

the 39th **TOKYO MOTOR SHOW 2005**



**MITSUBISHI MOTORS**



Mitsubishi Motors has established the new corporate slogan "*Kuruma zukuri no genten e*". It reflects Mitsubishi Motors Corporate philosophy of delivering "the utmost driving pleasure and safety" and promises customers that the company is firmly committed to car building activities that treasure the qualities traditionally associated with the Mitsubishi Motors brand.

The new corporate slogan will spur Mitsubishi Motors, to continue building cars that deliver outstanding on and off-road performance, and continue car building activities that realize levels of safety, reliability and durability that inspire confidence in and encourage customers to use Mitsubishi brand cars.

At the 39th Tokyo Motor Show, the principles and values encapsulated by the new slogan are embodied in the new SUV "Outlander", the new-generation *kei-minicar* "i", the "MITSUBISHI Concept-X" and "MITSUBISHI Concept-D:5" concept models and in the near-future technologies on display for one and all to see, study and enjoy!

The "*Kuruma zukuri no genten e*" (meaning "Pursuing the Origins of Car Engineering" in English.)



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Concept 



 **MITSUBISHI**  
**CONCEPT-X**

Overall length	4530 mm	Track (F/R)	1565/1565 mm
Overall width	1830 mm	Seating capacity	4
Overall height	1470 mm	Tires	255/35R20
Wheelbase	2650 mm	Wheels	20x9J

**MITSUBISHI Concept-X. Developed to be the fastest road car.**

**A car that delivers the ultimate in motoring satisfaction and pleasure by enabling the driver to extract its full performance potential.**

**Aggressively purposeful styling.**

**Performance-oriented interior.**

**And the ultimate in road performance as Super All Wheel Control (S-AWC) raises the vehicle dynamics bar to new heights.**





## Concept

The Lancer Evolution made its debut in September 1992 as the progenitor of the “fastest road car” concept. Mitsubishi Motors had set its sights on the World Rally Championship, competing in Group-A where only restricted modifications to the regular production model were permitted. The mean machine it developed for the WRC derived from the Lancer compact sedan and was powered by a 2-liter turbocharged engine driving a full-time 4WD driveline.

Over the years since its debut, Lancer Evolution has chalked up success after success in the WRC including four successive driver's titles between 1996 and 1999 and the coveted manufacturers' championship in 1998. The production Lancer Evolution has continued to climb the evolutionary ladder, with the latest Evolution IX taking the stage in March 2005, and has earned it huge support from regular owners and drivers for its awesome performance.

MITSUBISHI Concept-X came into being as the epitome of Mitsubishi Motors' brand-defining sport driving image cultivated through years of honing the “Evo” in the WRC. Clearly identified by its new-generation styling, Concept-X offers a tempting preview of what Lancer Evolution X promises to bring. The development team has crafted an exterior that wraps all functional requirements in a design

that is menacingly purposeful, disarmingly handsome and that carries over the full flavor of Lancer Evolution's coldly mechanical road machine image. The quality interior wraps a functional layout that encourages the driver to concentrate solely on operating his machine. Both exterior and interior designs offer new-generation Evolution styling that is at the same time sportier and more elegant. In the mechanical components compartment, Concept-X sports a brand new powertrain that mates a intercooler-turbocharged engine with MIVEC\* valvetrain and aluminum cylinder block to a high-performance 6-speed auto-manual transmission. Weight is reduced through the extensive use of aluminum panels. Chassis performance has been substantially improved with the introduction of Mitsubishi's latest 4WD-based Super All Wheel Control (S-AWC) traction and handling enhancement system. This highly advanced technical specification makes Concept-X a showcase on wheels for Mitsubishi Motors quintessential road performance technology.

\*MIVEC: Mitsubishi Innovative Valve timing Electronic Control system



Headlights



Front Brakes



Tires and alloy wheels



Rear combination lamps



## Exterior

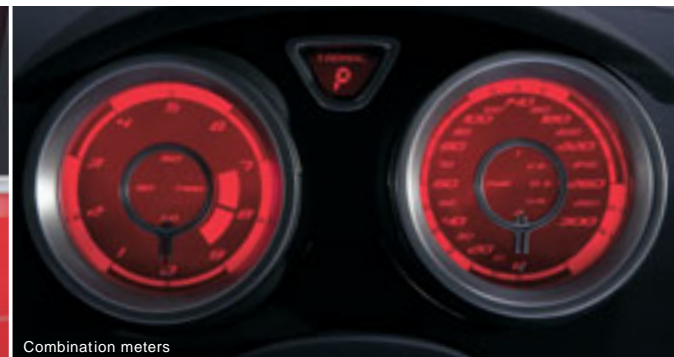
Now sporting world-standard body dimensions, the exterior is crafted to present a look that adds a classy touch to aggressively purposeful lines using a pronounced wedge profile and high quality surfaces. The team has created a “solid shape” form with lines that are purposeful and handsome; a form that symbolizes the New Mitsubishi Motors Design while retaining the coldly mechanical performance image that identifies the Lancer Evolution series.

Distinguished by its eye-catching outsize grille the front visage borrows design cues from a jet fighter. The front view hints at the huge quantities of air drawn in as well as the car's road-hugging stability. This and the brand-identifying 3-diamond logo on the leading edge of the engine hood are the principal elements that identify the New Mitsubishi Motors Design, the new-age Evolution design. Both headlamps and the rear combination lamps use LED\* technology, adding a near-future, cyber look to front and rear visages.

Leveraging the wide tires on 5-dual-spoke competition alloy wheels, Concept-X's proportions project a squat, road-hugging stance. They combine with the high-capacity brake calipers and huge disc rotors visible between the spokes to give strikingly visual expression to the car's awesome grip and traction and to the hugely powerful stopping capabilities of the car. The purposeful body lines are adorned in red metallic paint, portraying a fusion of Mitsubishi Motors passion for rallying and its cutting-edge technology. Closely resembling the company's WRC machine livery, the body coloring proclaims aloud Mitsubishi Motors' brand-defining sport driving image.

Dynamic. Aggressive. Functional. These keywords capsulate the design philosophy that runs through MITSUBISHI Concept-X's exterior.

\*LED:Light Emitting Diode



Combination meters



On-Board Multi-Media System (Rear seat display)



Ambient room lighting

## Interior

The interior follows the exterior design in embodying the “hard” and “comfort” aspects that define Lancer Evolution, distinguished by its glittering track record in international rallying and matchless sporty driving qualities in normal driving. The simple and functional layout of the cockpit is put together in a high quality design that encourages the driver to concentrate fully on operating his machine.

The On-Board Multi-Media System reflects the interior design in the way it encourages dialogue between the driver and the machine. The high-definition LCD\* monitor provides a real-time display of vehicle status and S-AWC operating status while also displaying the on-board navigation system maps and the DVD audio controls. Rear seat passengers have their own LCD displays that allows them to share with the driver driving-related information and his

fun-to-drive experience.

The team has also spared no effort in developing coloring and lighting that engender a keener competition look to the interior. The black keynote interior color uses silver counterpoints to impart the material feel of aluminum and create a more dynamic and athletic looking interior space. The instrumentation uses red illumination that makes the dials and readouts easier to read while adding a sporty taste. The interior lighting uses pale blue indirect illumination that lends a soulful sense of composure to the taut, mechanical atmosphere of the occupant space.

\*LCD:Liquid Crystal Display



Engine compartment

Shift lever (6-speed auto-manual transmission)

Brake and accelerator pedals

Paddle shifter

## Engine

MITSUBISHI Concept-X is powered by a 2.0-liter 4-cylinder DOHC MIVEC intercooler-turbocharged engine and delivers instant response across all engine speeds with flat torque that keeps pulling up to the red line.

The new MIVEC engine replaces the cast iron cylinder block with aluminum to reduce weight. This only improves not only fuel economy but also steerability and other vehicle dynamics. The MIVEC valvetrain brings environmental benefits, cutting fuel consumption and also reducing emissions. Another feature of the engine is that it is mounted with the exhaust manifold facing the rear. This layout improves catalytic converter purifying performance and also contributes to making the engine lighter and more compact.

## 6-speed auto-manual transmission with paddle shifters

MITSUBISHI Concept-X uses a 6-speed auto-manual transmission that realizes slicker shifting and higher transmission efficiency than a regular manual transmission. Shifting is by paddle shifters mounted on the steering wheel that allow the driver to concentrate on his steering better when pushing his machine hard.





S-AWC



On-Board Multi-Media System front monitor



On-Board Multi-Media System front monitor lid open



On-Board Multi-Media System front monitor lid closed

### Super All Wheel Control (S-AWC)

Mitsubishi Concept-X showcases Super All Wheel Control (S-AWC). A further step up the evolutionary ladder of Mitsubishi Motors four-wheel drive technology, already proven in the Lancer Evolution and other series, S-AWC brings together world ranking levels of traction control and handling. S-AWC realizes cutting-edge levels of vehicle dynamics control. With the ACD\*1 and Super AYC\*2 components from Lancer Evolution IX at its core, S-AWC adds Active Brake Control, Active Steering Control and Roll Control Suspension technologies to realize a fully integrated system.

S-AWC operating status can be displayed on the front and rear monitors allowing all occupants to experience the vehicle's high-dimension performance visually as well as viscerally.

(See pages 32-34 for further details about S-AWC)

\*1 ACD:Active Center Differential \*2 AYC:Active Yaw Control

### Body & chassis

The girder frame body structure realizes a significant increase in stiffness, while the use of aluminum panels reduces weight. Reducing weight in the roof and upper parts of the body lowers the center of gravity, while weight reduction and other peripheral elements reduces the moment of inertia for better steerability. Weight reduction, lowering the center of gravity and reducing the moment of inertia all contribute to better motive performance and better handling.

The Suspension features a MacPherson strut at the front and a multi-link arrangement at the rear. Working in combination with Mitsubishi Motors "Roll Control Suspension" technology, this design delivers very high levels of ride and road holding.



Concept-D:5

MITSUBISHI  
 CONCEPT-D:5

Overall length	4735 mm	Engine	4B12-type in-line 4-cyl. DOHC MIVEC
Overall width	1815 mm	Max. output	125 kW [170PS]
Overall height	1875 mm	Max. torque	226 N·m [23.0kg·m]
Wheelbase	2850 mm	Transmission	INVECS-III Sport Mode 6-speed CVT
Track (F/R)	1540/1540 mm	Tires	255/55R20
Seating capacity	6	Wheels	20x8J

We've conjured up a vehicle that brings more fun into our lives.

One that adds a satisfying richness and brings go-anywhere, anytime freedom.

MITSUBISHI Concept-D:5 – for the “Active Slow Life”.





## Concept

Coming to market in October 1982 as the very first four-wheel drive mono-box or minivan, the Delica Star Wagon 4WD spawned a new category in bringing together the full-function all-surface performance of the Pajero and the comfort of a regular passenger sedan. Delica, along with Pajero, brought major changes to how the Japanese approached their leisure, to their very lifestyles even. Occupying a unique position in the market, Delica went on to win a large following of fond and loyal owners.

For all those who continue to hold Delica in fond regard MITSUBISHI Concept-D:5 represents a next-generation study that proposes new ways of having fun, new lifestyles better matched and suited to the requirements of today.

To a go-anywhere, anytime high-mobility high-functionality “new 4WD mono-box” concept, Concept-D:5 packages the classy living space and functionality sought by owners in today's minivan and Delica's legendary all-terrain capabilities stemming from its advanced 4WD system, in a refined but rugged design that projects a sense of protective security.

The styling creates a new 'mono-box off-roader' shape that oozes functionality while still embodying an orthodox and purposeful look. Inside, the airy and open interior resulting from the “wide crystal light roof” roof panel serves as a counterpoint to the “rib bone frame” that projects a reassuring sense of safety. The use of natural materials adds a warmth that offsets the cool, utility feel of the metallic design and, like a favorite hand tool, invites years and years of use.

To deliver maximum driving pleasure and in line with Mitsubishi's All Wheel Control (AWC) philosophy, Concept-D:5 employs the same electronically controlled 4WD system as Outlander. The powertrain mates the same 2.4-liter MIVEC engine that powers Outlander to a INVECS-III Sport Mode 6-speed CVT to deliver brawny all-surface go-anywhere performance. To realize a reassuring sense of safety that is more than skin deep, Concept-D:5 incorporates ASV technology that assists the driver in operating his vehicle safely and minimizes strain. Concept-D:5 also brings new active and passive safety technologies to the minivan/SUV category.



Headlights



Rear combination lamps



## Exterior

The styling creates a wide-&-lifted mono-box architecture that is unmistakably Delica in taste. Pushing the “solid form” that symbolizes New Mitsubishi Design, the styling threads handsome, purposeful lines into a functional-oriented appearance. The resulting form proposes a totally new set of values while retaining Delica's traditional qualities.

“Super-mobility” was the keyword running through design development: creating a vehicle that encourages driver and occupants to set off for any destination encouraged by a deeply reassuring sense of safety. This approach can trace its roots to the successive Delica series.

In creating the basic form, the design team went for a mono-box architecture crafted from straight lines and with an understated nose. Producing a robust and solid look, the understated surface composition readily invokes the powerfully built lines of the Delica series while adding a mechanical tautness. The team also took care to choose materials that would allow the owner to

have fun customizing his vehicle – always a popular feature with the Delica.

Major elements in the styling that engender the go-anywhere mobility image include: the beamy overall width that imparts a look of muscular brawn; 20-inch tires that leave no doubt as to the matchless off-road capabilities and the ruggedness of the vehicle; the ground clearance that makes Concept-D:5 look like a box on wheels; and the upswept overhangs. The high-luminosity LED headlamps and rear combination lamps add a modern, hi-tech touch to Concept-D:5's understated and powerful-looking form.

As a machine designed to support those who enjoy the outdoor life, Concept-D:5 has a shape that the eye adapts naturally to and that blends in perfectly with its surroundings as well as evoking a matchless sense of cocooning its occupants in a comfort blanket of safety. This truly is the shape of a vehicle that encourages the “active slow life” design keyphrase.



Instrument panel

Rib bone frame + wide crystal light roof

Leather seat

## Interior

Defining features in Concept-D:5's interior are the “rib bone frame”, “wide crystal light roof” and the contrast struck between metallic and natural materials. The contrast between *Gou* (stiff) and *Ju* (soft) elements expresses the melding of satisfyingly enriching and pleasant comfort with a firmly reassuring sense of protective safety: the concept that underpins Concept-D:5's interior design.

The major defining feature of Concept-D:5's interior is its “rib bone frame” structure that appears to embrace the whole cabin. The design openly displays the frame structure, using this as a visual device to accent the solidly-built construction and the stiffness of the body. The effect instills in the occupants a reassuring sense of being surrounded by a protective cocoon. Creating an airy and open feel, the full-size glass roof panel is another defining element. These design elements serve to create an effective contrast between a protective sense of safety and a feeling of being an intimate part of the surroundings.

The development team went to considerable lengths to find materials and coloring that complemented the design principles of making the interior pleasantly comfortable and of engendering a sense of protective safety. Metallic materials are as far as possible used in their natural form to accentuate the strength and rigidity of the body structure, aiming for an effect

similar to that produced when, at certain angles of light, a scratched metal surface glints like a rainbow singing to the beauty of being in harmony with nature. The materials have also been chosen for the empathetic resonance they achieve with the environment.

Active use is made of leather and other natural materials to engender a sense of familiar warmth akin to that felt when using a favorite hand tool.

The seat upholstery, for example, uses leather still at the 70% stage of the tanning process to project the right look. The idea is to allow the leather to complete its curing process over time so that the owner may enjoy the sense of maturing with his car.

The understated tower computer case design of the center console and the automatic transmission gear shifter with integrated 4WD mode selector dial impart a high-density function-oriented dash to the cockpit. The open-on-demand instrument cluster highlights the understated hard or mineral look to the interior.

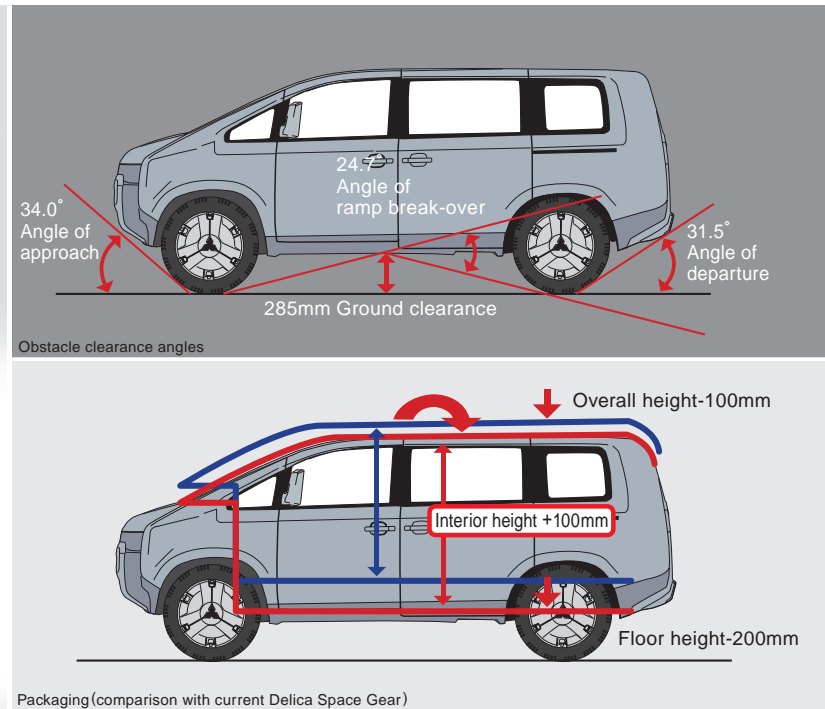
In line with its “Active Slow Life” development theme, MITSUBISHI Concept-D:5 must, as the occasion requires, alternatively provide a living room, a base camp and, of course, a means of transport. Inside, therefore, it must be open and airy but at the same time it must reassure the sense of protective safety.



Front suspension



Rear suspension



## Chassis

In line with Mitsubishi Motors' new AWC principles MITSUBISHI Concept-D:5 employs the same four-wheel drive system as Outlander. Mitsubishi's electronically controlled 4WD offers a choice of three operating modes that allow the driver to drink deeply from the well of sport motoring satisfaction and driving pleasure, safely.

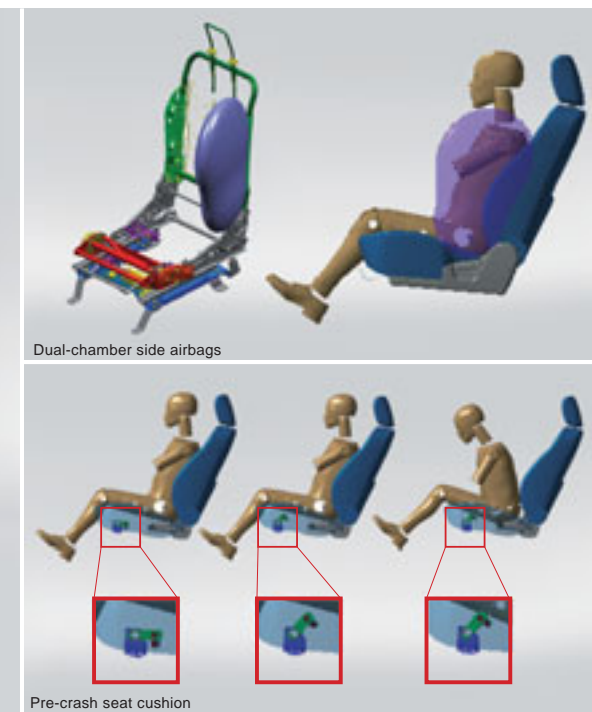
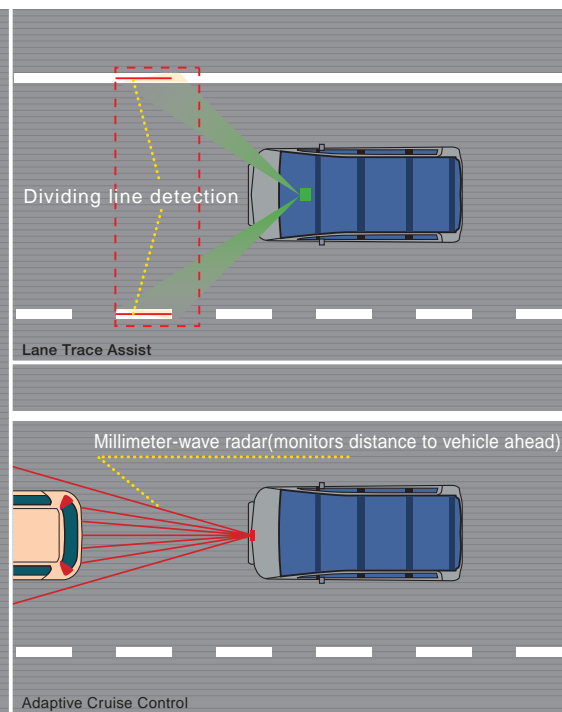
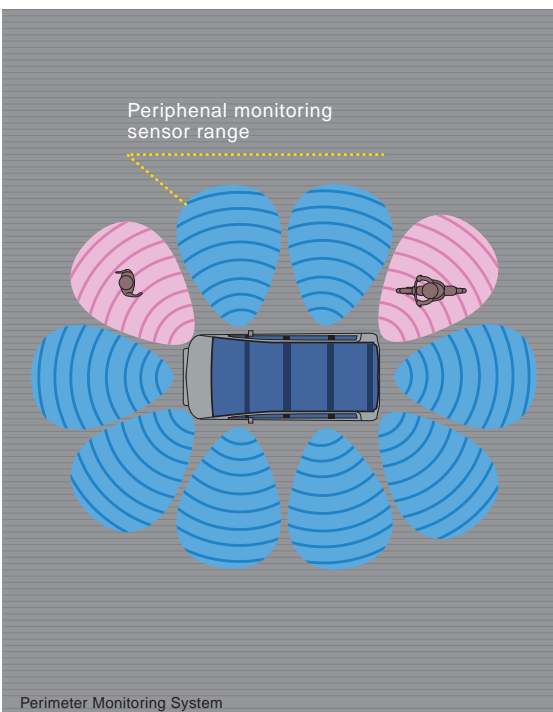
The Suspension features a MacPherson strut at the front and a multi-link arrangement at the rear. The generous stroke length enables the suspension to soak up punishment off-road while delivering superior road holding performance and classy, comfortable ride on tarmac.

Concept-D:5 boasts a full-function off-road specification that is substantially more advanced than the current Delica Space Gear (D.S.G) with ground clearance of 285mm (D.S.G: 190mm), approach angle of 34 degrees (D.S.G: 25 degrees), departure angle of 31.5 degrees (D.S.G: 25 degrees),

and ramp break-over level of 24.7 degrees (D.S.G: 23 degrees). This specification visually combines with Concept-D:5's distinctive styling to leave absolutely no doubt as to its go-anywhere mobility potential. Concept-D:5 uses exclusive large tires and alloy wheels. All in all, the chassis specification realizes truly awesome levels of rough road performance.

## Powertrain

MITSUBISHI Concept-D:5 is powered by the same all-new 2.4-liter MIVEC engine as Outlander. This new-generation lightweight and compact aluminum unit delivers high output while returning low consumption and low emissions. The powertrain mates the engine to a Sport Mode 6-speed CVT to deliver brawny, powerful motive performance while also leaving the driver fully aware of its refinement.



### Active safety technologies

Concept-D:5 points the way ahead in terms of minivan and SUV safety and comfort through the proactive introduction of the following advanced safety vehicle (ASV) technologies.

- Peripheral monitoring system: 10 approach sensors detect pedestrians or obstacles in the close vicinity of the car. The system promotes safety by audibly urging the driver to take extra care.
- Lane Trace Assist. An on-board camera monitors the lane dividing lines and the system applies a corrective torque to the electric power steering when it senses the vehicle is starting to depart from its lane.
- Adaptive Cruise Control (ACC) : The ACC system uses millimeter-wave radar to monitor the distance to the vehicle ahead and regulate engine power and the CVT gear ratio accordingly. By maintaining a safe following distance at all times, ACC enables safe and strain-free cruising.

### Passive safety technologies

Concept-D:5 features a comprehensive passive safety specification that provides effective occupant protection in the event of a crash or other accident.

Occupant stature detection	Optimally regulates airbag deployment speed according to the occupant's seated position and weight.
Multi-stage SRS airbags for driver and front passenger	Multi-stage SRS airbags tailor deployment speed to the magnitude of the impacting force and to the occupant's weight and seated position.
Knee airbags	As well as offering impact protection to the knees, these airbags optimize occupant body behavior in crash to increase the effectiveness of other airbags.
Full-length curtain airbags	Deploy in a side crash to provide occupants in all rows of seat protection from head injury and to prevent them from being ejected from the car.
Dual-chamber side airbags	Deploy with optimum force to protect the area between shoulder and hip and reducing risk of airbag-related injury.
Pre-crash seat cushion	Cushion shape deforms on detection of imminent crash to place occupant in attitude where airbag offers maximum protection.



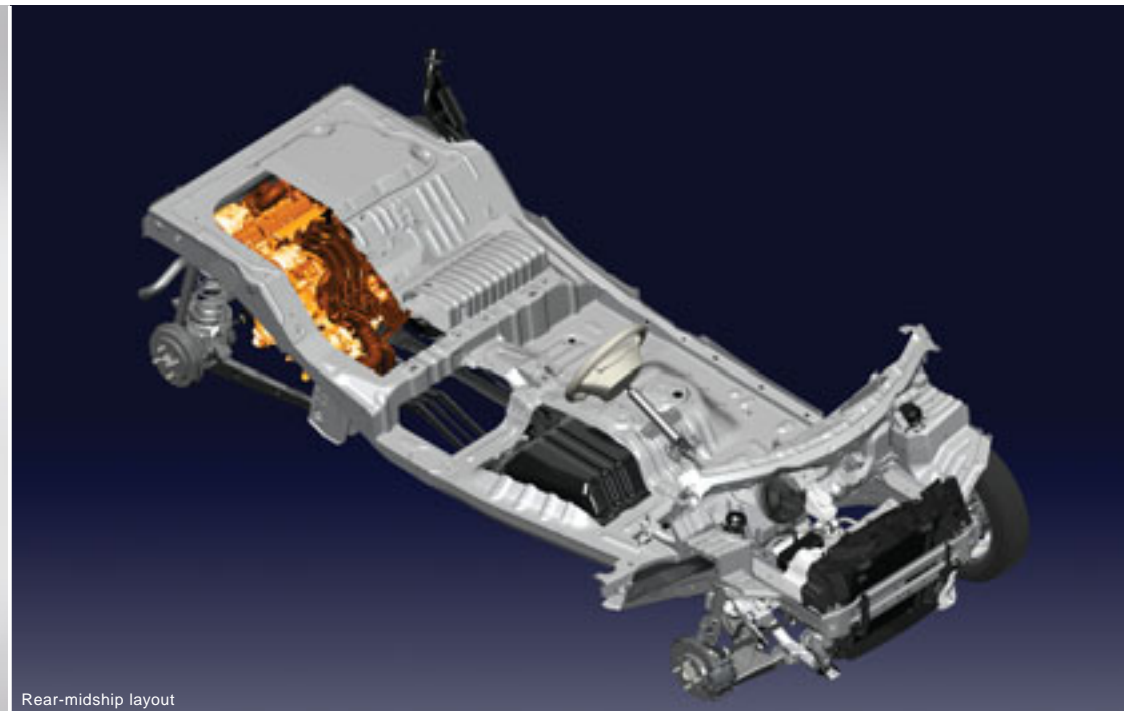
Overall length	3395 mm	Seating capacity	4
Overall width	1475 mm	Engine	New 3-cyl. DOHC MIVEC (intercooler-turbocharger)
Overall height	1600 mm	Max. output	47 kW [64PS]
Wheelbase	2550 mm	Tires	Front 145/65R15
Track (F/R)	1310/1270 mm		Rear 175/55R15

Hi, I'm "i" and my name reflects the following attributes:

- I (the personal me!)
- Innovation
- Imagination
- Intelligence

You could say I'm an innovative new-age *kei-minicar* came under review from the basic layout up to deliver a new set of minicar values.





## Concept

The Japanese *kei-minicar*. A car that has come to be a vital part of the lives of many motorists, cherished for its hallmark convenience and economy. "*i*" is a keyword for a innovative new-age *kei-minicar*; one that proposes a totally new and original set of values. The development brief was to create a completely new *kei-minicar* distinguished by a premium-quality feel, by an ambiance and by road performance that well exceed conventional norms for the category.

"*i*" is targeted at potential owners who are looking for: a car of reasonable size that is still friendly both to user and to the community environment; a car that offers more than convenience and functionality; a car that makes their lives fuller, more satisfying and that instills a sense of pride, the joy of ownership.

The target group contains many who are seeking the highest levels of reliability and of design in

the category. There can be no doubt that the near future will see the growth of a market for a new breed of *kei-minicar* that offers these attributes at premium levels to give prospective purchasers an extended choice.

In targeting this new group "*i*" offers the following three new values:

- A comfortable marriage between imaginative exterior lines and roomy interior living space
- All-directional crashworthiness
- Nimble, athletic performance and a classy ride

The development team adopted a new approach to the challenge of building these three core values into the space limitations dictated by *kei-minicar* dimensions. The solution it arrived at is a first for Mitsubishi Motors – the rear-midship layout.



### Imaginative styling with roomy interior

The rear-midship layout mounts the engine under the floor just forward of the rear driving wheels. Having no engine at the front made it possible to move the cabin forward and provide more generous interior space allowing all occupants to relax in comfort. The cocoon-like interior engenders a sense of being protectively cosseted, while the large windshield and forward sloping beltline create an interior space that is pleasantly airy and open.

This trailblazing layout has also brought major changes in the styling. The one-motion form, so much resembling a single calligraphy brushstroke, the wheel at each corner and the long wheelbase all combine to visually project a reassuring look of stability. And this, in turn, creates a striking, free-spirit appearance that is quite removed from the minicar norm.

### Exterior

The design team has crafted the exterior lines in styling that is clean and lucid but that also gives "i" a forceful presence. The one-motion form seems to gently wrap around its occupants like a cocoon. The large diameter wheels and tires and the long wheelbase combine to project a sense of movement, one that is nimble and pleasing to the eye. Together these elements create leisurely proportions that, while simple and clean, promise the kind of richly satisfying experience that makes the observer want to jump behind the wheel right away.

It was, of course, the new rear-midship layout that made it possible to create such proportions. The absence of the engine at the front allowed the purposeful cab-forward stance and the use of larger wheels while still providing an adequate turn angle. The end product is twinkle-toe maneuverability. One of the most striking elements in the front view is the heavily bowed glass area that gives it an unparalleled look of airy openness. Appearing to have been drawn with a



Instrument panel



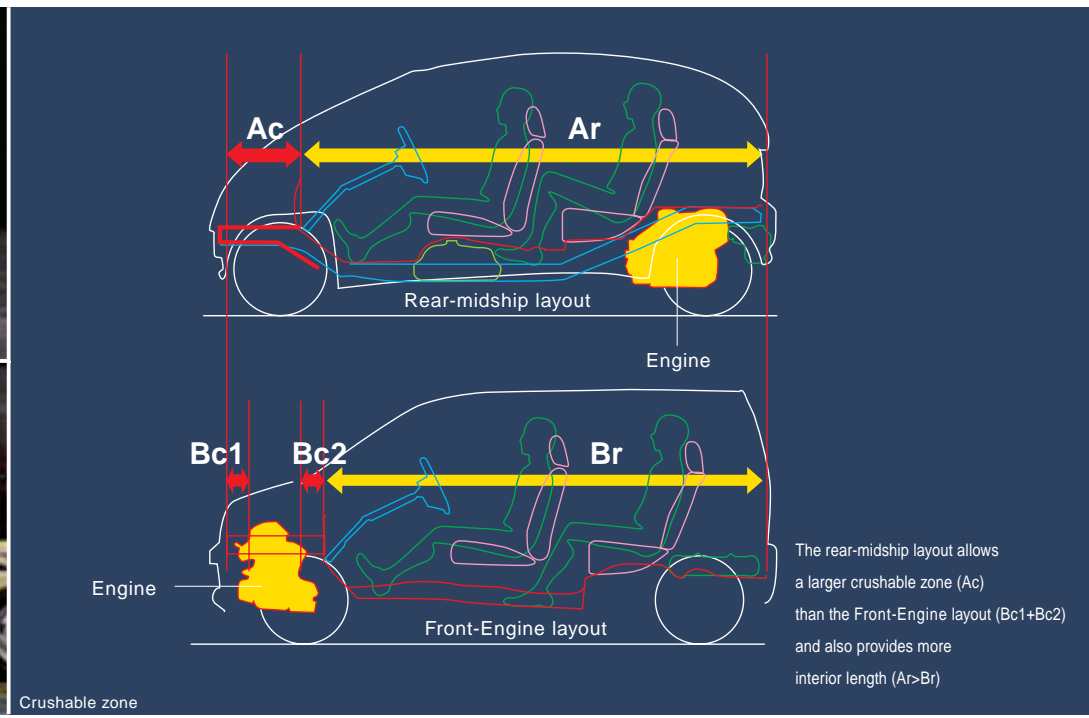
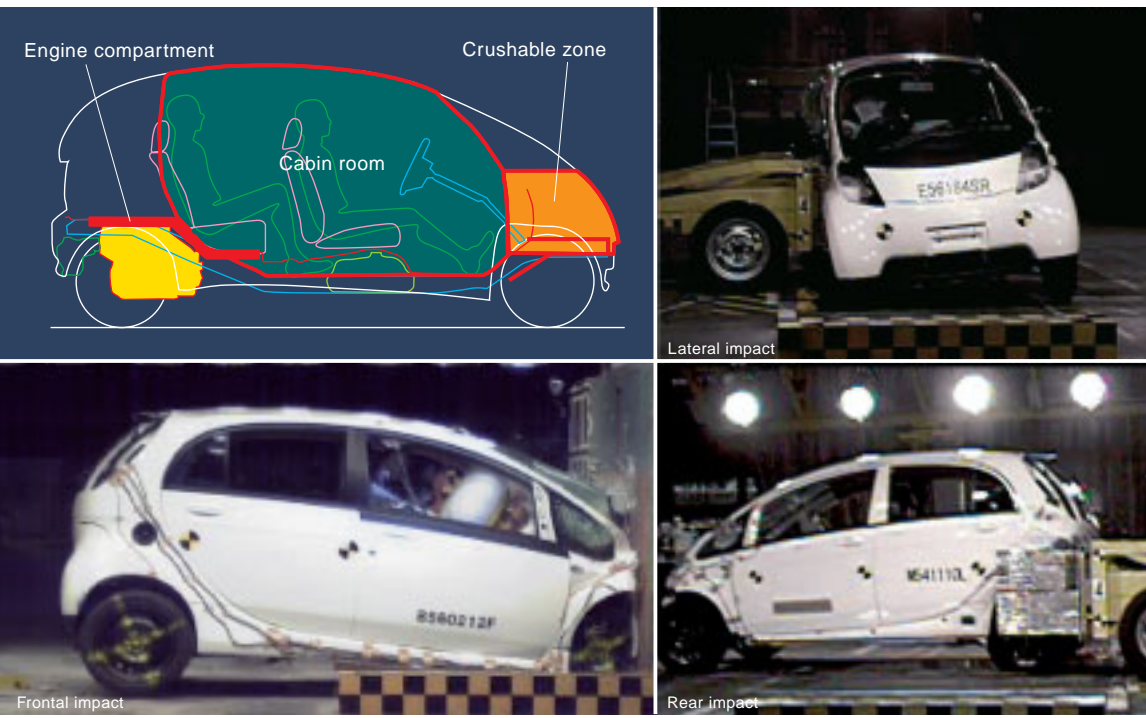
single brush stroke, the windshield and the side door openings claim a demanding presence in an understated pose. The originality of the form is balanced by detailing which is concise and abbreviated and free of any sense of trying to be different simply for the sake of it. The tasteful styling faithfully conveys a feeling of excellence in all it embraces.

The designer's singular attention to detail, his desire to achieve perfection is strongly reflected in the styling. But in no way did the development team give design absolute priority over other considerations. If anything, the team's primary focus was on producing a design that makes the observer aware of the very high level of functionality the car embodies as an important everyday tool. The design aims to create in those who empathize with it a deeply satisfying sense of the pleasure to be had from owning and driving "i" .

### Interior

Inside, the design uses the extra cabin room realized by the innovative packaging and the low-line dashboard to create an interior that is airy and open and that offers a panoramic field of view. And with their deeply rounded design, the seats assume a commanding presence even in this roomy interior space.

Meticulous care was taken in developing the detailing to create shapes that were as smooth as absolutely possible to impart an invitingly soft-to-the-touch look. As a counterpoint, the center panel and instrumentation use designs that are more elaborate and mechanical in taste. The provision of ample storage space is a vital element in a car that must take on the role of an everyday companion. With "i" this has not been a case of simply providing more storage places; rather, pains have been taken to provide the kind of spaces that allow small items to be hidden away. Altogether, an interior space that offers high-utility convenience with stylish elegance.



**All-directional crashworthiness**

Maximum occupant safety in the event of a frontal crash requires the provision of a crushable zone to absorb the impact energy. In front-engine cars, providing an adequate crushable zone requires that the nose be lengthened and in the minicar with its limited overall dimensions this seriously impacts interior length. The rear-midship layout locates the engine towards the rear of the body. Although the one-motion form makes the nose appear somewhat stubby, the layout provides a sizeable front crushable zone and reconciles the conflicting requirements of good crashworthiness and a comfortable interior length. The development team has also utilized the added freedom in designing the layout that stems from the absence of a front engine to create a body structure that disperses impact energy more efficiently.

"i" also provides much improved rear impact safety. On impact, both body and engine work in concert to provide an occupant survival space. Lateral impact safety is also significantly improved by cross members positioned at suitable points along the frame. By absorbing input in a side crash they reduce the impact energy transmitted to occupants.



45% Weight distribution 55%

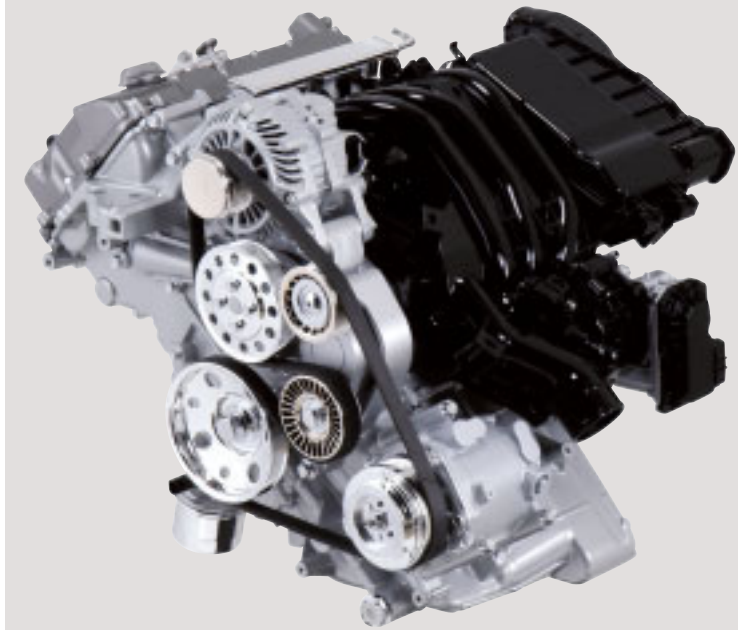
Weight distribution



Double lane-change test



Engine compartment



New 3-cylinder MIVEC engine

### Nimble performer gives great ride

"i" reconciles the requirements of nimble handling and a classy ride with consummate ease. With no engine over the front wheels steering is light and pleasantly direct, handling is nimble and responsive. The rear midship location of the engine also means the rear driving wheels are always optimally loaded and able to deliver stable traction under all circumstances, and that there is less dive under hard braking.

The compact car-like wheelbase and large diameter tires at each corner of the car mean a flat, classy ride with virtually no pitching - another quality that sets "i" apart from other *kei-minicars*.

### Engine

"i" is powered by a brand new 3-cylinder intercooler-turbocharged MIVEC engine that pumps out a muscular 47 kW (64 PS) of power. The MIVEC valvetrain also realizes low fuel consumption and low emissions at all engine speeds. Fuel economy is more than 15% better than an equivalent model powered by the current turbocharged unit and "i" is also expected to earn 3-star rating for emissions that are 50% below 2005 Japanese requirements.

The aluminum cylinder block and oil pan and the compact dimensions of the resin intake manifold mean that despite its DOHC MIVEC valvetrain the new engine weighs in some 10% lighter than the current SOHC unit. The use of a silent camshaft drive chain and greater engine rigidity has reduced noise and vibration levels.

Together, these features realize the high output, clean emissions and quiet operation to be expected of an engine powering a truly innovative new *kei-minicar*.



# OUTLANDER

## OUTLANDER

Overall length	4640 mm	Engine	4B12-type in-line 4-cyl. DOHC MIVEC
Overall width	1800 mm	Max. output	125 kW [170PS]
Overall height	1680 mm	Max. torque	226 N·m [23.0kg·m]
Wheelbase	2670 mm	Transmission	INVECS-II Sport Mode 6-speed CVT
Track (F/R)	1540/1540 mm	Tires	225/55R18
Seating capacity	7 / 5		215/70R16

Take the appeal of a SUV that covers the full motoring experience spectrum. Inject an exciting dose of Mitsubishi Motors' brand-identifying driving quality technology cultivated and honed over the years in the motorsport arena. That's Outlander – an all-new on-road SUV that delivers feel-good performance with predictable follow-the-line handling.

Outlander boasts interior space and versatile utility that raise the mid-size SUV bar. Attractive styling that marries athletic prowess and macho tough to complement Outlander's heart-thumping road performance. Add foot-taping, finger-clicking high-quality audio entertainment pumped out by a Rockford Fosgate Premium Sound system, one of Outlander's defining features.

That's Outlander — an all-new SUV that is unmistakably identified by Mitsubishi Motors' hallmark qualities.



### Walkaround

The all-new mid-size SUV Outlander uses a new platform and a new powertrain. The new-age platform provides improved crashworthiness and greater vehicle rigidity. The powertrain mates a new aluminum cylinder block 2.4-liter MIVEC engine with a Sport Mode 6-speed CVT to drive the wheels through an electronically controlled 4WD system. Outlander borrows technology developed in the Lancer Evolution, including an aluminum roof panel and mono-tube shock absorbers, to realize on-road performance that fully eclipses the conventional SUV with its off-road bias.

A full-feature on-road SUV, Outlander also offers category-topping levels of versatility and utility as the normal 5-seater model is joined in the lineup by a 7-seater body that features underfloor-stowing occasional seating for two extra passengers.

### Design

The team's aim in developing the styling was to create a new-age crossover design that embraces the needs of both all-surface performance and versatile utility. It injected a sizeable helping of

modern SUV taste to create a design that satisfies the eye of the discerning adult looking for the genuine article. The silhouette sits on a rock-steady stance generated by wide tracks and huge 18-inch wheels and tires and displays in its lean proportions the quiet potency of a fully trained athlete to give a titillating foretaste of its exhilarating street and dirt performance.

The interior was conceived to reflect the marriage between meaningful function and classy stylishness that underpins the exterior. Serving as a counterpoint to the dashboard that sweeps the width of the car, the vertically-oriented center console adds a pleasantly surprising dash of elegance and class. Wafting a spicy tang of sport and SUV-tough, the console locates the Select 4WD drive mode selector, very much an SUV icon, in the center and behind the shift lever to stamp a distinctly mechanical touch on the cockpit. The interior's sporty flavor is continued in the detailing. The instrument cluster, with twin lens reflex camera-type dials; the black interior coloring scheme highlighted with two shades of silver; and the sporty semi-bucket seats.



Drive modes selector



2WD

Best fuel mileage with FF car-like nimble response.



4WD AUTO

The system tailors F/R torque split to surface and other driving conditions. Delivers outstanding vehicle stability in expressway driving in strong crosswinds or when driving over slippery and other low-friction surfaces.

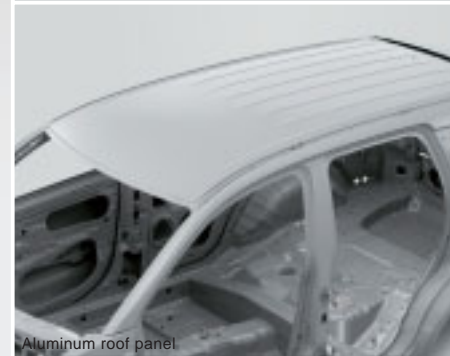


4WD LOCK

Feeds more drive torque to rear wheels than 4WD AUTO. Delivers outstanding all-terrain traction in snow, over poor surfaces and on steep gradients as well as giving driver maximum control over his vehicle.



Mono-tube shock absorber (Rear)



Aluminum roof panel

### All Wheel Control (AWC)

The development brief called for the new-age SUV Outlander to deliver all-round cruising performance. Underpinning the new technologies employed to achieve this goal is Mitsubishi Motors' hallmark All Wheel Control philosophy.

To deliver a new level of all-wheel control that realizes predictable handling and allows the driver to safely follow his chosen line in on-the-limit driving, AWC marries Active Stability Control (ASC) technology to the electronically controlled 4WD system. Complemented by a new stiffer platform, an aluminum roof that lowers the center of gravity and a new suspension system, AWC gives Outlander best-in-class levels of handling and stability.

#### • 4WD with Active Stability Control (ASC)

Mitsubishi's electronically controlled 4WD offers a choice of three operating modes: 2WD, which returns the best fuel economy; 4WD AUTO, which automatically tailors torque traction and handling characteristics to different surfaces; and 4WD LOCK, which maximizes traction to allow the driver to extract the full 4WD performance potential from his car. This advanced system works in concert with Active Stability Control (ASC), which controls vehicle attitude to prevent skidding,

to allow the driver to drink deeply from the well of sport motoring satisfaction and driving pleasure.

#### • Mono-tube shock absorbers at rear

Outlander is fitted as standard with rear mono-tube shock absorbers, as found on many luxury and sports models. With a faster build up in damping pressure and quicker response to inputs than the twin-tube shock, the mono-tube shock delivers superior handling and stability together with a classy ride.

#### • Aluminum roof panel

Reducing the weight of the roof, the highest structural component on a vehicle, is an effective way of lowering the center of gravity and reducing the roll moment and thereby improve handling and stability as well as ride. In terms of improved vehicle behavior, lightening the roof is three times more effective than using an aluminum engine hood.





Paddle shifter



Split tailgate



Shift selector



3rd row seats



3rd row seats stowed under the floor

New 4B12-type 4-cylinder MIVEC engine

### Powertrain

To hit new heights of performance the team has given Outlander a brand new powertrain. The 2.4-liter 16-valve DOHC engine has an aluminum cylinder block and uses MIVEC variable valve timing intake/exhaust valvetrains. The power unit is mated to a new INVECS-III Sport Mode 6-speed CVT. This happy marriage spawns outstanding motive power with instant throttle response giving smooth acceleration while also returning miserly fuel consumption.

### Packaging & utility

Development of the packing was a no-compromise process as the team sought to give Outlander multi-purpose functionality, versatility and utility. Sitting on the new platform, Outlander realizes top-ranking space efficiency for a mid-size SUV.

#### • Interior space

Outlander's packaging creates best-in-class living space in both front and second row seats together with class-topping luggage compartment volume. A standard feature on all models, luggage capacity can be increased by tumbling the second row seats forward in a simple one-

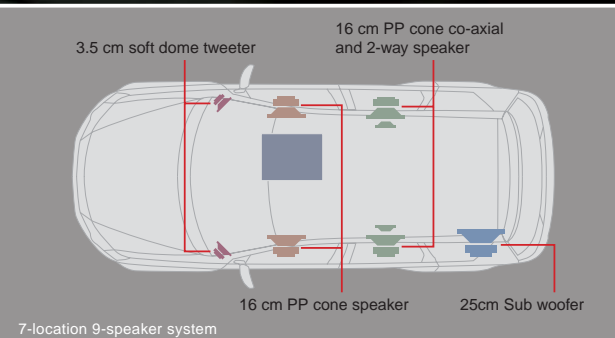
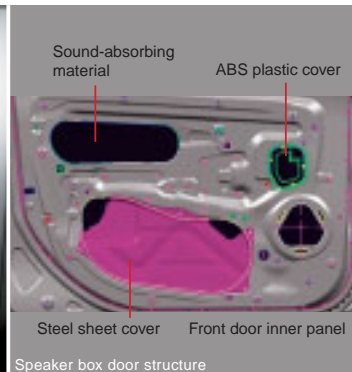
step operation. Operating a switch on the luggage compartment wall causes the rear seat head restraints to retract, the backrest to fold down and the seat to tumble forward. Other convenience features adding to luggage compartment utility include floor rails that facilitate loading and unloading of cargo, utility bars for attaching a variety of accessories and a 100V AC power socket.

#### • Split tailgate

Outlander uses a split tailgate to maximize the benefits of the low-floor luggage compartment and to improve access. The lower section opens at 600 mm height above the ground and the top section to a height of 935 mm, thereby allowing bulky items to be loaded with ease.

#### • Seats

Outlander uses semi-bucket front seats that provide excellent hold and location. The high hip point provides the panoramic field of view expected in a SUV as well as facilitating egress and ingress. The 60/40-split sculptured rear seats are adjustable for slide and recline and also tumble forward. Occasional-use third row seats that fold and stow under the floor allow Outlander to carry seven passengers if required.



### Rockford Fosgate Premium Sound system

The in-car entertainment system was developed jointly with Rockford Fosgate, the leading car audio brand in the United States, exclusively for Outlander.

Tuned for awesome heavy-bass sound reproduction, the 650 watt, 25 cm subwoofer 7-location 9-speaker, Digital Signal Processor (DSP) system blows out body-shaking sound images in pristine audio fidelity, clarity and depth to bring about a revolution in factory-fitted automobile audio systems.

To extract every decibel from the system, Outlander employs deadening techniques using sheet panel, ABS plastic covers and sound-absorbing material to seal the openings and convert the doors into speaker boxes.

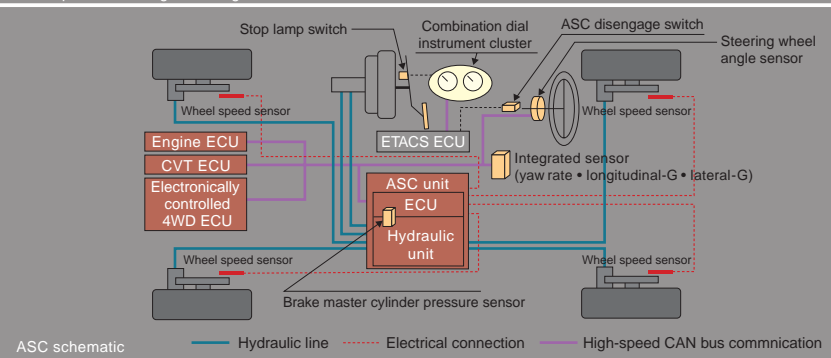
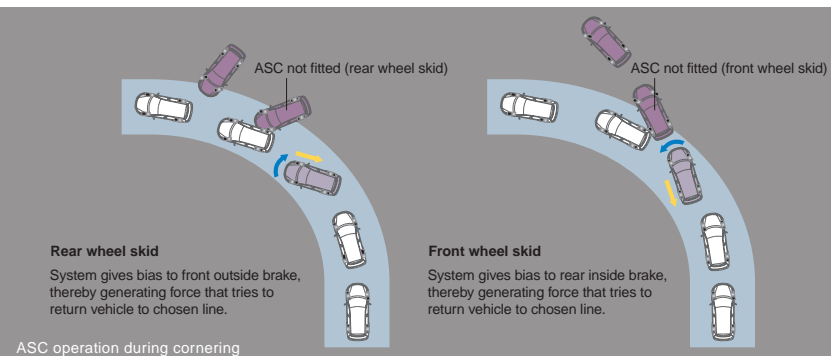
### Safety

#### • Crashworthiness

Outlander was developed from the outset to deliver world-standard crashworthiness. The stringently re-engineered body structure and platform design is augmented by the installation of more airbags. In-house testing suggests that Outlander will earn a maximum 6-star JNCAP\* impact safety rating and the comprehensive passive safety features that allow occupants to ride with a sense of reassuring safety are complemented by pedestrian protection measures.

Driver and front passenger are provided, as standard, with dual-stage SRS airbags that tailor the force they deploy with to the magnitude of the impacting force and thereby reduce the risk of airbag-related injury. Pillars and the inner roof panel employ an impact energy-absorbing rib construction that reduces injuries to the head and with available side and curtain airbags (factory-fitted options) provide additional occupant protection in the event of a side impact or roll over. Front, second row and the occasional-use third row seats are fitted with 3-point seatbelts as standard.

\*JNCAP: Japan New Car Assessment Program



• Active Safety Control

Outlander is equipped with Active Safety Control (ASC) as standard specification on all models. ASC regulates vehicle attitude to prevent skidding as a result of sudden steering inputs or loss of traction on a slippery surface. Effecting integrated control of braking force, drive torque, CVT and the electronically controlled 4WD, ASC also features a traction control system that functions similarly to a mechanical limited-slip differential to control wheel spin when moving off or accelerating. The system helps the driver maintain his car under stable control under all driving conditions.

**Built-in quality**

Outlander is a product of the Mitsubishi Motors Development System that uses stringent quality inspections to underpin the full conception-to-production chain and assure the highest levels of total vehicle quality.

• Design

Maximum use was made of digital plotting technology where data on every constituent part is digitized and used to create a digital mockup at the initial development stage. This allows the development team to check for and eliminate any interference between parts or other quality problems long before the vehicle reaches the production line.

• Production

In Stage Quality Creation (ISQC) is Mitsubishi Motors multi-level quality assurance system that provides the key to improved manufacturing quality. Experienced ISQC personnel stationed at each critical process on the production line assure that the vehicle continues to the next process only if it meets stringent quality standards. Not only does ISQC stop defective vehicles coming off the line, it also prevents defects at the design stage and in production plant. Should a defect be discovered, the results of a thorough investigation after data on the problem have been digitized are fed back to allow improvements to the vehicle design and production plant.

# LANCER Evolution MIEV



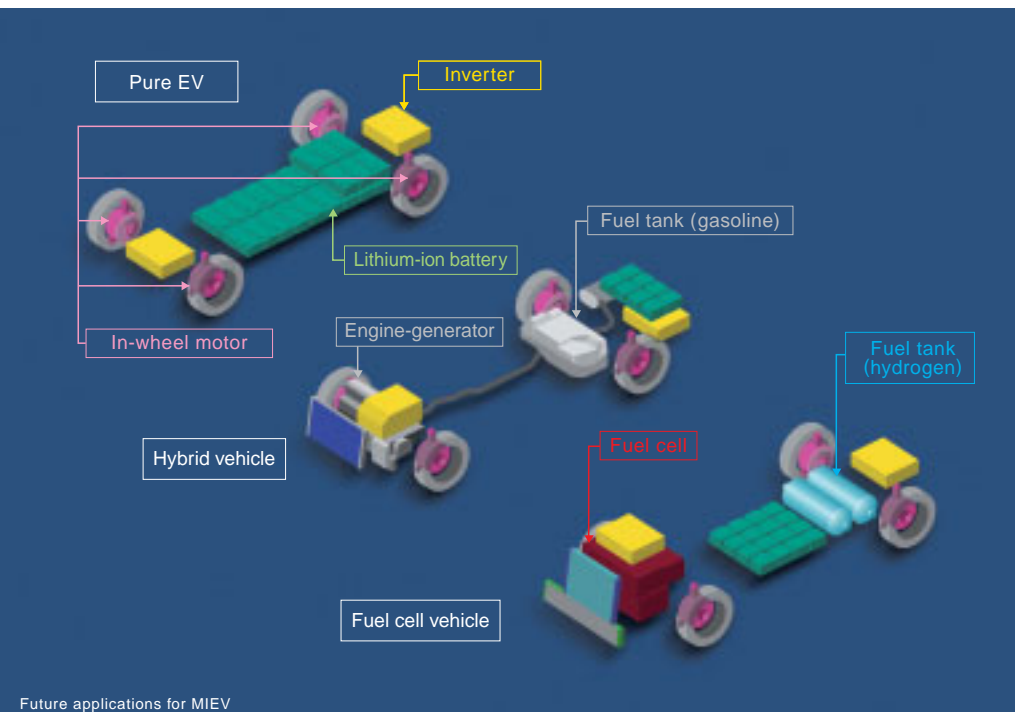
## LANCER Evolution-MIEV

Specifications	Overall length	4490 mm	<table border="1"> <tbody> <tr> <td>Battery system</td> <td>Type</td> <td>Lithium-ion</td> </tr> <tr> <td></td> <td>Capacity</td> <td>95 Ah</td> </tr> <tr> <td></td> <td>Voltage</td> <td>14.8 V</td> </tr> <tr> <td></td> <td>L x W x H (mm)</td> <td>388 x 175 x 116</td> </tr> <tr> <td></td> <td>No. of modules</td> <td>24</td> </tr> <tr> <td></td> <td>Controller</td> <td>Inverter</td> </tr> <tr> <td></td> <td>Drive</td> <td>4WD</td> </tr> <tr> <td></td> <td>Tires</td> <td>235 / 30ZR20</td> </tr> </tbody> </table>	Battery system	Type	Lithium-ion		Capacity	95 Ah		Voltage	14.8 V		L x W x H (mm)	388 x 175 x 116		No. of modules	24		Controller	Inverter		Drive	4WD		Tires	235 / 30ZR20
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	Drive	4WD																									
	Tires	235 / 30ZR20																									
	Overall width	1770 mm																									
	Overall height	1450 mm																									
	Kerb weight	1590 kg																									
	Seating capacity	5																									
	Max. speed	180 km/h																									
	Cruising range / charge (10-15 driving pattern)	250 km																									
Motor (outer-rotor type)	Type	Permanent magnetic synchronous																									
	Max. output	50 kW																									
	Max. torque	518 N · m																									
	Max. speed	1500 rpm																									
	Dimensions	445 mm (dia.) x 134 mm																									
	No.fitted	4																									

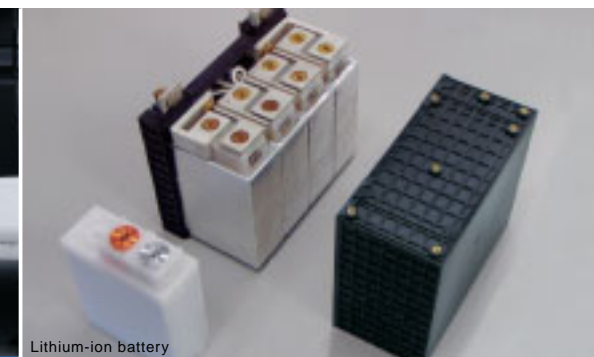
Mitsubishi In-wheel motor Electric Vehicle (MIEV) is the term used by Mitsubishi Motors to refer to its next-generation electric vehicle (EV) technologies and vehicles.

MIEV is built around core technologies of in-wheel motors, which allow very compact drivetrains, and lithium-ion batteries which offer superior performance in terms of energy density levels and life.

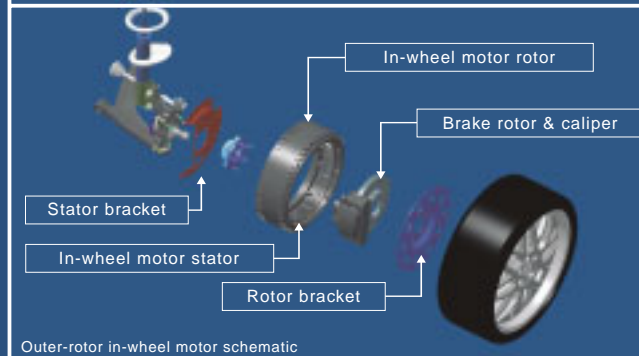
With an eye to applying the technology to hybrid and fuel cell vehicles, Mitsubishi Motors is currently pushing forward its development of MIEV technology in Colt EV and Lancer Evolution MIEV test cars. The company plans to bring a MIEV model to market by 2010.



Outer-rotor in-wheel motor



Lithium-ion battery



Outer-rotor in-wheel motor schematic



Inverter

# Technologies MIEV

## In-wheel motor

The foremost feature of the in-wheel motor is that it allows drive torque and braking force to be regulated with high precision on an individual wheel basis without requiring transmissions, drive shafts, differential gears or other complex and heavy components. The in-wheel motor therefore holds great promise in terms of the contribution it can make to the further evolution of Mitsubishi Motors' All Wheel Control (AWC) concept.

Housing the drive system in the wheels also gives greater freedom in designing the layout. This will facilitate the conversion of internal combustion engine-powered vehicles into hybrid vehicles without requiring the introduction of complex hybrid power systems. It will also make it easier to provide room for space-consuming components such as fuel cell stacks and hydrogen tanks in fuel cell vehicles. The space-saving benefits of the in-wheel motor also offer exciting possibilities in terms of body design.

## Lithium-ion batteries

The major shortcoming of the EV to date has been its limited cruising range. This is now well on the way to being overcome with recent improvements in battery performance. MIEV uses the lithium-ion storage cell for its main power source, this offering advantages in terms of energy density and life over other types of secondary or rechargeable batteries.

Mitsubishi Motors has already built several test vehicles using lithium-ion battery systems, including the Mitsubishi HEV in 1996, the FTO-EV in 1998 and the Eclipse EV in 2000. The company is running test programs to verify the practical feasibility of the technology and these include 24-hour continuous driving at full throttle with rapid charging and public road testing of test cars that have received vehicle-type certification. The Colt EV test car has recorded a single-charge range of 150 km in the Japanese 10-15 driving pattern. The company expects to increase this to nearly 240 km by 2010.

Mitsubishi Motors considers there to be every possibility that compact and minicar EV's will become the mainstream next-generation energy vehicle for urban driving and other shorter, low speed trips.



### Lancer Evolution MIEV

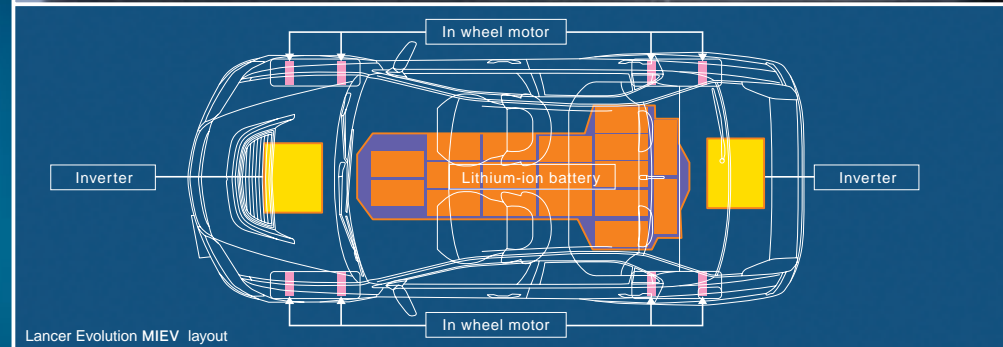
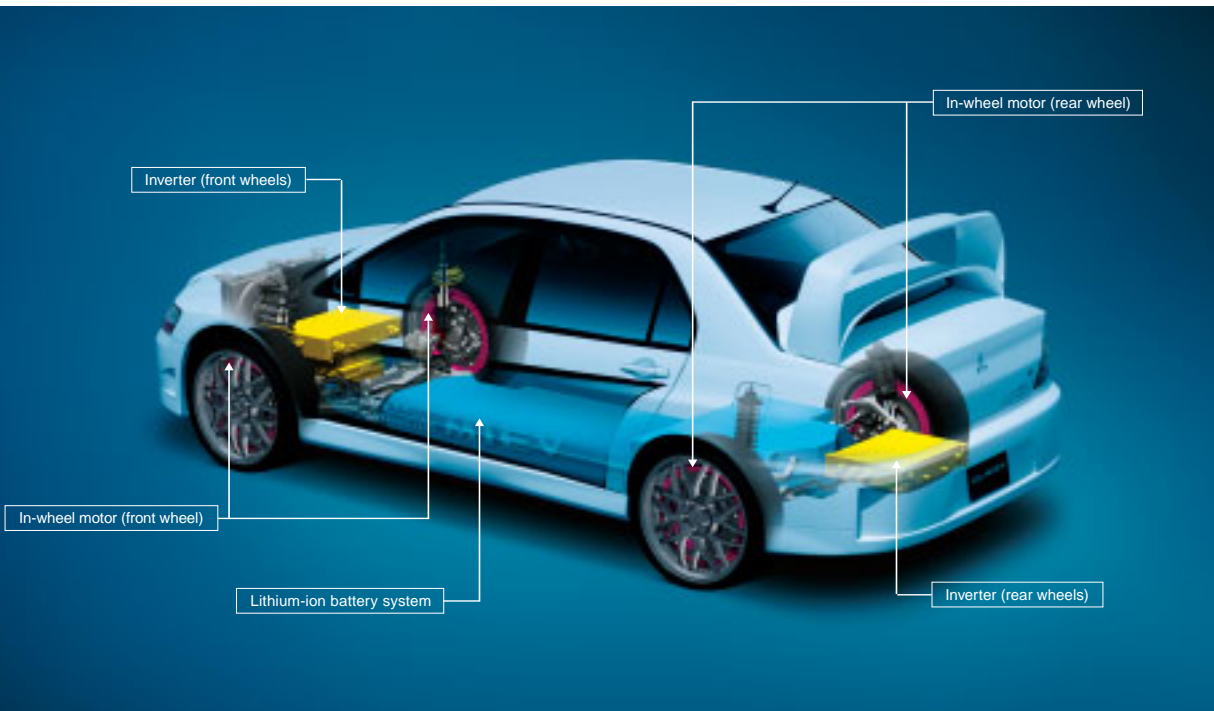
MIEV – a proposal for next-generation electric vehicles that utilize to maximum effect the environmental technology Mitsubishi Motors has developed over the years. Lancer Evolution MIEV is the offspring of a marriage between Mitsubishi Motors' environmental technology and its hallmark sporty driving technology. It delivers a totally new experience in driving pleasure, combining on and off-road exhilaration with very eco-friendly performance.

Lancer Evolution MIEV derives from the Lancer Evolution IX. Utilizing the advantages offered by the electric powertrain to craft smooth and slippery low-drag body lines, the styling imparts an aggressive wind-cleaving look to the body. Riding on large wheels and tires, Evolution MIEV projects a tempting taste of its potent new-age sport driving potential. Opening the hood, free now of its cooling vents, reveals the total absence of an engine. Instead, outer-rotor in-wheel motors are mounted in each wheel. Requiring no speed reducer, these high-efficiency direct drive motors

fit neatly into the wheels.

Each in-wheel motor produces 50 kW of power and 518 Nm torque. With a motor in each wheel, this brings maximum output up to 200 kW (270 PS). And because this drive system allows precise regulation of power at each individual wheel, there is now every possibility of creating a vehicle dynamics control system in its ultimate evolutionary form – one that could be dubbed Super All Wheel Control (S-AWC). The in-wheel motors and the lithium-ion battery system, which is located under the floor to reduce the center of gravity, accelerate Evolution MIEV from 0 km/h to 100 km/h in less than 8 seconds and up to a maximum speed of 180 km/h. This is a level of motive performance that leaves today's EV's standing in the dust.

Lancer Evolution MIEV: a car that delivers ultimate levels of sport driving while also substantially alleviating environmental loads. Truly, a dream-come-true “EV Super Sport”.



## Design

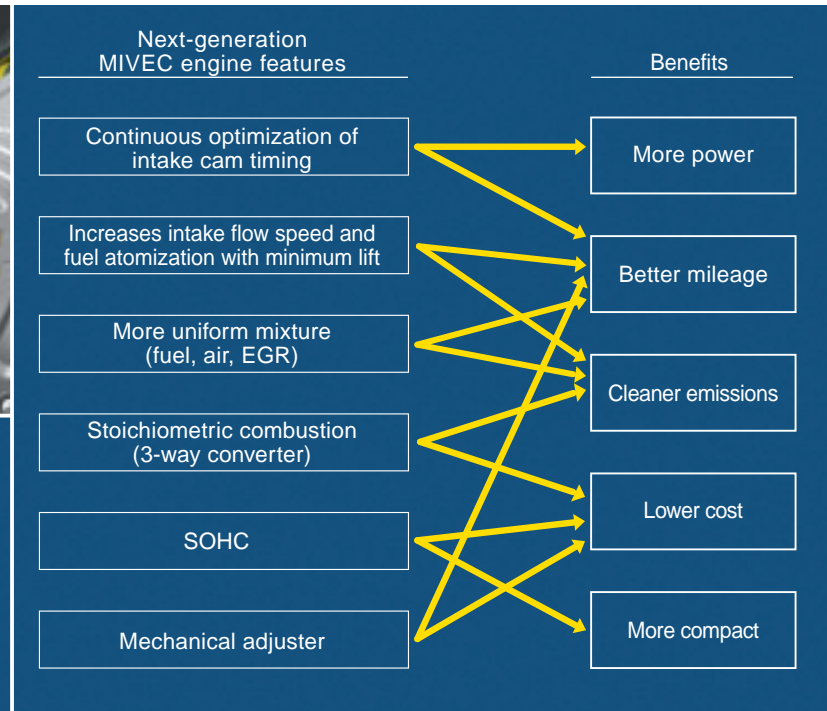
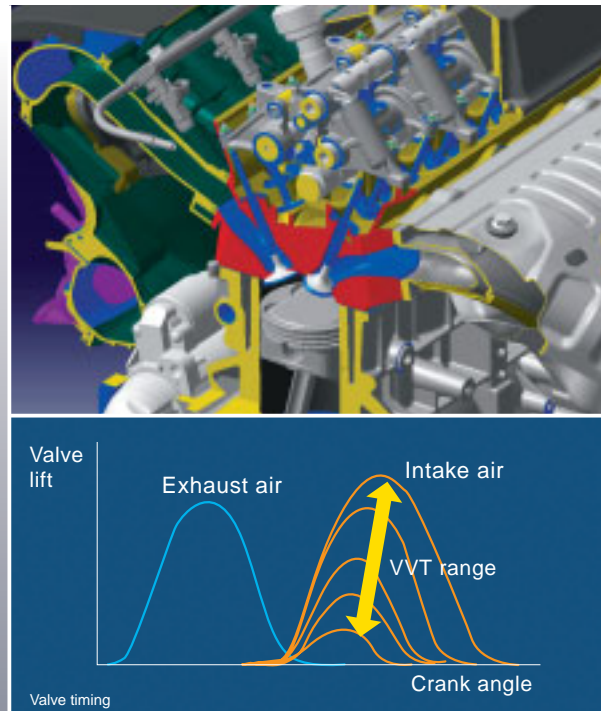
Evolution MIEV's design is geared to showcase its matchless sport driving qualities with motive and dynamic performance that blows most sports sedans away as well as its eco-friendly attributes. To Lancer Evolution IX's exterior Evolution MIEV adds an oversized rear wing and rides on 235/30ZR20 tires and wheels in a design that borrows heavily from and strongly evokes the Mitsubishi WR05 machine currently competing in the World Rally Championship.

Evolution MIEV also embodies styling elements only possible on an EV. Front end openings are much smaller in area than the base model because there is no engine generating huge amounts of heat and only a small radiator is required to cool the motors and ancillary equipment. The elimination of the intercooler air intake allows a much smoother engine hood and these changes all contribute to better aerodynamics. The rear view is distinguished by slits in the bumper used in cooling the motors.

## Four-wheel in-wheel motor drive system

The major advantage of the four-wheel in-wheel motor drive system, which places an outer-rotor in-wheel motor in each wheel, is that it allows drive torque and braking force to be controlled independently and with high precision at each wheel. As such, it holds great promise in terms of raising Mitsubishi Motors' All Wheel Control technology to new heights in the near future. The day is not far off when this technology will bring about a major revolution in vehicle handling and behavior control, allowing more precise regulation of yaw, roll and pitch.

The four-wheel in-wheel motor system uses an evolved version of the inner-rotor type that drives the Colt EV. The outer-rotor in-wheel motor locates the rotor outside the stator, allowing more torque to be generated. This makes the speed reducer unnecessary and results in a direct drive system, thereby reducing unsprung weight. Each outer-rotor in-wheel motor develops 50 kW power and 518 Nm torque.



**Technologies** **Next-generation MIVEC**

**Next-generation MIVEC engine (Mitsubishi Innovative Valve timing Electronic Control system)**

More and more is being demanded of automotive engines: environmental performance in terms of lower fuel consumption and lower emissions; higher power output and better response; reductions in weight and more compact dimensions. As Mitsubishi Motors continues to address the challenge of lessening global warming by reducing carbon dioxide emissions further still, it believes priority should be placed on raising energy efficiencies in the internal combustion engine, and the gasoline-fuelled engine in particular.

The company has recently taken a further step in that direction as it embarks on the replacement of its engine lineup with a brand-new aluminum engine series. The first engine in the new family powers the Colt and Colt Plus introduced in 2004. New aluminum engines will also power the Outlander, and the new-age *kei-minicar* "i".

At the heart of the new engines that will form the core of the Mitsubishi Motors' engine lineup lies Mitsubishi's MIVEC variable valve timing technology that reconciles the demands of better fuel consumption and lower emissions with higher power outputs across all engine speeds. The current MIVEC valvetrain works in two ways: by changing valve timing and lift or, by changing the

camshaft phasing. The next-generation MIVEC technology currently under development integrates these two methods and extends the camshaft phasing range. The major feature of the next-generation MIVEC valvetrain is that it continuously controls intake valve lift, how long the valve is open and valve actuation timing. The new MIVEC is also able to substantially change the valve closing timing, which provides the key to controlling the amount of air drawn into the cylinder, with virtually no change to the valve opening timing.

A major benefit of this innovation is a major reduction in the pumping losses that arise when the throttle valve alone is used to control the amount of air drawn into the engine. Other innovations in the new system include the use of roller bearings and reduced loads on moving parts, resulting in a substantial reduction in intake valve operating friction to realize an improvement in fuel economy. Power output has also increased across the full speed range of the engine. In a further evolutionary step, the introduction of a cam that drives both two intake valves simultaneously makes the MIVEC valvetrain lighter and more compact in size. This, in turn, increases vehicle design freedom and makes a significant contribution to crashworthiness.



# AWC

All Wheel Control

Driving pleasure

- Outstanding response
- Outstanding linearity
- Outstanding control

Reassuring security

- Superb traction
- Superb cornering
- Superb braking



Tire load



Drive torque & braking force



Slip angle & ratio

AWC Concept



## S-AWC

Super All Wheel Control

Active Steering System

Active Brake Control

ACD

Super AYC

Roll Control Suspension

S-AWC schematic

Technologies

## Super All Wheel Control

# S-AWC

### Mitsubishi Motors' All Wheel Control (AWS) concept

To deliver the utmost "driving pleasure" and "safety" is the Mitsubishi Motors' corporate philosophy. The All Wheel Control (AWC) concept embodies this ideal.

Mitsubishi Motors built Japan's first full-time 4WD vehicle, the PX33 in 1932. Since it launched the Galant VR-4 high-performance turbocharged 4WD sedan in 1987, the company has brought many high performance 4WD cars to market. More recently, with their glittering track records in the Dakar Rally and the World Rally Championship respectively, Pajero (Montero) and Lancer Evolution models have made major contributions to Mitsubishi Motors being identified around the globe as the high-performance 4WD brand.

AWC is the concept that underpins Mitsubishi Motors development of technologies for controlling the dynamics at all four wheels. Centered around the company's 4WD technology nurtured and honed in the Dakar Rally and WRC, AWC maximizes tire performance on all the wheels in an optimally balanced manner to realize the highest levels of on-the-limit performance and allow the driver to follow his chosen line. Over the years the Lancer Evolution series has shown that controlling torque, the dominant factor in vehicle dynamics, provides a far more

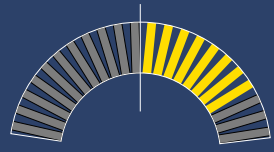
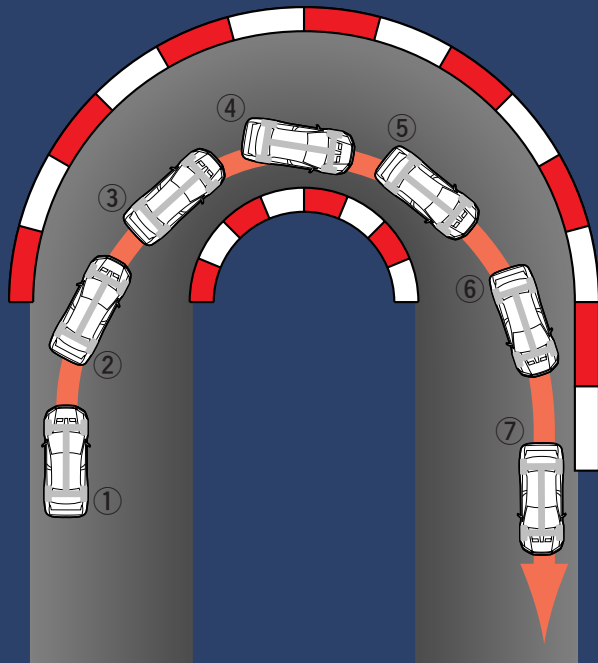
effective way of improving dynamic performance than individual control of braking force and steering. Starting with the new Outlander released in October 2005, Mitsubishi Motors will be proactively introducing a number of AWC technologies in its model lineup.

### Super All Wheel Control (S-AWC) technologies

Mitsubishi Motors' AWC concept raises the driving experience bar. Super All Wheel Control (S-AWC) is a set of technologies that realize the AWC concept at the highest level yet. With Super AYC\*1 and ACD\*2 as core components, S-AWC adds the latest in electronic devices to construct an integrated system that provides unified control of brakes, steering, suspension and powertrain and thereby deliver the ultimate in all-wheel control and the ultimate in driving pleasure.

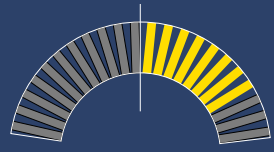
The day is not far away when S-AWC will open up a world of driving exhilaration and pleasure that leaves today's high-performance cars standing in the dust.

\*1 AYC: Active Yaw Control \*2 ACD: Active Center Differential



### Yaw moment

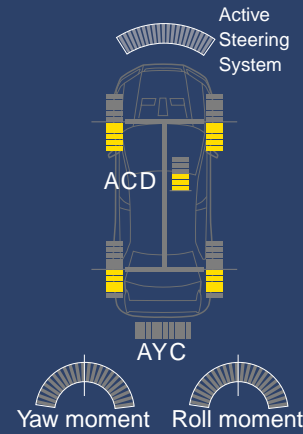
The total yaw moment generated by regulating drive torque, braking force and steering assist.



### Roll moment

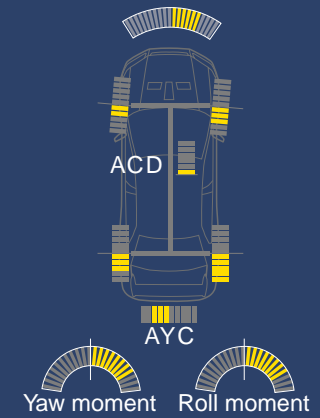
Roll moment generated through suspension control.

## ① Hard braking



Equalizes front and rear braking load by increasing ACD limiting force.

## ② Turn in



Improves steerability by momentarily increasing front and rear tire turn angle.

## AWC technologies in current models

### Super AYC (Active Yaw Control)

The component system that put an end to the perception that four-wheel drive cars do not corner well was Mitsubishi's Active Yaw Control system that debuted on the Lancer Evolution IV in 1996. The major evolutionary step seen in Super AYC, debuted in 2001, is its ability to generate as much torque differential between the rear wheels as necessary, making it possible to control yaw moment in the body as desired.

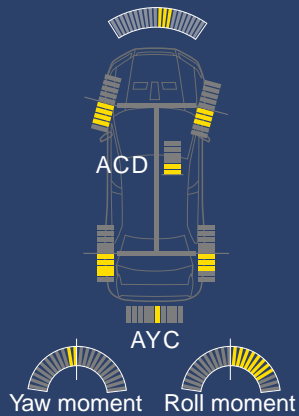
On top of its basic operating mode, where it feeds torque to all four wheels to realize superior drive torque response, Super AYC is distinguished by its ability to control right/left torque split and feed more torque to the outside wheel during cornering whether accelerating, at constant throttle or decelerating. Super AYC is a core component of S-AWC.

### ACD (Active Center Differential)

Active Center Differential is a technology that adaptively controls the differential limiting force to maximize traction performance without affecting steerability. In straight line driving, ACD clamp load is increased to near the locked state to deliver optimum traction as well as retain vehicle attitude stability under braking. Through corners, ACD clamp load is reduced to improve steering response. ACD operation is electronically controlled in response to vehicle speed, steering angle and steering speed to deliver traction and steerability optimally tailored to any given situation.

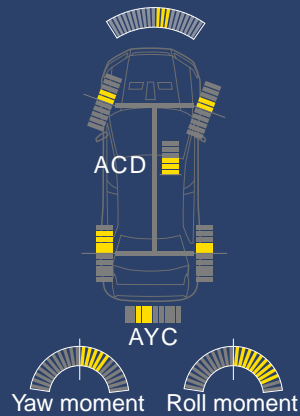
S-AWC applies to ACD the new control technologies used in Super AYC, realizing more advanced cornering performance.

### ③ Cornering under braking



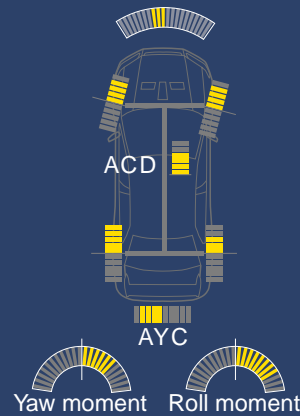
Improves vehicle attitude stability by tailoring braking force to tire load.

### ④ Initial acceleration



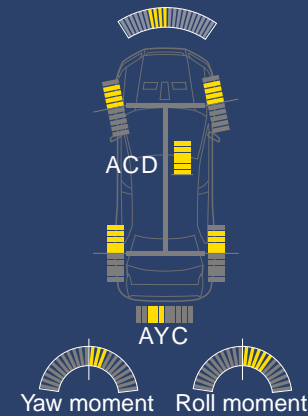
Controls understeer by transferring torque to outer wheel while limiting roll.

### ⑤ Accelerating through corner



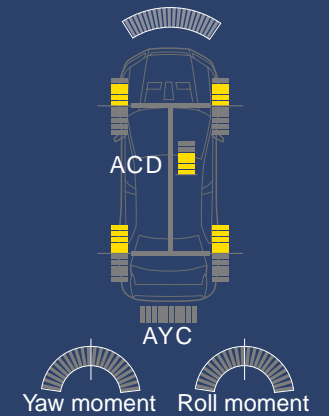
Improves traction by increasing ACD limiting force.

### ⑥ Exiting corner



Stabilizes body attitude for acceleration by assisting rapid return of front wheel turn angle.

### ⑦ Straight line acceleration



Improves traction and vehicle stability using optimum ACD limiting force.

## AWC technologies under development

### Active Braking Control

Mitsubishi's Active Braking Control (ABC) provides the driver with vehicle attitude control assistance once the limits of Super AYC and ACD have been exceeded. An evolutionary advance on the Active Stability Control (ASC) system that is already a feature on some Mitsubishi production models, ABC adds to ASC's vehicle attitude stabilizing capabilities. When the driver switches ASC to the OFF mode, ABC operates so that braking force at each wheel is regulated by signals from the 4WD system ECU, the master controller in the S-AWC system, to allow the driver to more actively control vehicle attitude in sport driving situations.

### Active Steering System

This system realizes handling with more linear response by adaptively controlling front wheel turn angle according to steering input and vehicle speed. At slower vehicle speeds the system improves response by shifting to a quicker steering gear ratio, while at higher speeds it substantially improves stability by moving to a slower gear ratio.

For rapid steering inputs, S-AWC momentarily increases front wheel turn angle and Super AYC control to realize sharper response. In counter-steer situations, S-AWC increases responsiveness further to assist the driver with steering precision. As a result, the system inspires greater confidence in the driver by enhancing his sense of being one with his vehicle.

### Roll Control Suspension

Roll Control Suspension (RCS) effectively reduces body roll and pitching by hydraulically connecting all the shock absorbers together and regulating their damping pressures as necessary. Able to control both roll and pitching stiffness separately, RCS can operate in a variety of ways. It can, for example, reduce roll only when required during turn in or in other situations while being set up on the soft side to prioritize tire contact and ride comfort. Since the system controls roll stiffness hydraulically, it eliminates the need for stabilizer bars.

In the integrated control of its component systems, S-AWC employs information from RCS's hydraulic system to estimate the tire load at each wheel.

## Motorsport a keystone to Mitsubishi Motors car engineering

Through its competition arm Team Mitsubishi Motors Motor Sports, Mitsubishi Motors enters modified production models in the FIA World Rally Championship (WRC), the Dakar Rally and the FIA Cross-country World Cup (CCR) as well as providing extensive support to privateers both in Japan and overseas. The technologies and know-how developed and honed through competition in these events are fed back into regular Mitsubishi brand production models. This has been the company's policy since it made its first foray into international rallying in the 1967 Southern Cross Rally in Australia, entering a Colt 1000F. So, the company competes with works machines developed from outstandingly engineered production models. It then feeds back the cutting-edge technology proven in competition into the development of future production models. And it is through this cycle that the technology, know-how and even the "fighting spirit" nurtured in competition are injected not just the Lancer Evolution and Pajero/Montero that provide the base models for the works machines but into all Mitsubishi brand production cars. This provides the keystone to the driving pleasure and reassuring security that Mitsubishi Motors delivers to owners of its cars the world over.



### Dakar Rally / FIA Cross Country Rally World Cup (CCR)

In 1982 Mitsubishi Motors brought a new category of 4WD passenger car to market; one that combined all-terrain, go-anywhere performance with on-road comfort and convenience. The following year, the company entered its first Dakar Rally (known then as the Paris-Dakar Rally), the fifth time the event had been held. Mitsubishi Motors has taken part in the event 23 years since then and in 2005 posted its fifth successive and 10th cumulative overall victory.

In its first Dakar Rally in 1983, Mitsubishi Motors entered and won the unmodified production model class. The following year the company competed in the modified production car class and not only took class honors but also finished third overall. With its sights now firmly set on overall victory, in 1985 the company developed a Pajero for the heavily modified Prototype class contested by other works teams and won overall honors for the first time at just its third attempt.

Taking the first three places in 1992 and winning again in 1993, Pajero came to be regarded as virtually invincible. And in 1997, driving a T2 class (modified production model) Pajero/Montero that used the suspension technology developed on the Prototype class machine, Kenjiro

Shinozuka became the first Japanese driver to take overall honors in the history of the event.

The following year, 1998, Jean-Pierre Fontenay took overall honors in a Pajero/Montero Evolution T2 that reflected all the technologies and know-how developed to date. After further development and refinement, the independent suspension developed at the time is used in the current Pajero. In 2001, Jutta Kleinschmidt became the first female driver to win the overall Dakar title driving a Pajero/Montero Evolution T2, while in 2002 Hiroshi Masuoka won his first overall honors driving another Pajero/Montero Evolution T2.

2003 saw the birth of a fully redesigned Super Production Class Pajero/Montero Evolution that wrapped cutting-edge technologies in styling borrowed from a concept model exhibited at the 59th Frankfurt Motor Show. Hiroshi Masuoka drove the new machine to his second overall win in as many years and when Stéphane Peterhansel mirrored Masuoka's performance by taking overall honors in 2004 and 2005 Team Mitsubishi had chalked up a five consecutive victories – a new record. Marking its tenth cumulative victory, Mitsubishi Motors had pulled off the incredible feat of



five wins in as many years.

A new prototype machine is currently competing in CCR events, undergoing exhaustive testing in preparation for the 28th Dakar Rally next year. In the second round Tunisia Rally, a Super Production Class Mitsubishi Pajero/Montero Evolution driven by Luc Alphand took overall honors and as the Team and machine continue to gear up towards an unprecedented sixth consecutive and 11th cumulative Dakar victory.

### **FIA World Rally Championship**

Mitsubishi Motors carved a place for itself in WRC history when Tommy Makinen drove a Lancer Evolution to take four consecutive Drivers' titles between 1996 and 1999 and when the company won its first Manufacturers' title in 1998.

For the 2005 season, Team Mitsubishi Motor Sports is campaigning the Lancer WRC05 that has jumped several steps up the evolutionary ladder with much improved engine and transmission

reliability, a wider body and improved suspension. In the season-opening Rallye Monte-Carlo, Gilles Panizzi proved the car's speed and reliability with a 3rd-place podium finish. Lancer WRC05 has not made much impression in the overall points standing after the early rounds but the team has hungrily pressed ahead with in-season development, fitting an improved Active Center Differential and redesigned rear suspension. These changes have seen the car post the fastest time in nine special stages over the events up to and including the 12th round Wales Rally of Great Britain. Particularly noteworthy is "Gigi" Galli's performance in the 7th round Rally of Turkey when he set the best time in SS4 and Team Mitsubishi Motors Motorsport led the rally for a while, for the first time since the 2001 Safari Rally, in a strong performance showing that the Team and machine are well on the road back to their winning ways.

There was more evidence of this, most recently, in the keenly awaited 13th round Rally Japan as Harri Rovanperä just missed the podium when he drove his Lancer WRC05 to a fifth place finish while Gilles Pahizzi brought the second works machine home in 11th position.



**OUTLANDER**



concept car

Concept-D:5



**LANCER  
Evolution  
WAGON**

<GT-A>

◎LxWxH:4530x1770x1480mm ◎Displacement:1.997L ◎Seating capacity:5



**GRANDIS**

<SPORT GEAR>

◎LxWxH:4775x1835x1685mm ◎Displacement:2.378L ◎Seating capacity:7/6

show car

*HeartyRun*



**COLT PLUS**

<RALLIART Self-operation Model>

◎LxWxH:4170x1680x1550mm ◎Displacement:1.499L ◎Seating capacity:5



concept car

Concept X



show car



show car



**COLT**

< Re:lax Edition >

◎ LxWxH: 3885x1680x1550mm ◎ Displacement: 1.332L ◎ Seating capacity: 5



**EK·SPORT**

< R >

◎ LxWxH: 3395x1475x1550mm ◎ Displacement: 0.657L ◎ Seating capacity: 4

concept car



**LANCER Evolution MIEV**



