditions), rather than for off-road applications.[7] Some all-wheel drive electric vehicles use one motor for each axle, thereby eliminating a mechanical differential between the front and rear axles. Produced from 1997 to 2003 for fleet lease, this "zero emission" model was only offered for public sale for seven months in 2002, in very small quantities in California. ^ RAV4, Toyota. Retrieved 15 December 2015. Musk said the added efficiency is thanks to the electronic system that will shift power between the front and rear motors from one millisecond to the next, so each is always operating at its most efficient point ^ Diplock 4WD Locomotive Patent ^ "History of Hybrid Vehicles". {{cite web}}: [author= has generic name (help) ^ Calvin, Jean (1974). Beginning in March 2009, Chinese models began production by Tianjin FAW Toyota Motor Co. Ltd. Publications International. p. 532. ^ "2009 Ford Escape Hybrid Review and Specs". MSN. Archived from the original on 16 January 2021. autoblog. 25 September 2020. DriveArabia.com. Autoweek (archived at amxfiles). Retrieved 26 September 2012. Archived from the original on 17 January 2021. January 2019. Modifications were made starting in the 2015 model year which increased the small overlap front rating to "good".[56] The small overlap test, introduced in 2012 by the IIHS, simulates a frontal collision on 25 percent of the driver's side. Retrieved 26 September 2010. Transfer of power is managed automatically by internal electronics based on traction conditions and need, making this an all-wheel-drive system. Retrieved 4 January 2013. Archived from the original on 8 January 2014. ^ "All-new, more advanced Toyota Rav4 rolls into SA". The development also incorporated Bramah's Pedrail wheel system in what was one of the first four-wheel drive automobiles to display an intentional ability to travel on challenging road surfaces. It is built on the GA-K platform, with development led by chief engineer Yoshikazu Saeki.[68] Both 4-cylinder petrol-powered and petrol-electric hybrid (Hybrid Synergy Drive) variants would remain available. ^ "Toyota Revs Up Lineup with New 302-Horsepower RAV4 Prime" (Press release) Archived from the original on 4 March 2013. ^ Henry, Allan (1975). Since its adoption, the IIHS has noticed several automakers making non-symmetrical modifications to their vehicles, including the RAV4. The first Russian-produced four-wheel drive vehicle, also in part for civilian use, was the GAZ-61, developed in the Soviet Union in 1938. ^ "2013 Toyota RAV4". J. In model year 2009, a slightly larger 133 kW (178 hp; 181 PS) 2.5-litre 2AR-FE inline-four replaced the previous 124 kW (166 hp; 169 PS) 2.4-litre engine. ^ a b "Toyota Launches New RAV4 in Japan". The 1998-2000 models used a single filament headlamp, with two different beams per housing (low and high beam) opposed to the original single beam with dual filaments. Topgear.com. Production in Russia started in August 2016.[42] Facelift (2015) In 2015, for the 2016 model year, Toyota released a facelift for the XA40 series. It has a total power output of 225 kW (302 hp), which is 62 kW (83 hp) higher than the regular hybrid version. M. ^ "Patent 0890341-002, S". Retrieved 8 January 2019. ConsumerReports.com. ^ "20th Anniversary for RAV4". In 1987, Toyota also developed a car built for competition in rally campaigns.[47] A limited number of road-going FIA Homologation Special Vehicle Celica GT-Four (known as Toyota Celica All-Trac Turbo in North America) were produced. The vehicle was a series hybrid car that used an electric hub motor at each wheel, powered by batteries, which were in turn charged by a gasoline-engine generator. [14][15] It was clumsily heavy, and due to its unusual status, the so-called Lohner-Porsche is not frequently given its credit as the first four-wheel driven automobile. Stricker, Tom of Toyota Motor North America (30 April 2014). Hummer H2, H3 40/60 planetary with lock Jeep Grand Cherokee, Commander (except models equipped with Quadra-Trac I) Jeep Liberty, Jeep Cherokee (XJ), Dodge Durango (Select-Trac) - NV 242 transfer case- rear drive, open center differential, locked center diff QuadraTrac: limited-slip center differential, 50/50 locked center differential. Retrieved 15 February 2018. ^ Lye, Gerard (28 March 2018). p. 150. gmheritagecenter.com. In addition to the above primary classifications, the J1952 standard notes secondary classifications, the J1952 standard notes secondary classifications, the J1952 standard notes secondary classifications resulting in a total of eight systems, designated as: Part-time nonsynchro P time synchro Full-time fixed torque Full-time variable-torque active On-demand synchro variable-torque active On-demand synchro variable-torque active Design Differentials Main article: Differential front via a viscous coupling unit if the rear slips The HMMWV is a 4WD/AWD that powers all wheels evenly (continuously) via a manually lockable center differential, with Torsen differentials for both front and rear Two wheels fixed to the same axle (but on the opposite axle ends) need to turn at different speeds as a vehicle goes around a curve. To prevent this, the wheels are allowed to turn at different speeds using a mechanical or hydraulic differential. ^ DeLorenzo, Matt (15 February 2014). For the third-generation model, Toyota offered both short- and long-wheelbase versions of the RAV4. Archived from the original (PDF) on 17 June 2015. Archived from the original on 26 September 2019 "All-Wheel-Drive Revisited: AMC's 1980 Eagle pioneered the cross-over SUV". rav4world.com. The simplistic design works acceptably well for 2WD vehicles. The Jeffery / Nash Quads were the first 4WD vehicles produced in five-figure numbers (1913–1928). The 2.0-litre 1AZ-FE and 2.4-litre 2AZ-FE were standard paired to a 5 speed manual and 4 speed automatic gearbox. ^ "【人気爆発ライズ RAV4の影で大幅減のC-HR...】トヨタSUVで壮絶な共喰拡大中!!". The second generation RAV4 had the highest proportion of female drivers among all makes and models in the United States, with the possible exception of the Volkswagen New Beetle, according to 2003–2004 registration and survey data.[17] Facelift Toyota RAV4 hardtop (Japan) Facelift Toyota RAV4 4WD with L Package (US) Facelift Toyota RAV4 CV (Australia) Third generation (XA30) Toyota RAV4 Limited (US; pre-facelift) OverviewAlso calledToyota Vanguard (Japan, LWB) ProductionNovember 2005 - December 2012 (export)November 2005 - May 2016 (Japan)September 2012 - September 2014 (RAV4 EV)Model years2006-2016 (Japan)AssemblyJapan: Tahara, Aichi; Toyota, Aichi (Takaoka plant) (2014-2016, Japanese
market);[18] Obu, Aichi (Nagakusa plant)Canada: Woodstock, OntarioChina: ChangchunDesignerMasaki Motozaki (exterior & interior: 2003)[19] [20]Body and chassisBody style5-door SUVPlatformToyota New MC platformPowertrainEnginePetrol: 2.0 L 1AZ-FE I42.0 L 2AD-FTV I4-T2.2 L 2AD-F speed automatic (CVT-i)[21][22]CVTDimensionsWheelbase2,560-2,660 mm (100.8-104.7 in)Length4,395-4,620 mm (173.0-181.9 in)Width1,815-1,855 mm (66.3-69.1 in)ChronologyPredecessorToyota Kluger (XU20) (for Toyota Vanguard; Japan, LWB)SuccessorToyota Harrier (XU60) (Vanguard) Toyota RAV4 (UK pre-facelift) Toyota RAV4 (Germany; pre-facelift) The Toyota RAV4 was redesigned for the 2006 model year, using an all-new platform, and was first unveiled at the 2005 Frankfurt Motor Show.[23] It uses an electric power steering (EPS) system. Motorsport Network. Audi also introduced a permanently all-wheel-driven road-going car, the Audi Quattro, in 1980. 1 July 2005. 1945–1960s A 1945 Willys CJ-2A Jeep A first-generation Dodge Power Wagon Willys introduced the model CJ-2A in 1945, the first full-production four-wheel drive "(AWD). Archived from the original on 11 January 2022. ^ De Guzman, Marcus (8 February 2019). Archived from the original on 29 March 2016. The 2.0 GX 2WD trim is also available with 6-speed manual transmission.[74] The RAV4 was revived for the Japanese domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic market in 2019, after almost three years of hiatus. 6 October 2010. The testers noted "dangerous domestic behavior" on the cone course, and that the electronic stability control "engaged very late", causing both vehicles to hop up on their outer tires multiple times during ford trucks to four-wheel drive and got off to a successful start by procuring contracts for military and commercial aircraft refueling trucks, 4×4 chassis for towing light weaponry, and an order from the Iraqi Pipeline Company for what were the largest trucks built at the time.[23] The early Marmon-Herringtons proved to be the exception to the rule — 4WD cars and trucks developed in the 1930s were mainly built for governments, with (future) warfare applications in mind. ^ Andres, Anton (10 January 2019). 2009. Retrieved 19 October 2019. This allows the vehicle to be driven full-time in this mode, regardless of the road surface, without fear of driveline wind-up. Archived from the original (PDF) on 18 June 2015. In the Hyundais, the ITM 3e acts like a full-time AWD with 95:5 normal torque split. It stemmed from Bramagh's previous idea of developing an engine that would reduce the amount of damage to public roads. ^ Lee, Jonathan (15 September 2021). During World War II, the U.S. military would typically use spaces and a capital 'X' - as "4 X 2" or "6 X 4".[6] Center transfer case sending power from the transmission to the rear axle (right) and front axle (left) 4WD Four-wheel drive (4WD) refers to vehicles with two axles providing torque to four axle ends. Automotive News Europe. Retrieved 15 September 2021. Retrieved 15 September 2021. Retrieved 19 August 2017. 1 February 2017. 1 Februa 2008. "VIN Coding System for 2015MY Toyota RAV4, 2015MY Lexus GS 350, 20 London Free Press. (This is similar to the system used on the Ford Escape Hybrid AWD.[59]) Chrysler's Jeep Division debuted the twin-engined, 670 hp (500 kW) Jeep Hurricane concept at the 2005 North American International Auto Show in Detroit. World history of the automobile. モーターファン (Motor Fan). ^ "Vanguard specifications" (in Japanese). 146. Gal's Cars". Archived from the original on 30 April 2008. The main differentiation between the two models was in appearance. pp. 147–148. The fifth generation RAV4 went on sale in Australia on 8 May 2019 and is available in four trim levels: GX, GXL, Cruiser and Edge. "2011 Ford Explorer puts four-cylinder EcoBoost engine above V6 in pecking order". "Alphabet Soup: 4×4 vs 4WD vs AWD Where's the Differential?". Retrieved 13 January 2021. The Philippines. ^ "Unknown Title". Retrieved 27 January 2022. ^ "TCI Month End Sales Results for December 2012" (PDF). Ram Trucks began selling medium-duty trucks, 4×4 and 4×2, in 2008. Retrieved 12 January 2022. ^ "1998 RAV 4.1 Owners Manual". ^ Rettie, John (August 1987). ^ USD872652S1, Koyama, Hideo; Jguchi, Daisuke & Kawaguchi, Shun et al., "Motor vehicle and/or toy replica thereof", issued 2020-01-14 Archived 14 February 2022 at the Wayback Machine ^ Nastri, Edoardo (7 January 2019). ISBN 978-0-87880-017-9. ^ Andreev, Alexandr F.; Kabanau, Viachaslau; Vantsevich, Vladimir (2010). Retrieved 26 September 2019. In 2008 (for the 2009 model year), the RAV4 was given a mid-cycle refresh in some markets, featuring a number of changes, including an all-new four-cylinder engine, and a redesigned front end and tweaked rear end. Retrieved 15 January 2022. Motoring. All these F1 cars were considered inferior to their RWD counterparts, as the advent of aerodynamic downforce meant that adequate traction could be obtained in A lighter and more mechanically efficient manner, and the idea was discontinued. the Geneva Motor Show.[52][53] A production version of the RAV4 Adventure was added to the US lineup in September 2017.[54] Engines Petrol engines[55] Model Year(s) Displacement Fuel Type Power Torque 0-100 km/h (0-62 mph) CO2 Emissions 2.0 FWD 2012-2018 1,987 cc (121.3 cu in) Petrol 111 kW (149 hp; 151 PS) 195 N·m (144 ft·lb) 9.9 s 197 PS) combined 279 N·m (206 ft·lb) combined 8.1 s 115 g/km; 33 city/31 hwy Diesel engines[55] Model Year(s) Displacement Fuel Type Power Torque 0-100 km/h (0-62 mph) CO2 Emissions 120D 4x2 2012-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 10.5 s 127 g/km; 120D AWD 2013-2018 1,998 cc (121.9 cu in) Diesel 91 kW (122 hp; 124 PS) 10.5 s 127 g/km; 120 PS (124 PS) 10.5 s 127 g/km; 120 PS (124 PS) 10 Diesel 91 kW (122 hp; 124 PS) 310 N·m (229 ft·lb) 13.6 s 136 g/km 150D AWD 2012-2018 2,231 cc (136.1 cu in) Diesel 110 kW (148 hp; 150 PS) 340 N·m (251 ft·lb) 10.0 s 173 g/km Safety Toyota RAV4 HEV In the Insurance Institute for Highway Safety (IIHS) evaluations, the 2013 and 2014 model year RAV4 achieved a "good" crashworthiness rating for head restraints and seats, roof strength, side, and moderate overlap front, while achieving a "poor" rating in the IIHS Small Overlap Frontal Test. ^ a b Eckermann, Erik (2001). However, if both wheels are connected to the same axle driveshaft, they always have to spin at the same speed relative to each other. The RAV4 had different styling compared to the RAV4 in other counties where there was a black strip that was placed in between the radiator and license plate like a moustache. "Toyota plays it safe with new RAV4". Audi's chassis engineer, Jörg
Bensinger, had noticed in winter tests in Finland that a vehicle used by the West German Army, the Volkswagen Iltis, could beat any high-performance Audi. In Japan, the 2.0-litre 3S-GE BEAMS engine with 132 kW (177 hp; 179 PS) was also available. This model uses the 1AZ-FE four-cylinder, inline 16-valve engine with 132 kW (177 hp; 179 PS) was also available. SUV launched in Malaysia - CBU Japan, 2.0L CVT RM196,500, 2.5L 8AT RM215,700". ^ Lee, Jonathan (21 November 2019). On-demand AWD systems drive the secondary axle via an active or "by an independently powered drive system". ^ Melissen, Wouter (1 December 2004). PR Web. It comes standard with all-wheel drive and the hybrid system uses a 1.6 kWh nickel-metal-hydride battery pack. ^ Winnington-Ball, Geoff (10 March 2002). ^ "Record Hybrid Sales Lead 4.2% Overall Sales Growth for Toyota Canada Inc. Consumer Reports. A manual transmission and a front axle-disconnect feature were also made available for greater fuel economy. True 6×6 vehicles, which have three powered axles, are classified as 6×6s regardless of how many wheels they have. ^ Abuelsamid, Sam (26 July 2010). A system that operates permanently in the full-time mode is sometimes called all-the-time 4WD, all-wheel drive, or AWD. Retrieved 7 August 2010. Archived from the original on 3 February 2019. 19 March 2019. It is available in four grades—Icon, Design, Excel and Dynamic.[71] The fifth generation RAV4 was also launched in Singapore on 10 January 2019.[73] The fifth generation RAV4 has been available in South Africa since March 2019 in five variants: 2.0 GX 2WD, 2.0 GX CVT 2WD, 2.0 GX-R CVT AWD, 2.5 VX CVT 2WD and 2.5 VX AT AWD. Archived from the original on 16 August 2021. ^ Pröjtz, Linus (12 September 2019). RAV4 for the Japanese market were sold at two different Toyota dealerships, Toyota Corolla Store and Toyota Netz Store. ^ History of 4WD Sport - OF4WD ^ a b "1903 Spyker 60 HP". HowStuffWorks.com. South Africa. ^ "Celica All Trac and Gt-Four FAQ". Archived from the original on 22 August 2010. 23 June 2016. "FWD Seagrave Model B: One of the First Successful 4x4 Trucks". "The myth of all-wheel-drive and why it can be a deadly trap". Green Car Congress. Allpar. Combined with twin fuel tanks and twin batteries (which could be set up to run either or both engines), the redundancy of two separate drive trains meant that they could make it back to civilization even after major mechanical failures. ^ Sherman, Don (February 2001). ^ "New trio including PHEV SUV to lead Suzuki push". Part-time transfer cases are the industry standard transfer case for the 4x4 truck market. ^ "Toyota Launches New RAV4 in Japan". The new generation RAV4, which is the current model, had more features as standard equipment. "1966-1971 Jensen FF". Later used as a hill-climb racer, it is now an exhibit in the Louwman Museum (the former Nationaal Automobiel Museum) in the Hague, the Netherlands. [18] Designs for fourwheel drive in America first came from the Twyford Motor Car Company. Nissan GT-R (ATTESA E-TS) Nissan Skyline GT-R (ATTESA E-TS) Nissan Skyline GT-R (ATTESA E-TS) Nissan A31 Cefiro SE4 (ATTESA E-TS) Nissan Skyline GT-R (ATTESA E-TS) Nissan Sky 9-3, Saab 9-5, Saab 9-4X (Saab XWD) Multi-plate clutch coupling Audi A3 quattro, Audi TT quattro, Audi R8 (with Haldex Traction) BMW xDrive: latest 3 Series, X3, latest 5 series, 2 series, X3, latest 5 ser Freestyle, Edge, Fusion, Five Hundred (Freestyle, FiveHundred Haldex Traction based) (Escape Control Trac II, based) Honda CR-V, HR-V, Element Hyundai Veracruz IMJ magnetic multi-plate clutch coupling Infiniti: G35x, M35x Jeep Compass (Freedom Drive) Jeep Grand Cherokee and SRT8 NVG 249, 247 Land Rover Freelander 2/LR2 (also Haldex Traction)[63] Lamborghini: AWD variants VT series (viscous traction) Lincoln: MKS, MKZ Mazdaspeed6 (a power takeoff unit linked to clutch pack with torque sensitive rear differential) Mazda: Tribute, CX-7, CX-9 (tribute Control Trac II, based) Mercury Milan, Montego, Mariner (Montego Haldex Traction-based) Mitsubishi Outlander (current generation) Nissan Murano automatic with manual lockup switch Porsche 911 Carrera 4 31/69 planetary center differential Pontiac Torrent (GMPCA) Subaru low powered automatic transmission models Subaru Legacy, Outback, Impreza, Forester, Tribeca automatic transmission models: mechanical front drive, clutch coupled rear axle Subaru Justy. ^ "Toyota Motor North America Reports December 2019, Year-End Sales" (Press release). ^ "December 2012 and Year-End Sales Chart" (Press release). Subaru introduced the category-expanding Leone in 1972, an inexpensive compact station wagon with a light-duty, part-time four-wheel drive system that could not be engaged on dry pavement. The XA10 series was available in both three and five door versions. ^ GoAutoMedia (16 February 2010). Archived from the original on 6 May 2010. With its added roadworthiness, the top-range full-sized Grand Wagoneer continued to compete with traditional luxury cars. [38] Partially hand-built, it was relatively unchanged during its production through 1991, even after Chrysler's buyout of AMC. 4WD vehicles may also be more likely to drive on surfaces with reduced traction. ^ "WiseBuyer's Guides - Toyota RAV 4 (2000-06) Car specs". UK: Toyota. Archived from the original on 2 August 2018. ^ Hammerton, Ron (6 February 2019). Retrieved 3 February 2019). Retrieved 3 February 2019. Inspired by a Willys MB - the ubiquitous WWII "jeep" - that was frequently run off-road on the farm belonging to chief engineer Maurice Wilks, Land Rover developed the more refined yet still off-road capable luxury 4WD Range Rover in the 1970s. ^ "December 2013 and Year-End Sales Chart" (Press release). Retrieved 8 January 2020. An example of this is the dual-motor variant of the Tesla Model S, which controls the torque distribution between its two motors electronically.[12] SAE recommended practices Per the SAE International standard J1952, AWD is the preferred term for all the systems described above. The Dana 60 front axle is used on both medium- and light-duty Super Duty trucks. The Limited model gets a different front grille and bumper cover from other models. Also Torsen1 differential at the front and rear axle, The H1 moved to Torsen2 when ABS was added. The new model also got an electric throttle. It is produced and sold by FAW Toyota. Archived from the original on 22 September 2010. Seoul 2000 FISITA World Automotive Congres. The "four" in the instance referring to the vehicle having four wheels, not necessarily all driven "Four-Wheeling Into Your Future". p. 282. Full-time mode - Both axles are driven at all times, but an interaxle differential permits the axles to turn at different speeds as needed. Department of National Defence, Canada". MotorBooks International. ^ "Toyota Reports 2005 and December Sales". Warne, patented, GB 2172558, an improvement on Chadwick's design that did not use differential gear assemblies. The Limited trim was only available with the V6 engine and 4WD traction. Archived from the vehicle on the passenger's side than on the driver's side and caused the passenger door to open during the crash.[57] Insurance Institute for Highway Safety (IIHS)[58] Moderate overlap frontal offset (driver) 2013-14 Poor Small overlap frontal offset (driver) 2013-14 Po generation (XA50)2019 Toyota RAV4 LE AWD (US)OverviewAlso calledToyota Wildlander (GAC Toyota, China)[59][60]Suzuki Across (Europe, plug-in hybrid)[61]ProductionNovember 2018 - present[62]Model years2019-presentAssemblyJapan: Ōbu, Aichi (Nagakusa plant); Toyota, Aichi (Takaoka Plant)Canada: Woodstock, Ontario; Cambridge Ontario (TMMC)China: Changchun, Jilin (FAW Toyota); Guangzhou (GAC Toyota)United States: Georgetown, Kentucky (TMMK)Russia: Saint Petersburg, (TMMR)DesignerHideo Koyama, Daisuke Iguchi, Junya Furuta and Tatsuya Sonoda[63][64]Body and chassisBody style5-door SUVPlatformTNGA: GA-K[65]RelatedToyota Harrier/Venza (XU80)Mitsuoka Buddy[66]Lexus NX (AZ20)PowertrainEnginePetrol: 2.0 L M20A-FKS I4 (China)2.5 L A25A-FKS I4 (China)2.5 L A25A-FKS I42.5 L A25A-FKS 54 PS) 4NM (hybrid)134 kW (180 hp; 182 PS) 5NM (plug-in hybrid)Power output126 kW (169 hp; 171 PS) (2.0 L)151 kW (202 hp; 205 PS) (2.5 L)163 kW (219 hp; 222 PS) (hybrid, combined system output)225 kW (302 hp; 205 PS) (2.5 L)163 kW (219 hp; 222 PS) (hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 205 PS) (2.5 L)163 kW (219 hp; 222 PS) (hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in
hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; 306 PS) (plug-in hybrid, combined system output)225 kW (302 hp; automaticK120 CVT with physical first gearAisin Seiki T110 eCVT (hybrid)Hybrid drivetrainPower-split (hybrid)PHEV (plug-in hybrid)CorrestionsWheelbase2,690 mm (105.9 in)Length4,570-4,600 mm (179.9-181.1 in)Width1,855 mm (73.0 in)Height1,660 mm (65.4 in)Curb weight1,530-1,640 kg (3,373-3,616 lb)1,680-1,720 kg (3,704-3,792 lb) (hybrid)ChronologyPredecessorSuzuki Grand Vitara (JT) (Across) The fifth generation RAV4 was unveiled at the March 2018 New York International Auto Show.[67] The design was previewed by the FT-AC concept shown at the December 2017 Los Angeles Auto Show. ^ Shunk, Chris. 7 May 2012. The vehicle, called the RAV4 PHEV (RAV4 Prime in North America), is powered by a differently-tuned 2.5 L A25A-FXS engine with the same power output as the standard hybrid version but with uprated torque to 228 N·m (168 lb·ft) at 2,800 rpm. Autoindustriya.com. pp. 152–153. Auto News. Since a differential applies equal torque to each half-shaft, power is reduced at the other wheels, even if they have good traction. ^ "Toyota RAV4 vs Mazda CX-5: Does Australia have a new favourite SUV? Archived from the original on 23 January 2021. Theautochannel.com. Retrieved 22 May 2018. Retrieved 4 April 2016. { cite web }: CS1 maint: archived copy as title (link) ^ "ニューモデル速報 すべてシリーズ 第263弾 新型RAV4のすべて" [New model bulletin - New the various architectures and functions.[1] The terms used by various manufacturers often reflect marketing rather than engineering considerational's standard J1952 recommends only the term "all-wheel drive" with additional subclassifications that cover all types of AWD/4WD/4x4 systems found on production vehicles.[4] 4×4 "Four-by-four" or "4×4" is frequently used to refer to a class of vehicles in general. North America is the largest market, with 535,000 units sold in 2019, followed by Europe (133,000) and China (127,000). The RAV4's 2.0-litre engine was upgraded with a new 2.4-litre engine in the US, and Australia producing 120 kW (160 hp; 160 PS) and 220 N·m (162 lb·ft). "Toyota and Tesla Plan an Electric RAV4". Multiple-clutch systems Acura MDX SH-AWD & VTM4 Ford Explorer - Ford's full-time shift-on-the-fly Intelligent 4WD System (I-4WD) on the 2011 Explorer with Terrain Management System and RSC (Roll Stability Control), Curve Control functionality, HDC (Hill Descent Control) and HAA (Hill Ascent Assist).[61][62] Honda Ridgeline Honda Pilot Infiniti FX (ATTESA E-TS) Mercedes-Benz 1st generation 4MATIC (normally rear-drive, automatic clutch in transfer case engages 4WD on demand) Mitsubishi GTO MR/3000GT VR-4 Mitsubishi Lancer Evolution Series S-AWC 2010 Mitsubishi Outlander GT S-AWC Mitsubishi Outlander (2003-2006) independent front and rear axle coupling, and Active Center Differential. "4WD vs AWD: What's the Diff". Base and Limited trims continue to be available, but on the Limited trim 4WD became an option and the Base model now addec 17-inch steel wheels but the roof rack was still standard in both trims. Retrieved 25 July 2015. Archived from the original on 22 February 2012. The second generation RAV4 enjoyed success in Australia, where it became the best-selling SUV in the country in 2001, overtaking its rival the Honda CR-V for the first time. Extreme Ventures. no center differential to allow for speed differences between the front and rear wheels when turning, a small amount of tire slippage must occur during turns. Ukraine. Archived from the original on 22 July 2013. Motor Trend. "A Breed of 4-by-4 Hatched on the Fly". 1900s-1920s The 1903 Spyker 60-HP was the world's first 4WD that was directly powered by an internal combustion engine, and the first 4WD race-car. Markets 2015 Toyota RAV4 LE (Canada; pre-facelift)Interior For the Japanese market, the previous generation in short-wheelbase length remained on sale in Japan until 2016 instead of the newer, export only, XA40. ^ "Volvo BM 646 Backhoe/Loader" (PDF). ^ "Do You Really Need AWD in the Snow?". Australia. Earlier Suzuki versions were twin-engined; from 1996 on, the engine is a twin-turbocharged 2.0-L V6, mated to a sequential six-speed manual transmission. Definitions Four-wheel drive systems were developed in many different markets and used in many different vehicle platforms. "VFACTS 2005: Small conquers all". In 1989, niche maker Panther Westwinds created a mid-engined four-wheel-drive, the Panther Solo 2. The rear lamps use the more modern rectangular style bulbs (7440/7443). Transmissions included a six-speed manual (UK/Australia only), Continuously Variable Transmission (CVT), and six-speed automatic.[46][47] The UK model went on sale in 2013. "Toyota 2010 RAV4 - Geneva show: Toyota unveils RAV4, Corolla hybrid". 31 January 2020. Cruiser models gained body-colored (painted) bumpers and moldings, mirrors, and door handles, alloy wheels, and ABS brakes. Retrieved 1 July 2020. "RAV4 Adventure and RAV4 - Geneva show: Toyota unveils RAV4, Corolla hybrid". 31 January 2020. Cruiser models gained body-colored (painted) bumpers and moldings, mirrors, and door handles, alloy wheels, and ABS brakes. Retrieved 1 July 2020. "RAV4 Adventure and RAV4 Premium concepts at Geneva Show" (Press release). Note: the Haldex Traction-based car list was created from the list on Haldex Traction corporate website: Haldex Cars. Fourwheeler Network. ^ "Toyota Begins RAV4 Prime - plug-in hybrid SUV with 302 hp". ^ "Instruction Book: Driving, Maintenance, Repair. It is not used in higher gears. ^ "Suzuki Across Debuts As Rebadged Toyota models produced prior to 1990, you can subscribe to our Technical Information System (TIS) at . It typically uses a vehicle's braking system to slow a spinning wheel. General Motors sold a 4×4 for model years 2005-2009. Plano, Texas: Toyota Motor Sales, USA. ^ Padgett, Martin (2004). Retrieved 23 July 2021. Retrieved 23 July 2021. Retrieved 23 July 2021. Retrieved 24 May 2015. Retrieved 23 July 2021. Retrieved 24 May 2015. Retrieved 25 October 2011. However, "four-wheel drive" typically refers to a set of specific components and functions, and intended off-road application, which generally complies with modern use of the terminology. Retrieved 31 July 2017. Archived (PDF) from the original on 16 July 2021. ^ "VFACTS Wrap - Car News". 22 April 2015. He proposed developing a four-wheel drive car that would also be used for rallying to improve Audi's conservative image. Retrieved 5 January 2019. In 1968, Team Lotus raced cars in the Indy 500 and three years later in Formula 1 with the Lotus 56, that had both turbine engines and 4WD, as well as the 1969 4WD-Lotus 63 that had the standard 3-litre V8 Ford Cosworth engine. ^ "Ford - Cars, SUVs, Trucks & Crossovers". The RAV4 PHEV has a claimed acceleration from 0-60 mph (0-97 km/h) in 5.8 seconds and 0-100 km/h (0-62 mph) in 6.2 seconds, which, at the time of its introduction, made it the second quickest acceleration time in Toyota's lineup after the GR Supra sports car.[82][83] The sales have begun in Japan since 8 June 2020, sold as the RAV4 PHV.[84][85] The PHEV version of the Wildlander was unveiled on 19 April 2021.[86] Suzuki Across (UK) For the motorcycle, see Suzuki Across (UK) For the motorcycle, see Suzuki Across (UK) For the motorcycle, see Suzuki Across (UK) For the motorcycle (UK) For the motorcycle). wheel drive vehicle in the world during the war.[30] The American Dodge WC series and Chevrolet G506 4x4 variants were by far the most prevalent of their various driveline configurations. "2021 Toyota RAV4 PHV Debuts As Japan's RAV4 Prime". Retrieved 8 February 2020. Archived from the original on 9 January 2009. Japanese models went on sale in 2005 at Toyota Without a mini SUV until the 2009 Toyota Urban Cruiser, which is sold in Europe, North America (as the Scion xD) and Japan (as the Toyota ist).[27] The XA30 series RAV4 was sold in Japan until July 2016, where the XA40 is not to be offered. ^ "Toyota Unveils New RAV4 at Frankfurt Motor Show". At that point, either a passive or active coupling sends torque to the secondary axle. Pricing ranged from CN¥ 189,800 to CN¥ 264,300 (US\$26,520 to US\$36,930 at the August 2019 exchange rate). When the internal combustion engine is shut off, the secondary, electrically driven axle is the only driven axle. Most markets, including the United Arab Emirates (UAE) and Kingdom of Saudi Arabia (KSA), get the all-wheel-drive model as well, the base one with a manual gearbox.[33] North American models include choices of 2.4-litre 2AZ-FE inline-four or 3.5-litre 2GR-FE V6 engine. Engadget. All models came equipped with a brand-new 2.0-litre four-cylinder engine featuring VVT (variable valve timing), resulting in improved power and torque, as well as fuel consumption. Archived from the original (PDF) on 10 February 2019. December 2014. The Edge trim is available with 8-speed automatic transmission. Archived from the original on 14 November 2020. Therefore, typically no mechanism exists to actively prevent wheel slip (i.e., locking the differential in advance of wheel slip is not possible); rather, the system is designed to expressly permit wheel slip to occur, and then to attempt to send torque to the wheels with the best traction. Retrieved 5 January 2010. 6 January 2010. 7 January models, excepting the XL-7) -full-time 4WD using limited-slip center differential, off-road 4WD with selectable center differential; performance models include a planetary differential with computer-regulated lockup; automatic transmission models have an electronically controlled variable transfer clutch. "2019 Toyota RAV4 makes its New York debut - TNGA platform, Dynamic Force engines, all-new styling". The Gobe and Mail. Green Car Reports. An example is a hybrid AWD vehicle where the primary axle is driven by an internal combustion engine and the secondary axle is driven by an electric
motor. Archived from the original on 21 January 2021. carsales. Accordingly, 4×2 means a four-wheel drive.[5] Similarly, a 6×4 vehicle has three axles, two of which provide torque to two axle ends each. Italy. p. 55. 10 September 2020. "Toyota RAV4 and RAV4 Hybrid European sales figures". Soviet civilian life did not allow the proliferation of civilian products such as the Jeep in North America, but through the 1960s, the technology of Soviet 4×4 vehicles stayed on par with British, German, and American models, even exceeding it in some aspects, and for military purposes just as actively developed, produced, and used. ^ "2009 Toyota RAV4 Review". in a joint-venture plant in Tianjin, China.[30] In 2015, the XA30 series RAV4 was awarded the WheelsTV pre-owned vehicle of the year title.[31] Markets Japan Model ranges include X, G and Sport, replacing RAV4 L and RAV4 J. Archived from the original on 15 January 2021. Archived from the original on 6 January 2022. Facelifted for the 2009 model year, North American models include the choice of a new 2AR-FE inline-four or 2GR-FE V6 engine.[34] Mexico The RAV4 was first introduced in 2004; and was only available in two trim levels: Base and L. ^ "Toyota Reports December 2009. Archived from the original on 11 June 2020. ^ The world's first mass-produced compact 4WD car, restored - Japanese Nostalgic Car ^ Editors of Air Force Journal of Logistics (2000). Jensen applied the Formula Ferguson (FF) full-time all-wheel-drive system to 318 units of their Jensen FF built from 1966 to 1971, marking the first time 4WD systems split torque evenly, the Jensen split torque evenly, the Jensen split torque roughly 40% front, 60% rear by gearing the first time 4WD systems split torque evenly. 60-hp Four-wheel Drive Racing Car - Louwman Museum ^ The Badger and F.W.D. Four-Wheel Drive Automobiles - The Old Motor ^ Allen, Jim (8 May 2016). The AWD system requires two drive shaft from the engine to the transaxle and differential and a second drive shaft from the engine to the transaxle and racing Spyker is credited with building and racing the first four-wheel drive racers, the Spyker 60 HP in 1903.[53][17] Bugatti created a total of three four-wheel drive racers, the Type 53, in 1932, but the cars were notorious for having poor handling. Archived from the original on 8 January 2022. ^ "Toyota Motor North America Reports December 2020, Year-End Sales" (Press release). ^ "Toyota Motor North America Reports U.S. December, Year-End 2021 Sales" (Press release). ^ "Toyota Motor North America Reports U.S. December, Year-End 2021 Sales" (Press release). sicurezza pre-crash utilizza il sensore frontale per rilevare i veicoli davanti al vostro. Dodge developed its first four-wheel drive truck in 1934 — a military 1<sup>1</sup>/<sub>2</sub> ton designated K-39-X-4(USA), of which 796 units were built for the U.S. Army in several configurations.[24] Timken supplied front axles and transfer cases, added to militarized a civilian truck Autoweek. Archived from the original on 10 February 2010. Due to the ubiquitous World War II Jeep's success, its rugged utilitarianism set the pattern for many four-wheel drive vehicles to come.[35] Hot on its heels, Dodge also started production of the civilian 4WD Power Wagon trucks, for the 1946 model year. ^ a b Collard, Chris. ^ "December 2014 and Year-End Sales Chart" (Press release). ^ 1946-1948 Dodge Power Wagon - HowStuffWorks ^ "Serial Number Guide". In the US, a 2.0-litre straight-four producing 89 kW (119 hp; 121 PS) was available. In 1943, they launched a further-developed version: the GAZ-67. 14 November 2005. This made advantage of the Mini's 'power pack' layout, with a transverse engine and the gearbox in the engine sump. "New 2020 Suzuki Across SUV revealed with plug-in hybrid power". Archived from the original on 11 September 2013. Postmedia Network. History of the American Auto. p. 431. Ultimatecarpage.com. Retrieved 4 August 2019. No need to hunt down a separate Toyota repair manual or Toyota service manual. JB car pages. The two throttles, clutches, and gear-change mechanisms could be linked, so the two 12 hp (9 kW) 425 cc (26 cu in) engines could run together, or they could be split and the car driven solely by either engine. Retrieved 6 December 2014. In the United Kingdom, the fifth generation RAV4 is available exclusively in its hybrid version, either front-wheel drive or with all-wheel drive. ^ a b "Archived copy". Another Chinese market variant with different front and rear fascias produced and sold by GAC Toyota is called the Toyota Wildlander (Chinese: 威兰达; pinyin: Wēilándá).[59] In Malaysia, the RAV4 was teased by UMW Toyota Motor on its official website on 2 June 2020.[75] The fifth generation RAV4 was launched in the country on 18 June 2020 and available in 2 engine options, the 2.0 M20A-FKS and 2.5 A25A-FKS, both in single trim only.[76] As of August 2020, the 2.0-litre engine options, this can prevent the vehicle from moving at all. China: SOHU. Like most concurrent Toyota models, it has Toyota Safety Sense 2.0. The RAV4 went on sale in March 2019.[70] Ireland was the first market to release the Hybrid version of the fifth generation RAV4 with delivery in late

December 2018. ^ "Toyota RAV4 China auto sales figures". Retrieved 6 January 2015. US: Toyota. The RAV4 fared the worst and would have received a "poor" rating if the IIHS were to provide ratings for passenger-side protection. motor1. Four-wheeler is a related term applying to all-terrain vehicles, and not to be confused with four-wheel drive. Retrieved 30 April 2009. The front running/turn signal lamps used older round socket dual filament bulbs. The GX, GXL and Cruiser trims have two engine options: the 2.5 L petrol. Retrieved 9 May 2018. History The 1893 Diplock Steam Locomotive was the world's first 4WD land vehicle. Another small overlap test was conducted on the passenger side instead. The fifth generation RAV4 for the Japanese market was revealed on 20 February 2019 and went on sale on 10 April 2019 at Corolla Store and Netz dealers. If preventing all-wheel slip is a requirement, this is a limiting design. inegi.org.mx (in Mexican Spanish). Like the previous model, the XA20 was available in three- and five-door configurations and was constructed on a platform that shared Carina and Corolla elements.

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