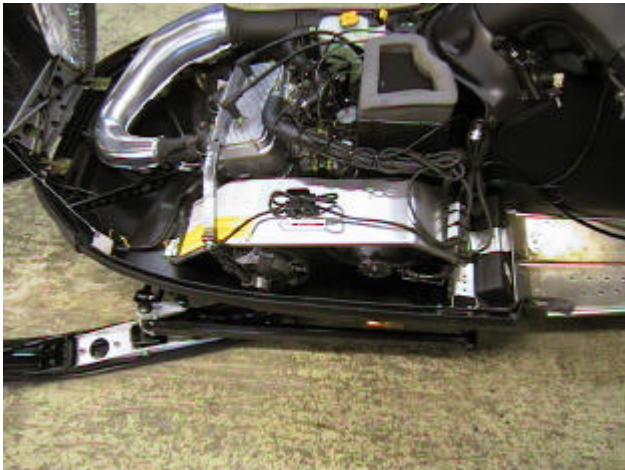


High-performance, a motto we see in so many fields today that we don't even attempt to count them. But modern snowmobiles unquestionably deserve that epithet, especially if they are competing for the world championship.



*The tested snowmobile (Ranger) in the lab*

In a Bombardier test lab in Finland, engineers find ideal conditions to develop and test snowmobiles. The excellent snow conditions as well as the vast snowfields of Finland's tundra are seemingly made to put the fast racers to the test.



*Engine with sensors and wiring*

The goal of the measurement is the improvement of the power train – the soul – of the vehicle. As similar applications indicate, the main requirement is a small and rugged system with excellent



*A  $\mu$ -MUSYCS fitted into the snowmobile*

self-start capability. Ambient temperatures down to  $-30^{\circ}\text{C}$  during the run and accelerations up to 30g are to be withstood.

Especially for long-term tests, performing online calculations such as the mechanical power or diverse data classifications (histogram or Rainflow analysis [LDC]) is necessary. This is also true for online visualization. Engineers or test drivers can access special values such as RPM, torque or temperatures. An external display is specially made for such demands. In the lab a computer can also be used to display data online in various curve-windows.

A  $\mu$ -MUSYCS-S unit with a DC power supply is used inside such vehicles. With its multi-purpose standard inputs, the system is used to measure RPM, torque, temperatures and pressures during the test ride. Online FAMOS, a DSP board for real-time data evaluation and online calculation, rounds out the system's hardware components.

Due to its PCMCIA data storage capacity of 500 Mbyte, the system can be used for short measurements as well as for long-term tests. A hot-change function even allows exchanging a full PCMCIA hard disk during the run.

All data can be displayed off-line and evaluated with the help of FAMOS, imc's off-line measurement data analysis tool. An integrated report generator allows graphics export and professional layout of the results.