

HUSQVARNA 510TX FOUR-STROKE

The Swedish bike that could bring the Japanese four-strokes to their knees.

Would we be willing to drive down to San Diego to ride the new Husqvarna four-stroke? You've got to be crazy! We're packing our riding gear right now!" Give or take a word, that's how the conversation went in the *Dirt Rider* office late one Wednesday afternoon. We had just been talking about Husqvarna's new four-strokes, and whether or not they were as good as had been rumored.

Indeed, it seems like everyone is talking about the new Husky four-strokes lately. With five or six years in the making, the folks at Husqvarna certainly whetted the appetites of many four-stroke lovers. Talk was thick with how light they were, how powerful they were and how great they handled—three features that we were more than eager to test.

So when all was confirmed, we were ready to go riding. We met Husky employees and factory racers Larry Roeseler and Scot Harden at Husqvarna's San Diego office at a red-eyed 10 a.m. (red-eyed because it was a three-hour drive for us). The first two hours were spent discussing the technological features of the new Husky four-strokes. A slide show explained all the details of how the motor works (see tech section), and Husky Vice President of Marketing Mark Blackwell filled us in on what each model was designed to do.

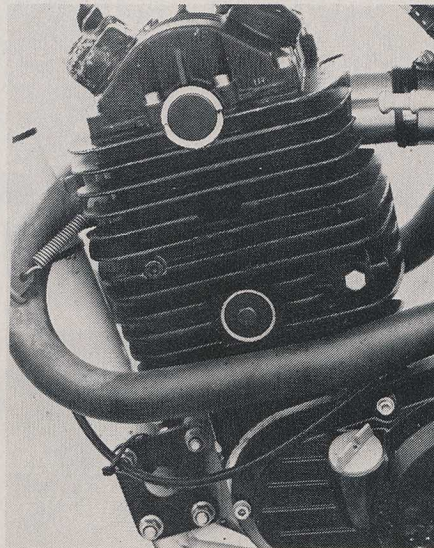
After lunch, we headed for the hills near Carlsbad Raceway, site of the 500cc U.S. Grand Prix. We unloaded the bikes and prepared ourselves to be one of the first lucky few to ride the new Husqvarna four-stroke.

To make sure that we were comparing the Husky to its competition, we brought along a Yamaha TT600K and a Honda XR500R. These two bikes have set the four-stroke-lover crowd on its ear, creating a whole new group of riders who suddenly like four-strokes. The TT600K is an excellent motorcycle with outstanding power, good handling and decent suspension. Honda's XR500R made a quantum leap this year with its dual carburetors, front disc brake, quick handling and better suspension.

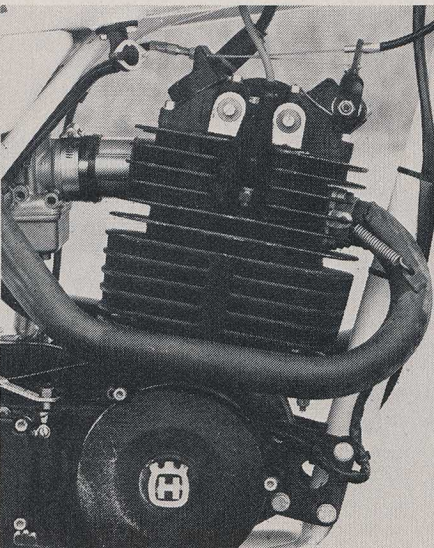
Both the Yamaha and the Honda are massive improvements over what has been offered in the past. Husky already had a tough job cut out for itself having

to compete with these Japanese giants, and 1983 made it even tougher.

As the bikes were unloaded, though, it became apparent that the Husky effort was a full-on, top-notch one. The Yamaha and the Honda are big; they look bulky and heavy. The Husky, on the other hand, is a normal size; it doesn't look overweight. The Husky looks like . . . well, like a Husky. It doesn't give you any clues,



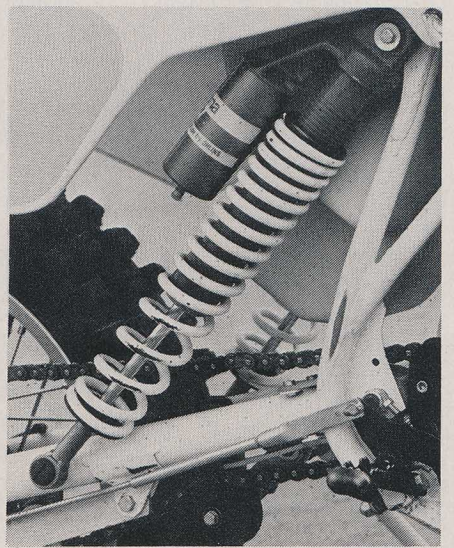
The manual cam chain adjuster is behind the oil filter (above the exhaust pipe).



The new engine is extremely compact, except for the bigger flywheel, and quite simple.

other than the motor and the two exhaust silencers sticking out the back, that it's a four-stroke.

Take a look at a TT600K sometime; it doesn't look anything like the YZ490K. The Honda XR500R doesn't even resemble the CR480R. These two bikes are completely different from their two-stroke counterparts. But now the Husky; it looks just like a 500XC with a four-stroke en-



Longer Ohlins with new valving provide a deluxe ride and more travel as well.



Another first for Husky is the white plastic gas tank (with reserve on the TE and TX).

gine inside the frame.

Since looks aren't everything, we jumped on the bikes for the real test. We rode the Honda first since it had been one of our earlier test bikes and was one that we hadn't ridden lately. Out on the trails, the Honda was a handful. The soil was hard-packed, sun-baked and God-foresaken. The Honda was washing out, sliding out and striking out. On off-camber turns, the power delivery was so abrupt that the rear end would fishtail out to the side—just after the front end had washed out. The Yamaha TT600K was much better. The bike tracked straighter

and it's power delivery was smoother; it was simply more comfortable to ride.

After 20 minutes on each bike, it was then time for the Husky. But you just can't jump on one and go. First of all, you've got to learn "the system" for starting the Husqvarna four-stroke. It can be done with one swift kick, if you get the piston just past top dead center and give it a good, strong kick. Feature editor Mark Kariya got it down in no time flat, while test editor Bob Carpenter kept saying, "I feel like a Floyd."

While Carpenter may have felt like a Floyd, the Husky certainly didn't. A

claimed seat height of 39.2 inches seems high only when looking at the figure. When sitting on the bike, it feels fine. The rear suspension is set up so that a lot of settling of the springs brings the rear end down to a tolerable level.

Body positioning on the four-stroke is very similar to the two-stroke Husqvarnas. The handlebar feels low and flat, while the seat feels high and firm. As per any Husky, you sit *on* the bike, not *in* it. The two exhaust pipes bulge out on the side plates a little, but since they are small, they don't really cause any problems. You can feel them when you are leaning back over the seat while standing, and it is sure strange to feel *both* legs getting warm.

The tank/seat junction rivals that of any two-stroke. While it seems strange to have a plastic gas tank on a Husky, it works fine, looks great and is just as white as the rest of the bike.

Since the Husky has only one carburetor, it would be expected that a stumbling condition would be present. It isn't.

The TX pulls strongly from down low in the powerband; so well that wheelies are just a matter of a quick throttle wrist. If the 510 pulls strongly down low, you're probably wondering how it does when it's wound out. We're not sure. You see, since this bike was a pre-production model, it was bound to have a few gremlins crop up. The gremlin, in this case, was the clutch. Since Husky has no parts for their four-strokes yet, they have been shimming the clutch and using other



tricks to keep it working long after it should have died. The clutch didn't die on us—it was just wounded. When you really cranked on the power, though, the clutch slipped just enough to keep the Husky from spewing forth all of its power. So, as we said, we really don't know how strong

the Husky is on top end.

When the clutch was at its best and the bike was cool, the TX was strong, but not as strong as the other two bikes. The XR500R has more midrange power, and the TT600K has more power, period. The TT600K lurches forward, while the Husky

scoots right along. It actually is more comfortable to ride since your arms aren't getting ripped off after every shift.

Speaking of comfortable, that's where the Husky's suspension comes into play. It is very easy to declare a winner in the suspension department. The Husky

THE HUSQVARNA FOUR-STROKES

Simplicity is the key

It's been many years since Husqvarna built a competitive four-stroke (which, in Swedish, sounds like "fear-talk"). If memory serves correctly, they had a fairly fast road race thumper, and, of course, Rolf Tibblin won his 500cc world MX championship on a booming Husky back in the early '60s.

Since the late '60s, though, Husqvarna has come to be known for its two-stroke race bikes, which have taken a number of titles. In the latter part of the '70s, the factory detected a rekindling of interest in thumpers and began developing one that would be lighter, simpler and more competitive than other bikes in its class. The project then slowed for a few years as the company underwent changes, but re-emerged a couple of years ago. Few in this country knew about it, but a prototype bike was raced—successfully—all of last year in Europe, the result of which was three new models to Husqvarna's mid-year lineup—the 500TC, 510TE and 510TX.

All three bikes are basically the same, but each is aimed at a different type of rider. The TC is their four-stroke equivalent of the CR two-strokes, with a 90 x 76.4mm bore and stroke yielding 490cc in actual displacement, allowing the bike to be raced in any 500cc class. It's a four-speed, by the way. The TE is the enduro version and comes with enduro lighting, shorter travel suspension and a six-speed gearbox, like the WRs. The TX is the cross-country mount, similar to an XC. Like the TE, the TX has a 91.5mm piston, bringing the displacement up to 503cc. It also features the same six-speed tranny.

Husqvarna designed their thumpers as racing motorcycles from the ground up. They realized that contemporary four-strokes were fairly big and ponderous, and felt they could correct those characteristics in their design—one that was at once compact, simple to work on and required as little maintenance as possible for a racer.

Naturally, one's attention centers immediately upon the Husky's engine. (And no, they didn't just put a four-stroke top end on 430WR cases.) Air-cooled with four valves (two 30mm stainless steel exhaust and two 33mm steel intake) and a single overhead cam, the big single put out 42 horsepower at the crankshaft on the factory's Schenk dyno. Twin exhaust pipes are employed and remain separate, each exiting behind one of the number plate/side panels. As is common in European four-strokes, the Husky utilizes but a single carburetor; this one a 36mm Dell Orto with an adjustable accelerator pump. It breathes through a new, generously-sized oiled foam filter, housed in Husky's easy-to-reach white plastic airbox. To remove the filter, simply take off the seat (two bolts) and slip the retaining wire off the filter.

One of the things that makes four-stroke

engines so big, heavy and complicated, Husky engineers felt, is their lubrication systems. So, they came up with Reed-Activated Lubrication (RAL), which is different from anything else on the market. RAL works well and, in typical Husky fashion, is so simple you wonder why someone didn't think of it before. RAL combines the advantages of a wet-sump and dry-sump system, but is simple like a two-stroke. (RAL is patented.)

There is no oil pump, per se, with RAL. Oil located in the left side of the engine constantly bathes the cam chain and bottom sprocket. As the crank spins in its counter-clockwise direction (looking at it from the left), residual oil on the chain (which is manually adjusted, by the way) is thrown off when it reaches the cam sprocket at the top of the engine, which lubricates the cam and rocker arms. The oil also transports heat from the exhaust valve area since the hot oil at the top of the engine is drained and carried (via the cam chain) down, passing through the brass screen oil filter and into the left side case. There, it's cooled and ready to begin another cycle.

Okay, that's fine, but how is the piston and crank assembly lubricated? Well, Husky engineers used some two-stroke principles here. When that big, flat-top, forged Mahle three-ring piston goes up, it creates a vacuum underneath. Midway through its upstroke, it uncovers three 3.9mm holes in the left side of the cylinder. These holes are passageways into the cam chain area (remember, that's where there's lots of oil cycling back and forth), and the vacuum sucks oil through the holes which creates an oil mist. This mist lubricates critical moving parts like the short skirt piston, plain small end bearing, silver-plated big end roller bearings and the crank.

When the piston begins its downstroke, pressure builds and forces surplus oil through a single-petal fiber reed valve, near the bottom of the engine, and into the left sidecase. Essentially, the piston acts as the oil pump. It's important to change the oil often because the same oil also lubricates the gearbox; Husky recommends two quarts of 40-weight Bel-Ray MC-5 after extensive use.

Kicking a big thumper with a 9.5:1 compression ratio would be extremely difficult were it not for a compression release—and Husky uses two, like Honda's bigger XRs and the XL600. A manual release, with the lever located on the left side of the handlebar, supplements the automatic one which is engaged by kicking the longer-than-normal Husky kickstart lever. The part of the lever around the kickstart shaft is shaped sort of like a shallow cam lobe. Move the lever through its stroke, and the lobe part catches a small lever built into the side case. This lever activates the compression release cable,

lifting one exhaust valve slightly, then, near the end of the kick lever's stroke, the small lever snaps back to its original position. It's quite simple, yet functional. Whether it will be affected adversely by lots of mud remains to be seen.

An all-steel clutch hub and ring gear is used in the four-stroke. It's similar to the old two-stroke design, but bigger and stronger. It also gets two additional plates, bringing the total number to eight.

Per usual Husky practice, an SEM CDI ignition is used. The units on the prototype bikes did not perform satisfactorily and will be replaced with different SEMs on the production bikes. The flywheel magneto is much larger than the ones on the two-strokes (137.5mm diameter versus 116mm), requiring the use of different mag covers. The TE mag will put out a total of 140 watts (70 per lead), enough to power *big* lights.

Other engine news includes the ball bearings for the cam to ride in (all three engines use the same cam), roller-bearing followers on the ends of the rocker arms and a top end that can be removed without taking the engine out of the frame. Four studs run from the cases through the head, and two additional studs anchor the head to the cylinder. By the way, the head uses no gasket; neither does the top cap, so it's doubly important to correctly torque the bolts. Bronze is used for the valve seats and the inserts inside the forged steel rocker arms.

The running gear was also updated. While the frame remains basically the same heat-treated chrome-moly unit as used in the other '83 Huskys, the rear frame was changed to accept the different carb placement and new airbox. What may be the biggest change, though (and a possible signal of things to come in '84), is the steering head angle, now set at 28.5 degrees—the steepest Husky has ever offered. Additional rear wheel travel, via slightly longer Ohlins ITC shocks with shorter travel limiters for a claimed 13.6 inches on the TC and TX, also tucks the front end in, though there's enough sag when aboard so it's barely noticeable.

A new, 2.7-gallon plastic gas tank also debuts on the four-strokes. Other plastic items are either the same or very similar to what is currently offered.

Husqvarna 40mm leading axle forks are fitted to all bikes, as with the two-strokes. A non-floating rear brake and double-leading shoe front are also standard items.

Husky claims their thumpers weigh 20 pounds less than an XR500, and, as demonstrated in their own testing, the TX will run head-to-head with a 500XC through third gear. After that, the TX takes off, approaching an indicated 100 mph. And when both bikes are fueled to go 80 miles or so, the four-stroke is actually *lighter*. DR

creams the other two bikes when it comes to a plush ride. The Honda has a whimpy nine inches of travel, the Yamaha a decent 10.5 inches, but the Husky has a generous 13.6 inches of claimed rear wheel travel. The front fork has a claimed 11.8 inches of travel to make the Husky's package far and away the leader in the inch game. What's more important, though, is that the Husky leads the other two bikes in the *quality* game. The suspension on the Husky four-stroke is actually *better* than the suspension we tested

on the Husky 250CR, 250WR, 250XC and '82 500CR. New valving, developed for the racing team, has made all the difference in the world. The rear end of the Husky doesn't wallow around like other big four-strokes have been known to do. The fork can be rated at nothing less than excellent. It doesn't feel too soft, the way the Yamaha's and the Honda's does, and it doesn't feel too stiff.

The suspension package on the Husky 510TX is the best suspension you can buy today on a stock four-stroke. In fact,

aftermarket companies aren't going to make much money off of the Husky four-strokes—that is, if Husqvarna is able to correct the ignition problems that the pre-production bikes have suffered from. The suspension works flawlessly stock, and the TX does not need to be lightened.

That's right, the rumors that you've heard about the Husky four-stroke being light are all true. Husky said the bike is 20 pounds lighter than the XR500R, and they might be right. Until we can get the Husky on *Dirt Rider's* scale, suffice it to say that it *feels* very light compared with the Honda and the Yamaha. The Husky feels light while cornering, and especially while in the air. The 510TX doesn't come back to earth with a thud; it does so with a cush that makes you forget you are on an Open class four-stroke.

In fact, the best thing about the Husky four-stroke is that it makes you forget that you are on a four-stroke. That is, until the advantages of four-stroke torque come into play. Then you have to chuckle to yourself as your friends flounder around on their bikes.

DR

Make/model	Husqvarna 500TC, 510TE, 510TX	CHASSIS
Price	500TC—\$2945 510TE—\$3045 510TX—\$2995	Frame.....Single downtube, double cradle, heat-treated chrome-moly tubing
Customer service.....	Husqvarna, Inc. 4925 Mercury St. San Diego, CA 92111 619/565-1414	Rake
ENGINE		Front suspension.....Husqvarna leading axle air/spring fork; 40mm stanchion tubes; 11.8 in. travel (claimed); 500TC, 510TX), 10.6 in. travel (claimed 510TE)
Type	Air-cooled, SOHC four-valve four-stroke single	Rear suspension.....Husqvarna ITC with Ohlins piggyback reservoir gas/oil shock absorbers (two); adjustable spring preload; 13.6 in. travel (claimed); 500TC, 510TX), 11.8 in. travel (claimed 510TE)
Displacement.....	500TC—490cc, 510 TE, TX—503cc	Brakes.....Front: Double-leading shoe drum Rear: Single-leading shoe drum
Bore x stroke.....	500TC—90 x 76.4mm 510TE, TX—91 x 76.4mm	Wheels
Compression ratio	9.5:1	Tires.....Front: 3.00-21 Trelleborg Rear: 5.00-18 Trelleborg
Carburetion.....	Dell Orto 36mm with adjustable accelerator pump	MEASUREMENTS
Exhaust.....	Twin steel exhaust header pipes, twin silencers	Weight (dry, claimed).....
Ignition	SEM CDI	500TC, 510TX—258 lbs. 510TE—265 lbs.
Lubrication.....	Dry sump, Husqvarna Reed-Activated Lubrication (RAL)	Wheelbase.....
Air filtration.....	Oiled polyurethane foam element	500TC, 510TX—58.9 in. 510TE—58.3 in.
DRIVE TRAIN		Fuel capacity.....
Transmission.....	500TC—four-speed 510TE, TX—six-speed	Ground clearance.....
Primary drive.....	2.63:1 (straight-cut gear)	500TC, 510TX—2.7 gal. 510TE—15.2 in. 510TX—12.5 in.
Final drive.....	14/48 (3.43:1)	Seat height.....
Gear ratios (internal).....	500TC 510TE, TX	500TC, 510TX—39.2 in. 510TE—37.7 in.
1st	15.3:1 19.3:1	
2nd	11.7:1 13.4:1	
3rd	9.4:1 9.4:1	
4th	7.7:1 7.9:1	
5th	6.5:1	
6th	5.5:1	

OPINIONS

Husky did it. They made a four-stroke bike that feels like a two-stroke. The TX feels like any other Husky—no, actually it feels even better due to the new valving on the shocks.

After crunching my back on the other Open-class four-strokes when they bottomed out, I was happily surprised to find such good suspension on the Husky. Both the front and rear ends work together to form a killer team.

The motor, though, doesn't feel as powerful as the other bikes. This could be due to the clutch problems we had, or it could just be deceiving. Whichever, the Husky certainly is a winner.

—Bob Carpenter

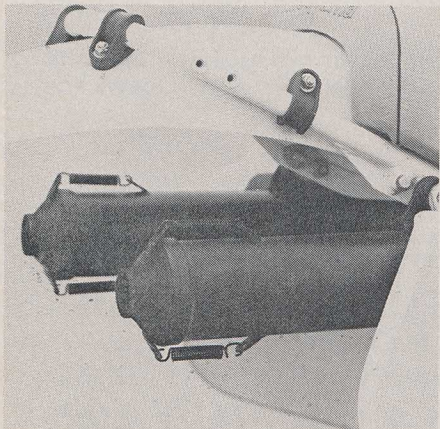
Age/Ht./Wt.: 23/5'9"/185 lbs.
Motorcycle(s) currently raced/ridden:
Yamaha YZ490K, Honda CR480R
Riding ability: Intermediate motocrosser

If it weren't for the nicely quieted thunder emanating from the twin exhausts, or the healthy engine braking, it'd be hard to tell if you were aboard a Husky two-stroke or four-stroke at first. The TX is amazingly agile for a thumper (actually for any big-bore), and throttle response is quick.

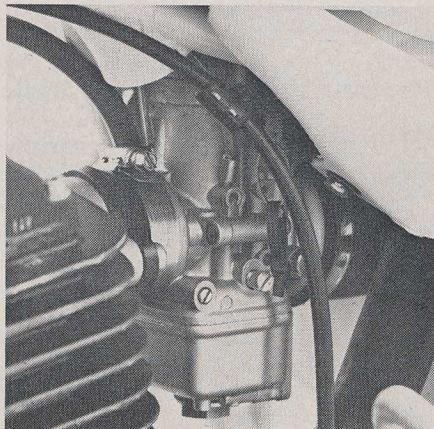
While it doesn't slide as well as a TT600, it's a lot easier to carve tight lines in and out of corners on the TX. I noticed a slight twitchy feeling going down rough hills, but otherwise the TX seemed as stable as any other Husky. Suspension was good for any bike. This just may be the thumper that will give two-strokes a run—anywhere.

—Mark Kariya

Age/Ht./Wt.: 26/5'10"/160 lbs.
Motorcycle(s) currently raced/ridden:
Jawa DT500, Yamaha RD350H,
Yamaha TT600K
Riding ability: Intermediate motocrosser



If you see two silencers on the end of a Husky, it's probably a new four-stroke.



A single, hard-to-reach 36mm Dell Orto with adjustable accelerator pump works fine.