

2012 NC700X: New Concept Fun Crossover

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Model updates: All-new model; adventurer commuter, new engine and transmission; new frame and suspension

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1. Model Overview

The NC700X crossover offers the long-travel suspension, agility and commanding riding position of an off-road bike in an overall package with high standards of stability, braking and engine performance. It promises a fun, engaging riding experience together with the practicality and ease of use that make it a machine eminently suitable for daily commuting.

At the heart of the NC700X is a purpose-built engine and transmission package. The liquid-cooled, in-line 2-cylinder 670 cm³ engine is a lightweight and compact unit with a low centre of gravity. It offers a very usable power delivery with strong levels of torque at low to medium rpm combined with low exhaust gas emissions and outstanding fuel economy (27.9 km/l WMTC mode. Tested in D-Mode). On the NC700X there is the option to enjoy this new engine with the second generation of Honda's innovative Dual Clutch Transmission offering both manual gear shifting and fully automatic functionality – a suitably advanced and versatile core for an innovative new motorcycle.

The NC700X has been designed with a secure internal storage space large enough to accommodate a full-face helmet, located where you would typically find the fuel tanks. It is also offered with Honda's Combined Anti-Lock Braking System (C-ABS) as an option. It offers the practicality of a commuter with easy handling in a crossover styling.

2. Key features

2.1 Innovative two-cylinder engine

Developed to provide responsive power and strong torque in a compact package, the new 670 cm³ inline two-cylinder engine also meets the demands of today's environmental concerns by being highly fuel-efficient (27.9 km/litre) for a tank range of nearly 400km.

2.2 Versatility and practicality

With its internal storage compartment, protective fairing and windscreen and commanding riding position, the NC700X is ready for anything, whether city or long distance riding.

2.3 Joyous and intuitive handling

Light in weight, pure and swift in its handling responses, the NC700X is fun and easy to handle. Using the same rigid and compact steel diamond frame as the NC700S, the NC700X uses its own unique suspension package to deliver a supremely adaptable chassis.

2.4 Crossover styling

The NC700X has a rugged styling suggestive of its limitless usability.

2.5 Optional Dual Clutch Transmission

The NC700X is available with either a conventional manual 6-speed transmission or the second generation of Honda's Dual Clutch Transmission. The system uses two hydraulically controlled clutches to deliver swift and very smooth gear changes in a choice of three modes. Manual (MT) allows the rider to shift gears using buttons, while automatic mode (AT) offers two settings: S for sporty riding and D for everyday use.

2.6 Secure C-ABS braking

A Combined Antilock Braking System (C-ABS) is offered as an option on the NC700X.

3. Model details

3.1 Engine

Designed for purpose

Early in the development of the NC700X, new research yielded some key data regarding the typical engine use of a rider commuting on a mid-capacity machine. It was determined that 90% of riding involved speeds of 140km/h (87mph) or less and engine speeds of 6000rpm or less. The NC700X demanded a new engine ideally suited to this kind of usage, with strong torque characteristics across the rpm range typically used providing ease of use, thanks to its flexibility and outstanding fuel efficiency.

All-new twin-cylinder engine

The liquid-cooled SOHC 670 cm³ twin-cylinder engine has been designed to meet the challenges of the 21st century. It is smooth, clean, fuel efficient and compact, but it is also fun to use, with a strong low-rpm power delivery thanks to its relatively long-stroke SOHC architecture and specially shaped combustion chambers. Further enhancing this satisfying feeling of effortless torque is the crankshaft, which has been designed with high levels of inertial mass. The engine produces a peak power output of 38.1kW at 6,250rpm but more important is the available torque throughout the rev range peaking at 62Nm at 4750rpm. What's more, so linear and smooth is the power delivery that even riders new to mid-capacity engines can enjoy the strong level of performance.

Practical, efficient and reliable

The in-line two-cylinder configuration is both practical and efficient in terms of space layout, freeing up space within the body of the motorcycle. By reducing the number of parts to a minimum the engine is lighter, more efficient and more reliable. For example there is just one throttle body and one exhaust, despite the two cylinders. Where possible, components are made to do more than one job too. The camshaft also drives the water pump for the cooling system, while the balancer shaft, which ensures smooth, comfortable running, also drives the oil pump.

To further reduce fuel consumption, the engine was developed using stoichiometric analysis. By analysing combustion in this way, the engine has been developed to deliver exactly the fuel/air ratio required for a complete, clean burn at all idle engine rpm. An efficiency target of 27km per litre was accomplished thanks to these technology developments. Such low fuel consumption target is attractive given the sense of responsibility we all feel towards our environment. It also makes the NC700X more practical on a day-to-day basis, since a fuel-efficient vehicle is cheaper to run and requires fewer fuel stops over a given week of commuter travel.

Clean exhaust emissions

Thanks to the same stoichiometric analysis that reduce fuel consumption, the engine also burns very cleanly, minimising the emission of harmful exhaust gases. The PGM-FI fuel injection system supplies the optimum amount of fuel and is fully EURO-3 compliant thanks to an oxygen sensor in the exhaust. Finally the high-absorption catalyser has been located close to the engine. As a result the catalyst reaches operating temperature more quickly after a cold start, reducing harmful emissions over a typical journey.

3.2 Versatility and practicality

True versatility

The NC700X redefines the multi-role motorcycle by uniting a strong, fuel-efficient engine with a comfortable riding position and a versatile chassis. Ideally suited to commuting during the working week, the bike also inspires an adventurous spirit at the weekend. A long tour, a leisurely ride into the countryside or a trip into the city with a passenger to meet friends – the NC700X is ready for anything.

Practicality and convenience

The NC700X features an internal storage space large enough to hold a full-face helmet, a waterproof suit or a bag. Together with the fuel filler cap, this space is accessed using a key to unlock and flip-up the seat. The fuel tank holds 14.1 litres – enough for an impressive range of nearly 400km (250 miles) between fill-ups. Since this range is due to engine efficiency, not a large fuel tank, it comes without the penalty of additional weight or bulk, and also ensures very low running costs.

The NC700X features a protective windscreen to provide comfortable running even at highway speeds.

Commanding riding position

The NC700X has a relaxed and comfortable upright riding position with a higher viewpoint for possible obstacles ahead. Another advantage of this off-road inspired riding position is great low-speed control. Combined with the machine's low centre of gravity and **generous steering lock**, the result is exceptional low-speed handling and agility. In busy traffic and on twisting roads the NC700X is a confidence-inspiring ally. Thanks to its carefully shaped fairing the machine is equally comfortable when cruising at speed. The windscreen and bodywork divert wind around the rider, reducing fatigue.

Advanced multi-function instrument display

The NC700X reassures the rider by communicating all the important running information at a glance. The clear and easy-to-read instrument display features a digital speedometer, a digital bar-type tachometer, a clock, a bar-type fuel meter and two trip meters.

3.3 Joyous and Intuitive handling

Highly adaptable crossover chassis

Using the same rigid and compact steel diamond frame as the NC700S, the NC700X uses its own unique crossover wheel and suspension package to deliver a supremely adaptable chassis.

Steel diamond frame

The frame is a rugged steel diamond frame required for agile, responsive handling. This type of frame is ideal where space within the machine is at a premium, since it takes up very little volume but offers superb riding dynamics.

Reassuring stability

Suspension travel on the NC700X is set to ensure smooth ride on ever changing surfaces. (153.5mm at the front and 150mm at the rear). Spring and damping rates, optimised for the suspension travel, ensure good control and feedback. Overall chassis geometry balances good manoeuvrability – the off-road inspired riding position and 35° of steering lock also help here – with reassuring stability, even loaded with hard luggage.

Cast aluminium wheels

Reflecting the machine's multi-purpose remit, the NC700X combines lightweight 17" cast aluminium wheels for excellent traction and control on all types of road surfaces. To absorb shocks the wheel spokes have been designed with a Y-shaped cross section, contributing to the ride quality. Tyre sizes are 120/70 at the front and a broad 160/60 at the rear.

3.4 Styling concept

Strong, inspiring styling

The NC700X is a multi-purpose machine designed to excel in a wide range of tough riding conditions. To inspire a sense of adventure, the machine has been designed with a rugged and confidence-inspiring look that's at home in any environment. The NC700X makes clear its willingness to take on any ride, however demanding.

3.5 Optional Dual Clutch Transmission

Optional second generation Dual Clutch Transmission

Honda's Dual Clutch transmission takes ease of use to new heights in the NC700X, offering either manual shifts at the push of a button or fully automatic functionality – just twist and go. As the name implies, the system uses two clutches: one for start-up and 1st, 3rd and 5th gears; and another for 2nd, 4th and 6th. By pre-selecting the next gear using the clutch not currently in use, the system can hydraulically control clutches when required to deliver swift, smooth and seamless gearshifts. This smoothness is particularly beneficial when carrying a passenger.

Three modes of operation are available for outstanding flexibility. MT mode gives full manual control, allowing the rider to shift gears with the handlebar controls. Two fully automatic shift modes are also available. D mode is ideal for city and highway riding. In sporty S mode the transmission lets the engine rev a little higher before shifting up, giving greater performance, and also shifts down sooner when decelerating, offering useful additional engine braking.

In either D or S mode the Dual Clutch Transmission also offers immediate manual intervention if required. The rider simply selects the required gear using the MT mode shift buttons, after which the system will continue to act as an automatic transmission. This is particularly useful when preparing to overtake or when approaching a tight corner on a twisty hill road, for example. To ensure the optimum shifting schedule in D and S modes, extensive testing was conducted on all kinds of European roads.

Hassle-free maintenance

Designed to offer convenience and low running costs, the engine and transmission require the bare minimum of maintenance. The optional Dual Clutch Transmission uses heavy duty large-diameter clutches to comfortably deal with the rigours of daily use in stop/start city traffic. After purchase, a first service to check valve clearances is commonplace on commuter motorcycles but the engine requires no such attention. Service intervals are every 12,000km, and the engine's highly efficient iridium sparkplugs only require replacement at 48,000km. The result is convenient and efficient personal transport with no hassle and low running costs.

3.6 Secure C-ABS braking

Secure C-ABS braking

Honda is committed to improving motorcycle safety and is proud to offer a Combined ABS (C-ABS) version of the NC700X. The system dramatically improves braking performance in an emergency situation. The front and rear braking systems on two-wheeled vehicles are usually independent. This means the rider must use just the right amount of front and rear brake, a skill that comes only with experience. C-ABS links the two systems and works to optimise the pressure

acting on each brake. The result is strong and safe deceleration. Additionally, C-ABS has full antilock functionality. Should the system detect either wheel is about to lock up and skid, C-ABS momentarily reduces the hydraulic pressure being applied to the relevant brake, ensuring powerful and secure braking in all conditions.

4. Colours

The 2012 NC700X will be launched in four colours.

- Darkness Black Metallic
- Digital Silver Metallic
- Pearl Sunbeam White
- Magna Red

5. Optional equipment

Optional equipment

The versatility of the NC700X can be further enhanced with a range of genuine Honda accessories.

- 35L top box
- 45L top box on/off
- 29L pannier kit
- Pannier kit decoration panel
- Top box 35L inner bag
- Top box 45L inner bag
- Pannier inner bag set
- High windscreen
- Front side cowl panel
- Leg deflector kit
- Foot deflector kit
- LED fog lamp kit
- Accessory pipe
- Grip heater kit
- 12V DC socket kit
- Main stand
- Alarm
- U-lock

6. Technical Specifications – NC700X (ED-type)

ENGINE

Type Liquid-cooled 4-stroke 8-valve, SOHC parallel 2-cylinder

Displacement 670 cm³

Bore x Stroke 73 x 80mm

Compression Ratio 10.7 : 1

Max. Power Output 38.1kW/6,250min-1 (95/1/EC)
*35kW/6,250min-1 (95/1/EC)

Max. Torque 62Nm/4750min-1 (95/1/EC)
*60Nm/4750min-1 (95/1/EC)

FUEL SYSTEM

Carburation PGM-FI electronic fuel injection

Throttle Bore 36 mm

Aircleaner 5.8 Litres

Fuel Tank Capacity 14.1 litres

Fuel Consumption (WMTC mode*. Tested in D-Mode)

38.1 kw	35.0 kw
MT 27.9 km/l	MT 27.7 km/l
DCT 27.9 km/l	DCT 27.9 km/l

ELECTRICAL SYSTEM

Ignition System	Computer-controlled digital transistorised with electronic advance
Ignition Timing	12° BTDC (idle) ~ 20° BTDC (6,600min-1)
Sparkplug Type	IFR6G-11K
Starter	Electric
Battery Capacity	12V-11AH
Headlights	12V; 60W × 1 (High) / 55W × 1 (Low)

DRIVETRAIN

Clutch	Wet, multiplate ** Wet multiplate, hydraulic 2-clutch																								
Clutch Operation	Manual ** D mode/S mode/Manual mode																								
Transmission Type	6-speed																								
Primary Reduction	1.731 DCT 1.921																								
Gear Ratios	<table> <tr> <td>1</td> <td>2.812</td> <td>DCT</td> <td>2.666</td> </tr> <tr> <td>2</td> <td>1.894</td> <td>DCT</td> <td>1.904</td> </tr> <tr> <td>3</td> <td>1.454</td> <td>DCT</td> <td>1.454</td> </tr> <tr> <td>4</td> <td>1.200</td> <td>DCT</td> <td>1.200</td> </tr> <tr> <td>5</td> <td>1.033</td> <td>DCT</td> <td>1.033</td> </tr> <tr> <td>6</td> <td>0.837</td> <td>DCT</td> <td>0.837</td> </tr> </table>	1	2.812	DCT	2.666	2	1.894	DCT	1.904	3	1.454	DCT	1.454	4	1.200	DCT	1.200	5	1.033	DCT	1.033	6	0.837	DCT	0.837
1	2.812	DCT	2.666																						
2	1.894	DCT	1.904																						
3	1.454	DCT	1.454																						
4	1.200	DCT	1.200																						
5	1.033	DCT	1.033																						
6	0.837	DCT	0.837																						
Final Reduction	2.687 D C T 2.437																								

Final Drive Chain

FRAME

Type Diamond; steel pipe

CHASSIS

Dimensions (LxWxH) 2210mm x 830mm x 1285mm

Wheelbase 1540mm

Caster Angle 27°

Trail 110mm

Turning Radius 3.0m

Seat Height 830mm

Ground Clearance 165mm

Kerb Weight 214kg (F: 102kg; R: 112kg)
* 218kg (F: 104kg; R: 114kg)

Max Carrying Capacity 209kg

SUSPENSION

Type Front 41mm telescopic fork, 153.5mm travel

Rear Monoshock damper, Pro-Link swingarm, 150mm travel

WHEELS

Type Front multi-spoke cast aluminium

Rear multi-spoke cast aluminium

Rim Size Front 17M/C x MT3.50
Rear 17M/C XMT 4.50

Tyre Size
Front 120/70-ZR17M/C (58W)
Rear 160/60-ZR17M/C (69W)

Tyre Pressure
Front 250KPa
Rear 290KPa

BRAKES

Type
Front 320mm single wavy hydraulic disc with 2-piston (* 3-piston) caliper and sintered metal pads

Rear 240 single wavy hydraulic disc with single-piston caliper and sintered metal pads

**ABS version*

***DCT version*

All specifications are provisional and subject to change without notice.

Please note that the figures provided are results obtained by Honda under standardised testing conditions prescribed by WMTC. Tests are conducted on a rolling road using a standard version of the vehicle with only one rider and no additional optional equipment. Actual fuel consumption may vary depending on how you ride, how you maintain your vehicle, weather, road conditions, tire pressure, installation of accessories, cargo, rider and passenger weight, and other factors.

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