2005 Acura RL : Model Overview

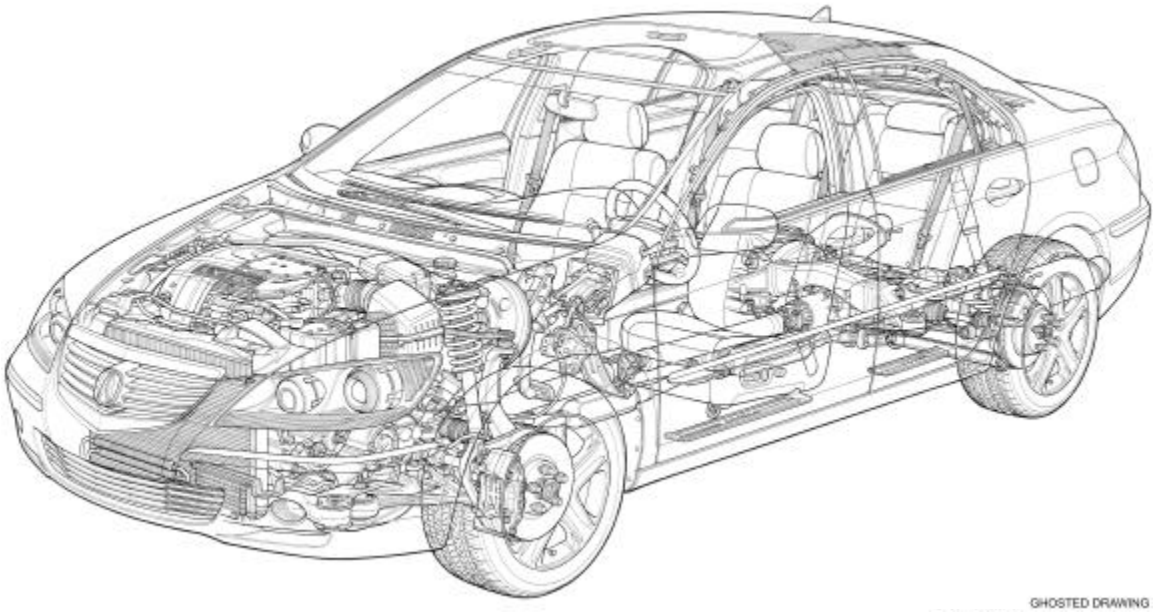
INTRODUCTION

The 2005 Acura RL combines performance, technology and luxury in an athletic new package that pushes the boundaries on multiple fronts. True to form for Acura, the many advanced systems of the RL are engineered to function smoothly, efficiently and intuitively. Similarly, the RL upholds another basic Acura tenet: comprehensive standard equipment. In the case of the RL, *everything* is standard including the Acura Navigation System with Bilingual Voice Recognition. There are no factory options. The only available RL options are select dealer-installed accessories.

In creating this new luxury vehicle, Acura designers completely redefined the RL concept to reposition it at the leading edge of its category. Its new shape is more taut and athletic, and its acceleration and cornering performance is dramatically improved to challenge the most capable high-end luxury sport sedans. Comfort, quietness, and ride quality are also substantially improved. The 2005 RL serves notice that Acura has upped the ante in the High Luxury category.

The innovation built into the RL begins with the most powerful engine ever offered in a production Acura. The new 3.5-litre VTEC™ V-6 engine delivers 300 horsepower (a remarkable 33-percent increase compared to its predecessor) and torque has risen to 260 lb.-ft. (a 12-percent increase). In spite of developing more power from the same displacement, the new RL engine meets much tougher emission standards and delivers comparable fuel economy compared to its predecessor.

A new 5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control sends power to the standard Super-Handling All-Wheel-Drive™ (SH-AWD™) system, which dramatically elevates cornering capability. This innovative full-time system, precisely distributes power front-to-rear and side-to-side at 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 aggressive cornering to help the car turn more effectively under power. This lessens the cornering load on the front tires to reduce understeer and improve handling balance and total cornering grip.



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

platform. Optimized independent front double-wishbone and independent multi-link rear suspension geometry, larger brakes and aggressive new 17-inch aluminum-alloy wheels and tires work together to further enhance the reflexes of the RL.

The elegantly styled interior includes perforated leather-trimmed seats, fine wood accents and high-quality materials. These are complimented by the most advanced electronics available, including the Acura Navigation System with Bilingual Voice Recognition™, Active Noise Cancellation™ (ANC™) system, and a spectacular-sounding Acura/Bose® 10-speaker Surround Sound System with 6-disc CD, DVD-Audio and DTS® changer and AM/FM tuner. Safety is also enhanced with a Tire Pressure Monitoring System (TPMS) as well as with side curtain airbags.

These, and many more advances, are combined in the all-new 2005 Acura RL to produce the strongest, most powerful, best handling and most luxurious sedan Acura has ever built.

Powertrain features

- Super-Handling All-Wheel-Drive™ (SH-AWD™)
- 5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control
- 3.5-litre VTEC™ V-6 engine
- 300 horsepower @ 6200 rpm
- 260 lb.-ft. of torque @ 5000 rpm
- VTEC™ (Variable Valve Timing and Lift Electronic Control™) valvetrain
- Drive-by-wire throttle system
- Variable flow exhaust system
- 11.0:1 compression ratio
- High inertia intake manifold
- Direct ignition system and detonation/knock control
- Computer-controlled Programmed Fuel Injection (PGM-FI)
- Meets U.S. CARB LEV-2 ULEV standard, which cuts NOx by 77% compared to LEV-I LEV of previous 3.5 RL
- 160,000-kilometre tune-up

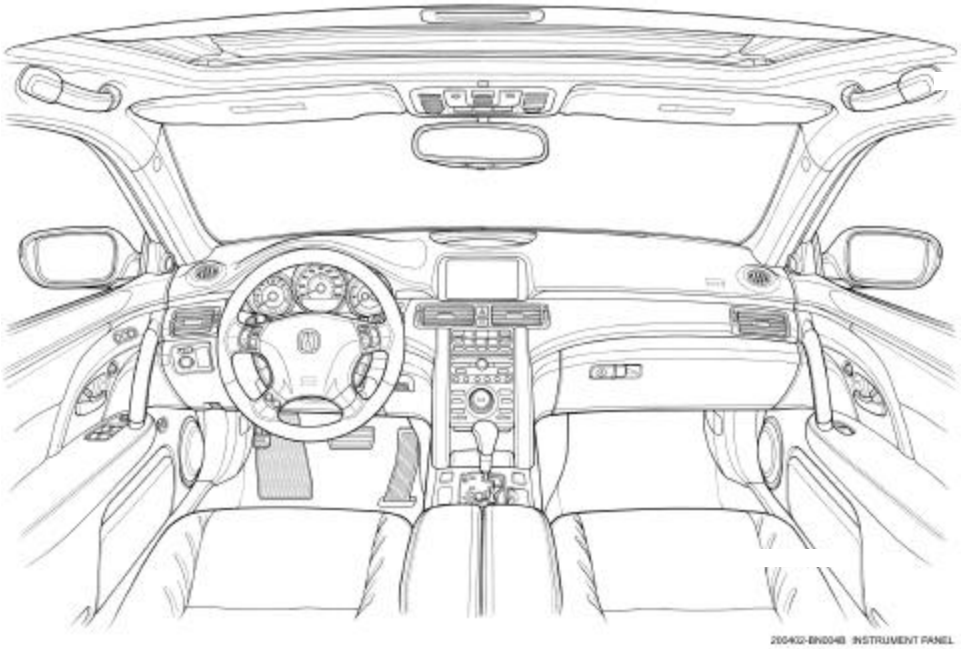
Body & CHASSIS features

- Unit body with extensive use of high-tensile steel and aluminum
- Lightweight aluminum front and rear subframes
- Xenon High-Intensity Discharge (HID) headlights with Active Front Lighting System (AFS)
- Power moonroof with tilt, auto-open/close, auto-reverse and key-off operation
- Heated outside mirrors with driver recognition, reverse gear tilt-down and integrated directional signals
- Independent double-wishbone front suspension
- Independent multi-link rear suspension
- Electronically controlled, speed-sensing, power assist rack-and-pinion steering
- 17 x 8J-inch aluminum-alloy wheels
- P245/50R17 98V high performance, all season tires
- 4-wheel anti-lock braking system (ABS) with Electronic Brake Distribution (EBD) and brake assist
- Vehicle Stability Assist (VSA®) with traction control
- LED backlit gauges with progressive illumination
- Headlight Washers (Canada only)

Comfort and Convenience Features

- Leather-wrapped steering wheel
- Sequential SportShift and paddle shifters
- Electronic tilt and telescoping steering column with driver recognition
- Driver's 8-way power seat with 2-way power adjustable lumbar support
- Front passenger's 4-way power seat with 2-way power adjustable lumbar support
- GPS-linked, solar-sensing, dual-zone, dual-mode automatic climate control system

- Acura/Bose® 10-speaker Surround Sound System with 6-disc CD, DVD-Audio and DTS® changer and AM/FM tuner.
- Active Noise Cancellation™ (ANC™) system
- Acura Navigation System with Bilingual Voice Recognition
- Interface Dial
- Multi-information display
- HandsFreeLink™ Bilingual wireless telephone interface compatible with Bluetooth mobile phones
- Keyless Access System
- Tire Pressure Monitoring System (TPMS) with location and pressure indicators
- Remote retractable rear headrests
- Power rear sunshade
- Rear side sunshades
- Ventilated seats with heating and cooling (Canada only)



SAFETY features

- Advanced Compatibility Engineering™ (ACE™) body structure
- Side impact door beams
- Impact-absorbing crumple zones (front/rear)
- 3-point adjustable height seat belts with load limiters and front pretensioners
- 3-point seat belts at all seating positions
- Automatic Locking Retractor/Emergency Locking Retractors (ALR/ELR)
- Front head restraints adjustable for height and tilt
- Rear adjustable head restraints
- LATCH (Lower Anchors and Tethers for Children) child-seat mounting system
- Driver's and front passenger's dual-stage, dual-threshold airbag Supplementary Restraint System (SRS)
- Driver's and front passenger's side airbags with front passenger Occupant Position Detection System (OPDS)
- Side Curtain Airbags for front and rear outboard seats.

Powertrain
Powering the RL is a compact new aluminum-alloy 3.5-litre SOHC VTEC™ V-6 engine that is mounted transversely rather than longitudinally as in the previous 2004 3.5 RL. Significantly lighter, narrower, and shorter, the new engine is also substantially more powerful, producing 300 hp and 260 lb.-ft. of torque compared to 225 hp and 231 lb.-ft. of torque in the previous 3.5 RL.

The new engine is also cleaner, meeting stringent CARB LEV-2 ULEV emissions targets, which are significantly cleaner than the LEV standards of the previous 3.5 RL. Preliminary fuel economy figures are 13.1 City and 9.4 Highway (L/100 km).

The RL comes standard with a 5-speed automatic with Sequential SportShift, paddle shifters, and Grade Logic Control. Gears may also be shifted manually via a new multi-gate shifter located on the centre console.

The defining powertrain feature of the 2005 RL is Super-Handling All-Wheel-Drive (SH-AWD). The system continuously varies the torque split between the front and rear wheels, and left and right rear wheels. To help the RL arc through corners with better chassis balance and more total grip, SH-AWD *overdrives* the outside rear wheel at a faster speed, using engine torque to help the car rotate into the turn.

Body and Chassis
The RL body is taller, wider, but shorter overall. These dimensions contribute to a more muscular appearance and a more aggressive dynamic personality.

The new unit-body structure is stiffer for improved handling precision and utilizes a variety of steel grades in different areas where maximum strength is required. In addition, the hood, front fenders, trunk lid, front and rear subframes, as well as the bumper beams are manufactured from aluminum to reduce weight. Some of these components are formed using an advanced "blow forming" process that allows intricate shapes to be created without increasing the weight of the part.

Careful attention was paid to smoothing airflow over, under and around the body, across the flush side glass and across the windshield wipers. A cowl garnish was installed at the lower part of the windshield to reduce air turbulence, while an advanced exterior-mirror design also contributes to improved quietness inside the car.

Exterior lighting is upgraded with the Active Front Lighting System (AFS). To help the driver see around corners or intersections, the left or right low beam headlight can swivel automatically up to 20 degrees outboard when certain steering angle and speed conditions are met. Xenon HID low-beam headlights, LED mirror integrated directional signals in the exterior mirror housings and Centre High-Mounted Stop Lamp dramatically brighten visibility. In addition, exclusive to Canada, are Headlight Washers. With the headlights on, the headlight washers pop out of the bumper and release 70ml of washer fluid and then retract back into the bumper, all in less than one second. This helps to eliminate any residue from building up on the headlight, allowing for safer nighttime illumination.

The independent front double-wishbone and independent multi-link rear suspension use aluminum arms and mount on aluminum subframes. Vehicle Stability Assist (VSA®) with traction control, large 4-wheel disc brakes with ABS and larger 17-inch aluminum-alloy wheels and tires set new standards for RL dynamic performance.

Interior
The interior of the 2005 Acura RL is fully equipped with comfort and convenience. There are new perforated leather-upholstered seats with ventilation. These exclusive to Canada seats both heat and cool to make the interior environment more comfortable. Both the driver and passenger can choose up to three heating and three cooling settings individually. Other interior features include a GPS-linked, solar-sensing, dual-zone, dual-mode automatic climate

control system and an Acura/Bose DVD-A system with 500 times the clarity of a typical CD system and MP3 capability.

Premium features continue with a new Active Noise Cancellation™ system (ANC) that neutralizes low-frequency booming sounds in the interior, and HandsFreeLink™, a Bilingual hands-free phone interface that is compatible with many Bluetooth phones for a seamless cellular communication experience—in the car or away from it. Other technologies include a Multi-information display, a Tire Pressure Monitoring System (TPMS) with location and pressure indicators, and a maintenance reminder.

Safety
With the RL, Acura embraces active as well as passive safety as essential and equal goals. Active safety features that help a driver avoid an accident include SH-AWD, Vehicle Stability Assist (VSA®) with traction control, and 4-wheel ventilated disc brakes. ABS and Brake Assist also help contribute to greater driver control. HID Xenon plasma-arc low-beam headlights and Active Front Lighting System (AFS) contribute to superior nighttime visibility.

The 2005 RL is the first Acura to feature the Advanced Compatibility Engineering™ (ACE™) body structure. It is designed to help dissipate collision forces, while enhancing crash protection for occupants and passengers in other vehicles. Excellent test results are anticipated for the U.S. government New Car Assessment Program (NCAP) collision tests and Insurance Institute for Highway Safety (IIHS) tests.

The RL features Dual-stage Front Airbags and Side Airbags. In addition, Side Curtain Airbags that provide head protection for all outboard seating positions are also standard equipment. The RL has seat sensors that monitor the weight on the front passenger's seat. These automatically turn off the passenger's front airbag if they detect an infant or small child may be in the seat.

2005 Acura RL : Body

BODY DESIGN & STRUCTURE
The 2005 Acura RL combines its dynamic new exterior and interior design with advanced body and chassis engineering. The result is distinctive and appealing styling, together with super maneuverability on the road. To ensure that the RL has exceptional dynamic capabilities and driving quality, it is outfitted with a lightweight and highly rigid body structure that makes extensive use of both high-tensile steel and aluminum components, and features 4-wheel independent suspension.

DESIGN CONCEPT
The 2004 3.5 RL exemplified refined luxury. When Acura designers began work on the 2005 RL that would replace it, they wanted to go further, with a taut and athletic shape that conveyed the new performance capabilities of the car without sacrificing the comfort and capability the previous model had achieved.

To create an exhilarating, athletic sedan, the designers targeted higher dynamic performance, superb maneuverability, distinctively appealing styling, and a high level of active safety. The result is a luxury performance sedan that is primed to compete with the Audi A6, BMW 5 Series, Mercedes-Benz E Class and others.

Design Image

Acura designers set out to create the RL with a more pronounced sporting edge than in the past. To help craft his image, styling cues included the following:

- Taut, athletic body design with European influence
- Aerodynamic lines with low drag and high stability
- Low hood line for increased forward visibility and reduced aerodynamic drag
- Flush side glass for reduced wind noise

- Short tail for reduced aerodynamic drag and improved maneuverability

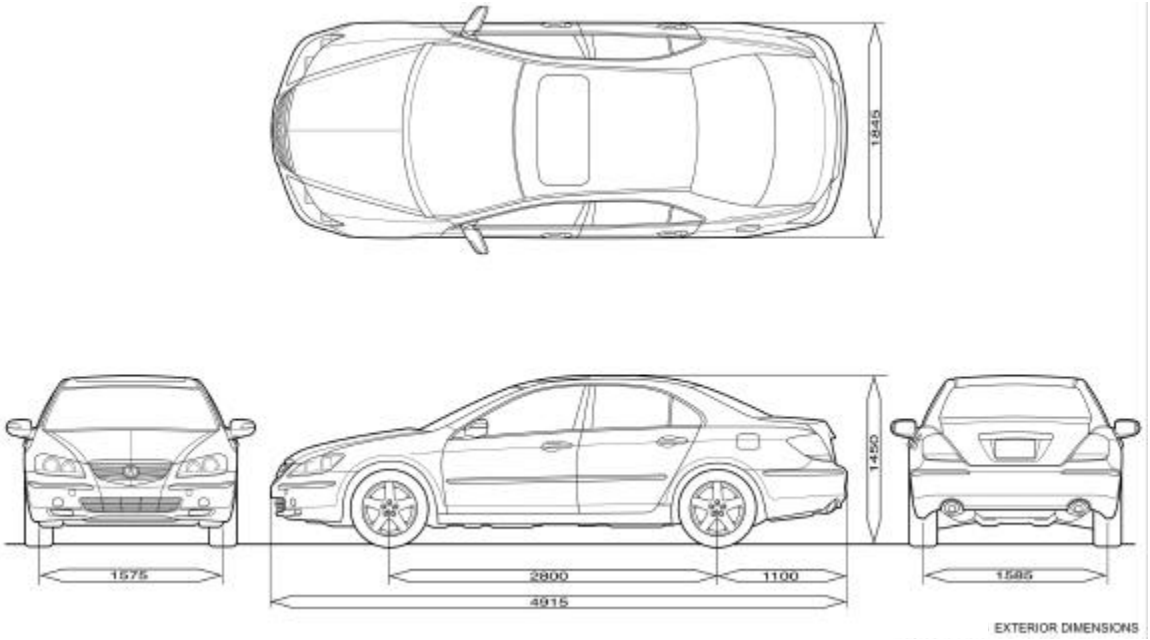
Aero Sculpture

The aerodynamic properties of the new RL complement the styling, safety, dynamic performance, stability, human factors and other considerations. To achieve this high-performance exterior, the RL designers created a strong wedge shape that begins its "momentum" with the hood, continues it with a forward-mounted windshield, and finishes with a short rear overhang. Aerodynamic cabin has flush side glass for reduced drag and wind noise. Along with outstanding aero performance, it is designed to look like it moves fast.

Packaging

The packaging goal for the 2005 Acura RL was to create a shorter body with short reduced overhangs and wider interior dimensions for enhanced comfort and convenience. In comparison to the 2004 3.5 RL, the RL body is 76 mm shorter with a wheelbase more than 102mm shorter. The body is also 25mm wider and 15mm taller. The result is enhanced handling capability and maneuverability, and significantly greater interior room, up 82 litres.

Controlling the weight of the RL was important to ensure maximum acceleration, road holding and braking performance. The use of lightweight materials and weight-saving design resulted in a weight gain of only 42kg over the previous 3.5 RL, to 1,808kg. This modest gain is remarkable, given the dramatically higher vehicle content level, which includes the standard SH-AWD system, side curtain airbags and many other features.



The 2005 Acura RL compares favorably to its competitors in its class in overall packaging and curb weight. Even though it is equipped with all-wheel drive, its weight is comparable to that of rear-wheel drive competitors and significantly below key competitors with all-wheel drive.

Compared to other vehicles in the RL competitive set, including the Audi A6, BMW 5-Series, Jaguar S-Type, Lexus GS 300 and Mercedes-Benz E Class, the RL is the only vehicle with a standard AWD system, and the only one to offer SH-AWD. The RL is also longer and wider, with significantly wider front and rear track, than its competitors.

In the chart below, boldface type highlights 2005 Acura RL packaging advantages.

	2005 Acura RL	2004 Audi A6 3.0 Quattro	2004 BMW 530i with A/T	2005 Jaguar S-Type 3.0-Litre	2004 Lexus GS 300 Sedan	2005 Mercedes-Benz E320
Drive system	SH-AWD	FWD	RWD	RWD	RWD	RWD
AWD system	Std.	NA	NA	NA	NA	Opt.
Length, mm.	4917	4877	4841	4902	4806	4818
Width, mm.	1844	1811	1847	1819	1801	1811
Height, mm.	1450	1453	1473	1422	1420	1453
Wheelbase, mm.	2799	2761	2888	2908	2799	2855
Track, Front/Rear, mm.	1575 / 1585	1539 / 1569	1557 / 1582	1534 / 1542	1534 / 1509	1560 / 1552
Curb weight, kg.	1815	1760	1580	1711	1655	1674
Weight distribution, %, F/R	58/42	61/39	50/50	NA	53/47	51/49

BODY STRUCTURE
Light Weight

Producing a lightweight and rigid unit body was essential to meet engineering goals for the new RL as a premium luxury sport sedan. This is because light weight improves every aspect of dynamic performance and fuel economy, and a rigid structureimproves ride and handling.

Specific RL strategies that were employed to reduce body mass include:
- Aluminum hood, fenders and trunk lid
- Aluminum front and rear subframes, suspension arms and bumper beams
- Magnesium cylinder head covers and seat frames
- Carbon fibre reinforced composite drive shaft

Structural Solidity

The 2005 Acura RL was also designed with the goal of creating the world's safest automobile body. It was engineered to comply with the latest US FMVSSoccupant crash protection standard and FMVSS301 fuel system integrity standard. One of the most difficult test modes to achieve is the side collision that models the impact of a RL being struck from the side by an SUV or a pickup.

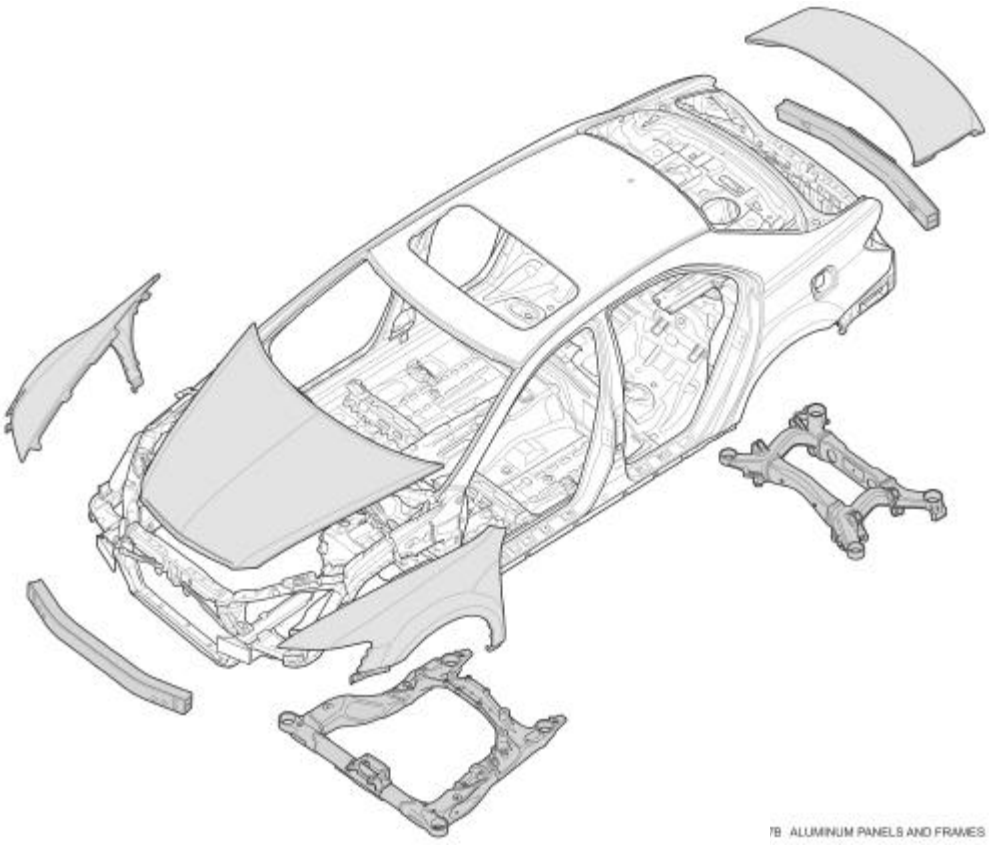
To meet these important benchmarks, engineers increased the side section of the frame to comply with new collision regulations (see Safety section for more information). They also chose different material specifications to provide the desired level of stiffness and strength for critical areas, without adding unnecessary weight.
- The use of aluminum for the front and rear bumper beams, hood, trunk lid and front fenders saves 18kg compared to steel
- Extremely strong Grade 80 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

- Strong high tension Grade 45 steel is used on the front shock mounts, areas of the front passenger-compartment bulkhead, areas of the front subframe mounts, and rear structure
- The rest of the body is constructed with Grade 60 steel

The overall result is that bending and twisting rigidity for the unit body is superior to that of the 2004 3.5 RL. The 2005 RL also has enhanced crashworthiness with no additional weight penalty.

Aluminum Components

The lightweight aluminum hood, front fenders and trunk 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 aluminum panels are placed in a heated mold and warmed to 500 degrees. Then they are forced into the mold with a high-pressure gas. The result is perfectly formed complex shapes that are not possible with traditional stamping methods.



For rigidity, the trunk lid is composed of an inner structural panel and an outer body panel. This 2-piece aluminum structure is crimped together with a self-piercing rivet that 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 to improve for side-impact safety in both the front and rear doors.

There is no mistaking the quality sound that a well-engineered door makes as it is closed. By positioning the door's centre of gravity (the height at which its weight is centreed) 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.

Trunk opening

The trunk opening is reinforced to retain rigidity while providing a large, low opening for easier loading. Inside, the opening is finished to hide the hinges and to cover the rain gutters (see Interior section for more information).

Windshield Wipers

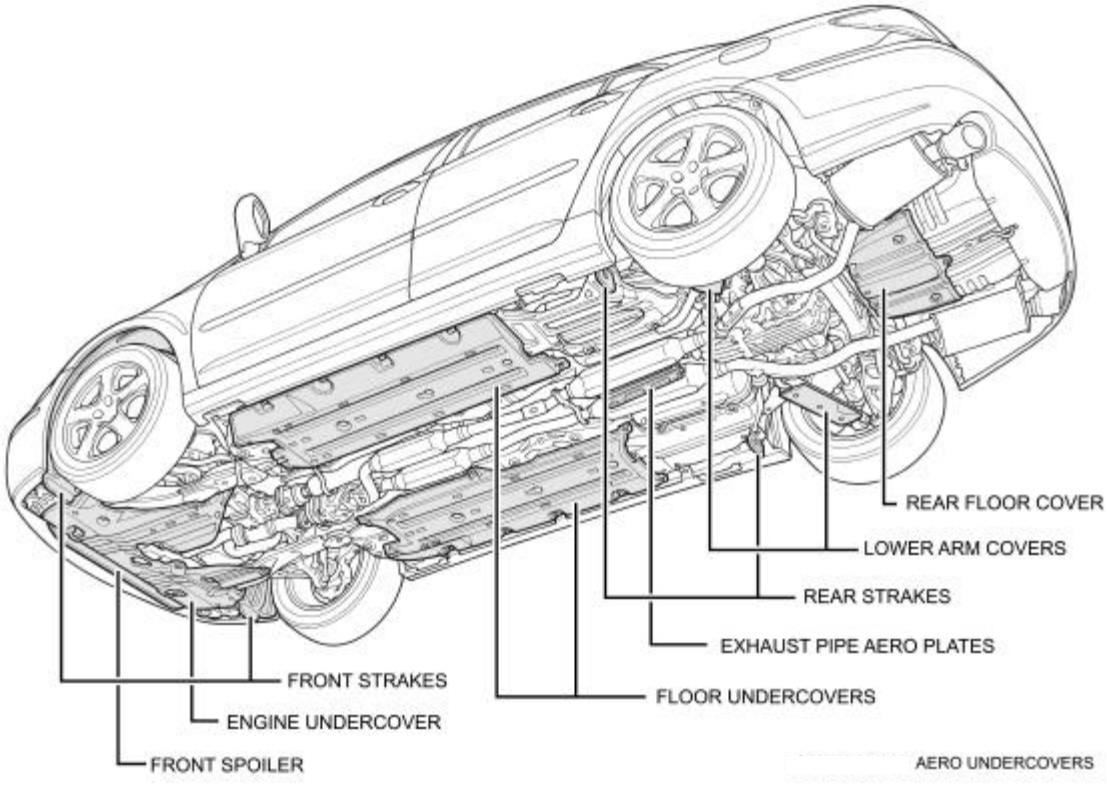
To decrease wind noise levels and improve appearance, the RL incorporates hidden pivots and wiper arms for its speed-sensing, variable-intermittent windshield wipers. The pivots are hidden underneath the trailing edge of the hood line to reduce noise levels and enhance appearance.

The use of a hidden windshield wiper pivot is a world's first. The hidden pivot improves aerodynamic efficiency and reduces visual distraction when the wiper reverses direction. A new cowl garnish 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. Hiding the pivot increases the passenger's forward visibility. However, the wiper arms do have a slide up mechanism in order to pull the wiper arms off the windshield for easy snow removal.

Aerodynamics

The low aerodynamic drag on the 2005 Acura RL pays dividends in the form of lower wind noise, improved fuel economy, performance and 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 differentials' cooling and result in rear lift force reduction.



ACTIVE FRONT LIGHTING SYSTEM

The RL features the first Active Front Lighting System (AFS) for an Acura product. It also has Xenon High-Intensity Discharge (HID) headlights, 55-watt fog lights, and daytime running lights. All are standard equipment.

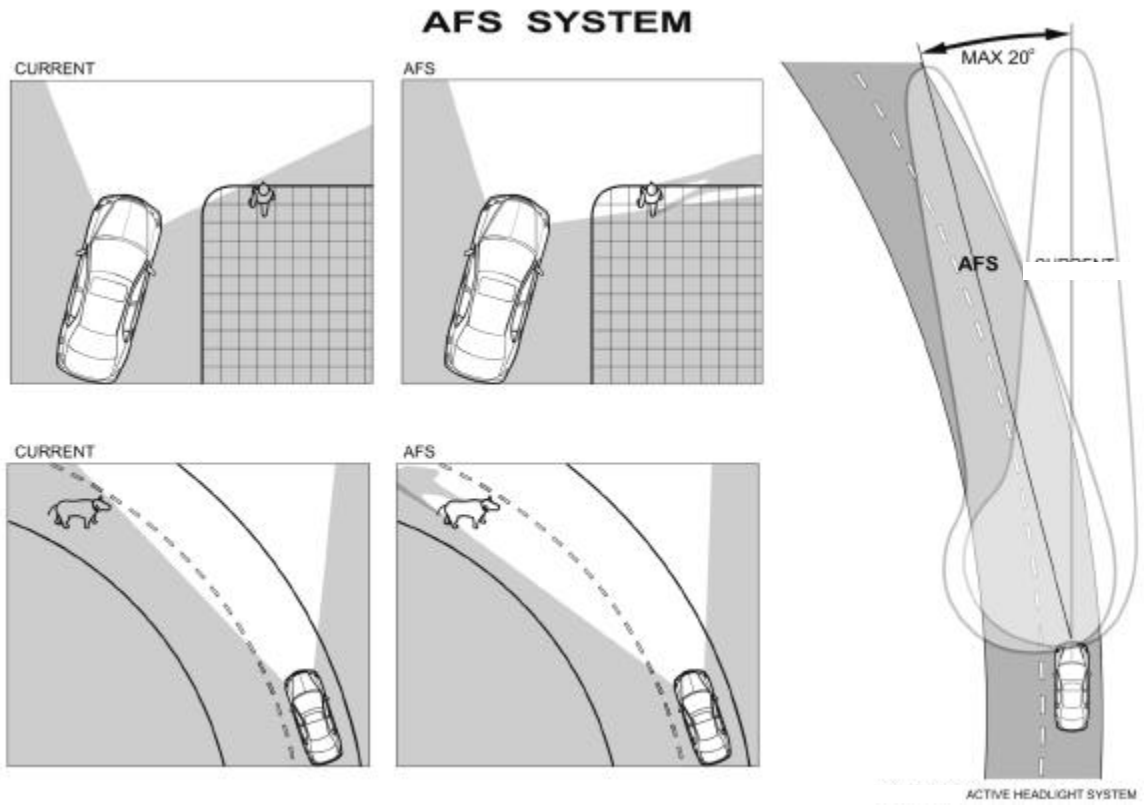
In the Active Front Lighting System, the left low-beam unit can swivel left, and the right low beam can swivel right, to improve illumination while cornering, or to illuminate around the corner of an intersection. This allows the driver advance warning if a pedestrian, object or animal is in the way.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

The 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 8 km/h (5 mph) or higher (left-hand turns only)
- Right-hand headlight will swivel even if vehicle is stopped
- Swivel cancels when speed drops to 5 km/h (3 mph) (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 on the RL provide a lighting pattern that is both longer and wider than that of the 2004 3.5 RL. In addition, the tungsten-halogen high beams provide a wider illumination spread than before. The low beams on the 2005 RL have a brightness of 825 lumens, compared to 692 lumens for the previous generation RL. For the driver, these advances mean even better illumination for enhanced confidence and safety.

The RL 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 RL also features advanced Light Emitting Diode (LED) lighting systems. These include LED mirror integrated directional signals, each of which features bright LEDs to alert motorists who are alongside when the RL driver is planning to change lanes or make a turn.

Each taillight/brake light assembly has an array 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 centre high-mounted stop lamp (CHMSL) also uses LEDs. The projected service life of the RL LEDs is 2,000 hours.

Daytime Running Lights

Note: The RL features DRLs, mandatory in Canada, and offered for the first time in an Acura in the U.S.

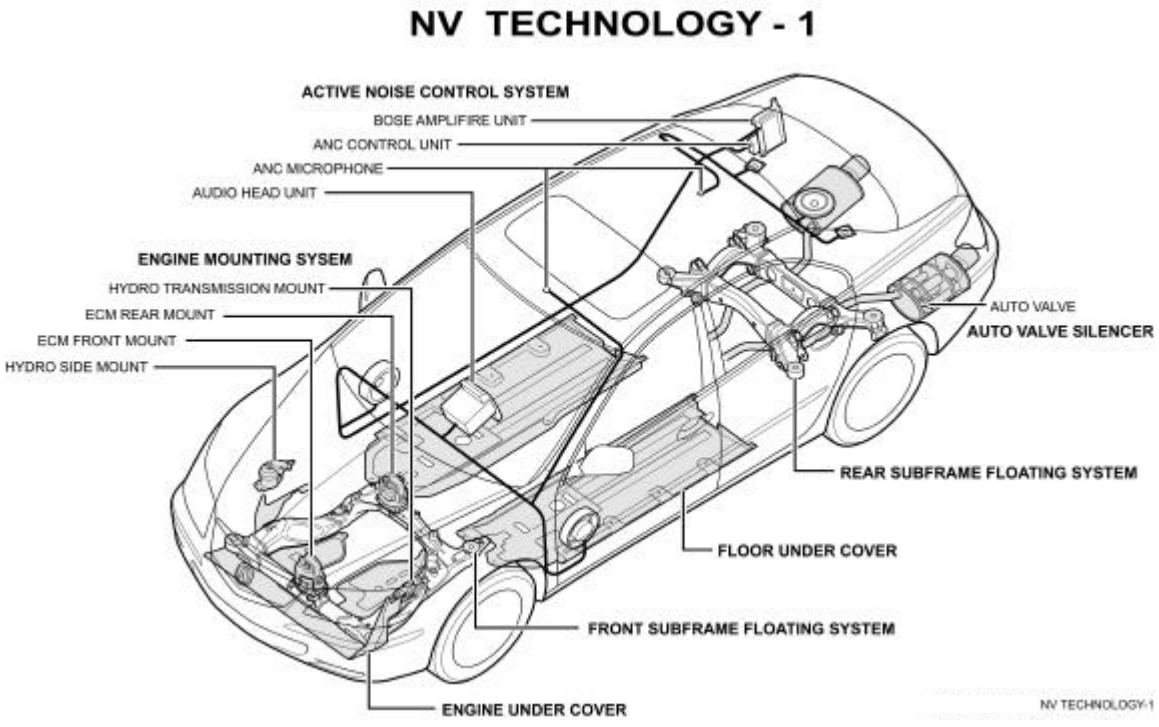
NVH COUNTERMEASURES

The elimination of undesirable noise, vibration and harshness (NVH) in the 2005 Acura RL 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.

Acura wanted to provide RL clients with 300 hp, all-wheel drive and large-diameter high-performance tires for advanced handling characteristics. At the same time, they wanted the car to remain refined and nearly silent for highway cruising and have a stirring 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 RL is dramatically quieter than the 2004 3.5 RL in terms of high frequency and middle-frequency noise attenuation. Acura's internal testing also shows that it is significantly quieter than the Audi A6 and Mercedes-Benz E320. Road noise attenuation is also significantly improved over both smooth and rough roads.

As part of the mission to control weight in the new RL, Acura used lightweight materials wherever possible in the sound-absorbing package, including lightweight sound insulators instead of traditional heavier materials. In addition, the RL represents Acura's first use of an Active Noise Cancellation™ (ANC) system. (See Interior section for more information.)



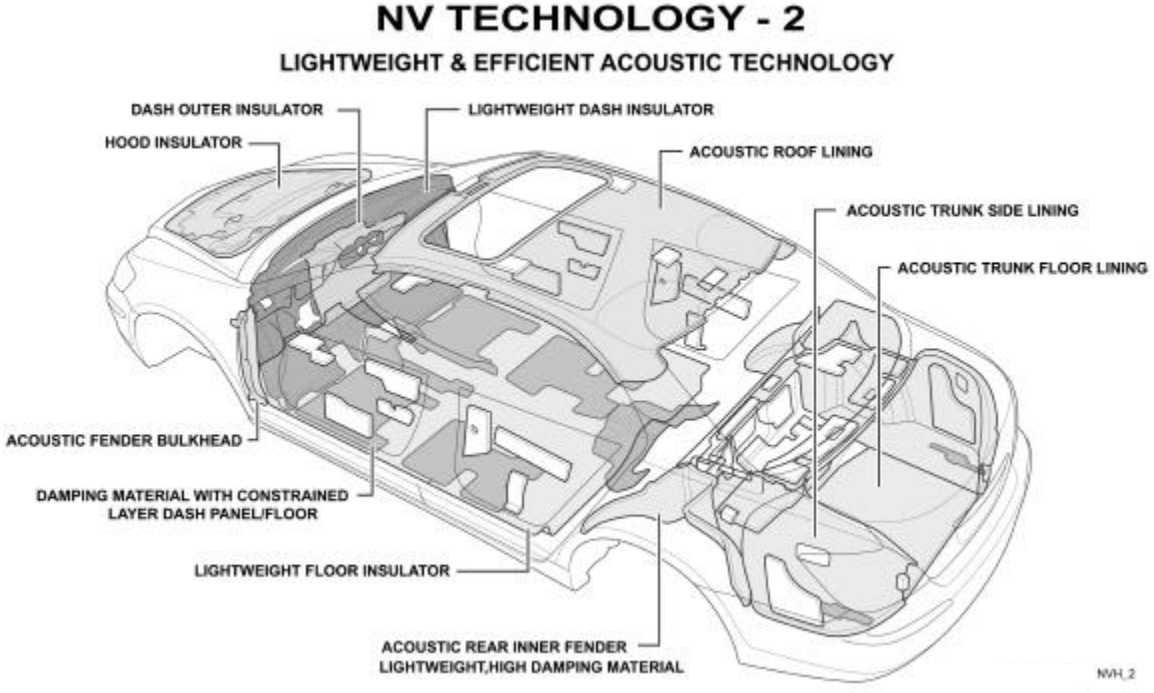
Main RL NVH countermeasures:

Drivetrain

- Engine mounting system including a hydraulic lower transmission mount
- Variable volume mufflers
- Hood insulator

- Engine cover and undercover

Body
- Acoustic roof lining
- Acoustic front and rear inner fender insulator with high-frequency damping materials



Flooring
- Lightweight floor insulator
- Floor undercover

Subframes
- Floating front and rear subframes with four mounting points

Interior
- ANC system for noise control (see Interior section for more information)
- Lightweight instrument panel damping materials
- Thinsulate insulation in selected areas

Trunk
- Acoustic design with side, front and lid linings

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

FLUSH GLASS
The 2005 Acura RL 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 RL, the window guide is on the glass instead of the window frame, which allows the gap to be eliminated. This means there is one continuous uninterrupted plane running along the front side window, across the B-pillar and all the way to the trailing edge of the rear side window. The benefit is a further reduction in wind noise and an even 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 area. On the RL, 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.

EXTERIOR PAINT
The exterior paint on the 2005 Acura RL 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 that is hand sanded to ensure a smooth surface for better appearance. After a waterborne colour basecoat is applied, a pair of clear coats provide depth while helping to protect the base coat from air pollution, acid rain and fog

Six different exterior colours are available. Some are selectively available with two different interior colours. The following chart below shows the available exterior/interior colour combinations (see Interior section for more information).

EXTERIOR COLOUR	INTERIOR COLOUR	
	Parchment	Ebony
Premium White Pearl	•	•
Opulent Blue Pearl	•	•
Magnum Gray Pearl		•
Nighthawk Black Pearl	•	•
Celestial Silver Metallic		•
Desert Mist Metallic	•	

2005 Acura RL : Chassis

OVERVIEW
Quick handling response, nimble performance, high dynamic capabilities, outstanding ride comfort and a fun-to-drive character were the design goals for the 2005 Acura RL chassis. The RL features a highly rigid unit body that provides an excellent platform for the four-wheel independent suspension (independent front double-wishbone with independent multi-link rear). Aluminum suspension components, front and rear, cut unsprung weight to allow for more supple and responsive suspension action and more consistent traction and handling on rough roads. The optimized suspension geometry of the RL works with new electronically controlled power steering, larger wheels and tires and the Super-Handling All-Wheel-Drive system to give the RL exceptional handling balance in virtually every driving condition. Ride quality and road noise isolation were also the focus of substantial engineering effort, so even with its elevated sporting performance, the RL remains quiet and composed.

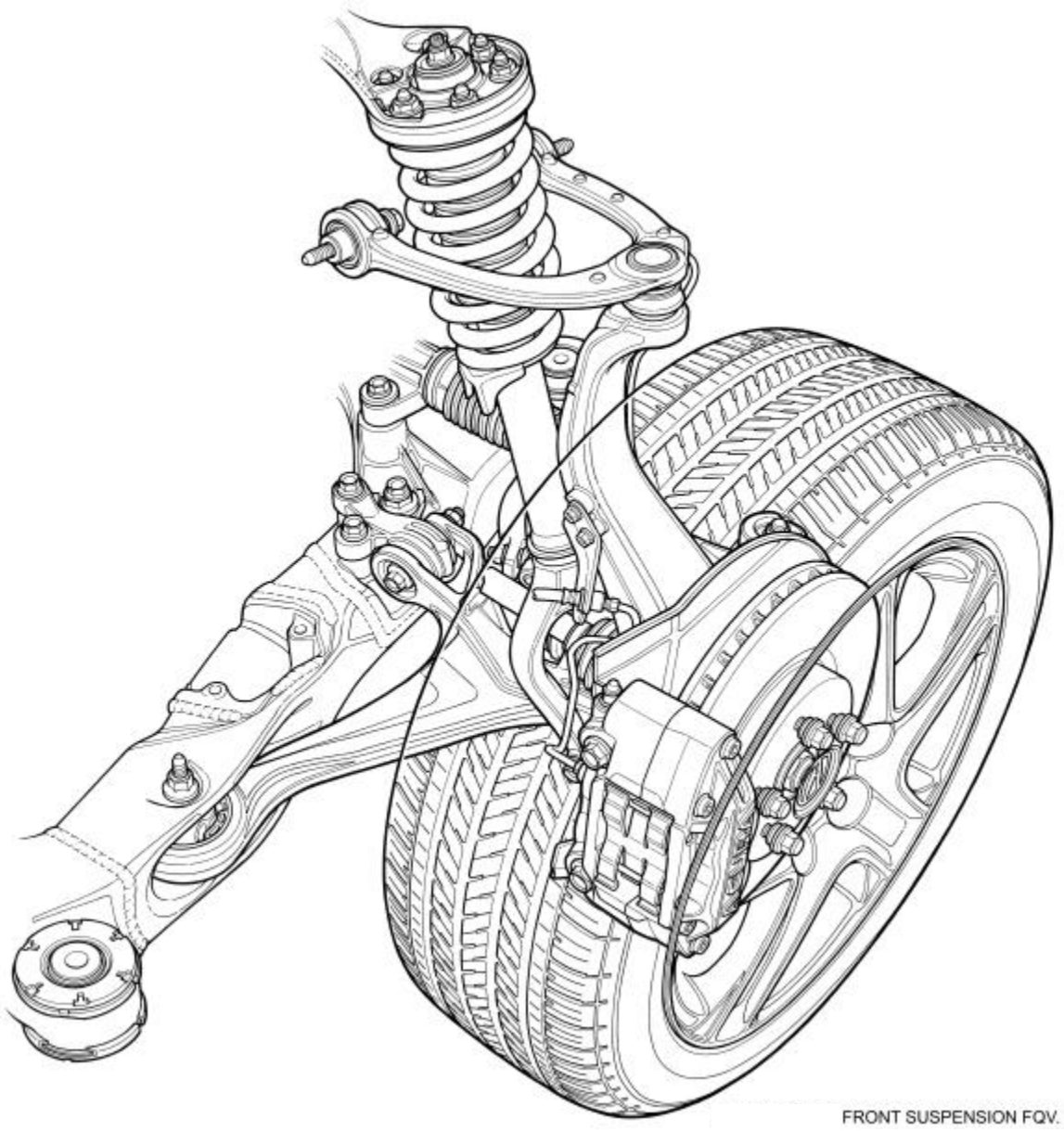
CHASSIS CONCEPT
The 2005 RL was designed to compete squarely with high-end luxury in dynamic performance interior luxury appointments, features and quality.

The new suspension works with the SH-AWD system to provide superb handling precision. The suspension's optimized geometry provides linear cornering feel, outstanding dry and wet weather cornering capabilities, a flat ride, and a high level of controllability at all times. It also results in an increased feeling of precision and security for the driver and passengers alike.

Front Double-Wishbone Suspension

The front suspension is a double-wishbone type with an enlarged subframe mount and compliance bushing as compared to the 2004 3.5 RL. In addition, the dampers now feature rebound springs that reduce chassis attitude changes to ensure a flat ride during acceleration and cornering.

Specific improvement goals for the RL suspension included better response over rough roads, improved steering feel, optimized geometry, and overall component toughness. The steering knuckle (or upright), upper arm, lower arm and subframe are all lightweight aluminum.



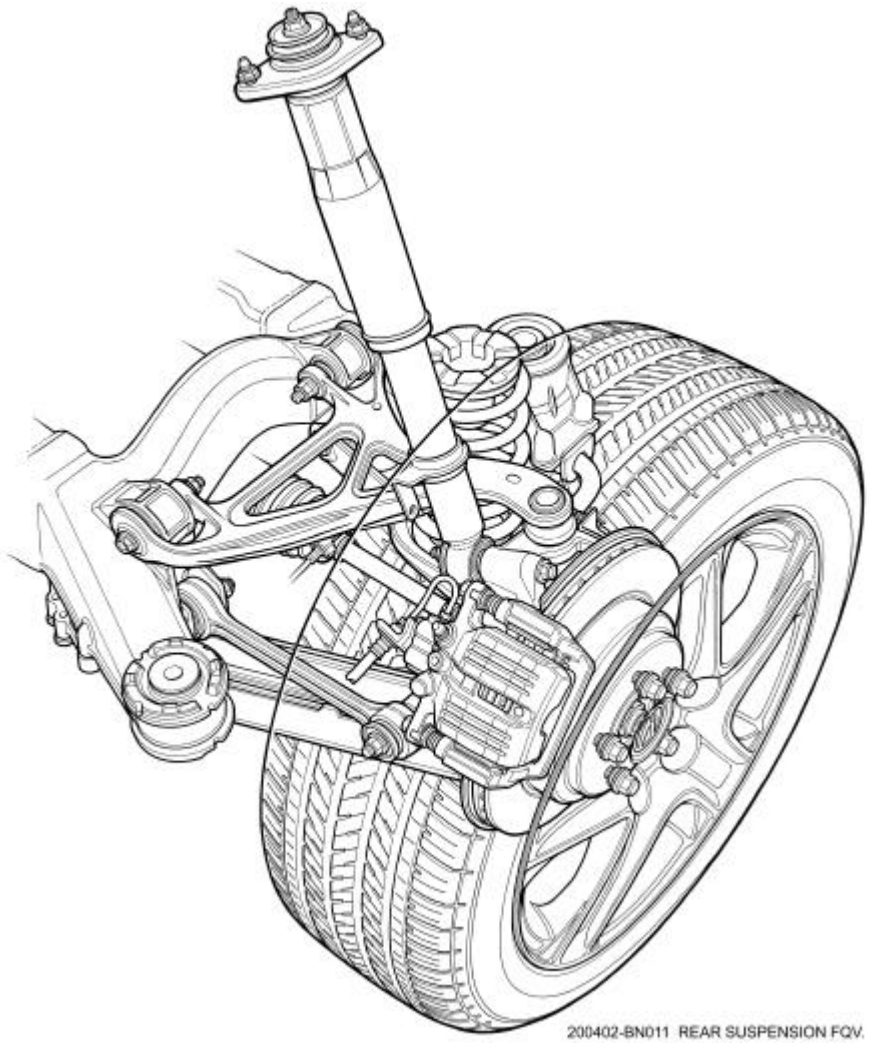
Rear Multi-Link Suspension

The rear suspension is a multi-link type with a new enlarged subframe mount and a longer upper arm design. As a result the roll centre is optimized for better turning response, cornering stability and control in extreme conditions.

The optimized geometry results in linear toe and camber changes during suspension travel. Improved roll stiffness also makes the RL corner flatter than the previous model. It also has anti-lift characteristics to reduce the pitching motion of the body during braking.

Harshness and road noise are also significantly reduced, and ride comfort is also measurably improved, thanks to these changes and a new compliance bushing.

Lightweight aluminum is used for weight savings in the control arms and subframe. The components are also stiffer to withstand the higher side loads that SH-AWD, larger tires and a stiffer unit body create.



200402-BN011 REAR SUSPENSION FQV.

Aluminum Hybrid Subframes

The RL front and rear aluminum subframesare con.posed ...:h members made by high temperature bulge forming and high vacuum die casting. Both manufacturing techniques result in significantly lighter units than would be possible with either aluminum hydroform or steel hydroform processes.

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

The aluminum hybrid subframes on the RL save over 8 kg compared tothose of the Acura TL, and save nearly 18kg compared to comparable steel hydroformed subframes like those of the Acura TSX. The exact weight savings are shown below.

	2005 Acura RL	2004 Acura TL	2004 Acura TSX
Front subframe, kg.	16 (Aluminum hybrid)	18 (Aluminum hydroformed)	28 (Steel hydroformed)
Rear subframe, kg.	15 (Aluminum hybrid)	21 (Steel hydroformed)	21 (Steel hydroformed)
Combined front/rear subframe weight, kg.	31	39	49

TIRES
The RL is equipped with the largest tires ever offered on a production Acura sedan. Original equipment is a P245/50R17 98V high performance, all-season tire that delivers outstanding cornering and is M+S (Mud and Snow) rated. This tire is 20 mm wider, and 25 mm larger in wheel diameter, than the 225/50 R16 tire found on the 2004 model. The tire's capability is further enhanced by the standard SH-AWD system (see Engine & Powertrain section for more information).

An 18-inch accessory wheel and summer tire package will be available as a dealer-installed item. The RL spare tire is a temporary T155/70D17.

WHEELS
The RL wheels are 17 x 8J-inch cast aluminum alloy. They are 25 mm larger in diameter and 25 mm wider than the 16 x 7JJ-inch units found on the 2004 3.5 RL. The spare wheel is a 17 x 4T unit.

ELECTRONICALLY CONTROLLED, SPEED-SENSING, POWER ASSIST RACK-AND-PINION STEERING
Precise steering performance is an essential facet of the RL. 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 RL is engineered to feel like a smaller car than it actually is to the driver.

Compared to traditional mechanically controlled hydraulic power steering, the speed-sensing steering assist unit in the RL is controlled electronically. As a result, it provides a very linear and direct steering feel regardless of vehicle speed. In particular, the on-centre feel is designed to be precise and linear, with no discernible "dead spot."

VSA WITH TRACTION CONTROL
Vehicle Stability Assist (VSA®) is standard equipment on the RL. It uses electronic traction control and ABS functions, combined with yaw and longitudinal/lateral acceleration sensors to quickly detect if the vehicle is about to understeer or oversteer, to an extent that would reduce driver control. It then reduces engine output and applies one or more individual brakes to stabilize the vehicle.

4-WHEEL VENTILATED DISC BRAKES WITH ABS AND ELECTRONIC BRAKE DISTRIBUTION (EBD)
In keeping with the athletic capabilities of the RL, Acura designers upgraded the 4-wheel disc brakes to create a true high-performance system. They targeted the braking performance of top-level competitors from Audi, BMW and Mercedes-Benz as the benchmark to meet and exceed.

New 320 mm cast-iron ventilated front rotors use aluminum 4-piston calipers. These multi-piston calipers are extremely rigid, and are derived from racing applications. In back, 310 mm cast-iron ventilated discs attach to their hub with lightweight aluminum collets and are gripped by one-piston aluminum calipers.

The 2005 RL includes Electronic Brake force Distribution (EBD), which automatically adjusts the front/rear brake pressure to suit conditions, while an anti-lock braking system (ABS) helps the driver retain directional control in hard braking situation. Also included is 4-channel Vehicle Stability Assist (VSA).

Brake Assist

Brake Assist helps drivers apply full braking pressure in an accident avoidance situation. To do so, a microprocessor continually analyzes 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 the driver suddenly applies the brakes, Brake Assist brings the system to full ABS activation to help stop the vehicle in the shortest distance possible. It 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.

TIRE PRESSURE MONITORING SYSTEM (TPMS)
The onboard Tire Pressure Monitoring System (TPMS) with location and pressure indicators warns the driver when the air pressure lowers in any tire. This helps reduce the chance of losing control of the vehicle due to low air pressure. This is important because a slow leak, such as might be caused by a nail embedded through the tread, might not be detectable immediately but would, in time, cause significant air loss, loss of grip and potentially a blowout.

A sensor mounted on each wheel continually monitors tire pressure and sends a coded signal to an initiator located inboard of the tire on the chassis. The information is then sent to an electronic control unit that compares the values of each tire against an acceptable set of values.

When a tire's pressure drops significantly below the proper specification, a "CHECK TIRE PRESSURE" alert appears on the MID alert screen. The system can display the air pressure in all four tires simultaneously via the MID, making it simple to locate a low tire. If there is a fault in the system, a "CHECK TPMS SYSTEM" alert appears.

At the driver's preference, the display can continually show the air pressure in all four tires. Regardless of whether the driver chooses to monitor the pressures, a warning will still occur if a tire drops below specification.

2005 Acura RL : Interior

OVERVIEW
The RL interior is designed to integrate elegant luxury with efficient design. At the same time, the interior makes the most advanced technology ever built into an Acura easy to use and intuitive to operate. Careful integration of the many advanced systems ensures that they add to the driver's comfort, control and understanding of the driving situation, and not detract from it. The finest interior materials and exacting attention to detail and finish highlight the quiet interior. Stylish and perforated leather-trimmed ventilated seats with heating and cooling are designed to be supportive yet deliver maximum comfort in summer and winter.

The RL feature list is now even more comprehensive, with a standard Acura/Bose DVD-Audio system that delivers surround sound in all seating positions. Acura Navigation System with Bilingual Voice Recognition is standard, and features a large 8-inch screen.

The RL is also the first vehicle equipped with the Keyless Access System, which allows owners to lock and unlock doors, open the trunk, and start the car without having the keyless remote in the hand.

Interior at a Glance

- Luxurious cockpit designed for performance driving
- Perforated leather-trimmed ventilated seats with heating and cooling
- Genuine curly maple wood 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
- Driver's 8-way power seat with power adjustable lumbar support
- GPS-linked, solar-sensing, dual-zone, dual-mode automatic climate control system
- Multi-information display allows access to multiple electronic functions
- Acura Navigation System with Bilingual Voice Recognition™
- HandsFreeLink™ wireless telephone interface is compatible with many Bluetooth mobile phones
- Acura/Bose® 10-speaker Surround Sound System with 6-disc CD, DVD-Audio and DTS® changer and AM/FM tuner
- Active Noise Cancellation™ (ANC) system
- Interface Dial provides quick, intuitive access to navigation, audio, climate control and other features
- Keyless Access System eliminates fumbling for keys or keyless remote
- Power moonroof with tilt, auto-open/close, auto-reverse and key-off

STYLING AND MATERIALS

The quality of materials, fit and finish have received close attention in the new RL. Rich curly maple wood sweeps across the instrument panel. The large, bright navigation 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 navigation system screen, the satin metal finish of the climate, audio and navigation controls.

Interior materials are the finest in Acura history, including the glove-soft, hand-selected leather used on the seating surfaces. The hides are tanned with an innovative process that helps the leather retain its soft, supple feel and resilient strength far longer than conventional automobile interior leather. Oils in conventional leather tend to slowly evaporate – especially when the car is parked in the sun – causing leather to prematurely age and dry out over time, or form deposits on the rear window and windshield glass when the interior cools, eventually causing persistent and hard-to-remove "fogging." The leather used in the RL is treated to resist this phenomenon, and this treatment reduces window fogging by 90 percent compared to conventional leather. Two different interior leather colours are available: Parchment and Ebony.

DRIVER-ORIENTED COCKPIT

Acura 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, cruise control, HandsFreeLink™, Navigation System and Multi-information display – have controls positioned on the steering wheel. The main instrumentation is easy-to-read analog, supplemented with digital and graphic displays. Even though the RL 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 Acura interior design, the soft-touch switchgear of the RL is engineered to deliver a quality feel and positive action. Helpful features make driving easier, like power rearview mirrors that can be set to automatically tilt-down when reverse is engaged to make parking simpler. There is also a new bottom-hinged throttle pedal with a more linear feel and natural motion. A large dead pedal in the driver's foot well provides extra support for the driver in aggressive driving.

LEATHER-WRAPPED STEERING WHEEL
The leather-wrapped steering wheel incorporates the most commonly used controls, allowing the driver to keep his or her hands on the wheel while using the controls. Audio system controls are on the upper left spoke, while cruise control buttons are on the right upper spoke. The lower left spoke is reserved for navigation system controls, including a push-to-talk button to activate the voice recognition system which provides voice control of the navigation system, as well as many climate control and audio system features.

Also on the left, between the spokes, are controls for HandsFreeLink™, while 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 is in manual mode.

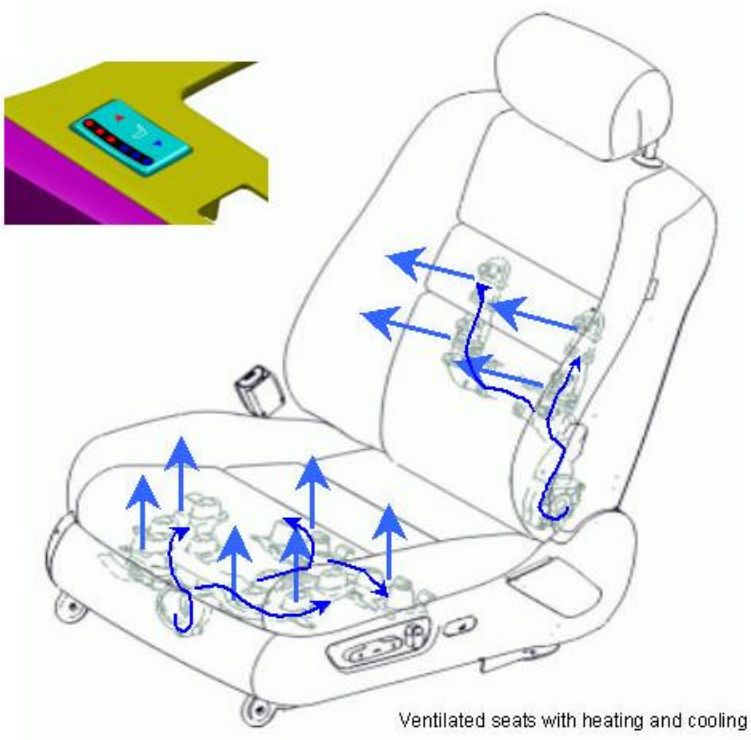
INTERFACE DIAL
Most of the commonly used electronic functions have dedicated controls positioned on the instrument panel or on the steering wheel. Voice control of navigation, climate control, audio and communications functions is likewise available, while the Interface Dial knob positioned just ahead of the console-mounted shift lever provides another avenue of control. The Interface Dial is rotated and rocked like a joystick to select among function menus displayed on the navigation screen. A push of the controler selects the highlighted item. Functions controlled by the Interface Dial include:

- Audio
- Navigation
- Climate Control System

VENTILATED SEATS WITH HEATING AND COOLING
Given the performance capabilities and luxury mission of the RL, its passenger seating required extensive engineering development.

The RL features perforated leather-trimmed ventilated seats with heating and cooling that allows both front passengers to either heat or cool their seats. The centre console-mounted switches offer three heating and three cooling positions.
Three blower motors within the seat push conditioned air through the special ducks under the leather-seating surface. The result is even cooling of the seat and seat back cushions.

In hot summer temperatures, RL's ventilated seats rapidly reduce seat surface humidity. In internal testing, the RL and competitor's seats were brought up to a temperate of 80 degrees C and 65 % humidity. At the maximum cooling setting, RL's seats dropped to a 20% humidity level within 15 minuteson the front lower cushion. This achievement is best in class when compared to the Lexus LS430 at 40% humidity and even the Phaeton at 50% during the same time interval.



Ventilated seats with heating and cooling

The driver's seat is 8-way power adjustable 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. All driver's seat power adjustments, except power adjustable lumbar support, are included in the Keyless Access System, which stores a pair of user profiles, one for each of the two fobs that come with the RL.

The front passenger seat is 4-way power adjustable with 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 power retraction feature that allows the driverto 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.

MULTI-INFORMATION DISPLAY (MID) AND MAINTENANCE MINDER

A highly functional instrument panel gives the RL 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. Controls positioned at the 4 o'clock position of the steering wheel hub allow the driver to cycle the display through multiple screens of information.

Trip computer functions include average and instantaneous fuel economy, average speed, fuel range, and elapsed time. The system also can display outside air temperature, engine oil life as a percentage, SH-AWD torque distribution, and tire pressures. The Maintenance Minder System alerts the RL driver of upcoming maintenance needs via the MID; should a fault occur with the vehicle, warning information also appears (see Engine section for more information).

INTERIOR LIGHTING
The analog instruments are LED backlit, with high-contrast markings and a subdued blue accent hue. A 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.

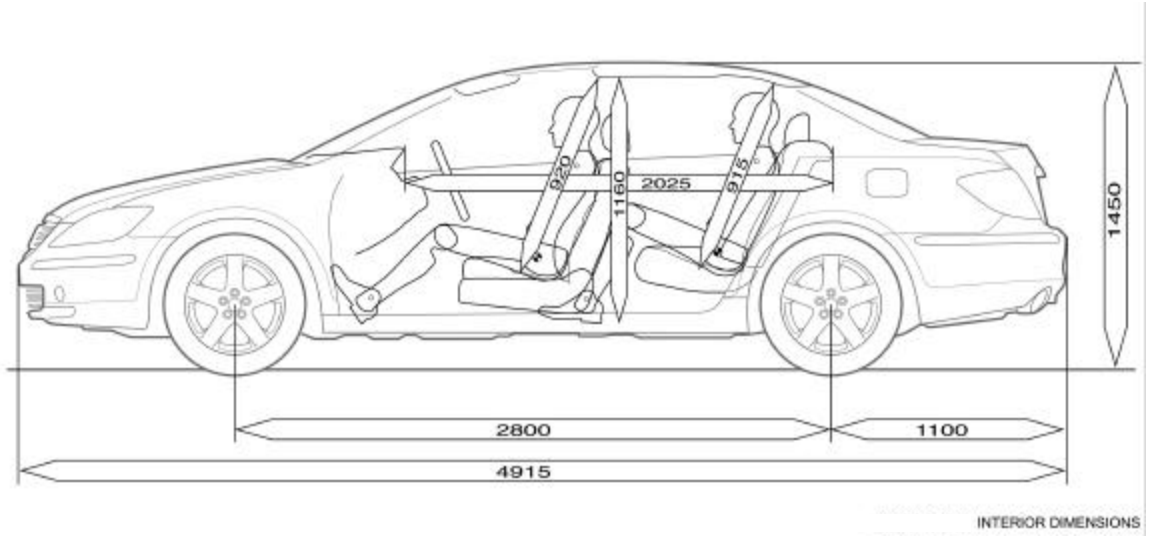
All the interior switches are illuminated to make them easy to locate at night, including those on all four doors and the steering wheel. In addition to front and rear overhead interior lights and map lights, the RL also has a complement of low-level interior ambient cabin lighting. Blue front and rear 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 blue 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 pockets, glove box and the front armrest compartment are all internally illuminated. All four doors have courtesy lights that are illuminated when the doors are open. The RL interior lights feature "theater dimming," which can be set by the driver to any of several rates via the Multi-information display. The trunk has interior lighting, plus the trunk lid has lighting that illuminates the bumper and sill area when the lid is opened.

INTERIOR ROOMINESS AND CONVENIENCE.
The RL interior offers plenty of storage and convenience features for driver and passengers. The front centre armrest has a unique 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 also be swiveled up to allow access to a large lower storage compartment. The front double beverage holder has an adjustable bottom tray that allows it to accommodate a wide range of container sizes.

Inside the glove compartment is a separate document box that allows the RL User 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 beverage holder is built into the rear armrest.



INTERIOR DIMENSIONS

CARGO CARRYING VERSATILITY

The RL has a generously sized 371-litre trunk that is fully finished, with all wiring concealed and the rear parcel shelf speakers and navigation unit fully protected. The acoustic properties of the trunk and the three rear deck speakers were engineered together to create the best possible sound performance out of the Acura/Bose DVD-A system. To allow room for longer items, a locking trunk pass-through is provided. A standard cargo net and a network of anchor points help keep cargo securely in position. The spare tire is located under a folding cover in the trunk floor.

For a cleaner appearance and to avoid damage to luggage, the aluminum trunk lid is supported by fully concealed hinge mechanisms. The trunk can be opened via a remote release mounted on the driver's door panel, by pulling the exterior release on the lid when carrying the Keyless Access fob, or with a manual release accessible through the locking trunk pass-through. There is also an emergency trunk opener inside, near the latch. For security, the trunk 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, trunk, or locking trunk passthrough.

GPS-LINKED, SOLAR-SENSING, DUAL-ZONE, DUAL-MODE AUTOMATIC CLIMATE CONTROL SYSTEM

The RL 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 keep the rear seat area comfortable. Large, simple to use system controls are positioned within easy reach, just below the centre instrument panel vents. The system can also be controlled by voice, and some seldom-needed custom settings can also be accessed through the Multi-Function Controller. The climate control system's control logic is now designed to provide smoother operation with less pronounced and obvious changes in airflow.

With its position-sensing ability, the navigation 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 customized to suit the preferences of the driver and front seat passenger. Using the navigation screen and Multi-Function Controller, the temperature of the air flowing through the upper vents can be lowered relative to that of the air flowing from the footwell vents.

POWER REAR SUNSHADE

For greater passenger comfort on sunny days, the RL has a power operated rear-window sunshade. With a switch located in the overhead console, the driver or passenger can raise or lower the rear sunshade. In addition, manually operated sunshades for each rear side window can be extended and latch to the top of the inner door. By unlatching them, the rear window shades retract back into the door liner.

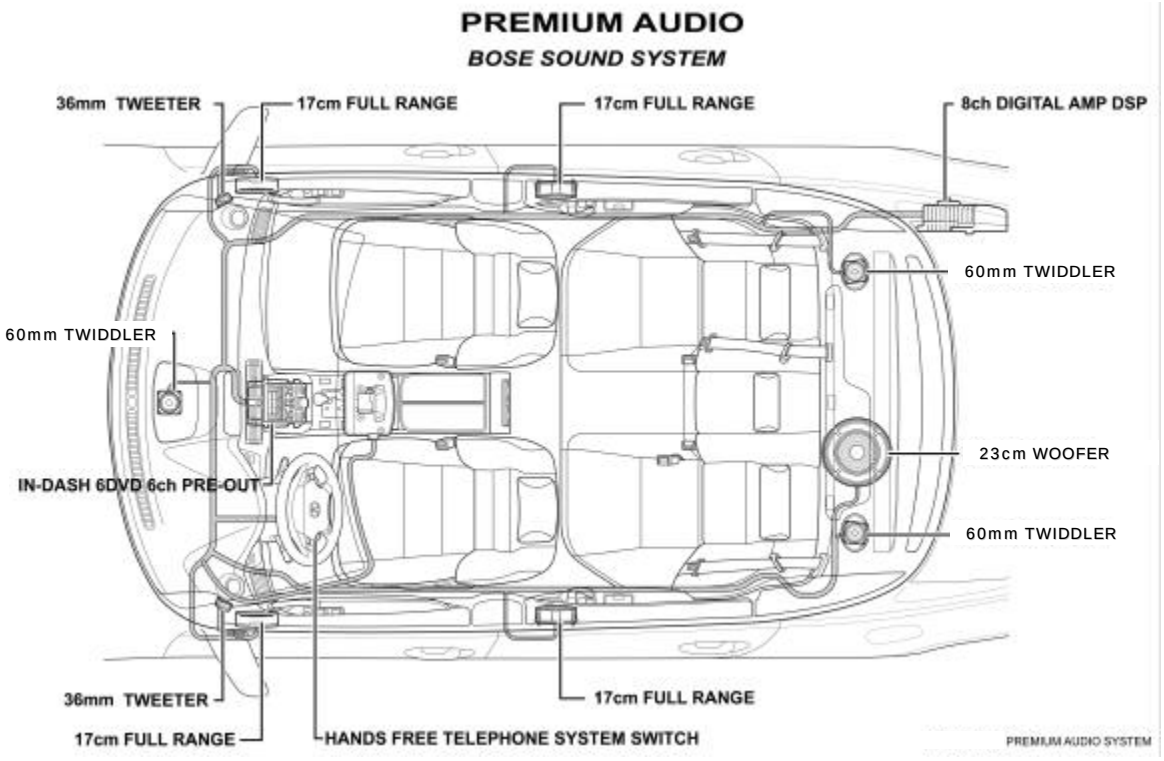
ACTIVE NOISE CANCELLATION™ (ANC™) SYSTEM
The 2005 RL introduces a new technology to North America- Active Noise Cancellation™ (ANC) system, which is designed to dramatically reduce low frequency exhaust booming noise in the interior. The system operates whenever the car is running, regardless of whether the Acura/Bose 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.

OVERHEAD CONSOLE
The overhead console incorporates a variety of useful features including the standard HomeLink® system, controls for interior lighting, power sunroof, power rear sunshade and remote retracting rear headrests.

ACURA/BOSE® 10-SPEAKER SURROUND SOUND SYSTEM WITH 6-DISC CD, DVD-AUDIO AND DTS® CHANGER AND AM/FM TUNER.
Like the TL, the RL comes standard with a DVD-Audio entertainment system that is engineered to advance the state of the art in production car audio. The more sophisticated system of the RL substantially outperformed the critically acclaimed TL system in internal testing.



Engineered specifically for the RL, this 10-speaker, 8-channel AM/FM system delivers surround sound to all seating.

The RL has a 6-disc in-dash changer that can play DVD-Audio, CD, MP3 and WMA 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.)

To improve sound quality when playing CDs, the system includes "Centre Point" logic, which creates surround sound from the two channels of CD data. Another feature, Audio Pilot, automatically adjusts the tone volume level in response to exterior noises. Audio Pilot monitors the sound in the RL cabin using the same microphone used for the Active Noise Cancellation™ (ANC™) system, then the system adjusts the audio system output to compensate.

Centre Point, Audio Pilot, balance, fader and other functions can be accessed via the Interface Dial. Controls for key audio system functions are positioned within fingertip reach on the RL steering wheel. Select audio system functions can also be accomplished via voice commands.

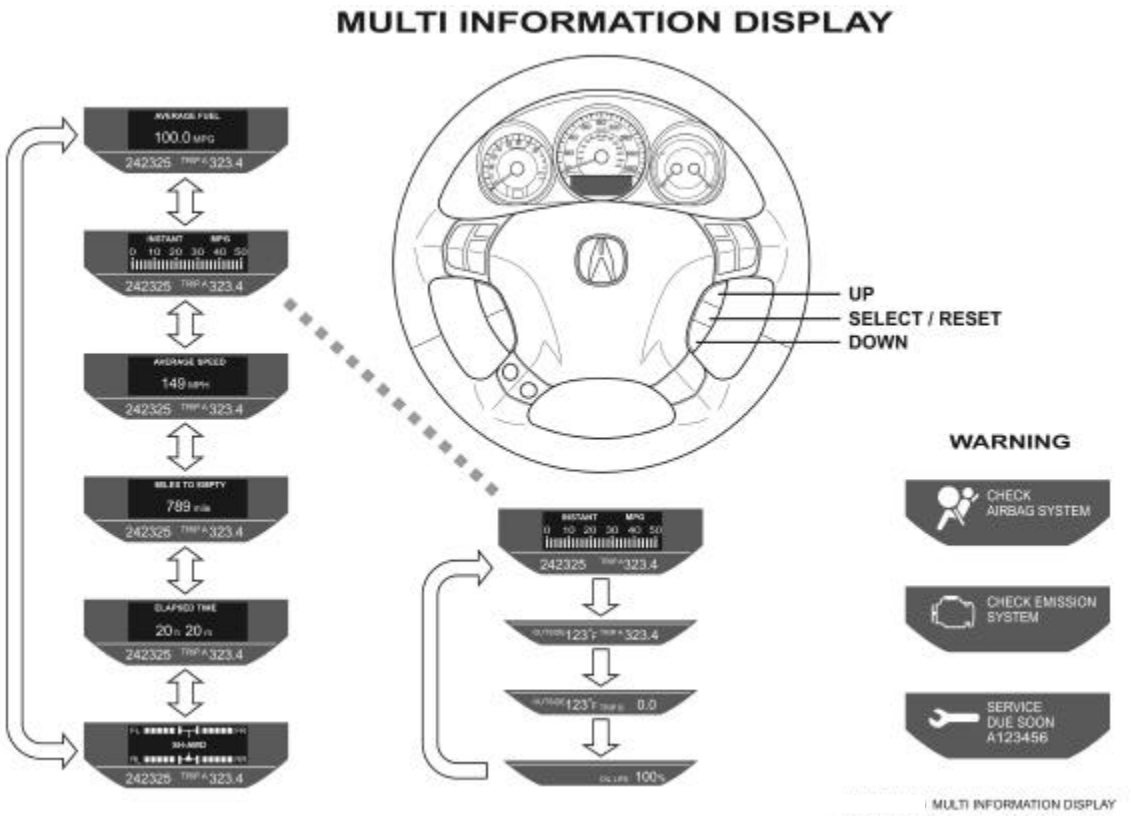
For precise audio imaging and impressive sound for listeners in the front and rear seats, the 10 speakers are strategically located throughout the RL cabin. Each front door has a 170mm full-range speaker and a separate 25mm tweeter. A 60mm twiddler is centreed on the top of the instrument panel. Each rear door has a full range speaker; the rear parcel shelf has a 60mm twiddler on each side, with a big 230mm woofer centrally located beneath the back glass. A total of 260 watts drives the 10-speaker system.

HANDSFREELINK™ BILINGUAL WIRELESS TELEPHONE INTERFACE
The RL has a standard HandsFreeLink™ hands-free phone interface that is designed to work with many recently manufactured Bluetooth-enabled mobile phones (sold separately). For 2005, this system operates in English and French.

Bluetooth is a radio frequency-based cable replacement technology that lets portable devices like mobile phones PDAs, laptops and other devices communicate wirelessly. The RL system is compatible with Bluetooth enabled cell phones that have the Hands Free Profile (HFP). Some early Bluetooth-enabled phones do not have this communications protocol, but any newly released phones should have the HFP. After the driver completes a one-time "pairing" process, the RL can communicate wirelessly and securely with the driver's cell phone. Although the phone needs to be on, it can be stowed in a pocket, briefcase or purse—or anywhere inside the RL cabin.

HandsFreeLink™ allows the driver to send or answer calls without taking his or her hands from the steering wheel. When a call comes in, the number of the incoming caller is displayed on the Multi-information display located in the speedometer face. The phone ring tone is also played over the audio system. If the driver chooses to answer the call, a press of the steering wheel-mounted "Pick up" button mutes the audio system and the incoming caller is heard over the audio system speakers. An overhead microphone picks up the driver's voice. Algorithms built into the HandsFreeLink™ system cancel "echo effect" and reduce background noise to improve the transmission quality of the driver's speech.

To send a call hands free, the driver can dial the number by voice, again using fingertip controls mounted on the steering wheel to activate the system. The driver also can store frequently called numbers with voice tags in the system's memory. Up to six different compatible mobile phones can be paired with the HandsFreeLink™ system at one time.



ACURA NAVIGATION SYSTEM WITH BILINGUAL VOICE RECOGNITION

The RL is equipped with a new generation Acura Navigation System with Bilingual Voice Recognition that has more memory, and a faster processor. For Canada, the RL now has a two-disc system. With the expanded features and coverage of the navigation system, two DVD discs were necessary. A "North" coverage disc covers Canada and northern United States and comes installed in the new RL. In the glove box is the second "South" disc that covers all of the U.S. and Southern Canada. Depending on where the driver travels most often, he or she can simply install the other disc to obtain their desired coverage. The RL navigation system also has extensive improvements to its performance, information content and ease of use.

Summary:

- 8-inch screen for convenient viewing
- Interface Dial simplifies control of the system and is accessible to driver and front seat passenger
- Faster system start-up time
- Faster route calculation and search speed
- Expanded voice recognition with over 1000 combined French and English language functions minimizes the need for manual character entry
- Seven million points of interest are stored on updatable DVDs
- Audio system automatically mutes for turn-by-turn voice guidance (which can be turned off at any time)
- Destination memory recalls current tripaddresses, previous destinations and user address books
- Directory categories include restaurants (searchable by type of cuisine), lodging, shopping, airports, hospitals, recreation areas and much more
- Zagat restaurant guide provides detailed information and reviews on restaurants in database
- Split-screen mode features a simultaneous "map view" and selective "3-D" route visualization
- New, Spell mode where you can spell street names
- Voice Recognition operates key audio and climate control functions

- Make calls to on-screen points of interest with HandsFreeLink
- User selectable Day/Night screen or display off modes
- Trip routing can include up to five user-chosen way points
- Trip routing can avoid user-selected areas
- Exit list shows what businesses are available ata given highway exit (while in US only)
- On-screen picture of highway interchanges indicates which lane to use to stay on route (while in U.S. only)
- Larger on-screen fonts and buttons for better visibility
- Greater map contrast and simplified visual presentation

System Operation

Based on positioning data from up to 12 orbiting Global Positioning Satellites (GPS), the Acura Navigation System with Bilingual Voice Recognition tracks the vehicle's position. If the GPS antenna is blocked by a tunnel, tall building or parking garage, an internal gyroscopic system and a speed sensor track the location of the vehicle to keep the mapping information current and reliable until satellite reception is restored. A DVD is located in the trunk in the system's ECU.

The system can be controlled by voice, or by the Interface Dial. For voice operation, the driver simply presses the "Talk" button on the steering wheel and says any of a number of preset command phrases. The system responds to over 1000 English and French command phrases, as well as the new spell mode, where you can spell the name of the street (previously the driver would have to use the keypad to input a street).

When the "Talk" button is pressed, the audio system is automatically muted, and an overhead microphone receives the command from the driver. Commands can be given in plain English, like "Display gas stations," or "Find nearest Chinese restaurant." You can choose to display points of interest on the map (like restaurants, or grocery stores, for example), or have the system provide turn-by-turn navigation—all by voice. The extensive point-of-interest database includes phone numbers, which can be dialed easily by using the HandsFreeLink system and the driver's cell phone.

The Acura Navigation System with Bilingual Voice Recognition can also be controlled via the Interface Dial by choosing menu options or spelling out a word (e.g., an address, business name or place) using the Interface Dial much like a computer mouse to select characters from an on-screen keypad. Compared to the previous generation Acura navigation system, the RL system start-up time has been reduced, and search performance has been cut.

The onboard database has now been expanded to include a Zagat Restaurant Guide, and the accuracy of all road data has been increased.

KEYLESS ACCESS SYSTEM

One of the advanced new features of the RL is its Keyless Access System with driver recognition for driver's seat, steering wheel, outside mirrors, climate control, audio system settings and presets, and select navigation system settings. This feature allows the RL owner to gain access to the car without ever having to unlock it with the remote transmitter or key. The keyless remote has an electronic unique digital identity. The car can be unlocked when the driver grasps the front door with the keyless remote in his/herpossession.

Once the driver has opened the door and been seated, Acura Keyless Access System allows him or her to start the RL by pushing and rotating the ignition switch, without inserting a key into the ignition.

To unlock the door, the driver must have thekeyless remote in their possession. The remote can remain in a pocket or briefcase; it isn't necessary to have it in hand. The driver simply approaches the car and presses a raised dimple on either of the front door handles to unlock the door. Grasping the door handle opens the door.

Approaching the driver's side allows the opening of the driver's door only; when approaching the passenger's side, all four doors can be opened. Via the Multi-information display's selectable unlocking feature, the RL owner can preset a preference to have all four doors unlock when the driver's door is approached.

To open the trunk, simply approach with the remote and pull the lever, and it will automatically unlock so you can open the lid. Note that the system will not allow the recognized transmitter to be locked in the trunk.

Preferences

The Acura RL comes with two keyless remotes. Each keyless remote can be set with a unique preference, for instance, to accommodate the preferences of a husband and wife. The preferences include driver's seat, steering wheel and mirror positions, and select climate control settings. Other preferences include turning entry lights on or off, and choosing a confirming beep when locking the doors. In the event both owners plan to use the car at the same time, the RL will recognize the keyless remote that approaches first.

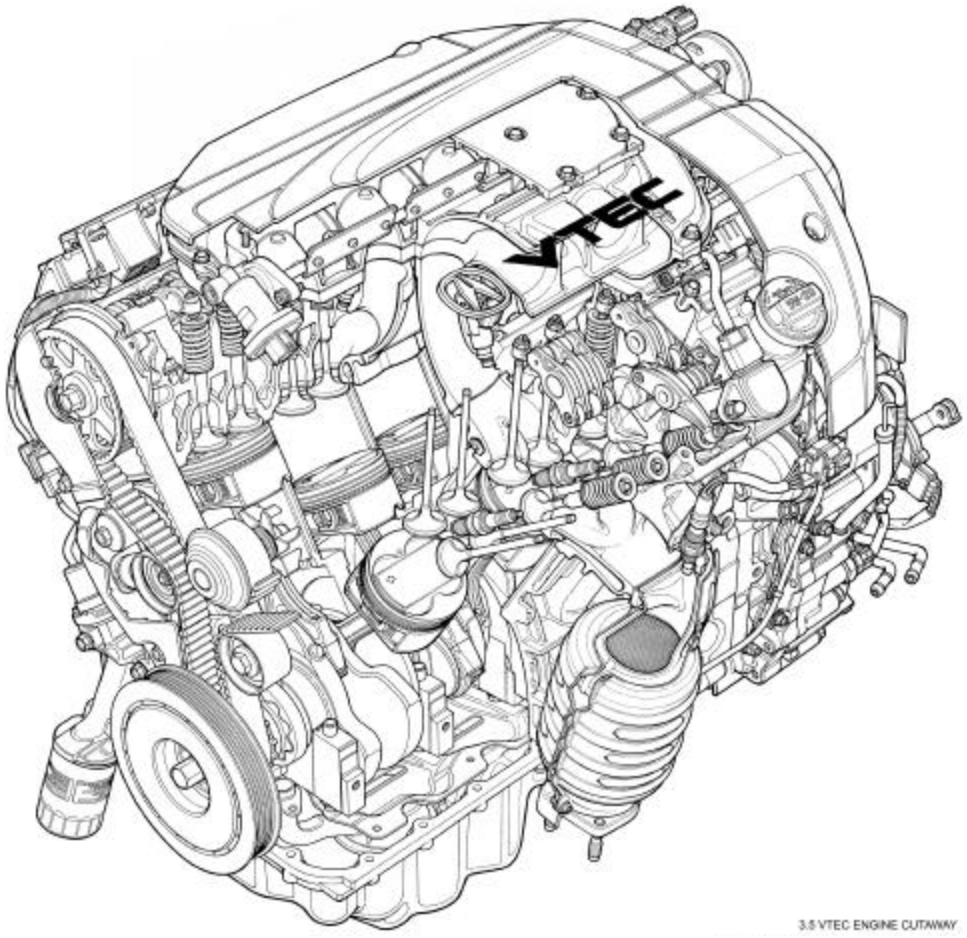
Built-in Key

A built-in mechanical key is provided as a back up in the event that the keyless remote battery should fail. In this case the RL can be started with the built-in key. For security purposes when using a valet parking service, you can push a trunk lockout switch inside the glove box, and then lock the glove box and the trunk pass-through with the key. Take the built-in key from the keyless remote and keep it, then give the keyless remote to the attendant. The Valet will be unable to unlock the glove box or trunk using the keyless remote only.

2005 Acura RL : Powertrain

OVERVIEW

The RL powertrain is a complete departure from its predecessor, the 3.5 RL. Though both vehicles feature 3.5-litre V-6 engines, the new RL benefits from VTEC, a 5-speed automatic with Sequential SportShift, paddle shifters, and Grade Logic Control (in place of a 4 AT in the 3.5 RL) and Super-Handling All-Wheel-Drive that replaces the front drive in the 3.5 RL. There are hundreds of other differences, both minor and major, but one of the most significant is that, like other Acura vehicles, the crankshaft of the RL is now positioned transversely (side to side) instead of longitudinally (front to rear), as was the case in the 3.5 RL. This change allows the RL to be packaged for better handling agility, without sacrificing interior comfort.



3.5 VTEC ENGINE CUTAWAY

The 60-degree aluminum-alloy 3.5-litre V-6 of the RL features architecture that's related to the powerplant in the 2004 MDX. Few parts are shared between the two engines, however; comprehensive changes give the RL powerplant an entirely different character than that of the MDX. This new engine is lightweight and compact. Compared to the previous 90-degree V-6 in the 3.5 RL, the overall width (measuring across the "V") is 36 mm less, and the length (measuring along the crankshaft) is 61 mm shorter.

The advanced VTEC™ engine delivers 300 horsepower and 260 lb.-ft. of torque, significantly more than the previous generation 3.5 RL (225 horsepower and 231 lb.-ft.). Horsepower has increased by 33-percent and torque has risen by 12-percent. Despite this substantial performance upgrade, fuel economy is similar to that of the previous generation 3.5 RL. In terms of emissions performance, the RL is designed to meet the U.S. CARB LEV-2 ULEV requirements.

With horsepower similar to many competitive V-8 engines, the high-output V-6 in the RL is lightweight for better acceleration and for more nimble handling. To put the power to the ground with a high level of efficiency, smoothness and driver control, the RL comes standard with a 5-speed automatic with Sequential SportShift and paddle shifters to allow finger-tip manual operation.

To maximize available traction and to provide exceptional handling balance and responsiveness, the RL comes standard with 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. The system's Direct Yaw Control makes the cornering character of the RL neutral under power.

Powertrain Comparison

	2005 Acura RL	2004 Acura 3.5 RL	2004 Audi A6 Quattro 3.0 with Tiptronic	2004 BMW 530i	2004 BMW 545i	2004 Lexus GS 300	2004 Lexus GS 430
Engine	3.5-litre SOHC VTEC™ V-6	3.5-litre SOHC V-6	3.0-litre DOHC 30-valve V-6	3.0-litre DOHC I-6	4.4-litre DOHC V-8	3.0-litre DOHC I-6	4.3-litre DOHC V-8
Horsepower @ rpm	300 @ 6200	225 @ 5200	220 @ 6300	225 @ 4900	325 @ 6100	220 @ 5800	300 @ 5600
Torque @ rpm (lbs.-ft.)	260 @ 5000	231 @ 2800	221 @ 3200	214 @ 3500	330 @ 3600	220 @ 3800	325 @ 3400
Standard transmission	5 AT	4 AT	5 AT	6 MT	6 AT	5 AT	5 AT
Drive System	SH-AWD	FWD	AWD	RWD	RWD	RWD	RWD

POWERTRAIN AT A GLANCE

Engine

- 3.5-litre, SOHC, VTEC™ V-6 engine produces 300 horsepower at 6200 rpm and 260 lb.-ft. of torque at 5000 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)
- Smart Maintenance system optimizes service intervals
- 160,000-km tune-up interval

Emissions/Fuel Economy

- High flow close-coupled catalytic converters plus under floor catalytic converter
- High capacity 32-bit RISC processor engine control unit
- Designed to meet the U.S. CARB LEV-2 ULEV standard, which cuts NOx by 77% compared to LEV-I LEV of previous 3.5 RL
- Estimated mileage of 13.1/9.4 L/100kmCity/Highway*

*Preliminary mileage estimates determined by Acura. Final fuel economy estimates were not available at the time of printing. Use for comparison purposes only. Actual mileage may vary.

Noise, Vibration & Harshness (NVH)

- Automatically tensioned, maintenance free serpentine accessory drive
- 60-degree V-angle for inherently smooth operation

5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control

- Quick-response Sequential SportShift allows semi-manual operation
- Steering-wheel mounted manual-mode shift control paddles

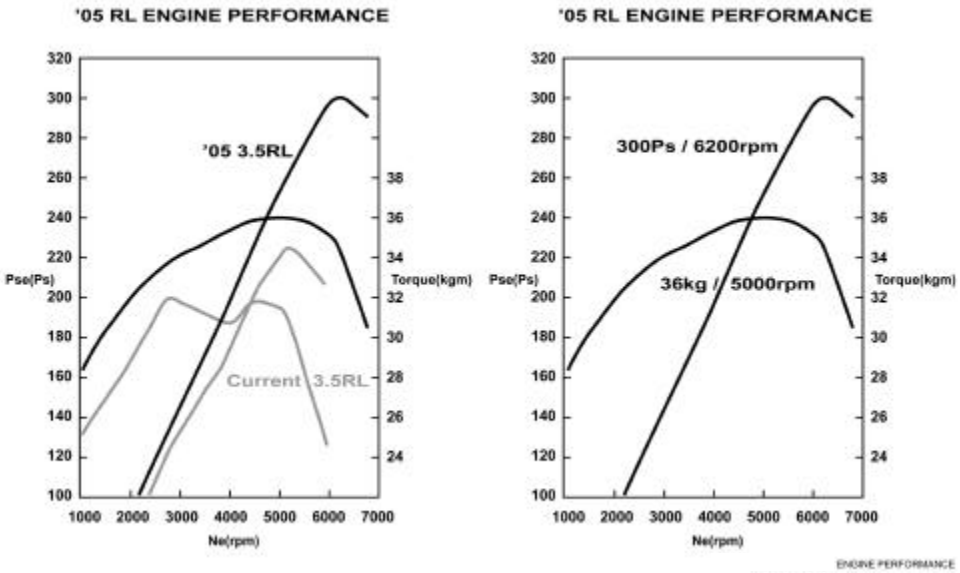
- Coordination between drive-by-wire throttle system and transmission makes for quicker, smoother shifts
- Wide gear ratio spacing for strong acceleration and good fuel economy
- Advanced shift-hold control limits upshifts during aggressive driving mode
- Advanced Grade Logic Control System reduces gear "hunting" when driving on steep hills

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

- Fully automatic, full-time traction and handling enhancing system
- Distributes torque between the front and rear wheels *and* between the left and right rear wheels to directly control the yaw movement of the vehicle
- Understeer is reduced when cornering
- Maximum cornering grip is achieved by evening the load on each tire

ENGINE ARCHITECTURE

The 3.5-litre VTEC™ V-6 in the RL is the most powerful production engine in Acura's history and incorporates many of the refinements and improvements that have been developed in other Acura powerplants. The RL engine has a 60-degree V-angle and compact overall dimensions. Aluminum 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, new close-coupled catalytic converters and high flow exhaust help make the RL engine the most powerful normally aspirated 6-cylinder engine in its class. Compared to the previous 3.5 RL, the new RL has gained a total of 75 horsepower. Of that total, the new high inertia intake manifold accounts for 15 horsepower. Another 40 horsepower was gained in internal engine efficiencies, and an additional 20 horsepower was netted by the variable flow-rate exhaust system.

ENGINE BLOCK

The lightweight, heat-treated die-cast aluminum-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 aluminum 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 minimized noise and vibration.

CRANKSHAFT / PISTONS / CONNECTING RODS

The forged crankshaft of the RL 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. The previous generation 3.5 RL had a compression ratio of 9.6:1. The elevated compression ratio is a key element in the horsepower gain compared to the previous generation engine. Part of the reason for the elevated compression ratio is an oil jet system that sprays cooling oil on the underside of the piston crowns to keep temperatures in check.

CYLINDER HEADS / VALVES

Like the MDX and the TL, the RL uses cast alloy single overhead camshaft cylinder heads that incorporate tuned exhaust manifolds as an integral part of the casting. Made of pressurecast, low-porosity aluminum, 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 RL has a three-layer type head gasket like that of the MDX, TL and NSX. A single Aramid-fibre reinforced belt drives the overhead camshafts. The RL cylinder heads have 36-mm diameter intake valves and 30-mm diameter exhaust valves. As a point of reference, the MDX has 35-mm intake and 30-mm exhaust valves.

VTEC™ (VARIABLE TIMING AND LIFT ELECTRONIC CONTROL™)

Acura VTEC™ is a new addition to the RL, and is a major contributor to the engine's large gains in horsepower and torque. The system operates the 12 intake valves in two distinct modes, so that the operation of the intake valves changes to optimize 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 RL uses a 3-rocker VTEC™ system similar to that of the MDX and TL. 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 powertrain control module (PCM) triggers the opening of an electric spool valve that routes pressurized 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 is unique to the RL.

TWO-PIECE DUAL-STAGE INTAKE MANIFOLD

The 2005 RL uses a new dual-stage intake manifold that is designed to deliver maximum airflow, and accounts for 15-percent of the horsepower (out of 75 horsepower total) gained over the previous-generation 3.5 RL. The 2-piece cast-aluminum manifold is also very light. Compared to the one-piece, dual-stage unit used on the MDX, the RL manifold saves 1.2 kg.

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 powertrain control module provide two distinct modes of operation.

These valves are closed at lower rpm. In this mode, the 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 maximize the resonance effect, wherein pressure waves are amplified within each half of the intake manifold at certain rpm ranges. 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 interconnect the two halves of the plenum, increasing its volume. An

electric motor, commanded by the powertrain control module, controls the connecting butterfly valves. Each cylinder drawsintake 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 AND DETONATION/KNOCK CONTROL
The RL power boost afforded by the higher 11.0:1 compression ratio is made possible by a powertrain control module (PCM) that monitors engine functions to determine the best spark timing. An acoustic detonation/knock sensor mounted on the engine block, "listens" to the engine. Based on this input, the PCM retards the ignition timing incrementally to prevent potentially damaging detonation. The RL hasiridium alloy-tipped sparkplugs, 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 exhaustgas 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 optimizes the amount of fuel delivered to each cylinder.

DRIVE-BY-WIRE THROTTLE CONTROL SYSTEM (DBW)
Like the NSX, TL and other Acura models, the RL utilizes a driveby-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 movement 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 (VSA) with traction control are fully integrated with Drive-by-Wire.

CLOSE-COUPLED CATALYTIC CONVERTERS AND VARIABLE FLOW EXHAUST SYSTEM
The exhaust manifolds of the RL 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 a significant weight savings.

A hydroformed 2-into-1 collector 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 rises enough to open the valve, which increases the flow to 150 litres per second.

EMISSIONS CONTROL
Although the new RL powerplant has made large power advances, it has also become much cleaner. It now meets the U.S. CARB LEV-2/ULEV emissions standards.

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 powertrain control module (PCM) boosts computing power to improve the precision of spark and fuel delivery. Particularly right after startup, better fuel atomization

is provided by high-efficiency multi-hole fuel injectors; these deliver fuel to each cylinder and direct fuel around the intake valve stems.

U.S. DATA -Current CARB* Emission Standards (gram/mi.)				
US Standard (scale in miles)	**NMOG***	**CO**	**NOx**	**Vehicle**
TLEV @ 100k	0.156	4.200	0.600	—
LEV-I LEV @ 100k	0.090	4.200	0.300	'04 3.5 RL
LEV-I ULEV @ 100k	0.055	2.100	0.300	—
LEV-2 LEV @ 120k	0.090	4.200	0.070	—
LEV-2 ULEV @ 120k	0.055	2.100	0.070	'05 RL
LEV-2 SULEV @ 150k	0.010	1.000	0.020	—
ZEV	0.0	0.0	0.0	—

*California Air Resources Board

U.S. DATA - '04/'05 RL Emissions Comparison (gram/mi.)				
Vehicle/ US Standard	**NMOG***	**CO**	**NOx**	**Mileage Standard, mi.**
'04 3.5 RL LEV-I LEV	0.090	4.200	0.300	100,000
'05 RL LEV-2 ULEV	0.055	2.100	0.070	120,000
'05 RL improvement over '04 3.5 RL	39%	50%	77%	20%

*NMOG = Non Methane Organic Gas

NOISE, VIBRATION AND HARSHNESS (NVH) CONTROL
With its 60-degree V-angle and compact, rigid and lightweight die-cast aluminum-alloy block assembly, the new RL powerplant is exceptionally smooth. Other factors that reduce noise and vibration are a rigid forged crankshaft, die-cast accessory mounts, and a stiff, cast-aluminum-alloy oil pan.

160,000-km TUNE-UP INTERVALS
The RL requires no scheduled maintenance until 160,000 kilometres, other than periodic inspections and normal fluid and filter replacements. This first tune-up includes water pump inspection, valve adjustment, and replacement of the cam-timing belt and sparkplugs.

MAINTENANCE MINDER SYSTEM
To eliminate unnecessary service stops while ensuring that the vehicle is properly maintained, the RL has a Maintenance Minder system that automatically monitors the vehicle's operating condition. When maintenance is required, the driver is alerted via a message on the Multi-Information display.

The system monitors operating conditions such as oil and coolant temperature and engine speed to determine the proper service intervals. Depending on the operating conditions, oil change intervals can be extended, potentially sparing the owner considerable money and inconvenience over the life of the car. The owner-resettable system monitors all normal service parts and systems, including oil and filter, tire rotation, air-cleaner, automatic transmission fluid, spark plugs, timing belt, coolant, brake pads and more. To prevent driver distraction, maintenance alerts are presented when the ignition is first turned on, not while driving.

5-SPEED AUTOMATIC WITH SEQUENTIAL SPORTSHIFT, PADDLE SHIFTERS AND GRADE LOGIC CONTROL

To maximize acceleration performance, fuel economy and driver control, the RL has a standard 5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control. Mechanically related to the compact transmission that made its debut in the 2003 MDX, the 2005 RL unit has upgrades and enhancements to suit the greater engine output and higher engine speeds of the RL.

Designed for low maintenance and a high level of durability, the RL transmission requires no scheduled service until 160,000 kilometres. To provide strong off-the-line acceleration coupled with a relaxed, fuel-efficient cruising rpm, this 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 console mounted gated shifter. 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 leaves the chassis undisturbed by excess shifting, ensuring that abundant power is immediately available without a downshift.

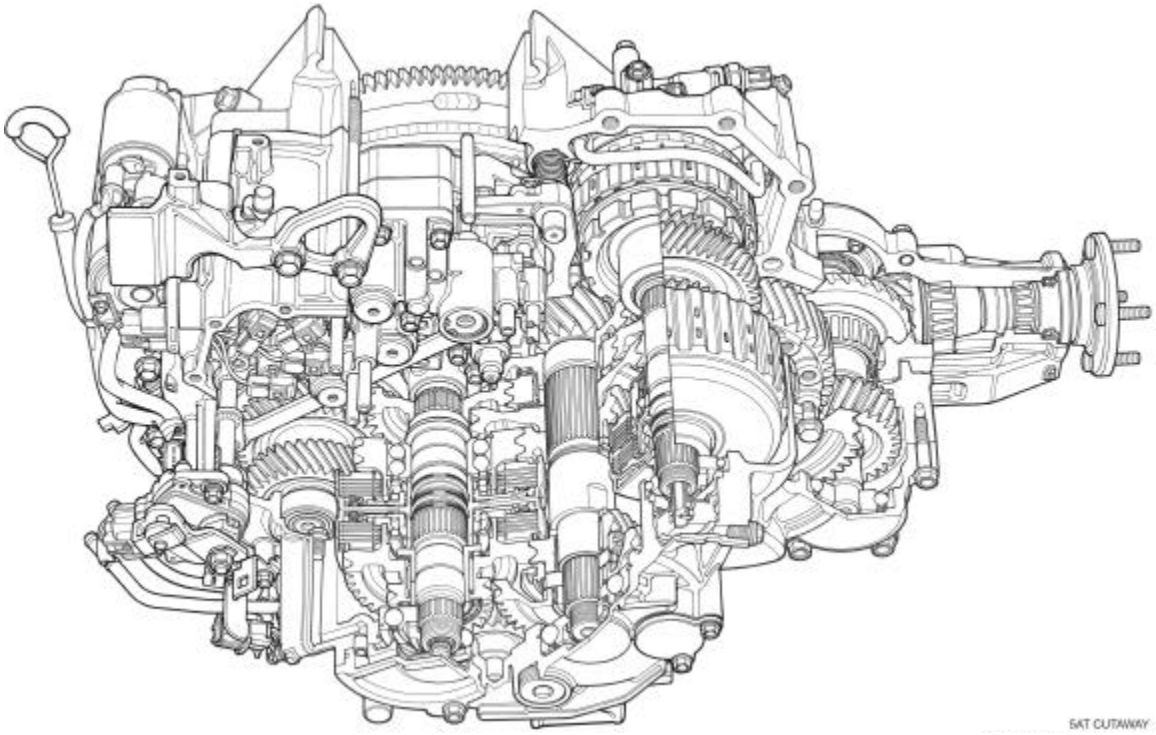
Grade Logic Control alters the 5-speed automatic's shift schedule when traveling uphill or downhill, reducing shift frequency, and improving speed control. Throttle position, vehicle speed and acceleration/deceleration are continuously measured, then compared with a map stored in the transmission computer. 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 console-mounted selector lever laterally to a special gate to the left of the "Drive" position. The RL offers two ways to change gears when in manual mode: either by a push or pull of the shift lever, or by using the paddle shifters mounted on the steering wheel. A digital display in the tachometer face 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. If the driver doesn't command an upshift in time, the transmission will upshift from first to second automatically. 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 cutoff 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 new RL benefits from a new 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, downshifting from 5th, 4th or 3rd gear, depending on the vehicle speed.

COOPERATION BETWEEN 5AT AND DRIVE-BY-WIRE
Both shift speed and smoothness have been improved by cooperation between the new Drive-by-Wire Throttle System and the electronically controlled automatic transmission. Now that 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, the peak g's (or "shift shock") are reduced significantly during upshifts and downshifts.

SUPER-HANDLING ALL-WHEEL-DRIVE ™ (SH-AWD™)
Super-Handling All-Wheel Drive™ (SH-AWD™), is the first and 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

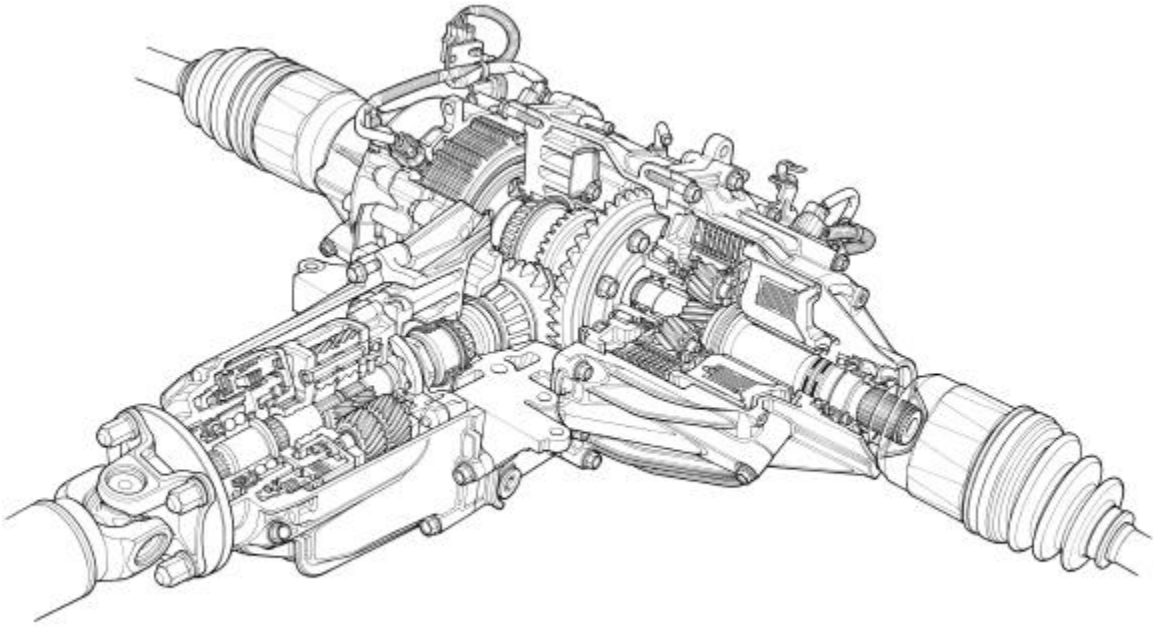
- In full-throttle straight line acceleration, up to 70-percent of the power is sent to the rear axle
- In hard cornering, up to 70-percent of available torque goes to the rear wheels for enhanced chassis balance. Up to 100-percent of this torque can be applied to the outside rear wheel if the situation dictates.

SH-AWD varies the amount of torque to the left and rightrear 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 RL. The result is class-leading cornering precision as well as enhanced traction.

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 wheelsallows the system to use engine power to yaw the vehiclewhile turning. By relieving the front tires 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 tires, the total cornering grip is increased. In conventional cars, cornering is created almost entirely by the steering angle of the front tires. In the RL, cornering is created by steering angle of front tires combined with the extra drive torque supplied by the outside rear tire.

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, however. This is a factor that works against the front tires as they attempt to turn the car. Conventional AWD systems have a similarlinking effect between the inboard and outboard tires 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 RL can be more responsive, neutral and predictable, while simultaneously offering all of the usual benefits of all-wheel drive.



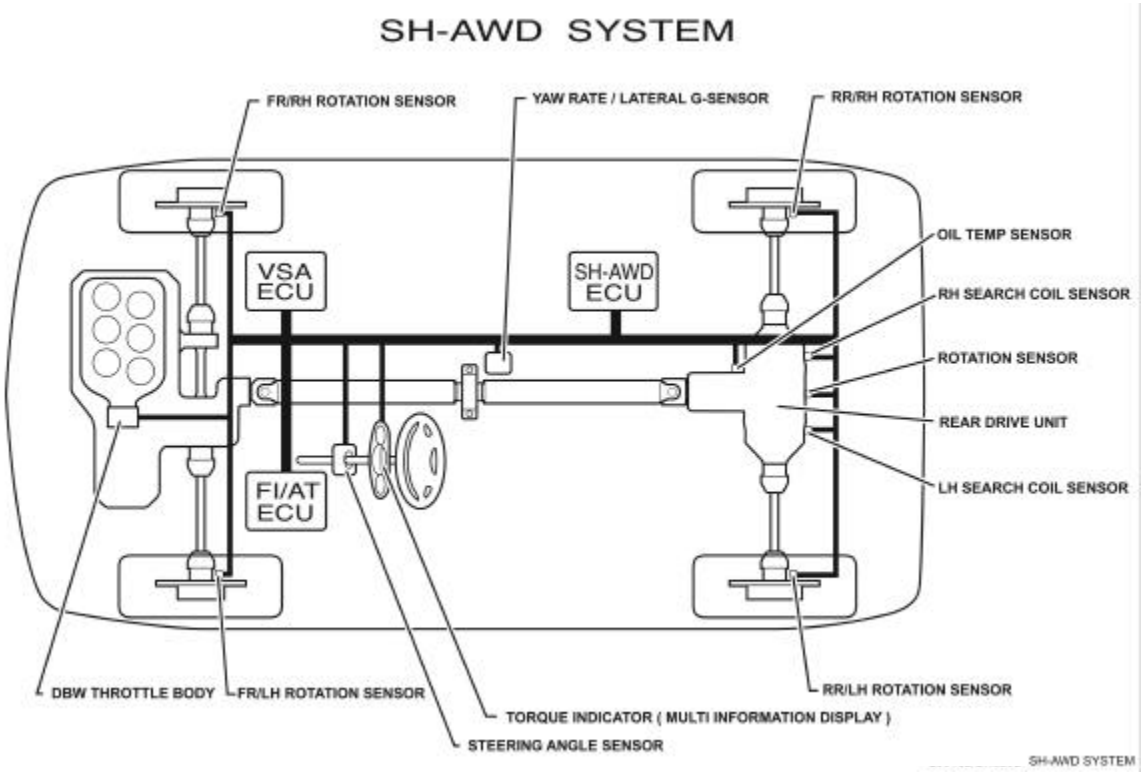
SH-AWD CUTAWAY

Electronic Controls and Parameters

The logic and control of SH-AWD is integrated with the RL 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.Then the 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 set 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.



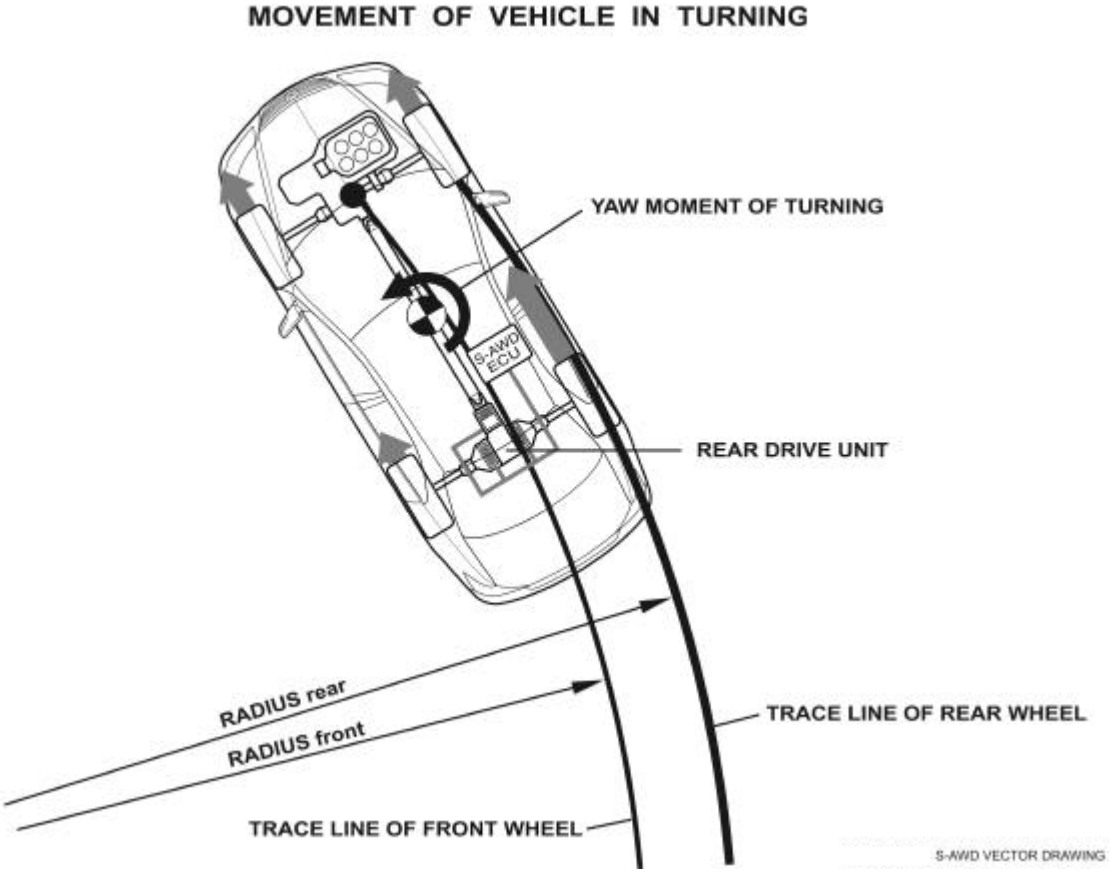
The rear drive unit of the RL, unlike the MDX, contains three planetary gear and clutch sets. Torque from the propeller shaft passes through the first clutch/planetary gearset, which is as a unit called the Acceleration device.

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, send 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 side of the vehicle.

Acceleration Device

Positioned at the front of the RL 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 gearset to achieve its speed increase. Hydraulic actuators operate clutch packs that control the planetary gearset. 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 or approximately 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 gearset 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. An oil temperature sensor allows the ECU to estimate the clutch platecoefficient 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 optimized 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.

2005 Acura RL : Safety

SAFETY
The RL is equipped with a comprehensive array of the latest technologies to enhance active safety (accident avoidance) and passive safety (crash safety performance). Features such as Vehicle Stability Assist (VSA®) with traction control, heightened handling agility, SH-AWD and ABS enhance accident avoidance capability in the RL. Should a collision prove unavoidable, the Advanced Compatibility Engineering™ (ACE™) body structure of the RL is designed to provide a protective cocoon for passengers in the event of a collision with a different sized vehicle (a truck or SUV, for example). Inside, side air bags, side curtain air bags, and dual-stage front air bags work together with sophisticated restraint systems to minimize injury to passengers in sufficient impacts.

Following are the key passive safety features on the new RL.

Passenger Seating
- 3-point adjustable height seat belts with load limiters and front pretensioners
- 3-point Automatic Locking Retractor/Emergency Locking Retractor (ALR/ELR) seat belt with pretensioner for front passenger and rear outboard seats
- Front seat belt load limiters
- Front 4-way adjustable head restraints
- Driver's seat position sensor
- Driver's and front passenger's side airbags with front passenger Occupant Position Detection System (OPDS)
- Rear centre three-point seat belt

Child Seating
- Automatic Locking Retractors/Emergency Locking Retractors (ALR/ELR)
- Tether anchors (all rear positions)
- LATCH (Lower Anchors and Tethers for Children) child-seat mounting system

Airbags
- Driver's and front passenger's dual-stage, dual-threshold airbag Supplementary Restraint System (SRS)
- Seamless airbag lid for the passenger airbag
- Driver's and front passenger's side airbags with front passenger Occupant Position Detection System (OPDS)
- Side curtain airbag system

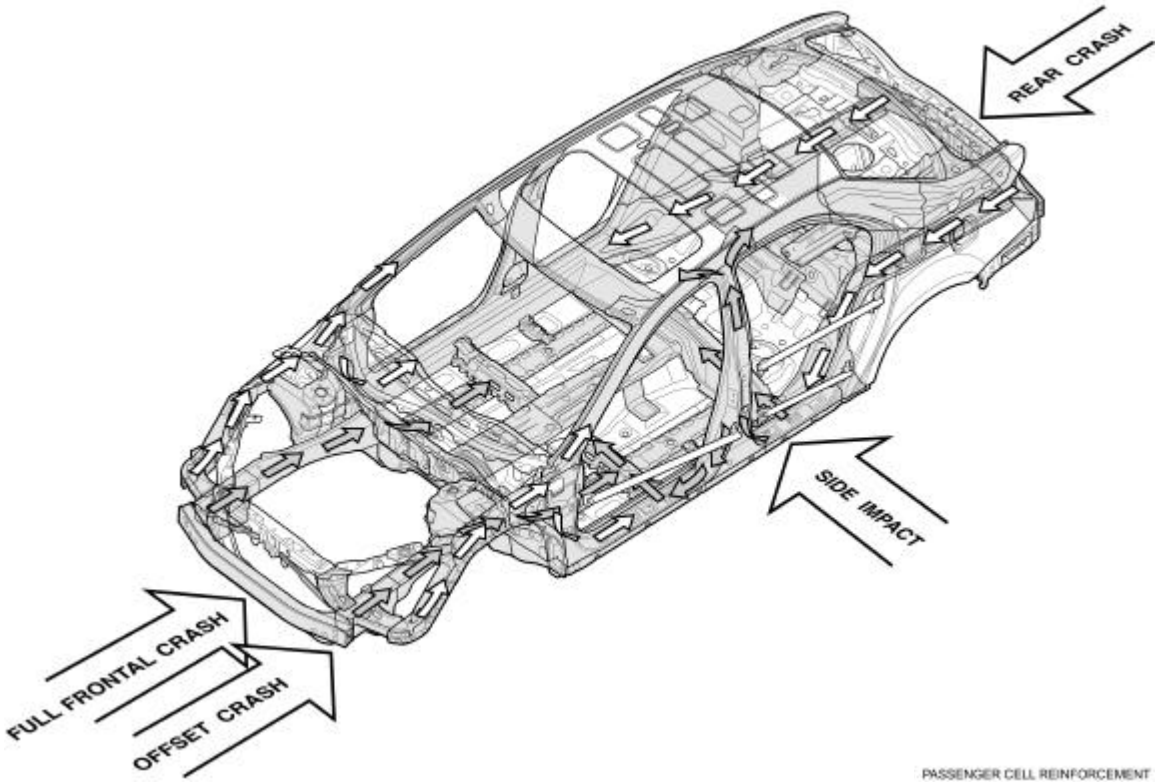
ADVANCED COMPATIBILITY ENGINEERING™ (ACE™) BODY STRUCTURE
The Advanced Compatibility Engineering™ (ACE™) body structure on the 2005 Acura RL is designed to take vehicle front frame construction beyond conventional safety protocols such as the NHTSA NCAP 35 mph frontal barrier test or the IIHS 40 mph 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 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, by reducing the chance of vertical or lateral misalignment between the RL and other vehicle's safety structures, ACE reduces the vehicle's aggressivity toward other vehicles during a frontal collision.

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 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

ENERGY ABSORBING BODY STRUCTURE



CRASH TESTING

Projected impact test results for the RL are excellent in four separate tests from the US federal government and Insurance Institute for Highway Safety (IIHS).

- In the IIHS 40 mph frontal offset test, the RL is projected to return a GOOD rating
- In the 35 mph New Car Assessment Program (NCAP) full frontal barrier test, the RL is projected to earn Five Stars, the highest rating for both driver and front passenger
- In the 38 mph U.S. NCAP side test, the RL is projected to earn Five Stars, the highest rating for both front and rear outboard passenger
- In the IIHS 50km/h (31 mph) SUV side collision test, RL is projected to return a GOOD rating

DRIVER'S AND FRONT PASSENGER'S DUAL-STAGE, DUAL-THRESHOLD AIRBAG SUPPLEMENTARY RESTRAINT SYSTEM (SRS)

Dual-stage airbags for the driver and front passenger are designed to provide maximum protection for the head and chest during a moderate to severe front collision, while simultaneously helping to reduce injuries and cost. 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 airbags will deploy at the same threshold as conventional airbags.
  If the front passengers are wearing their seat belts, the airbags will inflate at a slightly higher threshold.

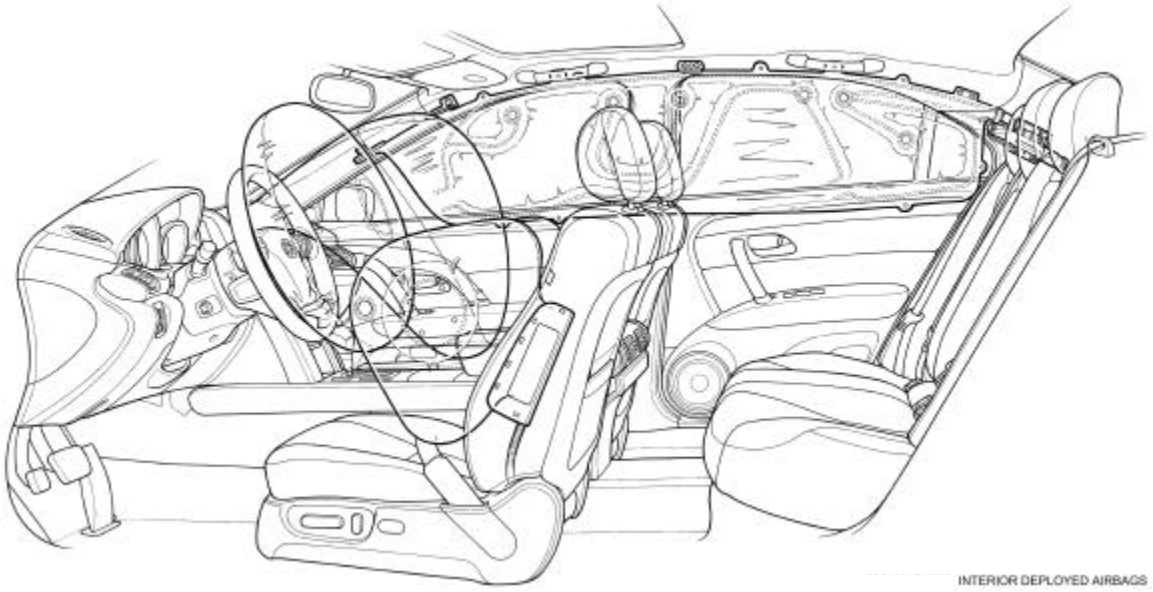
In the RL, the system also assesses the weight of the front passenger through a seat weight sensor. If the weight is less than a certain amount, the front passenger airbag is shut off. The front passenger's airbag also features a seamless instrument panel cover over the airbag for a cleaner, more elegant look.

DRIVER'S AND FRONT PASSENGER'S SIDE AIRBAGS WITH FRONT PASSENGER OCCUPANT POSITION DETECTION SYSTEM (OPDS)

New larger-size 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. The front passenger's 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-statured 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 utilizes sensors in the passenger seatback to determine the height and position of the occupant, and determine if it is safe to deploy the side airbag.

SIDE CURTAIN AIRBAGS

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



INTERIOR DEPLOYED AIRBAGS

LATCH (LOWER ANCHORS AND TETHERS FOR CHILDREN)
The 2005 RL includes a LATCH (Lower Anchors and Tethers for Children) child-seat mounting system for the outboard rear seats. LATCH features built-in lower anchors and ready-to-use tether attachment points that allow compatible child safety seats to be installed without using the vehicle's seat belt system. The LATCH system simplifies child seat installation when an owner installs a LATCH-compatible child seat. The centre rear seat has a tether point, but no lower anchors.

PEDESTRIAN SAFETY
Acura's safety interests extend beyond care for vehicle occupants. The RL hood areawas designed to deform if contact is made with either an adult or a child pedestrian. Underneath the hood are energy-absorbing supports and fender mounts, and the windshield wiper pivots are also deformable in the event that a pedestrian contacts these areas. Research shows that features such as these dramatically improve a pedestrian's chance of survival if struck by a moving vehicle.

DAMAGE RESISTANCE & REPARABILITY
In the IIHS low speed crash evaluation tests, the RL is projected to receive top ratingin the large-luxury class.

2005 Acura RL : Specifications

ENGINEERING
3.5-litre, 300 hp, 24-valve, SOHC, VTEC V-6 aluminum alloy engine
Variable Induction System
Programmed Fuel Injection (PGM-FI)
Direct ignition system with knock control
Drive-by-wire throttle system
5-speed automatic with Sequential SportShift, paddle shifters and Grade Logic Control

160,000-km tune-up interval
Super-Handling All-Wheel Drive™ (SH-AWD™)
Electronically controlled, speed-sensing, power-assisted, rack-and-pinion steering
Independent front double-wishbone suspension with independent multi-link rear
4-wheel ventilated disc brakes with aluminum 4-piston front calipers
4-channel Vehicle Stability Assist (VSA®) with traction control
17-inch alloy wheels with V-rated all-season performance tires
U.S. CARB certified LEV2-ULEV exhaust emission control system
SAFETY and SECURITY
Anti-Lock Braking System (ABS)
Electronic Brake Distribution (EBD)
Brake Assist
Advanced Compatibility Engineering™ (ACE™) body structure
Driver and front passenger's dual-stage, dual-threshold airbag Supplemental Restraint System (SRS)
Side curtain airbags
Driver's and front passenger's side airbag (SRS) with front passenger Occupant Position Detection System (OPDS)
3-point seat belts adjustable height seat belts with load limiters and front pretensioners
Xenon High-Intensity Discharge (HID) headlights with Active Front Lighting System (AFS)
LATCH (Lower Anchors and Tethers for Children) child seats mounting system
Side-impact door beams
Impact absorbing crumple zones (Front / Rear)
Child proof rear door locks
Theft-deterrent system with electronic immobilizer
Keyless Access System with driver recognition for driver's seat, steering wheel, outside mirrors, climate control, audio system setting and presets, and select navigation system settings
Tire Pressure Monitoring System (TPMS) with location and pressure indicators
Daytime Running Lights (DRL)

LED mirror-integrated directional signals, taillights, brake lights, side marker light and Centre High Mount Stop Light (CHMSL)
Emergency trunk opener
Fog Lights
Auto-on/off headlights
Heated outside mirrors with driver recognition, reverse geartilt-down and integrated signals
Illuminated front door handle recesses
Headlight washers
Rear window defroster with timer
Heat-rejecting green tinted glass
Speed-sensing variable intermittent windshield wipers
Printed radio antenna (rear glass)
INTERIOR
Galvanized body panels
SEATING and TRIM
Perforated leather timed Ventilated Seats with Heating and Cooling
Rear centre folding armrest with locking trunk passthrough
Leather-wrapped steering wheel and gearshift knob
Driver's 8-way power seat with power adjustable lumbar support and driver recognition
Front passenger's 4-way power seat with power adjustable lumbar support
Driver and passenger seat back pockets
4-way adjustable front and rear headrests
Remote retractable rear headrests
Front centre console storage

Illuminated ignition, power window switches, steering wheel controls and door lock switches
Genuine, curly maple dashboard trim
Carpeted floor mats
COMFORT and CONVENIENCE
HandsFreeLink® Bilingual wireless telephone interface
Acura Navigation System with Bilingual Voice Recognition®
Acura / BOSE® 10-speaker Surround sound System with 6-disc CD, DVD-Audio and DTS® changer and AM/FM tuner
Active Noise Cancellation® System (ANC)
Power moonroof with auto-open/close, auto-reverse and key-off operation
GPS-linked, solar sensing Dual-zone, Dual-mode, Automatic Climate Control
Rear passenger ventilation controls
Electronic tilt and telescoping steering column with driver recognition
Steering wheel-mounted controls (cruise control, audio, telephone, voice recognition and multi-information display
Multi-information display screen
Speed-sensing, variable intermittent windshield wipers
Front and rear power windows with auto-down/up, auto-reverse and key-off operation
Overhead map lights (Front and Rear)
Automatic day/night rearview mirror
Illuminated driver and front passenger vanity mirror
HomeLink®
Programmable feature customization
12-volt power outlets (front and centre console)
Front and rear dual beverage holders
Front door storage compartments
Dual trip meters
Maintenance Minder system
Front side-window defoggers

Remote trunk and fuel door releases

RL SPECIFICATIONS	
POWERTRAIN	
Engine Type	3.5-litre, SOHC, 60-degree VTEC V-6
Horsepower, SAE Net	300 hp @ 6200 rpm
Torque	260 lb.-ft. @ 5000 rpm
Redline	6800 rpm
Bore and Stroke	89 mm x 93 mm
Displacement	3471 cc
Compression Ratio	11.0:1
Induction System	Programmed Fuel Injection (PGM-FI)
Valvetrain	Variable valve Timing and Lift electronic Control (VTEC) with 4-valves-per-cylinder, belt-driven, single overhead camshaft
Engine Block	Aluminum alloy with centrifugally cast iron cylinder liners
Cylinder Head	Aluminum alloy with 4-valves-per-cylinder with pent-roof combustion chambers
Emission Control	Close-coupled catalytic converter US CARB-certified LEV2-ULEV emission control
Ignition System	Direct ignition system with knock control
Alternator	130 amp max
Battery	12V, maintenance free
Recommended Fuel	Premium Unleaded

Layout	Transversely mounted, front engine, Super Handling All-Wheel Drive™ (SH-AWD™)		
Transmission	5-speed automatic with Sequential SportShift, paddle-shifters and Grade Logic Control		
	Ratios (:1)	1st 2nd 3rd 4th 5th Reverse Final (secondary) Final Drive	2.697 1.573 1.071 0.694 0.481 1.889 1.238 4.600
CHASSIS			
Body Type	Steel and aluminum unit body		
Front Suspension	Independent double-wishbone with coil springs and stabilizer bar		
Rear Suspension	Independent multi-link with coil springs and stabilizer bar		
Shock Absorbers	Nitrogen-filled, telescopic, gas-pressurized with Progressive Valve technology, front and rear		
Stabilizer Bars Front	29 mm diameter		
Rear	17 mm diameter		
Shock tower bar	32 mm x 22mm diameter 2.3 mm wall thickness		
Steering Type	Electronically controlled, speed-sensing, power assisted, rack-and-pinion		
Steering Ratio	16.2:1		
Steering Wheel Turns (lock to lock)	2.98		
Turning Circle (curb to curb)	12.1 m		
Wheels	17 x 8.0 aluminum alloy		
Tires	P245/50R17 98V Michelin high performance all-season		
Braking System	Power-assisted, 4-wheel disc brakes with ABS		
Front Discs	Ventilated 320 mm diameter		
Rear Discs	Ventilated 310 mm diameter		

Anti-Lock Braking System (ABS)	4-wheel speed sensors and electric/hydraulic control	
Vehicle Stability Assist (VSA) system	Throttle control and 4-channel brake control utilizing yaw, lateral g, speed and steering sensors	
CAPACITIES		
Crankcase	5.0 L Total	
Cooling System	8.6 L Total	
Fuel tank	73.3 L	
Volumes Passenger	2806 litres: 1566 front, 1240 rear	
Cargo	371 litres	
Total	3177 litres	
FUEL ECONOMY		
City/Highway*	13.1/9.4 L/100km	
EXTERIOR DIMENSIONS		
Wheelbase	2800 mm	
Track, front	1576 mm	
Track, rear	1585 mm	
Overall Length	4917 mm	
Overall Width	1847 mm	
Overall Height (unladen)	1452 mm	
Minimum Ground Clearance (non-load)	145 mm	
WEIGHTS		
Curb Weight	1815 kg	
Weight Distribution (% front / rear)	58/42	

**Fuel mileage ratings based on internal testing using the EPA method, comparison use only.*

INTERIOR DIMENSIONS			
Front Room	Head	977 mm	
Room	Leg	1076 mm	
Room	Hip	1400 mm	
Room	Shoulder	1487 mm	
Rear Room	Head	946 mm	
Room	Leg	923 mm	
Room	Hip	1372 mm	
Room	Shoulder	1426 mm	