The wave of the future: virtual training for equipment operators

Training new equipment operators is time-consuming and can be hard on equipment and the pocketbook.

Now, just as pilots can train on virtual simulators, equipment operators can train on computer-operated systems, learning the controls of their machinery and becoming familiar with their operations before sitting in the cab of the real thing.

A small Montreal software developer, working in conjunction with construction industry experts, has created the first simulator for excavators. It is a cost-effective way to familiarize new operators with their machines without reducing production or taking up supervisor time for training.

Simlog, which has in the past created similar PC-based systems for mobile and tower cranes, forest harvesters and forwarders, and softwood sawmills, has developed the Hydraulic Excavator Personal Simulator for the general market. The software can be run on standard personal computers – hence the name "personal simulator" – and combined with the simplest of equipment to create a unique training experience.

While there are large-scale simulators on the market, this will be the first one affordable enough for government agencies, companies and training schools to pick up and use for regular training. It can be viewed either on a regular PC or through a projector to create a larger image. Paired with either two standard computer joysticks or controls designed to simulate those found in the cab, it makes for a great training tool.

In fact, it's such a good tool that Caterpillar's Equipment Training Solutions Group worked very closely with Simlog to develop its own version of the software. This is the first in its brand-new Virtual Training Systems line. It comes with a special operator chair base assembly that can be used with most office chairs to create a "cab" with the controls in just the right spot to provide a realistic experience.

Both versions use Simlog's unique "dynamic terrain modeling" technology for virtual digging just like an operator would

Simulator training can save time, money and your equipment

experience in the cab of a real machine. Working independently or with an instructor, the trainee can participate in a series of 12 gradually more difficult scenarios. These teach basic operations of the excavator, from how to move the bucket and position the boom right up to trenching and safely loading a truck.

Each scenario offers instant feedback, such as the time needed to perform the task, amount of material moved, accuracy of use and any problems – like hitting a truck, or passing the bucket over the cab, or not respecting safe spoil separation distances. Once users have familiarized themselves with the controls, the transition to a real machine is much easier and safer.

In practice, the system proves its worth in a hurry – even ten minutes of familiarization for a beginner trying it out during a demonstration can give a more steady hand on the sticks in the cab of a real excavator.

Cat's Equipment Training Solutions Group feels the sophisticated systems are beneficial in developing skills for new operators, training them on specific applications, teaching new control designs and functions, and screening new employees for skills and capabilities.

According to Simlog, other training organizations have shown substantial interest in the simulators as well, including Canada's forestry schools which have roadbuilding programs.

The excavator simulation is currently available both from Cat dealers, providing the Virtual Training System program, or Simlog, which offers the software as well as a number of control options.

The companies don't stop there – Simlog and Caterpillar are planning to introduce virtual systems for off-highway trucks and wheel loaders in 2006, with backhoe loaders, track-type tractors, motor graders, and skid-steer loaders to follow.

Caterpillar, Inc.
Enter 1007 on Reader Reply Card
Simlog
Enter 1008 on Reader Reply Card