

In depth information released on the 700xx!

Contributed by
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Honda TRX700XX

With the introduction of the all-new 2008 TRX700XX, Honda enters the large-displacement Sport ATV market at the peak of the high-performance curve and accelerates into the red zone where no one can follow. Its electric-start, fuel-injected 686cc four-stroke engine traces its heritage to the Baja-dominating XR650R and delivers class-leading power. Just as significant, the drivetrain and suspension of the TRX700XX are state-of-the-art—and then some. Specifically, Honda has engineered a brilliant centered chain drive system that permits the use of fully Independent Rear Suspension (IRS) with more advantages than traditional IRS designs.

TRX 700XX Engine / Drivetrain

The lifeblood of the 700XX is its 686cc dry-sump, liquid-cooled SOHC four-valve single-cylinder four-stroke engine. With a bore and stroke of 102mm x 84mm, it boasts the largest diameter single-cylinder that Honda has ever mass-produced. Although it is infused with the heart of the potent XR650R mill, the 700XX engine has been purpose-designed and built for the rigors of ATV duty. Given the higher weight of ATVs (compared to off-road motorcycles), torque—and longer (plus 2.0mm) stroke and slightly larger (plus 1.4mm) bore accomplish this. But in keeping with Honda's philosophy of mass-centralization and a low Cg (center of gravity) to achieve optimal handling, engineers determined that a taller cylinder and engine would not do. So they shortened the overall height of the engine by creating a longer-throw crankpin and a correspondingly shorter, carburized connecting rod to shorten cylinder height. The connecting rod is affixed to a ball-bearing crankshaft. Smooth, all-day riding comfort was assured with the fitment of a gear-driven counterbalancer to neutralize engine vibration.

Like Honda's renowned CRF® motocrossers, the XX piston features a slipper skirt design and it strokes through a centrifugally forged, 3.5mm-thick steel sleeve. A forged piston was used to handle the increased mechanical and thermal loads, and it also benefits from an underside shower of cooling oil shot from a jet that protrudes into the center of the engine case. Compression is 10:1 and the high-tech slug is fitted with a larger 24mm piston pin. The combustion chamber utilizes a pentroof shape and is fired by a single, centered spark plug.

The engine inhales through a foam air filter fitted in a 7.6-liter airbox. Intake valve size is 1mm smaller than those used in the XR (36 vs 37) for better low-rpm flow—and therefore torque—while the exhaust valve diameter remains unchanged at 32mm. The Programmed Fuel Injection (PGM-FI) system draws fuel from a 3.6-gallon blow-molded, multi-layer fuel tank and delivers it via a single Denso injector through a 44mm throttle body. A Keihin Engine Control Module (ECM) manages both the fuel injection and the transistorized ignition. The engine exhales through a single long-tube header tuned for excellent low-end and mid-range torque without sacrificing top-end power. Gases are expelled through a muffler constructed of 128-grade stainless steel.

TRX

700XX Engine / Drivetrain

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TRX 700XX dry-sump design pan, which contributes to and consequently a lower the oil tank, coolant overflow, low on the frame for additional of gravity.

Honda eliminates an engine oil a shorter engine height center of gravity. Also, and fuel filter are positioned reduction in the center

Coolant is routed through an aluminum core—the same core size as a CRF450R motocrosser. special wire-mesh filter in the of the oil return pipe protects the its separate brazed aluminum tank. oil pan, which contributes to a shorter center of gravity.

radiator with a 28mm-thick oil hose connector and a custom bend oil from sloshing and aeration in This dry-sump design eliminates the engine height and consequently a lower

A

Several enhancements are made to and enhance durability. An automatic whenever the electric starter is is incorporated into the engine torque limiter minimizes shock to

the engine to simplify its operation decompression system is activated engaged. The starter-motor housing crankcase casting and a disc-type the starter mechanism.

Power is channeled through a five-speed to the rear wheels via an ingenious

gearbox with Reverse and is transmitted centered chain drive system.

Conceived with the goal of maximizing the architecture of the long A-armed, double-wishbone independent rear suspension, a row of final gears the drive sprocket just 33mm left the design allows the chain and rear in the center of the rear of the

located after the countershaft positions of the 700XX's centerline. The proprietary sprocket to be placed virtually ATV. This produces numerous and axle shafts.

benefits, including the use of longer A-arms Longer A-arms minimize wheel camber changes as the suspension travels up and down—a handling mean that CV joints operate at less efficiency and long-term durability. design is simplified maintenance.

benefit—and longer axle shafts extreme angles, benefiting power A further benefit of the

TRX & rear brake rotor (right) the centerline, which is virtually of the ATV

700XX rear sprocket (left) are each located 33mm from in the center of the rear

arms & equal length axle shafts changes as the suspension chamber down

700XX utilizes long rear A- to minimize wheel travels up and

has 10.2" of ground clearance

Honda TRX 700XX

and final drive are worth noting. is controlled by monitoring both When vehicle speed is no less than less than 3050 rpm (equivalent to

Two more features of the gearbox First, top speed in Reverse gear actual speed and crankshaft speed. 12 mph and the engine speed is no 12 mph), fuel delivery to the aspect of the

injector is restricted. The second noteworthy gear is the engine reduction ratio at the drive sprocket: 1.087:1. This was done to permit the fitment of a smaller-diameter rear sprocket, which in turn allows the sprocket receiver assembly to be located lower on the frame. In addition to lowering the center of gravity, the smaller diameter of the sprocket and its assembly also improve ground clearance.

Chassis / Suspension

TRX

700XX

The Honda TRX 700XX frame is constructed of steel with a removable sub-frame. The frame of the TRX700XX is constructed of steel with a removable sub-frame; each is extremely durable and strong. Independent double-wishbone front suspension uses steel A-arms and premium shock absorbers featuring two single-rate springs per side. This application of dual springs, a first for Honda, separates the function of each. Both the main spring and the short top spring (second spring) are single rate. Bottoming resistance is provided by the heavier main spring and the top spring adds compliance over small bumps. Together, they achieve what a progressive-rate single spring could have accomplished, but in a lighter, more compact package that takes full advantage of the 10.5 inches of useable suspension travel. Front preload is adjusted with screw-type adjusters. The A-arms are attached to aluminum steering knuckles, which in turn bolt up to aluminum hubs and 10-inch diameter aluminum wheels fitted with 21x7R-10 Dunlop radials.

The TRX 700XX front suspension provides 10.5" of suspension travel with two single-rate preload adjustable shocks. The TRX700XX has 9.3" of rear suspension travel with preload adjustable piggy back reservoirs shocks.

The TRX 700XX has Dual hydraulic 174 mm discs up front and a single 200mm disc in the rear. The aforementioned independent double-wishbone rear suspension, made possible by the innovative centered chain drive system, features steel upper and aluminum lower A-arms. The upper and lower A-arms pivot on sealed needle bearings at the frame and support aluminum knuckles via oil-less bushings. The knuckles attach to steel hubs, and the 11-inch-diameter aluminum wheels sport 22x9R-11 Dunlop radials. The reason for steel hubs: greater resistance to side impacts and side loads. These steel hubs weigh less than an aluminum hub with the same strength characteristics. A non-adjustable rear sway bar attached to the frame and lower A-arms controls the independent action of the IRS. Piggyback reservoir shocks provide 9.3 inches of fully usable travel and feature screw-type preload adjusters. Braking action is supplied by a hydraulic single piston squeezing a 200mm disc. The rear brake assembly is mounted on the rear sprocket receiver and is situated 33mm right of the 700XX's centerline—symmetrically opposed to the location of the sprocket/chain assembly to facilitate equal-length A-arms and drive shafts.

The TRX 700XX utilizes large 11" diameter Aluminum rear wheels to allow the knuckles and hubs to reach farther into the wheel cavity, and to keep the wheel cavity clean of mud & debris, a rim scraper is mounted on the inside of the wheel.

An interesting outgrowth of Honda's goal to fit the longest A-arms and axle shafts possible is the use of special 11-inch-diameter rear wheels (larger than competitive designs). The larger-diameter wheels allow the knuckles and hubs to reach farther into the wheel cavity, which effectively extends the A-arms and axle shafts to the perimeter of the 700XX's track width. To maintain strength and light weight, the thickness of the rear-wheel wall varies as it extends from the center plate to the outer ring of the wheel—another Honda ATV first. And here's another: the fitment of replaceable rim scrapers to remove mud and debris from rear wheels, a feature pioneered on Honda's popular Foreman and Rincon series. TRX 700XX Body

unique front fender design with a radiator screen
and cowl-intergrated dual 30-watt bulb headlights
capabilities with aggressive sports styling. A polyethylene push bar,
polypropylene rear A-arm protectors and high-impact urethane frame and
engine-case protectors are tough, lightweight and replaceable. A cowl-
integrated headlight with dual 30-watt bulbs provides superb
lighting and a highly visible LED brakelight is the most common
view competitive riders will have of the new TRX700XX.

With Honda's legendary fit and finish, coupled with patented innovations
such as center chain drive, plus handling and engine performance
unrivaled in the class, the TRX700XX recalibrates the standard by which
all other sport ATVs are measured.

ATVriders.com

TRX 700XX Info Update:

I just returned from a trip to
test ride the Honda TRX 700XX in
review, photos, and videos will
Harlen Foley

the Dumont Dunes in California to
rocks, water, and sand, so a full
be released in the very near future.

Editor ARTICLE TAKEN FROM ATVRIDERS.COM