Wirecutters added to Canadian Forces choppers

A Canadian-designed and -built wirecutting device is being fitted to some of the helicopters used by the Canadian Forces to reduce fatalities when wires are encountered in low-level flight.

Blades mounted above and below the windscreen and a saw-tooth metal ridge running between them are being installed on all Canadian Forces CH-136 *Kiowas*. The entire fleet in Canada and West Germany is expected to be modified by April.

Wire strikes are responsible for 20 per cent of the fatalities in helicopter accidents throughout North Atlantic Treaty Organization operations. In the past five years, 226 wire strikes have resulted in 56 fatalities.

Following the investigation of an accident when a Canadian pilot was killed during an earthquake relief operation in Italy, the Directorate of Flight Safety at National Defence Headquarters concluded that in a helicopter wire strike, there was a 70 to 80 percent chance the wire would ride up the nose towards the rotor mast to entangle or sever the rotor system.

A study, which began in April 1977, led to the development of the basic Wire Strike Protection System (WSPS).

Canadian Armed Forces

Wirecutters are attached above and below the windscreen.

The final phase of testing for the system was conducted by the National Aeronautical and Space Administration (NASA) and the U.S. Army at the Applied Technology Lab at NASA's Langley Research Center near Norfolk, Virginia. A *Kiowa* was raised by two cables to 100 feet and released in pendulum fashion to swing at a speed of 40 knots to hit the wire. The cable, made of .38-inch seven-strand steel with a breaking strength of 11,000 pounds, was cut cleanly without causing hesitation or pitching movement to the helicopter.

The Canadian invention is now being evaluated by the U.S. Army with a view to equipping its own helicopters with the wirecutters.

Air-tight house could be hazardous to health

A solid, well-insulated house may be hazardous to your health, according to a study by a British Columbia University professor.

Theodore Sterling of Simon Fraser University is preparing a study for the U.S. National Academy of Sciences on indoor pollution. He says a variety of pollutants threaten the health of people in homes lacking good ventilation.

That means the heavy insulation many people are adding to their homes might have some adverse side-effects, with a special risk for thousands of home-owners who also have been switching to gas stoves to save money and energy. Those people could experience carbon monoxide levels above industrial safety standards, he said.

Professor Sterling's study was sparked by widespread complaints to the U.S. Environmental Protection Agency from people suffering from headaches, nausea and other symptoms in tightly sealed buildings.

Among the pollutants, besides carbon monoxide, are oxides of nitrogen, cancer-causing hydrocarbons, radioactivity and alergy-triggering dust and fungi.

Carbon monoxide is the worst problem, though, especially if there is no flow of air through the building. The gas, produced when hydrocarbons are burned in a limited supply of air, blocks oxygen-carrying cells in the blood. High doses are fatal and chronic low doses can cause heart and respiratory ailments.

This spring, Professor Sterling and his son, architect Elia Sterling, published a report on carbon monoxide contents in nine Vancouver-area kitchens.

With pots on four top burners of a gas stove, kitchen levels of carbon monoxide reached 30 to 120 parts a million in 20 minutes and rose nearly as high in other parts of the house. Unless windows were opened, hours passed before levels dropped to normal.

The U.S. Pollution Standard Index considers 46 parts a million hazardous, while industrial standards range from 50 to 100 parts a million for an eight-hour exposure.

Professor Sterling said none of the houses was particularly well insulated, and levels could be correspondingly higher in well-sealed homes. He said cases of acute carbon monoxide poisoning already have occurred in "over-insulated" homes.

More efficient stoves are not the answer, Professor Sterling said, because that would mean greater output of nitrogen oxides, which are known to cause respiratory disorders.

Good housing design is needed, he said. The simplest solution is improved ventilation, which does not necessarily mean heat loss, Professor Sterling said. It is possible to extract much of the heat from polluted air before it is exhausted.