

# Riding on air

## The Peace River hoverferry



Alberta Transportation

*An air cushion raft is ferrying traffic across the Peace River in Alberta in an unusual test of a promising technology.*

In calm, majestic solitude, the Peace River winds through Northern Alberta. Some 650 km north of Edmonton it interrupts Highway 697, down which roll trucks loaded with grain, gravel and cattle. By crossing the river here a lengthy detour is avoided, but there is no bridge. In winter, the traffic simply drives down one bank of the river, crosses on the ice, climbs the other bank, and continues down the highway. For summer crossing, the province provides a ferry, but when the ice is breaking up in spring and forming in fall the river is impassable by boat.

This past winter, however, an unusual craft, capable of ferrying cars and trucks across broken ice, open water and land, began trial operations. It is not a boat but a raft; it doesn't float (unless it has to) but rides on a cushion of air. The pressure generated by fans blowing air downwards underneath this hovercraft, or air cushion vehicle, though less than that needed to blow up a toy balloon, is enough, when spread over the bottom of the

tennis court-sized ferry, to lift it and a fully-loaded tractor trailer about half a metre above the river surface. To get from one side of the river to the other, winches on the hovercraft's deck pull it along between two fixed cables slung from bank to bank. Within nine minutes a truck can drive on board, be hauled across the 600 m wide river, and drive onto the other side.

This prototype machine was designed by Hoverlift Systems Limited of Calgary. The two-year field test on the Peace is jointly funded by NRC (under its Program for Industry/Laboratory Projects) and the operator, Alberta Transportation.

"There have been the kind of teething troubles you expect with any prototype," says NRC's Howard Fowler. "Winch problems, spray skirt problems and the like. The river did an unusual thing too — it formed an ice jam so rough and high that the ferry couldn't clear it. A crew of men worked with chain saws in 50 below temperatures to trim the peaks down. But now most of the snags have been overcome, and the ferry is carrying traffic."

Because they consume fuel just to hover, air cushion vehicles obviously cost more than conventional vehicles

to operate. Under what circumstances then do their special advantages justify their extra cost? The trial on the Peace should provide some answers. For two years the ferry will be in continuous use, except when the natural ice bridge has formed or during the worst of break-up, when house-sized lumps of ice float downstream. At the end of this test the results will be published as a study on the economics of a hovercraft ferry.

Air cushion technology has many possible applications. "A hovercraft ferry has been ordered for use in B.C.," says Ray Dyke of Hoverlift Systems, "and the Alberta government has expressed interest in using another four. But we've also built an air cushion platform for the St. Lawrence Seaway Authority — it doubles the ice-breaking capacity of the ship to whose bow it is attached — as well as designed a large icebreaker for the Canadian Coast Guard which uses air cushion technology. You can use air cushion platforms to haul heavy loads over many kinds of rough terrain — getting fire fighting equipment out to a remote pipeline, for instance. We're receiving a lot of enquiries, particularly from oil and logging companies." □

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