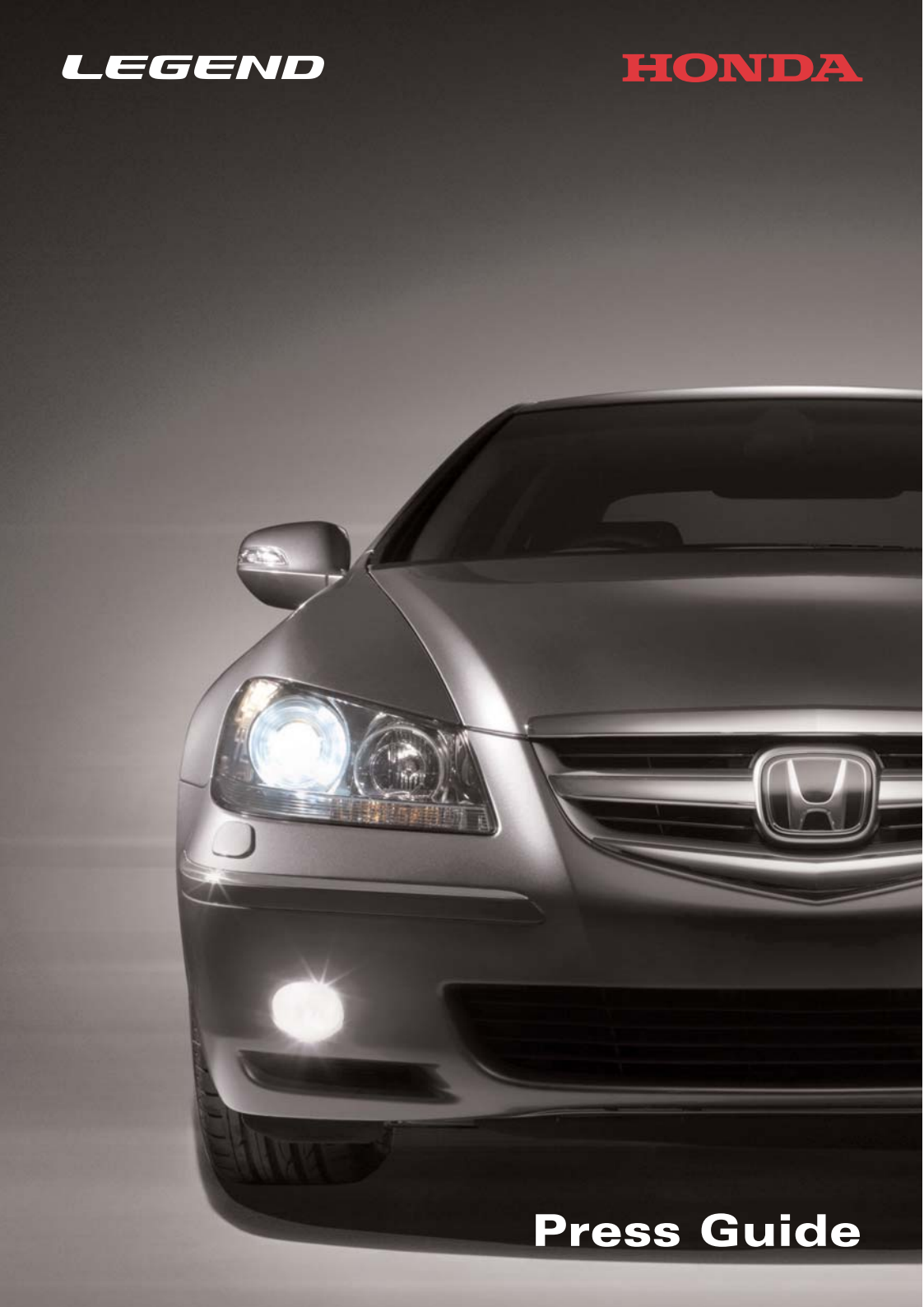
LEGEND

HONDA



Press Guide

LEGEND

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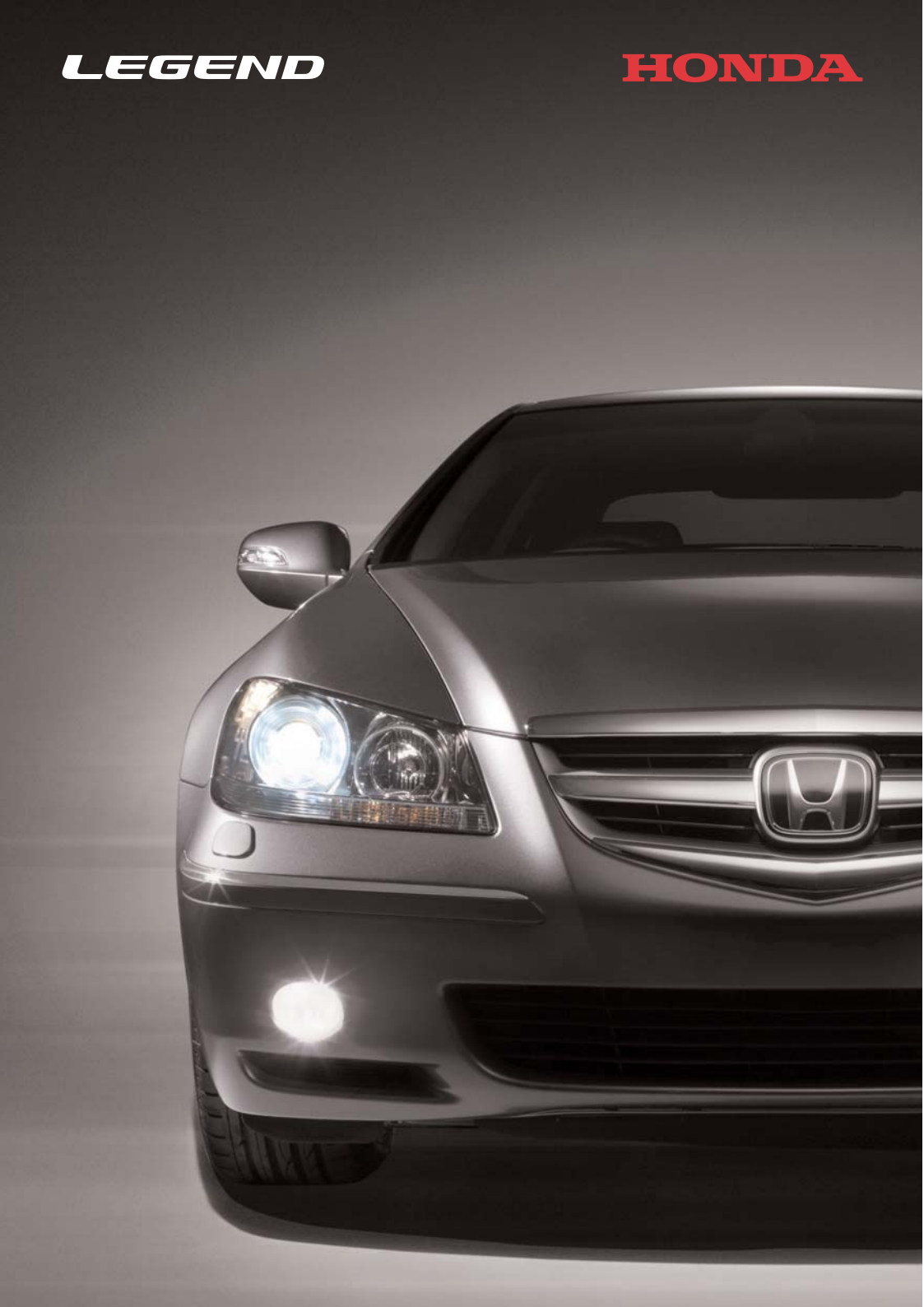

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Overview

The 2007 Legend expresses Honda's independent way of thinking. With an emphasis on advanced engineering and technology, the Legend is a showcase for some of the best that Honda has to offer.

Not only is the Legend our entry into the luxury arena, it is also the logical step for many aspiring Honda owners to rise up the automotive class ladder.

The Legend builds on the position established by its siblings, Euro and Accord, sharing Honda's dedication to supreme build quality, advanced technology and outstanding value for money, while gaining more power, more room, more features and greater driving enjoyment.

And while it can offer comfort, quality and specifications to match even the strongest competitors - Legend also gives much more, in the shape of unique and class-leading handling performance. Honda's DNA is alive and well in the Legend which delivers remarkable quality, an involving drive, contemporary styling, cutting-edge technology and the highest possible levels of safety.

Honda Australia is extremely confident that the 2007 Legend offers a very different challenge to the opposition.

Engine - The innovation built into the Legend starts with the most powerful engine ever offered in a production Honda. The 3.5-litre VTEC V6 engine develops 217kW and 351Nm and complies with Euro 4 emission standards. Fuel consumption has been minimised thanks to the provision of many aluminium body panels including the sub frames, bonnet, boot lid and front guards.

Transmission - A 5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control ensures perfect harmony with the engine at all times and in all conditions.

Super Handling All-Wheel Drive - The standard and unique to Honda, Super Handling All-Wheel Drive (SH-AWD) system dramatically elevates cornering capability. This innovative full-time system distributes power precisely front-to-rear and side-to-side in the rear. In addition to providing the expected traction advantages of all-wheel drive, SH-AWD does something no other current AWD system can; it increases the rotation speed of the outside rear wheel during assertive cornering to help the car turn more effectively under power. This reduces

the cornering load on the front tyres to reduce understeer and improve handling balance and total cornering grip.

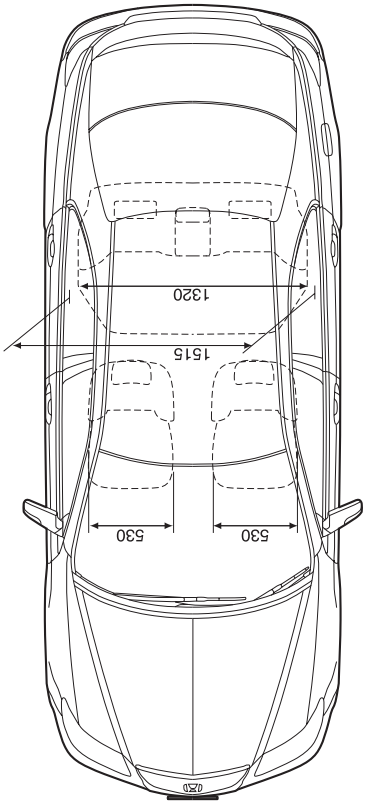
Exterior - The Legend's exterior aggressive style underlines its high-performance character. Its acceleration and cornering performance allow it to challenge the most capable German and Japanese sports sedans. Comfort, quietness and ride quality are also on a par with any competitor.

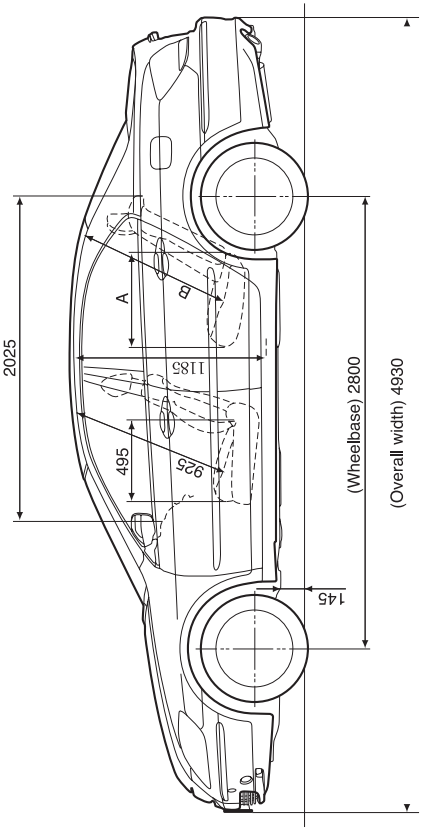
Body - The extremely rigid Advanced Compatibility Engineering™ (ACE™) body structure of the Legend features extensive use of high-tensile steel and lightweight aluminium components to take construction beyond conventional safety protocols while keeping weight in check and providing a solid platform.

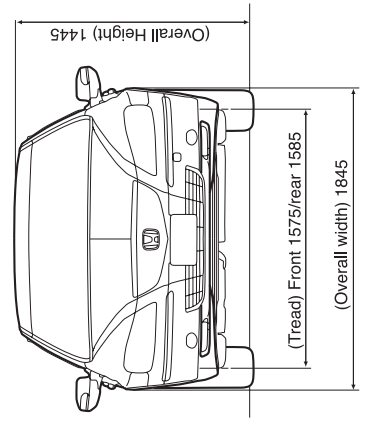
Interior - Inside, occupants are pampered with an infusion of hi-tech and traditional materials; brushed aluminium, sumptuous leather and woodgrain panelling. A centrally mounted reversing camera,comprehensive instrumentation, climate control, 6 stack CD with 10 speakers and privacy screens complete the interior.

Dimensions - While slightly smaller in smaller in overall dimensions, the Legend sits on a 2800mm wheelbase, (the same as the previous model), but sits lower and is more aerodynamic, giving the car a much sportier look than its predecessor.

Dimensions







Tri-perspective Diagram

Drivetrain

Drivetrain at a Glance

Engine

- 3.5-litre, SOHC, VTEC V6 engine
- 217kW @ 6,200 rpm
- 351Nm @ 5,000 rpm
- VTEC (Variable Valve Timing and Lift Electronic Control)
- 11.0:1 Compression ratio
- Two-piece, dual-stage intake manifold
- Direct ignition system and detonation/knock control
- Variable flow exhaust system
- Drive-by-wire throttle system
- Computer-controlled Programmed Fuel Injection (PGM-FI)

Emissions/Fuel Economy

- High flow close-coupled catalytic converters plus under floor catalytic converter
- High capacity 32-bit RISC processor emissions control unit
- Euro 4 emission standard
- 11.8 litres per100km (ADR 81/01)

Drivetrain Overview

Honda's all-new Legend is powered by a 3.5- litre, 24-valve, all-aluminium SOHC - VTEC engine (similar to the MDX), that produces 217kW at 6,200 rpm and 351 Nm at 5,000 rpm, making it the most powerful Honda ever sold in Australia and is matched to a 5-speed automatic transmission to deliver effortless, high-performance motoring.

A variable flow exhaust system with two close-coupled primary catalytic converters and a secondary underfloor catalytic converter, help it achieve Euro 4 emission standards. Not only is the Legend extremely powerful, it achieves 11.8 litres per 100km (ADR81/01).

The 3.5-litre V6 engine's crankshaft is positioned transversely (side to side) instead of longitudinally (front to rear), which allows it to be packaged more tightly for better handling agility, without sacrificing interior comfort.

While it has comparable power to some V8 engines, the high output V6 in the Legend is lightweight for better acceleration and more nimble handling.

To efficiently put the power to the ground with a high level of smoothness and driver control, the Legend comes standard with a 5-speed automatic with Sequential SportShift and paddle shifters to allow finger-tip manual operation.

To maximise available traction and to provide exceptional handling balance and responsiveness, the Legend features Super Handling All-Wheel Drive (SH-AWD), the first and only all-wheel drive system that distributes the optimum amount of torque not only between the front and rear wheels but also between the left and right rear wheels.

Engine Architecture

The 3.5-litre VTEC V6 incorporates many of the refinements and improvements that have been developed in other Honda power plants. The engine has a smooth-firing 60-degree V-angle and compact overall dimensions. Aluminium alloy construction saves weight and improves cooling, while free-breathing VTEC cylinder heads operate four valves per cylinder.

A high inertia intake system, increased compression ratio, close-coupled catalytic converters and high flow exhaust help make the Legend the most powerful production Honda motor vehicle ever.

Engine Block

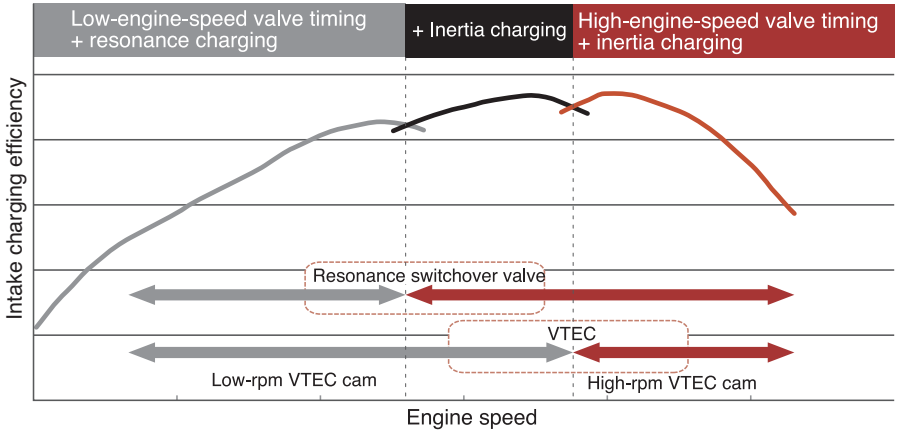
The lightweight, heat-treated die-cast aluminium-alloy block has cast-in-place iron cylinder liners. These thin-wall, centrifugal-cast iron liners help reduce the block's overall length and weight. With their rough outer surfaces, these liners bond securely to the surrounding aluminium during the manufacturing process, enhancing liner-to-block rigidity and heat transfer. The block also incorporates a deep-skirt design for rigid crankshaft support and minimised noise and vibration.

Crankshaft / Pistons / Connecting Rods

The forged crankshaft of the Legend is similar to that of the MDX, but with revised counterweights to accommodate the weight of higher compression pistons. With their taller, reinforced crowns, these new pistons raise the compression ratio (relative to the MDX) from 10.0:1 to 11.0:1. Part of the reason this elevated compression ratio is possible is an oil jet system that sprays cooling oil on the underside of the piston crowns to keep temperatures in check. New steel

connecting rods are forged in one piece and then the crankshaft ends are broken or 'cracked', (like the recently released Civic sedan engines), creating a lighter and stronger rod with a perfectly fitting bearing cap.

Cylinder Head / Valves



VTEC+ Intake System Operation

Like the MDX, the Legend uses cast alloy single overhead camshaft cylinder heads that incorporate tuned exhaust manifolds as an integral part of the casting. Made of pressure-cast, low-porosity aluminium, these lightweight components improve overall packaging, enhance exhaust flow and allow the optimal positioning of a primary close-coupled catalytic converter on each cylinder bank. To ensure positive sealing, the Legend has a three-layer type head gasket like that of the MDX.
A single Aramid-fibre reinforced belt drives the overhead camshafts. The cylinder heads have 36mm diameter intake valves and 30mm diameter exhaust valves, slightly larger than the MDX.

VTEC (Variable Timing & Lift Electronic Control)

VTEC (Variable Timing and Lift Electronic Control) is a major contributor to the engine's power and torque. The system operates the 12 intake valves in two distinct modes, so that the operation of the intake valves changes to optimise both volumetric efficiency and combustion of the fuel-air mixture. At low engine speeds, the intake valves have low lift and are open a comparatively short period of time during cylinder filling. At high engine speeds where breathing is critical, the valves switch to high-lift, long duration mode to deliver the best volumetric efficiency. The VTEC changeover point is undetectable to the driver and occurs at 4950 rpm.

The engine uses a 3-rocker VTEC system similar to that of the MDX. This configuration allows each of a given cylinder's intake valves to be controlled by its own low-speed cam lobe, allowing for staggered valve opening and lift. (By comparison, with 2-rocker VTEC, a single low-speed cam lobe controls both intake valves for each cylinder). Better mixing in the cylinders improves both combustion speed and combustion stability. When the engine reaches 4950 rpm, the ECU triggers the opening of an electric spool valve that routes pressurised oil to small pistons in the intake valve rocker arms. These pistons slide into position to lock together the three intake rockers in a given cylinder, which then follow a single high-lift, long-duration cam lobe. The intake and exhaust valve timing and duration are unique to the Legend.

Two-Piece Dual-Stage Intake Manifold

The Legend uses a dual-stage intake manifold that is designed to deliver maximum airflow, to the cylinders. The 2-piece cast-aluminium manifold is also very light.

Working in concert with the VTEC valve train, the induction system significantly boosts torque across the engine's full operating range. Internal passages and two butterfly valves commanded by the ECU provide two distinct modes of operation.

Three cylinders on each bank draw air from only the nearer half of the manifold's internal chamber, or plenum. The volume of the plenum and the length of inlet passages are tuned to maximise the resonance effect, wherein pressure waves are amplified within each half of the intake manifold at certain rpm ranges. The amplified pressure waves significantly increase cylinder filling and the torque produced by the engine throughout the lower part of its rpm band. Funnel-shaped intake ports—similar to those used on racing engines—are built in at the uppermost end of each intake runner to improve airflow.

As the benefits of the resonance effect lessen with rising engine speed, the butterfly valves open at 4000 rpm to interconnect the two halves of the plenum, increasing its volume. An electric motor, commanded by the ECU controls the connecting butterfly valves. Now each cylinder draws intake air from the full plenum chamber. The inertia of the mass of air rushing down each intake passage helps draw in more charge than each cylinder would normally ingest. This phenomenon is the same effect produced by a low-pressure supercharger. The inertia effect greatly enhances cylinder filling and the torque produced by the engine at higher rpm.

Direct Ignition & Detonation /Knock Control

The Legend power afforded by the 11.0:1 compression ratio is made possible by an ECU that monitors engine functions to determine the best spark timing. An engine block mounted acoustic detonation/knock sensor "listens" to the engine; and based on this input, the ECU retards the ignition timing incrementally to prevent potentially damaging detonation. The Legend has iridium alloy-tipped spark plugs, each with a coil unit positioned above it in the access bore.

Programmed Fuel Injection (PGM-FI)

The Programmed Fuel Injection (PGM-FI) system monitors the exact state of the exhaust gas and tracks multiple engine inputs including throttle position, intake air temperature, coolant temperature, intake manifold pressure, etc. Based on these inputs PGM-FI continuously adjusts and optimises the amount of fuel delivered to each cylinder.

Drive-By-Wire Throttle Control System (DBW)

The Legend is the latest Honda to employ a drive-by-wire throttle system that eliminates the need for a conventional throttle cable. The DBW system monitors various parameters like throttle pedal position, throttle valve position, road speed, engine speed and gear position, then adjusts the moment-to-moment relationship between pedal position and throttle opening. By altering the amount of "gain" between the pedal and butterfly valve, significant improvements in drivability and acceleration linearity are possible.

For smooth launches from a standing start the system has relatively little gain, so that engine response is smooth and progressive. At higher speeds, the gain increases to provide responsive acceleration for passing and hill climbing. The Sequential SportShift automatic transmission and Vehicle Stability Assist with traction control are fully integrated with drive-by-wire.

Close-Coupled Catalysers & Variable Flow Exhaust System

The exhaust manifolds of the Legend are cast directly into the alloy cylinder heads to reduce weight and to put the engine's two primary catalytic converters as close as possible to the combustion chambers. The 600-cell per-square-inch, high-efficiency converters mount directly to the exhaust port of each cylinder head for extremely rapid converter light off after the engine starts. By eliminating traditional exhaust header pipes, this arrangement results in significant weight savings.

A hydro formed 2-into-1 header pipe carries exhaust gases to a single 350 cell-per-inch secondary converter under the passenger cabin. To balance the engine's need for proper exhaust backpressure at low speed and free flow at high speed, the exhaust system incorporates a variable flow rate feature. An exhaust pressure-operated valve in the system has two operating modes. The low speed mode has a flow rate of 130 litres per second; when the engine reaches about 4000 rpm, the exhaust pressure raises enough to open the valve, which increases the flow to 150 litres per second.

Emissions Control

Although the new Legend powerplant has made large power advances, it is also much cleaner, meets EURO 4 emissions standards, and is an LEV (low emission vehicle).

Many advanced technologies contribute to this emissions performance. The cylinder head-mounted close-coupled catalysts light off quickly after engine start up, and a 32-bit RISC microprocessor in the ECU boosts computing power to improve the precision of spark and fuel delivery. Immediately after start-up better fuel atomisation is provided by high-efficiency multi-hole fuel injectors; these deliver fuel to each cylinder and direct fuel around the intake valve stems.

Noise, Vibration & Harshness (NVH) Control

With its 60-degree V-angle and compact, rigid and lightweight die-cast aluminium-alloy block assembly, the new Legend powerplant is exceptionally smooth. Other factors that reduce noise and vibration are a rigid forged crankshaft, die-cast accessory mounts, and a stiff, cast aluminium-alloy oil pan.

5-Speed Automatic with Sequential Sportshift, Paddle Shifters & Grade Logic Control

To maximise acceleration performance, fuel economy and driver control, the Legend has a standard 5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control. Mechanically related to the extremely compact transmission that made its debut in the MDX, the Legend unit has upgrades and enhancements to suit the greater engine output and higher engine speeds of the Legend.

Designed for low maintenance and a high level of durability, the Legend transmission requires no scheduled service until 120,000 miles when operated under normal conditions. To provide strong off-the-line acceleration coupled with a relaxed, fuel-efficient cruising rpm, the unit has the widest ratio spread of any 5-speed automatic transmission in the class.

Automatic Mode

The Sequential SportShift transmission can be operated in conventional fully automatic mode via a floor mounted gear lever. When in automatic mode, the transmission incorporates an advanced Grade Logic Control System and Shift Hold Control, both of which work to reduce gear "hunting" and unnecessary shifting.

Shift Hold Control keeps the transmission in its current (lower) ratio when the throttle is quickly released and the brakes are applied (as might be the case when decelerating to enter a corner). Shift Hold Control minimises shifting, ensuring that abundant power is immediately available without a downshift.

Grade Logic Control alters the 5-speed automatic's shift schedule when travelling uphill or downhill, reducing shift frequency, and improving speed control.

Throttle position, vehicle speed and acceleration/deceleration are continuously measured, then compared with a map stored in the transmission computer. The Grade Logic Control System then determines when the car is on a hill; if this is the case, the shift schedule is adjusted to automatically hold the transmission in a lower gear for better climbing power or increased downhill engine braking.

Manual Mode

The Sequential SportShift transmission can be shifted into manual mode by moving the gearlever to the right of the "Drive" position. The Legend offers two ways to change gears when in manual mode: either by a push or pull of the shift lever, or via F1 style paddle shifters mounted on the steering wheel. A digital display in the tachometer indicates which gear the transmission is in. To heighten control and driver involvement, special shift logic in manual mode delivers quicker, firmer shifts than in fully automatic mode.

To help protect the engine and drivetrain from damage, an array of preventative features are active when the transmission is in manual mode. In second, third and fourth, the logic changes, and the transmission ECU cuts off fuel flow to the engine if there is a possibility of over revving.

In the rare situation where the fuel cut-off alone is unable to prevent engine over

revving (as could happen on a steep downhill) the transmission will upshift itself to prevent engine damage. And finally, when downshifting, the transmission won't execute a driver-commanded downshift that would send the engine beyond redline in the lower gear. The Sequential SportShift transmission will automatically downshift to first gear as the vehicle comes to a stop, to prevent lugging away from a stop in a high gear.

5-Position Shift Gate

The Legend benefits from an innovative 5-position shift gate that simplifies the operation of the transmission. It features a quiet linkage and a speed-controlled reverse lockout solenoid to prevent transmission damage. When operated in automatic mode, the transmission lets the driver choose D (1st through 5th gear) or D3 (1st through 3rd gear). Engine braking can be provided easily by moving from D to the D3 position or downshifting from 5th, 4th or 3rd gear, depending on the vehicle speed.

Coordination between 5AT & Drive-By-Wire

Both shift speed and smoothness are improved by coordination between the drive-by-wire throttle system and the electronically controlled automatic transmission. The engine can be throttled by the engine management system during upshifts and downshifts, the function of the engine and transmission can be closely choreographed for faster, smoother shifting. As a result, shift shock is reduced significantly during upshifts and downshifts.

Super Handling All-Wheel Drive System™

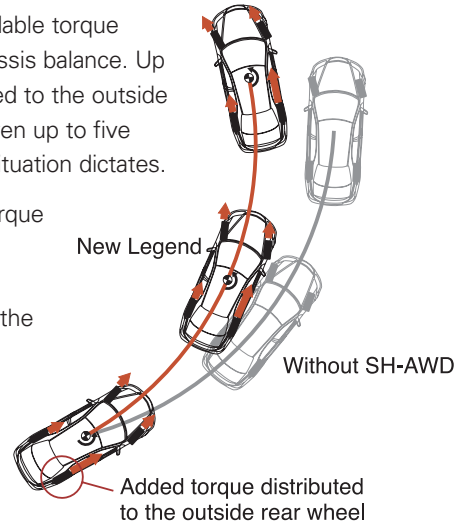
Super Handling All-Wheel Drive™ (SH-AWD™) is the only all-wheel drive platform that distributes the optimum amount of torque not only between the front and rear wheels but also between the left and right rear wheels. SH-AWD goes a step beyond conventional all-wheel drive by actively controlling the torque delivered to each rear wheel during corning. The result is neutral, accurate steering when cornering under power that front-drive, rear-drive or conventional all-wheel-drive can't equal.

Torque splits are as follows:

- During straight-line cruising and moderate cornering below about half throttle, up to 70 percent of the torque is delivered to the front wheels.
- In full-throttle straight line acceleration, up to 40 percent of the power is sent to the rear axle.

- In hard cornering, up to 70 percent of available torque goes to the rear wheels for enhanced chassis balance. Up to 100 percent of this torque can be applied to the outside rear wheel and that wheel can be overdriven up to five percent by the acceleration device if the situation dictates.

SH-AWD ingeniously varies the amount of torque to the left and right rear wheels. When cornering, a planetary gear set overdrives (or accelerates) the outer rear wheel faster than the average of the front wheels to dramatically enhance the cornering, steering feel, overall handling and stability of the Legend. The result is class leading cornering precision as well as enhanced traction.



SH-AWD Operation

Direct Yaw Control System Theory

SH-AWD counters understeer under power with the Direct Yaw Control System. Spinning the outside rear wheel faster than the average speed of the two front wheels allows the system to use engine power to yaw the vehicle while turning. By relieving the front tyres of some of the work of turning the car, the system reduces understeer and the vehicle stays balanced and controllable. In addition, with the cornering load more evenly distributed between the front and rear tyres, the total cornering grip is increased. In conventional cars, cornering is created almost entirely by the steering angle of the front tyres; In the Legend, cornering is created by steering angle of front tyres combined with the extra drive torque supplied by the outside rear tyre.

SH-AWD Ghost Drawing

This is a significant advance over conventional drive systems. To deal with high power output, front- or rear-drive systems generally use some type of limited-slip device to maintain traction under power. The linking effect of the inside and outside drive wheels in these systems resists turning. This is a factor that works against the front tyres as they attempt to turn the car. Conventional AWD systems have a

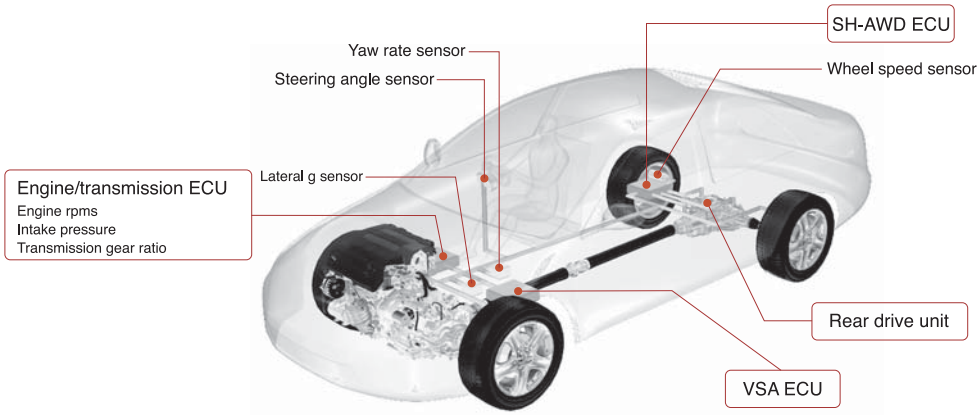
similar linking effect between the inboard and outboard tyres and front and rear axles, causing a similar resistance to turning. This is part of the reason why traditional AWD systems typically lack the more nimble feel of the best two-wheel drive systems. By using drive torque to actually help turn the car, the Legend can be more responsive, neutral and predictable, while simultaneously offering all of the usual benefits of all-wheel drive, such as high grip levels and safety in all conditions.

Electronic Controls and Parameters

The logic and control of SH-AWD is integrated with the Legend Engine Electronic Control Unit (ECU), and Vehicle Stability Assist ECU. The Engine ECU provides engine rpm, intake manifold pressure, and transmission gear ratio data. The VSA ECU provides data on lateral g, yaw rate, wheel rotation speed and steering angle. The SH-AWD ECU monitors the status of the acceleration device and the right and left Direct Electromagnetic Clutch torque. Traction is calculated based on the information from the engine ECU. During an acceleration situation, lateral g and steering angle are used to set the torque split between the right and left rear wheels. At the same time, this data is used to control the acceleration device.

SH-AWD System Layout

SH-AWD is a full-time all-wheel drive system that requires no driver interaction for operation. A torque transfer unit is bolted directly to the front-mounted transaxle. Attached to the front wheel differential's ring gear is a helical gear that provides input torque to the transfer unit. A short horizontal shaft and a hypoid gear set within the case turn the propeller shaft ninety degrees and move it to the vehicle centre line. A lightweight carbon fibre reinforced composite propeller shaft carries power to the rear-drive unit.



SH-AWD System Overview

The rear drive unit of the Legend, unlike the MDX, contains three planetary gear and clutch sets. Torque from the propeller shaft passes through the first clutch/planetary gear set, which is as a unit called the Acceleration device.

Output torque from the Acceleration device is carried a short distance rearward to a hypoid gear that turns the output 90-degrees and drives the rear axle shafts. A matched pair of Direct Electromagnetic Clutch systems, one on each side, sends power to each rear wheel. These clutch systems can be controlled as a pair to alter the front/rear torque split; depending on the situation, the rear wheels receive between 30 and 70 percent of the total engine output. The right and left Direct Electromagnetic Clutch systems can also be controlled independently, to allow up to 100 percent of the total rear axle torque to go to only one rear wheel.

Acceleration Device

Positioned at the front of the Legend rear drive unit, the Acceleration device typically passes torque rearward to the rear axle at very close to a one-to-one ratio. In cornering, however, the Acceleration device's output shaft spins faster than its input shaft.

The Acceleration assembly uses a compact planetary gear set to achieve its speed increase. Hydraulic actuators operate clutch packs that control the planetary gear set. When the input shaft is locked with the planetary gear carrier, there is no ratio change (this is the straight-line mode). During cornering, the carrier is coupled with the case, and the output shaft speed increases up to five percent. A speed sensor at the hypoid gear, downstream of the Acceleration device provides a feedback loop to the SH-AWD Electronic Control Unit to ensure that the system is working properly.

Direct Electromagnetic Clutch Systems

Located on either side of the hypoid gear that drives the rear axle, two identical Direct Electromagnetic Clutch systems control the amount of drive torque that reaches each rear wheel, and provide limited-slip differential function. An electric coil controls the pressure applied to a clutch, which slows the sun gear in a planetary gear set to modulate the torque that is sent to the wheel. The amount of torque transmitted to each rear wheel can vary continuously, between zero and 100 percent, depending on the conditions.

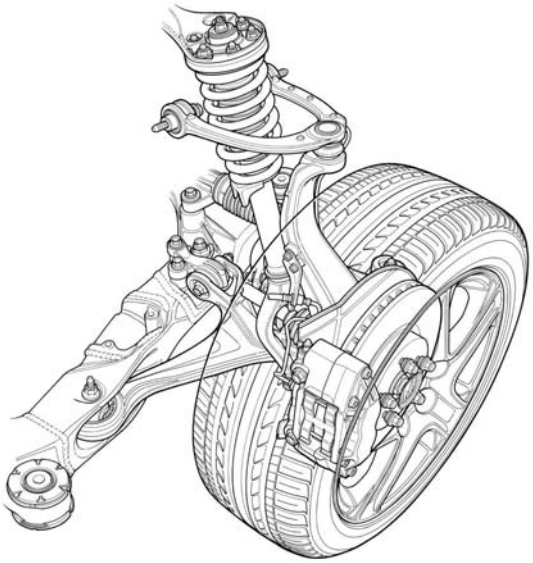
Under deceleration (throttle closed) while cornering, torque to the outside rear wheel is varied to change from an inward to an outward yaw moment, helping vehicle stability. A search coil sensor allows the ECU to estimate the clutch plate

coefficient of friction (which changes with heat,) and then adjusts voltage sent to the electromagnetic coil that controls the clutch to compensate. To ensure that the amount of torque transmitted remains optimised as miles and wear accumulate, a coil provides a feedback loop that the ECU uses to adjust voltage to the electromagnetic clutches to compensate for potential clutch wear.

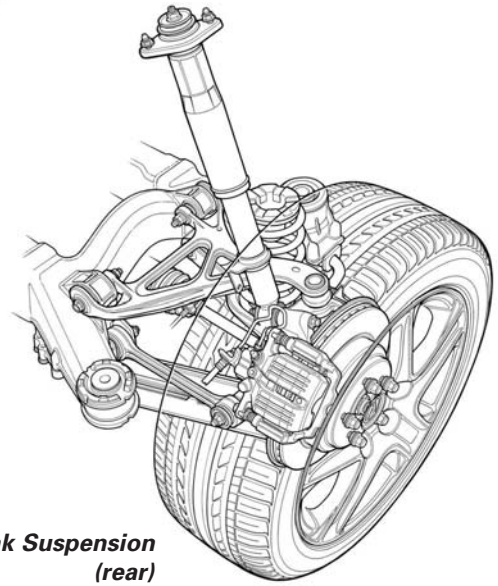
Chassis & Suspension

The goal for Honda designers and engineers of the Legend was to create an agile handling, high-performance, dynamic chassis with outstanding ride comfort and a highly rewarding driving character, to compete squarely with the best luxury sedans from Europe.

The Legend features four-wheel independent suspension, (independent front double-wishbone with independent multi-link rear). Aluminium suspension components front and rear minimise unsprung weight to allow for more supple and responsive suspension and greater traction and handling on rough surfaces.



Double Wishbone Suspension (front)



Multi-link Suspension (rear)

The optimised suspension geometry works with the electronically controlled power steering, large diameter wheels and tyres and the Super Handling All-Wheel Drive system to give the Honda Legend exceptional handling and balance in all driving conditions. Ride quality and road noise isolation were also the focus of substantial engineering effort, so even with sporting performance, the Honda Legend remains quiet and composed.

Super Handling All-Wheel Drive System™ (SH-AWD™)

This innovative technology is the brainchild of Honda's Senior Chief Engineer Yasuji Shibahata, who was also responsible for the Active Torque Transfer System on the Prelude in the 1990s.

Safety has been a key consideration in the development of Legend, and the raft of both active and passive safety systems make this one of the safest cars in the Australian market. The Super Handling All-Wheel Drive (SH-AWD) exemplifies Honda's approach. Working in conjunction with the Vehicle Stability Assist system, SH-AWD is a groundbreaking all-wheel drive system that delivers exceptional handling thanks to a unique layout. It's the only all-wheel drive platform that distributes the optimum amount of torque not only between the front and rear wheels, but also between each rear wheel.

The double wishbone front suspension uprights, upper and lower arms and subframe are all constructed from lightweight aluminium.

The rear suspension is a multi-link type, similar to the Accord Euro with new enlarged subframe mounts and a longer upper arm design. As a result, the roll centre is optimised for better turning response, cornering stability and control in all conditions.

Harshness and road noise are also significantly reduced over the previous model and ride comfort is also improved thanks to the new design.

Aluminium is used for weight savings in the rear control arms and subframe. The components are extremely stiff to withstand the higher lateral loads that the SH-AWD, larger tyres and rigid chassis generate.

The Legend's front and rear aluminum subframe members are made by from a high temperature 'bulge forming' and 'high vacuum die casting process', resulting in significantly lighter units than would be possible with either aluminium hydroform or steel hydroform processes.

To bulge-form these components, an aluminium tube is heated and pressurised with air inside a specially shaped die. The ability to shape the component under both heat and pressure means greater strength and that less material can be used, lowering the overall weight of the finished component.

Buyers of premium luxury sedans expect them to deliver superior cornering precision and here, the Legend excels, riding on 235/50 R17 100W tyres mounted on 17 x 8 inch lightweight cast alloy wheels.

Precise steering performance is an essential facet of the Legend. The goals were to combine a light, but linear steering feel at low speeds with a solid steering feel at high speeds. Together with the neutral handling characteristics of the chassis, the Legend is engineered to feel like a smaller car to the driver.

Compared to traditional mechanically controlled hydraulic power steering, the Legend's speed-sensing steering assist unit is electronically controlled. This system provides a very linear and direct steering feel regardless of vehicle speed while its on-centre feel has no discernible "dead spot."

Newly developed 4-channel Vehicle Stability Assist (VSA), is standard equipment on the Legend and utilises the electronic traction control and ABS functions, together with yaw and longitudinal/lateral acceleration sensors to quickly detect if the vehicle is about to understeer or oversteer.

If it senses this, it seamlessly reduces engine output and applies one or more brakes individually, to stabilise the vehicle— before the driver even becomes aware of it.

In keeping with the dynamic capabilities of the Legend, Honda developed a true high-performance 4-wheel disc brake system. Honda targeted the braking performance of top-level competitors from Audi, BMW and Mercedes-Benz as the benchmark to meet and exceed.

320mm cast-iron ventilated front rotors employ large aluminium 4-piston callipers. These multi-piston callipers are extremely rigid while at the rear, 310mm cast-iron ventilated discs attached to the hubs, with lightweight aluminium collets are actuated by large one-piston aluminium callipers.

Exterior

A smooth and stylish body covering a rigid chassis

It may be technically superior to its competitors but to be successful, the Legend had to look good.

And Honda's body stylists have delivered. The car combines sensual, flowing lines with sharp-edged aggression over a short, wide chassis that helps optimise road holding and handling.

The styling features a sloping bonnet, large angular headlights and a multi-dimensional grille leading to its distinctive lower air intake openings.

A sleek cockpit, a rising waistline and a short rear bootlid accentuate the Legend's dynamic, wedge-like shape to reflect the high-speed, sporting ability of the car.

But as well as looking the part, the designers concentrated on making the Legend body as smooth and aerodynamic as possible. The side glass fits flush with the outer trim, including the B-pillar. The body also sports many under-floor covers that improve air-flow around the car.

Under the surface, the body structure of the Legend also plays a role in the overall performance of the car. Firstly, weight was of primary concern – to maximise the power-to-weight ratio. Therefore the choice of materials had to be lightweight, but also high-rigidity to ensure the chassis remained stiff. As a result, the larger body members are made from high-tensile steel, while the bumper beams, subframes, bonnet and boot are all aluminium parts to save vital kilograms.

Despite the low weight of the entire body, it's 33 percent stiffer than the previous Legend. This combination of light weight and torsional rigidity contributes to the superior handling and agility of the car.

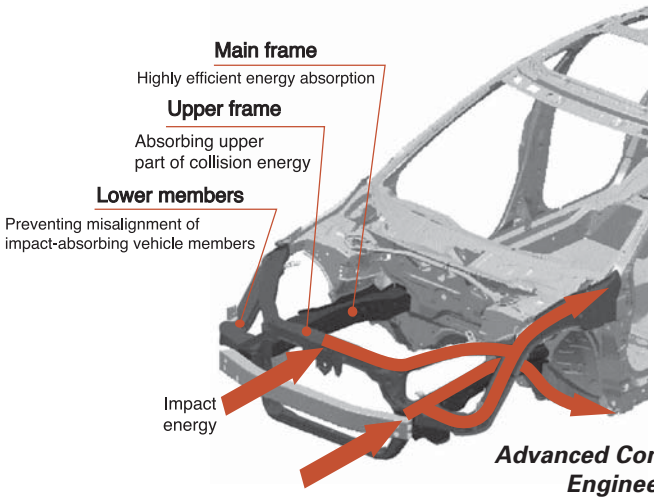
Moreover, the Legend's outer skin is as special as the interior – a new ultra high-gloss paint is used on the body to produce a premium finish. This is achieved by water polishing the intermediate coats before applying the thicker clear coats to create a deep, layered effect.

Body Structure

Producing a lightweight and rigid body was essential to making the Legend a premium luxury sport sedan. This is because the light weight improves every aspect of dynamic performance and fuel economy, and a rigid structure improves ride and handling.

Specific Legend strategies that were employed to reduce body mass include:

- Aluminium bonnet, guards, bootlid and bootlid frame
- Aluminium front and rear subframes, suspension arms and bumper beams



Advanced Compatibility Engineering Body

Structural Solidity

The Honda Legend was also designed with the goal of creating a car that provides world-class safety.

One of the most difficult tests is the side collision that models the impact of a Legend being struck from the side by an SUV or a light truck. To meet these important benchmarks, engineers increased the side section of the frame to comply with new USA collision regulations. They also chose different material specifications to provide the desired level of stiffness and strength for critical areas, without adding unnecessary weight.

Honda engineers designed a body structure known as the Advanced Compatibility Engineering (ACE) body structure and is intended to take vehicle front frame construction beyond conventional safety standards such as the NHTSA NCAP 35 mph frontal barrier test, or the IIHS 40 mph offset frontal crash. Its goal is to deliver significantly enhanced occupant protection in a variety of real-world crash conditions. These may include a frontal collision between vehicles of differing heights, weights and frame construction.

The ACE structure uses the engine compartment to efficiently absorb and disperse collision energy during a head-on vehicle-to-vehicle collision. It features a new frame

structure composed of a highly efficient energy-absorbing main frame, a bulkhead (upper frame) which absorbs the upper part of the collision energy, and a lower member that helps prevent misalignment of the frames of the vehicles involved. This design disperses collision forces over a larger frontal area, which enhances energy absorption of the engine compartment, reduces the chance of deformation of the passenger compartment and results in enhanced occupant protection. At the same time, the structure reduces the chance of vertical or lateral misalignment between the Legend and other vehicle's safety structures.

During a frontal collision, a conventional body structure generally concentrates the loads from the impact through two pathways running longitudinally through the lower portion of the frame. The ACE body structure's front-mounted polygonal main frame is designed to prevent cabin deformation by distributing forces through multiple major load bearing pathways and away from the passenger compartment. Extremely strong high-tension steel is used for the side sills, under-floor spars, and in the impact-absorbing crumple zones at the front of the side frames.

High tension steel is also used on the front shock mounts, areas of the front passenger-compartment bulkhead, areas of the front subframe mounts, and rear structure. In fact, 31 percent of the body is constructed with high tension steel.

The overall result is a high level of bending and twisting rigidity for the body combined with enhanced crashworthiness with no additional weight penalty.

Aluminium Components

The lightweight aluminium bonnet, front guards, boot and boot lid frame are formed with an innovative process called, 'blow forming' to achieve complex and pleasing shapes with a high level of quality, low cost and light weight.

First the raw aluminium panels are placed in a heated mould and warmed to 500 degrees Celsius. Then they are forced into the mould with a high-pressure gas. The result is perfectly formed complex shapes that are not possible with traditional stamping methods.

For rigidity, the boot lid is composed of an inner structural panel and an outer body panel. This 2-piece aluminium structure is crimped together with a self-piercing rivet that makes the lid highly durable.

Door Construction

Safety in side collisions, along with the pursuit of a quality door-closing sound, drove engineers to design all-new door structures. Beams were applied for side-impact safety in both the front and rear doors.

There is no mistaking the quality sound a well-engineered door makes as it is closed. By positioning door's centre of gravity (the height at which its weight is centred) at the same height as the latch, audible vibration and thus the closing sound can be improved. For improved entry and exit the rear doors now open 80 degrees.

Boot Opening

The boot opening is reinforced to retain rigidity while providing a large, low opening for easier loading. Inside, the hinges and gutters are hidden.

Windscreen Wipers

To decrease wind noise levels and improve appearance, the Legend has hidden pivots and wiper arms for its speed-sensing, variable intermittent windscreen wipers.

The hidden pivot improves aerodynamic efficiency and reduces visual distraction when the wiper reverses direction. A cowl below the windshield wipers also reduces wind noise, contributing to a significant reduction in wind noise.

Another advantage of hiding the wiper pivot is enhanced outward visibility and pedestrian safety in the event of a collision.

Aerodynamics

The Legend has a 0.29 drag efficiency, which contributes to its low wind noise, improved fuel economy, increased performance, and enhanced stability on the highway. An air dam reduces front lift force. An engine undercover and floor undercovers further smooth airflow, as do muffler covers and a rear diffuser, which help the rear differential's cooling and result in rear lift force reduction.

NVH Countermeasures

The elimination of undesirable noise, vibration and harshness (NVH) was of primary concern to development engineers. Virtually everything that could be the source of these traits was scientifically reviewed and modified during the planning and prototype phases.

Honda wanted to provide the Legend with outstanding horsepower, and an innovative all-wheel drive system for exceptional handling. At the same time, they wanted the car to remain refined and nearly silent for highway cruising, yet emanate a high-performance engine sound during acceleration. These attributes, along with low NVH and light overall vehicle weight, were achieved through the application of innovative technology.

The new Legend dramatically reduces high frequency and middle-frequency noise attenuation. Road noise attenuation is also significantly improved over both smooth and rough roads. As part of the mission to control weight, Honda used lightweight materials wherever possible in the sound-absorbing package, including lightweight sound insulators instead of traditional heavier materials.

Main Legend NVH Countermeasures:

- Engine mounting system including a hydraulic lower transmission mount
- Variable volume mufflers
- Bonnet insulator
- Engine cover and undercover
- Acoustic roof lining
- Acoustic front and rear inner fender insulator with high-frequency damping materials
- Lightweight floor insulator
- Floor undercover
- Floating front and rear subframes with four mounting points
- Lightweight instrument panel damping materials
- Thinsulate insulation in selected areas
- Acoustic design with side, front and lid linings

Power Windows

The power windows on the Legend are made of glass that is 5 mm thick to reduce cabin noise. Each window features an auto-open function as well as an anti-pinch safety feature and key-off operation.

Flush Glass

The Honda Legend is the first car in the world to have totally flush side glass where it meets the B-pillars. Normally, a gap of about 5 mm exists between side glass and the B-pillar. But on the Legend, the window guide is on the glass instead of the

window frame, which allowed the gap to be eliminated. This means there is one continuous uninterrupted plane running from the leading edge of the front window, all the way to the trailing edge of the rear side window. The benefit is a further reduction in wind noise and a cleaner, high quality appearance.

Exterior Mirrors

To reduce wind rush and turbulence, exterior mirror housings need to be small and aerodynamic, without unnecessarily reducing the mirror size. On the Legend, the power mirror element is precisely sized to fit inside a compact housing that reduces these unwanted characteristics.

The airflow between the mirror housing and the side window glass is likewise crucial for reducing turbulence and noise. Engineers designed this gap as an expanding V-shape, with the gap narrower at the front and wider at the rear. This helps the airflow decelerate as it flows across the glass, instead of accelerating as it would if the V-angle were to decrease. The result is smoother airflow and less mid- and high-frequency noise.

Paint

The paint on the Honda Legend uses an environmentally conscious water-based process. The painting procedure begins with an electrodeposition (ED) primer, which is electrically charged in the paint bath. After the ED primer is applied, it is cured at high temperature to improve corrosive durability.

Next comes a primer-surfacer (PS) that is hand sanded to ensure a smooth surface for better appearance. After a waterborne colour basecoat (BC) is applied, a pair of clear coats provide depth while helping to protect the base coat from air pollution, acid rain and fog.

There are eight exterior and three interior colours available.

Cargo Carrying Versatility

The Legend has a generously sized boot that is fully lined, with all wiring concealed and the rear parcel shelf speakers fully protected. The acoustic properties of the boot and the three rear deck speakers were engineered together to create the best possible sound performance out of the premium DVD-Audio system. To allow room for longer items, a lockable hatch is provided. A standard cargo net and a network of anchor points help keep cargo securely in position. The spare tyre is located under a folding cover in the boot floor.

The boot can be opened via a remote release mounted on the driver's door panel or via the concealed button on the bootlid. There is also an emergency opener inside the boot, near the latch. For security, the main switch is located in the glove box, which can be locked to prevent access by valets. A valet key is provided that will allow a parking attendant to operate the ignition, but will not to open the glove box, boot, or lockable boot hatch if it is locked by the driver.

Interior

The Legend interior is designed to integrate richly elegant luxury and cleanly efficient design, to create an environment in tune with the car's clearly defined sporting character. Careful integration of controls and functions ensure they add to the driver's comfort, control and understanding of the driving situation, and never detract from it. The finest interior materials and exacting attention to detail and finish highlight the quiet interior. Stylish and highly supportive perforated leather-trimmed seats are designed to provide a sporty, yet refined driving experience.

The Legend feature list includes a standard Bose speaker system that delivers surround sound in all seating positions

Interior at a Glance

- Luxurious cockpit designed for performance driving
- Perforated leather-trimmed seats with 2 memory settings for driver
- Genuine curly maple wood dashboard trim
- LED backlit gauges with progressive illumination
- Leather-wrapped 4-spoke steering wheel with illuminated fingertip controls and paddle shifters
- Electronic tilt and telescoping steering column with driver recognition
- Performance-oriented heated front seats
- Driver and front passenger 8-way power seat with power adjustable lumbar support
- Multi-information display allows access to multiple electronic functions and customisable feature settings
- Cruise control
- Premium 6-disc CD, with MP3 and WMA capability, DVD-Audio and AM/FM tuner.
- Active Noise Cancellation system (ANC)
- Power sunroof with tilt, auto-open/close, auto-reverse and key-off operation
- Power rear window shade screen

Styling & Materials

The quality of materials, fit and finish have received close attention to reflect the stature of the Legend. Genuine curly maple wood trim sweeps across the instrument panel. The large system display is positioned up high, in the centre of the instrument panel within easy line of sight of the driver and passenger. Below the screen, the satin metal finish of the climate, audio and navigation controls has a clean, technical look.

Driver-Oriented Cockpit

Honda interior design has always made intuitive functionality a priority. All important systems and controls are within easy reach of the driver. The systems used most frequently—audio and cruise control—have controls positioned on the steering wheel. The main instrumentation is easy-to-read analogue, supplemented with digital and graphic displays. Even though the Legend gives its driver access to many electronic features and conveniences, the interface is simple and welcoming. Sight lines are clear with important items placed within easy view.

Typical of Honda interior design, the soft-touch switchgear of the Legend is engineered to deliver a quality feel and positive action. Helpful features make driving easier, like power exterior mirrors that can be set to automatically tilt-down when reverse is engaged to make parking simpler.

Like the Accord Euro, the accelerator pedal is bottom-hinged to provide a linear feel and natural motion. A large footrest provides excellent support for the driver.

Leather-Wrapped Steering Wheel

The leather wrapped steering wheel incorporates the most commonly used controls, allowing the driver to keep their hands on the wheel while using them. Audio system controls are on the upper left spoke, while cruise control buttons are on the right upper spoke.

On the right between the spokes are controls for the Multi-information display. Tucked out of view, but within fingertip reach, is a pair of paddles that upshift and downshift the Sequential SportShift transmission when it's in manual mode.

Interface Dial

An Interface Dial positioned just ahead of the gear lever provides adjustment for a wide variety of functions including climate control, audio set-up, compass, calendar and calculator. The Interface Dial is rotated and rocked like a joystick to select the function menus displayed on the screen. A push of the controller selects the highlighted item

Seating

Given the performance capabilities and luxurious character of the Legend, its passenger seating required extensive engineering development. The front seats in particular had to blend long-trip comfort with the secure lateral support needed, given the cornering potential afforded by the SH-AWD system. As a result, the front

seats are taller and wider than in the past, which also allows them to accommodate a wide range of body types. The seat cushions use a special urethane with high damping coupled with a new wider "S" spring design for better support of the urethane padding. These features work together to reduce the amount of road and engine vibration transmitted to the passenger.

The driver's seat is 8-way power adjustable with 2 setting memory capability and includes a power-adjustable lumbar support mechanism. The smooth shape of the articulated lumbar mechanism matches the human spinal curvature to provide solid support for the torso and pelvis.

The front passenger seat is 8-way power adjustable with power adjustable lumbar support. In the rear seat area, the outer seating positions are carefully engineered - complete with side bolsters - to combine luxurious comfort on long trips with solid lateral support.

In front, 4-way headrests are adjustable for height and tilt. In back, all of the three headrests have a remote retractable feature that allows the driver to lower them with a touch of an overhead button for better rearward visibility when there are no rear-seat passengers. When carrying rear passengers, the headrests can be raised manually for use.

Trip Computer & Multi-Information Display

A highly functional instrument panel gives the Legend driver instant access to critical information. It also provides important vehicle information via an LCD Multi-information display positioned in the lower speedometer face. The Multi-Information display shows vehicle mileage and trip mileage. Positioned on the lower-right of the steering wheel boss, the control allows the driver to scroll through the multiple screens of information.

Trip computer functions include average and instantaneous fuel economy, distance to empty, average speed, and elapsed time. The system also can display outside air temperature and SH-AWD torque distribution and can be customised for alarm volume, memory position link – (seat, door & mirror), auto tilt & telescopic (linked to each key), interior light dimming time, headlight auto off timer, auto light sensitivity (headlights auto on function), keyless lock acknowledgement, security lock timer.

Instrument Lighting

The analogue instruments are LED backlit, with high-contrast markings and a subdued blue accent hue. The progressive self-illuminating gauge package gives the car a "welcoming" feel. When the door is first opened, the instrument lighting comes to life, and then brightens progressively to 100 percent when the ignition is switched on. The illuminated instrument needles and enunciator lights then come alive, indicating that the car is ready to go. At the end of the drive, the instrument lighting dims progressively.

All the interior switches are illuminated to make them easy to locate at night, including those on all four doors and the steering wheel. In addition to front and rear overhead interior lights and map lights, there is also a complement of low-level interior ambient cabin lighting. Blue front and rear low-level ambient lighting in the ceiling illuminates the front centre console and the rear flip-down armrest. The front foot wells also have low-level ambient lighting that brightens substantially when the doors are opened.

Front and rear interior door handle areas are also illuminated to make them easy to find, and the front door storage compartments, glove compartment and the front armrest compartment are all internally illuminated. All four doors have courtesy lights that are illuminated when the doors are open. The Legend interior lights feature "theatre dimming," which can be set by the driver to any of several rates via the Multi-information display. The boot has interior lighting, plus the boot lid has lighting that illuminates the bumper and sill area when the lid is opened.

Interior Convenience

The Legend interior offers plenty of storage and convenience features for driver and passengers. The front centre armrest has a dual lid, which allows the padded armrest to be used on one side, while the lid on the other side is opened. The armrest upper portion can be lifted up to allow access to a large lower storage compartment. The front double cup holder has an adjustable bottom tray that allows it to accommodate a wide range of container sizes.

Inside the glove box is a separate document box that allows the Owners Manual and important registration and insurance papers to be stored safely. This arrangement also frees up storage space in the main glove box compartment.

In the rear seating area, the rear folding armrest has a padded top. A pullout dual cup holder is built into the rear armrest.

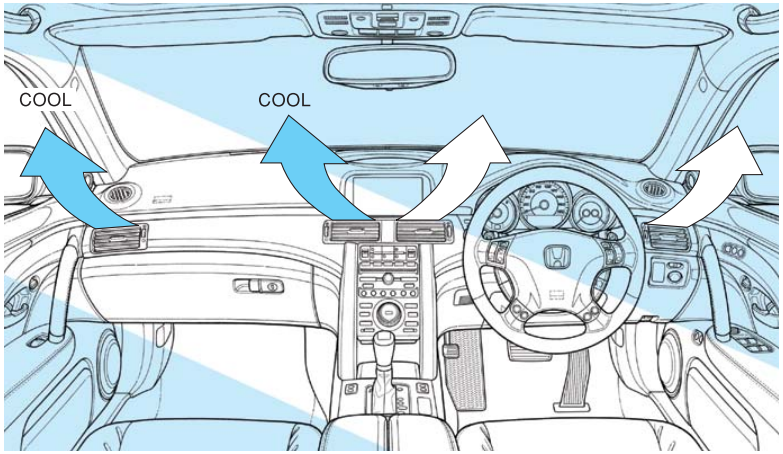
GPS-Linked, Solar-Sensing, Dual-Zone, Dual-Mode Automatic Climate Control System

The Legend has a GPS-linked, solar-sensing, dual-zone, dual-mode automatic climate control system that lets the driver and front passenger set temperature modes to their individual liking. A pair of large adjustable vents in the rear of the centre console keeps the rear seat area comfortable. Large, simple to use system controls are positioned within easy reach, just below the centre instrument panel vents. Settings can also be accessed through the Interface Dial. The climate control system's control logic is designed to provide smooth operation with subtle changes in airflow.

With its position-sensing ability, the system contributes to overall passenger comfort with 3D solar sensing. Based on its continuously updated vehicle position information, the navigation system determines the position of the sun relative to the driver and passenger. Combining this information with input from a solar sensor located on top of the instrument panel, the climate control system automatically adjusts the temperature and airflow from side to side as needed to compensate for asymmetrical solar heating.

System operation can be customised to suit the preferences of the driver and front seat passenger. Using the screen and the Interface Dial, the temperature of the air flowing through the upper vents can be fine-tuned relative to that of the air flowing from the foot well vents.

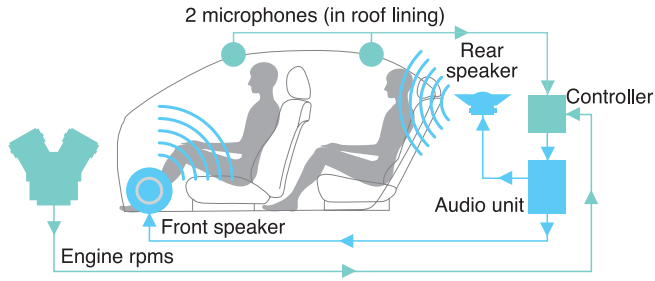
For greater passenger comfort on sunny days, the Legend has a power operated rear-window sunshade, plus manually operated sunshades for each rear side window.



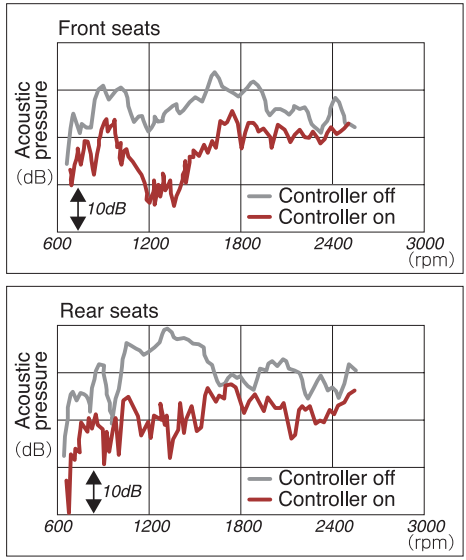
GPS-Regulated Daylight Control System

Active Noise Cancellation (ANC)

The 2007 Legend features Active Noise Cancellation (ANC), which is designed to dramatically reduce low frequency exhaust booming noise in the interior. The system operates whenever the car is running, regardless of whether the audio system is on or off. There are two microphones in the headliner, one just behind the front overhead console, and another just ahead of the overhead rear light module. The microphones capture low-end drivetrain frequencies entering the cabin, and send a signal to the Active Noise Cancellation unit. The control unit then creates a precisely timed reverse phase audio signal that is sent to an amplifier, which powers the door speakers and the subwoofer positioned on the rear deck. Since the system is designed to cancel low-frequency sound, it doesn't use any of the audio system's tweeters. The ANC dramatically reduces the booming sound of the exhaust, front and rear. In the frequency range below 100 hertz, ANC results in an impressive 10 dB reduction in noise level.



Active Noise Control



Premium Sound System with 6-Disc CD (with MP3 and WMA), DVD-Audio & AM/FM Tuner

The Legend comes standard with a DVD-Audio system that is engineered to advance the state of the art in production car audio. The ultra-sophisticated system gives the occupants a new level of audio enjoyment utilising the surround sound system.

The Legend's 6-disc in-dash changer can play DVD-Audio, CD, and MP3 media. DVD audio is the next step in audio reproduction technology. Many new releases are being issued in this new format, and many older recordings are being re-mastered and reissued to take advantage of the superior sound that DVD audio offers. With over 500 times higher resolution than CD audio, DVD audio delivers smoother, fuller and far more accurate sound. (The system will not play DVD movies, DVD-Video or DVD-R/RW.)

A total of 260 watts drives the 10-speaker system.

To improve sound quality when playing CDs, the system has Centrepoint logic, which creates simulated surround sound from the two channels of CD data. Another feature, Audiopilot, automatically adjusts the audio signal in response to exterior noises. Audiopilot monitors the sound in the Legend cabin using the same microphone used for the Active Noise Cancellation system (ANC), and then the system adjusts the audio system output to compensate. Centrepoint, Audiopilot, balance, fader and other functions can be accessed via the Interface Dial. Controls for key audio system functions are positioned on the steering wheel.

Overhead Console

The overhead console incorporates a variety of useful features including controls for interior lighting, power sunroof, power rear sunshade and power retracting rear head restraints.

Keys with Memory Function

The Honda Legend comes with two remote control keys. Each key has its own unique code allowing for individual preferences such as the driver's seat, steering wheel and mirror positions. Other preferences include turning entry lights on or off, audio pre-sets, climate control.

When ignition is switched off, the steering wheel retracts to the dash panel for easier access to the car.

Safety Overview

The new Honda Legend features many active and passive safety systems, including a full complement of dual-stage front, side and side curtain airbags, as well as Vehicle Stability Assist (VSA). The Legend, (or Acura RL in the USA) has earned a 5-star rating for frontal and side crash tests for all seating positions and a 5-star rollover resistance rating from the U.S. Department of Transportation's Highway Traffic Safety Administration (NHTSA) and is only the fourth vehicle in the history of the program to earn the top rating of "five stars" in all three categories.

European NCAP testing also gave the Legend a 5-star crash rating and a 3-star pedestrian rating.

To complement the high performance of the Legend, it has a highly rigid body structure which utilises Honda's Advanced Compatibility Engineering (ACE) principles. The ACE structure helps to disperse collision forces over a larger frontal area for greater protection for vehicle occupants while at the same time increasing compatibility with other vehicles in a frontal collision.

Safety Features Overview

Standard passive safety features on the Legend include:

- Driver's and front passenger's dual-stage, dual-threshold airbag Supplementary Restraint System (i-SRS)
- Driver's and front passenger's side airbags with front passenger Occupant Position Detection System (OPDS)
- Full-length side curtain airbag system for both front and rear occupants.
- 3-point adjustable height front seat belts with load limiters and pretensioners
- Front seat belt load limiters
- Front 4-way adjustable head restraints
- Driver's seat position sensor
- 3-point seat belts at all seating positions, including rear centre seat
- 3 x child seat anchor points
- Seamless airbag lid for the passenger airbag
- Advanced Compatibility Engineering (ACE) body structure
- Side impact door beams
- Impact-absorbing crumple zones (front/rear)
- Tilt & height adjustable front head rests

Driver's & Front Passenger's Dual-Stage, Dual-Threshold Airbag Supplementary Restraint System (i-SRS)

Dual-stage airbags for the driver and front passenger are designed to provide protection for the head and chest during a moderate to severe front collision, while simultaneously helping to reduce injuries. They do both through the use of a dual-stage, dual-threshold airbag technology. Each airbag inflator has two stages. During a severe collision both stages fire at the same time to provide immediate inflation of the airbag. But during a moderate collision the igniters fire in sequence, slowing the deployment rate of the airbags.

Besides the severity of the collision, the modules interpret a signal from the seat belt buckle switch that indicates whether the occupants are wearing their seat belts.

- If the front passengers are not wearing their seat belts, the inflators will activate simultaneously to make the airbag deploy more quickly.
- If the front passengers are wearing their seat belts, the airbags will inflate at a slightly higher threshold.

Airbag Operation

Driver's & Front Passenger's Side Airbags with Front Passenger Occupant Position Detection System (OPDS)

Large side airbags are mounted in the outboard area of each front seatback. They are designed to provide upper torso protection in the event of a sufficient side

impact. Introduced on the MDX in 2003, the Legend's front passenger seat is equipped with Occupant Position Detection System (OPDS), an innovative system designed to deactivate the side air bag if a small child (or small-stature adult) leans into the side air bag deployment path. When the passenger returns to an upright seating position, the side air bag reactivates so it can deploy and help protect the occupant in a side impact. The system utilises sensors in the passenger seatback to determine the height and position of the occupant, and determine if it is safe to deploy the side air bag.

Side Curtain Airbags

In a sufficient side impact, the full-length side curtain airbags in the Legend deploy from roof modules, providing head protection for front-seat as well as outboard rear-seat occupants in outboard positions. Side curtain airbags cover the window area from the A-pillar to the C-pillar. Tests show that the g forces acting upon an occupant's head are far lower with a side curtain airbag.

Anti-Lock Brakes with Electronic Brake force Distribution

The Legend features Electronic Brake force Distribution (EBD), which automatically adjusts the front/rear brake pressure to suit conditions, while the 4-channel anti-lock braking system (ABS) helps the driver retain directional control in hard braking situations.

Brake Assist

Debuting on the Legend, Honda's Brake Assist is a new technology that helps the driver apply full braking pressure in an accident avoidance situation. To do so, a microprocessor continually analyses and "learns" the driver's normal braking habits - monitoring both the rate of pressure applied and the total pressure that the driver normally applies to the brake system.

If sudden braking occurs, Brake Assist brings the system to full ABS activation to help stop the vehicle in the shortest distance possible and is only activated when the microprocessor detects that certain brake pedal speed and pressure thresholds are reached.

Importantly, Brake Assist assists the driver in obtaining full braking performance in an emergency. The Brake Assist system deactivates when the driver releases pressure on the brake pedal.

Pedestrian Safety - Pop-up Bonnet System

The Legend debuts Honda's Pedestrian Protection Pop-up Bonnet System, which aims to increase safety for those outside the car.

If the car is involved in an accident with a pedestrian, an accelerometer in the front bumper, and a wheel speed sensor both feed information to the engine's ECU which then triggers a pyrotechnic actuator under the bonnet. A plunger then lifts the bonnet by 100mm which creates clearance between the metalwork and the unyielding engine bay, to help reduce pedestrian head injuries.

Honda UK estimates that the Pop-up Bonnet System could reduce pedestrian casualties by around 10 per cent, with the number of seriously injured cut by around 5 per cent.

Crash Testing

The Legend (badged as an Acura RL in the USA), received the highest ratings given (5-Stars) by NHTSA in frontal and side impact testing as well as rollover resistance.

- In the 35 mph NHTSA New Car Assessment Program (NCAP) full frontal barrier test, the Legend earned 5-Stars, the highest rating for both driver and front passenger
- In the 38 mph US NCAP side test, the Legend earned 5-Stars, the highest rating for both front and rear outboard passenger NCAP testing

Rear View Camera

Parking is made all the safer thanks to the rear view camera whose image is displayed on the centrally mounted dash panel screen. The camera is automatically activated when reverse gear is selected.

Active Front Lighting System

The Legend features Active Front Lighting System (AFS), a first for Honda. It also has Xenon High-Intensity Discharge (HID) headlights and 55-watt fog lights.

In the Active Front Lighting System, the left low-beam unit can swivel left, and the right low beam can swivel right, to improve illumination while cornering, or to illuminate around the corner of an intersection. This provides the driver with advance warning if a pedestrian, object or animal is in the way. Each light can swivel up to 20 degrees outboard, with the amount determined based on the vehicle speed and steering input.

The AFS system uses the following components:

- Steering angle sensor
- Vehicle speed sensor
- Reverse switch (cancels AFS when car is backing up)
- Control switch (turns off AFS at driver's discretion)
- Instrument panel warning light (illuminates when AFS is turned off)
- Control unit swivels the headlight low beam projector unit via a gearbox and step motor

AFS swivels either the left or right headlight (not both together) when the following conditions are met:

- Steering angle is over 12 degrees
- Vehicle speed is 5 mph or higher (left-hand turns only)
- Left-hand headlight will swivel even if vehicle is stopped
- Swivel cancels when speed drops to 5 km/h (left-hand turns only)

Xenon High-Intensity Discharge (HID) Headlights

Traditional headlight bulbs illuminate a tungsten filament inside a sealed bulb containing halogen gas. Xenon HID low-beam bulbs, however, use a high voltage current that passes between two electrodes to create a plasma arc. This accounts for their brightness and "daylight-like" illumination.

They are also superior to tungsten-halogen bulbs in lumens, or lighting power. The Xenon HID bulbs provide a lighting pattern that is both longer and wider illumination spread to that of traditional non-Xenon bulbs. The low beams on the Legend have a brightness of 825 lumens. For the driver, these advances mean greater illumination for enhanced safety.

The Legend Xenon HID low-beam headlight bulbs have a projected life span of 1,500 hours compared to 1,000 hours for a normal bulb.

LED Lighting

The Legend also features advanced Light Emitting Diode (LED) lighting systems. These include LED mirror integrated turn indicators alert motorists to any lane or directional changes.

Each taillight/brake light assembly is made up of 28 LEDs. The taillights use 14 LEDs, arranged as the perimeter of a circle, and the brake lights use an

additional 14 LEDs. When the brakes are applied, all 28 LEDs light up, illuminating the entire area.

The high-mounted stop light also uses LEDs. The projected service life of the LEDs is 2,000 hours.