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Honda's Sci-Fi 4wd In The Acura RL/legend Fast Cars – Now

By John Hartley

Honda has come up with the most amazing 4-wheel-drive system, not for off-roaders but to improve the handling and stability of fast cars. It is being used first in the new Acura RL (Honda Legend).

Why is it so advanced? This SH-AWD system has the potential to increase cornering power and cornering safety by leaps and bounds. It will be ideal for supercars as well as luxury coupes. (More information about supercars at

<http://www.fast-autos.com/supercars.html>

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First, it allows the amount of power sent to the wheels to be varied from 30% front and 70% rear to 70% front and 30% rear. True, some other systems get near that, but this allows the system to adjust itself to completely different conditions. On top of that, it can alter the torque from zero to 100% to the left or right rear wheel.

In other words, all the power can one to the right wheel one minute, and if necessary can be reversed so that all the power goes to the other wheel in an instant. This might be needed in slushy or snowy conditions, where there was a patch of bare road for a bit on one side offering good grip, but a bit later on a bare patch on the other side.

In addition to those features, the outer rear wheel can be speeded up so that it goes faster than the inside wheel! All done continuously depending on conditions. A few years ago this would have considered desirable, but science fiction.

More power to the rear wheel for acceleration

Confused? Well, let's start with the front-to-rear power. When you accelerate, the weight of the car is thrown on to the back wheels by the force of acceleration, so you want more power to go to the back wheels – if it all goes to the front you get wheelspin. When cornering, you generally want as much or

more power to the rear wheels. SH-AWD does that.

On the other hand, when you are cruising along, you want more power to the front wheels as this increases stability. SH-AWD also does that.

More power to outer rear wheel for better cornering

The side-to-side variation in power is used to improve cornering power and stability. For example, when you accelerate through a corner, extra power through the outer rear wheel counteracts understeer, letting the car corner on rails. In fact, stability control systems used on many cars now do this by reducing the amount of torque sent to the inner wheel – this means that you actually corner slower than you could do. SH-AWD lets you corner faster.

On the over-run, you don't need that, and less power is sent through the outer wheel for optimum stability. But that isn't enough because when a car corners, the outer wheels have to travel further than the inner ones – by 5–10% on very tight corners, so the outer wheel normally goes slower.

Honda overcomes this with some gears in the back axle gear set which actually drive the outer wheel

faster when cornering! This improves maneuverability and cornering at low speeds.

Electro-magnetic multi-plate clutches

All this is accomplished by multi-plate clutches operated electro-magnetically – a world first – and the gear/clutch set used for acceleration. In fact, these gears also serve as the rear differential.

An advantage of the electro-magnetic clutches is that the electronic controller does not need to control a hydraulic actuation system as used normally but an electric actuator – this reduces cost and weight.

Is this the best thing since sliced bread? For the person who wants to have stability and control, and doesn't want to know what is happening to the car –yes. Such a system is bound to reduce the input the driver gets from the road.

He will be less aware of whether the surface is slippery, or whether the car is understeering more than usual because the SH-AWD system is correcting things all the time.

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Honda Pilot 2005: The Weekly Driver Review

By James Raia

Honda Pilot 2005: The Weekly Driver Review by James Raia

Like its popular brethren, the CR-V, Odyssey and new Element, the Pilot completes Honda's best-buy SUV and van line. And like any of those offerings or anything else in Honda's arsenal, it's hard to find serious fault with the Pilot.

Introduced in late 2003, the Pilot replaced the Passport and it shares the same basic chassis and powertrain as the MDX, the complementary choice from Honda's upscale Acura division.

My test drive for the week was the top of the line's EX L 4-door wagon that includes both a navigation system and second seat DVD entertainment system. With those additions, the Pilot further enhances its position at the forefront of the midsize SUV ranks that include the Ford Explorer, Nissan Murano and Toyota Highlander.

The three Pilot models all offer a V6, 255-horsepower engine paired only a 5-speed automatic transmission. The HP total represents an increase of six percent from the 2004 model, further adding to the vehicle's status among the quicker midsize SUVs. It has a 0-60 mph test rating of 7.9 seconds.

Further performance areas for the Pilot are all at least average or above. The driver sits "tall" in the vehicle, so steering and handling are fine for the car's type. But it should never be mistaken for anything other than a SUV with cornering limitations.

Braking is strong and the standard all-wheel-drive system seems well-suited for trails and in inclement weather conditions.

Like other Hondas, controls and instrumentation as well as styling and indoor space are thoughtful and styled simply. The automatic shift lever is located behind the right side of the steering wheel and doesn't block access to other controls. But it's also too easy to shift in and out of transmission settings.

The pilot is an eight-passenger vehicle, with little compromise. The second and third-row seats each comfortably seat three passengers. Although unused during my test week, second and third-seat passengers can view DVDs from a screen that pops down from the second-seat ceiling. Headphones are stored in a map/accessory compartment behind the driver's seat.

All three Pilot models have a long list of standard features: tilt steering wheel, cruise control, 60/40 split folding second and third seats, power mirrors, windows and doors locks, remote keyless entry and AM/FM/CD player, among other items. The EX and EX-L models include a six-disc changer, steering wheel radio controls, automatic-off headlights and alloy wheels. Leather upholstery, heated front seats, power sunroof and heated power mirrors are standard on the EX-L model only.

Despite its best-buy status, the Pilot does have two less-than-spectacular considerations: curtain side airbags are not available on any model, and its fuel rating of 17 in city driving and 22 in highway use is

fine for its category but hardly an economical plus.

Nevertheless, the Pilot overall is an ideal family vehicle. It's spaciouly designed, practical and fits well in the Honda family known not only performance and reliability, but for a strong position in the resale market.

Safety features — Front side airbags, antilock 4-wheel disc brakes, rear-obstacle detection system. tire pressure monitor, rearview camera.

James Raia is a Sacramento, Calif., journalist who writes about sports, travel and lifestyle topics as well as the automotive column, The Weekly Driver Review. To read more car reviews, visit:

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