



**Canadian Vehicle
Manufacturers' Association**
Association canadienne
des constructeurs de véhicules



BACKGROUNDER

A Showcase of Technology at the Canadian International Auto Show

BMW Canada Inc.

- 6 series and 7 series automobiles: Introduction of Valvetronic into 8 & 12 cylinder engines with both variable valve timing and variable valve lift, eliminating the throttle body; these engines are approximately 15% more efficient; 6 speed transmissions in either manual or automatic.
- 2006 model year, 325, 330, 525 and 530 series sedans and station wagons: Introduction of Valvetronic into 6 cylinder engines in 80% of BMW fleet, with both variable valve timing and variable valve lift to eliminate the throttle body.
- 2006 model year: Introduction of 6 speed automatics into all 3 series and 5 series automobiles.
- 2006 model year, M5: Introduction of 7 speed automatic shifting manual transmission
- 2006 model year 3 series: light weight aluminum and magnesium engine
- Two-mode hybrid development with General Motors and DaimlerChrysler

DaimlerChrysler Canada Inc.

- 2007 model year new Dodge Caliber compact car available with three new 4-cylinder World Engines with dual Variable Valve Timing (VVT) and intake manifold with flow control valves, 5% improved fuel efficiency over the engines they replace
- 2007 model year new Dodge Caliber compact car available with a second generation Continuously Variable Transmission (CVT2), 6-8% improved fuel efficiency compared with a traditional 4-speed automatic
- 2006 model year Dodge Durango: Multi-displacement system (MDS) on 5.7 L engine applications
- 2006 model year Jeep Commander: Multi-displacement system (MDS) on 5.7 L engine applications, engine knock sensor, tire pressure monitoring standard
- 2006 model year: offering of ethanol (E85) flexible fuel vehicle (FFV) in Chrysler Sebring, Dodge Caravan, Caravan C/V, Grand Caravan, Grand Caravan C/V, Dodge Ram 1500 2x4, Ram 1500 4x4, Dodge Durango
- Two-mode hybrid development with General Motors and BMW
- 2006 model year introduce use of lower viscosity 5W20 Oil
- 2006 model year Chrysler 300, Chrysler 300C, Dodge Magnum, Dodge Charger: Multi-displacement system (MDS) on 5.7 L engine applications, 5-speed automatic transmission, electronically modulated converter clutch (EMCC), transmission variable hydraulic line pressure for 2.7 L engine applications
- 2006 model year Dodge Ram Pickup: Increased compression ratio on 3.7 L engine, engine knock sensors, 6-speed manual replaces 5-speed manual, brake drag reductions, lower rolling resistance tires, transmission variable hydraulic line pressure for 3.7 L engine applications, multi-displacement system (MDS) on 5.7 L engine applications (light duty trucks), front axle disconnect on 4 wheel drive vehicles
- Chrysler PT Cruiser, Chrysler PT Cruiser Convertible: Electronically modulated converter clutch (EMCC)
- Dodge Dakota: 3.7 L - 6 Cylinder engine 6% more fuel efficient, 8 Cylinder Engines 4% more fuel efficient; 6-speed manual transmission replaces 5-speed manual



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- Jeep TJ: 6-speed manual replaces 5-speed manual
- Jeep Liberty: Increased Compression Ratio on 3.7 L Engine; 6-speed manual replaces 5-speed manual; introduce 2.8 L four-cylinder turbo common rail diesel. Diesel Liberty CRD factory fuelled with 5 percent biodiesel blend.
- Jeep Grand Cherokee: 3.7 L engine replaces 4.0 L engine, multi-displacement system (MDS) on 5.7 L engine applications, electronically modulated converter clutch (EMCC)

Ford Motor Company of Canada, Limited

- 2007 model year 4.6 litre Explorer Sport-Trac, 6-speed automatic transmission
- 2007 model year 3.5 litre Ford Edge and Lincoln MKX, 6-speed automatic transmission and variable cam timing
- 2007 model year 5.4 litre Expedition, 6-speed automatic transmission
- 2006 Escape Hybrid – full hybrid offering up to 50% improvement in fuel consumption
- 2006 Freestyle with continuously variable transmission (CVT)
- 2006 Five Hundred includes both continuously variable transmission (CVT) and six speed automatic transmission
- 2006 model year Fusion and Zephyr with 6-speed automatic transmission and variable valve timing
- 2006 model year 4.6 litre Explorer with 3-valve head, variable valve timing and 6-speed automatic transmission
- 2006 model year Mustang with 5-speed and 6-speed automatic transmissions; 6-speed manual transmission
- Most 2006 model year vehicles with Electronic throttle control
- 2006 model year Taurus available as a flexible fuel vehicle (FFV) capable of running on E85 (85% ethanol)
- 2006 model year, Ford will offer ethanol (E85) flexible fuel vehicle (FFV) capability on F-Series trucks, Crown Victoria, Grand Marquis and Lincoln Town Car.
- Ford launched a three-year real world demonstration of 5 Ford Focus Fuel Cell Vehicles in Vancouver in April 2005.

General Motors of Canada Limited

- GM offers a range of 4, 5, 6, and 8 cylinder engines with variable valve timing (VVT). The 2006 model year Impala has the first cam-in-block VVT application in the industry.
- Active Fuel Management (AFM) seamlessly deactivates 4 cylinders under light loads to provide fuel-savings on a wide array of V8 engine applications: 2006 Trailblazer / Envoy, 2005/06 Trailblazer EXT / Envoy XL, 2006 Saab 9-7X, 2006 Rainier, 2007 Tahoe / Suburban, 2007 Yukon / Yukon XL, 2006 Grand Prix GXP, 2006 Monte Carlo and Impala SS
- Ethanol (E85) blended fuel option available on Chevrolet Impala, GMC and Chevrolet full-size pickup trucks and SUVs, including the Tahoe, Suburban, Avalanche, Silverado, Yukon and Sierra.
- Improved power density through supercharging and turbocharging facilitates the use of smaller displacement engines: Cobalt SS, Ion Red-Line, Saab 9-3, and Saab 9-5
- GM patented Regulated Voltage Control (RVC) technology optimizes battery charging for improved fuel efficiency: broad portfolio application
- GM's hybrid propulsion system is currently offered on transit buses providing significantly better fuel efficiency than traditional transit buses and dramatically reduced emissions.
- Hybrid pickup truck: 2006 GMC Sierra and Chevrolet Silverado models
- 2007 Saturn VUE Green Line Hybrid - Combination of price and reduced fuel consumption benefits are intended to make this the best value hybrid system on the market



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- 2008 Tahoe/Yukon Two Mode Hybrid - leverages GM's leadership in automatic transmissions and electronic controls with integrated, powerful and compact electric motors to provide full hybrid capability and efficiency as well as superior acceleration and continuous power
- Six speed Allison 1000 series automatic transmission applied to certain pickup trucks – 2006 Chevrolet Silverado and GMC Sierra
- GM's Regional Engineering Centre in Oshawa continues to work on the development and application of hybrid technology for GM's global vehicle portfolio

Honda Canada Inc.

- 2006 model year Odyssey & Accord hybrid Civic hybrid: VCM (Variable Cylinder Management)
- 2006 model year Civic hybrid: DSI (Dual Spark Plug Ignition)
- 2006 model year Accord Hybrid, 2006 model year Civic hybrid: Hybrid Air Conditioning system
- Most 2006 models: DBW (Drive by Wire)-
- 2006 model year Acura RL, TL, MDX, Honda Pilot and Ridgeline: TPMS (Tire Pressure Monitoring System)
- 2006 model year Acura MDX, Honda Pilot and Ridgeline: VTM-4 (Variable Torque Management System)
- 2006 model year Civic, Accord, CR-V, Element and Acura RSX and CSX: i-VTEC + VTC (Intelligent Variable Valve Timing & Lift Electronic Control + Variable Timing Control)
- Odyssey, Accord hybrid, Civic hybrid: i-VTEC + VCM (Intelligent Variable Valve Timing & Lift Electronic Control + Variable Cylinder Management)
- Acura EL, TL, RL, NSX, MDX; Pilot; Civic Si; S2000 and Ridgeline: VTEC (Variable Valve Timing and Lift Electronic Control)

Hyundai Auto Canada

- 2006 model year Elantra, Tiburon, Accent, Sonata, Azera, Tucson: Continuously variable valve timing on 2.0L, 2.4L, 3.3L, and 3.8L engines.
- Adoption of low viscosity 5W20 engine oil on all vehicles and lower viscosity 75W-90 manual transaxle oil
- 2006 model year: Introduction of 5-speed automatic transaxles with variable line pressure control.
- 2006 model year: introduction of variable angle swash plate air conditioning compressors which reduce engine load.
- 2006 model year: open-type water cooling jackets on 2.4L, 3.3L and 3.8L engines reduces engine warm up time.
- 2006 model year 2.7L Tiburon with 6-Speed manual transaxle.
- 2006 model year: 2.4L engine with dual stage oil pump with bypass to provide the required amount of oil pressure, reducing pumping losses and wasted energy.
- 2007 model year Santa Fe and Entourage : light weight all-aluminum engines with variable valve timing

Mercedes Benz Canada Inc.

- smart fortwo and M-B E320CDI vehicles equipped with advanced diesel technology engines.
- 2006 model year: CVT transmission in the new B-Class and 7 speed transmission in passenger cars with V6 engines
- New M-Class (Sport Utility Vehicle) with 7 speed automatic transmission



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- 2007 model year: GL Class: V8 engine variable valve timing, aluminum block and cylinder heads with low friction silicon-aluminum cylinder liners with secondary internal exhaust gas recirculation

Suzuki Canada Inc.

- 2006 model year Grand Vitara: 5 Speed Automatic; replacing the 4 speed unit in last year's model

Toyota Canada Inc.

- 2006 model year Prius, Highlander Lexus 400h: equipped with Hybrid Synergy System
- 2007 model year Camry, Lexus GS 450h equipped with Hybrid Synergy System
- 2007 model year Lexus LS 460 world's first 8 speed automatic transmission
- 2006 model year Lexus LS 430, Lexus GS300: Dual variable valve timing
- 2006 model year Lexus 250/350: Direct injection gas engine
- 2006 model year Lexus IS 250/350, Lexus SC430, Lexus LS430, Lexus GS 300/430: 6 speed automatic
- Avalon: Dual variable valve timing
- Prius, 2006 model year Lexus IS250/350, Lexus GS 300/430: electric power steering
- Prius: weight reduction aluminum body panels
- Lexus SC 430: weight reduction aluminum body panels

Volkswagen Canada Inc.

- 2006 model year Jetta TDI: turbo-charged, diesel, direct injection 1.9 L engine with high pressure injector fuel atomizer at each cylinder
- 2006 model year Golf: 6 speed automatic transmission
- 2007 model year Passat Wagon, Audi Q7: 6 speed transmission
- 2006 model year Golf GTI turbocharged 2.0 L engine with drive-by-wire throttle control and fuel straight injection (FSI)
- 2007 Passat Wagon 2.0L turbocharged, intercooled direct injection engine with variable valve timing
- 2007 Audi Q7 fuel straight injection (FSI) on 4.2L engine