# LANCER EVOLUTION VIII for EU

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LANCER EVOLUTION VIII won the 2004 Motor Sport Car of the Year award (Sportive de l'année 2004) by the major French motor sport magazine "Echappement".

"Echappement" (exhaust pipe) is a monthly magazine with 250,000 readers and a history of 37 years. Selection of the Motor Sport Car of the Year began in 1982 and this year marked its 23rd anniversary. The subjects for Car of the Year are sporty models sold in France in 2004, including Porsche 911, Benz SLK, Audi A3, Renault Megane RS and other revered models.

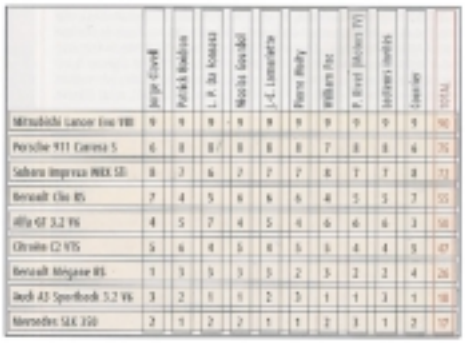
Evaluation is conducted on public roads and circuits, but the price is also a factor. Six journalists, three readers and one rally driver vote for the winner through allocation of points.

Nineteen models were nominated this year, and nine cars were selected for a test drive. LANCER EVOLUTION VIII received a perfect review, where all judges awarded the top score for the first time in the award's history (full marks: 90 points).

Development of the 2006 model has already started, and LANCER EVOLUTION IX, with a more advanced engine, transmission and undercarriage will be launched into the market in autumn 2005.

Winning the Car of the Year in Europe, where evaluation of cars is strict, signifies that the technology, concept, performance and quality of LANCER EVOLUTION have caught up with and overtaken European cars. It is a proud step forward for us as development engineers that LANCER not only performs superbly in rallies with the World Rally Championship (WRC) at the summit, but has also truly advanced into the world of high-performance cars.


Article on LANCER EVOLUTION VIII winning the 1st prize



LANCER EVOLUTION VIII winning outstanding evaluation results


<postscript>
After this article was contributed, news was received about winning a prize in the United States as well:

Magazine: SPORT COMPACT CAR

Award: Sport Compact Car of the Year 2005


Trophy

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QUALITY THESIS

## Golden Steering Wheel Award in 2004

# New Mitsubishi COLT for Europe


In 2004, the new COLT won the Golden Steering Wheel Award in the Small Car category.

The Golden Steering Wheel, which was first presented in 1976 and is seen as the equivalent of a German Car of the Year award, is given each year by the German Sunday newspaper 'Bild am Sonntag', which has the largest readership (10.7 million people) of any Sunday newspaper in Europe. The selection process for the award begins with a reader survey and ends with evaluation by a jury consisting of media personalities, racing drivers, and others.

Other final-selection candidates were the Renault Modus, the Peugeot 1007, and the smart forfour (another joint development). (The smart forfour took second place in the category.) The new COLT was the only car in the category to earn a top-three ranking for all evaluation criteria. Key factors in the new COLT's selection for the award included its versatility, seating comfort, spaciousness, usability, and build quality.

The following describes the outline of this prize-winner COLT.

NEW PRODUCTS

## New Mitsubishi COLT for Europe

The new Mitsubishi COLT for Europe went into production, initially in five-door, gasoline-engine form, in April 2004 in Born, a city in a southern part of the Netherlands that is sandwiched between Belgium and Germany. It went on sale throughout Europe in June 2004. A three-door version went into production in December 2004 and went on sale in February 2005.

### 1. Targets

In terms of platform concept and external appearance, the new COLT for Europe is essentially the same as the new COLT for Japan. However, its interior styling and technologies are tuned to make it competitive with European B-segment cars in the European market. Specific development targets were

- fashionable styling;
- low fuel consumption and high performance (to be achieved by means of new engines);
- high safety (with a 4☆ Euro NCAP rating);
- high practicality and space utility; and
- handling stability and ride comfort suiting European preferences.

### 2. Features

(1) Europe-oriented powertrain

The engine lineup includes newly developed gasoline engines in 1.1-liter, 1.3-liter, and 1.5-liter displacements. (There is strong demand for the 1.1-liter displacement in southern Europe.) The gasoline engines are made by MDC-Power, a company that is jointly owned by MMC and DaimlerChrysler. Reflecting extremely strong recent demand for diesel engines in Europe, the engine lineup also includes a three-cylinder version of a 1.5-liter diesel engine that was developed for new Mercedes A-Class. The diesel engine is procured from DaimlerChrysler. The engine lineup also includes a turbocharged 1.5-liter gasoline engine, which

**External view of COLT 5-door**

is used in the three-door version of the car. Transmissions are manual and AllShift types made by GETRAG of Germany.

(2) User-friendly cabin

A roomy cabin and a front-seat slide range of 260 mm provide comfort for people ranging from a DM95 to AF5 (95th-percentile Dutch male to a 5th-percentile American female), enabling the car to accommodate users in racially diverse Europe. And the cabin meets diverse storage needs; the floor console contains three cupholders that can also be used as cellphone holders; front-seat occupants are provided with door pockets and seat-side boxes; and the glove box not only provides space for pens, coins, and other small items but can also hold a cool-box to which chilled air is fed. In the five-door version, further versatility is provided by a 60:40-split rear seat that has slide and tumble functions and can be removed from the car.

(3) Europe-oriented high handling stability and dynamic performance

Owing partly to the benefits of driving trials held on public roads in Europe, handling stability is comparable with that of competing European cars even during high-speed cruising on autobahns and during high-speed driving in mountainous regions. Further, the version with the turbocharged gasoline engine has dynamic performance that enables a maximum speed of 210 km/h.

(4) High safety

Fitted front airbags for the driver and front passenger as the standard, the new COLT for Europe has a level of collision safety (verified through in-house tests) corresponding to a 4☆ Euro NCAP rating. Side airbags and curtain airbags are optionally available for even greater occupant protection. Active safety is promoted by the Mitsubishi Active Stability Control System.

**External view of COLT CZT turbo 3-door**

## 3. Major specifications

Major specifications of the new COLT for Europe are shown in the following table.

| Specifications \ Model | | | COLT 5-door | | | | COLT CZ3 3-door | | | | | COLT CZT turbo 3-door |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dimensions | Overall length (mm) | | 3,870 | | | | 3,810 | | | | | 3,820 |
| | Overall width (mm) | | 1,695 | | | | | | | | | |
| | Overall height (mm) | | 1,550 | | | | 1,520 | | | | | |
| | Wheelbase (mm) | | 2,500 | | | | | | | | | |
| | Treads | Front (mm) | 1,460 | | | | | | | | | |
| | | Rear (mm) | 1,445 | | | | | | | | | |
| | Min. ground clearance (mm) | | 154 | | | | | | | | | |
| Engines | Model | | 3A91 | 4A90 | 4A91 | OM639 | 3A91 | 4A90 | 4A91 | OM639 | | 4G15 |
| | Displacement (cc) | | 1,124 | 1,332 | 1,499 | 1,493 | 1,124 | 1,332 | 1,499 | 1,493 | | 1,468 |
| | Max. output (kW/rpm) | | 55/6,000 | 70/6,000 | 80/6,000 | 70/4,000 | 55/6,000 | 70/6,000 | 80/6,000 | 50/4,000 | 70/4,000 | 110/6,000 |
| | Max. torque (Nm/rpm) | | 100/3,500 | 125/4,000 | 145/4,000 | 210/1,800 | 100/3,500 | 125/4,000 | 145/4,000 | 160/1,600 | 210/1,800 | 210/3,500 |
| Transmissions | 5 M/T | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 6-speed AllShift | | | ○ | ○ | ○ | | ○ | | | | |
| Chassis | Steering | | Rack and pinion (with electric power assistance) | | | | | | | | | |
| | Suspension | Front | MacPherson struts | | | | | | | | | |
| | | Rear | Torsion beam | | | | | | | | | |
| | Brakes | Front | 14-inch ventilated discs | | | | | | | | | 15-inch ventilated discs |
| | | Rear | 8-inch drums | | 14-inch discs | 8-inch drums | | 14-inch discs | | 8-inch drums | 14-inch discs | |
| | Tires | Front | 175/65R14 | | 195/50R15 | 175/65R14 | | 195/50R15 | | 175/65R14 | 195/50R15 | 205/45R16 |
| | | Rear | 175/65R14 | | 195/50R15 | 175/65R14 | | 195/50R15 | | 175/65R14 | 195/50R15 | 205/45R16 |

(FF Product Development Project B-seg, Product Development Office: Nagasawa, Kawanami, Hatashita, Sonobe)

NEW PRODUCTS

# COLT PLUS

The COLT PLUS is a compact car of new genre, which was introduced as the COLT series in line with the 2005 minor change in the timing of the COLT launched in November 2002. Retaining the classy feel and ease of use of the COLT, the new COLT PLUS with an extra spacious luggage compartment and greater ease of use was launched on October 25, 2004. This compact car makes leisure time and hobbies more fun.

## 1. Objective

Targeted at males and females in their twenties and thirties, young families and males and females in their fifties or older who often carry leisure and hobby gear as well as children's goods, the COLT PLUS is designed to make people and goods easier to carry in a more comfortable manner in spite of its compact size, by adding snappy driving and easy-to-use utilities to the existing features of the COLT.

This time the RALLIART, a sporty model powered by a turbocharger engine, has been added including the COLT to expand the range of potential customers of the entire COLT series.

## 2. Product features

### 2.1 Exterior design

Based on the chic and sporty world which is distinctive characteristics of the COLT, the COLT PLUS brings elegance with its smooth wrap-around rear curves, offering a sleek, elegant and sporty image not expected of a conventional compact wagon.

With the COLT image captured in the flowing one-motion silhouette, the COLT PLUS is clearly identified by the rear overhang that has been stretched by approximately 300 mm. The soft round form that flows smoothly from nose to sloping tail projects a sense of speed and graceful elegance. The grille enhances the classy look of the front design, and bumpers have been redesigned with a more sporty character.

Eight body colors including three new colors based on a sophisticated adult sense are available.

### 2.2 Interior design

Based on the COLT world that creates richness by eliminating unnecessary elements, the COLT PLUS has a high-quality, mature feel with newly designed meters and coordination between color and material, creating a more special feeling, greater functionality and more room.

Three interior schemes are available: the dark blue/black two-tone Sporty interior, the dark brown/beige two-tone Warm interior, and an interior

exclusive to the RALLIART with accentuated sports sense conveyed by the accent panel and seat fabric.

### 2.3 Packaging

Accessibility to multistory car parks and maneuverability in traffic, which are essential for any compact car, have been achieved by making the wheelbase, overall width and overall height of the vehicle the same as those of the COLT thanks to the shared common platform. At the same time, the rear overhang has been stretched by approximately 300 mm to give a more roomy cabin with spacious luggage compartment.

The rear seats have been changed to fixed-type folding seats with sufficient height for the seat back. The hip point has been lowered at the position where ample leg room is secured for more head room and to facilitate getting in and out of the vehicle. Meanwhile, the 6:4 split seat back with 8-step reclining mechanism and an arm rest with cup holders are provided for the comfort of rear passengers.

Future regulations concerning the required strength of the luggage compartment of the rear seat and height of front and rear headrests have been met in advance.

### 2.4 Driving

(1) Powertrain

The standard model is powered by a new four-cylinder in-line aluminum block engine (type 4A91), which is compact, lightweight and among the top in class in every performance aspect and is installed on the COLT manufactured in Europe, and is combined with CVT[*1]. In addition to delivering the best-in-class driving performance thanks to improved engine performance in the mid-to-high speed range and better acceleration feeling by improving the torque converter characteristics and CVT shifting control, fuel economy in actual traffic has been improved by adopting the ATF[*2] Warmer.

For a shifter of CVT, a floor shift lever with Sport Mode is now available in addition to the column shift lever, and is adopted for 2WD vehicles and the RALLIART. With this specification, the driver can now change the gear ratio at will as if shifting a manual transmission, and thus there is no compromise of driving pleasure.

*1: continuously variable transmission

*2: Automatic Transmission Fluid (oil exclusive to automatic transmission)

(2) Driving stability and ride comfort

The COLT PLUS has been given high body rigidity by reviewing the body joint structure, placing reinforcing members effectively and examining the plate thickness of materials while limiting the increase in body weight to less than 10 %. In addition, by tuning the damping force of shock absorbers and characteristics of the springs, a fine balance of outstanding handling, stability, and ride comfort has been achieved.

In 4WD vehicles, ride comfort has been improved by using urethane bump stoppers for the rear.

Furthermore, the steering feel of electric power steering has been improved by upgrading the assist control logic and further tuning.

(3) Quietness

Sound insulation performance and quietness have been improved by increasing the vibration absorption of the exhaust system with spherical joints (standard model) and adopting interior materials of sound-absorption construction in addition to reducing vehicle body vibration with the highly rigid floor inherited from the COLT.

(4) Environmental performance and safety

The 2WD standard model has achieved emission levels that are 75 % lower than Japan's 2005 standards (4☆ rating) while the 4WD model has achieved levels that are 50 % lower than the 2005 standards (3☆ rating). At the same time, both the 2WD and 4WD models meet the 2010 fuel consumption standards +5 % in the 10·15 mode driving cycle, and all models qualify for 'Green Tax' exemptions.

Inheriting the straight frame platform and highly rigid press doors from the COLT, the COLT PLUS offers even greater collision safety equivalent to JNCAP[*3] 5☆ level by reviewing materials for the front side members and reinforcing major areas. Consideration has also been given to collision safety for infants by allowing the rear seat to be equipped with an ISO-FIX compliant child seat of the tether anchor type.

*3: New Car Assessment Program

(5) Sporty model RALLIART

The turbocharger engine (type 4G15) is installed on the RALLIART, a sporty model focusing on driving per-

formance and positive driving pleasure, in combination with CVT as in the standard model. To maximize that sporty driving feel, the gear ratios have been optimized in the Ds range and Sport Mode.

In terms of steering stability and ride comfort, the damping force of shock absorbers and spring constant of springs have been increased based on the standard model in addition to an increase in the front stabilizer diameter to achieve higher roll stiffness. Besides, the bushings of the lower arm have been turned to provide transverse stiffness.

The electric power steering has been given a sporty character by shortening the gear ratios and doing model-specific tuning of the assist control characteristics.

And even though the RALLIART, thanks to various model-specific tuning, boasts driving and handling performance surpassing those of competitive compact cars installed with a supercharged engine and manual transmission, it meets emission levels (3☆ rating) that are 50 % lower than the 2005 standards, thus delivering both excellent driving performance and low emission levels.

**Electric Tailgate**

**One-Touch Folding Seat**

### 2.5 Easy-to-use utility

Special attention has been paid to ease of use of the luggage compartment, both in terms of space and ease of use for daily life.

The Electric Tailgate, which is opened and closed with a switch built into the key to facilitate access to the luggage compartment, is adopted for the first time in this class. This mechanism enables the tailgate to be easily opened and closed without touching it when there is a lot of luggage or in a rainy day. Reversal during opening/closing operation is enabled by the switch built into the key, the closing switch provided on the bottom of the tailgate, and tailgate outer handle switch. Furthermore, in case of emergency, a mechanism which automatically reverses the tailgate movement when it detects an obstacle is provided for safety.

The One-Touch Folding Seat, which folds down the seat back at the pull of a lever located inside the luggage compartment eliminating the need to go to the rear door for loading large luggage, are adopted to make it easier to load large luggage from the tailgate.

In addition, for 2WD vehicles, a Flexible Cargo Floor is adopted, which has a two-stage height-adjust feature, enabling the luggage compartment to be tailored to meet carrying requirements of luggage of varying shapes and sizes. The luggage compartment volume of 280 liters (VDA method[*4]) with the flexible cargo floor at the upper position can be expanded to 364 liters (VDA method) by moving the floorboard to the lower position. With this lower position, an underbox (specification without spare tire) of 25 liters (VDA method) is provided beneath the cargo board. The underbox, which is made of resin and is detachable, is ideal for storing car-washing materials and wet objects. The cargo board is split into two parts in the longitudinal direction. Since each part moves up and down independently, and the rear of the board can be opened and closed either at the upper or lower position, the cargo board can meet the various usage requirements of customers.

*4: Measuring method of luggage compartment volume specified by the German Association of the Automotive Industry

A board at upper position

A board at lower position

<Storage of cooler boxes
(possible to close the board)>
(No spare tire type)

<Foliage plant (height of 1 m)>
(No spare tire type)

<Four suit cases>

<Four golf bags>

**Flexible Cargo Floor**

## 3. Main specifications

Main specifications are shown in the table below.

| Specifications \ Motor vehicle type | | | | COLT PLUS | | |
|---|---|---|---|---|---|---|
| | | | | Mitsubishi DBA-Z23W | Mitsubishi CBA-Z27W | Mitsubishi CBA-Z24W |
| | | | | 2WD | | 4WD |
| | | | | CVT | | |
| Dimensions | Overall length | | (mm) | 4,185 | 4,170 | 4,185 |
| | Overall width | | (mm) | 1,680 | | |
| | Overall height | | (mm) | 1,550 | | |
| | Wheelbase | | (mm) | 2,500 | | |
| | Tread | Front | (mm) | 1,460 | | |
| | | Rear | (mm) | 1,445 | 1,450 | 1,430 |
| | Interior length | | (mm) | 1,820 | | |
| | Interior width | | (mm) | 1,400 | | |
| | Interior height | | (mm) | 1,240 (1,170: With sunroof) | | |
| | Vehicle weight | | (kg) | 1,070 | 1,150 | 1,140 |
| | Minimum turning radius | | (m) | 4.7 (4.9: When 15-inch tires are fitted) | | |
| Engine | Engine type | | | 4A91 | 4G15 Turbo | 4A91 |
| | Displacement | | (cc) | 1,499 | 1,468 | 1,499 |
| | Valvetrain and number of cylinders | | | DOHC 16 valves, 4 cylinders | | |
| | Max. horsepower | | {kW (PS)/min$^{-1}$ Net} | 77 (105)/6,000 | 108 (147)/6,000 | 75 (102)/6,000 |
| | Max. torque | | {Nm (kgf·m)/min$^{-1}$ Net} | 141 (14.4)/4,000 | 180 (18.3)/2,500 | 138 (14.1)/4,000 |
| | Fuel supply system | | | ECI-MULTI (Electronically controlled fuel injection) | | |
| Running gear | Steering | | | Rack & pinion (with power steering) | | |
| | Suspension | Front | | MacPherson strut type | | |
| | | Rear | | Torsion beam type | | Trailing axle type |
| | Brake | Front | | Ventilated disc (14-inch) | Ventilated disc (15-inch) | Ventilated disc (14-inch) |
| | | Rear | | Leading trailing (8-inch) | Disc (14-inch) | Leading trailing (8-inch) |
| | Tire | | | 175/65R14 | 185/55R15 | 175/65R14 |

(FF Product Development Project B-seg, Product Development Office: Yoshimatsu, Amano, Katagiri, Furukawa)

NEW PRODUCTS

# Newly Developed Compact, Aluminum Gasoline Engine

A compact, aluminum gasoline engine was developed by Mitsubishi Motors Corporation (MMC) for use in the Mitsubishi COLT and smart FORFOUR that went on sale in Europe in the spring of 2004, in the Mitsubishi COLT PLUS that went on sale in Japan in October 2004, and in the 2005 Mitsubishi COLT.


## 1. Targets

The basic concept was to develop an engine optimally suited to new-concept cars. The models in which the engine was intended to be used reflect the pursuit of innovative styling, interior spaciousness, sporty performance, and environmental compatibility. The engine attributes necessary for these goals to be achievable were identified as lightness, compactness, high output, low fuel consumption, and low exhaust emissions.

The engine project was begun as a joint effort by MMC and DaimlerChrysler (DC), with MMC handling the development mainly and MDC-Power GmbH, a company jointly established by MMC and DC, handling production. In this regard, the project was deemed important not only as a means of creating a superior engine but also as a means of deepening and advancing the collaborative relationship between MMC and DC.

## 2. Features

To meet the respective vehicles' performance requirements, there are three engine displacements: 1.1-liter (with three cylinders); 1.3-liter (with four cylinders); and 1.5-liter (with four cylinders).

All three engine displacements are used in the Europe-specification Mitsubishi COLT and smart FORFOUR. The Europe-specification Mitsubishi COLT and smart FORFOUR are each available with a choice of manual transmission or automated manual transmission. For a given engine displacement, nevertheless, the engine specifications are uniform regardless of individual combinations of vehicle model and transmission type.

The 1.3-liter and 1.5-liter engine displacements are used in Japan. The engine structure for Japan differs from the engine structure for Europe in several respects: Major components were altered to ensure optimal fuel economy in the operating conditions that prevail in Japan; exhaust gas recirculation (EGR) was adopted; and certain components are differently positioned to accommodate a continuously variable transmission (CVT).

Technologies employed to realize the required engine attributes in compliance with the development concept are described below. Most technologies and components actually contribute to multiple desired engine attributes. The correlation between items and the benefits they yield is shown in **Table 1**.

### 2.1 Lightness and compactness

Design optimization, material optimization, and component integration were identified as effective

**Table 1 Technologies and purposes thereof**

| Item \ Purpose | Lightness and compactness | High output; low fuel consumption | Low exhaust emissions | Low vibration; low noise | High reliability |
|---|---|---|---|---|---|
| Die-cast aluminum cylinder block | × | | | | |
| Knock-suppressing cylinder head | × | × | × | | |
| Ultra-thin, one-layer metal cylinder-head gasket | | | × | | |
| Plastic cylinder-head cover | × | | | × | |
| Dual overhead camshafts with valves directly actuated by cams | × | × | × | | × |
| Continuously variable intake-valve timing (MIVEC system) | | × | × | | |
| Hollow camshafts | × | | | | |
| Lightweight, low-friction main moving parts | × | × | | | |
| Torsional damper on crankshaft pulley (1.5-liter variant only) | | | | × | × |
| Primary balancer shaft (1.1-liter variant only) | | | | × | |
| Cam actuation by means of timing chain | × | × | | | × |
| Chain case integrated into engine-mounted oil pump | × | | | | |
| Without by-pass cooling system | × | | | | |
| Plastic intake manifold | × | × | | | |
| Engine layout with exhaust components at rear | × | × | × | | |
| Exhaust manifold made of stainless-steel pipes | × | × | × | | |
| Minute-particle fuel injectors | | | × | | |
| EGR valve driven by high-precision stepper motor (variants for Japan only) | | × | × | | |
| Long-reach spark plugs | | × | | | |
| Low-viscosity (0W20) oil (variants for Japan only) | | × | | | |

means of minimizing weight and bulk, so they were comprehensively effected in combination with each other. With regard to materials, the cylinder block is made of aluminum; the cylinder-head cover and intake manifold are made of plastic; the exhaust manifold has a pipe-based structure and driven by a timing chain. Component integration was applied in many areas of the engine. Notably, the functions of engine accessories were integrated into the cylinder block.

Compared with an earlier 1.5-liter engine, the new 1.5-liter variant is 36 mm smaller in terms of overall length, approximately 30 kg lighter, and has approximately 20 % fewer parts. These benefits help to maximize possibilities for customers to enjoy innovative vehicle design, abundant interior spaciousness, and superior performance and handling.

### 2.2 High output and low fuel consumption

A Mitsubishi Innovative Valve timing Electronic Control (MIVEC) system and other measures (including optimized shaping of the intake and exhaust manifolds and cylinder head) promote intake and exhaust efficiency. Optimally shaped cooling passages in the cylinder head and optimal control of the flow of coolant into the cylinder head help to suppress knocking. And major components reflect comprehensive measures to minimize friction. As a result, each engine variant offers best-in class output and fuel economy. Figures on performance and fuel economy are shown in **Table 2**.

### 2.3 Low exhaust emissions

Exhaust emissions from the engine are minimized by measures including optimal design of the combustion chambers, optimal control of the intake air motion by means of the cylinder-head ports, employment of the MIVEC system, employment of an ultra-thin cylinder-head gasket, and employment of micro-droplet fuel injectors. The vehicle's overall exhaust emissions are further suppressed by location of the exhaust manifold at the rear of the engine. This layout is beneficial since it minimizes the heat capacity of the exhaust system upstream of the catalytic converter and thus, together with combustion control, promotes activation of the catalytic converter.

With each engine variant for Europe, a single underfloor catalytic converter enables compliance with the EURO4 emission regulations. In two-wheel-drive (2WD) vehicles for Japan, each engine variant achieves emission levels 75 % lower than those permitted by Japan's 2005 emission regulations.

## 3. Major specifications

Major specifications are shown in **Table 3**.

**Table 2 Engine performance and vehicle fuel economy**

| | Variants for Europe: All figures for variants for Europe were obtained using premium unleaded gasoline. (Fuel-economy figures of variants for Europe were obtained with manual transmission.) | | | Variants for Japan: All figures for variants for Japan were obtained using regular unleaded gasoline. (Fuel-economy figures of variants for Japan correspond to 2WD vehicles.) | |
|---|---|---|---|---|---|
| Item \ Displacement | 1.1 L | 1.3 L | 1.5 L | 1.3 L | 1.5 L |
| Maximum output (kW/min$^{-1}$) | 55/6,000 | 70/6,000 | 80/6,000 | 68/6,000 | 77/6,000 |
| Maximum torque (Nm/min$^{-1}$) | 100/3,500 | 125/4,000 | 145/4,000 | 124/4,000 | 141/4,000 |
| New European mode fuel consumption (L/100 km)/ equivalent inertia weight (kg) | 5.5/1,020 | 5.8/1,020 | 6.2/1,130 | – | |
| 10·15-mode fuel economy (km/L)/equivalent inertia weight (kg) | – | | | 20.5/1,000 | 18.2/1,250 |

**Table 3 Major specifications**

| Item \ Displacement (model) | | 1.1 L (3A91) | 1.3 L (4A90) | 1.5 L (4A91) |
|---|---|---|---|---|
| Displacement | (L) | 1.124 | 1.332 | 1.499 |
| Cylinder bore pitch | (mm) | 83 | | |
| Cylinder bore diameter | (mm) | 75 | | |
| Stroke | (mm) | 84.8 | 75.4 | 84.8 |
| Connecting rod length | (mm) | 140.6 | 128.3 | 140.6 |
| Valve diameter | (mm) | IN: 30.5 / EX: 25.5 | | |
| Compression ratio (with premium gasoline for Europe; with regular gasoline for Japan) | | 10.5/– | 10.5/10.5 | 10.5/10.0 |
| Cylinder block material | | Die-cast aluminum | | |
| Valve mechanism | | DOHC; 4 valves per cylinder; directly actuated valves + MIVEC system | | |
| Camshaft drive arrangement | | Roller chain | | |
| Balancer shaft | | Yes | No | No |
| Fuel control method | | Speed density | | |
| Engine alignment | | Rear exhaust | | |
| Exhaust emission regulation compliance | Europe | EURO4 | | |
| | Japan | – | Emission levels 75 % lower than those permitted by Japan's 2005 emission regulations (4☆)*1 | |
| Engine overall length*2 *3 | (mm) | 357 | 440 | |
| Engine dry weight*3 | (kg) | 76 | 82 | 85 |

*1: 2WD vehicles only
*2: From end surface of crankshaft pulley to rearmost surface of cylinder block
*3: Engine main body only (configuration for 5-speed manual transmission) (excluding body-mounted components)

(Engine Designing Department, Development Engineering Center: Hasegawa, Miyamoto)

NEW PRODUCTS

# eK·ACTIVE

Following the standard eK·WAGON, the more athletic eK·SPORT, and the refined eK·CLASSY, the eK·ACTIVE is the fourth model in Mitsubishi's eK series. Reflecting the concept of "cheerful all-round mini wagon", it inherits the technological merits of the other eK models while bringing a touch of Sports Utility Vehicle (SUV) styling – a key element of Mitsubishi's DNA – to the minicar class. It went on sale on May 25, 2004.

## 1. Targets

The eK·ACTIVE is aimed mainly at married men and women in their thirties who are fashion-conscious, have a strong sense of individuality, and are youthful in their outlook. It reflects a goal of creating a model with performance that's valuable not only around town but also for sports and leisure activities; a model that expands the limits of minicar usability. By introducing the eK·ACTIVE, moreover, Mitsubishi Motors Corporation (MMC) successfully sought to expand overall sales of the eK series by increasing the appeal of the series to a more comprehensive range of customers.

## 2. Features

(1) SUV-like packaging

In line with the principle that the high seating positions of an SUV give good visibility, the eK·ACTIVE has a seat height that yields a 45 mm higher hip point (and concomitantly superior all-round visibility) while permitting users to step into the cabin in a more natural position and with minimal vertical movement of their lower backs.

Further, large, 165/60R14 tires give 10 mm greater ground clearance, permitting easy driving even over moderately uneven surfaces.

(2) Tough, endearing exterior design

In the exterior styling, a protector-style design around the bottom of the body conveys SUV-like toughness and functional elegance. Seven-spoke aluminum wheels with a design unique to the eK·ACTIVE further hint at underlying strength. At the same time, features such as solidly shaped headlights and circle-motif rear combination lamps create an endearing minicar look.

The body has SUV-style two-tone coloring that's ideally matched to both town and country. There's a range of seven upper-body colors and a range of three lower-body colors, which are coordinated with the upper-body colors. Mitsubishi's theme color for the eK·ACTIVE is light green mica.

(3) Casual, refined interior design

In the cabin, a rhythmical two-tone color scheme with dark blue accents on a light gray keynote color creates a casual but refined environment that conveys a feeling of fun.

The seat design combines superior functionality with a unique look; each seat has smooth, lightly textured, light gray fabric, which conveys a sense of sportiness, on its main surfaces and dark blue jersey fabric, which resembles protector patches, on its edges.

(4) Strong powertrain

The powertrain is based on that of the eK·SPORT; it consists of the 3G83 inline three-cylinder engine with intercooled turbocharger, which has earned praise for its powerful response, and a four-speed automatic transmission. It incorporates a number of refinements for the eK·ACTIVE. These include a low-friction treatment for the toothed side of the timing belt (this realizes quieter operation) and a high-density catalyst (this enables the eK·ACTIVE to qualify for 2005 exhaust gas standard 50 % reduction level 3☆). The overall result is powerful, refined, environmentally responsible performance (VT grade). The eK·ACTIVE is also available with a naturally aspirated engine with low-emission 3☆ (V grade).

(5) Sure handling stability and a smooth ride

The suspension system has a structure that was already proven in earlier models in the eK series: light, compact MacPherson struts at the front and a 3-link rigid axle with torque arm and coil spring arrangement at the rear. While retaining the advantages of the suspension system used in the eK·SPORT and eK·CLASSY, it is tuned specially for the eK·ACTIVE to give an SUV-like ride that combines stability with suppleness and does not feel unduly hard.

As with the eK·SPORT, reinforced suspension strut

mountings and strong joints between the trailingarm brackets and side sills contribute to superior body stiffness. And as with the eK·CLASSY, low-friction, high-response valves in the front struts and backside multi-layer valves in the rear shock absorbers realize a flat, refined ride feel. Further, a double-pillow-ball-joint front stabilizer with the thickest wire diameter in the eK series is combined with specially tuned strut damping rates and spring constants to realize cornering stability with minimal roll (notwithstanding the vehicle's relative height) and to realize natural overall handling that's faithful to the driver's intentions.

(6) Abundant functionality and comfort

A full range of functional features that are unique to the eK·ACTIVE make this model an SUV that owners can truly enjoy driving with their families and friends.

Built-in roof rails are standard equipment. An aero-type design combining aluminum and plastic makes them visually consistent with the body and gives them good aerodynamic characteristics.

The rear seat has a large center armrest that incorporates cupholders. (These features apply to the VT grade.) Location of the cupholders in the middle of the rear seat realizes convenience for rear-seat passengers.

High-intensity-discharge (HID) headlights are optionally available. With a twin-bulb design (the first of its kind to be used on a Mitsubishi minicar), they offer HID brightness for the high and low beams.

Heated door mirrors, which demist themselves to ensure superior visibility in harsh environments, are standard equipment for cold regions.

Other features (not exclusive to the eK·ACTIVE) are adopted from other models in the eK series for superior convenience and comfort. These include an automatic air conditioner (offered in the VT grade; the first of its kind to be used on a Mitsubishi minicar, in the eK·CLASSY); ultraviolet- and infrared-cutting window glass that minimizes the burning sensation on the skin that can be experienced in strong sunshine; and an Electronic Time & Alarm Control system, which effects centralized control over power-window anti-pinch mechanisms, a headlight auto-off function, and other functions.

## 3. Major specifications

Major specifications are shown in the following table.

| Specifications \ Model | | | | eK·ACTIVE | | | |
|---|---|---|---|---|---|---|---|
| | | | | VT | | V | |
| | | | | 2WD | 4WD | 2WD | 4WD |
| | | | | 4 A/T | | | |
| Dimensions | Overall length | | (mm) | 3,395 | | | |
| | Overall width | | (mm) | 1,475 | | | |
| | Overall height | | (mm) | 1,600 | | | |
| | Wheelbase | | (mm) | 2,340 | | | |
| | Tread | Front | (mm) | 1,295 | | | |
| | | Rear | (mm) | 1,295 | | | |
| | Interior length | | (mm) | 1,830 | | | |
| | Interior width | | (mm) | 1,220 | | | |
| | Interior height | | (mm) | 1,280 | | | |
| | Vehicle weight | | (kg) | 860 | 910 | 840 | 890 |
| | Minimum turning radius | | (m) | 4.6 | | | |
| Engine | Model | | | 3G83 with intercooled turbocharger | | 3G83 | |
| | Displacement | | (cc) | 657 | | | |
| | Valve mechanism; number of cylinders | | | SOHC 12 valves; 3 cylinders | | | |
| | Maximum output | | {kW (PS)/min$^{-1}$ net} | 47 (64)/6,000 | | 37 (50)/6,500 | |
| | Maximum torque | | {NM (kgf·m)/min$^{-1}$ net} | 93 (9.5)/3,500 | | 62 (6.3)/4,000 | |
| | Fuel supply system | | | ECI-MULTI (electronically controlled fuel injection) | | | |
| Chassis | Steering | | | Rack and pinion (with power assistance) | | | |
| | Suspension | Front | | MacPherson struts | | | |
| | | Rear | | 3-link rigid axle with torque arm | | | |
| | Brakes | Front | | Ventilated discs (14-inch) | | Discs (13-inch) | |
| | | Rear | | Leading/trailing drums (7-inch) | | | |
| | Tires | | | 165/60R14 | | | |

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