Mitsubishi Concept-cX

- Dual peace of mind -
Building upon seventy years of 4-Wheel-Drive expertise, Mitsubishi Motors Corporation (MMC) is in a privileged position to appreciate the customer benefits of this technology, both in terms of on-road active safety and off-road ability, from Lancer Evolution to Pajero.

In parallel, MMC is acutely aware of the pressing issues brought by climate change and is implementing a holistic environmental global strategy, through its “Environment Initiative Program 2010” (EiP 2010) umbrella program.

Combining these two “piece-of-mind” approaches, Mitsubishi Motors will introduce Concept-cX at the occasion of the 62nd Frankfurt Motor Show: a vibrant demonstration that driving pleasure and corporate responsibility are not mutually exclusive and the showcase for the CO₂ friendly all-new Euro 5 Clean Diesel family of engines, co-developed by MMC and Mitsubishi Heavy Industries Ltd. and to be launched in 2009.

Ingrained guiding principles
Mitsubishi Motors Corporation’s corporate citizenship and its concern over environmental issues is neither a recent phenomenon nor a quick marketing trick.

Indeed, they are deep-rooted in Mitsubishi’s corporate culture, as formalized in several guiding principles edicted in the 1930’s by Koyata Iwazaki (of the founding Iwazaki family) the fourth and last President of the old Mitsubishi organization:

1. Enrich society – both materially and spiritually – and safeguard the global environment.
2. Conduct business in the spirit of integrity and fairness and on a foundation of transparency and openness.
3. Adopt a global perspective in developing and expanding business.

A few decades later, these principles are very much alive and respected throughout the Mitsubishi group of companies.

The first of these principles was the trigger for MMC's continued efforts in the area of environmentally-friendly technology, from the MCA (Mitsubishi Clean Air) engine technology of the 1970's to today's wide spectrum of solutions.

Since the 1993 Mitsubishi Motors Environmental Council, MMC has formalized its commitment to use its engineering expertise to contribute to a cleaner environment.

As a reminder, Mitsubishi Motors Corporation has adopted an all-embracing approach in addressing global environmental issues. Under its “EIP 2010” (“Environment Initiative Program 2010”) umbrella project, the Company is actively engaged in the development of a wide range of such technologies, covering:

1. Powertrains (see below)
2. Materials (plant-based “Green Plastic”,…),
3. Processes (“Design for Environment” guiding principles,…),
5. Conservation (“Pajero Forest & Local Mountain Restoration Initiative” aiming to conserve and cultivate Japan's forests and woodlands,…).

Europe = Next Generation Clean Diesel

Whilst pursuing long-term fundamental research & development, Mitsubishi Motors has taken a very down-to-earth view on marketable “green” technologies to make a bigger impact short term.

In particular, MMC has decided to go regional with powertrain solutions matching the everyday reality of very different regional needs, driving patterns & infrastructures:

1. Clean Diesel Euro 5 family of engines for Europe,
2. Next-generation electric vehicle for Japan,
3. Flexible fuel vehicle for Brazil,

Considering the overwhelming importance of Diesel in Europe (50+% of sales in average), the most effective short-term was to elect Diesel as the low CO₂ solution for this region, as opposed to fancier technologies, ultimately limited in impact by cost, sheer volume or recyclability.

There lies the strategic importance of MMC's next generation of Euro 5 Clean Diesel engines. Developed jointly with Mitsubishi Heavy Industries Ltd., this new family powerplants is a key element in Mitsubishi Motors' efforts to lower CO₂ and other greenhouse gas emissions.

Features contributing to the new engine's class-topping power output and Euro 5 emissions performance include a new high-efficiency turbocharger and high-efficiency combustion characteristics that stem from the application of own analytic technology of Mitsubishi Heavy Industries and Mitsubishi Motors.
Consistent with its no-frills approach, MMC has taken the decision to bring forward to early 2009 the start of production of this family of engines to Europe, one full year earlier than scheduled (following the European introduction these powerplants will also be phased into other markets). This advancement will allow MMC to meet the needs of the growing number of environment-conscious customers quicker and make de facto a more substantial and short(er)-term impact.

Real World
In this context, Concept-cX represents a proposal for an accessible, affordable, sustainable and realistic solution to today’s pressing issues, whilst preserving authentic driving pleasure.

Case-in-point, Concept-cX follows the popular compact SUV route to carry this message right at the heart of the market, where SUVs are one of the fastest growing segments.

Sharp in design and in dynamics, Mitsubishi’s Concept-cX boasts an excellent environmental performance to be seen in the (targeted) low fuel consumption and emission levels achieved by its 100 kW (136 ps) @ 4,000 rpm / 280 Nm @ 2,000 rpm next generation 1.8-liter Clean Diesel DOHC 16 valve 4 cylinder engine. Amongst other technologies, it features a variable geometry (VG) turbocharger - to generate optimum boost pressure for all engine loads – as well as DPF (Diesel Particulate Filter) and DOC (Diesel Oxidation Catalyst).

For this concept car application, the 1.8 l Clean Diesel engine is mated to Mitsubishi Motors’ Twin Clutch SST technology. Recently announced, this automated manual transmission combines the economy and dynamic driving of a manual transmission with the convenience of an automatic gearbox. In essence:

1. High power transmission efficiency and low fuel consumption, on par with a conventional manual unit.
2. Slick, sporty gear changing with no clutch pedal.
3. Quick response and smooth shifting.

Concept-cX’s further green credentials include eco-friendly “Green Plastics”, MMC’s proprietary plant-based resin technology - made from bamboo and other plant-based resins - effectively used for interior trim materials, such as floor mats, door trim, tail gate trim and seat back panels.

On-road demand
Surfing on the popular compact SUV wave by strategy (up 54% from 325,000 in 2001 to 500,000 in 2006 and with further 35% growth expected between 2006 and 2009) and by heritage (from the 1936 PX33 to the 2007 Outlander, L200 and Pajero), Concept-cX does acknowledge the essentially on-road usage of these vehicles.

Trendy substitutes to more conventional formats such as MPVs, compact SUVs add a bit of shine to utility whilst fulfilling all the duties expected from compact family cars. Hence the split tailgate used by Outlander but also Concept-cX for instance.

Compact (410 cm), low (155 cm), wide (175 cm), sitting on a long wheelbase (252.5 cm) & wide tracks (151 cm/151 cm) and planted on its 225/45R19 tires, Concept-cX offers passenger car-like stance and dynamics, as suggested by its gaping Lancer “Jet Fighter” grille.

Its on-road abilities are further enhanced by the use of Mitsubishi’s sophisticated AWC (All Wheel Control)
technology, similar in essence to the device successfully introduced with the new Outlander.

This electronically controlled 4WD system offers the driver a choice of three modes (2WD, 4WD Auto, 4WD Lock) to match traction control to his preferences or driving conditions. The center differential features an electronically controlled coupling that uses feed-forward control to determine the optimum front/rear torque split from sensor data on throttle opening, vehicle speed, road conditions and driver inputs.

Jet fighter
Featuring the “Jet Fighter” grille introduced with the all-new Lancer family and using a derivative of Outlander’s 4-Wheel-Drive drivetrain, Concept-cX does create an interesting link between Mitsubishi’s passenger cars and SUVs, an intention clearly visible in its exterior design.

Indeed, that SUV / hatchback crossover positioning is stressed through design features shared by both formats. However, Concept-cX incorporates a sports car flavour stronger than usually applied to this genre and very much consistent with Mitsubishi’s impeccable sporting heritage.

Wedge
The intention is evident when considering Concept-cX’s overall format: a tight and powerful wedge, slotted within 4 bulging wheel-arches, fronted by the vast expanse of a clam-shell hood and finishing with deep-set headlamps either sides of the reverse slant of an over-sized version of Mitsubishi’s trademark “Jet Fighter” grille.

The flanks themselves are all motion, with beltline, Lancer-like character line and even the position of the door handles following airflows.

At the back, all lines converge and merge into the wrap-around “fast hatch” tucked in between the powerful rear fenders, with the eyebrows of the (front) headlamps echoed by the (rear) roof spoiler and the lower vent / central exhaust reminding jets’ thrust nozzles.

Concept-cX also ticks the convenience box with its deep panoramic backlight, twin-stage split tailgate and high mounted rear combination lamps.

Finishing touch, Concept-cX sports a sharp & pure metallic medium blue hue that evokes the image of a crystal-clear lake, while the use of fine aluminum flecks throughout creates a nearly transparent metallic finish.

Open
Using MMC’s proprietary Green Plastic (floor mats, door trim, tail gate trim and seat back panels) and upholstered in earthy tones of brown (leather) and off-white, the interior bridges the gap between sporty and comfy, mixing driver-oriented round meters with bench seats and soft padding to create an interior space that cocoons the occupants, but remind them that they are in a car. Still...

Thinly padded but welcoming nonetheless, the organically-shaped front backrests are mated to a bench seat integrating the transmission lever (Twin Clutch SST and 2WD/4WD functions) as well as the starter and some of the warning lights (bonnet open, “fast hatch” open, low fuel).

The dashboard itself points to the underlying strength of the car’s frame and invite all occupants to
share the voyage through a mega-sized information center touch screen.

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Specifications

**Dimensions:**

- Length: 410 cm
- Width: 175 cm
- Height: 155 cm
- Wheelbase: 252.5 cm
- Tracks: 151 cm/151 cm
- Weight: 1,360 kg

**Engine:**

- 4 cylinders / 1,799 cc
- DOHC, 16 valves
- Common Rail & Selenoidal injector fuel system
- “Clean Diesel” Euro 5 w/ Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC)
- Variable geometry (VG) turbocharger
- 100 kW (136 ps) @ 4,000 rpm / 280 Nm @ 2,000 rpm

**Transmission:**

- Electronically piloted All Wheel Control system
- Twin Clutch SST*

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Note: “Pajero” is “Montero” in Spain and “Shogun” in the UK.

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Twin Clutch SST puts odd (1st, 3rd, 5th) and even (2nd, 4th and 6th) gears on separate input shafts, each connected to an individual clutch. With both clutches under precise system control, this arrangement allows lightening-fast, smooth and lag-free gear changes with no interruption in power delivery.

Using clutches instead of a torque converter to transmit power makes the Twin Clutch SST simpler in structure and reduces power transmission losses for higher transmission efficiency that leads to improved fuel mileage.

Twin Clutch SST allows the driver to switch between 3 shifting programs to cover the full range of driving situations:

a. Normal mode:
For normal driving situations, Normal mode scheduling uses relatively low-speed shift points to deliver unobtrusive shifting for maximum comfort together with optimum fuel economy.

b. Sport mode:
For more demanding driving or when engine braking is required, Sport mode scheduling uses higher shift points and quicker shifting to deliver instant throttle response.
c. S-Sport mode:
Compared with Sport mode, S-Sport mode scheduling keeps the engine turning at higher revs while allowing lightening-fast shifting.