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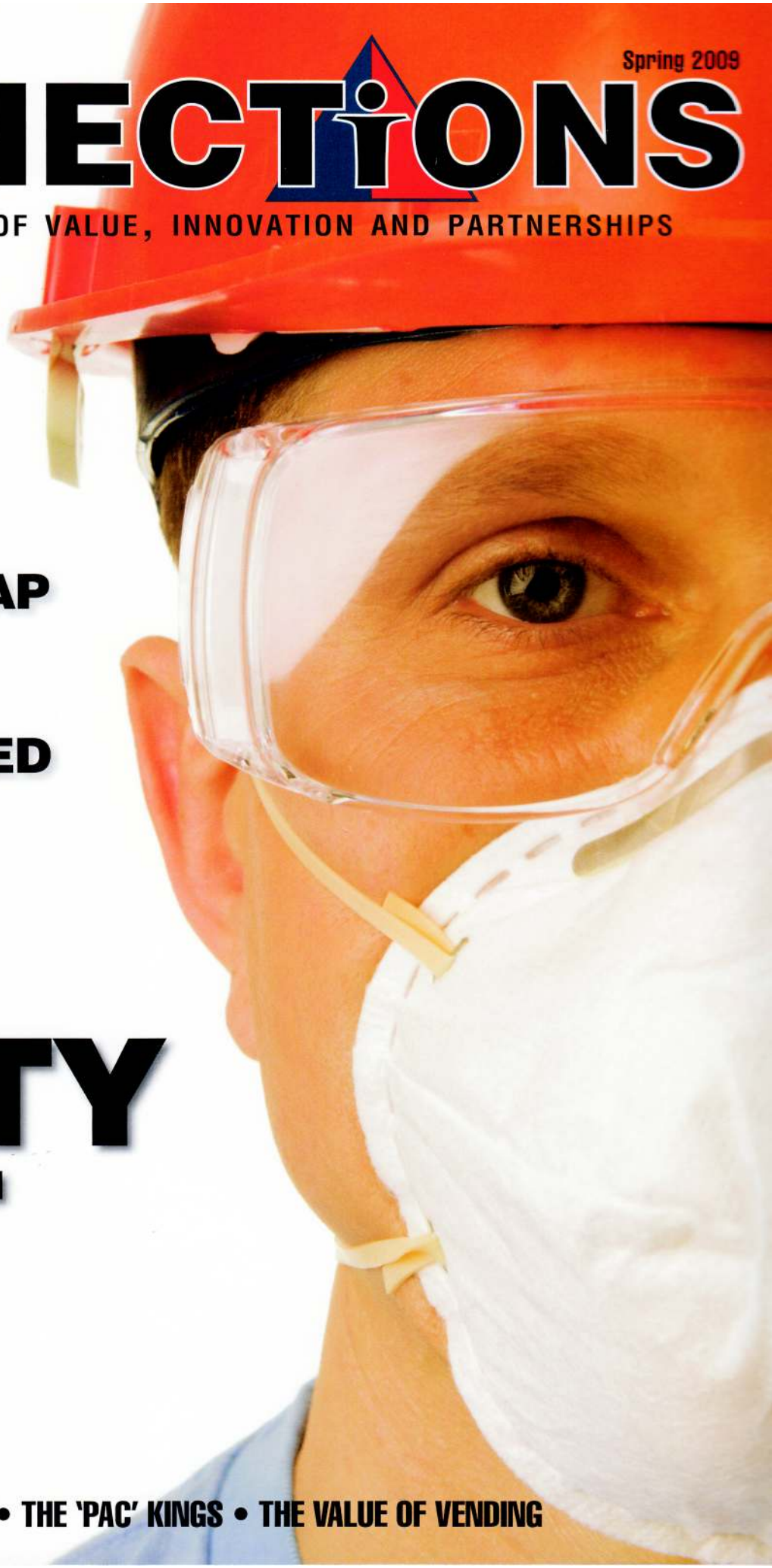

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THE 'PAC' KINGS

Shu-Pak finds new ways to ease waste collection

By John G. Smith

Garbage collection seemed to be a much simpler process in the past. Throw the bags into the back of a truck. Initiate the compactor. Repeat.

A quick look at a residential street during any collection day will show how the modern approach to waste management has needed to evolve. Today's trucks – developed by companies such as Cambridge, Ontario's Shu-Pak – incorporate multiple compartments to keep the recyclable contents of a blue box separated from the biodegradable holdings of a green bin. Side-loading vehicles also speed up the entire collection process, allowing drivers to jump quickly between the cab and the curb.

Shu-Pak secured patents in the early 1990s for horizontally split truck bodies that feature 2 separate loading and storage compartments. The Pac-King that followed included divided spaces for up to 3 different materials, which is particularly important as municipalities ask homeowners to divide wet and dry refuse; or refuse, general recyclables and newsprint.

The added advantage is that the horizontally divided truck bodies are more stable. "When you're picking up 2 different commodities, in general one is lighter than the other. When the truck is split vertically, it becomes less stable on the corners," explains Keven Ellis, Shu-Pak's Production Manager. "Our horizontally split trucks are less prone to that. The weight is distributed evenly."

The problem is that waste collection can still be a physically demanding job for drivers. Every piece of waste needs to be heaved deep into the truck where it can then be compacted into a storage compartment.

Shu-Pak had already eased the process somewhat. By dropping the centres of a chassis frame by as much as 18 inches, the body maker can offer a design with a low hopper and the all-important lower "pitch height". That was no simple process. The frame needs to be cut in half, while reinforcing plates (known within the company as a "frame wrap") are used to strengthen the design.

But the next step in the truck's evolution came with a question from Evergreen Ecological Services in Alberta: Wasn't there any way to make it easier to feed waste deeper into the truck?

"You have to throw the product to the other side of the truck [about 4 feet] because all the refuse is collected at curbside," explains Ellis. "It's hard on the operators."

Everyone began brainstorming to determine a solution. "In our factory, we are committed to the team concept, and when given a unique truck challenge we bring together the guys from manufacturing and the guys from management and say, 'This is the customer's needs. What things can we do?'" he says, referring to Shu-Pak's ability to

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FEEDING THE NEED: A hydraulic conveyor feeds waste deep into the truck. (Photo: Shu-Pac)

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create customized designs.

Ramps were suggested as a potential solution, but that would require higher loading heights. Instead, one member of the team who had worked in the agricultural industry observed that conveyors might work. Ellis drafted a few drawings and headed to Kinecor.

"We're not saying this is going to be the end design," he said, "but we need something to make it work."

A Kinecor Technical Sales Representative was confident that the conveyor would be effective. It simply required a few changes to the conceptual drawing. While a DC motor was proposed, Kinecor Hydraulics Specialist Marty Rutledge was called in to design a hydraulic system that would meet the need.

A small Eaton Char Lynn hydraulic motor with proportional valving that would come off the existing hydraulics was suggested. The motor and a 45-gallon-per-minute Permco pump were coupled to power a 20-inch-wide conveyor that extends halfway into the truck, consuming space that was traditionally required for inspection doors. By allowing the conveyor to tilt up to 40 degrees on one edge, the space underneath could easily be cleared of any debris. And the use of a thin-gauge stainless steel helped to control the related weights.

While Evergreen Ecological Services originally asked for a conveyor that would move at a speedy 70 feet per minute, the Kinecor and Shu-Pak team also determined that would usually be too fast. A flow control unit was incorporated to offer speeds anywhere from 2 to 70 feet per minute and allow the conveyor to run in reverse as well.

Then it was a matter of establishing the finishing touches to a prototype. The end of the conveyor was raised

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inside the truck to ensure that the waste couldn't pile up in one position. Drawings were revised, and the latest version of the Pac-King was born.

Shu-Pak's history

Shu-Pak has been producing equipment in Ontario since 1945, when it was first established as Carter Brothers. By 1985, it had become Amertek, when it began producing a wide variety of equipment such as the Shu-Pak side loader. When a corporate reorganization followed in 1990, Shu-Pak Equipment Inc. became its own entity.

The company with facilities in Cambridge and Chesley, Ontario became the first manufacturer to produce a production version of a smooth-sided body on a side-loading truck. Then it secured patents to create a horizontally split body that incorporated 2 loading hoppers and separate storage compartments on the same truck. One vehicle could now do the work of 2 trucks on many routes.

The Shu-Pak 2 was born.