Timberjack

Walking technology

The Walking Forest Machine Concept

One step further

Timberjack

Walking – the most natural way to move in a forest

Timberjack is constantly developing new, environmentally sustainable methods for mechanized logging. Today's purpose-built forest machines already offer several environmentally sound and cost-efficient solutions for logging when driven by skilled operators. Nevertheless, new solutions are required to keep pace with changing demands and to satisfy needs in specific application areas.

The Walking Machine Concept is one of Timberjack's ongoing projects in this field. It also proves that, in its product development, Timberjack is looking far into the future. The ultimate goal is to develop a range of machines that can work productively and safely in different types of forests with minimum risk to the forest environment.

In addition to the environmental demands, many other factors have driven walking machine technology development, including the general development of cost-effective automation and mobile hydraulics. Another driving force is the growing need to facilitate the use of forest machines in new areas and challenging ground conditions. The Walking Machine is not commercially available.

Easy-to-use technology

The computer-controlled walking machine adapts automatically to the terrain. Responding to sensor input, the machine distributes its weight evenly over the ground and finds a base of support for each of the six legs. Depending on the terrain, the ground pressure can be adjusted by changing the machine's six "shoes."

The machine moves forward and backwards, sideways and diagonally. It can even turn in place. When the machine confronts obstacles, it simply steps over them. Depending on the irregularity of the ground, operators can adjust both the ground clearance of the machine and the height of each step.

Thanks to the advanced control system, the machine is very easy to use; the operator simply decides the direction and travel speed, and controls this with the use of only one joystick. Computer automation takes care of all other functions required to move the machine.

The challenge of the forest conditions

Timberjack's advanced technology development center, Plustech Oy, introduced the walking forest machine in 1995. Since then, the concept machine has gone through series of tests in a number of countries, environments and operating conditions. The goal of the on-going testing process is to decide the suitability of walking technology for mechanized harvesting – as forests are one of the most demanding work environments in the world.

Similar to regular Timberjack harvesters, the walking forest machine prototype is equipped with the Timberjack 3000 measuring and control system and a Timberjack harvester head. With the Timberjack 3000 system, operators can set timber-harvesting

parameters based on the owner's priorities and they can also monitor production by volume and tree species. To further optimize machine operation, Timberjack's Total Machine Control system (TMC®) regulates the functions of the machine's loader and engine.

The many benefits of walking technology

The tests have proven that walking technology is especially suitable for such demanding conditions as steep slopes or soft ground where conventional methods are difficult to use or cause severe damage, such as soil erosion.

The machine steps only where desired – and walks over the obstacles. The spot contact with the ground not only optimizes distribution of ground pressure, but also avoids significant ground disturbance and minimizes damage to tree roots.

The good maneuverability and the ability to turn in place allow the machine to move in very confined spaces. It can also automatically maintain the carrier level on uneven ground for increased operator comfort. The excellent stability ensures precise crane movements.

Award-winning innovation

The Walking Machine Concept has received several highly esteemed awards for design and innovation.

In 1997, it was one of the winners of the European IT Prize. The 25 finalists were selected from a field of 319 entries from 27 countries. The prize was established to promote excellence and innovation in Information Technology and the competitiveness of European industry.

In 1996, the Walking Harvester Concept was highly commended in the eco-design category of the Better Environment Awards for Industry. This award is granted in recognition of innovative design that significantly reduces the environmental impact of a product, service or system.

Timberjack's concept machine tests the suitability of walking technology for mechanized harvesting. The prototype is not commercially available.

Timberjack is the world leader in the development, manufacture and distribution of forestry equipment. It has manufactured forest machines since 1947. Its product selection covers a wide range of machines for harvesting, terrain transport and log loading. Today, Timberjack machines operate in more than 80 countries throughout the world.

Timberjack's extensive forestry-specialized dealer network guarantees full Timberjack support around the world. With 70 dealers and 250 outlets, Timberjack provides comprehensive training, parts and maintenance services, as well as solid application advice based on thorough knowledge of local conditions.

Timberjack invests considerable resources in product development. The company has two major R&D centers, one in Canada and one in Finland. The Walking Forest Machine Concept was developed by Plustech Oy; a Timberjack affiliated company specializing in advanced long-term research and development. Plustech is a part of Timberjack's European R&D Center in Tampere, Finland.

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Doing more

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