

He Built A Handy Panel

Mover

Quinton Tschetter doesn't ask for help moving heavy panels; he just pulls out his panel mover. The simple two-wheeled mini-cart holds the panel in place while Tschetter pushes it where it needs to go.

"I built my panel mover years ago to help me move plywood sheets," says Tschetter. "The other day, it came in handy for this 80-year-old moving a heavy door. It works like a charm."

Tschetter used all salvaged materials for the mover. The sides are 10 by 12-in. thick scrap wood. The floor is a 1/4-in. thick piece of plywood about 30 in. long.

"I bolted a short length of angle iron to the plywood floor to attach the axle for the wheels that I picked up at an auction," explains Tschetter. "I welded pieces of angle iron perpendicular to the cross piece to attach the side panels. Then I welded vertical strips of angle iron to them to reinforce the side panels that are bolted in place."

Tschetter attached an old snow shovel handle to the left-side panel and mounted a clamping fixture to the right-side panel. Before mounting the panel, he had cut a circle hole in it to accommodate the clamping fixture.

"I drilled a hole through the upright angle iron and welded a nut to it," says Tschetter. "The bolt head has a flat disc sized to fit in the circle hole welded to it. When I have a panel in place, I just turn the bolt in until it's



Tschetter's panel mover shown moving a heavy door.

secured."

Initially, the bolt had a cranking handle welded to the end. "The handle just got in the way, so I cut it off, and now I use a ratchet to turn the bolt in."

If doing it again, there's one change Tschetter would make. The disc on the end of the bolt that pushes against a panel is flat and spins with the bolt. "If I did it now, I would attach the disc so it would pivot on the bolt head and not rub on the surface of the panel being secured," he says.

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FlyPad shown in chicken coop.

U.S.-Made Pest Control Products

Customers may appreciate the pretty colors of the Wasp TrapStik® and FlyPad® made by Rescue Smarter Pest Control at Sterling International, Inc. However, the colors and trap designs are scientifically selected to attract insects.

"Our scientists developed a way to scan the retina of the insect and see which colors, patterns and spectrum they respond to. Also, we have an entomologist on staff who knows how to hook up the insect's antenna to electrodes to run scents to see what triggers the antenna," explains Alyssa Ando, director of marketing for Rescue.

All U.S.-made pest control products undergo years of research and development, including lab and field testing. The company founder grew up farming and developed the first product for the family farm, a reusable fly trap, in 1982. He started by mixing different fly lures in his kitchen, finding a way to attract and kill flies without harsh chemicals. FlyTrap Max continues to be a popular outdoor product, especially for farmers.

The newest product for flies is the FlyPad,

which can be used indoors and outdoors.

"We came out with it because you want a sticky trap, but people often get them caught in their hair," Ando says. The ridges of the trap keep the adhesive in the grooves and not on the edges. With adhesive strips on the back, it's easy to place anywhere fly control is needed. MSRP is about \$5 for two pads.

Another newer product is the Wasp TrapStik.

"The color attracts wasps, and the glue guards add a barrier for other things," Ando says. Weather-resistant, the trap lasts about a month and sells for about \$11.

She adds that Rescue products are made in the U.S. without harsh chemicals. Some, such as the FlyPad and Wasp TrapStik, are also odor- and pesticide-free.

All products can be found at retail stores nationwide and easily searched through Rescue's website.

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"With the OutRun kit mounted to the roof of the grain cart tractor, the combine driver can call the tractor to them to fill the grain cart on the go and then send it back to the semi's staging area," says Subramaniam.

Retrofit Turns Tractors Autonomous

Fleets of autonomous tractors and implements operating in the same field may not be here yet, but they may be soon. OutRun from PTx Trimble is paving the way with its autonomous tractor retrofit and grain cart solution. Unlike most new technologies, OutRun focuses on small to mid-sized farms with limited available labor.

"A lot of farms in the Midwest are one and two-person operations, struggling to find help during harvest," says Dinen Subramaniam, PTx Trimble. "They lose a lot of productivity and yield as the harvest drops on."

Subramaniam points to a husband-and-wife operation in Nebraska. The wife drives the combine, and the husband drives the semi. When one or the other needs the grain cart, left parked in the middle of the field, they walk to it, fill or empty it, park it, and return to the combine or semi.

"With the OutRun kit mounted to the roof of the grain cart tractor, the combine driver can call the tractor to them to fill the grain cart on the go and then send it back to the semi's staging area," says Subramaniam. "No walking and no lost productivity. We've also tested OutRun with three-person

operations. With it, two people can drive semis while the third runs the combine. No grain cart driver needed."

Once at the combine, the tractor and grain cart automatically sync with the combine but are under the combine operator's control. Once sent back to the semi, the tractor and grain cart wait for the semi-driver to climb into the cab and unload the grain cart. For 2024, manual unloading is required.

The OutRun kit utilizes a GPS/GNSS RTK receiver for positioning. The processor provides autonomy and perception applications and interacts with the tractor control system. Perception uses radar and LIDAR sensors to perceive field obstacles and activities.

"We use radar, as it works well in dusty conditions, as well as LIDAR, which works well at night if not as well in dust," says Subramaniam. "When an obstacle is detected, the system slows down, and if the obstacle doesn't clear the path, the tractor stops."

Once the tractor has downloaded the field map from a farm management system, no other contact with the internet or cloud is needed.

"This is important in areas with no

cell phone or internet coverage," says Subramaniam. "In addition, the system is learning as it operates. For example, it uses a repeat path when traveling between the combine and the semi to reduce compaction in the field."

OutRun was introduced in 2024 as a very limited retrofit on Deere 8R and Deere 8000 Series R tractors with IVT (infinitely variable transmission). It'll be commercially available for those tractors in 2025, with other models and brands soon to follow. Subramaniam reports it's been alpha-tested with Fendt 900 Series tractors and will be available up and down the Fendt line.

"In the next 2 to 3 years, we'll support mixed fleet tractors," says Subramaniam. "It's a matter of working through the different OEMs to ensure capabilities. However, it means that a farmer will be able to have autonomous tractors without buying new."

Subramaniam and his team have worked towards autonomous tractor operation for over 10 years, initially with JCA Technologies until AGCO purchased it.

When AGCO purchased the company, the mandate shifted to developing a product to sell directly to farmers. Early this year, the division was renamed PTx Trimble, a joint venture between AGCO and Trimble. OutRun, to be used with Deere tractors and grain carts, is the first product.

The company has alpha-tested using multiple autonomous tractors with grain carts, each serving a single combine or multiple tractor/grain cart combinations serving a single combine.

Subramaniam reports that the use of the autonomous tractor system for tillage has

also been alpha-tested.

"We'll get to the point where autonomous systems will be used to get the crop off the field, as well as doing fall tillage or drilling a cover crop," he says. "It could be with the same tractor when the combine isn't operating or with a different tractor. With some extra sensors, OutRun can help farming operations throughout the crop cycle."

PTx Trimble is trialing a multi-step pricing structure for OutRun. Initial costs include a dealer's setup of the kit on the machine and activation. A farmer then pays an annual subscription fee and an hourly fee based on actual use.

"A grain cart may only be moving for 30 percent of the time a combine is harvesting," explains Subramaniam. "The farmer will only pay for those active task hours, not when just sitting in the field. We project a positive payback of the subscription and hourly fees through increased productivity for farms as small as 900 acres in the first and second year."

Subramaniam explains that the one grain cart and combine product is focused on the 900 to 2,000-acre operation. Initially, the technology group had expected to help larger producers and custom operators.

"We found OutRun was most effective for smaller family farmers struggling to get their crops harvested," says Subramaniam. "That's been the most fulfilling part of the project."

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