



HUSQVARNA 175

CROSS COUNTRY

● No other name in motorcycling has so completely dominated off-road racing as Husqvarna. Maico has a stronghold on motocross; Penton is currently the name in ISDT and enduros; and Yamaha grinds out successive wins in cross-country desert events. Husky has won, and in some cases dominated, all these forms of off-road racing. And that accomplishment is unique in the sport.

In recent years Husqvarna has offered numerous models and engines. Models ranged from enduro to motocross to cross country; the selection included various four, five, six and dual-range eight-speed gearboxes. Engine sizes ran from the short-lived 125cc motocross to the gutty 450 Desert Master.

This year Husky has narrowed their model line to five special-purpose racers—no more enduros. In their series are 250cc and 360cc CR motocrossers, the 250cc and 400cc WR (wide ratio) bikes and the 175cc Cross Country. The WR models use the old-style chassis with conventionally-located shocks. The two CR models and the 175 have the Mikkola Replica chassis with laydown shocks and lower engine location.

The Husky 175 is a hybrid of the larger displacement CR and WR bikes; it's not a built-up 125. This makes the mid-size

Husky unique among the 175cc singles which usually are pumped-up 125s. The 175 Cross Country uses the same crankcases, gearbox, clutch, and reed valve unit as the 250, 360 and 400.

The petite-looking engine is a clever assemblage of new design features. The aluminum cylinder and cylinderhead are both cast with unusually robust fins. Both the radial head and cylinder use cast-in supports between each fin for rigidity and sound deadening. The supports reduce piston slap-ringing. The rear side of the cylinder has been machined finless in order to accept the big eight-petal reed-valve box. The use of a single down-tube frame forces the exhaust port to exit on the left side of the cylinder.

Unlike the Yamaha reed valve, Husky's uses fiberglass-type petals rather than spring or stainless steel. This material minimizes the chance that a broken (and ingested) petal would destroy the entire engine. The reed petals are warped

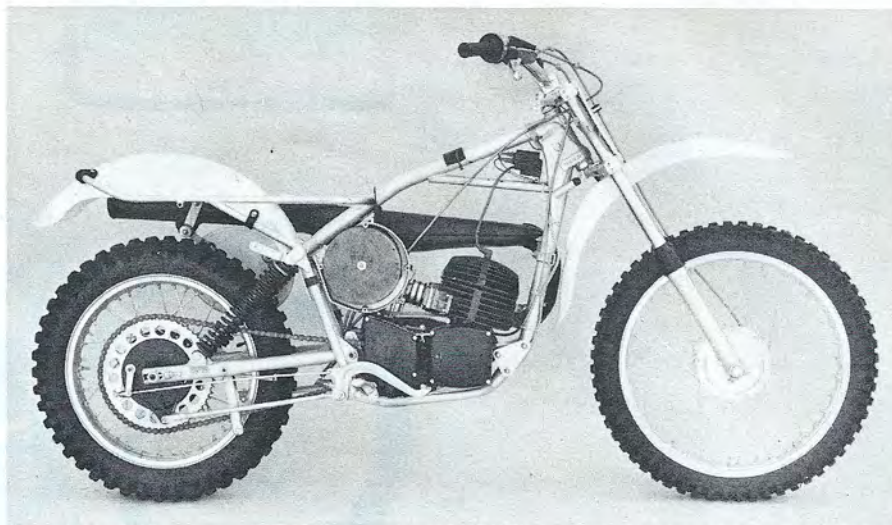
slightly to apply extra sealing tension against the intake casting. The magnesium reed-box assembly consists of four separate castings, eight reed petals with their tensioners, three gaskets and hardware. The reed-intake area is large and well within the demands of the engine.

The lower half of the engine is identical to larger Huskies. The crankshaft simply has a different crankpin location to shorten the stroke. Rather than having single-piece machined flywheels or broached wheels with splined shafts, the Husky assembly is a press-together unit. The two tapered crank end-shafts are pressed into the center holes of the matched flywheels.

On the drive side, the primary gear cinches to the crankshaft by means of a taper fit—no splines. Straight-cut spur gears handle the primary drive. The clutch assembly has been lightened by using a magnesium hub and backing plate along with aluminum drive and friction plates. The driven gear is steel and contains enclosed rubber buffers to absorb drive-line snap. The drive ratio is tall at 2.41:1 (compared to common 3.0:1 ratios for gear-driven primaries).

The indirect-drive gearbox is a six-speed wide-ratio unit. Though interchangeable with the close-ratio moto-

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Husky's 175 Cross Country uses the Mikkola Replica chassis. It's strong and has good geometry.



cross gearbox, only the wide-ratio gear set is available with the 175 Cross Country. The gearbox is the same assembly used in the bigger WR model Huskies. Both the layshaft and mainshaft ride in caged ball bearings and all the non-splined gears spin on bronze bushings. The internal gear ratios are rather tall; fifth and sixth gears run as overdrives with a sub-1:1 ratios.

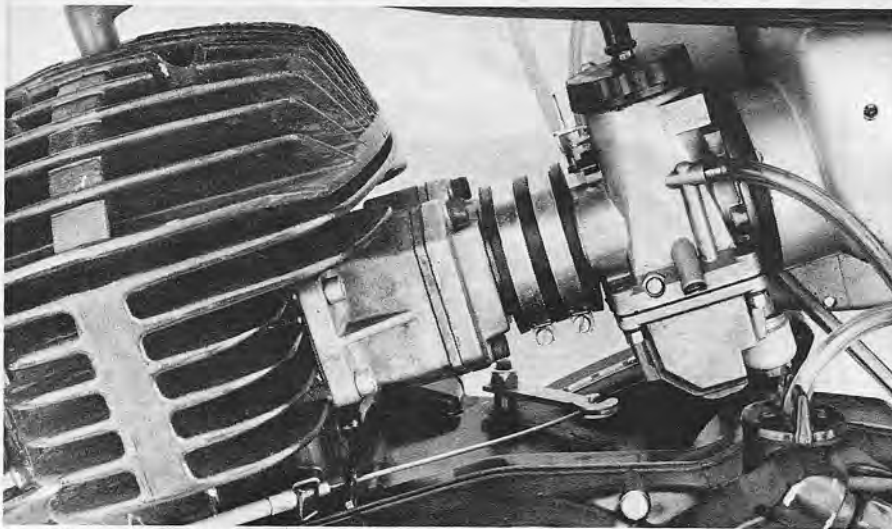
In order to compensate for the tall primary and internal gear ratios, the secondary drive carries short gearing. The countershaft sprocket is a tiny, 11-tooth item that drives through the $\frac{1}{4}$ -inch x $\frac{5}{8}$ -inch Renold chain to the 56-tooth rear wheel drive. An appreciated change is the absence of the taper-fit countershaft sprocket in favor of a circlip-retained splined cog.

The new Mikuni-style 32mm Spanish-made Amal provides carburetion; it fastens to the reed manifold with a neoprene boot. The Mikkola Replica chassis used with the 175 requires the use of a new cast magnesium air box that holds a Twin Air foam element. The exhaust pipe appears identical to the system used on all the larger Huskies; the muffler contains a U.S. Forestry-approved spark arrester.

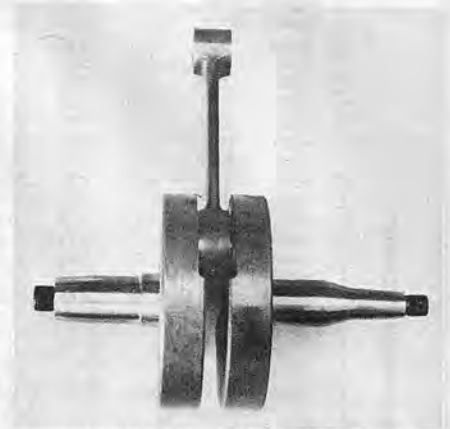
The new chassis is constructed from all chrome molybdenum steel tubing. To guarantee sufficient strength the swing arm is normalized after fabrication. The Girling gas/oil shocks mount at a 45° cant. The bottom of the shocks are located 4.5 inches forward of the axle. The Girling dampers have been designed to mount upside-down, which places the reservoir above the shaft. Rear axle travel exceeds seven inches. Standard on the Cross Country are Husky's own 126-ppi springs which extend the full length of the shock; they are not adjustable with a pre-load eccentric cam. At the top the shocks mount to a cross-member located at the end of the central downtube. In this fashion load forces are directed up the chassis member to the steering head.

One major difference between the 175 Cross Country and the bigger Husky

CYCLE

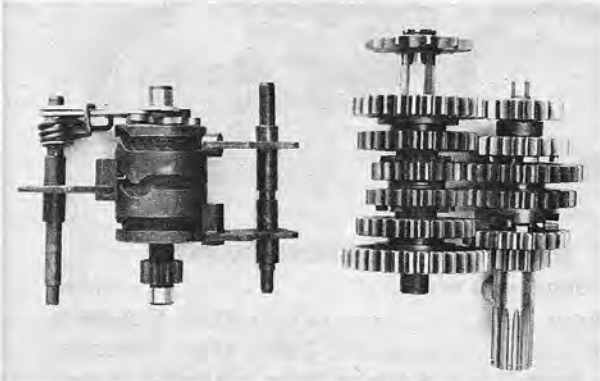


New Mikuni-style Amal provides clean and crisp carburetion. Rubber boot prevents fuel frothing.

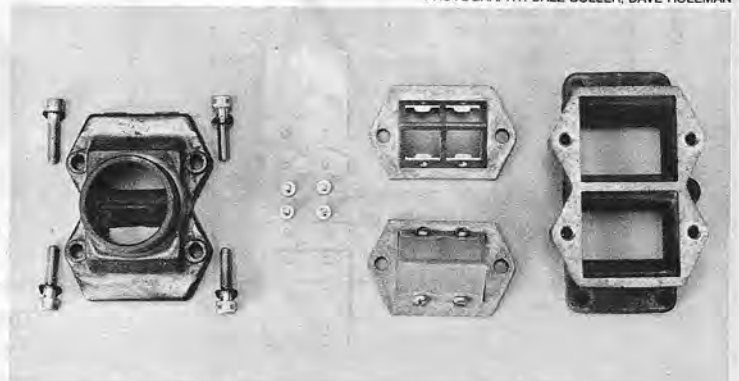


A common crankshaft is used in the 175, 250 and 360cc. The 175cc has its own crank pin location.

PHOTOGRAPHY: DALE BOLLER, DAVE HOLEMAN



The shift cam drum is case hardened and moves three forks. The wide ratio six-speed gearbox is the same as in the big bikes.



Magnesium castings contain the reed valve assembly. Four plastic reed petals open eight induction windows. Abundant area permits hopping-up engine.

models is the fork. A large fire in Husqvarna's plant damaged much of the tooling for fork production; Husky has restricted installation of their own suspension units to the larger bikes. So Spanish Betor forks are fitted on the 175s. These Betors deliver almost seven inches of travel and can be adjusted in the aluminum fork crowns for ride height.

The wheel hubs are standard conical Husky at the rear and a conventional full-width drum up front. Large-diameter spokes lace shoulderless Akronts to both wheels. Both tires are tough Trelborg knobblies. The rear brake is a bonafide full-floating type. The backing plate stay-arm is located equidistant from the axle center and swing arm bolt and is parallel with the swing arm. The front mount attaches to the brake lever pivot point.

Our first outing with the 175 Cross Country was disappointing. Engine performance was poor, the gearing was too tall, the rear suspension too stiff, and the front fork too soft. The engine's inability to pull sixth gear and its struggle with easy uphills led to a top-end disassembly. The piston had its single ring gum-seized in the groove; excessive blow-by lowered performance, and caused overheating and mild piston seizure. Further investigation revealed that the engine had been run-in on castor oil; then it sat idle for

a short period. This sequence of events caused the ring to gum and stick.

A new piston and ring were installed in the engine in time for the dynamometer test at Webco. Mineral oil replaced the bean lube; no further problems developed for the rest of the test period. On the dyno the re-ringed Husky performed smoothly, pulling the pump from 2000 to 8500 rpm. However, we expected more power from Husky's mid-size race bike. Its maximum readout was 17.79 bhp at 8000 rpm—far short of Can Am's 23-plus horsepower 175cc TNT enduro.

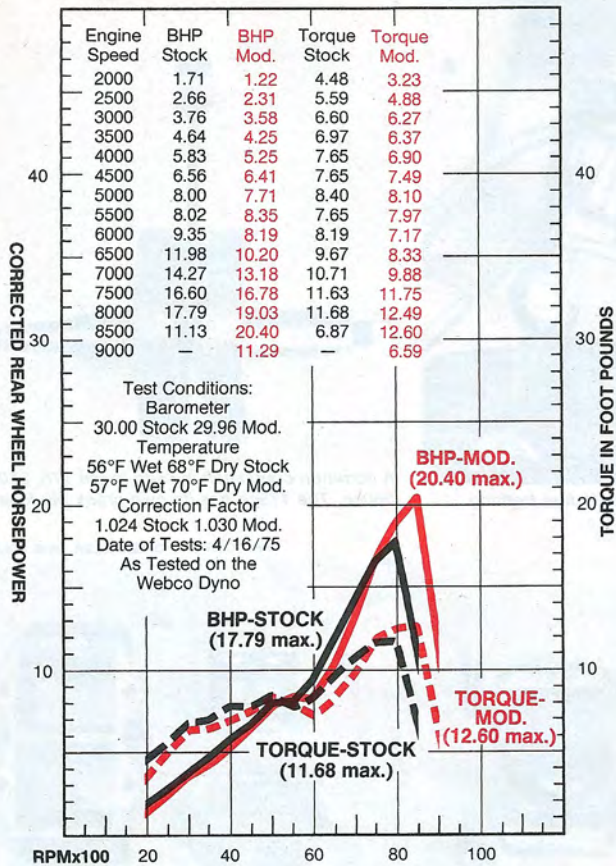
Back in the field the Husky performed better than before. Starting the engine requires little effort, but only an unusual method would prevent smashed toes. The kick arm is short and located high in the engine case castings; consequently the start lever rotates down to within a couple of inches of the foot peg. When thrust down in a conventional manner the rider's boot can lodge between the lever and peg; this squeeze can savage his toes. One painful lesson rearranged the starting technique. Kicking the arm flat-footed allowed the sole of our boot to bottom on the foot peg. Unfortunately this procedure cuts the cranking stroke in half and means more kicking to start the engine.

The 2900-series Amal incorporates an enricher-jet as used in Mikunis. With the



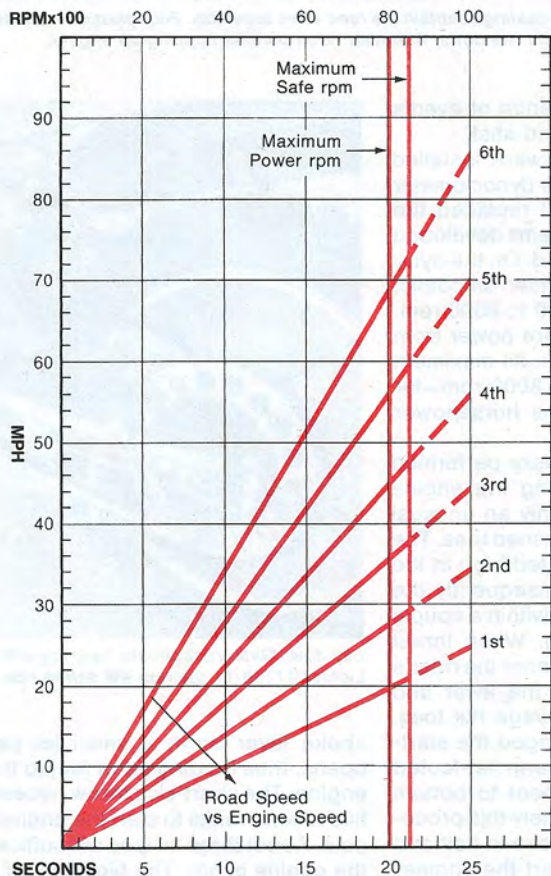
Lay-down Girling gas shocks have too-stiff springs. Lighter 117 lb/in. springs will soften ride.

choke lever down a small jet passage opens, thus feeding extra fuel to the cold engine. The short-kick throw necessitates five to ten cranks to start the engine when cold. About three swipes will suffice when the engine is hot. The big silencer tames the exhaust bark down to a pleasant and non-offensive patter. Slight piston chatter



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- Price, suggested retail.....\$1495
- Tire, front 3.00 x 21 in. Trelleborg
 rear 3.50 x 18 in. Trelleborg
- Brake, front..... 5.5 in. x .79 in. (140mm x 20mm)
 rear 6.3 in. x .98 in. (160mm x 25mm)
- Brake swept area 33.18 sq. in. (214 cm²)
 Specific brake loading 11.5 lbs./sq. in.
- Engine type Two-stroke, reed valve, single
 Bore and stroke 62 x 57mm (2.44 in. x 2.24 in.)
 Piston displacement..... 172cc (10.5 cu. in.)
 Compression ratio 14:1
 Carburetion..... 32mm Amal
 Air filtration Twin Air foam
 Ignition Motoplat flywheel CDI
 Bhp @ rpm..... 17.79 @ 8,000
 Torque @ rpm 11.68 @ 8,000
 Rake 31°
 Fuel capacity 2.0 gal. (7.81 liters)
 Oil capacity..... 1.7 qt. (1.6 liters)
 Electrical power 6V-35W magneto
 Gear ratios, overall (1) 28.97 (2) 20.96 (3) 15.97
 (4) 12.82 (5) 10.32 (6) 8.34
- Wheelbase 55.3 in. (140.5cm)
 Seat height 34.0 in. (86.4cm)
 Ground clearance 9.5 in. (24.1)
 Curb weight 222 lbs. (101kg.)
 Test weight 382 lbs. (173kg.)



and gear whirring at idle increases with engine speed.

The pull required on the clutch lever is soft. When the gear oil has warmed slightly, disengagement and engagement is smooth. It has an even, slow progression. Gear shifting is a bit sluggish but not objectionably so. The throw of the shift lever is long, and the rider must push and lift on the lever deliberately to get positive shifts. Quick, short jabs at the lever often result in no gear change or a false neutral.

The 175 Husky still struggled to pull sixth gear, so we installed a one-tooth smaller (10T) countershaft sprocket. This change matched the engine's power perfectly. Generally the engine was able to make the gear transitions without straining. On steeper grades and in sand, only fourth or fifth gear would work; the engine often couldn't bridge the ratio span into a higher gear.

The engine runs very smoothly and has enough low-speed power to require less shifting than the pipey Penton. Revving the engine up to its power peak produces no sudden power surge; the Husky can often be ridden in its higher, more comfortable, gears. The engine is happiest and performs best for fast riding when kept high in its rev band. For racing purposes a rider must keep the engine buzzing between 6500 and 8500 rpm.

Sheer acceleration isn't the Husky 175's forte. Stock 175cc Can Ams, Pentons and breathed-on Yamahas and Kawasakis will gobble the Husky 175 on smooth trails or fire roads. But the Husky will run long distances wide open without complaint. On the dyno the cylinderhead temperature almost refused to climb over 350 degrees under full load.

The chassis performance is hindered by improperly matched suspension units. The rear suspension is too stiff for the 175. The result of the stiff shocks is an extra-choppy ride on trail with small bumps. Big, deep whoop-de-dooos, where the suspension moves with less abruptness, permits the Girlings to move full travel. Husqvarna is making new 117-ppi springs for riders needing a softer ride.

Compounding the rough ride of the Husky are the short, soft springs in the Betor fork. After the initial run-in the springs had drooped enough to alter the ride height. This undesirable combination of too-stiff shocks and too-soft fork made the Husky quick-steering when decelerating in rough terrain.

Pre-loading the fork springs and installing a pair of well-used (and softened) Girlings markedly improved the ride and handling. The rear end dealt out less punishment on the choppy terrain. The shocks were able to move full-travel with less bump effort demanded. The fork remained closer to full extension and improved the steering attitude, particularly in the downhill rough stuff.

With better-matched suspension units we could make a more accurate evaluation of the chassis which was designed for a far more powerful machine. The

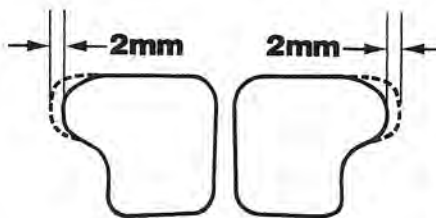
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HUSQVARNA CROSS COUNTRY HOP-UP



PISTON INTAKE SLOTS

CYLINDER SLEEVE BASE CUTAWAY



EXHAUST PORTS

● There was once a hot rod shop in Los Angeles that had an interesting sign over its doorway: "Speed costs money. How fast can you afford to go?" In the case of four-strokes horsepower always costs money—no matter how little you want. Cams, valves, pistons, porting, etc. have to come from outside sources. On the other hand, two strokes can be altered quite a bit without buying any special parts. And few two-stroke racers are unfamiliar with matching ports, opening exhaust windows and filing or drill-

ing pistons in order to shuffle power characteristics.

Husky's 175cc Cross Country has potential for producing more performance than it delivers stock. Husqvarna's Nils Arne Nilsson attended our dynamometer testing session at Webco; he acknowledged the need to increase the engine power for racing purposes. Nils had a modified cylinder and piston which was installed on the Husky and run as a follow-up. The modified engine produced a substan-

(Continued on page 38)

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CIRCLE NO. 35 ON READER SERVICE PAGE.

engine will never press the chassis to its limits. It runs predictably straight on cross-country trails. The 32-degree rake angle and six inches of trail are ideal figures for cross-country rough terrain—particularly fast desert trail. Cutting back and forth and making turns demands one or two downshifts, full throttle and dropping the bike into the corner. The Husky may bounce or twitch slightly in the whoops, but it always exits turns straight and true. All it needs is more power.

There are numerous areas where the 175 Husqvarna needs improvement. The stock suspension problems should be corrected before the Husky can be raced. The 2.0 gallon steel gas tank is far too small for either cross-country racing or enduros. The gas cap leaks. The side-stand needs to be bent out so that it holds the bike up at a less upright angle. And the spring should be shortened so that it firmly retains the arm when folded. Finally the Husky needs more power to be competitive with fast 175s (see sidebar).

Considering the limited interest in 175 class racing, the Husky Cross Country should come equipped with enduro lighting and speedometer to broaden its capabilities. A rider will still need a speedometer, cable and drive unit for enduros. Husqvarna has an accessory kit available for \$55.68.

Enduro lighting equipment will have to be purchased from an aftermarket source like Preston Petty. Husqvarna no longer has accessory lighting kits. A lighting

plug-in from the Motoplat CDI ignition is already provided on the outside of the magneto cover. Cross-country racers and enduro riders will also need a bash plate to protect the engine cases.

The Husky 175 Cross Country is an exceptionally comfortable machine. Its extraordinarily long saddle permits sliding forward and back with ease. The location of the foot pegs and controls make both sitting and standing comfortable for most riders. With the suspension straightened out, the chassis performance is excellent.

The 175 Husky performs at its best in fast desert-type terrain and on challenging dirt roads. Its mid-size displacement, wide ratio gearbox and mediocre performance hardly equip it for motocross. The Husky Cross Country would be an near-ideal enduro mount, but lacks all the equipment necessary except the spark arrestor/muffler.

The 175cc Husqvarna is a good competition machine for the not-so-serious rider. It runs with an easy coolness, carburetes beautifully, provides exceptional rider comfort, brakes predictably and should be very durable. But at \$1500, it's \$600 more than the 14 bhp MT 175 Honda, and \$150 costlier than the 23-plus bhp Can-Am. If the Husky 175 had full enduro equipment it would be in the price range of the Penton 175 enduro—the costliest of the 175s. As delivered, Husky's 175 Cross Country doesn't deliver enough equipment or performance to justify the price. ●

HOP-UP *Continued from page 37*

tial increase in power and torque. The changes gave 2.61 more bhp and .92 more pounds-feet of torque for gains of 15 and 8 per cent respectively.

The power gain may not be dazzling but it's virtually cost-free. No new parts are required. A small, high-speed grinder, an assortment of files, a drill motor and vernier calipers are all that's needed. The work is simple and straightforward. The split exhaust port windows were widened 2.0mm (.080-inch) at the small upper edge of their ears. This increases exhaust flow of the main combustion charge as the piston lowers to open the port.

The steel sleeve flange cutaway adjacent to the transfer ports at the cylinder base must be ground down. The stock sleeve cutaways protrude about five millimeters below the machined cylinder base. Grinding the sleeve flush with the cylinder base raises the cutaways to match those in the piston skirt when the piston is near bottom center, and thus increases the effective size of the transfer tunnel entries.

To increase the intake duration the piston is drilled to produce two oblong openings above the stock induction holes. These two 10mm (.394-inch) by 20mm (.788-inch) slots mate to the boost ports slots above the intake win-

dow and therefore also feed mixture from the crankcase to the boost ports.

Matching the cylinder base port openings with the crankcase cutaways improves flow of incoming fuel and air. It's necessary to check the height of the transfer port windows measuring from the top edge of the sleeve. Carefully clean all the burrs and filings from the cylinder and piston before reassembly. No carburetor jetting changes should be necessary.

The spark arrestor inside the super-quiet muffler restricts the exhaust flow. The rear section of the silencer is glass packed, and in front of the packing there's a small conical screen assembly which traps hot ash particles. When we removed the spark arrestor unit to clean it (a regular maintenance necessity) we decided to leave the arrestor out. The silencer was replaced and the retaining circlip installed. The reduced exhaust restriction let the engine run up to its maximum power rpm quicker and a slight mid-range hesitation evident in the stock engine disappeared.

Pepping-up the 175cc Husky Cross Country is a worthwhile investment of time. And since no special parts have to be purchased the performance gains amount to free horsepower—a bargain at twice the price.

—Dave Holeman