

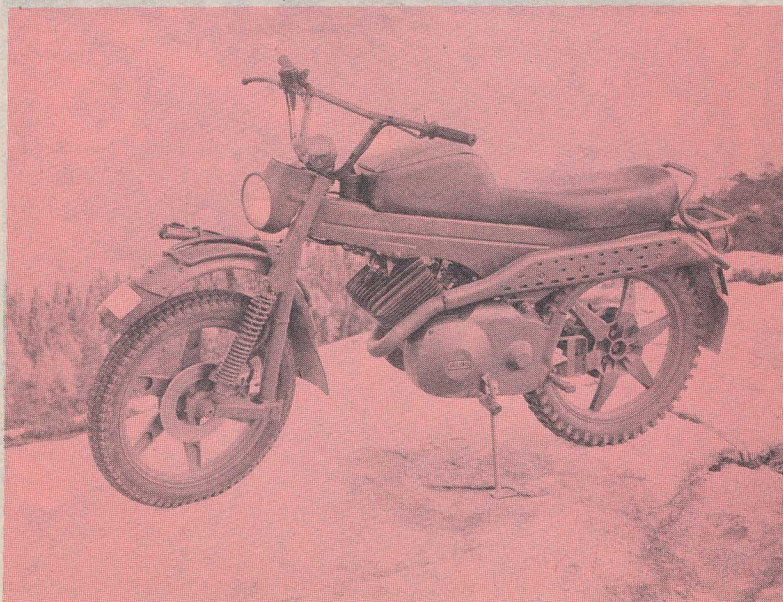
The first mass-production reality, Husqvarna's 360 competition mount — a brilliant piece of engineering and a credit to the genius of design chief Rubin Helmin. We'll be interested to see the Japanese reply!



AUTOMATICS
FOR OFF~ROAD:

BIKES OF THE FUTURE?

An advance model of the new Husky auto is already in Australia — and shipments will follow soon. Considering the inherent advantages of the system it's hardly surprising that many more are under development. Tomorrow's trail-rider could easily have the auto/manual alternative!



ANY DOUBTS about automatic transmission's suitability for off-road motorcycling have been comfortably demolished by the performance of Husqvarna's 360 competition bike — and now automation is on for the toughest motorcycling assignment in the world! Finnish Army frontier guards will use automatic bikes in Arctic conditions for reliable patrol of the Russian border!

An early production version Husky's bike has been in Australia since early this year and was recently put on display by importer John Harris. The bike was from the first batch of 200 sent to America for evaluation.

Several components have now been modified and the full production run will have the first small shipment landed here next month, with more following. But like everything else, sophisticated innovation doesn't come cheap. The 360 Automatic will sell for around \$2000.

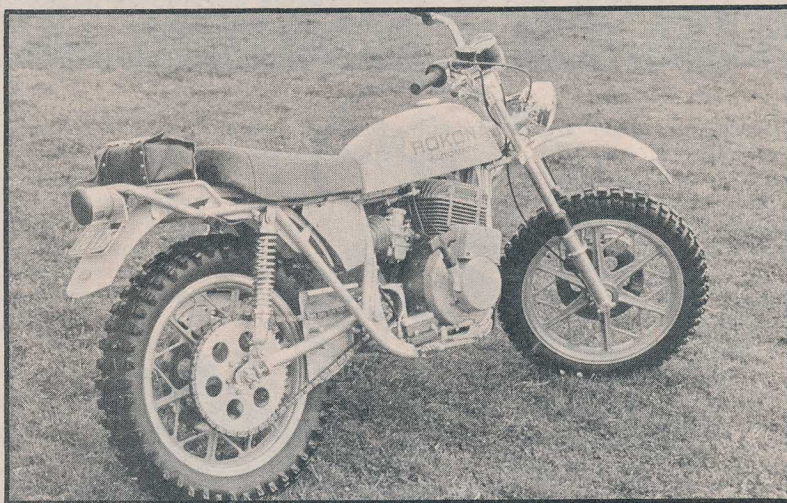
Hagglunds' futuristic auto prototype — probably the most impressive off-road performer in the world. But at what cost?



The Finnish "Winha" in military (above) and enduro forms. Note the two different motors being tried in the bike. The army machine has a Sachs and the other is powered by a Kohler snowmobile motor. The Winha is the second Scandinavian bike put to rugged army use.

Right:

The first attempt to make the automatic popular on the trail. It didn't work in Australia because the Rokon was just too expensive — but the American-built machine isn't too popular on home soil either. The important difference between this model and the Husky is in the automatic itself. The Husky has a "box" containing gears and centrifugal clutches. The Rokon uses a centrifugal clutch and variable torque convertor.



The bike was more than four years in design and development, but caught the specialist European manufacturers by surprise with two successive wins in Sweden's toughest enduro, the Novemberkassen.

Mechanical advantages of the automatic setup include a gearbox smaller than conventional units and with fewer moving parts. On the Husky it works in a similar way to the centrifugal clutch on step-throughs, but each of the four gears has its own centrifugal clutch operating through a predetermined rev range. There's a set point for down-changes, and up-changes depend on throttle application.

Although made for even tougher use, the Finnish bike uses a belt primary drive torque converter similar to that used by the other Swedish automatic bike manufacturer Hagglunds. The system needs the large primary drive cover common to both machines (missing on the Husky which has gear primary drive), but scores with basic simplicity and ease of maintenance.

The importance of the automatic operation on all machines is that rider concentration on actually powering the bike is greatly reduced. The automatic "senses" and operates the correct gear ratio, eliminating constant manual shift-

ing and clutching in demanding terrain, and allowing the rider to concentrate on a smoother, faster path.

The automatic system also rates high with its delivery of usable power. High shock loads on the driveline are eliminated and the much smoother performance means more predictable handling and better control — especially evident on treacherous surfaces such as wet rocks. There's also improved rear wheel tracking during both acceleration and buttoning off.

Early reports on the Husky point out the extreme difficulty of detecting gear-changes — they're so smooth the rider will never know when the bike has selected the next gear. And so fast the engine can be considered permanently in gear!

The bike also never loses drive to the rear wheel, as long as the throttle is open. Instead of wheel-spinning in a fixed gear it will keep changing up until the engine can just pull and traction occurs.

With those sort of benefits it's surprising more use hasn't been made of automatics before!

The Finnish Winha machine is "enduroised" in standard form and there's a special more rugged version for the military. The powerplant is a 22.3 kW (30 hp) Kohler unit of 338 cm³ capacity. It's

common to a snowmobile made by the same company and uses pull-handle starting and fanned air cooling. The bike uses a double loop full cradle frame with Ceriani front end and Girling rear shocks.

It's indicative of the off-road prowess of automatics that one of the revolutionary prototypes which appeared in 1973 was also designed for military use in Scandinavia — this time for the Swedish Army. The prototype Hagglunds used a "T-bone" monocoque frame with one-sided leading link front suspension and shaft drive.

High development and production expense has kept the bikes from world-wide popularity. This same problem also meant the American-built Rokon automatic was a "very-limited-sale-only" item in Australia.

Perhaps the only riding disadvantage is how revealing the efficiency of automatic gearbox operation might be on riding style. With changes as slick as any Grand Prix champions', and at just the right time for maximum acceleration, it's going to need a new brand of iron man to fully control the speed of the ride. Acceleration will be the same whether it is you or Marty Smith behind the bars!

We've got a feeling automatics are gonna change a lot of things on the off-road scene!