SUBARU XV

Press information

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Fuji Heavy Industries Ltd.

SUBARU

XV: Aim of Development

The Subaru XV is a new type of crossover SUV that not only projects a great presence despite its compact sporty design, but also boasts a range of new features never seen before in an SUV. While the proportions of the XV convey a sense of elegance and lightness, its exterior design combines high ground clearance, large tire wheels, and all of the other features one would normally expect to find in an SUV. What's more, superior drive performance and fuel efficiency made possible by Subaru next-generation power unit are joined here with the excellent maneuverability for which Subaru is renowned and an extremely high level of functionality. Thanks to the symmetrical All-Wheel-Drive and advanced Subaru Dynamic Chassis Control Concept - two core Subaru technologies - this vehicle feels incredibly safe and secure to drive. And as such, the new XV adds unique Subaru value to the ever-growing C-segment crossover market. Not only have Subaru made it possible to truly provide "safety and pleasure" as defined in our new brand statement, "Confidence in Motion," but in this new strategic model, it has been realized a unique Subaru persona—a persona that Subaru fully intends to further enhance going forward. Subaru is confident that the XV will thoroughly satisfy the needs of a diverse range of customers.

XV: Model concept

The fundamental product concept that Subaru adopted for the XV can be expressed in two simple words - "Urban Adventure." In specific terms, a vehicle that would be perfectly suited to exciting, lively use in a city landscape. Thus, Subaru strove to optimally balance enhanced basic performance factors in the form of fuel efficiency and enjoyable driving (Fun to Drive) with a stylish, highly distinctive exterior design. As the Subaru crossover family continues to grow, the stylish XV is unique in the way it can be both sporty and casual. To this end, it boasts five key strengths.

(1) Sleek but muscular - Smart, powerful design: Subaru has given the XV a highly distinctive design that blends a uniquely Subaru profile with a sporty, energetic overall presence.

(2) Achieving both nimble drive and environmental friendliness: Notwithstanding its overall height, the XV feels extremely secure to drive, and thanks to a new engine and transmission that work hand in hand to make it more environmentally friendly, this SUV delivers a highly reliable ride that is uniquely Subaru.

(3) Safety performance of the highest standard: In addition to providing the driver with an excellent field of view, Subaru has applied our considerable expertise in the fields of collision avoidance performance and passenger protection performance.

(4) Spacious, relaxing cabin: the XV features an extremely roomy passenger compartment, a

cargo area that is both spacious and convenient, and excellent riding comfort.
(5) Performance and equipment suited to urban life: Not only is this SUV remarkably easy to get in and out of, but it boasts an advanced, highly convenient information/entertainment system that supports the driver in a great many ways.

XV: Model line-up

3 grades are provided for the European markets. (EURO 5 compliant)
1.6i: When compared with the 1.5-liter engine in Subaru's current models, the newly developed 1.6-liter engine in this base model boosts output in all speed ranges while also realizing a much better balance between fuel efficiency and the thrill of rapid response to operation of the accelerator.
2.0i: In addition to being light on its feet, this model simultaneously delivers class-topping fuel efficiency and a luxurious ride. Meanwhile, it boasts a high level of torque in the low- to mid-speed range which is the most frequently used in everyday, practical situations. This base model has been equipped with a highly responsive engine capable of delivering a sensation of instant acceleration, even when the accelerator is only slightly depressed.
2.0D: Fitted with a horizontally-opposed diesel engine that is lightweight, compact, and uniquely Subaru, the 2.0D offers a high degree of torque even at low speeds and excellent response to operation of the accelerator. This base model also boasts excellent fuel efficiency with low CO2 emissions.

XV: Packaging

<Spacious and comfortable interior space>
An ample wheelbase was secured without having to increase the length of the vehicle. As a result of moving the A-pillars forward, the passenger compartment conveys a wonderful sense of spaciousness. The space gained from extending the wheelbase has been used to give more knee room to rear-seat occupants, who can now also place their feet inside the large open areas underneath the front seats. Thanks to these enhancements, the new XV has more rear-seat knee room than any other vehicle in its class. Naturally, this contributes to a higher level of comfort.

- Improvements to the internal structure of the doors enabled to increased space in the transverse direction inside the passenger compartment. With more shoulder and elbow room, the driver and passengers benefit from best-in-class spaciousness.
- The bottom edge of the A-pillars is also moved forward to accentuate the sense of space. In

addition, the field of view has been made as unobstructed as possible by optimizing the cross-section of the pillar itself and providing triangular quarter glass in front of the rear-view mirrors. Meanwhile, the heater unit and ducts are also repositioned in the pursuit of a more roomy feeling interior, lowering the top of the instrument panel in the process. Gaps between the side sill and floor have also been closed. And higher seat positions that are more typical of an SUV also make it easier to get into and out of the vehicle.

■ Body size

Overall length	4,450 mm
Overall height	1,570 mm
Overall width	1,780 mm
Wheelbase	2,635 mm
Track (front/rear)	1,525 mm /1,525 mm
Minimum road clearance	220 mm
Overhang (front/rear)	970 mm / 845 mm
Minimum turning radius	5.3 meters
Cabin length	2,005 mm
Cabin height	1,205 mm
Cabin width	1,492 mm
Driver's seat hip point	615 mm

<Cargo Room>

- The floor of the cargo area and the internal structure of its roof feature a totally new design. By including a flat tire repair kit*, it has been possible to secure ample distance from floor to roof. (*: Models for certain regions are fitted with large spare tires as standard.)
- One half of the floor can be inclined by connecting its straps to specially provided hooks. As such, the size of the step at the opening can be reduced, and it is now much easier to get heavy objects, pets, and the like in and out. A 15-litre sub-trunk is also added (in models equipped with a flat tire repair kit). Making it much more convenient to store smaller items, this helps to keep the cargo area as roomy as possible.
- With level differences eliminated from the floor of the cargo area, loading and unloading has never been easier. Thanks to the adoption of this new design, XV owners will benefit from a greater level of convenience when shopping, when using the vehicle for sports and outdoor activities on holidays, and when traveling with pets.

■ Cargo area dimensions

Maximum cargo area width	1350mm
Cargo area height	780 mm
Cargo area length	820mm
Cargo area volume (VDA-V11)	380 litres(w/Repair kit),310L(w/Grand tire)

<Seat functions>

In order to ensure a comfortable ride regardless of where the occupant is sitting, the seats are developed to mold themselves better and more securely to the body.

Front seats: With its higher hip point, the new front seat design makes driving much more enjoyable. What's more, the driver's seat comes with a six-way manual adjustable seat as standard. And not only can the headrests be raised and lowered, but they now also feature a tilt adjustment mechanism. Meanwhile, the back rests have been raised to provide more support at the top of the back. The adoption of flat-mat springs also contributes to a higher level of support. Tuning of the springs under the occupant has helped to improve the sensation of being securely held, and the sides have been reshaped to ensure that the seats do not feel cramped. A low resilience urethane have also been selected for the cushion sections to better hold the occupant's body and to absorb small vibrations produced while driving.

Rear seats: The rear seating area is much more spacious in the XV. Notable improvements in this regard are the concave surfaces at the back of the front seats and larger open areas underneath them, both of which make it easier for the rear-seat occupants to sit comfortably and relax. Meanwhile, the driver's field-of-view to the rear has been enhanced by the inclusion of retractable headrests. And with tether anchors for child seats built into the seat back, it is now much easier to load and unload the rear seats.

XV: Utility

The XV has been kitted out with a great many features suited to the urban lifestyle, typical examples of which being the advanced information/entertainment system and handy storage areas for all kinds of objects within arm's reach. In designing this vehicle, a high level of convenience for a diverse array of owners was one of our prime concerns.

■ Superior accessibility

Thanks to a careful design approach that also took universal-design concepts into consideration, Subaru has achieved a vehicle that is extremely easy to get into and out of. Not only have Subaru made the door openings larger, but also raised the angle at the top of the front door sash, thereby providing more space between the sash top and body. Even when the doors cannot be fully opened, therefore, there is sufficient space for passage of the upper torso. In addition, the amount by which the legs must be lifted to get in and out has also been reduced for greater convenience. The distance between the floor and the top of the side sill has also been reduced, meaning that the driver and passengers do not have to stretch their legs as widely as before when getting in and out. And thanks also to the higher seat position, the overall design has been optimized to make vehicle access a much more stress-free experience for all

types of user.

■ Front storage spaces

With a focus on convenience, Subaru have provided ample storage space for small objects at ideal locations around the driver's seat. These spaces are suitably sized to accommodate wallets, cell phones, portable music players, and other items usually kept on the person; furthermore, it has also been provided holders for pens, cards, receipts, and the like inside the center-console box for added convenience.

■ Advanced information/entertainment system

The compact navigation system of the XV boasts a high degree of connectability and compatibility with a range of digital media. Meanwhile, the "Multi-Function Display" (MFD) used to provide visual notification to the driver comes in both a Standard version and a High Grade version, which is equipped with a 4.3" color LCD.

XV: Exterior Design

Coined from the terms "professional tool" and "trendy design," Subaru's "Protren" design concept symbolizes the fusion of SUV functionality and an urban persona.

<Stylish form>

The XV features a new type of crossover design that combines a stylish, flowing form with a high body and side cladding that enhances the sense of security. Showing off the passenger compartment in all its glory, the elegant silhouette has been provided with creatively designed wheels, cut-away cladding, and many other features that suggest a fun-loving personality. As a result, an exterior appearance that is both sporty and attractive was designed. And thanks to the inclusion of characteristic touches from our other vehicles, such as the hexagonal grille and hawk eye-style headlights, the XV gives the impression of a next-generation crossover that is classically Subaru.

- The front grille features a hexagonal design - one of the hallmarks of Subaru vehicles. And thanks to its larger design and new plating, the grille not only allows the XV to look at home among the other models in our fleet, but it also gives a tangible impression of strength.
- With a bold look reminiscent of the eyes of a hawk, the headlights efficiently illuminate a wide area and boast a range of other functional improvements.
- The attractive design of the fog lamps allows them to blend seamlessly into the front bumper.
- The XV's innovatively designed aluminum wheels convey a real sense of depth while remaining fashionably urban. Thanks to the contrast between the silver spokes and black surrounds, the vehicle portrays a different impression when moving and when stopped.

- Instead of applying the distinctive side cladding all around as in the past, Subaru has made strategic omissions to enhance the sensation of dynamism and comfort of the XV. A new grain was also developed to enhance the effect of light and shadow. As a result, Subaru was able to create a sporty yet reliably safe impression, making the tires look larger than they actually are.
- The corners of the front and rear bumpers have been designed with special edges that enhance the aerodynamic performance of the vehicle. Naturally, this also contributes to better fuel efficiency.
- Instead of placing the turbo intercooler duct for diesel models inside an opening above the engine, it has been neatly integrated under the hood.

XV: Interior Design

In developing the XV passenger compartment, our goals were to realize a relaxing space that conveys a comfortable sense of spaciousness and quality of material. Together with a luxurious interior that perfectly balances the different tactile and emotional qualities of leather, metal, and cloth, Subaru has adopted an instrument panel design that accentuates the horizontal in order to convey a sense of space in all four directions, thereby creating an aura of tangible quality.

<Multi-Function Display (MFD)>

Coming in either a Standard or High-Grade version, the Multi-Function Display (MFD) is highly visible in the upper middle section of the instrument panel. Hoping to encourage XV owners to integrate better with their vehicle and take pleasure from eco-friendly driving practices, the display content was designed with the Urban Adventure concept firmly in mind.

■ Standard version (1.6i, 2.0i, and 2.0D)

The standard MFD provides the driver and passengers with information necessary for practical driving—such as outside air temperature, time, and the like—in a highly intuitive format. For example, the fuel efficiency indicator can show real-time efficiency, average efficiency, or continuous travel distance, and it can also be blanked out; furthermore, as the MFD can also notify of continuous travel time and average vehicle speed, it provides the driver with extensive support in terms of safe, economic driving. On vehicles equipped with an auto start stop system, meanwhile, the display shows engine-stopped time and cumulative stop times (both total and this trip).

■ High-Grade version (Option for 1.6i, 2.0i, and 2.0D)

Sporting a large 4.3” full-color LCD, the High-Grade MFD not only caters for practical driving situations, but also boasts a wide range of functions that support more intelligent driving.

- Eco-driving display

In terms of eco-friendly driving, the High-Grade MFD goes far beyond just indicating fuel efficiency; instead, its Eco-driving display helps the driver to improve fuel efficiency using six different tools, such as the Eco-gauge and Eco-value screens. Other content for vehicles with an auto start-stop system indicates the stop times and the amount of fuel saved. In these and other ways, the Eco-driving display provides the driver with a visual representation of his or her eco-friendly driving.

- Vehicle information display
  Whenever necessary, the MFD provides the driver with pop-up notification of important information such as the continuous drive time, environmental factors such as outside air temperature or road surface conditions in the cold, and the status of the vehicle's various systems. Meanwhile, if a problem is identified in any of those systems, the driver is notified using both pop-up notification and warning lamps in the instrument cluster. Video from a rear view camera can also be shown on the MFD to further enhance safety and convenience.

<Combination meter>

There are two versions: top-grade and standard models. Illumination on the top-grade model is white; on the standard model, it is red.

- A relief design has been realized by using metallic ring accents; meanwhile, the use of metallic-finish rings enhances the overall air of quality.
- The gauges have a sweep function in which the indicators move to the maximum position when the ignition key is turned to ON and then quickly return in order to heighten the excitement of driving.
- In the center of the cluster is a large LCD monitor that provides the information most crucial to driving: current gear, fuel gauge, etc. All the most important information can be obtained with just a glance at the center of the instrument cluster while driving, which allows the driver to concentrate even more fully on driving.

<Steering>

The leather-wrapped steering wheel gives a feeling of opulence, and includes a decorative silver bezel. The urethane-covered wheel suggests sporty-impression with an improved tactile surface with the use of soft-feeling material. The steering wheel has switches for MFD, audio, and cruise control. In addition, the sizes and shapes of switches are reworked for greater operability. For the Lineartronic, the compact paddle shifter fixed to the steering wheel is equipped as standard. While operability during driving is enhanced and manual-shift driving can be enjoyed, parts around the steering wheel are neatly designed. Silver paint has been applied

to enhance the luxurious feel.

<Shifter handle>

- Lineartronic
  The shifter handle has a luxurious appearance thanks to the addition of leather, a decorative silver metallic panel, and a metallic cover. The design of the grip shape is easy to grab, whether gripped from the top or side. In conjunction with the handle positioning, the layout of the path that the gear shifter moves along has been optimized.
- Six-speed/Five-speed manual transmission
  A sporty grip is equipped for six-speed/five-speed manual transmission. For the top grade, a leather covered grip can choose.

< Body colour>

Including the new body colour “Tangerine Orange Pearl”, ten colour selections are provided:
Tangerine Orange Pearl (New solid orange brings out youthfulness)
Ice Silver Metallic, Satin White Pearl, Dark Gray Metallic, Obsidian Black Pearl, Camellia Red Pearl, Sky Blue Metallic, Deep Cherry Pearl, Marine Blue Pearl, Sage Green Metallic

XV: Comfort

The new XV’s equipment was conceived to further improve riding comfort and provide a pleasant interior space.

■ Air conditioner

Single and Dual full automatic air conditioners are equipped on the models. The shape of the controller dials are added a diamond cutting to their outer surface. This gives the dials greater tactile response and functionality. A new, more environmentally friendly refrigerant has been incorporated. Insulating material was added to the engine compartment in an effort to reduce the amount of heat entering the cabin. This enables to decrease the temperature of the air entering the cabin from the engine compartment. This also reduces the load placed on the air-conditioning system, particularly when the engine is idling, thereby improving fuel efficiency.

Full-auto air-conditioner (single) (Standard on 1.6i, 2.0i, 2.0D)

- User-friendly layout
- An illuminated ring around the dial circumference to enhance night-time operation.

Full-auto air-conditioner (dual) (Option for 1.6i, 2.0i, 2.0D)

- Separate left and right air-conditioning control was adopted to allow passengers to control air conditions in the cabin and suit individual requirements.

- On the High-Grade MFD, the driver can confirm the status of the system without having to take their eyes away from the road.
- Metallic accents around the dials add a touch of luxury. Indirect lighting enhances their appearance and improves night-time use.

■ Audio and navigation system

2-DIN audio system: 1-CD and 4 speakers (Standard on 1.6i, 2.0i and 2.0D)

This audio system features not only improved audio quality and fine-tuning to meet acoustic conditions, but also includes a function that cancels vibration and echo from the doors.Thanks to a speaker system tuned specifically for the XV, the driver and passengers can enjoy a high-quality sound that seems to totally surround them.

2-DIN audio system with Bluetooth®* and i-Pod system: 1-CD and 6 speakers (Option for 1.6i, 2.0i, 2.0D)

High-mid range speakers on the instrument panel were added to the four speaker system. This system realizes a much more natural sound with wider frequencies. These are compatible with widely popular Bluetooth®*, iPod and USB connectable devices.

* Bluetooth® is a registered trademark of Bluetooth SIG, Inc. America.

■ Navigation system (Option for 1.6i, 2.0i, 2.0D)

With the objective of bringing driver fun, multimedia entertainment and easy navigation, the new navigation system received added functionalities in traffic information and voice recognition functions, and added compatibility with Bluetooth, iPod, USB, and digital media.

Traffic information link

- Navigation data provided by RDS-TMC (*1). The system instantaneously uploads information about traffic hindrances such as traffic congestion, etc., enabling it to provide alternative routes that bypass problem areas.

*1RDS-TMC may charge fees depending on the country. Only free services are available without subscription.

Download map updates

- Map data is stored on SD cards. Map updates can be purchased and downloaded from the Internet (*1). Maps are updated up to 4 times per year (*2).

*1Map media (SD card) may also be purchased from dealer.

*2The frequency of updates varies by region. Maps sold on SD cards are updated once per year.

Voice control

- The system can intuitively perform several operations in response to voice commands while driving, such as searching for addresses or points of interest; initiating a voice call to

contacts in the address book; and performing album or artist searches.

Bluetooth Handsfree & Message Service

- Bluetooth connections with audio appliances as well as handsfree operation of cellular phone are possible.
- In-coming phone calls can be accepted through the steering switch.

Bluetooth Audio

- Music can be played through the wireless interaction with Bluetooth-compatible music player.

*The ability to operate a phone from the system or steering switches or to display song information depends on the specifications of your device. There may be restrictions on features available for certain models that are not fully compliant with AVCRP including the iPhone and iPod touch.

USB Audio & Video

- The centre console contains a USB port for using with a USB storage device. The playback of music is controllable through the screen or the steering switch.
- Video playback is also available.

*Compatible formats: Audio [MP3 / WMA], Video [MP4/WMV/DiVix]

iPod Control

- iPod or iPhone devices can be used by plugging the docking cable into the USB port of the center console; music playback can be controlled via the steering switch or the screen. The voice command can be used to search a song or album.

XV: Power Units

<SUBARU BOXER petrol 1.6-litre & 2.0-litre DOHC naturally-aspirated engines>

For the first time in 21 years, Subaru has developed a new engine to replace the “EJ” engine currently used in all Subaru passenger vehicle lines. Developed in response to heightened demand for environmentally-friendly functionality, this new “FB” engine retains the proven benefits of the horizontally-opposed engine while "enhancing fuel efficiency," and "delivering performance better tuned to practical use, with a focus on torque in the low- and mid-speed ranges." This core engine marks the beginning of a new era for Subaru.

1.6-litre and 2.0-litre engines are available for the European market. Both engines employ nearly the same devices except for the engine blocks, which helped to succeed in balancing fuel efficiency and output performance.

I. Features & Benefits

- By improving combustion efficiency and lowering friction, the fuel efficiency is greatly improved and the emissions are reduced for a cleaner system.

- For more efficient combustion, a more compact combustion chamber was designed, a cooled EGR design was adopted, the shapes of the intake ports and valves were enhanced, and the injector positions were optimized.
- More lightweight designs for pistons, connecting rods, and other components are adopted. In addition, friction was reduced by overhauling the cooling system and by adding roller rockers to the moving valve train system.
- The fuel economy of the engine itself is greatly improved (approximately 10%) comparing to the previous engines. Factors such as a lighter body, improved aerodynamics, the adoption of a new CVT, and auto start stop function all conspire to push this improvement.
- The longer stroke and dual AVCS are adopted for improvement in torque in low and mid speed range so the driver can expect a responsive, yet smooth acceleration (no hard pressing is necessary).
- Compared to the current Impreza 1.5-litre engine, the new 1.6-litre engine was completely redesigned incorporating a 100-cc boost in engine displacement; accordingly, it outperforms the original 1.5-litre engine in all speed ranges. The engine responds in a more linear manner to application of the accelerator, and especially in practical speed ranges, driving comfort and fuel efficiency have been greatly improved.
- Both engines (1.6-litre and 2.0-litre) comply with Euro 5 emissions.

II. Mechanism

1. Optimization of basic dimensions

Long stroke design & Compact combustion chamber

Subaru successfully achieved a longer stroke while maintaining the same overall engine width as the previous engine, by modifying the layout of the valve driving system and its drive mechanism, and redesigning the cylinder block and cylinder head mechanism. More compact combustion chambers were made possible not only as a result of bore diameter reduction by the long stroke design, but also thanks to smaller valve clipping angles by adopting roller rockers in the valve operating system. These contributed to improving fuel efficiency and exhaust emission performance.

2. Intake/exhaust efficiency

The intake and exhaust system is optimised to draw as much air as possible into the intake, mix the air with the fuel, burn them efficiently, and emit the gas through the exhaust with as less loss as possible.

Intake boot

The capacity and position of resonators are optimised to improve low to medium speed torque performance. The weight has been reduced by eliminating the large intake chambers of the current EJ engine.

Intake manifold

A new designed plastic intake manifold contributes to a reduction of overall weight. By optimizing the branching structure, it not only improved air flow characteristics but also tuned the system for higher output performance.

Cooled EGR (Exhaust Gas Recirculation) system

A Cooled EGR (Exhaust Gas Recirculation) function was added to water pipe so that a larger amount of gas can be redirected. Supplying cooled EGR gas to the system reduces the pumping loss and improves fuel efficiency.

Maximizing the effectiveness of TGV (Tumble Generated Valve)

The shape of the ports and valves has been optimised with the use of CAE analysis, leading to reductions in pressure drops when the valves are open (improved power output) and increased tumbling (improved fuel efficiency and exhaust gas emissions) when the valves are closed.

Port (head)

Partitions have been introduced into the intake ports in order to maximize the TGV effect. Meanwhile, fuel efficiency has been further enhanced through the addition of throttling sections to increase flow speed. The design of the input ports has been modified to enhance output performance - in specific terms, the curvature has been oriented towards the output side and thin plates have been adopted for port partitions.

Combustion chamber (piston)

Deeper recesses in the piston crown, an enhanced corner radius, and the use of inclined squish ensure highly-stable combustion, free of any variation throughout the entire combustion phase.

Optimization of the injectors position

Mounting injectors directly on cylinder heads successfully reduced the amount of vaporized fuel that adheres to the cylinder head surfaces. This improved fuel efficiency and exhaust performance.

Intake/exhaust AVCS (Active Valve Control System)

By using an intermediate locking mechanism on the intake side, and a normal AVCS on the exhaust, more detailed valve opening-closing timing is possible to suit the way the engine is being used. This also contributes largely to improvements in power output, fuel efficiency and exhaust gas emissions.

Exhaust system

With shorter branch pipes in addition to reduced volume and surface area at converging sections, the heat loss from exhaust before it reaches the front catalyst is minimized; accordingly, the catalyst can be heated up much quicker than before, and thus, the performance of exhaust gas purification immediately after engine startup is maximized.

3. Cooling System

Bottom bypass channel

New bottom bypass channels are used to better warm up the engine after start. With faster increases in oil temperature, friction is reduced and fuel economy is improved.

Separate cooling circuits

By adopting the new separate cooling circuits, the distribution of coolant to the cylinder block and head was improved. The output performance and fuel efficiency have been enhanced.

4. Reduction in friction

Fuel economy is improved through the reduction in friction.

Increased temperature of block liners

By adopting separate cooling circuits, restricting coolant flow from the block separator to areas around the liners maintains a high liner temperature, which works to reduce friction.

Improvement of the roundness of block bores by the accurate process in manufacturing

Circularity of liner has been improved by modifying the shapes of cylinder components and also by attaching dummy heads when machining cylinder bores. Better circularity enabled the use of low-tension piston rings, and in combination with lower piston friction, has helped to increase fuel efficiency.

Roller rockers in the valve train

The adoption of roller rockers for the valve operating system has led to improvements in terms of both friction and fuel efficiency.

Lighter parts used in major moving parts

Thanks to bore-size reduction, the weight reduction has been achieved by using lighter parts in major moving parts such as the pistons and connecting rods. With the adoption of diagonally split connecting rods, the increase in engine width that would normally be associated with longer piston strokes has been kept to the minimum.

Higher efficiency oil pump

As oil requirements are lower with the new AVCS, it has been possible to reduce the oil pump relief pressure. Meanwhile, the relief valve features a two-stage relief design that, by eliminating unnecessary pump operation, contributes significantly to lower levels of friction.

5. Others

Chain system for cam drive

The new engine employs a chain type cam drive. The advantage is that it allows a maintenance-free compact design. The use of a chain system allows a size reduction of the crank and cam sprocket, which contributes to limiting enlargement of the total width. The adoption of high-strength chains contributes to reducing the friction.

Charging control system [Vehicles with the Auto Start Stop]

The charging control system comprises a current sensor, a battery temperature sensor, and an alternator. When the engine is idling or the vehicle is traveling at a fixed speed, it reduces the generator voltage; when the vehicle is decelerating, it raises the generator voltage. As a result, the engine load is reduced overall, boosting fuel efficiency.

Fuel pump controller (1.6-litre engine)

For improving fuel efficiency, the fuel pump controller adjusts the pump's current consumption based on the required fuel flow rate.

<SUBARU BOXER DIESEL 2.0-litre DOHC turbocharged engine>

The SUBARU BOXER DIESEL, which was specially developed for the European market, received very favorable reviews. Its high rigidity, high-degree of smoothness, lightweight, compact design, excellent acceleration response with a high level of torque even at low speeds, lower CO2 emissions and better fuel efficiency are among the most frequently cited benefits. The all-new XV includes this Boxer Diesel in the line-up to meet the strong demand from customers concerned with environmental friendliness.

I.Features & Benefits

Fun to drive

- Thanks to the integration of a lightweight, compact horizontally-opposed diesel engine with symmetrical AWD, the new XV has a low center-of-gravity and excellent weight balance, which together ensure superior driving stability.
- The low levels of inertia and friction in this engine allow for an excellent response to accelerator operation. Meanwhile, the power train has been designed with all heavy components inside the wheel base in order to realize highly linear handling. Thanks to these and other similar enhancements, one can truly experience the joy of smooth and exciting driving.

Economy and environmental friendliness

The engine, the transmission, and the AWD all boast low levels of friction. As a result, the new

XV has reached the top class of CO2 emissions among AWD vehicles in the same segment.

Comfort

The new XV benefits not only from lower levels of vibration made possible the engine's fundamental design, but also from extensive and exhaustive soundproofing modifications. As a result, it achieves superior quietness.

II. Mechanisms

1. Cylinder block

Cylinder block

An aluminium alloy cylinder block was used to maximize the potential of the highly rigid Horizontally-Opposed Engine layout. To obtain ideal diesel combustion, the bore was shortened compared to the 4-cylinder 2.0-litre SUBARU BOXER petrol engine (EJ20). This led to a 61.3 mm reduction in engine block length for even more compact design. This EE20 Boxer diesel engine's bore pitch is 98.4mm, which is similar to that of 6-cylinder 3.6-litre SUBARU BOXER petrol engine, but the bore diameter is shortened to 3.2mm for highly rigid cylinder to withstand the high combustion pressures that are found in a diesel engine.

Semi-closed deck: The block design uses the semi-closed deck type that proved its durability in the turbocharged petrol models. This increases rigidity around the head gasket mating areas.

Pistons

Cooling channels were incorporated within the pistons, with engine oil squirted via oil jets, which enhances piston cooling.

Connecting rods

The large ends of the connecting rods feature asymmetrical profiles, which increases precision during assembly and in-roundness of the surface connecting the crankpin for reduced friction. It also contributes to minimize the rotational path thus enabled to employ extended piston stroke inside the compact cylinder block.

Crankshaft

The high strength crankshafts underwent surface treatment to withstand the high combustion pressures that are found in a diesel engine.

2. Valve system / intake and exhaust system

Cylinder head

High strength cylinder heads were used to withstand the high combustion pressures.

Roller rocker arms: Compact and low friction end pivot type roller rocker arms were used in combination with double overhead cam (DOHC) system.

Valve System: The diameter of the intake valves were optimized for enhanced breathing

performance and swirl ratios, resulting in improved combustion efficiency.

Intake ports

The combination of an intake swirl port system and optimized intake valve diameter results in ample swirl performance.

Cam drive system

A highly durable chain system was used to drive the camshaft to handle the variations in torque produced by the diesel engine.

3. Common rail system

A common rail system is used for better fuel delivery performance. The fuel is pressurized to 180 MPa before being fed into the common rail.

Solenoid injectors: Specially designed injectors are used. A shorter overall length of the injector contributes to maintain overall engine width as that of the regular petrol engine despite the longer piston stroke. The exhaust gas emissions were improved by optimizing control of injection.

4. Turbocharger

A bespoke variable nozzle type turbocharger was designed to deliver ample turbocharged performance across the entire engine range. The turbocharger itself is positioned under the engine and mounted directly to the catalytic converters for increased environmental friendliness. Response is improved while also helping to lower the centre of gravity. The adoption of a new VGS mechanism not only enhanced the efficiency of the turbine, the fuel economy and the exhaust gas emissions but also increased torque in the low-speed range.

5. Exhaust Emission Control System

The exhaust emission control system is positioned with the turbocharger on the lower part of the engine. This not only improves exhaust gas purification performance but also helps keeping the centre of gravity low, thus contributing to further enhance the superb handling performance originated by the symmetrical AWD.

Oxidation catalytic converter

The catalytic converter separates un-burnt fuel into water and carbon dioxide. The unit is made compact enough to be activated soon after the engine is started. If the temperature rises to 300 °C under certain driving conditions, the oxidation catalytic converter generates NO_2 which oxidizes the collected Diesel Particulate inside the DPF.

Closed Diesel Particulate Filter (DPF)

The adoption of a closed DPF improves engine combustion efficiency and reduces particulate

matter (PM) in the exhaust in order to further enhance environmental friendliness. The closed DPF features a honeycomb shaped filter made of silicon carbide. The filter channels are blocked on alternating ends of each side and there are also microscopic pores on the inner filter wall, thereby functioning to effectively collect the PM as the exhaust gas passes through these microscopic pores.

The collected PM is combusted inside of the filter, which reaches 600 °C and higher depending on operating conditions, and repeatedly regenerated to be emitted as carbon dioxide. Conversely, if the internal filter temperature is low with a continuous load operation, the temperature within the layers is controlled to cause combustion of the PM which is then repeatedly regenerated to be emitted as carbon dioxide.

EGR (Exhaust Gas Recirculation) system

An EGR system is used to comply with European EURO 5 exhaust gas regulations. The cooled exhaust gas is fed back into the combustion chamber to lower the combustion temperature and reduce NOx emissions.

XV: Transmission

1) CVT "Lineartronic"

A new lightweight, compact and more environmentally friendly Lineartronic was developed for the new XV. It has the potential to set the standard for many years to come. By combining this new transmission with the newly-developed engine, the new XV offers outstanding drivability and highly competitive fuel efficiency.

- Optimization of the positions of the shafts and other fundamental internal components made it possible to achieve a more compact, lightweight overall design.
- The adoption of a chain-type CVT made it possible to expand gear ratios and increase efficiency, resulting in exceptional fuel efficiency.
- By optimizing this CVT to suit the new engine and the chassis, it offered its unique smoothness, while also perfectly balancing responsiveness to the driver's intent without compromising ride comfort.

[High environmental friendliness realizing better fuel efficiency]

■ Coverage

- The new CVT has a compact design and a wider ratio coverage.
- The low-geared side was set for more powerful standing-start driving force. The settings also allow a more quiet operation, and increased fuel-efficient at high speed driving.

■ Variator

・ By adopting the chain for the torque transfer between the two pulleys in the variator, a compact design and improved transfer efficiency are accomplished. Especially, in the overdrive range which is effective for fuel economy, the transfer efficiency has been improved by approximately 5% compared to the belt type.

[Improved drivability for a smoother ride]

■ Driving performance/drivability

・ The adoption of the Lineartronic provides smooth gear-shifting, resulting in smoother driving. In addition, the optimized gear ratios make driving on winding and hilly roads a much more pleasant experience.

・ The new Lineartronic realizes a perfect balance between responsiveness to driver intent and riding comfort. This is done through combining drivability control; a smooth and linear acceleration that changes in response to the way the accelerator pedal is pressed.

■ 6-speed manual mode with superior drivability (Vehicles with paddle shifters)

・ Using the paddles attached to the steering wheel makes it very easy for the driver to shift. The driver can instantly find the right gear during normal driving, sudden braking, or quick acceleration while keeping both hands on the steering wheel. The transmission's superior response and controllability create a sporty driving feel. The CVT transmission ratio is fixed at specific points to provide 6-speed manual mode. Repeated driving tests indicated that a 6-speed manual mode was the most appropriate option as it allowed to gain the necessary engine brake effort and acceleration while minimizing gearshifting.

・ If the paddle is operated while the shift lever is on D-range, the transmission control temporarily switches to manual mode. When the on-board system determines that the vehicle is traveling at a constant speed, it automatically switches on D-range.

・ The engine now also supports standing-starts in second gear. Accordingly, it can limit the likelihood of wheel spin on icy or slippery surfaces.

2) Manual Transmissions

■ 6-speed manual transmission (for diesel model)

The boxer diesel engine is renowned for its ability to deliver a high level of torque in all speed ranges, despite its low rev limit. By combining this engine with a six-speed transmission, the new XV has significantly expanded its ratio coverage. As a result, the boxer diesel engine can not only comfortably handle urban driving, it is now also perfectly suited for high-speed motorway driving. This integration of powerful torque and wider ratio coverage delivers better fuel efficiency and quieter operation at high speeds.

■ 6-speed manual transmission (for 2.0-litre petrol engine model)

The development of the new XV six-speed manual transmission was based on the six-speed manual transmission of the Legacy and enhanced in terms of “fuel efficiency” and “operability.” Its ratio coverage was also extended so that the newly-developed FB engine can handle urban driving conditions as easily as high-speed motorway travel.

■ 5-speed manual transmission (for 1.6-litre petrol engine model)

The gear ratios of the five-speed manual transmission have been optimized to improve “environmental friendliness.”

<Auto Start Stop>

A new “Auto Start Stop system” was developed for the XV. By automatically stopping the engine in situations where the vehicle is temporarily stationary, such as idling at traffic lights, it boosts the fuel efficiency of the newly developed engine and Lineartronic transmission even further.

In developing this new system, Subaru kept its ‘Confidence in motion’ philosophy as a core guideline. More specifically, Subaru aimed at making the engine stopping virtually unnoticeable to the driver, whilst also avoiding any inconvenience in terms of driving performance. Operation of the Auto Start Stop function can be deactivated using the cancellation button.

■ Starter

- A special starter and an ICR (In-rush Current Reduction) relay are among the new components added as part of the Auto Start Stop system.
- The ICR relay stabilizes the power supply when the engine stops so that instruments and displays do not flicker.
- Lineartronic-equipped vehicles are fitted with a starter featuring tandem solenoids. Independent solenoids are used to control the motor and the pinion gear that connects engine and motor rotation. This ensures that the engine can be restarted rapidly. As a result, the “change-of-mind” control is now possible.

[Change-of-mind control] (Lineartronic models)

Subaru’s new system has adopted the tandem solenoids in the starter, allowing it to quickly respond when the engine is automatically stopped while waiting at the traffic lights. Thanks to this system, the time lapse between stop and start was cut significantly and vehicle starts quickly. Specifically, the change-of-mind duration has been significantly reduced to

approximately 0.2 seconds.

■ Visual overview of the Auto Start Stop system on the MFD

・ The MFD can indicate the cumulative engine-stop time and the amount of fuel saved (High-Grade model), thus allowing the driver to also appreciate the benefits of the Auto Start Stop system in an objective, visual manner.

■ Dedicated battery

The Auto Start Stop system is fitted with a bespoke long-life battery.

XV: Drivetrain

■ Symmetrical AWD (All-Wheel-Drive)

Two types of centre differential mechanisms, a core of AWD, are provided according to the transmission type.

<Active torque split AWD> (Lineartronic models)

Irrespective of the driver's level of expertise or skill, Subaru's unique AWD system allows the benefits of all-wheel drive to be utilized to their maximum potential and with a high level of safety. Subaru's electronically controlled all-wheel drive system integrates a MP-T (Multi-plate transfer (multi-plate clutch)) into the transfer used to distribute torque to the rear wheels. Operating based on a 60:40 (front:rear) torque distribution pattern, the transmission control unit responds to driving conditions such as acceleration, climbing, and turning in order to adjust the front-rear torque distribution in real time. Whenever slipping of the front wheels is detected, the system increases the amount of torque being distributed to the rear wheels, thus ensuring sufficient traction.

<Centre differential AWD with viscous LSD> (5MT and 6MT models)

The system is a combination of the bevel-gear-type centre differential with the basic torque distributions of 50:50 and the viscous coupling for limited slip differential. When the front wheel or rear wheel slips, the viscous coupling corrects the torque distributions to ensure traction. Centre differential AWD with viscous LSD is combined with the 5-speed and 6-speed manual transmission.

XV: Chassis

<Suspension>

■ Front suspension: Independent strut suspension

・ High-response valves have been newly adopted for the front strut. These enhance the

stiffness of the top mount, ensure rapid damping control and better overall responsiveness.

- A rebound spring was added to the front strut for high-level hazard avoidance. This reduces the rebound of the inside wheels and prevents the body from lifting during cornering. Thanks to this effect, body roll was reduced, tire grip was maximized and more stable cornering was achieved. The enhanced stability of the chassis results in a more agile vehicle. The improved stability also increases the driver's ability to avoid hazards.
- The entire bushing is now enclosed in a new clamp, limiting any loss of power due to the deformation of the bushing and at the same time improving the stiffness of the supports. Thanks to this modification, the response of the front suspension to steering operations was significantly improved.
- By increasing the stiffness of the front-arm mounting area, handling feels extremely reliable and provides a highly linear response.
- A front support was added to connect the front cross member to the rear bushing section of the front arm in the form of a brace. This modification helps reducing engine vibration in the longitudinal direction, which in turn enhances steering stability and occupant comfort.
- Inter-rings were added to the front arm bushings, and the sections acted on by the front arms were stiffened, generating an extremely reliable handling performance and a highly linear response.

■ Rear suspension: Independent double-wishbone suspension

- The new high-response valves were adopted for the rear shock absorbers. This contributes to rapid damping control from the beginning of the stroke and better overall responsiveness.
- Pillow ball bushings were used to replace the previously used rubber lateral link bushings on the outer rear side of the lateral link. Changes in toe are less likely to occur as a result of poor road surfaces and other external forces. Accordingly, straight-ahead directional stability was significantly improved.
- A rear stabilizer was standardized, which helps to prevent body roll and enhances occupant comfort.
- The stiffness of the sub-frame bushing was optimized to increase drivability while at the same time enhancing occupant comfort.

■ Brakes

Four disc brakes were adopted on all models, enhancing the sense of assurance and reliability. By combining a shorter brake hose with low-expansion material, the brake system became more responsive and stiffer, suffering less pressure loss when the brakes are applied. The

weight of a number of components has been reduced. A spring-type pad return mechanism was added to front-brake pads in order to reduce friction as a result of brake drag, contributing to better fuel efficiency.

■ Hill start assist (in manual transmission vehicles)
Manual transmission vehicles are equipped with a hill start assist function. On inclines, braking power is maintained after the brake pedal is released, preventing the car from rolling backward before the acceleration pedal is depressed. This function allows a smooth start on uphill roads.

■ Electric power steering
In order to improve fuel economy and steering feeling, a pinion-assisted electric power steering was adopted. Thanks to a highly refined steering assist motor control, smooth steering feel has been achieved and fuel efficiency was further improved.

■ Tires and wheels
The XV's newly designed 17" aluminum wheels further accentuate its stylish, innovative exterior, thereby projecting great presence. Subaru has also achieved a high level of balance between aerodynamic performance and weight reduction.
All models are equipped with large-diameter tires with lower rolling resistance.

■ Tire and wheel size

Size	Wheels
225/55R17	17 X 7 J Aluminum wheels

XV: Body

- The body frame has been revamped, and the use of high-tensile steel plates resulted in weight reduction.
- The body is one of the lightest in its class. It has improved strength, including enhanced bending stiffness.
- Reinforcements such as stiffeners and diagonal members have been added at strategic points on the chassis in order to make it more responsive to steering control and behave in a more rigid manner.
- Insulators were added for the reduction of the mechanical noise.

XV: Safety

<Active Safety>

Front vision field　(Front visibility)

- The size of the blind spots on the front and sides were reduced by shaping the cross-section of the A-pillar in such a way that it does not interfere with front visibility, and by integrating the partition windows into the front doors. Putting the door mirrors on the door panels rather than in the door gussets reduced the size of the blind spot below the A-pillar. This delivered top class level front visibility for XV.

Field of rear vision (Rear visibility)

- Side mirrors were enlarged to a wider field of view. This allows the driver to spot a wider range of nearby objects.
- The side mirror operating switch was moved to the door armrest for better usability. The illumination was added to make it easier to use at night.
- In order to maintain the rear field of view, the rear-gate hinge design and layout inside the roof were reduced in size. Also, the ceramic section around the window was made as narrow as possible. Both modifications allowed to design a stylish profile with a more streamlined rear roof edge without impairing the rear field of view.

Night time visibility

- Illumination area of the headlights was expanded to provide better field of front vision.
- Headlight washers have been adopted for all models. [HID-equipped vehicles and halogen headlights-equipped vehicles (optional for 1.6i, 2.0i, 2.0i, 2.0D)unclear sentence, please explain

Visibility in bad weather

■ Wipers and window washers

- Vehicle speed-sensing intermittent window wipers were adopted. In addition, multiple dispersal nozzles were adopted in each screen washer jet. The washer jet now covers a broader area on the windscreen.
- The wiper system uses optimal rigidity and vibration absorption to minimize operational noise, making it an extremely quiet system, the best in its class.
- All vehicles are fitted with rear wipers. When the rear wiper is in intermittent mode and the shift lever is in reverse, the wiper will move at the standard speed to ensure a clear rear view.

■ Auto wiper/Auto light

- An auto wiper and auto light were adopted.
- For vehicles equipped with high-Grade MFD, the auto light operation timing can be adjusted using the display on the MFD and MFD operating switches.
- Four-stage headlight activation/operation timing offering the driver more freedom in

headlight activation timing.

■ Vehicle Dynamics Control (VDC) system

VDC, which assists the superior driving stability of symmetrical AWD, is standard on all models. By monitoring all vehicle's behavior, ABS, TCS (engine control and brake LSD for traction control) and VDC systems are controlled flexibly. Thanks to the optimization for intervention timing, high stability is secured in all road conditions.

- Control logic was newly added for use in hazard avoidance situations, providing world-class hazard avoidance capability.
- The longitudinal G sensor, transverse G sensor, and yaw rate sensor were integrated into the VDC ECU to reduce the overall weight of the VDC.
- The operational status of the VDC is displayed on the High-Grade MFD, keeping the driver constantly aware of the current status of the vehicle, for increased safety.

<Passive Safety>

- The frame has been revamped, and the use of high-tensile steel plates resulted in weight reduction.
- This model has one of the lightest body in its class and offers improved strength such as enhanced bending stiffness.

Frontal collisions

- The toe board has been thickened for greater strength to protect against the rearward movement of the pedal in a case of collision.
- A reinforcing member has been added at the base of the A-pillar to strengthen the joint between the pillar and the upper frame. This ensures that impact energy produced by a frontal collision is efficiently passed from the frame to the pillar. This modification delivers a higher level of safety in terms of collision protection.
- Reinforcing the sections joining the bumper beams to the chassis enabled to achieve a high level of energy absorption.

Side collisions

- High-strength members were used on the side of the vehicle, where there are few deformable zones. This helps minimizing deformation of the body in the event of a side collision.
- Switching to a double-beam structure for the rear-door beam helped limiting panel deformation around the outer-door handle, increasing the protection of occupants in the event of a side collision.

Rear collisions

- The rear of the chassis was designed so that the energy from an offset rear collision would

be evenly distributed left and right by the diagonal members, helping to minimize deformation of the cabin.

Pedestrian protection

- By placing energy absorbing insulators inside the engine compartment, we have been able to reduce the effect of impact energy.
- To comply with new Euro-NCAP protocols, Subaru has expanded the energy-absorbing foam and the lower center bumper bracket.

Seat Safety

By inheriting the new seat construction of the Legacy model, the seats have been designed to limit the severity of neck injury and carefully direct the motion of passengers in the event of a collision.

- The seat frame and inner structures were improved by significantly increasing the seat stiffness, instead of integrating a whiplash relief structure. This allowed to exerting a whiplash relief effect from the seat itself.
- The S-shaped hook is located inside the seatback, connecting the seat frame and mat, which support the occupant's torso. It disengages on impact to allow the occupant to move to the rear in the event of a collision. This allows the impact applied to the occupant's torso to be absorbed; furthermore, as the head rest moves forward relative to the occupant's torso, it also provides firm support to the head without the type of forward tilting common with active head rests.
- The shape of the cushions in the rear seats is optimized and the seating position is moved back in order to decrease the effect of a side collision impact.
- Tether anchors have been added in two places to the back of the rear seats.

SRS airbags

- By optimizing the operation sensor layout, detection performance during collision was improved, resulting in better occupant protection performance.
- Optimization of the airbag shapes provides increased occupant protection.

■ Dual SRS airbags

- The passenger-seat SRS airbag has a fold in the center so that the neck of the passenger is exposed to less impact force upon deployment. Also, the structure of the airbag was optimized to realize a weight reduction.

■ SRS side airbags

- The structure of the airbags was optimized to make them more compact and lightweight. This has resulted in a slim shape from the side to the back of the seat.
- Airbag structure was designed to reduce injuries in unusual situations, such as when a child

is leaning against the doors.

・ The new XV features large airbags capable of protecting also occupants' waists, increasing their safety.

■ SRS knee airbag

・ SRS driver's seat knee airbags were adopted. Cushioning the driver's lower limbs in the event of a collision, the knee airbag is intended to reduce injury by dissipating the force inflicted on the driver.

■ SRS curtain airbag

・ By expanding the protection area, curtain-airbags support a wider range of occupant shapes and positions.

・ Airbag structure was optimized, allowing weight reduction.

<u>Other occupant protection mechanisms</u>

■ Safety pedal (all models)

・ The new XV features a retractor mechanism for the brake pedal, reducing injury to the lower limbs of the driver in the event of a frontal collision.

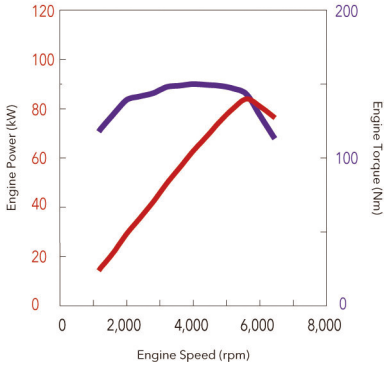
■ Steering column

・ A collapsible (contraction) mechanism was installed between the lower and middle jackets to prevent the steering wheel from being thrust into the cabin when the engine moves rearwards.

・ A separation mechanism was installed between the vehicle body and the tilt bracket to minimize the impact between the steering wheel, steering column and the driver in the event of a frontal collision.

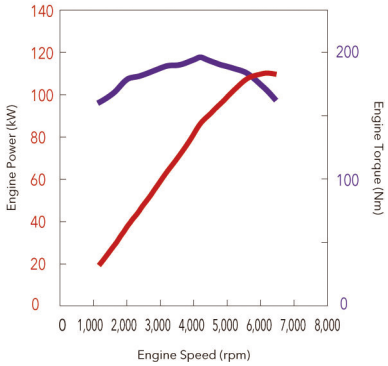
XV: Engine Data

XV 1.6i



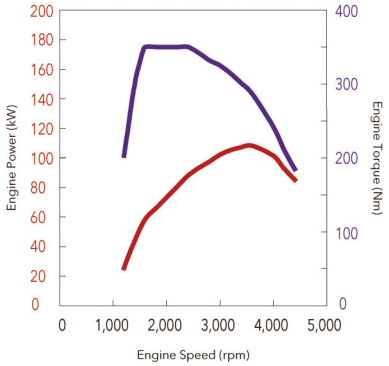
1.6-litre 4-cylinder DOHC

XV 2.0i



2.0-litre 4-cylinder DOHC

XV 2.0D



2.0-litre 4-cylinder DOHC DIESEL turbo

XV: Specifications

Item			Symmetrical AWD (All-Wheel Drive)				
			5-Door				
			XV 1.6i		XV 2.0i		XV 2.0D
			5MT Dual-range	Lineartronic	6MT	Lineartronic	6MT
ENGINE							
Type			Horizontally-opposed, 4-cylinder, 4-stroke, petrol engine				Horizontally-opposed, 4-cylinder, 4-stroke, turbocharged, diesel engine
			DOHC 16-valve				
Bore/Stroke		mm	78.8/82		84/90		86/86
Capacity		cc	1,600		1,995		1,998
Compression ratio			10.5				16
Fuel system			Multi-Point Sequential Injection				Common rail
Fuel tank capacity		lit.	60				
PERFORMANCE							
Max. output (DIN)		kW (PS)/rpm	84 (114)/5,600		110 (150)/6,200		108 (147)/3,600
Max. torque (DIN)		Nm (kgfm)/rpm	150 (15.3)/4,000		196 (20.0)/4,200		350 (35.7)/1,600 – 2,400
Max. speed		km/h	179	175	187	187	198
Acceleration (0-100 km/h)		sec.	13.1	13.8	10.5	10.7	9.3
Fuel consumption*1	Urban	lit./100 km	8.0	7.9	8.8	8.6	6.8
	Extra-urban	lit./100 km	5.8	5.5	5.9	5.5	5.0
	Combined	lit./100 km	6.5	6.3	6.9	6.6	5.6
CO2 emissions*1	Urban	g/km	185	183	204	200	179
	Extra-urban	g/km	134	126	136	126	131
	Combined	g/km	151	146	160	153	146
DRIVETRAIN							
AWD type			Centre differential gear coupled with viscous LSD	Active Torque Split AWD system	Centre differential gear coupled with viscous LSD	Active Torque Split AWD system	Centre differential gear coupled with viscous LSD
DIMENSIONS & WEIGHT							
Overall length		mm	4,450				
Overall width		mm	1,780				
Overall height		mm	1,570				
Wheelbase		mm	2,635				
Track	Front	mm	1,525				
	Rear	mm	1,525				
Minimum road clearance (at kerb weight)		mm	220				
Cargo volume*2		lit.	1,270				
Seating capacity		persons	5				
Kerb weight		kg	1,370	1,405	1,370	1,400	1,435
Towing capacity		kg	1,500	1,200	1,600	1,200	1,600
TRANS-AXLE							
Gear ratio	D range (Lineartronic)		–	3.581–0.570	–	3.581–0.570	–
	1st		3.545	–	3.545	–	3.454
	2nd		1.947	–	1.888	–	1.750
	3rd		1.296	–	1.296	–	1.062
	4th		1.029	–	0.972	–	0.785
	5th		0.825	–	0.780	–	0.634
	6th		–	–	0.695	–	0.557
	Reverse		3.333	3.667	3.636	3.667	3.636
Final drive axle ratio			4.444	3.900	4.444	3.700	4.111
Low-range ratio			1.447	–	–	–	–
CHASSIS							
Steering			Pinion-assist type electric power steering system				
Suspension (4-wheel independent)	Front		MacPherson strut type				
	Rear		Double wishbone type				
Minimum turning circle at tyre (radius)		m	5.3				
Brakes	Front		Ventilated disc brakes				
	Rear		Disc brakes				
Tyre/wheel size			225/55R17, 17 x 7" J				

*1 Fuel consumption and CO2 emissions: according to EC715/2007-566/2011.
*2 Measured by VDA (V214). Without sunroof.

Vehicle kerb weight varies according to the types of optional equipment included. Specification data and model lineup may vary according to market.

XV: STANDARD AND OPTIONAL FEATURES

Item	Symmetrical AWD (All-Wheel Drive)				
	1.6i		2.0i		2.0D
	5MT	Lineartronic	6MT	Lineartronic	6MT
Exterior					
Auto on/off headlamps	OP	OP	OP	OP	OP
HID headlamps with auto levelizer	OP	OP	OP	OP	OP
Pop-up type headlamp washers	OP	OP	OP	OP	OP
Front fog lamps	●	●	●	●	●
Rear fog lamp	●	●	●	●	●
Power-folding door mirrors with built-in LED turn signal	OP	OP	OP	OP	OP
UV protection glass: Windshield, front and rear side windows	●	●	●	●	●
Privacy glass for rear doors, rear quarters and rear windows	OP	OP	OP	OP	OP
Variable intermittent windshield wipers(Designed blade)	●	●	●	●	●
Intermittent rear window wiper	●	●	●	●	●
17-inch aluminium alloy wheels	●	●	●	●	●
Side claddings	●	●	●	●	●
Power sliding, tilt-adjustable glass sunroof	OP	OP	OP	OP	OP
Carrier installation brackets	●	●	●	●	●
Roof spoiler	●	●	●	●	●
Roof antenna	●	●	●	●	●
Seating / Trims					
Leather wrapped steering wheel and gearshift knob	OP	OP	OP	OP	OP
Leather seats	OP	OP	OP	OP	OP
6-way manual adjustable driver's seat	●	●	●	●	●
8-way power adjustable driver's seat	OP	OP	OP	OP	OP
Front seat heaters	OP	OP	OP	OP	OP
60/40 split folding rear seats	●	●	●	●	●
Seat back pocket (front passenger side only)	●	●	●	●	●
Comfort / Convenience					
Power windows*1	●	●	●	●	●
Remote control key system	●	●	●	●	●
Keyless Access and Push Button Start System (touch-sensor type)	OP	OP	OP	OP	OP
Map lamps	●	●	●	●	●
Luggage space lamp	●	●	●	●	●
Vanity mirrors with lids (for driver and front passenger)	●	●	●	●	●
Centre tray	●	●	●	●	●
Centre console box	●	●	●	●	●
2 front cup holders (in the centre console) *2	●	●	●	●	●
Door pockets with bottle holders (on all side doors)	●	●	●	●	●
Interior fuel lid lock release	●	●	●	●	●
Two 12-volt power outlets (in the instrument panel and centre console box)	●	●	●	●	●
Cargo hooks	●	●	●	●	●
Luggage hooks	●	●	●	●	●
Retractable cargo cover	●	●	●	●	●
Box sub-trunk (under cargo storage)	●	●	●	●	●
Tyre repair kit	●	●	●	●	●

*1 Driver's side front window has auto up/down function with pinch protection.
*2 1.6i (5MT Dual-range models): 1 cup

holder

Standard and optional features, model lineup may vary according to market.

XV: STANDARD AND OPTIONAL FEATURES

Item	Symmetrical AWD (All-Wheel Drive)				
	1.6i		2.0i		2.0D
	5MT	Lineartronic	6MT	Lineartronic	6MT
Climate control					
Automatic air-conditioning system with anti-dust filter	OP	OP	OP	OP	OP
Dual-zone automatic air-conditioning system with anti-dust filter	OP	OP	OP	OP	OP
Heater ducts for rear passengers	●	●	●	●	●
Windshield wiper de-icer	OP	OP	OP	OP	OP
Automatic rain-sensing windshield wipers	OP	OP	OP	OP	OP
Heated door mirrors	OP	OP	OP	OP	OP
Front and side defrosters	●	●	●	●	●
Electric rear window defogger with timer	●	●	●	●	●
Entertainment and Navigation					
2-DIN audio system: 1-CD with 4-speakers	OP	OP	OP	OP	OP
2-DIN audio system with Bluetooth®*3 system: 1-CD and 6 speakers	OP	OP	OP	OP	OP
Navigation and audio system*4 with Bluetooth®*3 system: 1-CD and 6 speakers*5	OP	OP	OP	OP	OP
Steering wheel mounted audio remote control switches	OP	OP	OP	OP	OP
Bluetooth®*3-compatible hands-free system	OP	OP	OP	OP	OP
Auxiliary audio input jack (in the centre console box)	●	●	●	●	●
USB and auxiliary audio input jack (in the centre console box)	OP	OP	OP	OP	OP
Rear Vision Camera System	OP	OP	OP	OP	OP
Control / Instruments					
Auto start stop	●	●	●	●	–
High-Grade type Multi-Function Display*6	OP	OP	OP	OP	OP
Tilt-adjustable/telescopic steering wheel	●	●	●	●	●
Paddle shift	–	–	–	OP	–
Shift up indicator	●	–	●	–	●
Cruise control	OP	OP	OP	OP	OP
Drivability					
Vehicle Dynamics Control System	●	●	●	●	●
Hill Start Assist	●	–	●	–	●
Safety					
Front SRS*7 airbags	●	●	●	●	●
Front side SRS*7 airbags (for driver and front passenger)	●	●	●	●	●
Curtain SRS*7 airbags (front and rear, both sides)	●	●	●	●	●
Knee SRS*7 airbag	●	●	●	●	●
Side-door reinforcement beams (front and rear, both sides)	●	●	●	●	●
Steering column support beam	●	●	●	●	●
Whiplash reducing front seats	●	●	●	●	●
Rear seat headrests for 3 seating positions	●	●	●	●	●
Seatbelt indicator (for driver and all passengers)	●	●	●	●	●
Front seatbelts with pretensioners and load limiters	●	●	●	●	●
Height adjustable seatbelt anchors (for driver and front passenger)	●	●	●	●	●
Rear 3-point seatbelts for 3 seating positions	●	●	●	●	●
Safety pedal system	●	●	●	●	●
4-sensor/4-channel ABS with Electronic Brake-force Distribution	●	●	●	●	●
Brake assist system	●	●	●	●	●
Brake Override	●	●	●	●	●
ISO-FIX adapted child seat anchors (with tether anchors)	●	●	●	●	●
Child-proof rear door locking (both sides)	●	●	●	●	●
Anti-theft security system with engine immobiliser	●	●	●	●	●

*3 Bluetooth® is a registered trademark of Bluetooth SIG, Inc. America.

*4 6.1-inch WQVGA colour display

*5 A full array of traffic information and 7 languages voice-recognition features.

*6 4.3-inch LCD screen displays. It shows: Fuel Economy screen, Eco-evaluation screen, Active safety, Clock/Outside temperature and Self check etc.
On cars equipped with an auto start stop system, the display shows length of time the engine is stopped and cumulative length of time the engine is stopped (total and this trip)

*7 SRS: Supplemental Restraint System. Effective when used in conjunction with seatbelts.

Standard and optional features, model lineup may vary according to market.