

University tests driving abilities with simulator

Researchers at the University of Toronto are conducting studies to determine how drivers behave behind the wheel of a car.

A driving simulator, built by the university from parts used in flying simulation studies, combined with computer-generated highway images projected on a screen, is enabling scientists to study drivers' habits and their responses to different road accident situations.

The reaction of the drivers is monitored by instruments, fed into a computer and can be called back for analysis and study. The data is used to develop computer models of driving behaviour.

The simulator is a plywood mockup of the front end of a car. The steering wheel, instrument panel, accelerator, brakes, speed and car deviation from the centre line of the road are all monitored by instruments. The driver's heart rate is monitored by placing a transducer on his ear to measure the surge of blood to the earlobe which is considered an effective way of measuring heart rate.

Pole test simulated

An experiment to test a driver's ability to avoid poles dropped in front of a car has already been completed using the simulator and has also been tested under actual driving conditions using plastic poles. During the simulated experiment, the driver looks at a large silver screen in front of the mockup. Poles appear, rush

towards the driver, suddenly one falls, the steering wheel is swung by the driver to avoid the pole on the roadway. If the driver is not successful, the noise of striking an object is heard.

Other accident possibilities are also being considered.

"For instance we could simulate a drunk driver and put him into the computer and watch (through computer graphics) how he performs. We could study what effect tranquilizers and sedatives have on a driver," said Lloyd Reid, associate professor of aerospace engineering at the university, who directs the research program.

General Motors of Canada Limited, the Ontario Ministry of Transportation and Communications and the federal Department of Transport are providing grants and equipment for the program.

The objective of the program is to build a bank of computer information from which more severe accident situations could be developed — situations that could not actually be duplicated on the road because of the danger to test drivers. From the laboratory results, the effect of potential countermeasures to reduce highway accidents could be estimated.

The next simulated test will involve a driver's reaction to a level railway crossing with no barrier gates or warning lights and a train coming down the track.



University of Toronto's L.D. Reid behind wheel of simulator used for driving tests.

Rescue operations up

Search and Rescue (SAR) in Canada responded to more than 9,000 incidents in 1979, an increase of 10 per cent over those in 1978. It is estimated that more than 1,700 lives were saved during the year as a result of SAR action.

Defence Minister Gilles Lamontagne said that almost \$90 million was spent in SAR operating costs by the government and that if trends continue expenditures will increase in 1980 and subsequent years.

Both Mr. Lamontagne and Transport Minister Jean-Luc Pepin emphasized the need for a balanced approach to search and rescue in Canada between SAR operators and those who boat and fly.

SAR authorities hope to enlist the support of the boating and flying communities in recognizing that they have a responsibility to take as many precautions as possible to avoid mishaps.

Mr. Pepin said that the government will update its search and rescue capabilities with the acquisition of a large new off-shore cutter by the Canadian Coast Guard for service on the west coast. He also added that the government would replace other vessels and equipment on the west coast, improve the Vancouver hovercraft base and upgrade boating safety programs.

The 1980-81 national search and rescue plan puts greater emphasis on public education programs.

Task force on immigration practices

The establishment of a task force on immigration practices and procedures has been announced by Employment and Immigration Minister Lloyd Axworthy.

The task force will advise the Minister on the extent to which the objectives of the Immigration Act (1976) are being met under existing regulations, procedures and practices.

Mr. Axworthy said that he was concerned about the effect of rapidly growing workloads and increasingly complex procedures on immigration services and the officials who provide them. "Nearly three years after the introduction of a new Immigration Act, it is time to reflect on our experiences and see whether steps could be taken to improve our services," he said.