



2008 CRF250R/450R

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2008 CRF250R/450R

With the introduction of the 2008 CRF450R and CRF250R, Honda introduces innovative technology that extends the performance envelope of two of the most revolutionary motocross machines ever made.

Start with the Honda Progressive Steering Damper (HPSD), a new application of steering damper technology designed specifically to augment more aggressive steering characteristics rather than merely assist straight-line running, as has been the case with steering dampers in past applications. HPSD is at the core of a whole new package of changes in chassis geometry that allow the CRF450R and CRF250R to adopt new, more aggressive steering characteristics for quicker turning, higher cornering speeds, an unprecedented “planted” feeling in the corners, plus superb confidence over rough sections and long stretches of whoops.

In addition, the CRF450R boasts a new, lighter CDI with three gear-specific ignition maps—for First gear, Second gear, and Third through Fifth gears—to produce optimum traction and power delivery under a wide range of riding conditions. The CRF450R also features numerous engine



'08 CRF450R

'08 CRF250R



mods for better power in 2008, including a tapered exhaust head pipe to enhance low-end and midrange power. In addition, trick works-type brake rotors front and rear reduce unsprung weight significantly, revised fork settings yield a more sophisticated action and revised settings in the rear shock complement changes to the fork.

The CRF250R also boasts significant changes for 2008, including a host of engine modifications. These include a new piston with a higher 13.1:1 compression ratio, new camshaft, revised head porting, lighter valve train components that help boost rev limits to 13,500 rpm and a new exhaust system that increases power output. Like the 450, the CRF250R gets trick works-type brake rotors front and rear that increase power and reduce unsprung weight, and revised fork and shock settings.

Innovative technology combined with refined development ensure the CRF450R and CRF250R continue their reign at the top of the leader board for 2008.



'08 CRF450R > DETAILS

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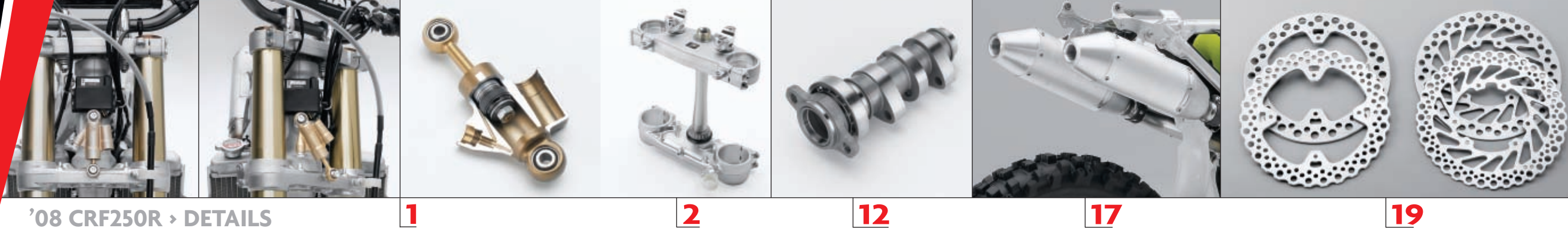
'08 CRF450R

'08 CRF450R

1. Honda Progressive Steering Damper (HPSD)
2. Triple clamps with 22mm offset
3. Fork upper reduced in length by 2mm
4. Cartridge fork features new low-friction pistons and 12.5mm cartridge rods (up from 12.0mm)
5. Stiffer 0.47 kg/mm fork spring
6. Fork springs polished for less friction
7. New fork valving
8. New rear shock valving
9. Works-type CDI system with three specific ignition maps for 1st gear, 2nd gear, and 3rd through 5th gears
10. Gear-position sensor for three-map CDI box
11. New lightweight works-type brake rotors (front and rear)
12. Tapered exhaust head pipe
13. Maximum engine rpm 11,270 (+ 50 rpm)
14. Clutch basket treated with molybdenum
15. New lighter-weight counterbalancer shaft and drive gears

'08 CRF250R

- 1. Honda Progressive Steering Damper (HPSD)
- 2. Triple clamps with 22mm offset
- 3. Fork upper reduced in length by 2mm
- 4. Cartridge fork features new low-friction pistons and 12.5mm cartridge rod (up from 12.0mm)
- 5. Stiffer 0.46 kg/mm fork spring
- 6. Fork springs polished for less friction
- 7. New fork valving
- 8. New rear shock valving
- 9. New rear fender decreases mud accumulation around mufflers
- 10. New piston raises compression ratio from 12.9:1 to 13.1:1
- 11. New cylinder head porting increases power at all engine speeds
- 12. New camshaft timing for added power
- 13. Lighter valves and rocker arms
- 14. Maximum engine rpm now 13,500 (+ 130 rpm)
- 15. New piston ring for lower oil consumption
- 16. New clutch features stiffer clutch springs and a judder spring to improve clutch feel
- 17. All-new dual mufflers and exhaust system improve mid-range power
- 18. New lighter counterbalancer shaft and drive gears.
- 19. New light weight works-type brake rotors (front and rear)



'08 CRF250R > DETAILS



'08 CRF250R



2008 CRF250R/450R

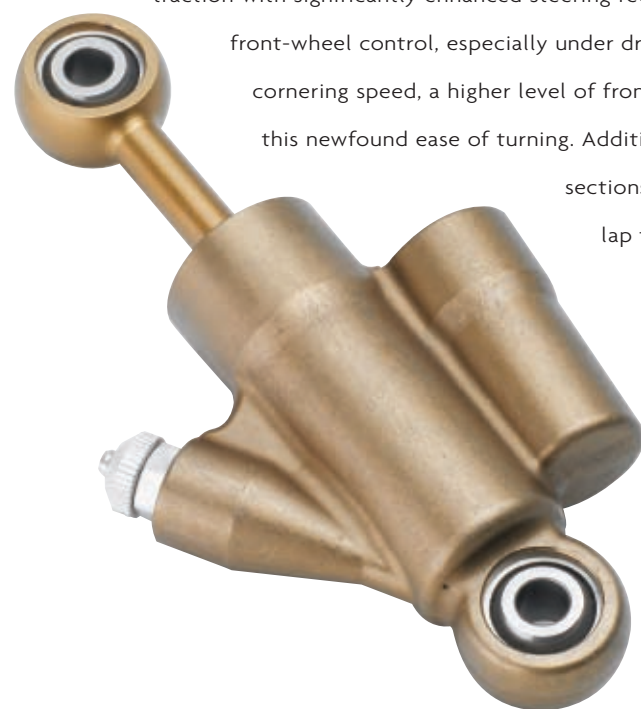
Honda Progressive Steering Damper

A revolutionary application of steering damper technology creates a new level of agile handling

If you think you already know a lot about steering dampers, get ready to think again. Why is that? With a stroke of fresh engineering insight, the hard-working minds at Honda have created the Honda Progressive Steering Damper (HPSD), a new application of steering damper technology designed specifically to augment more aggressive turning characteristics rather than assist straight-line handling only, as has been the case with steering dampers in past applications.

By Integrating HPSD the 2008 CRF450R and CRF250R both demonstrate a higher level of front-end traction with significantly enhanced steering feel, specifically a more “planted” feel in turns for better front-wheel control, especially under dry, hard-packed track conditions. Net result: greater cornering speed, a higher level of front end confidence and reduced rider fatigue thanks to this newfound ease of turning. Additionally, HPSD improves handling in whoops and fast sections of the track, all of which combine to create faster lap times over the entire course of a race.

The earliest versions of HPSD first saw action aboard the American Honda Racing Team's CRF450R and CRF250R race bikes during the 2004 AMA Supercross series. Initial response from team riders was overwhelmingly successful. Additional testing confirmed just how versatile the system could





be under a wide range of tracks and riding conditions. And so the stage was set for the prototype HPSD to see action at the highest levels of Supercross and Motocross racing for the entire 2004 season.

Thus equipped, the CRF450R found plenty of success in Supercross and went on to sweep every moto win during the 2004 outdoor Motocross season, a high-water mark in the history of the sport. Ongoing development work saw HPSD installed on Honda works motocrossers through the 2007 season. This intensive four-year period of testing and development of various damper settings under top-level racing conditions led to a finalized design and integration on the 2008 model year CRF450R and CRF250R.

HPSD has given Honda's engineers the ability to create more aggressive chassis geometry for increased agility without compromising machine stability. Accordingly, the CRF450R and CRF250R both feature revised steering geometry in 2008, thanks to a change in fork offset via new triple clamps. For example, the change from 24mm of offset to 22mm alters the CRF450R's steering trail from 109.4mm on the 2007 model to 111.4mm for 2008, which reflects the front end being tucked in 2mm closer to the engine. This change also shortens the wheelbase 2mm. The result is even quicker turning characteristics and improved front-end traction,



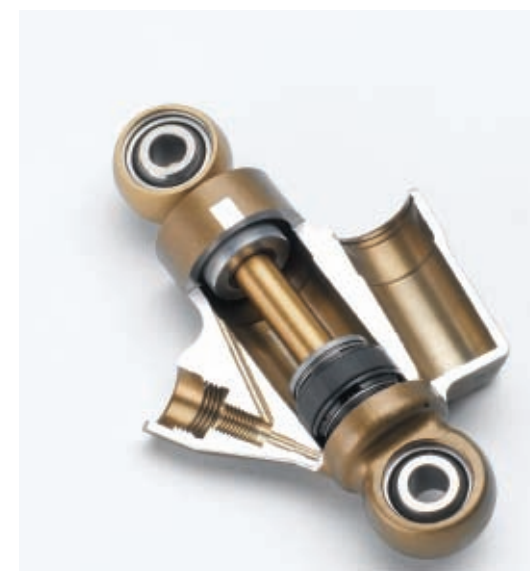
'08 CRF250R/450R



thus allowing the rider to hold the line more easily in tight corners. Moreover, while in mid-turn—and virtually everywhere else on the track—HPSD damps out a lot of the jarring that normally tries to deflect the front wheel. Subsequently the rider doesn't need to work as hard to hold a line. In the past, pulling 2mm from steering off-set and shortening wheelbase might have sacrificed handling, but with HPSD, riders get the best of both worlds: quicker steering and better handling, especially at higher speeds.

HPSD consists of a very clever and very compact damper mounted behind the front number plate. Weighing a mere 6.5 ounces, it attaches to the lower triple clamp and the steering head. The damper is rebuildable and offers 15 clicks of adjustability. It tucks behind a newly styled number plate that protects it from flying debris.

To complement the addition of HPSD, the steering head was completely redesigned and re-tuned for correct flex/stiffness properties, and an HPSD mounting lug was incorporated. Likewise, the triple clamps are newly designed to yield the correct degree of stiffness, given the new forces imparted by the steering damper system. Given the interrelated nature of the forces acting on this latest iteration of Honda's highly sophisticated fourth-generation aluminum frame, every force input was carefully calculated and matched so the chassis, suspension



(more on that forthcoming) and HPSD all worked in concert as one system. In short, HPSD is not merely a bolt-on damper.

As the name Progressive Steering Damper infers, the damping action of the unit progresses over the range of travel. From straight-ahead mode to approximately five degrees of movement in either direction (which are very small changes from off-center), HPSD creates minimal damping force, resulting in neutral steering during straight-line running. As handlebar movement increases and the damper rod extends farther, damping force increases smoothly to produce very natural steering characteristics and feel.

To create this natural steering feel, the damping rates differ in the two directions of travel; under extension when the handlebar turns away from center, the damping forces are significantly greater. Under compression as the handlebar returns to the straight-ahead position, HPSD offers less resistance. In addition, at about the one-third point on the extension throw, a position-sensitive damping circuit opens and progression of the damping action lessens.

This additional passageway, which in cutaway view looks like a small channel machined into the damper body, moderates the damping force under more extreme handlebar angles. In addition, the damping mechanism is speed sensitive, relative to the speed



of handlebar movement and wheel deflection; as sharp impacts cause the front end to deflect very rapidly, HPSD provides proportionally greater damping force.

Yet when the rider places steering input through the handlebar, the damping action feels negligible and entirely natural.

The location of the HPSD unit also creates what is in effect a rising-rate mechanical stroke for the damper rod travel without the need for a complicated linkage. As the handlebar arcs toward the steering stops, the increased degree of turning produces increasingly larger amounts of travel from the shock on the extension stroke. Hence, a rising rate relationship in shock stroke versus handlebar movement. Net result: a very natural steering feel along with the bonus of added damping assistance as the handlebar moves farther from center.

In addition, Team Honda riders have discovered that use of HPSD allowed front suspension settings that were distinctly stiffer than had been the case without the steering damper. At work once again was the concept of the entire chassis being a highly tuned system, one that must be designed and adjusted as a whole. The addition of HPSD offered riders another opportunity to fine-tune their machines in new ways to match various riding conditions. Subsequent testing for the 2008 CRFs confirmed this for production bikes as well, and, as a result, the new CRF450R and CRF250R both feature slightly stiffer springs and revised compression and rebound damping rates in the fork.

With HPSD, the 2008 CRF450R and CRF250R feel just as stable through fast whoops as the 2007 model did with its more conservative fork offset, yet steering for both bikes is markedly quicker and easier on the rider. When the front end impacts an obstacle off-center and the handlebar begins to kick out, HPSD automatically lends a steadying degree of damping. As a result, the 2008 model feels distinctly easy to ride; not only are these machines confidence-inspiring with precise steering action, but they are also markedly stable, allowing the rider to more easily steer in and out of ruts and take other lines at will.

In short, the Honda Progressive Steering Damper reflects once again the benefits of innovative engineering. By fundamentally moderating the manner in which outside forces affect a bike's steering, HPSD now extends Honda's ability to elevate the sport to the next level.





2008 CRF450R

FEATURES & BENEFITS

New for 2008

- New tapered exhaust head pipe improves low-end and midrange power.
- New lighter counterbalancer shaft and drive gears.
- New works-type multi-map CDI system uses a transmission gear-position sensor to provide specific ignition maps for First gear, Second gear and Third through Fifth and produce the optimum power curve in each gear.
- Rev limit of 11,270 rpm has increased 50 rpm.
- Friction-reducing coating on the clutch basket, clutch center and pressure plate improve clutch life and clutch feel.
- New Honda Progressive Steering Damper (HPSD). Developed by Team Honda, this lightweight, compact steering damper improves cornering ability and reduces rider fatigue.
- New fork triple clamps with 22mm offset for improved cornering.
- New Showa fork features a larger cartridge rod and new cartridge oil piston for improved oil flow and less friction, plus stiffer springs for improved mid-stroke action.
- New rear shock valving matches changes to the fork.
- New works-style front and rear brake rotors reduce unsprung weight.





Engine/Drivetrain

- Powerful engine churns out 55 bhp at 9000 rpm and 36.9 lb./ft. of torque at 6500 rpm. Power is produced across a wide rpm band for easy-to-control operation.
- Liquid-cooled four-valve Unicam® 449cc engine produces more than 120 hp per liter (see Technology Section).
- Lightweight titanium intake valves permit use of smaller valve springs and reduce overall engine height.
- Forged slipper piston is more than 4.5 ounces lighter than a conventional design.
- Lightweight Nikasil cylinder lining provides cooler and quieter operation for extended engine life.
- Auto decompression and hot restart system make starting easy in all conditions.
- 41mm FCR carburetor features four rollers on the flat slide, resulting in very light throttle effort, smooth operation, crisp throttle response and excellent rideability.
- The capacitive discharge ignition system (CDI) features an 8-bit digital CPU for extremely accurate ignition and maximum performance.
- Twin-sump lubrication system separates the oil supply for the crankshaft, piston and valve train from the clutch and transmission. This ensures a cool supply of oil to the clutch, eliminates clutch and transmission material contamination of the engine oil and reduces the amount of circulating oil and minimizes oil pump size.
- Exhaust system features a titanium header and heat shield. The repackable silencer is aluminum with a stainless steel connector pipe.
- Gear-driven balancer reduces vibration and drives the water pump.
- Eight clutch plates provide the surface area necessary to handle the engine's massive torque, while carefully matched clutch springs provide a light feel at the lever.



Chassis/Suspension

- Fourth-generation Twin-Spar Aluminum Frame with forged-aluminum steering head (see Technology Section).
- HPSD features a compact damper attached to the lower triple clamp and the steering head to augment more aggressive steering characteristics and assist straight-line handling. Damping action smoothly progresses as handlebar deflection increases, which produces very natural steering characteristics and feel.
- Front and rear wheels feature HRC works-type lightweight aluminum spoke nipples.
- Front wheel features large-diameter front axle and wide wheel-bearing span for excellent rigidity.
- Rear axle diameter of 25mm and large-diameter bearings provide significant rigidity to withstand torturous track conditions.
- Revised, sophisticated Inverted Twin-Chamber Cartridge Fork (see Technology Section).
- Pro-Link Rear Suspension (see Technology Section) with new damper settings.
- Large 50mm rear shock damper piston diameter for consistent performance under demanding riding conditions.
- Compact dual-piston front brake caliper saves more than 1 ounce.
- HRC works-style rear brake system integrates the rear master-cylinder and fluid reservoir, eliminating the separate reservoir and hose.
- Link-type front brake master cylinder and a lightweight brake rotor provide strong braking.
- Large works-style 240mm front and rear disc brake rotors.



Additional Features

- Frame design allows sidecovers to have larger air-intake ducts, contributing to significant airflow increase in the mid- and upper-rpm ranges.
- Rider ergonomics are optimized by adapting the handlebar, seat and footpeg height to place the rider's legs at the narrowest part of the frame for improved comfort and handling feel.
- Brake pedal and shift lever are designed to complement the riding position.
- Brake pedal features optimized ratio to match integrated rear-brake master-cylinder design.
- Wide, cleated stainless steel footpegs are self-cleaning and corrosion resistant, provide excellent grip and fold for extra ground clearance.
- Rear brake pedal and shift lever are made of lightweight aluminum.
- Adjustable front brake lever for maximum control.
- Quick-adjust clutch perch for easy cable adjustment.
- Aluminum Renthal handlebar (971 bend) is rubber-mounted to reduce rider fatigue and improve comfort.
- Handlebar holders provide two different mounting positions to match rider preference.
- Works-type handlebar grips add to rider comfort.
- Dunlop 742FA front and 756 rear tires for improved traction and cornering.
- Front disc brake cover helps protect rotor and caliper from damage.
- Removable rear subframe allows easy maintenance.
- Washable, two-stage foam air filter for optimal engine protection and easy maintenance.
- Repackable silencer for maximum performance and minimal noise.
- Comfortable, durable controls and high-quality fasteners.
- Stainless steel clutch cable for long life.
- Honda Racing™-inspired colors and graphics.
- Purchase of a new, previously unregistered Honda USA-certified unit by an individual retail user in the United States qualifies the owner for a one-year complimentary membership in the Honda Rider's Club of America® (HRCA®). Visit www.hrca.honda.com for details.



SPECIFICATIONS

MODEL	2008 CRF450R
ENGINE TYPE	449cc liquid-cooled single-cylinder four-stroke
BORE AND STROKE	96mm x 62.1mm
COMPRESSION RATIO	12.0:1
VALVE TRAIN	Unicam, four-valve; 36mm intake, titanium; 30mm exhaust, steel
INDUCTION	Carburetor, Keihin 41mm flat slide
IGNITION	CD with three-gear-position electronic advance
TRANSMISSION	Close-ratio five-speed
FINAL DRIVE	#520 chain; 13T/48T
SUSPENSION FRONT	47mm inverted Showa cartridge fork with 16-position rebound and 16-position compression damping adjustability; 12.4 inches travel
REAR	Pro-Link Showa single shock with spring pre-load, 17-position rebound damping adjustability, and compression damping adjustment separated into low-speed (13 positions) and high-speed (3.5 turns); 12.5 inches travel

BRAKES FRONT	Single 240mm disc with twin-piston caliper
REAR	Single 240mm disc
TIRES FRONT	80/100-21
REAR	110/90-19
WHEELBASE	58.6 inches
RAKE (Caster Angle)	26.76
TRAIL	111.4 mm (4.3 inches)
SEAT HEIGHT	37.6 inches
GROUND CLEARANCE	13.4 inches
FUEL CAPACITY	1.9 gallons
COLOR	Red / Black
CURB WEIGHT*	238 pounds

*Includes all standard equipment, required fluids and full tank of fuel-ready to ride

Consult owner's manual for optional racing parts.



2008 CRF250R

FEATURES & BENEFITS

New for 2008

- New piston with 13.1:1 compression ratio
- New cylinder head porting for improved power
- New lighter-weight valve train components raise rev limit to 13,500 rpm
- New lighter counterbalancer shaft and drive gears.
- New exhaust system for more power
- New camshaft timing for added power
- Revised carburetor jetting gives smooth power delivery under all riding conditions
- Engine torque now reaches maximum at 8500 rpm.
- New clutch features judder spring for smother engagement.
- New Honda Progressive Steering Damper (HPSD). Tested by Team Honda, this lightweight, compact steering damper improves cornering ability and reduces rider fatigue.
- New fork triple clamps with 22mm offset for improved cornering.
- New Showa fork features a larger cartridge rod and new cartridge oil piston for improved oil flow and less friction, plus stiffer springs for improved mid-stroke action.
- New rear shock valving matches changes to the fork.
- New works-style front and rear brake rotors reduce unsprung weight.
- New rear fender shape for improved mud protection
- New larger left-side engine guard



Engine/Drivetrain

- Powerful four-stroke 249cc liquid-cooled four-valve Unicam® engine (see Technology Section).
- Lightweight titanium intake valves permit the use of smaller valve springs and reduce overall engine height.
- ACG cover, clutch cover and cylinder-head cover are made of magnesium to reduce engine weight.
- Forged 13.1:1 compression, slipper piston and rings are lighter than a conventional design, revving quickly while maintaining excellent cylinder sealing and high-rpm power.
- Lightweight, compact, internal, auto decompression system and handlebar-mounted hot-start system provide superb operation, hot or cold.
- Lightweight Nikasil cylinder lining provides cooler and quieter operation for extended engine life.
- 40mm Keihin FCR carburetor features four rollers on the flat slide, resulting in very light throttle effort, smooth operation, crisp throttle response and excellent rideability.
- Carburetor features a throttle position sensor (TPS) that helps maintain a linear throttle response throughout the range and new jetting for smoother power response.
- Twin-sump lubrication system separates the oil supply for the crankshaft, piston and valve train from the clutch and transmission. This ensures a cool supply of oil to the clutch, eliminates clutch and transmission material contamination of the engine oil, and reduces the amount of circulating oil, which permits the use of a smaller oil pump.
- Dual-muffler exhaust system centralizes mass and reduces turning inertia to improve the lightweight feel of the bike.
- Dual-muffler exhaust system also increases low-rpm torque.
- Exhaust system uses a lightweight stainless header and repackable aluminum mufflers.
- Gear-driven balancer reduces vibration and drives the water pump.
- Rugged eight-disc clutch and carefully matched clutch springs for light feel at the lever.
- Durable five-speed close-ratio transmission.



Chassis/Suspension

- Fourth-generation Twin-Spar Aluminum Frame with forged-aluminum steering head (see Technology Section)
- HPSD features a compact damper attached to the lower triple clamp and the steering head to allow more aggressive steering characteristics and assist straight-line handling. Damping action smoothly progresses as handlebar deflection increases, which produces very natural steering characteristics and feel.
- Front and rear wheels feature HRC works-type lightweight aluminum spoke nipples.
- Front wheel features large-diameter front axle and wide wheel-bearing span for excellent rigidity.
- Large 25mm rear axle diameter and large-diameter bearings provide significant rigidity to withstand torturous track conditions.
- Revised, sophisticated Inverted Twin-Chamber Cartridge Fork (see Technology Section).
- Pro-Link® Rear Suspension with new damper settings (see Technology Section).
- 50mm rear shock damper piston diameter for consistent performance under demanding riding conditions.
- Link-type front brake master cylinder and a lightweight brake rotor provide strong braking.
- Compact twin-piston front brake caliper, anodized-aluminum brake pistons and lightweight front brake disc minimize unsprung weight for improved turning and handling.
- HRC works-type rear brake system integrates the rear master-cylinder and fluid reservoir, eliminating the separate reservoir and hose.
- Large works-style 240mm front and rear brake discs.



Additional Features

- Frame design allows airbox sidecovers to have larger intake ducts, contributing to significant airflow in the mid- and upper-rpm ranges.
- Rider ergonomics are optimized by adapting the handlebar, seat and footpeg height to place the rider's legs at the narrowest frame width for improved comfort and handling.
- Dunlop 742FA front and 756 rear tires for improved traction and cornering.
- Front disc brake cover helps protect rotor and caliper from damage.
- Removable rear subframe allows easy maintenance.
- Washable, two-stage foam air filter for optimal engine protection and easy maintenance.
- Comfortable, durable controls and high-quality fasteners.
- Stainless steel clutch cable for long life.
- Honda Racing™-inspired colors and graphics.
- Cleated rear brake pedal and folding shift lever are made of lightweight aluminum and are designed to complement the riding position.
- Brake pedal features optimized ratio to match integrated rear-brake master-cylinder design.
- Wide, cleated, stainless steel footpegs are self-cleaning, resist corrosion, provide excellent grip and fold for extra ground clearance.
- Aluminum Renthal handlebar (971 bend) is rubber-mounted to reduce rider fatigue and improve comfort.
- Purchase of a new, previously unregistered Honda USA-certified unit by an individual retail user in the United States qualifies the owner for a one-year complimentary membership in the Honda Rider's Club of America® (HRCA®). Visit www.hrca.honda.com for details.

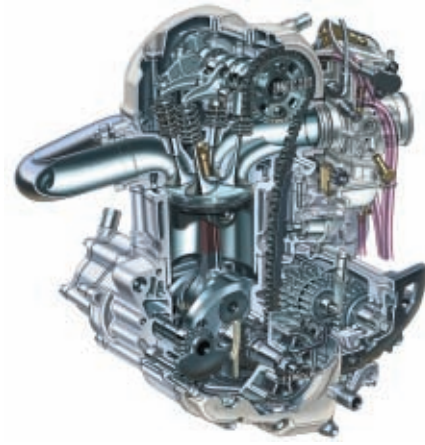


SPECIFICATIONS

MODEL	2008 CRF250R	BRAKES FRONT	Single 240mm disc with twin-piston caliper
ENGINE TYPE	249cc liquid-cooled single-cylinder four-stroke	REAR	Single 240mm disc
BORE AND STROKE	78mm x 52.2mm	TIRES FRONT REAR	80/100-21 100/90-19
COMPRESSION RATIO	13.1:1	WHEELBASE	58.2 inches
VALVE TRAIN	Unicam, four-valve; 31mm intake, titanium; 26mm exhaust, steel	RAKE (Caster Angle)	27.9
INDUCTION	Carburetor, Keihin 40mm flat-slide with throttle position sensor (TPS)	TRAIL	125mm (4.9 inches)
IGNITION	CD with electronic advance	SEAT HEIGHT	38 inches
TRANSMISSION	Close-ratio five-speed	GROUND CLEARANCE	14.2 inches
FINAL DRIVE	#520 chain; 13T/51T	FUEL CAPACITY	2.0 gallons
SUSPENSION FRONT	47mm inverted Showa cartridge fork with 16-position rebound and 16-position compression damping adjustability; 12.4 inches travel	COLOR	Red / Black
REAR	Pro-Link Showa single shock with spring preload, 17-position rebound damping adjustability, and compression damping adjustment separated into low-speed (13 positions) and high-speed (3.5 turns); 12.4 inches travel	CURB WEIGHT*	227 pounds

*Includes all standard equipment, required fluids and full tank of fuel-ready to ride

Consult owner's manual for optional racing parts.



TECHNOLOGY

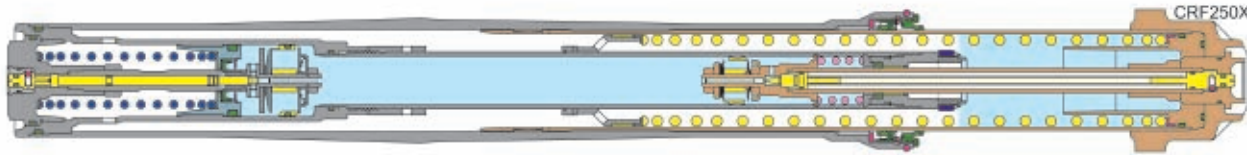
Unicam® Cylinder Head Design

Honda's Unicam single-overhead-camshaft (SOHC) four-valve cylinder head first appeared on the 2002 CRF450R. The benefits of the Unicam design are a powerful, yet shorter engine. The liquid-cooled head incorporates a carburized single camshaft that directly actuates two intake valves (the CRF250/450 series utilize titanium intake valves). In the CRF250/450 models, the camshaft's single exhaust lobe actuates two steel exhaust valves via a forked, low-friction, roller rocker arm. The Unicam system in the CRF150R is slightly different with the two exhaust valves operating through two separate low-friction roller rocker arms. The SOHC configuration contributes to a compact design that saves weight over a comparable DOHC motor and also permits a narrow included valve angle. This, in turn, flattens the combustion chamber to facilitate free flame propagation, allowing a high compression ratio. A roller bearing on the rocker arms reduces friction and therefore wear, allowing the cam lobes to be narrower—and lighter—than conventional designs. Since less space is taken up in the cylinder head, the camshaft sits lower in the head for a more compact engine and a lower center of gravity.

TWIN-SPAR ALUMINUM FRAME

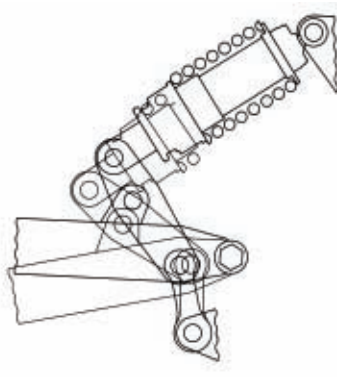
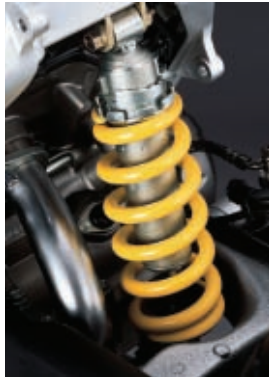
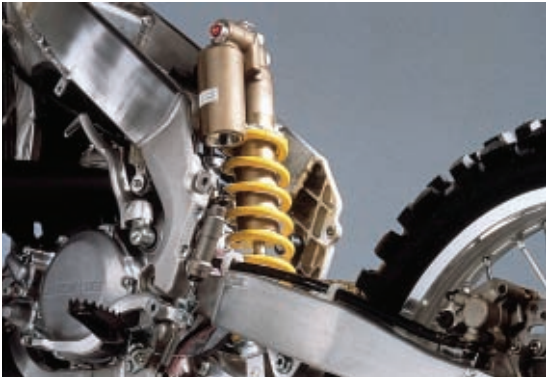
Borrowing from the dominant GP bike of its era, the NSR500, Honda introduced a race-inspired, twin-spar aluminum frame on the 1986 VFR750F. For confidence-inspiring handling, it is crucial that the frame's major load path—steering head to swingarm pivot—be as direct as possible. No other frame does this as effectively as Honda's twin-spar design. In this setup, two large-section aluminum beams run directly from the steering head to the swingarm pivot plates—or in the case of the Interceptor, the engine case. Honda brought twin-spar aluminum frame technology to motocross racing with the radical 1997 CR250R.

With each subsequent design generation Honda has fine-tuned its aluminum-frames, varying wall thickness of the frame spars, castings and corresponding swingarms to optimize torsional and lateral rigidity, achieve light weight, durability and precise handling performance.



Inverted Twin-Chamber Cartridge Fork

The CR250 and CRF450 models boast a 47mm inverted twin-chamber Showa cartridge fork with 16 positions of rebound and 16 positions of compression adjustability. This is a sealed cartridge design that, unlike a conventional cartridge, does not allow the fork oil to mix with the oil outside the cartridge. The fork spring is located below the cartridge and the compression adjustments are made at the top of the fork. In addition, the inner surfaces of the front fork outer tubes receive the same honing treatment as a “works-type” fork stanchion for low-friction operation.



Pro-Link® Rear Suspension

Honda's Pro-Link rear suspension system offers compliant and comfortable ride quality with a high level of wheel control. It connects a single spring/damper unit to the swingarm via a progressive linkage and delivers an ideal combination of spring and damping rates over a wide range of riding conditions. Initial rates are soft for supple action over small bumps and ripples, while increasingly stiffer rates resist bottoming and maintain rear-wheel control over rougher surfaces.

An additional benefit of Pro-Link is mass centralization because it places the suspension unit close to the center of the motorcycle.