

# 2012 Crosstourer

## The New V4 Adventure Sports Tourer

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Model updates: All-new model; premium adventure sports tourer; 1,237cm<sup>3</sup> V4 engine; all-road chassis; comfortable upright riding position; TCS, LED indicators, Dual Clutch Transmission and Combined ABS

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### **1. Model overview**

Honda is proud to announce the expansion of its state-of-the-art V4 model line-up by introducing the new Crosstourer, first launched as a concept model in 2010 at the Eicma Show. The Crosstourer will deliver all the fun and excitement of a sports tourer with the comfortable upright riding position and manoeuvrability of an adventure machine. This is underpinned by Honda's V4 expertise and its Dual Clutch Transmission with new functionalities.

The development team, led by Yosuke Hasegawa (Large Project Leader), wanted to create a machine that gave the rider a sense of challenge and adventure. Japanese phrases used during the concept creation and development translate into English as, "I can do this. I can go to a place like that". "This" could be a long distance journey on fast major roads and motorways, or an adventure to a remote destination in the mountains. The Crosstourer development team wanted to

create a motorcycle that was fit for all purposes, a perfect travel companion, while also offering a premium and unique design complemented by cutting edge technologies.

The Crosstourer combines sports touring features, such as the powerful V4 engine configuration also found in the VFR1200F, with features found on off-road motorcycles such as long travel suspension and an upright riding position for reassuring handling and grip. This crossover between two biking genres makes the Crosstourer a unique and versatile package. The long-travel suspension usually found on off-road bikes to smoothly travel over rough terrain will benefit riders on uneven road surfaces. The rugged long-travel suspension systems also make for superb ride quality and precise control. The upright riding position provides comfort, control and outstanding visibility for the rider.

Like the Crossrunner unveiled at EICMA in 2010, the Crosstourer provides the power of a V4 engine packaged in a crossover motorcycle. Honda's Dual Clutch Transmission system is a perfect fit with the Crosstourer's advanced, pioneering spirit. The twin-clutch transmission offers both manual gear shifting, using buttons on the handlebars, and stress-free fully automatic functionality which can be manually overridden whenever the rider chooses. The machine also comes equipped with a TCS (Traction Control System), which increases the rider's reassurance on low-friction riding surfaces by ensuring the engine never transmits more power than the rear tyre can handle. Refinements such as Honda's Combined ABS underline the motorcycle's all-weather, all-road capability – this machine really is ready for anything.

The Crosstourer sets a new standard in full size adventure sports touring motorcycles. It offers a unique combination of V4 engine performance with advanced technology (Combined ABS, TCS, Dual Clutch Transmission) for stability and handling when riding solo or two-up on all types of road and all lengths of journey. The adventure starts here.

## **2. Key features**

### **2.1 Engine**

#### **Big-capacity V4 power**

The 1,237cm<sup>3</sup> V4 engine, installed for the first time in a Honda adventure sports touring motorcycle, has been optimised for stronger low and medium rpm drive, delivering smooth power to make the Crosstourer feel effortless on long rides.

### **2.2 Transmission**

#### **Dual Clutch Transmission**

Honda's Dual Clutch Transmission ensures seamless and even smoother gear changes in any of its three riding modes, making the Crosstourer a supremely versatile motorcycle. Using two electronically controlled clutches, the system offers the choice of manual gear shifting and two fully automatic modes, one for general use (D-mode) and another for high performance riding (S-mode). The Crosstourer's Dual Clutch Transmission also features new software logic with added functionality.

### **2.3 Chassis**

#### **Versatile chassis**

Chosen for its excellent weight/rigidity balance, the Crosstourer's die-cast aluminium frame mounts long-travel suspension systems front and rear to deliver an engaging riding experience and a comfortable ride, even on rough roads.

### **2.4 Honda Technology**

Honda's Traction Control System (TCS) and Combined ABS underline the new machine's any-road, any-weather capability. The two ensure rider peace of mind, even in low-grip conditions.

## **3. Model details**

### **3.1 Styling**

#### **Inspiring, function-led styling**

The Crosstourer's styling suggests great strength allied with a refined sportiness. Recurring design themes like sharp edges accentuate its rugged adventure style; a lack of bulk at the front of the bike gives a feeling of lightness. The headlight configuration consists of a stacked headlight arrangement with the main beam headlight positioned above the high beam unit. The headlights and effective windscreen are positioned towards the middle of the machine to help centralise mass while also offering great wind protection. Channels in the fairing at the front of the bike reduce frontal area while ducting cooling air into the radiators. The rear of the machine is highly functional with an integrated luggage carrier and grab rail to which the optional panniers attach directly. The LED indicators, used for the first time on a large capacity Honda motorcycle, ensure optimum visibility.

#### **Protection from the elements**

The Crosstourer features off-road inspired knuckle guards to provide welcome wind and weather protection for the rider's hands. The adjustable windscreen has been shaped using computational fluid dynamics analysis for an idealised shape and just enough wind protection – the design lets the rider feel the breeze, which is part of the joy of riding a motorcycle, while keeping fatigue to a minimum.

#### **Multi-function digital instruments**

The advanced multi-function instrument panel is both attractively styled and easy to read at a glance. Positioned just below the rider's line of sight to maximise the amount of time spent looking ahead, the display is dominated by a large, clear digital speedometer. This is flanked by gauges showing remaining fuel and engine temperature. Across the top of the display is a bar-type tachometer, which runs left to right as engine rpm increases. Further information includes an odometer, two trip meters, remaining fuel, fuel consumption (both actual and average), range to empty, a gear position indicator, a clock and the currently selected Dual Clutch Transmission mode (if applicable). This instrument panel is also adjustable for brightness.

### **3.2 Ergonomic Design**

#### **Comfortable riding position**

Key to the appeal of the Crosstourer is the off-road inspired upright riding position, perfect for riding in busy city streets and twisting rural roads alike; the Crosstourer is a confidence-inspiring ally. The Crosstourer's carefully considered ergonomics package offers both rider and passenger a high degree of freedom. Natural support of the rider's body weight between footpegs, seat and handlebar make the machine comfortable even on extended rides. The riding position also offers excellent visibility, with clear lines of sight over surrounding vehicles. Finally, the freedom of the riding position, coupled with the machine's generous steering lock, centralised mass and wide, tapered handlebars, gives great low-speed control.

### **3.3 Engine**

#### **Big-capacity V4 performance**

The Crosstourer is a machine designed to give its rider the feeling that anything is possible: no journey is too long or too demanding, no road or surface impassable. Contributing significantly to

this joyous feeling is the Honda V4 engine, now within a sports adventure touring package that delivers impressive power and torque in a controllable and responsive way.

### **Compact engine dimensions**

The V4 configuration is slim and compact, reducing frontal area and helping realise a mass-centralised chassis for excellent handling. Furthermore, the engine features a very closely set pair of rear cylinders, making the engine narrower at the back. The result is a comfortably slim and manageable motorcycle. Further contributing to the engine's compact dimensions is Honda's revolutionary Unicam technology, borrowed from the CRF range of single-cylinder motocross machines. This employs a single overhead camshaft configuration to reduce the size and weight of the cylinder heads and optimise combustion chamber shape, benefiting performance.

### **Smooth engine operation**

The Crosstourer's engine uses a combination of a 76° angle between the two banks of cylinders and a crankshaft with 28° phasing between the crankpins to virtually eliminate vibration. Since this obviates the need for a power-sapping balancer shaft, the result is a higher output together with a serene absence of vibration. This is an engine you can use all day, for hundreds of miles, without fatigue.

### **Optimised engine settings**

Based on the engine found in the VFR1200F, the Crosstourer's powerplant has been modified to better suit its intended duties. To further increase low and medium rpm drive the design of the camshafts has been revised, as has the valve timing. The result is satisfying drive, even from very low engine rpm.

### **Muscular engine feel**

Honda's legendary V4 engines have long been characterised by an uneven firing order. The Crosstourer is no different, and these firing intervals help make the rider feel intimately connected to the engine, giving the confidence to use its performance, together with a satisfying engine feel.

### **Refined control**

Further contributing to the V4's superb levels of control and user-friendliness is the advanced ride-by-wire system, which precisely meets the rider's demands with just the right amount of easily-controlled performance; no more and no less.

### **Dual Clutch Transmission**

A product of Honda's ongoing desire to use new technologies to bring fun and convenience to peoples' lives, Dual Clutch Transmission uses automated clutch and gearshift operation to deliver the same riding enjoyment as a manual transmission with the convenience of an automatic. As the name implies, the system uses two clutches: one for start-up and 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> gears; and another for 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup>. By pre-selecting the next gear using the clutch not currently in use, the system can electronically switch clutches when required to deliver swift, smooth and seamless gearshifts. This smoothness is particularly beneficial when carrying a passenger.

### **A mode for every situation**

Three modes of operation are available for flexibility to suit different riding styles and situations. MT mode gives full manual control, allowing the rider to shift gears with the handlebar trigger

control buttons. Two fully automatic shift modes are also available. D mode is ideal for city and highway riding, and maintaining fuel efficiency. The ECU monitors several key parameters and can choose between two maps; one for normal conditions, which minimises gear shifts for smooth progress, and a second for high-load use that changes gear more readily for increased acceleration and stronger engine braking. 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. In either D or S mode the Dual Clutch Transmission offers immediate manual intervention if required. The rider simply selects the required gear using the MT mode shift button. Changes to the software system now mean that at an appropriate time the system reverts back to the automatic mode.

### **Reassuring TCS Traction Control System**

The Crosstourer is equipped with TCS traction control. This system monitors rear wheel speed, looking for fluctuations that could suggest an imminent loss of traction and, subsequently, machine control. If the system believes wheel-spin is imminent, engine power is momentarily reduced, maintaining traction. The system can be switched off, should the rider prefer, for certain conditions.

## **3.4 Chassis**

### **Quartered hollow die-cast aluminium beam frame**

The frame of the Crosstourer is a hollow aluminium unit that employs a quartered construction. This technique enables very precise control over the all-important weight/rigidity balance of each part of the frame. The result is superb handling with a reassuring sense of stability, regardless of the road surface.

## **3.5 Wheels**

### **Shock-damping tubeless spoked wheels**

Developed especially for this model, the Crosstourer spoked wheels have been designed to absorb the shocks generated by rough road surfaces, working with the machine's suspension systems to deliver a comfortably refined ride quality. Tyre sizes – 110/80-R19 at the front, 150/70-R17 at the rear – have been chosen to balance keen, agile handling with effortless traction.

## **3.6 Suspension**

### **Long-travel suspension systems**

Designed to excel on the hugely varied road surfaces of Europe, the front and rear suspension systems both offer generous amounts of controlled, bump-absorbing travel. The rigid 43mm upside-down telescopic forks offer reassuring control with precise steering and stability, even during hard cornering and heavy braking. Meanwhile, the Pro-Link rear suspension configuration combines strong traction with ride quality. Both the front forks and rear shock are adjustable for both tension (rebound) and preload, allowing riders to alter chassis characteristics to suit their riding style and intended usage.

### **Maintenance-free shaft final drive**

To ensure it is as easy to maintain as it is to ride, the Crosstourer uses a maintenance-free shaft final drive. The design of this fuss-free transmission has been developed to be both durable and very quiet, even during high speed running.

### **3.7 Brakes**

#### **Combined ABS**

The Crosstourer is equipped with Combined ABS, offering balanced front and rear braking for more stable deceleration and the extra reassurance of an Antilock Brake System. If either wheel is about to lock up and skid, Combined ABS momentarily reduces the hydraulic pressure being applied to the relevant brake and distributes the force optimally between both brakes, ensuring powerful and secure braking in all conditions.

### **4. Colours**

The 2012 VFR1200X Crosstourer will be launched in a range of three colours.

- Digital Silver Metallic
- Pearl Sunbeam White
- Pearl Cosmic Black

### **5. Model history**

To test the validity of a new concept motorcycle, one with the comfort, power and go-anywhere capability to satisfy even the most adventurous individuals, Honda unveiled the V4 Crosstourer concept model at the 2010 EICMA (Esposizone Internazionale Ciclo Motociclo Accessori) show in Milan, Italy. Positioned alongside the smaller Crossrunner, the concept explored the possibility of a rugged motorcycle based around the frame and powerful 1,237cm<sup>3</sup> V4 engine of the VFR1200F.

This new machine's remit evolved slightly from the concept to the mass production version. The concept bike was an adventure machine with the emphasis on long-distance all-road touring. The production Crosstourer is a more versatile package, as effective in the city on the daily commute as it is on the open highway. To achieve this, the styling has been revised and the machine made less bulky and more manoeuvrable. The chassis specification has also been altered, with the adoption of upside-down forks for greater on-road control, for example.

The Crosstourer is the perfect platform to emphasise the numerous technical advantages of a V4 engine: high power output with a compact, centralised mass for good handling and a small frontal area for reduced aerodynamic drag. The distinctive growl of the V4 is another essential part of the machine's appeal.

## 7. Specifications – Crosstourer (ED-type)

### ENGINE

Type Liquid-cooled 4-stroke Unicam 16-valve 76° V4

Displacement 1,237cm<sup>3</sup>

Bore x Stroke 81mm x 60mm

Compression Ratio 12:1

Max. Power Output 95kW / 7,750min<sup>-1</sup> (95/1/EC)

Max. Torque 126Nm / 6,500min<sup>-1</sup> (95/1/EC)

### FUEL SYSTEM

Carburation PGM-FI electronic fuel injection

Throttle Bore 44 mm

Aircleaner type Oil-permeated, viscous-type paper filter

Fuel Tank Capacity 21,5 litres

Fuel Consumption 16.1 km/l (WMTC mode)  
16.7km/l (D-Mode)

### ELECTRICAL SYSTEM

Ignition System Computer-controlled digital transistorised  
with electronic advance

Ignition Timing 8.4° BTDC (idle speed)

Sparkplug Type NGK : IMR8E-9HES  
DENSO : VUH24ES

Starter Electric

Battery Capacity 12V

Headlights Hi 55W / Low 55W

### DRIVETRAIN

Clutch Wet, multiplate  
\* Wet multiplate, hydraulic 2-clutch

Clutch Operation \* D mode/S mode/Manual mode

Transmission Type 6-speed

Primary Reduction 1.738 (73T / 42T)

Gear Ratios	1	2.600 (39T / 15T)	*2.250 (36T / 16T)
	2	1.600 (32T / 20T)	*1.700 (34T / 20T)
	3	1.260 (29T / 28T)	*1.304 (30T / 23T)
	4	1.076 (28T / 26T)	*1.107 (31T / 28T)
	5	0.961 (25T / 26T)	*0.967 (29T / 30T)
	6	0.897 (35T / 39T)	*0.886 (31T / 35T)

Final Reduction 1.060 (37T / 39T) x (19T / 17T)  
\* 1.063 (39T / 41T) x (19T / 17T)

Final Drive Enclosed shaft

### FRAME

Type Diamond; aluminium twin-spar

### CHASSIS

Dimensions (LxWxH) 2,285mm x 915mm x 1,335mm  
(w/ std screen and std position)

Wheelbase	1,595 mm
Caster Angle	28°
Trail	107 mm
Turning Radius	2.7 m
Head turning angle	40°
Seat Height	850mm
Ground Clearance	180mm
Kerb Weight	275kg (F: 132kg; R: 143kg) * 285kg (F: 138kg; R: 147kg)

## SUSPENSION

Type	Front 43mm inverted telescopic forks with hydraulic damping, preload and rebound damping adjustment
Rear	Pro-Link with gas-charged damper, preload and stepless rebound damping adjustment

## WHEELS

Type	Front tube less spoked
	Rear tube less spoked
Rim Size	Front 19M/C x MT2.50 Rear 17M/C x MT4.00
Tyre Size	Front 110/80-R19 Rear 150/70-R17

