

# Product Evaluation

# THE OHLIN GAS

Fade-free performance, stone reliability, and virtually infinitely adjustable dampening for both compression and rebound  
By the Staff of DIRT BIKE

□ Ohlin (pronounced Oh-Lean) gas shocks are currently the most widely used suspension components in Grand Prix motocross. Out of 34 starters at the Spanish round of the 250 GP series, 28 used Ohlin shocks, including the overall victor, Harry Everts.

Why have so many top world and U.S. riders switched to Ohlins? Because they work. They are very high-quality, Swedish-made, hand-assembled shocks that can be dialed in precisely to each and every rider's personal preferences. They were designed with total performance and durability in mind and constructed of the highest-quality materials available. Cost was not a consideration.

The shocks' designer, Kent Ohlin, from Sweden, is what most would consider a good international pro motocross rider. He has always been fascinated by the technical aspects of his machinery. In '72 and '73 Kent worked for Husqvarna in San Diego. Back in Sweden Kent had access to a large and very well-equipped machine shop just down the road from the Husqvarna factory. The shop, owned by his father, manufactures stainless steel hospital supplies. So, it was a natural that Ohlin and Husky teamed up for the distribution of the Swedish suspenders.

In a simple operation, you can tune both the compression and rebound dampening rates individually to achieve a near-infinite number of adjustment possibilities. On top of that, their unique design makes them virtually immune to a disease that hits most other shock absorbers to some degree — fading. The actual fade figures are between five and eight percent at 300 degrees. And you're never going to get them anywhere near that or feel the difference.

Ohlins were designed to offer the degree of reliability necessary for world championship points chasing. You can depend on them, and with good reason.

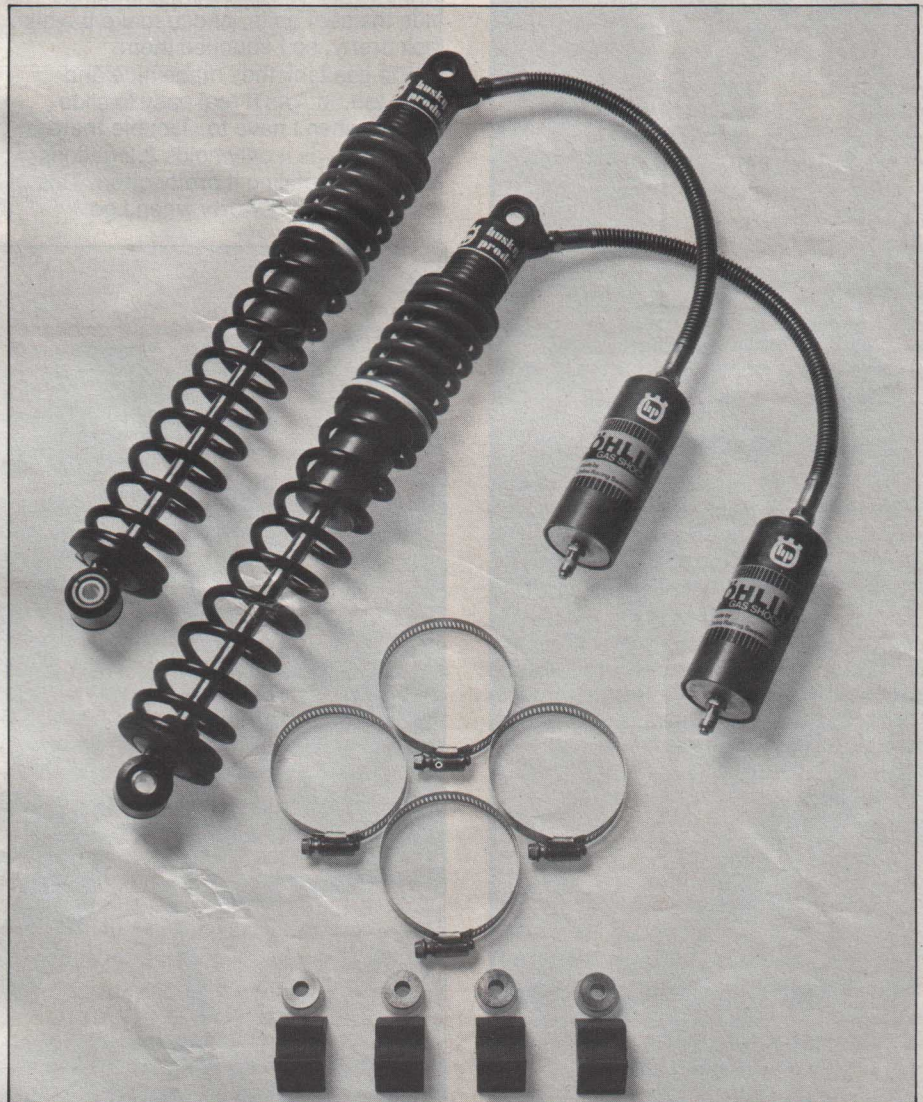
There is metal-to-metal contact at only one point in the shock. This is where the beefy 12mm hard-chrome-plated shaft reciprocates in a bronze bushing. A circlip holds the bushing in place. On the outside, or bottom edge of the shock, a special rubber scraper is

utilized to prevent dirt from getting into the bushing. This scraper is held in by a press-fit aluminum retainer. Behind the bronze bushing is the oil seal. This seal is your basic single-lipped unit on the inside diameter. But its small outside edge fits into a uniquely designed seal holder that allows the seal to float slightly with the movements of the shaft to significantly reduce the seal wear. Behind this is another circlip and a steel shock shaft retainer. Butted up against

it is a rubber top-out bumper and another circlip.

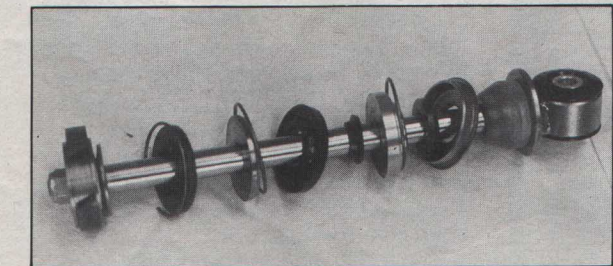
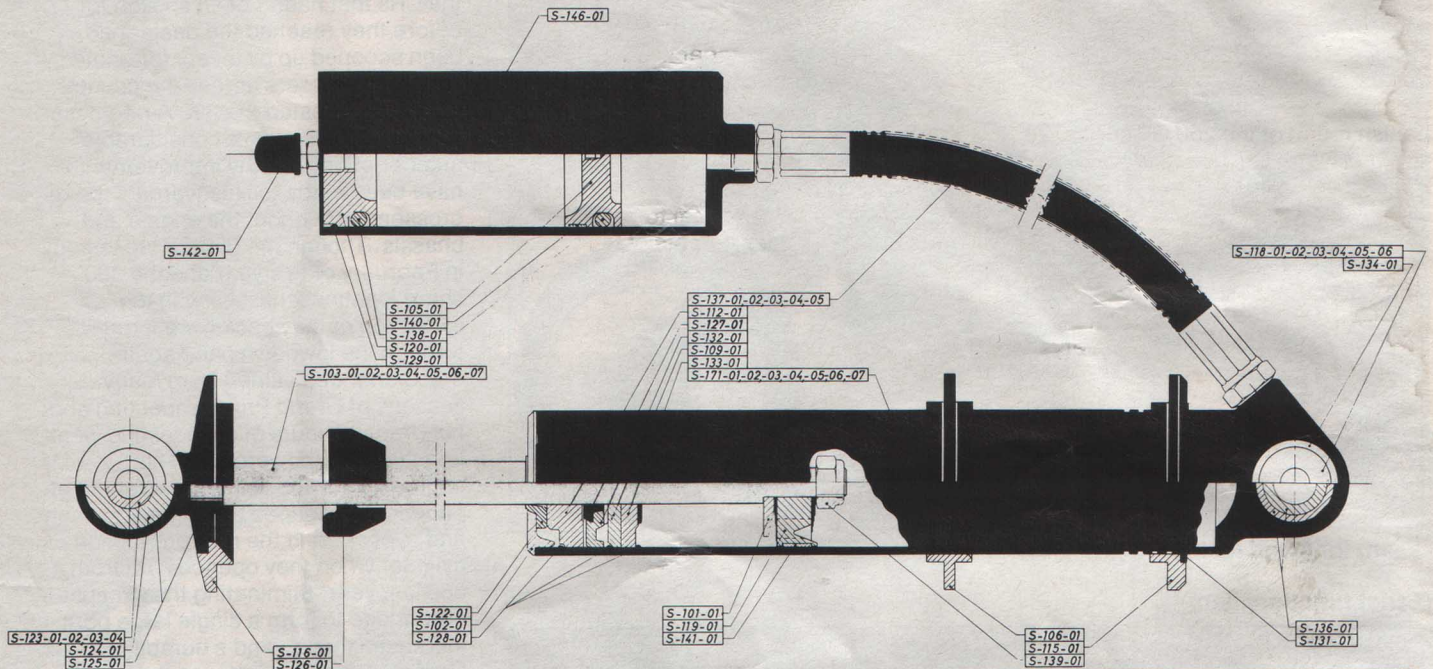
The piston is wrapped with a specially formulated piston sealing ring that is comprised of 80-percent bronze and 20-percent Teflon. This formula allows this flexible material to expand (from heat) at a calculated and identical rate as the shock body. Although all of this stuff is pretty trick, the real magic is in the dampening system.

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**A complete Ohlin package. The four steel bushings above the reservoir mounting rubbers feature trick little soft plastic seals to prevent dirt from entering the Heim joint in the shock body.**

# AS SHOCK

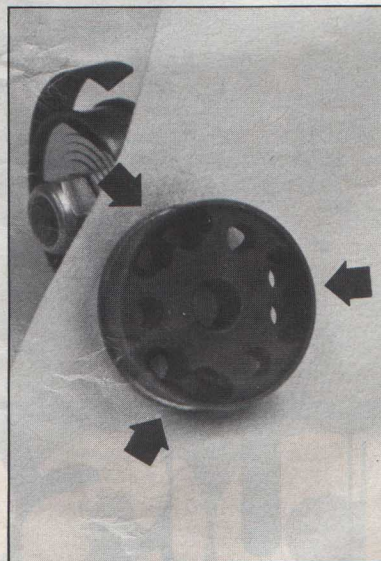


From left to right: piston/dampening assembly, Teflon and bronze sealing ring, compression valve stop, top out rubber, stop washer, seal holder, oil seal, bronze bushing, plastic dirt scraper, aluminum retaining ring, bottoming rubber and eye.

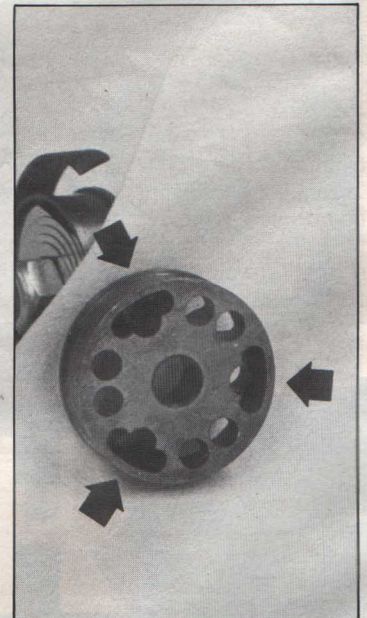


This is the rebound controlling side of the piston. Outside edges of the triangular washer cover the three rebound slots that are open to the other side. On compression, oil is funneled through between the flats of the triangular washer and the piston's edge.

S-101-01 VALVE STOP 10	S-119-01 PISTON	S-134-01 RUBBERWASHER
S-101-02 VALVE STOP 08	S-120-00 RESERVOIR TOP	S-136-01 UNIBALL
S-101-03 VALVE STOP 06	S-122-01 SCRAPER	S-137-01,02,03,04,05,06,07,08 HOSE
S-102-01 SCRAPER RETAINER	S-123-01,02,03,04,05 BUSH	S-138-01 O-RING
S-103-01,02,03,04,05,06,07 SHAFT	S-125-01 SHOCK EYE	S-140-01 TEFLON BAND
S-105-01 RESERVOIR PISTON	S-126-01 BUMP RUBBER	S-141-01 TEFLON BAND
S-106-01 SPRING SPACER	S-127-01 SHAFT SEAL	S-142-01 AIR VALVE
S-109-01 STOP WASHER	S-128-01 CIRCLIP	S-146-01 RESERVOIR
S-112-01 BRASS BEARING	S-129-01 CIRCLIP	S-152-01 RESERVOIR
S-115-01 SPRING STOP	S-131-01 SPRING CLIP	S-153-01 MOUNTING
S-116-01 SPRING CUP	S-132-01 SEAL HOLDER	S-171-01,02,03,04,05,06,07 BODY
S-118-01,02,03,04,05,06 DISTNC	S-133-01 TOP OUT RUBBER	



These compression slots lie behind the flat sides of the triangular washer.



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## OHLIN GAS SHOCK

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Unlike most conventional shocks, the dampening in both directions is not controlled by the viscosity of the shock oil as it is metered through various sized holes. Rather, it is determined by the resistance of stacks of washers of various thicknesses and diameters as the oil forces them to bend open. By simply varying the thickness, diameter or number of washers on either side of the piston, you can come up with an incredible number of dampening rate combinations.

The compression and rebound modes are separated in the piston by means of a triangular washer flat up against the piston on either side. Each of their three outside portions covers three holes that are open to the opposite side as slots because these portions are mounted staggered to one another. On the compression or bump stroke the oil is funneled through the largest three slots. This forces the triangular washer on top of the piston to bend open. On top of the triangular washer are stacked two thin washers. Each of these effects the dampening force characteristics in slow, medium, and high-speed bump situations as well as everywhere in between. In addition, the compression valve stop is available in three different angles to offer you still greater tuning capability. On the opposite side of the piston four washers are stacked in order of decreasing diameter to control the rate at which the shock extends with the force of the spring. These can also be changed to offer different rebound speeds and rider preferences.

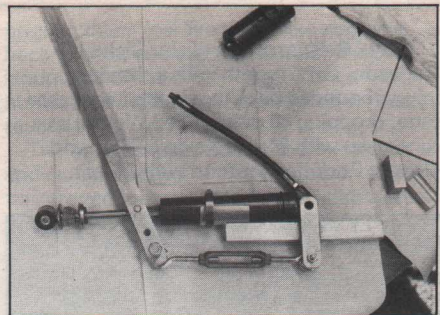
The reservoir contains the usual nitrogen gas pressure up against a floating piston. All in all, it is an ingenious and very straightforward design. A single Nyloc nut holds all of the washers and the piston on to the shock shaft. Changing the rates is a snap once the shocks are apart.

Disassembling and reassembling the shocks is also a snap if your dealer has the appropriate tools.

Currently development work is moving ahead for a monoshock unit for Yamahas, and eventually a shock with an integrated reservoir may appear.

Ohlin gas shocks are distributed exclusively by Husqvarna as Husky Products, and they are only available through Husky dealers. But that doesn't mean that you can't get them to fit your scooter.

As of this printing, Ohlins are currently available for the following machines: all Husqvarna '77-'78 CRs and all '78 KTMs in either cross-country or motocross dampening; '77-'78 Maico 250s, 400s and 450s and all '77-'78 Suzuki RM125s, 250s, 370s and 400s in MX dampening only.



**These are the tools necessary for tear-down and reassembly. Your local Husqvarna dealer should have them and they are available to you at a reasonable cost.**

These shocks come complete with springs and all mounting hardware. Each pair is fitted with the proper dampening and spring rate for that application. Complete spare parts and spring selections are available through Husqvarna dealers.

Although some riders have experimented with three springs on each shock, they are now going back to the dual spring setup. Three springs are very tricky indeed when they are the correct three, but the advantage is very little when compared to the hassle involved.

Shocks will be available soon for: Husqvarna's 250 and 390 ORs in X-C dampening; Honda's CR250R, '78 250 and 370 Can-Ams, '78 Kawasaki KX250s, and Bultaco's 250 and 370 models in MX dampening only.

Another nice feature is that all of the components are interchangeable with the different lengths of shafts and bodies. This means that if you should decide to switch to a machine that requires a different shock length, you need only purchase the correct length shaft and body and have them switched over.

At a suggested retail price of \$249 a pair, the Ohlins are not cheap. Components of this caliber never are. After learning how they work and of the superior craftsmanship that goes into these units, and spending a fair amount of time with them on our test 390 CR Husky, we must heartily agree that they are worth the bucks. But don't take our word for it. Ask Rich Eierstedt, Gary Semics, Warren Reid, Steve Wise, Chuck Sun, Jack Penton, Frank Stacy, Adolf Weil, Frans Sigmans, Graham Noyce, Dick Burleson, Hakan Carlqvist, Harry Everts, Jaak van Velthoven, Hans Maisch, Hakan Andersson, Willi Bauer, Arne Lindfors, Guenady Moiseev, Bengt Aberg, Andre Malherbe, Vladimir Kavinov, Torleif Hansen, Raymond Boven. . .

For more information and the location of your closest dealer, write: Husqvarna, 4925 Mercury St., San Diego, California 92111 or call (714) 565-1414.