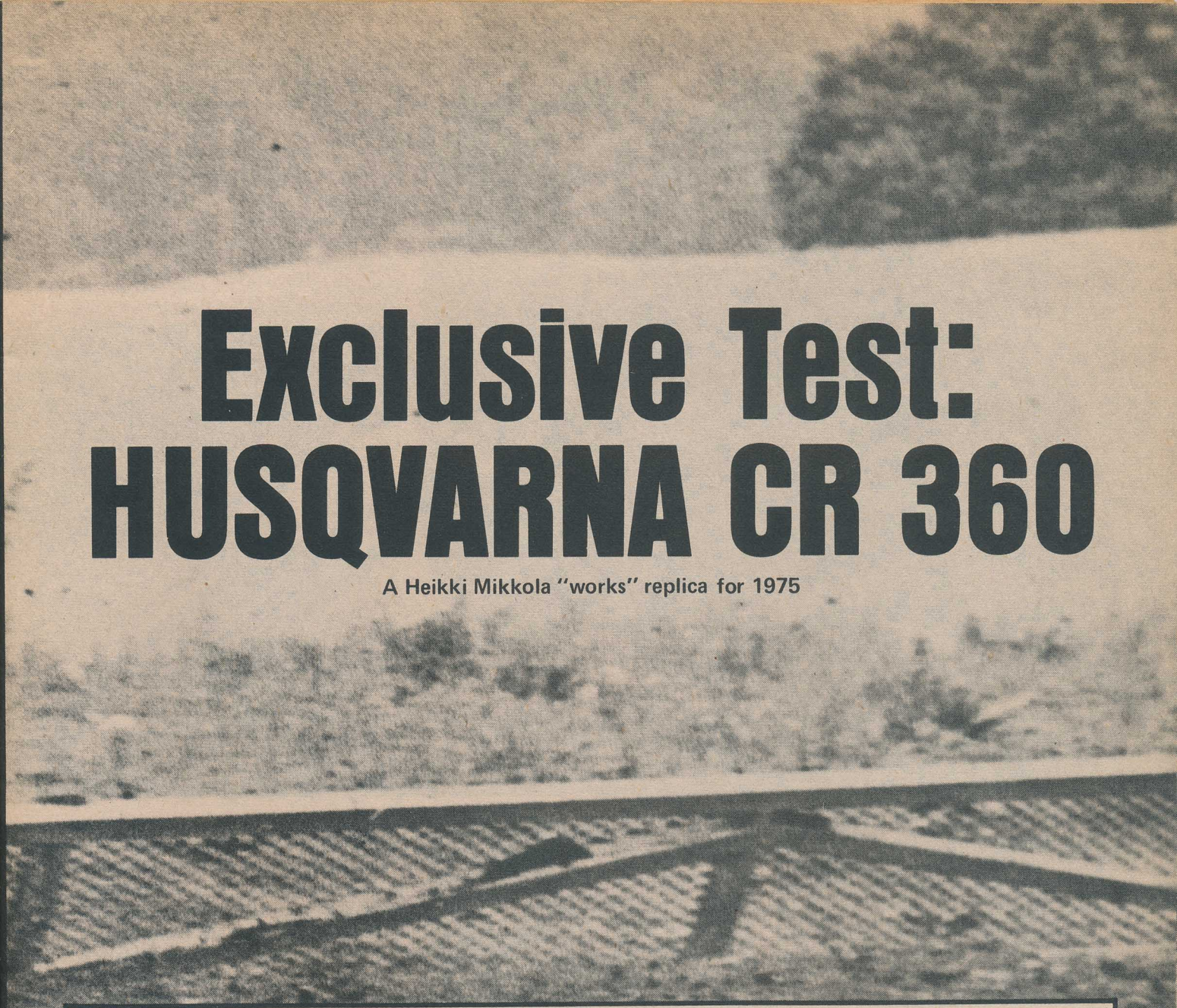
Exclusive Test: HUSQVARNA CR 360

A Heikki Mikkola "works" replica for 1975



By Frank Melling, English Editor

■ To be in the position of testing a machine which carried its rider to a world championship some four days earlier is both highly desirable and extremely awkward simultaneously. After all, it is perfectly obvious to every one that the bike under discussion is the subject of this report, since it is generally acknowledged that Heikki owes much of his success to the "brilliance" of the bike.

The Husky's performance was not a surprise to me because I have ridden many works machines and have come to expect power and handling of such quality that most production motocross machines behave like mini-bikes in comparison. The surprising thing is that Husqvarna is going to manufacture a replica of the bike. If this statement elicits a wry smile then I don't blame you, for every year manufacturers claim to offer works replica bikes for sale. These can range from the positively ludicrous, as exemplified by Yamaha's farcical YZ models which bear no resemblance whatsoever to any works Yamaha I have seen, to more or less sincere attempts by firms such as Cheney and KTM, which will sell you a bike very closely based on some used previously in G.P.'s.

Husqvarna has taken the game one step further by making a precise, inch-for-inch, nut-for-nut copy of the bike used by Heikki Mikkola to win the 500cc World Championship. Last year they claimed to do this with the 250 CR but altered the barrel so the average rider would not have to fight the violent power output of the factory machines. This year there will be no compromise. The pattern for the milling machine which cuts the ports in the barrel was taken from the Grand Prix bike. The frame, foot rests, suspension units, brake levers—even the handlebars—come straight from Heikki's machine. The only difference is the gas tank which is aluminium instead of steel, simply because the aluminium tank wasn't ready to use in the Grands Prix. There are also some minor differences in extreme detail—the air-filter box, for example, was modified on the bike I rode with additional welding, where on the production bikes this will be a casting—but if one is driven to find differences in such minute details, then for all practical purposes the bike must be considered a carbon copy.

Selling a replica of Mikkola's bike is not, as you might think, a result of winning the world championship. Planning started in the spring and as I visited the factory in August the first production bike was being completed. It

The CR 360 is in every sense of the word a "handful," and things can get out of hand very quickly on this bike.

was this machine—which I was given every freedom to compare with the works bike I tested—that convinced me that Husqvarna really was serious about selling G.P. replicas.

Husqvarna reasons that while it has won the championship this year—something which is most pleasing—it cannot be guaranteed the same success in 1975. Thus , it is little use selling "fake" replicas of Mikkola's success this year, since it might not have the same opportunity in the future. The tiny Husqvarna concern cannot match the price of the Japanese manufacturers on mass-produced motorcycles so the only alternative, if the company is to stay in business, is to sell high quality machines to experienced riders.

These customers are both wealthy (a Husqvarna market survey showed a great mass of Husky owners earning $20,000-$40,000 per year) and discerning, demanding the optimum in performance and quality and well prepared to pay for what they get. These lucky few—only two or three thousand 360's will be produced this year—will have a machine capable of winning any race on the American continent straight out of the crate, and with the right rider they would no doubt be competitive in the Grands Prix.

The exactness of the replica cannot be over stressed because it is something completely new to me. Even the tiny rubber band used on Mikkola's bike to lock the rear brake adjuster in place will be included, and as far as I can see, there are few, if any, modifications which could be made to hone the bike even further. I would probably change the handlebars for a Cheney pattern and bend the gear lever to fit my foot perfectly and along with taping the cables where they rubbed against the frame, that would be all.

The other aspect of the overall concept which is new comes with the marketing of a works bike which can be ridden by the average runner. The 360 is most definitely not a machine on which one can jump on and blast off into the wild blue yonder. Rather, it is a bike which requires the rider's brain to be engaged quite positively before full use of the available potential can be made.

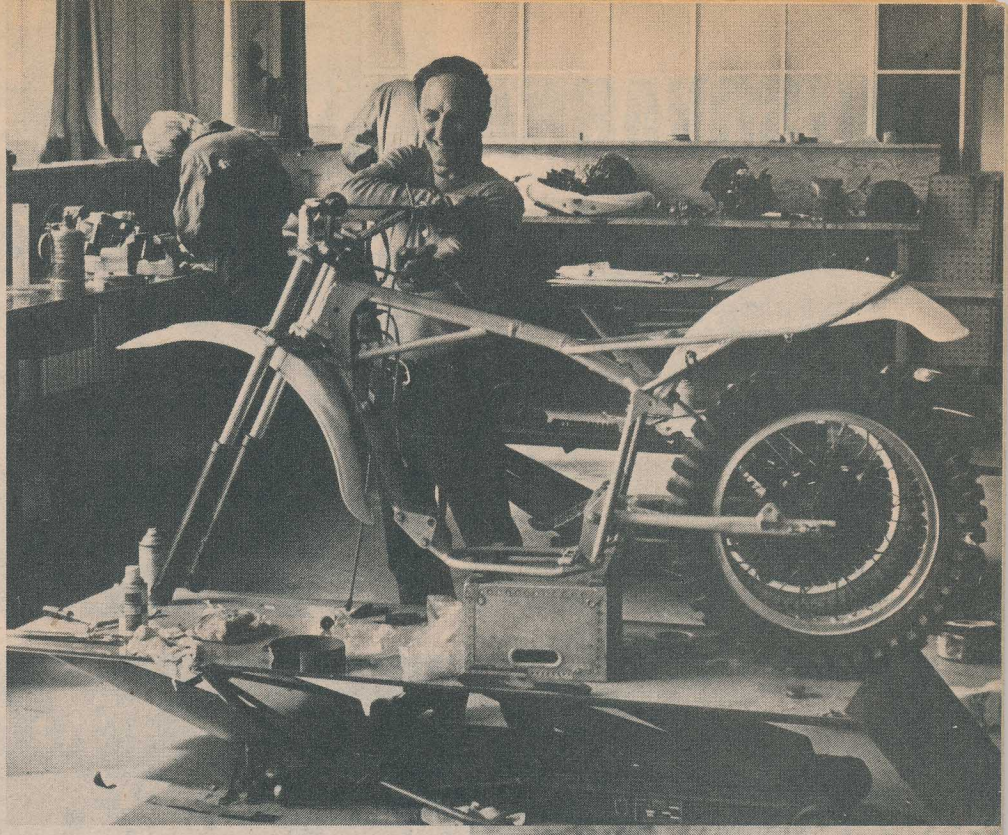
To be quite honest, I found the 360 an unpleasant sort of machine to ride initially, and after an hour, things were getting worse, not better. The prime reason for this reaction is the power delivery and output. First of all, there is

a tremendous amount of power, and secondly, it is available almost all the time. There is little use trying to drop below the power band while problems are sorted out because the 360 will accelerate hard from almost any point in the rev. band. If the motor is spinning at much above 3,000 rpm, things happen with truly dramatic speed.

Related in the objective terms of an article, the impact that this wide power band has loses its edge, for the effect on the rider is more emotional than intellectual. For example, drop the 360 into a loose sandy corner, wind it on and sit back for the power to hit you, and it is a certainty that you will end up on your bottom wondering what hit you. The second that the throttle is touched the power is driving the bike forward at Grand Prix speed. This happens whether it is Heikki Mikkola's hand on the throttle or mine: the bike doesn't differentiate and the rider simply has to be prepared to accelerate at speeds which amateurs normally go to great lengths to avoid.

The power delivery is not really fierce but might best be described as relentless. It comes as a massive thrust forward as the rear wheel fights for grip and the rider struggles for control. The power is available regardless of terrain and the resultant acceleration is mitigated only by severe gradients or really adverse conditions, such as deep, wet sand.

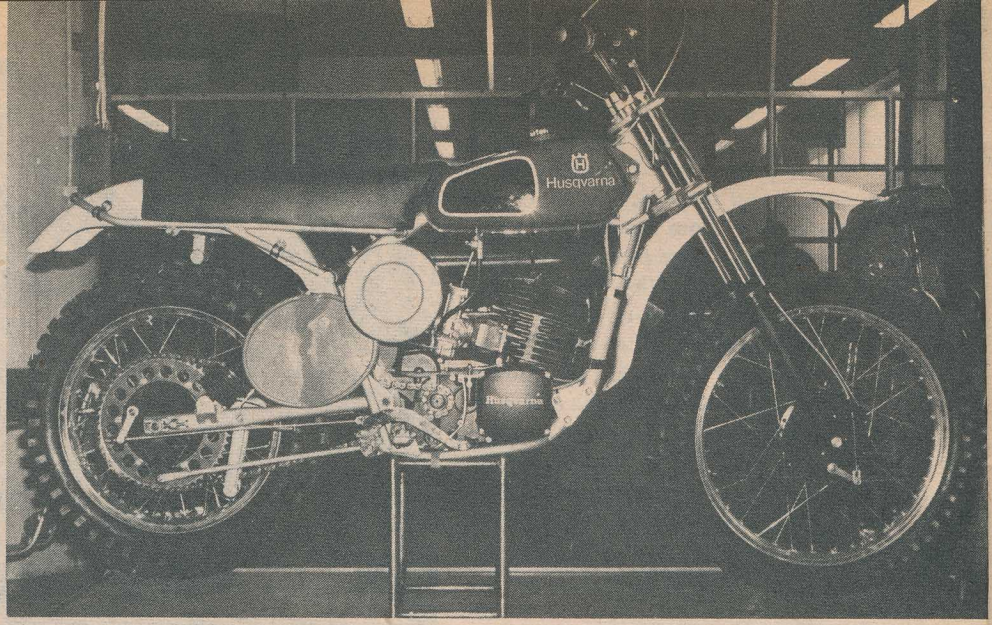
Much of the Husqvarna test track is composed of the aforementioned sand and on the day we tested Mikkola's bike there had been heavy rain and in places the track was the consistency of thick stew. Hitting a morass like this on most bikes would cause the rider to drop one or two gears in order to maintain good acceleration and keep the motor revving well. A few bikes, such as my Cheney, with exceptional pulling power, might maintain momentum without dropping a gear but the 360 would actually accelerate through the mess.



Mechanic "Payen" builds the test bike in the Husky competition shop. The smile is because Mikkola has just won the championship.

The rear wheel fighting for grip and the front pawing the air is what the 360 is all about.

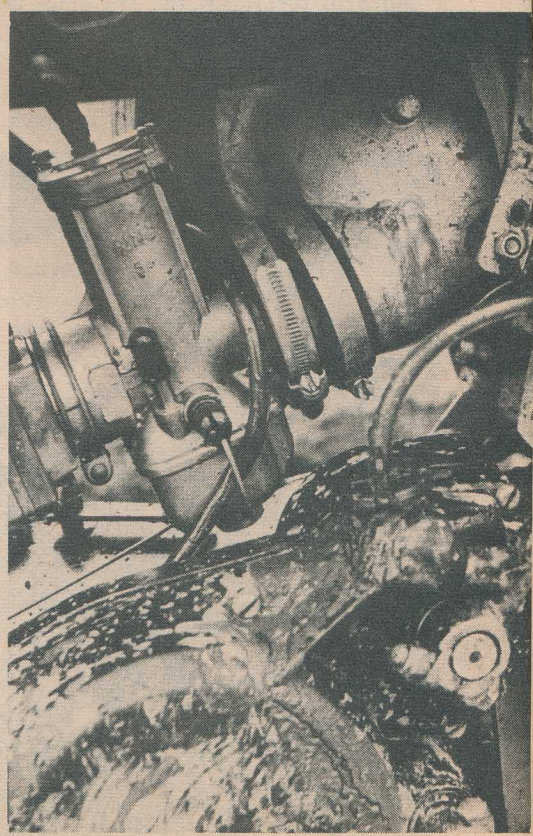
HUSQVARNA



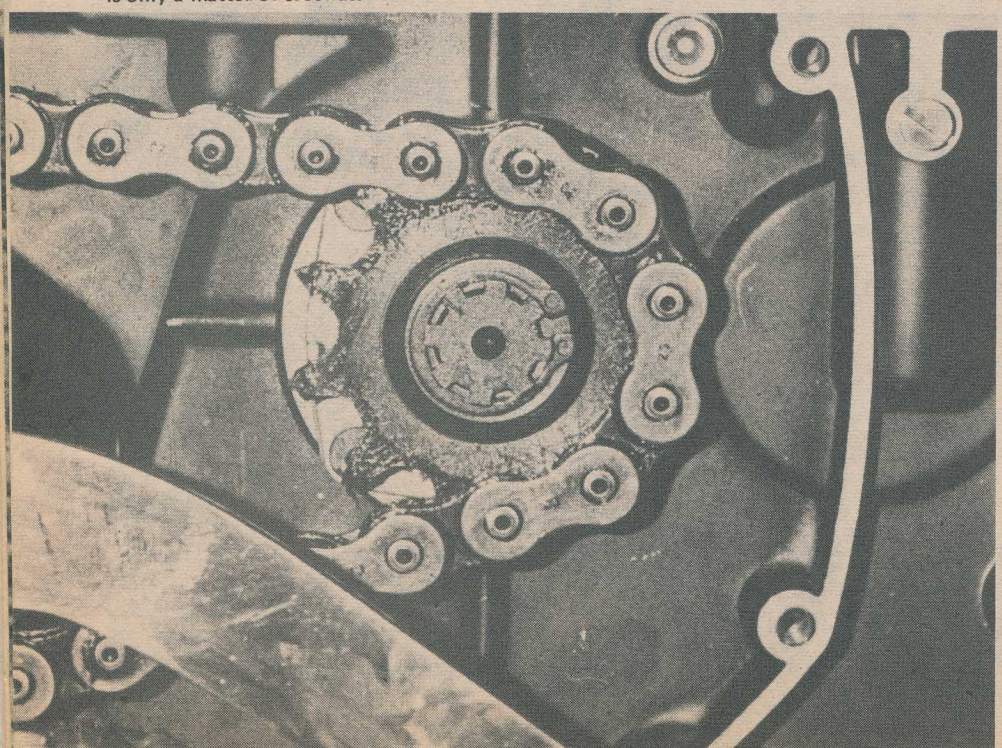
The very first production CR 360 is completed. Note the newly redesigned rear suspension.

Husky's new silencer, although apparently meeting the FIM regulations on noise, is still not very effective.

The air filter on Mikkola's bike had been altered by welding; the production version is a casting.



New quick-change gearbox sprocket, splined and retained by a circlip. Regearing is only a matter of seconds.



One such section was situated on a long uphill climb and I was so fascinated by the Husky's pulling power that I deliberately rolled off the throttle just before entering the mush and then accelerated through with the engine pulling hard. The noise the 360 makes will probably become an intimate joke among Husky owners. It is rather like a giant cricket chattering to itself with the dull droning of the air passing through the inlet manifold almost drowning the staccato crack of the exhaust.

I normally hit a hill in the third gear of a six-speed box but the bike pulled fourth without any trouble and the exit was made a little easier because the bike did not accelerate so fast when drier ground was encountered. However, it was possible to use fifth—two gears higher than what was fair to the motor—and still get the bike to slog its way through, although obviously acceleration was seriously impaired.

The reed-valved motor really dominates the bike until one has at least become accustomed to the power it produces, but there is much more to the 360. Incidentally, Rubin Helmin, the designer of this unit and much of the driving force behind Husqvarna's racing effort, has asked me not to quote the power output because it is meaningless in terms of the advertising horses which float about at present. Suffice it to say that some manufacturers are claiming almost the same power for their 250's as Husqvarna KNOWS its 360 is producing. However, to concentrate on the power unit is only scratching the surface on what is truly a remarkable bike.

Because I was constantly in some sort of mess trying to sort out a very demanding power unit on an extremely testing track, I felt no sympathy for the chassis until I realized how many of the lurid slides and tangles from which I was escaping would normally have resulted in a close up view of the Swedish sand. Unobtrusive is the word that best describes the chassis since one tends not to notice it doing anything, which is good news in the motocross world.

The front forks float over the bumps like Husky units have never done before and the back end follows like a faithful dog. The bike slides well, jumps well and takes a lot of the work out of bumps and ruts: generally a most pleasant experience. In fact, to obtain such a fuss-free ride is difficult since most bikes make the tester aware of some special merit because the rest don't come up to scratch. The frame itself is bordering on the theoretically perfect with a large spine running almost in a straight line from the top of the rear dampers to the steering head. Thus, the bulk of suspension loads are transmitted through the spine, removing stresses from the rest of the frame and yet permitting a structure that flexes sufficiently to prevent cracking.

To transmit the large movement of the rear wheel, the Girling dampers are angled so that they are not submitted to excessive lateral stress as the wheel describes an arc. This arrangement gives the dampers a tolerably easy life—probably the best of all modern systems—and yet permits seven inches of movement in the rear wheel. To control this movement, Girling has developed a new damper that uses oil as a damping medium but is pressurized with nitrogen to reduce frothing. The

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TECHNICAL SPECIFICATIONS:
HUSQVARNA CR 360

ENGINE

Type	single cylinder 2-stroke
Displacement	352cc
Bore & stroke	81.5mm x 67mm
Compression ratio	12.5:1
Power Transmission	6 speed
Clutch	6 disc light alloy
Chain	5/8" x 1/4"

GEAR RATIOS

first	19.95
second	15.01
third	11.94
fourth	10.06
fifth	8.59
sixth	7.50
Fuel system	gas/oil mixture
Capacity	2.2 gal. 8 lit.)
Carburetor	Bing 36mm central float chamber
Electrical	Femsa flywheel magneto
Frame	Swedish chrome-moly steel
Rear Suspension	swing arm with Girling
Tires	
front	3.00 x 21 inch.
rear	4.50 x 18 inch.
Brakes	
front	160mm
rear	160mm

GROSS MEASUREMENTS

Length	83.3"
Width	35.5"
Height	45.5"
Height at saddle	32"
Wheelbase	55.7"
Weight	212 lbs.

ADDITIONAL FEATURES

Magnesium engine	Detent Shift mechanism
Sunburst head	Light alloy gas tank
Reed Valve	Mikkola Spine Frame

YAMAHA 175

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Simple to operate ("The clutch is on the left, the throttle is on the right") and a breeze to get used to, it could be the nicest little surprise of 1975. It certainly is the most fun thing that has been introduced so far.

So you say you are a berm buster, eh? Well, again, this Yamaha is definitely for you! Approach that big berm, that one up ahead, just after the straight. You got this thing wound in fourth gear, screaming down the straight and over that last jump before the sharp turn. Now, downshift twice, let the clutch out fast, hit the brakes like Pierre Karsmakers and aim right for the top of that old pile of dirt. Zap!

This bike is so small, physically, that you can control it easily under you with little or no trouble. In fact, it seems to actually want to do what you tell it to! Sometimes referred to as "forgiving," this bike is just that on a berm. It falls down to your side, but it falls just right, enabling you to gas it and hit the straight again. It's light weight (179 pounds) enables you to do all sorts of things on the berm, and play around with your position. Your buddy taking the berm high? Good, so can you, and at the last minute, stuff it under him! Ah, the joys of a lightweight Japanese powerhouse!

The two stroke engine is pipey, yes, but just pipey ENOUGH. The pipe, incidentally, leaves the engine in front, exits on top to the right side of the bike, goes under the seat and sits on the left side of the rear of the machine. A Yamaha-Krizman spark arrestor and stinger at the end of the pipe keep the decibels way, way down. The 1975 ruling of 82 decibels seems to have been met by Yamaha this year. However, the screw on our stinger came loose after testing and finally fell off the bike. We made do with it off, but it was too loud, so we decided to find a replacement screw and out the stinger back on. The system works excellently.

The Mikuni 28 carb supplies a good mixture to the engine, and the powerplant never seemed to lack pep, at any speed or rpm. It idled well when we got the machine, and idling was easily adjustable by means of a nut on the side of the carburetor.

Tires are Dunlop Sports, and wheels are the poor man's Akronts, Takasagos. They both performed admirably, but we might change tires to an American brand (our Los Angeles ozone eats up Japanese rubber!).

One complaint. When the side covers are removed, they expose the oil tank for the autolube system. Now, Yamaha, why do we STILL have to mix our gas and oil when we pay for a separate oiling device?

Besides that minor failing, the Yamaha 175 MX B for 1975 seems to be an O.K. machine. Not too big,with a lot of power, great handling, and great rider comfort. The 175B will be the favorite for a lot of youngsters and their parents. Perhaps 1975 will be the year when the 175cc class finally becomes officially recognized by the AMA as a true racing division in its own right. ●

HUSQVARNA 360

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damper's performance is very good, although if truth were known, most amateurs cannot split the difference; the majority of the advantage of one unit over another being purely psychological. The Girling behaves as well as every top class unit, but its longevity and price promise to be exciting. Husqvarna has tested a pair of these units for 33 logged racing hours without any marked deterioration in performance, and this represents about a whole season of normal riding. The price should also be reasonable because many of the parts used are common to a new car shock absorber and the units will be produced on the same line as the one used for the mass-production of automobile parts. Hopefully, motorcyclists will be able to benefit from the reduction in costs which mass-production always brings about.

The front forks are also new, and like the rear dampers, give a full seven inches of movement. The sliders, cast from magnesium, are identical on each side. A super enthusiast could indulge his craving for perfection by machining off the brake anchor lug cast into the left hand fork leg, but not used, and thereby save anything up to ¼ ounce of unsprung weight. As a bonus, he might also burn his workshop to the ground with highly inflammable magnesium turnings.

There is a danger that Husqvarna might well oversell the new suspension system and have riders find it anticlimactic. It is very good indeed, but motocross is still motocross and that means bumps, ruts and bangs for the rider. I haven't noticed Heikki Mikkola arrive at the end of a Grand Prix without a bead of sweat on his face, which shows that he must still be working hard. Judging from his state of near exhaustion on some occasions, very hard.

The new suspension is at its best on ruts and small bumps that previously caused the rear wheel tolift clear off the ground. Now the tendency is for the tire to follow the contour of the ground more closely and keep driving all the time. On downhill sections too, the system is noticeably good, since it keeps the rear wheel on the track and reduces the chance of "crabbing," the unpleasant experience where the rear wheel tries to pass the front. If you purchase one of these bikes, expect the suspension to be good by all means, but please don't expect it to do the riding for you.

Like all good things, seven inches of movement does not come for free and in this case the price paid is saddle height. I stand almost six feet in my motocross boots and the saddle is sufficiently high for me to be conscious of stretching to the floor when I sit in the saddle. This height is inevitable with such a large rear wheel movement since the sub-frame must be sufficiently high to avoid contact with the tire.

This makes the riding position similar to the old Grand Prix BSA I used to own and the feeling of "falling" into tight corners, as the bike was banked over, brought back poignant memories. It is a hindrance and there is no denying it, but after four hours on the bike it was becoming so slight a handicap that I forgot all about it. Like the BSA it felt all wrong, but except for real hairpin bends, it didn't seem to slow one down.

On the positive side, the high saddle height did mean that rising from the sitting to standing position for bumps was made much easier since the rider's legs were already bent above 90 degrees. The saddle itself is excellent, being long and well padded, and because Heikki must have done himself a mischief at one time, an integral tongue extends from the saddle to cover that part of the petrol tank which might severely harm the rider if he were to slide on to it when braking.

The aluminium tank is new for 1975 and while the design is pleasing, the welding leaves more than a little to be desired. In fact, almost all the machine is new for 1975 and another article could be devoted to dicussing what is a cleverly designed motorcycle. While we don't have the editorial space for such an exercise in this article, I will keep my promise to the bike's designer, Rubin Helmin, and kill a few myths surrounding the engine.

To begin with, it isn't a development of Husky's 125 and bears nothing in common with this engine except that it is a two-stroke and has six speeds. What Husqvarna wanted was a light unit with a good crankcase filling and with sufficient power being available from an engine of 352cc, all the criteria should be met in the 360 engine.

A short stroke configuration was chosen to keep the motor height low and although it is markedly oversquare at 81.5mm x 67mm, good torque has been maintained with the aid of the reed-valves and careful port timing. The shortstroke also permits the engine to rev. freely and providing the rider's ability is up to the job, the engine performs best above 5,000 r.p.m. The important thing about the 360 is that it is not essential to reach this stage in the rev. band before usable power is available. On the contary, it is possible to pull from nothing and accelerate cleanly from about 3,000 r.p.m.

The sun-burst head runs cooler than the normal parallel finning—some 30 degrees C cooler, Husqvarna claims—which permits the high cr of 12.5 : 1, to be used without fear of pre-detonation. Such a high compression gives good burning of the mixture and aids good scavenging.

By using magnesium alloy (electron) for the engine cases and aluminium alloy for the new six plate clutch, the motor's weight is kept low. Finally a six speed, close ratio gearbox gives the rider a choice of any five usable ratios for any course imaginable, and although the gear box on the bike I rode had been badly hammered in the Grands Prix, and therefore wasn't all that it might be, production bikes promise to be good thanks to a new selection mechanism.

One part of the bike left over from last year which has come under criticism is the brakes. On Mikkola's bike they were prodigious—sufficiently powerful for road racing and needing only a gentle breath of pressure to bring instant and dramatic retardation. If the brakes don't perform on your Husky, then they should, and can, if they are set up correctly.

At the end of the test session, I sat steaming while Norbert Kunze, Husqvarna's live-wire PRO, quizzed me about my feelings. I felt then, as now, that after four hours on the bike I was just, only just, beginning to learn how to use it. For someone who is paid to adapt to all manner of competition motorcycles almost instantly, this is a strange experience.

After ten minutes it is possible to appreciate how Mikkola won a world championship. Another hour and one can begin to understand how to use the power to help rather than hinder riding. Two more hours and the realization that it is possible to go fast on this motorcycle without falling off begins to grow, and at that point I just wanted to take the 360 away and practice until I mastered it. If Norbert and the factory mechanics and Bengt Eriksson, the photographer, had all gone away and left me with 5 gallons of gas to learn how to ride the 360, I would have been a happy man, for the bike dangled before me new realms of motocross experience, like a juicy bone to a hungry dog.

Some machines will never let you ride fast in safety; others, like my Cheney, will coax and help you like a faithful friend. The 360 Husky offers you a blank check made out to motocross speed: the rider's ability fills in the numbers. ●