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MODERN CYCLE

The Racing Magazine



HEY!
PART ONE:
**MIKUNI
CARB
MANUAL
INSIDE**

**HISTORY
OF CRASHING:
BITING THE
BULLET**

**MUD-TESTING
THE 390
HUSKY**

**COLOR
PLUG
READING
CHART**





PROLOGUE

Owning a dirt bike shop in Chicago in the middle of January usually means you are a very lonely and cold person. When the phone rang I was elated. I was overjoyed when the conversation involved a request/directive from Super Hunky to fly south to Nashville, Tennessee, and do a story on the new 390 CR Husqvarna.

Diplomatically, I reminded Super that I had not yet been paid for the last story I wrote. He squirmed a little, promised me a dozen free copies of the last issue and promptly changed the topic of conversation. Before making a hasty commitment, I ran through some quick calculations to determine the loss of revenue I might incur if I closed my shop for a couple of days to run down and do this test. I wanted to be in a secure bargaining position when I presented Hunky with the bill.

MUD TESTING

BY VIC KRAUSE, MIDWEST EDITOR

HUSQVARNA 390 CR

THE BIGGEST VIKING



I worked up a projected income figure for an average January day and then derived a net figure after subtracting expenses such as lights, heat, etc. The computations yielded some very interesting results. I would save approximately \$17.42 per day if I closed the store. As I accepted the assignment, Sieman snickered as if he had done a little of this arithmetic himself.

Regardless, Chicago had just attained the dubious distinction of breaking all the preceding local weather records by compiling the longest string of consecutive days of sub-freezing temperatures in all history. Since Nashville is more than halfway to Florida, I figured the trip was a good, even if temporary, escape from the Midwest Winter's grip.

As I deplaned in Nashville and walked along the concourse I became slightly unsettled as I noticed a slight chill run up my spine. Wearing a T-shirt in anticipation of some warm rays, I looked down and noticed a rash of goose pimples all over my arms. By the time I reached the main terminal, my teeth were chattering. I thought perhaps some fool airport flunky had turned up the air conditioning by mistake.

After all, I was down South, wasn't I? The large blue placard hung near the baggage claim area said it all, "We

apologize for your discomfort. The fuel shortage, caused by the continuing sub-freezing temperatures, has resulted in a 30 percent reduction of our allotment. We are optimistic that the problem will be under control by mid-July."

I retrieved my baggage and promptly ripped out three nylon race jerseys and pulled them on in an attempt to maintain what precious little body heat I had left. A passing thought of Sieman basking in the balmy 84-degree L.A. sunshine brought a curse to my lips.

Husqvarna had arranged for their product manager, Nils-Arne Nilsson, to pick me up at the airport. I searched the terminal for ten minutes before I found him in front of the Scandinavian Airways ticket counter rappin' to a blue-eyed, blond stewardess in some foreign tongue. When he saw me standing there shivering in a red, white and green Carabela jersey, he quickly ushered me out to the van and whisked me away to the Husky warehouse.

Nils actually oversees the operation of the service department and acts as a liaison between service and the team racing effort. His is a familiar name on the racing scene and he is bolstered by a firm background in mechanical engineering.

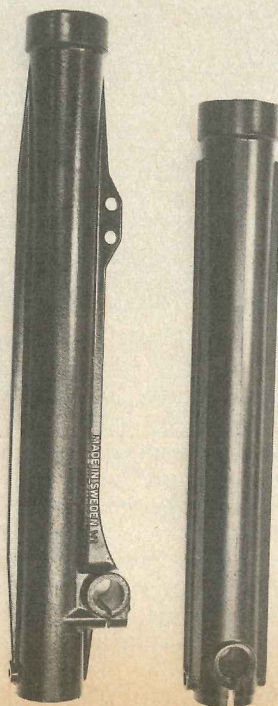
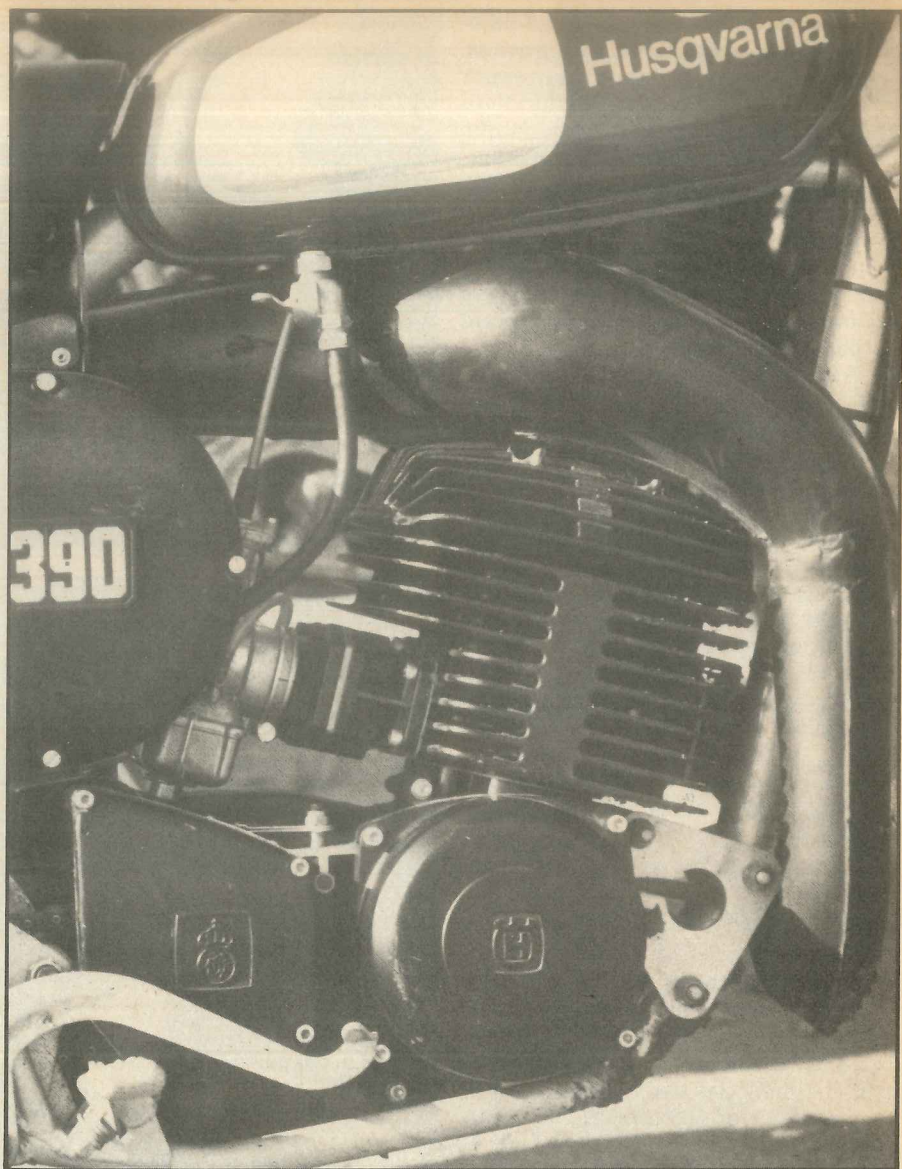
We locked the door to his office and began to technically dissect the entire 390 design from end to end. We made use of photos showing the differences between the old and the new components where the change was significant and a visual comparison was practical.

ENGINE

First installment on the big news for '77 is the engine, of course. A bump in the displacement from 354 to 384cc's is obvious and old news besides. The news is the way it was achieved. The engine was stroked an additional 4mm longer than the 360.

The cylinder was then a total re-design. The liner is fitted in the cylinder in a slightly different manner to improve heat dissipation in the combustion chamber area. No head gasket. The surfaces are still lapped together. The transfer ports are now wider and the exhaust port is no longer bridged. Overall cylinder height is greater, but you should have known that.

Standard piston for the 390 is the second oversize for the 360. The 390 will have three oversize pistons available and to answer the barrage of queries from current 360 owners, the answer is yes. You can use the second, and third 390 oversizes to further extend the bore-able life of your 360. If you are out to limit on a 360 oversizes, you don't have to pop for a new cylinder now.



However, Husqvarna does not recommend it. Heat is not the problem. The risk is that the liner may crack due to the decreased wall thickness. But since the cylinder is no longer useful at that point, you might as well gamble.

To answer the next barrage of 360 owner questions, "Don't bother." To convert a 360 barrel to a 390 would require a lot of time, patience, money and a bridgeport milling machine, not to mention a strong tendency toward mechanical masochism.

Transmission ratios are unchanged but the primary drive has been geared slightly lower. The six-speed trans has confused a lot of people who have erroneously speculated on the reason or need for a hex-a-cog trans in a big bore machine. Flexibility of operation is the only reply. There does not exist a track requiring the use of all six gears. Set up your gearing for the track you are on and opt for the first five or the last five. Gear it with a tall countershaft sprocket and you will have to run Baja or the Bonneville Salt Flats to get it into sixth. Except for the new double mounting engine bracket for added security, that covers the engine innovations.

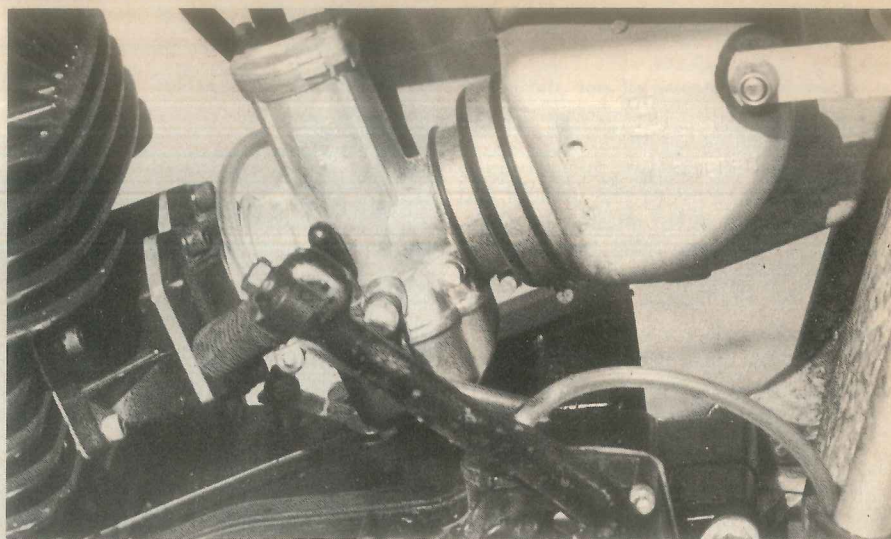
SUSPENSION

The next phase of design to undergo major improvement was suspension components. The rear shocks are a new 15.2-inch (380mm), long stroke—5.72-inch (143mm) Gas Girling that provides the net result of 10.16 inches (254mm) of rear wheel travel. The rear end is sprung on duals. The short spring is a relative 80 lbs./inch rate and the long spring is approximately 150 lbs./inch.

Husky rolls their own; springs, that is. They use square wire stock on the short spring so that under coil-bind the spring is stable and won't have the tendency to roll over. Part numbers have been assigned should it be necessary to produce stiffer, long springs but none have been made. Bottoming should not occur and changing preload should be the most adjustment necessary.

Forks are all-new Husky-designed from axle to handlebar. The lower slider is gravity die-cast aluminum, gusseted front and rear for strength and rigidity to resist the flexing forces involved with long travel forks. This process of casting yields the highest strength versus weight ratio available with all-aluminum alloys. Naturally, it is more expensive this way.

Triple clamps are drop-forged castings also of aluminum. The forks now attach to the frame via free ball bearings rather than the caged ball sets. Eliminating the cage allows for more balls and greater load carrying capacity.



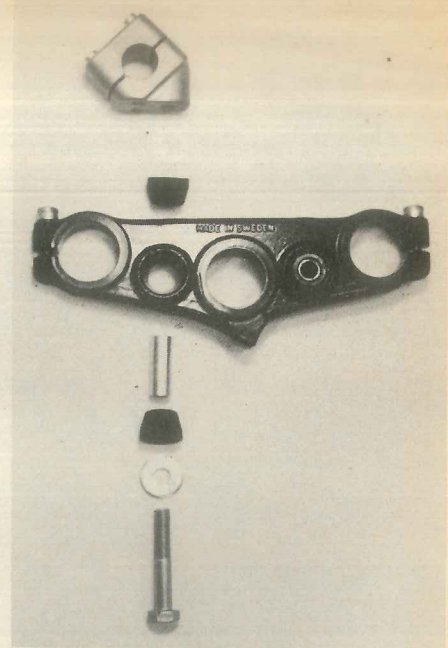
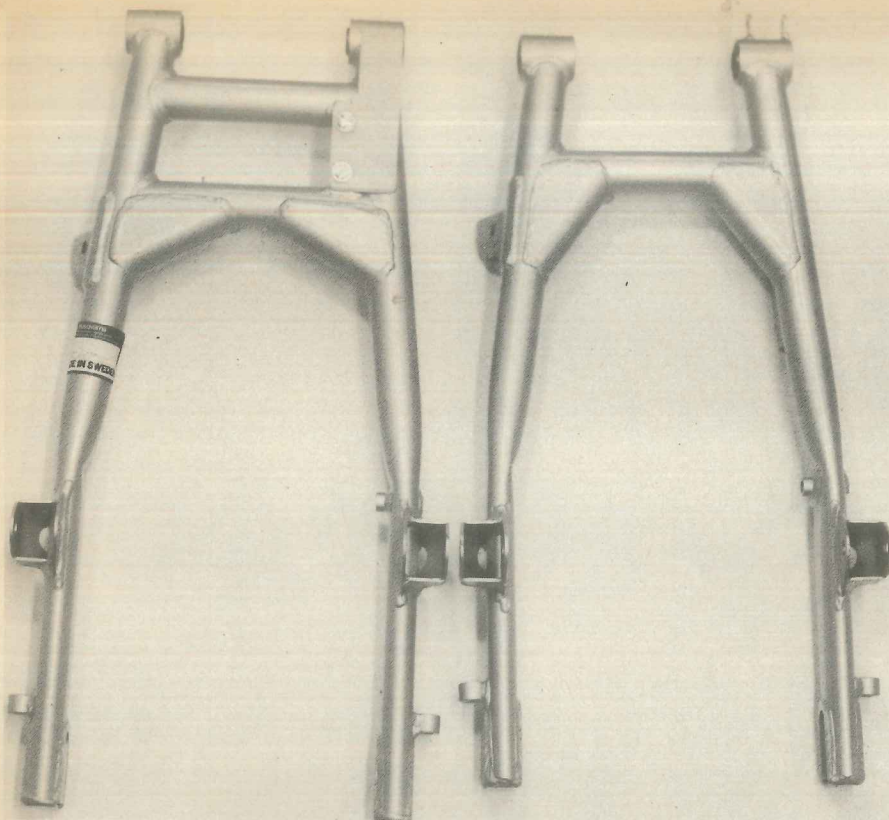
Damping of the fork is now controlled using a new technique. The damper rods are now tapered down along the middle 80 percent of their length. The damping then becomes non-linear; inasmuch as at the two extremes of travel, the damping is much greater than through most of the dynamic working range of the stroke.

The fork is much more responsive in the center of the travel range yet will completely resist topping and bottoming with resorting to springs or pads. Husqvarna is the only manufacturer tapering the damper rods in this fashion.

Production costs are higher but the performance gain is worth it.

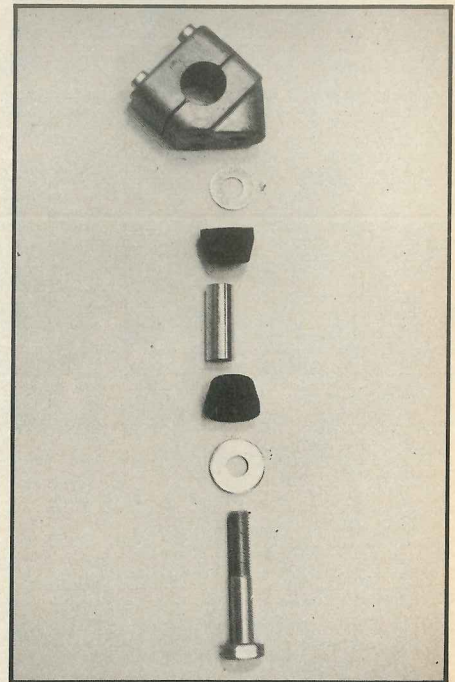
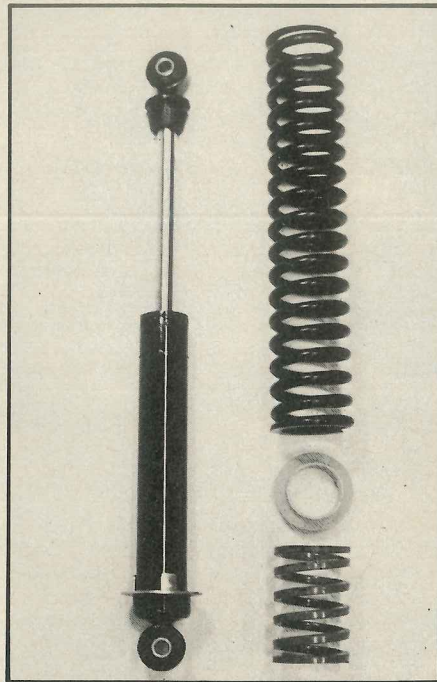
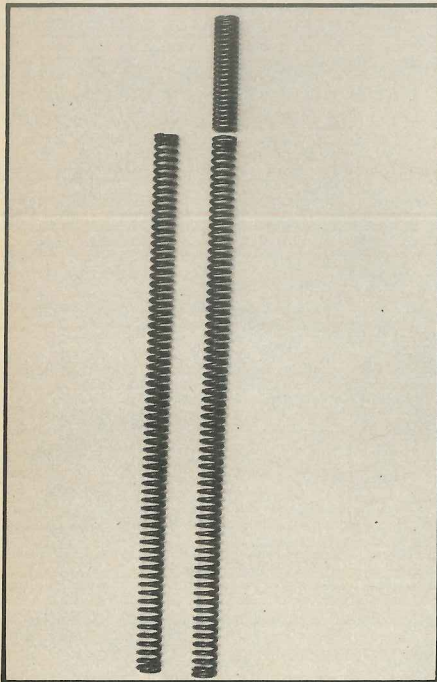
A new two-piece scraper is fitted above the dual seals in each leg. The large cap portion is made of a soft rubber material to pull onto the fork leg. The actual scraper is a very hard nylon-like material closely toleranced to the fork leg and this fits into a groove of the large cap. A clamp helps hold the two pieces together. This technique reduces the drag of the old wiper and does a more thorough job of cutting the grit (Southern term) from the fork.





Top clamp is drop forged.

Longer, stronger swingarm compared to '76 model.



If you are running a tight, twisty track you may find it beneficial to raise the forks up through the triple clamps to a maximum of 10mm to slightly reduce the rake. If a fast track is the target, recess the forks about 3-4mm for an increase in rake and see if it suits you.

These new forks will retrofit earlier Huskies with no problem and the complete assembly will sell for right around the price of a set of aluminum Marzacchis.

The forks did settle an inch or so under the rider's weight alone. The idea of adding some preload spacers to

the top of the springs might be a bit hasty. This settling might be planned to move the fork off the heavy damping portion of the damping rod taper. Anyway, as with the rear shock springs, Husky has allotted part numbers should heavier springs be required.

New rear mounted handlebars have been met with both praise and criticism. I felt the comfort and control factor was fine. Others on the staff felt the bars encouraged an excessive rearward body position and invited the outcome of looping the bike over backwards. A couple of West Coast riders lost a bike

in this fashion and this sounded like a plausible excuse.

FRAME

The frame has undergone some minor and one major change. The reduction of the steering head angle from 32 to 30 degrees to coincide with the new forks is the major. Also the swingarm pivot point has been moved forward in the frame, closer to the engine. The swingarm has concurrently been lengthened to produce a longish 57.28-inch wheelbase, measured with the axle in the center of the swingarm slot.

Moving the swingarm pivot point closer to the countershaft sprocket, has resulted in a couple of interesting benefits. The obvious improvement is that the chain does not develop as much slack at the extremes of travel and the chance of losing it is thereby reduced.

Another not-so-obvious change is that because the wheel is now traveling in a flatter arc, the subtle change in wheelbase, as the shocks work through their travel, has been reduced. The dynamics of the geometry have been further stabilized and the net result will be more predictable handling. Frame tubing thickness is beefed up an additional .5mm in some sections. A stationary chain slack tensioner, frame mounted, is a little added insurance against losing it. The overall wet-less-fuel weight is 217 pounds.

Wheel hubs are proven and remain unchanged. An earlier problem with wheel strength was traced to an inadequate load bearing area of the spoke nipples. A new larger head that more uniformly distributes the load to the rim promises to rectify that previous trouble spot. Avoiding heavier gauge spokes minimizes the unsprung weight.

Husky bends their own bars out of chromoly and, heat treats them as well. They are extremely strong.

Another nice touch includes a lighter, quieter pipe that is well out of the way; which has given rise to an altogether new complaint. The pipe used to bulge out and force the rider's thigh and leg outward. The pipe is now super-tucked in and there is no interference at all. However, the rider can now bring his left leg in tight and consequently rub his ankle up against the kick start lever knuckle, which he couldn't even get close to on the '76 model. Husky will have to put some time into that annoying problem area.

A larger capacity air filter and some really tough fenders are now fitted. Although the new filter arrangement is a big improvement over earlier designs, it is still criticized by many as inferior to the usual style airbox mounted directly behind the carb, instead of offset. The Husky frame precludes that style at this time.

The front fender draws a lot of attention. At first glance, it appears to be mounted backwards. More than a few people commented on it. The front of the fender droops down to within six inches of the tire. It visually looks like it will strike the tire long before full fork compression. It is an optical illusion. At full compression the front part of the fender moves to a point well down on the front of the tire and in fact wraps uniformly about the tire perimeter. This built in droop actually prevents a lot of the debris that is slung off the tire from getting out in front

of the bike and then allowing the rider to drive into it. Looks wrong, but works right. Function taking precedence over styling.

To help the owner protect his investment, Husky has compiled the most extensive owners/service manual in the industry. They dwell a great deal on carburetion info as this is one of the main factors of engine performance that the owner should be familiar with. On page 63 they even scold you for leaving your tools lying around. A serious manual for a very serious piece of racing equipment.

The design and technical portion of the text is concluded. To summarize I must tell you that Husqvarna's design changes for 1977 represent a dramatic flurry of technical activity in virtually every major area of the motorcycle design. A striking amount of progress, particularly after a relatively quiet 1976. Admittedly, they need the action to stay in the ball games. The balance of this test was spent in a dynamic evaluation of the motorcycle—in other words, we rode it.

RIDING IMPRESSIONS

It is important that I describe the surface condition of the terra firma we rode on. The Nashville area normally enjoys a mild winter season. As I described in the prologue, the temperatures were unseasonably cold and the ground was frozen hard. The day we set aside for riding was sunny and the temperature soared into the upper 40s. As a result the top 1-2 inches of soil thawed and presented a moist, seemingly super-tractable appearance.

However, just below that layer of wet soil was glare ice of the most diabolical nature. Now keep in mind that we are test riding an open class machine. Dick Burleson "volunteered" his 390 CR as the test bike. The machine was broken in with about 20 hours elapsed on the engine. Dick has the reputation of usually modifying or replacing some of the standard equipment on his personal race bikes. He had left this machine stock. The rear number plates and lever covers were removed.

Once the cold engine was amply enticed by tickling the carb till raw gas was in evidence, the engine easily came to life. The kickstart gear ratio is too small, as usual with Husky, but as long as you don't give her throttle she responds to a couple of kicks.

With engines warmed, Dick and I left the warehouse and headed for some surrounding acreage where an impromptu track materialized as a testing spot. A couple of stretches of pavement on the way provided the first and most exhilarating impression of the motorcycle. The acceleration will make your ears pop. The duration of the

pull in each gear seemed surprisingly long and the gear ratios are matched to produce very dizzy speeds in a very short time.

The engine produces very strong, smooth power, however it doesn't seem to be the fastest open bike on the market in a drag race situation. We didn't have the opportunity in Nashville for any comparative drag racing but our West Coast boys pulled some drags that had a couple of other machines quicker.

Brakes are balanced well, front to rear, and bring you down fast—and it's a damn good thing they do. As soon as we got off the pavement and out on the track the fun began. With the frozen ground, traction was scarce and only momentary. Even Burleson confided that he enjoys riding on virtually any surface except the tractionless frozen earth we had.

Executing even a large radius turn required judicious body english and throttle control. Under these adverse conditions the big bore Husky performed remarkably well. The wide spread of power allowed brisk acceleration despite the surface conditions. It was possible to identify in a very short period of time, the engine rpm associated with the loss of traction, and to shift up a gear accordingly.

These conditions are in my opinion, the absolute worst to ride a machine in. The least bad habits of a bike are quickly amplified in this type of environment, whereas on a dry, tractable surface, small handling peculiarities may go unnoticed. Despite the terrain, the Husky handles and inspired confidence. Burleson coped easily with the icy surface and the machine was totally under his command.

A curious observation occurred to me as I noticed that the 390 was operating in the slime more easily than the other machine was had out; a 125 CR. I would have expected the small bore to be more sure-footed on the slippery track but the opposite seemed true.

Another parcel of land was littered with varying sizes of shale rock along the track. A couple of unscheduled passes through those rocks unmistakably demonstrated the suspension travel. I careened through and over some eight and nine inch slabs of rock with my heart in my mouth and the handlebars hardly even moved. You have to experience it to believe it. The front and rear end just soaked them up. I mentioned earlier that the fork springs seemed a little soft yet there was no bottoming out even on the rocks.

A long straightaway section in a wooded clearing had not thawed at all and the full stretch was criss-crossed with dozens of deep, frozen ruts. Reluctantly trying to keep up with Burleson's lead I found myself piloting the

'390 along the forbidding section in the upper half of fifth gear. The front end did not hunt in the ruts or shake its head the slightest bit. Complete flex-free rigidity is what the Husky geometry offers.

The only area of handling that was impossible to assess was the high speed cornering ability of the machine, although Dick executed some magnificent maneuvers despite the ice. The California crew rode the 390 for a short time on the GP tracks at Carlsbad. They, too, felt that the new strain of Husky definitely works in the corners.

Although I regret that the track was not dry and fast, I believe more was

learned about the character of this new machine under the adverse conditions than would have been learned otherwise.

I have ridden a goodly number of open class machines in the past 10 years, and have never felt comfortable, really at home, with a Husky—until this new model came along. The Husky folks still have some difficulties that need sorting out. Their 1977 effort is a great leap forward, and they seem to have the will to continue their efforts.

The product is indomitably correct and an excellent selection for a class-winning open bike. It appears that the Vikings have indeed come a long way.

HUSQVARNA 390 CR Technical Specifications

Engine	Single cylinder 2-stroke
Displacement	384cc
Bore and stroke	83mm x 71mm
Compression ratio	10, 8
Power transmission:	
6-speed motocross gearbox	
Clutch	6-disc light alloy
Chain	5/8" x 1/4"
Primary transmission	
Ratio	30/68 = 2, 27
Gear ratios	1st 19,1, 2nd 14,5, 3rd
	11,4, 4th 9,6, 5th 8,1, 6th 7,2
Secondary transmission ..	13/56 = 4,08
Fuel	Gas/oil mixture 1:25 (4%)
Tank capacity	2,1 U.S. gal. (7,8 lt.)
Carburetor	Bing 36 rubber mounted
	with starting device
Electrical	Motoplatt CDI
Frame	Swedish chrome moly tubing
	with neat treatment.
	Modified steering head angle.
Rear Suspension	New type heat
	treated swingarm in needle bearings.
	New 380mm gas filled Girling shocks
	with 143mm stroke, incorporating
	piston ring.
Travel	10,0" (254mm)
Front fork ..	Forward mounted Husqvarna
	with new die cast sliders
	and improved damping system.
Travel	9,45" (240mm)
Wheels/Tires/Brakes:	
Front	3,00x21"—160mm brakes O
Rear	4,50x18"—160mm brakes O
Rims	Akront ridgeless light alloy
Dimensions	
Length	2144mm (85")
Height	1200mm (47,2")
Height at seat	940mm (37,0")
Ground clearance	325mm (12,8")
Wheelbase	1455mm (57,4")
Weight	99,0 kg (218 lbs.)

