

## TOYOTA RAV4

### INTRODUCTION

The Toyota RAV4 range was expanded for 2016 to include its first full hybrid model, together with a new 2.0-litre diesel engine, revised exterior and interior styling and new equipment grades and features.

The availability of Toyota's first hybrid in the highly competitive European compact SUV market is a perfect response to more mature and sophisticated customer demand, combining Toyota's unmatched experience in full hybrid powertrain technology and the successful evolution of RAV4, the original compact SUV.

RAV4's hybrid system combines a 2.5-litre Atkinson cycle petrol engine with a powerful electric motor. It is used in both front and all-wheel drive configurations, the latter equipped with Toyota's E-Four system, which uses a second electric motor at the rear to provide automatic electronic all-wheel drive for greater traction on loose or slippery surfaces. The lightweight technology – there is no central propshaft – also gives RAV4 Hybrid a 1,650kg towing capacity.

Total system power is 194bhp (145kW), enabling nought to 62mph acceleration in 8.4 seconds. Official combined cycle fuel consumption is from a best-in-class 57.6mpg for the front-wheel drive model and 55.4mpg for the AWD version. CO<sub>2</sub> emissions start at 115 and 118g/km, respectively.

### Diesel and petrol powertrains

The hybrid leads a fully revised, Euro 6-compliant powertrain line-up for RAV4 that includes new 2.0-litre D-4D diesel and improved 2.0-litre Valvematic petrol engines.

The diesel has maximum power of 141bhp (105kW) and produces substantial torque (320Nm maximum). Deployed from launch exclusively with front-wheel drive and a six-speed manual transmission, it delivers CO<sub>2</sub> emissions from 123g/km. The official fuel economy figure is 60.1mpg in combined cycle driving.. The improved petrol engine is available in AWD RAV4 versions with a Multidrive S automated gearbox. It delivers 149bhp (111kW) with peak torque of 195Nm; the combined cycle benchmarks are from 43.5mpg and 152g/km.

## **Driving dynamics**

RAV4 further benefits from improved ride comfort and driving dynamics, a quieter cabin with higher sensory quality, refreshed exterior styling and innovations in safety and useful advanced technologies. With hybrid power, customers further enjoy an exceptionally quiet and refined driving experience.

## **Safety and equipment**

All versions of RAV4, apart from the entry-level Active model, are fitted with Toyota Safety Sense as standard to provide an impressive range of active safety and driver assistance features (it is available as an option for Active grade). Information and vehicle data are quickly and clearly communicated thanks to a 4.2-inch TFT multi-information display in the centre of the instrument binnacle and a seven-inch full-colour central touchscreen that gives access to the Toyota Touch 2 multimedia system.

## **POWERTRAIN REVOLUTION MEETS SUV EVOLUTION**

- More than one million Toyota hybrids sold in Europe
- More than eight million Toyota global hybrid sales, contributing to an equivalent reduction in CO<sub>2</sub> emissions of more than 58 million tonnes
- Six million RAV4 sold worldwide, 1.5 million of these in Europe – with 90 per cent still on the road today
- New RAV4 Hybrid combines prestige, comfort and power with excellent environmental performance

Toyota began researching the idea of an alternative powertrain for cars in the 1960s, but it was in the early 1990s that the company initiated a production-based development programme of environmentally responsible automotive technologies.

In 1994 it began the G2 project with the aim of creating a “green” car for the 21<sup>st</sup> century which, together with impeccable environmental credentials, offered all the convenience of ease of driving of a conventional vehicle.

Toyota’s launch of the first generation Prius in Japan in 1997 was the start of a modern revolution in automotive technology and an industry milestone in vehicle powertrain development and sustainable mobility.

Prius went from being a single model to become the world's first range of full hybrid models, the third generation of 2009 being joined by the seven-seat Prius+ MPV and the rechargeable Prius Plug-in from 2012.

Toyota developed its hybrid powertrains to be more powerful, yet lighter and more fuel and CO<sub>2</sub>-efficient. At the same time it expanded its hybrid range beyond Prius to include Auris Hybrid compact hatchback (2010), the Yaris Hybrid supermini (2012) and the spacious and practical Auris Hybrid Touring Sports (2013) – all of which are built in Europe.

Since Prius's European market debut in 2000, Toyota has sold more than one million hybrid vehicles in the region.

Worldwide, Toyota has amassed more than eight million full hybrid vehicle sales. Together the Toyota and Lexus brands currently command 60 per cent of the global hybrid market, giving the company unquestionable leadership in the drive towards sustainable mobility. Toyota estimates that so far its hybrids have contributed to a reduction in automotive CO<sub>2</sub> emissions of more than 58 million tonnes, compared to the environmental impact of equivalent non-hybrid vehicles.

#### **RAV4 heritage – from niche model to global car**

Toyota can rightfully claim to have created the compact SUV market with the launch of its first RAV4 – Recreational Active Vehicle with 4-wheel Drive – in 1994.

When the first generation model broke cover at the Geneva motor show that year, it revealed itself as something quite different to a traditional 4x4. Launched as a compact (3,695mm long) three-door model, this first “urban 4x4” was powered by a relatively small, transverse-mounted 2.0-litre engine and was designed with a monocoque body with independent suspension all round.

In 1994, Toyota sold 53,000 RAV4. The following year the sales figures doubled, then tripled the year after that. Since then, annual sales have grown steadily with each new generation, turning Toyota's pioneering compact SUV from a niche model into a global car.

In 2013, RAV4 sales were 10 times those of 1994 and in 2014 annual sales rose above 100,000 units for the first time since 2007.

Today RAV4 is on sale in more than 150 countries. Together the four generations have achieved more than six million sales, 1.5 million of these to European customers – more than 90 per cent of which are still on the road.

The compact SUV segment is one of the few still growing in Europe with sales increasing by around 36 per cent between 2008 and 2013. In 2013, western European segment sales were 848,000, with a further 387,000 vehicles sold in Russia.

The segment has also changed and matured. Where early customers often bought a compact SUV as an alternative to sporting hatchbacks and coupes, today they are more the choice of families looking for a more engaging and fashionable alternative to MPVs and estate cars.

Competition has also increased dramatically: in 2010 there were 10 different models in the segment; today there are around twice as many to choose from.

### **Driving power and appeal**

RAV4 Hybrid is the most powerful version of RAV4 yet to be sold in Europe. It brings together strong environmental performance with improved driving dynamics, a sequential Shiftmatic gear change and a Sport driving mode to provide an even more rewarding experience behind the wheel.

Its low CO<sub>2</sub> emissions and class-leading official fuel consumption figures provide significant cost of ownership benefits and low tax rates for company car users and fleet operators.

Thanks to Toyota's innovative E-Four system, it provides an electronic all-wheel drive capability to give extra traction and the advantage of a 1,650kg towing capacity.

### **Craig Fairservice**

#### **Manager, Toyota Marketing Management**

For nearly two decades, we've not only been developing the hybrid powertrain and the product itself, but also our message to the customer. Over time we've moved from solely focusing on the rational benefits of fuel consumption, emissions, taxation, congestion charging etcetera, to a more emotional hybrid position.

Yes, we maintain our commitment to enhance the rational benefits of owning a hybrid, the lower fuel consumption and emissions, the ability to enter major cities un-penalised by

emissions-based payment systems, but at the same time we have an increasing focus on the emotional benefits that come from driving a hybrid – the intuitiveness of driving, the quietness in the cabin and the responsiveness of the powertrain.

RAV4 Hybrid takes everything to another level. With the new 2.5-litre hybrid system, you get all the benefits of our existing hybrid powertrains together with the higher power from the larger displacement engine, higher capacity batteries and larger motors. These qualities help make RAV4 Hybrid a great fit for our premium, family-oriented target customers. They are people who want a vehicle with a higher seating position with comfort, visibility and security. But they're also really focused on style, technology, innovation and quality.

RAV4 Hybrid is a credible alternative; it has something for everyone, without compromise. It's simple to use, just push the start button, select the gear and drive. Immediately you'll find just how smooth, quiet and intuitive to use it is.

This isn't simply about a relaxing city driving experience there is a lot more on offer. RAV4 Hybrid performs strongly in a wide variety of conditions. For instance, there's immediate response when you need it, even from standstill. There's power with class-leading in-gear acceleration, helping you to merge quickly and safely onto motorways, and there's ease of control, combining the benefits of the hybrid system together with the e-CVT, and smooth and secure pulling away, especially in slippery conditions.

For customers who need a little more, the hybrid AWD additionally provides instantaneous all-wheel drive when you need it through the rear electric motor. The technology provides all the benefits of an AWD system without the penalties of additional weight and the higher fuel consumption associated with traditional 4x4 mechanical systems. The RAV4 Hybrid AWD also allows for greater towing capacity.

Hybrid is a unique selling point for the new RAV4, but it is not the only selling point. Everything we have developed for the car has been focused on delivering a greater experience for our customers: more advanced styling, improved quality and innovation, but always with a clear functional benefit.

## **TOYOTA'S FIRST HYBRID SUV**

- The most powerful RAV4 yet sold in Europe – system power of 195bhp (145kW) enables nought to 62mph acceleration in 8.4 seconds

- CO<sub>2</sub> emissions from 115g/km, class-leading official fuel consumption figures
- RAV4 Hybrid AWD with E-Four all-wheel drive system and 1.650kg towing capacity
- Improved vehicle dynamics, sequential Shiftmatic gear change and Sport on-demand drive mode

## **Summary**

RAV4 Hybrid is available in front and all-wheel drive versions, both powered by a full hybrid system that features a 2.5-litre Atkinson cycle petrol engine and a powerful electric motor.

All-wheel drive is provided by Toyota's E-Four system, which adds a second, rear-mounted electric motor. This gives extra traction the moment it's needed and also gives the car a towing capability. The simplicity of the technology – there is no mechanical central propshaft – saves weight and improves fuel economy.

The seamless E-CVT electronic continuously variable transmission gives acceleration a smooth, natural feel. The addition of a sequential Shiftmatic gear change and Sport drive mode allows customers to enjoy a more engaging drive.

## **Hybrid Powertrain**

The full hybrid powertrain comprises a 2.5-litre Atkinson cycle petrol engine a powerful electric motor/generator, a 204-cell nickel metal-hydride battery, a power control unit and a power split device.

The engine is a 2,494cc, 16-valve DOHC unit with intelligent variable intake valve timing (VVT-i), producing a maximum 150bhp (112kW) at 5,700rpm. Maximum torque of 206Nm is delivered between 4,400 and 4,800rpm. The permanent magnet, synchronous electric motor develops 105kW, with 270Nm of torque available from zero rpm.

In combination the system has a power output of 194bhp (145kW), giving a nought to 62mph acceleration time of 8.4 seconds. Official combined cycle fuel consumption for the front-wheel drive model is from 57.6mpg with low, tax-efficient emissions from 115g/km. The respective performance figures for the AWD models are 55.4mpg and 118g/km.

The engine makes use of advanced technologies to optimise its integration in the hybrid powertrain, improving performance while keeping fuel consumption and emissions to a minimum.

Its Atkinson cycle timing features an expansion stroke that is longer than the compression stroke, which permits more efficient conversion of combustion energy. VVT-i constantly varies the intake valve timing at all engine speeds to secure better performance with lower fuel consumption and emissions. A roller rocker arm system substantially reduces friction between the camshaft and its contact surface, helping reduce energy losses.

The gas volume in the exhaust gas recirculation system is precisely controlled thanks to an electronically operated valve with a responsive step-motor; a highly efficient cooler allows the system to work even at high engine speeds and under heavy loads.

The inherent quietness of the system has been further improved by adding a balance shaft to reduce engine vibration and booming, and by using resin gears with low mesh noise.

### **Full hybrid system in operation**

The system draws power from both the petrol engine and electric motor together, or from electric motor alone, to maximise efficiency and achieve the best balance of driving performance and fuel economy.

The electric motor acts as a high-output generator during deceleration and braking to provide a regenerative braking function, capturing kinetic energy that would usually be lost as heat and storing it as electricity in the hybrid system battery.

The seamless electric continuously variable transmission is controlled using shift-by-wire technology with an electronic shift lever.

The hybrid powertrain is engineered to eliminate the need for the petrol engine as much as possible during city/town centre driving, enabling a high proportion of zero-emissions EV running. When the vehicle is operating on electric power alone, a green EV icon lights up in the instrument binnacle.

RAV4 Hybrid provides four on-demand drive modes, allowing the driver to exploit the full potential of the hybrid system. These include an EV (electric vehicle) mode for ultra-quiet running with zero fuel consumption and tailpipe emissions for short distances in slow-moving traffic. This can be engaged when there is sufficient charge available in the hybrid battery and when driving conditions permit (the RAV4 Hybrid is not engineered to be driven in the same way as an all-electric vehicle).

### **Hybrid All-Wheel Drive**

In a first for Toyota in Europe, the RAV4 Hybrid AWD is equipped with E-Four electric all-wheel drive. This deploys a 50kW high-voltage, high-speed rear electric motor, providing drive to the rear wheels without the need for a central propshaft.

E-Four operates independently from the front electric motor, smoothly switching the vehicle to all-wheel drive when extra traction, stability and control are needed, for example when driving on slippery surfaces and pulling away from stationary. It makes efficient use of power from the hybrid system to generate drive torque and, as well as providing all-wheel drive in different conditions, it has less impact on fuel economy, being lighter than mechanical systems, with fewer energy losses.

The significant extra traction provided by the AWD system gives RAV4 Hybrid a 1,650kg (braked) towing capacity, one of the highest yet achieved by a hybrid vehicle.

### **Toyota-first Sequential Shiftmatic and Sport Drive Mode**

Toyota has designed the transmission and accelerator pedal mapping to deliver a smooth, natural feel when the vehicle is accelerating, with a close match between vehicle speed and engine revs.

Adding a sequential Shiftmatic gear change function and a selectable Sport drive mode in addition to the Eco and EV modes lets the driver enjoy a more sporting drive with improved manoeuvrability and throttle response that really come into their own when negotiating winding roads.

When the shift lever is moved to the sequential shift position, engine braking force is increased and, because engine rpm is kept higher than when the transmission is in the standard D lever position, throttle response is sharper.

### **DIESEL AND PETROL POWERTRAINS**

- Introduction of more powerful and efficient 2.0-litre D-4D diesel engine
- 2.0-litre Valvematic petrol engine with improved fuel economy
- Diesel offered with six-speed manual transmission and front-wheel drive, petrol unit with Multidrive S automatic and all-wheel drive



### **New 2.0 D-4D diesel engine**

RAV4 gained a new 2.0-litre diesel for 2016 that is more powerful, cleaner and more fuel efficient.

The 1,995cc four-cylinder unit produces 141bhp (105kW) at 4,000 rpm, a significant increase on the 122bhp offered previously. There is more torque, too, with 320Nm available between 1,750 and 2,250rpm.

Available exclusively with a six-speed manual transmission and front-wheel drive, it offers combined cycle fuel economy of 60.1mpg and 123g/km CO<sub>2</sub> emissions (124g/km with 18-inch wheels). This marks an improvement on the 57.6mpg and 127g/km achieved by its predecessor.

The engine, produced by BMW, was introduced to the RAV4 range following its successful deployment in the Toyota Avensis.

### **2.0-litre Valvematic petrol engine**

Light and compact, the RAV4's 1,987cc, 16-valve petrol engine has a maximum output of 149bhp (111kW) at 6,200rpm, with 195Nm of torque at 4,000rpm.

It uses Toyota's Valvematic continuously variable intake valve lift mechanism, together with Dual VVT-i – intelligent, variable timing of both intake and exhaust valves. Efficient performance is further supported by a variable length intake manifold and a variable output oil pump. These highly efficient, lightweight, clean emission technologies increase power output while at the same time reducing fuel consumption, emissions and engine noise and vibrations.

The engine is available exclusively with AWD and Toyota's Multidrive S continuously variable transmission (CVT).

The 2.0-litre petrol engine was improved for 2016; as a consequence combined cycle fuel economy and CO<sub>2</sub> emissions figures improved slightly with official ratings of 43.2mpg and 152g/km.

### **Multidrive S**

Multidrive S is Toyota's advanced continuously variable transmission (CVT) system. This provides an infinite number of ratios by using a system of two cone-shaped pulleys and a high-strength steel belt. The result is a very smooth, seamless drive.

Because Multidrive S maintains the most efficient engine revs at any given vehicle speed, it delivers low noise at cruising speeds with low CO<sub>2</sub> emissions and high fuel efficiency. At the same time, it can also maintain the ideal ratio to produce peak engine power and gain maximum performance.

For a more engaging drive, using the transmission's Sport button will prompt the system to use a more responsive, power-maximising ratio. There is also a sequential, manual seven-speed mode, with gears selected using the shift lever or paddle controls on the steering wheel. When the shift lever is in the D position, the driver can also use the paddle shifts to temporarily override the automatic mode.

## **DRIVING DYNAMICS**

- More rigid body and revised suspension and steering
- Improved NVH performance, with a focus on improving the rear cabin environment

Toyota has taken numerous measures to improve ride comfort and increase driver involvement, without sacrificing vehicle stability or control.

Body rigidity has been increased, with more spot welds in key locations, patches added to the rear suspension member and floor cross-member and a larger diameter rear body fastening for the suspension member. The result of this greater stiffness is not just increased stability, but also, with improved harshness damping, a better ride quality.

RAV4 uses the proven Macpherson strut front and lightweight double wishbone/trailing arm rear suspension systems of its predecessor, but with revisions to the shock absorbers and springs.

The shock absorbers have been modified to gain more ride comfort, with damping force adapting better to different vehicle speeds and road conditions. The coil springs have also been adjusted to improve shock absorber efficiency and reduce the degree of body movement.

The electric power steering rack has been made more rigid, promoting better steering feel. The steering mapping has also been tuned for improved feedback and feel.

### **Improved NVH for a Quieter Cabin**

RAV4's NVH levels have been comprehensively improved, with a particular focus on comfort and ease of conversation for rear seat passengers.

The details include an increase in surface area of the underfloor silencer of around 55 per cent; a reshaped rear finish plate; and strategic use of sound-absorbing material around the rear deck to reduce road, tyre and exhaust noise.

There is better sound insulation in the front and rear doors and the instrument panel sealant and structure have been modified to help prevent the transmission of engine noise into the cabin.

### **Charles Ollivier**

#### **Senior Manager, Toyota Product Planning**

RAV4 has become an iconic vehicle, a global model with annual sales of more than 600,000 in 150 countries around the world, with the highest figures in the USA, China, Europe and Russia.

This new RAV4 was developed in Japan, with a strong benchmark of European customer requirements, which were incorporated into the vehicle by Toyota's engineering division.

With more and more customers buying SUVs, the European premium segment is taken as a global benchmark for driving dynamics, sensory quality and exterior design – the latter heavily influenced by the contemporary design language which distinguishes our European line-up.

The new RAV4 has been dramatically improved in a number of areas. Firstly, noise and vibration levels have been greatly reduced with nearly 3kg of additional soundproofing material to improve cabin comfort when driving.

Secondly, ride comfort and vehicle handling have both been improved through extensive suspension tuning, with the addition of new shock absorbers and front coil springs.

Thirdly, safety performance has been significantly improved by offering the most advanced Toyota Safety Sense package available.

Fourthly, we have the new 2.5-litre hybrid engine which has been specifically tuned for a closer match between the acceleration curve and the build in engine rpm, so now the relationship between engine noise and vehicle acceleration sounds much more natural.

On top of all these major improvements for the global model, there have been additional, specific developments for the European market, such as the engineering of the new diesel engine in collaboration with BMW. This is a very competitive unit with more horsepower, better torque and lower fuel consumption.

We have also produced a European-specific, premium interior design targeting business and fleet customers. It features a black finish to the headliner and pillars, and is upholstered in a mixture of leather, Alcantara and fabric, with Alcantara inserts on the dashboard.

Finally, with our Hybrid AWD version we can offer a 1,650 kg towing capacity, which is the highest level of any hybrid in Toyota's European range.

We are confident this new hybrid powertrain will represent more than half of our RAV4 sales in western Europe.

## **SAFETY**

- Toyota Safety Sense standard on all RAV4 models bar entry-level Active where it is available as an option
- Features include Pre-Collision System with pedestrian detection, Adaptive Cruise Control, Lane Departure Alert, Road Sign Assist and Automatic High Beam

For the 2017 model year, Toyota Safety Sense was made standard on all RAV4 models, excepting the entry-level Active grade where it is available as an option. This provides an integrated package of active safety and driver assistance features that can help prevent an accident happening, or help reduce the consequences should an impact be unavoidable.

### **Pre-Collision System**

The Pre-Collision System uses a front-mounted radar to detect vehicles and obstacles on the road ahead, operating at speeds from 6mph and reducing the risk of a collision. The system used in the new RAV4 includes a pedestrian detection function.

When it determines an impact risk, it triggers visual and audible warnings to prompt the driver to apply the brakes. At the same time, it primes the car's braking system to deliver extra stopping force when the driver presses the brake pedal. If the driver fails to react in time, the system automatically applies the brakes, reducing speed by about 19mph, or potentially bringing the car to a stop, to prevent a collision or mitigate the force of impact.

### **Adaptive Cruise Control**

Adaptive Cruise Control helps the driver to keep a safe distance from the vehicle in front. Using the same radar as the Pre-Collision System and a front camera, it detects vehicles on the road ahead and monitors their speed, adjusting the speed of the RAV4 (within a set range) to ensure a suitable gap is maintained. Once the way ahead is clear, it will accelerate the car smoothly back to its pre-set cruising speed.

### **Lane Departure Alert**

The Lane Departure Alert system monitors lane markings on the road and helps prevent accidents and head-on collisions caused by a vehicle leaving its lane. If the vehicle starts to deviate from its lane without the turn indicators being used, the system alerts the driver with visual and audible warnings. The system incorporates a Vehicle Sway Warning function that detects the kind of erratic vehicle swaying that can happen if the driver has become tired or their attention has wandered. In such instances the driver is encouraged to take a break from the wheel with a visual alert – a cup of coffee on the multi-information display – and a warning sound.

### **Road Sign Assist**

Road Sign Assist helps ensure drivers are kept informed, even if they have driven past a road sign without noticing. It recognises signage such as speed limits and “no overtaking” warnings, and displays the information on the multi-information screen in the instrument binnacle.

### **Automatic High Beam**

The Automatic High Beam helps ensure excellent forward visibility when driving at night. It detects both the headlights of oncoming vehicles, and the tail lights of vehicles ahead,

automatically switching between high and low beams to avoid dazzling other drivers. As high beam is used more frequently, pedestrians and obstacles are easier and quicker to spot.

Thanks to the reduced risk of being involved in a traffic accident, models equipped with Toyota Safety Sense can benefit from lower insurance group classifications and costs.

### **Trailer Sway Control**

RAV4's Vehicle Stability Control includes a Trailer Sway Control function. If a trailer begins to sway out of line, this will automatically integrate braking and engine torque control to bring it back under control. It combines a deceleration force of between 0.1 and 0.2G with selective braking of individual wheels to counteract a sway-induced yaw movement of the trailer. When the system is operating, the vehicle's stop lamps are illuminated to warn following drivers.

## **INNOVATION AND ADVANCED TECHNOLOGY**

- 4.2-inch TFT multi-information display with steering wheel controls
- Toyota Touch 2 and Touch 2 with Go multimedia and navigation systems, with seven-inch touchscreen control

### **4.2-inch Multi-information Display**

The RAV4's new instrument binnacle incorporates a new 4.2-inch colour TFT multi-information display. It can show a wide range of functions and data, controlled using switches on the steering wheel. It presents Toyota Safety Sense system alerts and can be co-ordinated with the display on the seven-inch touchscreen in the centre console.

Other functions, according to vehicle engine and drivetrain, include customisation of vehicle settings to suit driver preference, trip computer information, hybrid powertrain energy monitor, turn-by-turn navigation and real-time AWD status and steering lock indication.

### **Toyota Touch 2 Multimedia Systems with Seven-inch Full-colour Touchscreen**

Three Toyota Touch multimedia packages are available on the new RAV4. The Toyota Touch 2 system is provided as standard on Active, Icon and Excel models, with a seven-inch full-colour touchscreen mounted in the centre console. The audio unit includes AM/FM/DAB radio, with CD/MP3 player and six speakers. Bluetooth is provided for hands-free phone calls and audio streaming and a reversing camera provides real-time on-screen images from the rear of the car.

Business Edition and Business Edition Plus are equipped with Toyota Touch 2 with Go, adding a navigation system, together with on-board connectivity via Toyota Online. This gives access to a wide range of useful functions, including the TomTom traffic service IP Traffic, Google Street View, Panoramio, Google Local Search and an apps function. This can be specified as an option on other RAV4 models.

Taking functionality and connectivity even further, the Toyota Touch 2 with Go provided on Excel models introduces 3D-effect on-screen city models, landmark graphics and a text-to-speech message read-out function. It can also be operated using voice commands and will display SMS texts, emails and calendars, via compatible smartphones.

## **DESIGN**

- Stronger, more dynamic exterior
- Improved interior with higher sensory quality and functionality

### **Exterior Design**

The overall length of the new RAV4 has been increased by 35mm to 4,605mm, but the wheelbase remains unchanged at 2,660mm.

Changes to the frontal design amplify Toyota's current design cues, with a new, slender upper grille that anchors new halogen or LED (according to grade) headlamp units, with integrated LED daytime running lights. The central Toyota emblem is bigger than before – not just for style, but to house the Adaptive Cruise Control system.

The middle grille has been made wider and the lower, trapezoidal grille has been made significantly larger. The extremities of the centre and lower grilles combine to form deep housings for the fog lamps. There is also a restyled underguard with greater visual impact, reinforcing RAV4's rugged credentials.

To the side there is a new wheel arch and rocker panel trim that adds a clean emphasis to the vehicle's profile. New-design 17 and 18-inch alloy wheels are available.

New Phantom Blue and Silver Blade colours were introduced for the 2017 model year, available in a "fully body" finish for Icon and Excel grade. This includes body-coloured bumpers and wheel arches and contrasting front and rear under-runs – black with Silver Blade and silver for Phantom Blue.

## **Interior Design**

Changes to the RAV4's interior have focused on combining better functionality with greater visual harmony and improved sensory quality.

The driver's instrument binnacle, centre console and gear lever surround have been redesigned and the dashboard, door panel and centre armrest trims have been restyled for greater comfort and tactile quality. Throughout the cabin there are more consistent premium quality finishes.

The instrument binnacle now presents two analogue dials and incorporates a 4.2-inch multi-information display. The centre console has been redesigned to accommodate the seven-inch Toyota Touch 2 touchscreen.

Further visual harmonisation has been achieved by introducing ambient lighting and blue back-lighting for the instrumentation.

Cabin storage is more flexible and useful, with a second inner tray added to the console box and a reshaping of the centre console cupholder so that it can take cups with handles. The centre cluster tray has a new anti-slip lining and a storage point has been added to the overhead console.

## **UK MODEL RANGE, SPECIFICATIONS AND PRICING**

- UK line-up with five grades – Active, Business Edition, Business Edition Plus, Icon and Excel
- For 2017, all grades excepting Active feature Toyota Touch 2 with Go, front and rear parking sensors and ambient footwell lighting
- Toyota Safety Sense standard on all RAV4 models, apart from entry-level Active where it is offered as an option

### **Grades and equipment**

The entry level **Active** grade features the new 2.0 D-4D diesel engine and comes equipped as standard with a wealth of extra equipment features. These include the Toyota Touch 2 multimedia system with touchscreen (optional upgrade to include "Go" navigation and connectivity functions), six-speaker audio system with DAB radio, reversing camera, cruise control, sunglasses holder, shark fin antenna and leather steering wheel cover. This is in



addition to current items including 17-inch alloys, LED daytime running lights, air conditioning, rear privacy glass and electric door mirrors.

The RAV4 **Business Edition** – adds Toyota Safety Sense, front and rear underruns, Toyota Touch 2 with Go navigation and on-board connectivity system, dual-zone automatic air conditioning, ambient footwell lighting, front fog lamps, retractable door mirrors, automatic headlights and wipers, rear-view camera, front and rear parking sensors and an auto-dimming rear-view mirror.

**Business Edition Plus** additionally features a power tailgate, keyless entry and push-button start and automatic headlight levelling.

All three powertrains and front and all-wheel drive options are offered in **Icon** trim. Key features include 18-inch machined-finish alloy wheels, LED headlamps, combination leather and Alcantara upholstery, electrically adjustable driver's seat (with power-adjustable lumbar support), heated front seats and an Alcantara dashboard finish.

The **Excel** models adopt leather upholstery (in black, grey or beige), roof rails and a black interior roof lining. Their specification can be raised even further with an optional Premium Pack. This introduces hands-free power tailgate operation with a “kick” sensor beneath the rear bumper, making it simple to access the loadspace when carrying bags or large items. The pack also provides a blind spot monitor and Rear Cross Traffic Alert, plus a sun roof.

## TOYOTA RAV4 TIMELINE AND UK SALES

YEAR	MONTH	EVENT
1989		Original RAV4 concept is presented at the Tokyo Motor Show.
1994	June	First generation RAV4 launched in the UK, with a three-door body and 2.0-litre petrol engine.
1995	June	A five-door body style is introduced.
1997		An electric powered RAV4 is developed; a number are used for tourist transport on Jersey.
1998	January	The range is revised and a soft-top three-door version introduced.
2000	August	The second generation RAV4 is launched.
2001	July	A 2.0 D-4D diesel engine is made available.
2003	October	The range is revised and the XT grade structure adopted.

2004	July	Launch of the Granite special edition model.
	December	The flagship XT5 grade is launched.
2005	June	Launch of the XT-R feature model.
2006	February	The third generation RAV4 is launched in the UK, with 2.0 VVT-I and 2.2 D-4D 140 and 180 engines. The T180 becomes the new top-of-the range model. Three-door body style is discontinued.
2007	January	A new XT-R feature grade is launched.
	March	Integrated Active Drive is made available as an option on XT <sub>3</sub> models.
2008	July	SR180 model is introduced; T180 is deleted from the range.
	September	Grade structure revised to XT-R and SR180 trims.
2009	August	2009 RAV4 launched with Toyota Optimal Drive powertrains. Introduction of 2WD 2.0 Valvematic.
2010	January	2.0 Valvematic 2WD model is deleted from the range.
	June	New 2.2 D-4D 2WD becomes entry point to the range, and all models gain new frontal exterior styling.
	October	2.0 Valvematic and 2.2 D-4D engines revised to meet Euro 5 emissions standards.
	November	An electric-powered RAV4, developed with Tesla, is unveiled at the Los Angeles motor show.
2012	November	The fourth generation RAV4 makes its debut, at the <a href="#">Los Angeles motor show</a> .
2013	March	First deliveries to UK customers of the new RAV4. The range adopts <a href="#">a new grade structure</a> : Active, Icon and Invincible.
2014	January	Toyota <a href="#">extends the availability of its 2.0-litre D-4D engine</a> in the RAV4 range, adding an all-wheel drive version in addition to the 2WD model. At the same time Toyota Touch 2 is introduced in higher grade models and specifications and option choices are improved.
2015	January	The new <a href="#">RAV4 Business Edition</a> increases availability of the 2.0-litre D-4D engine with front-wheel drive.
	May	The 2.0-litre Valvematic engine becomes Euro 6-compliant, delivering improvements in fuel economy and CO <sub>2</sub> emissions.
	December	RAV4 re-styled for 2016 and equipped with more powerful and efficient 2.0-litre D-4D engine. 2.0-litre Valvematic petrol engine delivers better fuel economy. Revised equipment grades are

		introduced in a new line-up of Active/Business Edition/Business Edition Plus/Icon/Excel. Toyota Safety Sense is available on all versions apart from Active.
2016	January	The RAV4 Hybrid is added to the range.
	October	<a href="#">The 2017 RAV4</a> is introduced, with Toyota Safety Sense standard on all versions excepting Active.

UK sales 2016: 8,562

Cumulative UK sales (since 1994): 190,238

### TOYOTA RAV4 TECHNICAL SPECIFICATIONS

<b>2.0-litre Valvematic</b>	
Engine code	3ZR-FAE
Type	Four cylinders in-line
Valve mechanism	16-valve, DOHC, chain drive with Valvematic and Dual VVT-i
Fuel system	Electronic fuel injection
Bore x stroke (mm)	80.5 x 97.6
Displacement (cc)	1,987
Compression ratio	10.0:1
Max. power (bhp/kW @ rpm)	149/111 @ 6,200
Max. torque (Nm/rpm)	195 @ 4,400
<b>2.0-litre D-4D</b>	
Engine code	2WW
Type	Four cylinders in-line
Valve mechanism	16-valve DOHC
Fuel system	Common rail fuel injection
Bore x stroke (mm)	84.0 x 90.0
Displacement (cc)	1,995
Compression ratio	16.5:1
Max. power (bhp/kW @ rpm)	141/105 @ 4,000
Max. torque (Nm/rpm)	320 @ 1,750 – 2,250
<b>2.5-LITRE VVT-i HYBRID - ENGINE</b>	
Engine code	2AAR-FXE
Engine type	4 cylinders in-line
Valve mechanism	16-valve DOHC, VVT-i

Displacement (cc)	2,494
Bore x stroke (mm)	90.0 x 98.0
Compression ratio	12.5:1
Max. power (bhp/kW @ rpm)	150/112 @ 5,700
Max. torque (Nm @ rpm)	206 @ 4,400 – 4,800
<b>2.5-LITRE VVT-i HYBRID – HYBRID SYSTEM</b>	
<b>Electric motor (front)</b>	
Type	AC permanent magnet, synchronous motor
Max. power (bhp/kW)	141/105
Max. torque (Nm)	270
<b>Electric motor (rear)</b>	
Type	AC permanent magnet, synchronous motor
Max. power (bhp/kW)	68/50
Max. torque (Nm)	139
<b>Hybrid battery</b>	
Type	Nickel metal-hydride
Nominal voltage	244.8
Number of cells	204
System voltage	650
Total system output – front electric motor and hybrid engine (bhp/kW)	195/145

<b>PERFORMANCE</b>		<b>2.0 D-4D 6MT FWD</b>	<b>2.0 Vmatic MDS AWD</b>	<b>2.5 HYBRID E-CVT FWD</b>	<b>2.5 HYBRID E-CVT AWD</b>
Max. speed (mph)		121	115	112	112
0-62mph (sec)		9.6	9.9	8.4	8.4
<b>FUEL CONSUMPTION, EMISSIONS &amp; INSURANCE</b>		<b>2.0 D-4D 6MT FWD</b>	<b>2.0 Vmatic MDS AWD</b>	<b>2.5 HYBRID E-CVT FWD</b>	<b>2.5 HYBRID E-CVT AWD</b>
Combined (mpg)	17in wheel	60.1	-	57.6	-
	18in wheel	60.1	43.5	-	55.4
Urban (mpg)	17in wheel	52.3	-	57.6	-
	18in wheel	51.4	34.4	-	55.4
Extra-urban (mpg)	17in wheel	65.7	-	56.5	-
	18in wheel	65.7	50.4	-	57.6

Fuel tank capacity (l)		60		56	
CO <sub>2</sub> (g/km, combined)	17in wheel	123	-	115	-
	18in wheel	124	152	-	118
Insurance groups		23E/24E	22E/23E	27E	28E/29A
<b>SUSPENSION</b>					
Front		MacPherson strut			
Rear		Double wishbone			
<b>BRAKES</b>					
Front (diameter x thickness, mm)		Ventilated discs 296 x 28			
Rear (diameter x thickness, mm)		Solid discs 281 x 12			
Additional features		ABS, Electronic Brakeforce Distribution, Brake Assist, Downhill Assist Control (A/T models only). Hill-start Assist Control, VSC, Traction Control			
<b>STEERING</b>					
Type		Rack and pinion, Electric Power Steering			
Ratio		14.5:1			
Turns lock to lock		2.83			
Min. Turning circle – tyre/body (m)		5.3/5.7 – 17in wheel 5.6/6.0 – 18in wheel			
<b>TYRES AND WHEELS</b>					
Wheel size		17 x 7J alloy		18 x 7.5J alloy	
Tyre size		225/65R17		235/55R18	
<b>WEIGHTS</b>		<b>2.0 D-4D FWD 6MT</b>	<b>2.0 Vmatic AWD MDS</b>	<b>2.5 HYBRID E-CVT FWD</b>	<b>2.5 HYBRID E-CVT AWD</b>
Kerb weight (min/max kg)		1,605 – 1,625	1,605 – 1,615	1,710	1,775 – 1,810
Towing capacity - unbraked (kg)		750	750	750	750
Towing capacity - braked (kg)		1,600	1,500	800	1,650
Gross Vehicle Weight (kg)		2,135	2,110	2,205	2,205
<b>TRANSMISSION</b>		<b>2.0 D-4D FWD/AWD 6MT</b>	<b>2.0 Vmatic AWD MDS</b>	<b>2.5 HYBRID E-CVT FWD</b>	<b>2.5 HYBRID E-CVT AWD</b>
GEAR RATIOS					

1 <sup>st</sup>		3.818	-	-	-
2 <sup>nd</sup>		1.913	-	-	-
3 <sup>rd</sup>		1.218	-	-	-
4 <sup>th</sup>		0.880	-	-	-
5 <sup>th</sup>		0.809	-	-	-
6 <sup>th</sup>		0.711	-	-	-
Reverse		4.139	1.751	-	-
Final gear ratio					
	1 <sup>st</sup> – 4 <sup>th</sup>	4.058	2.277	-	-
	5 <sup>th</sup> , 6 <sup>th</sup>	3.450	5.791	-	-
	Differential	-	-	3.750	3.542
<b>DIMENSIONS – EXTERIOR</b>					
Overall length (mm)		4,605			
Overall width (mm)		1,845			
Overall height (mm)		1,675			
Wheelbase (mm)		2,660			
Front track (mm)		1,570 – 17in wheel 1,560 – 18in wheel			
Rear track (mm)		1,570 – 17in wheel 1,560 – 18in wheel			
Front overhang (mm)		930			
Rear overhang (mm)		1,015			
Coefficient of drag (Cd)		0.34 – 0.36			
<b>DIMENSIONS – INTERIOR</b>					
Interior length (mm)		1,935			
Interior width (mm)		1,505			
Interior height (mm)		1,220			
<b>DIMENSIONS – LUGGAGE COMPARTMENT</b>					
Capacity – seats in place (l)		547 501 - Hybrid			
Capacity – seats folded, up to roof (l)		1,735 1,633 - Hybrid			

Load area length (mm)	1,025
Load area width (mm)	1,335
Load area height (mm)	945

## TOYOTA RAV4 EQUIPMENT SPECIFICATIONS

<b>SAFETY</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Driver and passenger front airbags	✓	✓	✓	✓	✓
Driver and passenger front side airbags	✓	✓	✓	✓	✓
Curtain airbags	✓	✓	✓	✓	✓
Driver's knee airbag	✓	✓	✓	✓	✓
Front passenger airbag cut-off switch	✓	✓	✓	✓	✓
Front seatbelts with Electronic Load Retractors, pretensioners and load limiters	✓	✓	✓	✓	✓
Rear seatbelts with Electronic Load Retractors	✓	✓	✓	✓	✓
Front seatbelt warning (light and buzzer)	✓	✓	✓	✓	✓
Whiplash Injury Lessening (WIL) front seats	✓	✓	✓	✓	✓
Isofix child seat fixings (rear, x2)	✓	✓	✓	✓	✓
ABS	✓	✓	✓	✓	✓
Electronic Brakeforce Distribution (EBD)	✓	✓	✓	✓	✓
Brake Assist (BA)	✓	✓	✓	✓	✓
Traction Control (TRC)	✓	✓	✓	✓	✓
Vehicle Stability Control (VSC)	✓	✓	✓	✓	✓
Hill-start Assist Control (HAC)	✓	✓	✓	✓	✓
Downhill Assist Control (DAC, Multidrive S models only)	n/a	n/a	n/a	✓	✓
Toyota Safety Sense: Pre-Collision System, Adaptive Cruise Control, Lane Keep Assist, Automatic High Beam, Road Sign Assist	Opt	✓	✓	✓	✓

<b>COMFORT AND CONVENIENCE</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Electric power steering	✓	✓	✓	✓	✓
Tilt and telescopic adjustable steering wheel	✓	✓	✓	✓	✓
Cruise control	✓	✓	✓	✓	✓
Keyless entry and push-button start	x	x	✓	✓	✓
Dusk-sensing headlights	x	✓	✓	✓	✓
Rain-sensing windscreen wipers	x	✓	✓	✓	✓
Power windows – front and rear	✓	✓	✓	✓	✓
Auto-dimming rear view mirror	x	✓	✓	✓	✓
Rear-view camera	✓	✓	✓	✓	✓
Follow-me-home headlights	✓	✓	✓	✓	✓
Front and rear parking sensors	x	✓	✓	✓	✓
Ambient footwell lighting	x	✓	✓	✓	✓
<b>AUDIO, INFORMATION &amp; ENTERTAINMENT</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Toyota Touch 2: 7in touchscreen, six-speaker audio system with AM/FM/DAB tuner and CD/MP3 player, Bluetooth, rear-view camera, Aux-in and USB port.	✓	x	x	x	x
Toyota Touch 2 with Go: 7in touchscreen, six-speaker audio system with RDS tuner and CD player, satellite navigation, on-line connectivity, advanced Bluetooth, rear-view camera, Aux-in and USB port, 3 years' free map updates.	Opt	✓	✓	✓	x
Toyota Touch 2 with Go: 7in touchscreen, six-speaker audio system with RDS tuner and CD player, satellite navigation, text-to-speech function, SMS text and email display, on-line connectivity with access to online services, advanced Bluetooth, rear-	x	x	x	x	✓



view camera, Aux-in and USB port, 3 years' free map updates.					
<b>VENTILATION</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Air conditioning	✓	✗	✗	✗	✗
Dual zone climate control	✗	✓	✓	✓	✓
<b>SECURITY</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Remote central locking with double locks	✓	✓	✓	✓	✓
Remote perimeter alarm and microwave interior protection	✓	✓	✓	✓	✓
<b>STORAGE</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Locking glovebox	✓	✓	✓	✓	✓
Front console box	✓	✓	✓	✓	✓
Front armrest with two cupholders	✓	✓	✓	✓	✓
Rear armrest with two cupholders	✓	✓	✓	✓	✓
Driver and front passenger seatback pockets	✓	✓	✓	✓	✓
Sunglasses holder	✓	✓	✓	✓	✓
Underfloor storage in boot	✓	✓	✓	✓	✓
Luggage net	✓	✓	✓	✓	✓
Retractable tonneau cover	✓	✓	✓	✓	✓
<b>SEATING, UPHOLSTERY &amp; TRIM</b>	<b>ACTIVE</b>	<b>BUSINESS EDITION</b>	<b>BUSINESS EDITION PLUS</b>	<b>ICON</b>	<b>EXCEL</b>
Heated front seats	✗	✗	✗	Opt	✓
Reclining rear seats	✓	✓	✓	✓	✓
Leather and Alcantara upholstery	✗	✗	✗	✓	✗
Leather upholstery	✗	✗	✗	✗	✓
Leather steering wheel trim	✓	✓	✓	✓	✓
Leather gear shift and parking brake trim	✗	✓	✓	✓	✓
<b>EXTERIOR AND BODYWORK</b>	<b>ACTIVE</b>	<b>BUSINESS</b>	<b>BUSINESS</b>	<b>ICON</b>	<b>EXCEL</b>

		EDITION	EDITION PLUS		
Darkened rear privacy glass	✓	✓	✓	✓	✓
Colour keyed bumpers	✓	✓	✓	✓	✓
Colour keyed door mirrors	✓	✓	✓	✓	✓
Black grille	✓	✓	✓	✓	✓
17in alloy wheels	✓	✓	✓	x	x
18in alloy wheels	x	x	x	✓	✓
Roof rails	x	x	x	x	✓
LED daytime running lights	✓	✓	✓	✓	✓
LED headlamps	x	x	x	✓	✓
LED rear lights	x	x	✓	✓	✓
Front fog lamps	x	✓	✓	✓	✓
Power-adjustable heated door mirrors	✓	✓	✓	✓	✓
Retractable door mirrors	x	✓	✓	✓	✓
Power tailgate	x	x	✓	✓	✓
Sensor-operated power tailgate	x	x	x	x	Opt*
Temporary spare wheel	✓	✓	✓	✓	✓
Sunroof	x	x	x	x	Opt*
Metallic paint	Opt	Opt	Opt	Opt	Opt
"Full body" paint finish	x	x	x	Opt	Opt

\* Option included in Premium Pack

Ref: 170103M