

HUSQVARNA 250 CR

Dual-shock rear suspension systems are not only alive and well at Husqvarna, they're better than ever.



□ Like Maytag repairmen, the gang over at Husqvarna must feel like the loneliest guys in town. Husky is the only holdout; the other manufacturers have all abandoned twin-shock rear suspension for motocrossers. You'd think unbearable pressure would force Husqvarna to follow fashion.

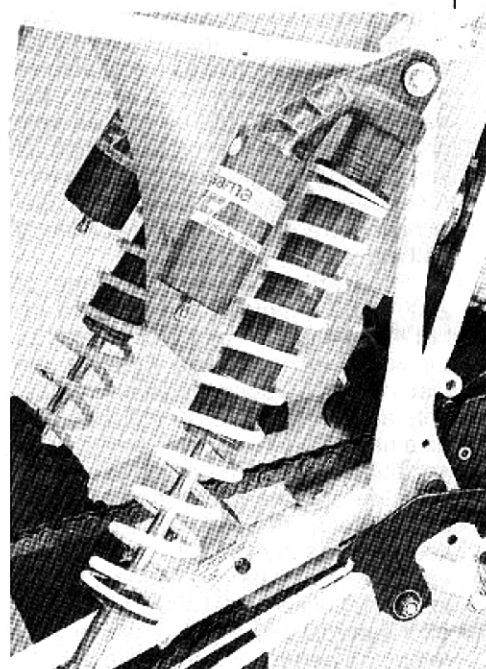
But races aren't won by those who follow. In motorcycle engineering, you follow the leader if you have nothing that works as well or better. Husqvarnas have always been competitive with single-shock bikes, and the 1983 Husqvarnas continue to use twin-shock rear suspension. But other changes have substantially improved the 250 CR.

Husqvarna's ITC (Immediate Track Control) rear suspension connects to a new frame that drops the shocks down in a more radical position, producing a higher leverage ratio and more progressive action. The real innovation is the Ohlins ITC damper itself; these new shocks contain a position-sensitive damping system in addition to the conventional speed-sensitive damping circuits. Typically,

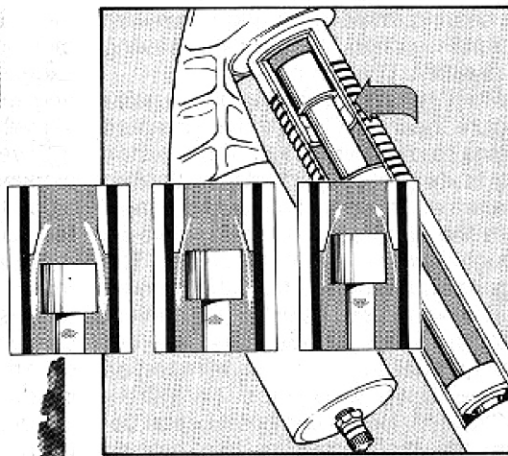
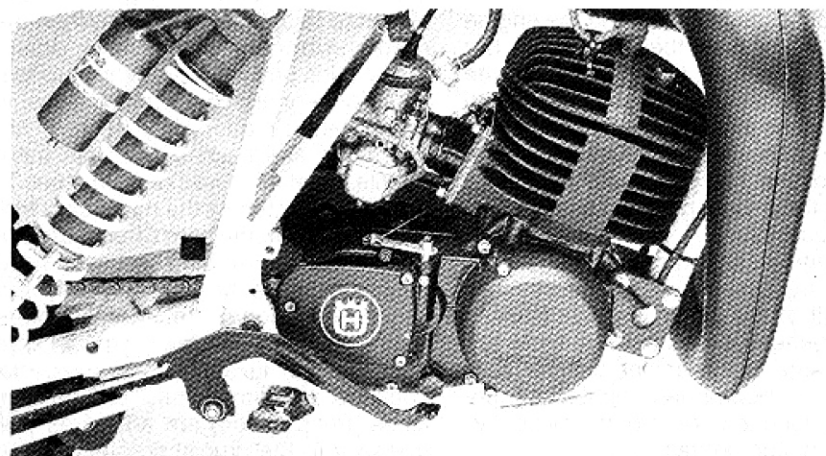
shock damping rates must be a compromise; light rebound damping lets the rear wheel react quickly over stuter bumps and regain contact with the ground; heavy rebound damping controls rear-end kick-up after the bike hits a large sharp-edged bump or lands off a big jump. Similarly, compression damping rates must be light enough to let the rear wheel react and compress the rear suspension, but cannot be so light that without ferociously stiff springs the rear end bottoms easily over large obstacles.

ITC adds a secondary damper system that increases rebound and compression damping only when the shock nears full compression. This produces, in effect, a progressive position-sensitive damping; damping action that responds to both velocity and position enables Husky to build in a sophisticated reaction pattern. Light initial settings provide responsive rear-wheel action through approximately the first two-thirds of shock travel, yet the additional damping system prevents the rear end from

(Continued on page 30)



The new ITC shock is a standard Ohlins damper with a progressive hydraulic stop added at the end. As this secondary piston enters the tapered mouth of its damping chamber, the valve area for oil flow steadily decreases, progressively increasing damping.



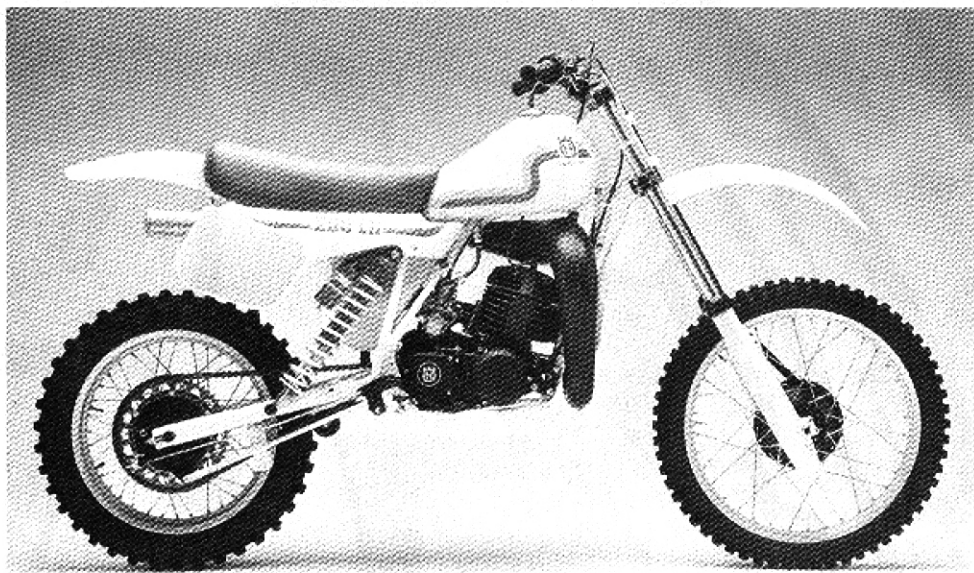
HUSQVARNA 250 CR

bottoming heavily or kicking up following full compression.

The ITC shock, essentially a standard Ohlins damper with a progressive hydraulic stop added at the end, has two pistons: the normal damper piston set to softer-than-normal rates, and the solid ITC piston on the end of the damper rod. As this secondary piston enters the tapered mouth of its damping chamber, the valve area for oil flow steadily decreases. This increases hydraulic resistance, which in turn progressively increases damping action. When fully seated, the ITC piston produces heavy compression and rebound damping.

Secondary damping systems are nothing new; a number of forks have long incorporated tapered hydraulic stops, but space has been one great obstacle of such systems for shocks. The additional damping system requires an unusually long shock; the ITC damper is a whopping 18.3 inches long, more than an inch longer than last year's lengthy conventional Ohlins damper.

With most tapered-stop setups, truly progressive damping action is difficult to obtain. Because piston diameter is so large relative to taper angle, a gradual decrease in valve area isn't possible. As a result, most secondary systems act only as hydraulic stops, giving no usable progressive damping action. Husky seems to



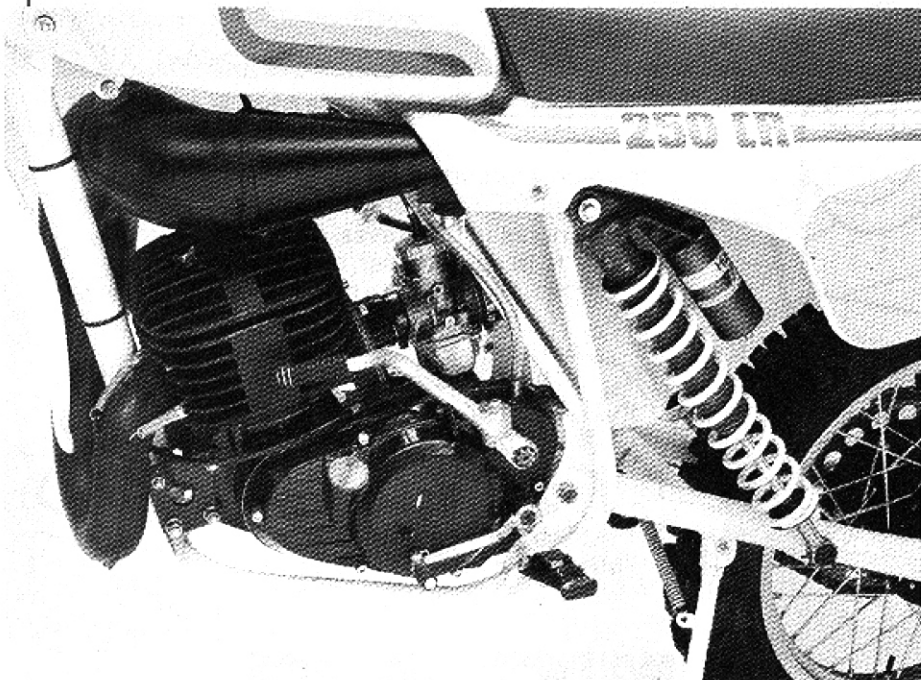
have found the answers with ITC.

Over small-to-medium bumps the CR delivers a plush yet controlled ride; even though you seem to float over washboard-type stutter bumps, the rear end can cope with the big sharp-edged bumps and stadium-type jumps. Apparently, the secondary damping system flows adequate oil to prevent hydraulic lockup even when the ITC piston is well into its chamber. The rear end offers 13.0 inches of wheel travel, and the fork provides 11.8 inches of good, stiction-free action. Amazingly, the fork seals on our test bike didn't weep a drop of oil; leaky seals have plagued Husqvarna motorcycles

since the dawn of motocross.

Although the 250's steering geometry and wheelbase are unchanged, the already stable CR steers a touch more precisely because it carries more weight on the front end. Husqvarna moved the engine so far forward in the frame that the exhaust manifold clears the front downtube only because the tube bends slightly. Other changes in the chassis include bottom frame rails that hug the engine more closely, a new top-breathing airbox, an 18-inch rear wheel and a double-leading-shoe front brake.

The new front binder ends the Husky tradition of average to awful brakes. This unit provides progres-



Vital Statistics

Make & model Husqvarna 250 CR
Price \$2495

Engine

Type Two-stroke, reed-valve-inducted
single-cylinder, air-cooled
Bore & stroke 69.5 x 64.5mm (2.74 x 2.54 in.)
Displacement 245cc (15.0 cu. in.)
Transmission Six-speed, constant-mesh,
wet-clutch

Chassis

Type Single-downtube, full-cradle frame;
oval-section chrome-moly swing arm
Suspension, front Leading-axis, air-assisted fork
with 40mm tubes and 11.8 in.
(300 mm) of travel
rear (2) gas-charged piggyback-
reservoir shock absorbers,
adjustable for spring preload,
producing 13.0 in. (330mm)
of rear-wheel travel
Brake, front Cable-actuated,
double-leading-shoe drum
rear Rod-actuated,
single-leading-shoe drum
Tire, front 3.00 x 21 Trelleborg Deep Grip
Motocross 544
rear 4.25 x 18 Pirelli Sand Cross MT32
Fuel capacity 2.7 gal. (10.0 l)
Weight (w/onq gal. gas) 237.5 lbs. (107.7 kg)



sive and strong stopping action with plenty of feedback, and it resists water fading, another traditional Husqvarna weakness.

Inside the engine cases, the 245cc powerplant benefits from a couple of modifications. First, Husky enlarged the shift forks and the corresponding engagement flanges 30 percent for improved shift action and durability. The Swedes have also changed the cylinder porting; a set of boost ports now passes some of the air/fuel mixture from the intake tract directly to the transfer ports, bypassing the crankcases. In theory, this change smooths the powerband and lets the engine breathe better at higher revs.

In actual use, the 1983 250 CR has a powerband best suited to experienced riders. The engine is a revver, and the power is bunched at the top. Experts will find the sudden off-to-on transition manageable; less proficient riders will have to concentrate harder than on the old 250 CR.

Husqvarna's ITC rear suspension demonstrates that twin-shock technology can be effective on a modern motocrosser. Single-shock setups are not necessarily better than dual-damper systems; it's track performance that counts. The 250 CR is also proof positive that the struggle for horsepower supremacy continues in the 250 class; manufacturers must still strive for the perfect balance between strong peak power and a wide power spread.

These significant improvements to the CR won't rocket it to the front of the pack. The new stuff will, however, put Husky on the forward battle line in the very hot 250 combat zone. ■

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