

HONDA

Press Information

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21YM HONDA X-ADV



Model updates: Honda's ground-breaking X-ADV gets a comprehensive update: more power for the engine, plus higher redline and revised gearbox ratios, which come hand-in-hand with Throttle By Wire management, 4 default riding modes, refined and expanded Honda Selectable Torque Control, all with no loss in fuel efficiency. A redesigned frame is clothed in all-new bodywork and the seat has been re-shaped for easy ground reach. The storage compartment is usefully larger and includes a USB charger; there's also now a glovebox. Twin LED headlights feature Daytime Running Lights and a 5-inch TFT display allows smartphone connectivity via the new Honda Smartphone Voice Control System.

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1. Introduction

It's not often in the world of motorcycling that a fresh line of thinking emerges to create a new breed of machine. But Honda specializes in innovation and in 2016 unveiled a completely new concept, straight out of left field - the X-ADV.

The thought processes that led to its birth? Consider the attributes of the average adventure-style motorcycle – tough go-anywhere appeal, an upright riding position giving superb visibility and remarkable all-round usefulness, work or play. Then take a look at the typical commuter; it might be a scooter or motorcycle, but in either case it will be easy to manage, nimble and loaded with convenience, efficiency and useful storage space. Honda's forward-thinking engineers combined the two together, and something special happened.

The machine they created had a rugged, stylish SUV image fully at home navigating the urban sprawl. And while it was loaded with all of the premium features that enable easy life in the big city, it also had the looks, engine power and chassis ability to inject every ride with the promise of adventure.

The X-ADV captured the essence of two-wheeled freedom in an exciting new form and garnered the attention of an army of riders around Europe, eager for something new, and has proved itself a genuine sales success. And, proving its off-road credentials, in the hands of seasoned Italian racer Renato Zocchi a lightly modified version took overall Class 2 victory in the gruelling 7,000km 2019 Gibraltar Rally.

And the X-ADV is not standing still. For 2021 Honda is upping its engine performance, trimming weight, enhancing style and adding even more usefulness. Making the X-ADV even cooler *and* more desirable in the process.

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2. **Model Overview**

3kW more peak power for the X-ADV's EURO5-spec engine, plus an extra 600rpm to the redline are the headline changes, thanks to work on valve timing and intake/exhaust efficiency. Shorter ratios for first, second and third gears allow smarter acceleration, while taller fourth, fifth and sixth ratios allow relaxed higher speed cruising and excellent fuel economy.

Throttle By Wire (TBW) brings with it adjustable engine character through 4 default rider modes: RAIN, STANDARD, GRAVEL and SPORT plus a customisable USER mode. It also allows even smoother operation of the Honda Selectable Torque Control (HSTC) system, which now features 3 levels of intervention. The Dual Clutch Transmission (DCT) features Automatic shifting schedules that link with the riding modes.

A new frame and detail improvements save 1kg. There's a sharper, more aggressive edge to the X-ADV's bodywork and the twin LED headlights are now equipped with Daytime Running Lights (DRL), as used by the CRF1100 Africa Twin.

For easier ground reach the seat is newly contoured at the shoulders. The redesigned underseat storage space grows in volume and is equipped with a USB charging point; relocating the parking brake to the right handlebar offers greater convenience and frees up space for a useful new glovebox. A new TFT instrument display offers Honda Smartphone Voice Control System.

The 2021 X-ADV will be available in the following colour options:

Grand Prix Red *NEW*

Graphite Black

Matt Beta Silver Metallic

Pearl Mud Gray

3. **Key Features**

3.1 Engine

- ***Throttle By Wire and an extra 3kW for the peak power figure of 1kW; 69Nm torque***
- ***An extra 600rpm to the redline***
- ***Gears 1-3 shorter, for sportier feel; gears 4-6 taller for improved economy***
- ***EURO5 compliant, with 3.6l/100km fuel efficiency***
- ***35kW A2 licence version available***

The design of the X-ADV's liquid-cooled, SOHC 8-valve parallel twin-cylinder engine ensures punchy performance in the low-to-mid range. Its relatively long-stroke architecture and specially shaped combustion chambers combine with the high-inertial mass crankshaft to produce large amounts of effortless torque from very low rpm. A forward cant brings the centre of gravity down for optimum stability; through the course of its 2021 update it is now 1.4kg lighter than before.

Thanks to a finely balanced 5% change in valve duration (which differs between the two cylinders) plus addition of Throttle By Wire (TBW) and improvements to the exhaust, the engine makes more power, and revs harder for longer to an increased 7,000rpm redline. Alongside the power hike it holds onto an increased torque output for longer over 5,000rpm.

Peak power is raised 3kW to 43.1kW @ 6,750rpm, with maximum torque of 69Nm @ 4,750rpm. Hand in hand with the performance hike are shorter gear ratios over first, second and third gears, improving standing start and roll-on acceleration through each gear. From 30 km/h the X-ADV will cover 20m in 1.7s, 50m in 3.2s, while at 60km/h the torquey engine is turning at just 2,500rpm. Fourth, fifth and sixth gears are now slightly taller, for improved fuel efficiency and flexible use of the increased power figure.

For A2 licence holders a 35kW version is available, which can be easily converted to the full power version by a Honda dealer at the appropriate time. Equally, it is possible to restrict the full power version to 35kW by a Honda dealer remapping the ECU.

Twin balancers counteract vibration from higher rpm inertia without affecting the distinct 'throb' delivered by the engine's irregular firing order and 270° phased crankshaft. Bore and stroke is set at 77 x 80mm. Where possible components are made to do more than one job: the camshaft drives the water pump, while one of the balancer shafts drives the oil

pump.

By keeping the number of parts to a minimum in this way, the engine is kept light, efficient and reliable.

The X-ADV engine sips fuel – with a measured consumption of 27.8km/l (WMTC mode) providing a potential 366km range from the 13.2-litre fuel tank. It is also now compliant with EURO5 regulations, which from January 1st 2020 introduced significantly stricter engine emissions standards compared to EURO4. These requirements include substantial reductions in permitted carbon monoxide emissions, an over 40% decrease in total hydrocarbon emissions, tougher misfire detection and the introduction of a particulate matter limit.

3.2 Engine Electronics

- ***Throttle By Wire delivers 4 default riding modes, plus USER customisation***
- ***Honda Selectable Torque Control features much finer management and 3 levels of intervention***

With TBW now managing engine performance and character there are 4 modes for the rider to choose from, covering all riding conditions. Mode selection is managed by the left-hand switchgear.

STANDARD delivers a balanced middle point between engine power delivery, engine braking and HSTC intervention, with the strongest level of ABS intervention.

SPORT gives more aggressive engine power delivery and engine braking, with low HSTC intervention, high ABS.

RAIN transmits low engine power delivery and engine braking, high HSTC and ABS input.

GRAVEL employs high power and engine braking with low HSTC and ABS.

USER offers custom options of low/medium/high between engine power delivery and engine braking and low/medium/high/off for HSTC.

Honda Selectable Torque Control (HSTC) now offers much softer, finer control as it uses TBW to manage torque delivered to the rear wheel, with 3 levels of input as opposed to the 2 of the previous system:

Level 1 allows the minimum intervention for some rear wheel spin – on gravel or dirt for instance, and its level of intervention is reduced from the previous design.

Level 2 is the default setting and provides confidence-inspiring traction for general riding conditions.

Level 3 provides maximum control for slippery roads.

HSTC can also be switched OFF.

3.3 Dual Clutch Transmission (DCT)

- ***Differing shifting schedules link with riding modes***
- ***USER mode allows choice of 4 settings, from smooth to aggressive***

Honda's DCT technology is now in its eleventh year of production, and over 140,000 units of DCT-equipped Honda two-wheelers have been sold in Europe. It delivers consistent, seamless gear changes up or down and very quickly becomes second nature in use. It uses two clutches: one for start-up and 1st, 3rd and 5th, the other for 2nd, 4th and 6th, with the mainshaft for each clutch located inside the other for compact packaging.

Each clutch is independently controlled by its own electro-hydraulic circuit. When a gear change occurs, the system pre-selects the target gear using the clutch not currently in use. The first clutch is then electronically disengaged as, simultaneously, the second clutch engages.

The result is a consistent, fast and seamless gear change. Furthermore, as the twin clutches transfer drive from one gear to the next with minimal interruption of the drive to the rear wheel, any gear change shock and pitching of the machine is minimised, making the change feel direct as well as smooth. Extra benefits include durability (as the gears cannot be damaged by missing a gear) impossibility of stalling, low stress urban riding and reduced rider fatigue.

The DCT system offers two distinct riding approaches – the Automatic settings, with pre-programmed shift patterns which constantly read vehicle speed, gear selected and engine rpm to decide when a shift should occur, and the Manual Transmission setting for gear changes using the paddle-shift style triggers on the left handlebar.

Through TBW control there are 5 Automatic shifting schedules available. Level 1 is the most relaxed, with upshifts and downshifts operating at relatively lower rpm; it is linked with the RAIN riding mode. Level 4, on the other extreme, shifts up at higher rpm and also downshifts earlier for more engine braking effect; it is linked with the SPORT mode. Level 2 is linked with STANDARD riding mode, with Level 3 situated between STANDARD and SPORT.

For the GRAVEL riding mode, the X-ADV uses the relatively sporty 'G' shifting pattern; this has the added functionality of a decreased level of 'slip' as the clutches operate from a fully open or closed throttle – to give the rider more direct feel for traction at the rear wheel, and the ability to perform controlled sliding off road. Whereas this functionality was previously activated by the separate G Switch, it is now integrated into the new 'G' shift pattern of the DCT.

The USER mode functionality allows the rider to select any of the DCT shift patterns with the preferred permutations of the other parameters – power delivery, engine braking, ABS and HSTC.

3.4 Styling & Equipment

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- ***Sharper, slimmer and more aggressive styling***
- ***Honda Smartphone Voice Control System offers smartphone link through new 5-inch TFT display***
- ***New LED twin headlights include Daytime Running Lights***
- ***New screen improves wind and weather protection***
- ***Larger 22L storage space includes a new glovebox, and houses a USB charger***

The X-ADV's unique head-turning styling, originally conceived and developed by Honda's R&D team in Italy, has been sharpened and slimmed comprehensively for 2021. The silhouette remains deliberately upright, but each body-panel has been re-chiselled to create a sharper, stronger intent. A side-to-side comparison with the outgoing model

shows clearly how much crisper the new styling has become. More aggressive, sharper, cooler. Simply, more X-ADV.

The re-styled twin LED headlights also now feature Daytime Running Lights (DRL) that automatically adjust to ambient light intensity and give a bright, highly visible light improving safety. All lighting is LED.

In terms of ergonomics, the 820mm seat height and wide handlebar set at 910mm ensure a high eye point, giving great visibility, while the seat features re-shaped, slimmer shoulder contours making for easier ground reach. For commuting or touring, the X-ADV's new screen adjusts without tools through 5 positions from low-to-high to maximise or minimise airflow. The total height difference is 139mm, with an 11° rake between the highest and lowest points.

Incorporated into the X-ADV's rider interface and viewed through the 5-inch TFT display is the new Honda Smartphone Voice Control System which links the rider to their smartphone while on the move and allows voice management of phone calls, email, music and navigation. A helmet-mounted headset is needed and the smartphone connects to the dash via Bluetooth; management of the system is also possible through buttons on the left switchgear.

Tough plastic hand guards deflect wind and rain, while adding protection for hands and levers from stones when off-road. A shot-peened 2.5mm thick aluminium bash plate guards the underside.

The underseat luggage space grows in volume by 1L to 22L, accommodating a full-face helmet, and is illuminated with an integral LED whose textured surface delivers uniform illumination without glare. A USB charging socket replaces the car-type 12V ACC socket and is located at the rear of the compartment. The parking brake has moved from the right fairing lower to the right handlebar, freeing up space for a useful, and easy to access, glove compartment. A centre stand – with tilt sensor – is fitted as standard and allows the X-ADV to be parked on an incline without fear of toppling.

For added convenience the X-ADV uses a Smart Key, which lives in the rider's pocket and does away with the need to use a key for ignition, fuel cap and seat. With the Smart Key present one push of the knob-type main switch powers it up and makes it possible to turn, giving the rider control of the ignition/steering lock and, via two rocker switches, the fuel cap and seat. It also has an 'answer back' function, which makes the indicators flash for easy identification from a distance, and locks and unlocks the optional Smart Top Box. A clutch mechanism in the main switch stops the handlebars unlocking by force.

The X-ADV's rear indicators now have an Emergency Stop Signal (ESS) function. If negative acceleration of 6.0m/s^2 is detected at a minimum speed of 53km/h with either brake working, the hazard lights flash to warn other road users a hard stop is in process. At the same speed the threshold is reduced if ABS is activated to a negative acceleration of a minimum 2.5m/s^2 .

The indicators also auto-cancel. Rather than using a simple timer, the system compares front and rear wheel speed difference and calculates when to cancel the indication relative to the situation.

3.5 Chassis

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- ***New tubular steel diamond frame saves weight and makes space***
- ***41mm cartridge-style USD fork and Pro-Link swingarm***
- ***Radial mount four-piston front brake calipers, 296mm discs and ABS***
- ***120/70 R17 and 160/60 R15 front and rear tyres***

For an invisible – but major – advance of the X-ADV'S chassis, Honda's engineers started with the tubular steel diamond frame and, through a careful redesign using varying tube thicknesses and weight, not only saved 1kg over the previous frame but also freed up more useful space for the storage compartment.

Rake and trail is set at $27^\circ/104\text{mm}$ with wheelbase of 1590mm. A 39° steering angle (and turning radius of 2.8m) makes the X-ADV manoeuvrable in tight traffic. Long travel suspension –153.5mm up front and 150mm from the rear – is matched to 165mm of ground clearance. Overall wet weight is 3kg lighter, at 236kg.

For handling rough terrain, the 41mm cartridge-type USD fork adjusts for spring preload and rebound damping. The spring preload adjustable rear shock is a single tube split pressure design and operates the aluminium swingarm – constructed from a machined-hollow cross member and U-shaped (in cross section) arms – through Pro-Link.

The 17-inch front wheel and 15-inch rear use stainless steel rust-resistant spokes and contribute to the X-ADV's ability to comfortably soak up rough terrain. Block-pattern tyres add to the ride quality and L-shape valve stems make checking air pressure easy. Tyres are sized 120/70 R17 and 160/60 R15 front and rear.

Dual radial-mount opposed four-piston calipers grip 296mm discs and work through ABS.

4. **Accessories**

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A full range of Honda Genuine Accessories are available for the new X-ADV and include:

Rear carrier

Smart Top Box

38L / 50L top box with aluminium/colour matched insert option

Pannier stays

Panniers – right 26L, left 33L with aluminium/colour matched insert option

Console bag

Knuckle guard extenders

Side protector bars

Fog lights

Heated grips

5. **Technical Specifications**

ENGINE	
Type	Liquid-cooled 4-stroke 8-valve, SOHC parallel 2-cylinder. EURO5 compliant.
Displacement	745cc
Bore & Stroke	77mm x 80mm
Compression Ratio	10.7 : 1
Max. Power Output	43.1kW @ 6,750rpm
Max. Torque	69Nm @ 4,750rpm
Oil Capacity	4.0L

FUEL SYSTEM	
Carburation	PGM-FI electronic fuel injection
Fuel Tank Capacity	13.2 litres
Fuel Consumption	3.6L/100km
ELECTRICAL SYSTEM	
Starter	Electric
Battery Capacity	12V/11AH
DRIVETRAIN	
Clutch Type	Wet multiplate hydraulic 2-clutch
Transmission Type	6-speed Dual Clutch Transmission
Final Drive	Chain
FRAME	
Type	Diamond; steel pipe
CHASSIS	
Dimensions (L'W'H)	2215mm x 940mm x 1370mm
Wheelbase	1590mm
Caster Angle	27°
Trail	104mm
Seat Height	820mm
Ground Clearance	165mm
Kerb Weight	236kg
SUSPENSION	
Type Front	41mm USD, 120mm stroke
Type Rear	Monoshock damper, Pro-Link swingarm, 120mm travel
WHEELS	

Type Front	Spoke wheel
Type Rear	Spoke wheel
Rim Size Front	17M/C x MT3.50
Rim Size Rear	15M/C x MT4.50
Tyres Front	120/70-R17M/C
Tyres Rear	160/60-R15M/C
BRAKES	
ABS System Type	2-channel
Type Front	296mm dual discs with 4-piston calipers
Type Rear	240mm single disc with single-piston caliper
INSTRUMENTS & ELECTRICS	
Instruments	5 inch colour TFT Meter
Security System	Smart key system
Headlight	LED DRL
Taillight	LED

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.