

“Farm & Ranch Drone” Flies For 2 Hrs.

Showgoers at the World Ag Expo near Tulare, Calif., got a close look at a new kind of drone designed specifically for farmers and ranchers.

Called “Bulldog™”, the fixed wing aircraft looks somewhat like a miniature airplane. It has a 6 1/2-ft. wingspan mounted on a tough, lightweight airframe made from kevlar, pvc, and carbon fiber among other materials. It weighs just 5 1/2 lbs. empty and can carry a 2 1/2-lb. load. The Bulldog comes with a backward-facing propeller located behind the wings, a long range directional antenna, and multi-camera mounting capability. It has short take-off and landing capabilities.

Steve Smith, application engineering director, Ultravance Corp., Westlake Village, Calif., designed the Bulldog™. “Local ranchers told me they wanted a drone that could fly long distances and stay in the air long enough to complete the work they needed,” says Smith. “They said most drones can’t fly far enough or long enough, or if they do they’re too expensive.

“Instead of the typical 30 to 45-min. flight time associated with other drones, the Bulldog flies up to 2 hrs. And instead of a range of less than one mile, the maximum range for the Bulldog is 6 miles, which results in an operational area that’s 12 miles in dia.”

He says the Bulldog can be flown to search for stray cattle, check fence lines and water tanks, make sure gates are closed, and so forth. “Its long flight time and range make it much more practical to use. Another big benefit is that it runs very quiet to reduce stress on livestock.”

According to Smith, the long 2-hr. run time is possible because of the long-lasting battery pack, as well as efficient camera technology that creates a very small amount of drain on the battery. “The camera system is amazing, and has incredible stabilization and high resolution,” says Smith.

The Bulldog sells for \$4,950. “Other drones of this size are much more expensive and are very difficult and expensive to repair,” says Smith. “The Bulldog is built with inexpensive



Smith worked with ranchers to design a drone with 4 times more flight time than other similar size units.

parts that can be easily repaired or replaced in the field even if you’re not an aviation technician.”

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Ultravance Corp., 2629 Townsgate Road, Suite 235, Westlake Village, Calif. 91361 (ph 213 219-8989; info@ultravance.com; www.bulldog.ultravance.com).

Rivet Tool Makes Installing Grain Head Poly Skids Easy

Anyone who has ever replaced the poly skids on a combine grain head will be interested in this new rivet tool developed by John Mills of Howell, Mich., and machinist friend Gib Wirkner. It’s designed to “set” the drive rivets that hold poly skids on, and makes installing them a one-man job.

He uses the Dandy Driver, as it’s called, on his Deere 920 grain head. “Deere poly skids come in 1 to 2-ft. wide sections and after a while they wear down and have to be replaced,” says Mills. “Each section has about 8 holes in it that match up with holes in a steel backing plate. You crawl under the header on your hands and knees, with crop residue falling in your eyes and down your neck every time you touch something. You have to grind the rivet heads off to remove the old skid, line up the holes in the new skid with the matching plate holes, and then hold the rivet in place with a pliers or your fingers while someone else uses a hammer and punch to drive the rivets in. It takes about 100 rivets for a 20-ft. head like mine.

“It’s a miserable job, but you definitely want to replace worn skids before the backing plates start wearing out because they’re very expensive and difficult to change.”

The Dandy Driver comes with a gnurled metal handle, with a long, movable “driving pin” inside that extends out one end of the tool. “You hold the rivet in place with your fingers and use the handle to push the rivet through the skid and backing plate until it’s snug. Then use a hammer to hit the driving pin, which causes the rivet to expand,” says Mills.

To make replacing skids even easier, Mills came up with a quick, easy way to lift the head off its transport cart and tilt it to an almost vertical position. He modified the front part of the feederhouse off a junked Deere 6620 combine so it can be quickly and easily installed in the front loader bucket on his backhoe.

“The 920 head is picked off its header cart using the backhoe-mounted feederhouse, and then the backhoe loader is curled until the poly skids are nearly vertical. Replacing the skids is a much easier job when the head is vertical and at a convenient working height,” says Mills.

Mills and his grandson, Andy, have purchased a lathe, tooling and steel stock and started making the Dandy Driver for



A “driving pin” extends out one end of tool. Operator pushes rivet through poly skid and backing plate, and then uses a hammer to hit the driving pin.



Mills mounts part of a feederhouse off a junked Deere combine on his loader tractor to lift his Deere 920 combine head off its transport cart (above). Loader is then tilted up until skids are nearly vertical and at a convenient working height.



sale. It’s priced at \$40 plus S&H.

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Lift Kit Jacks Up Deere Sprayers

A Deere R Series sprayer equipped with a high-clearance kit from Simon Innovations will raise up from its normal 60-in. clearance to a tassel-clearing 71 to 80 in.

“With the factory-installed 46-in. rims, our kit will provide up to 71 in. of clearance,” explains inventor Steve Simon. “If you switch to 50-in. rims, you’ll get up to 76 in. clearance. If you go to 54-in. rims, you’ll get 80 in. of clearance.”

While Deere makes its own lift kit for their sprayers, it has to be removed when you want to return the sprayer to its original height. Simon’s kit lets you move the sprayer up and down as needed.

“Toggle switches in the cab let the operator set the height at normal, mid-point, or fully raised,” says Simon. “With the kit in place, you can return to within 3 in. of its original height for transit or shorter crops.”

The kit includes 4 pneumatic cylinders, strut rods, air lines, and all the required fittings. Installation takes approximately 6 to 8 hrs., depending on mechanical expertise. It includes replacing the OEM air bags with special Firestone-developed air bags. Large strut rods on each side of the 4 corners guide the lift system as it moves up and down.

“It’s all mechanical, all pneumatic, so it is safe, easy, simple and automatically levels,” says Simon.

Simon originally developed the lift kit for his own use. Once he saw how well it worked, he kept the concept machine under wraps while pursuing patents and fine-tuning the design.

A tool and die maker by training, Simon had already introduced several other products to the marketplace, including smooth hub covers that deflect stalks in taller corn.

As part of prototype development, he tried the concept out on multiple machines, including wheeled and tracked sprayers. Since introducing the kit 2 years ago, he has sold more than 150 of them, including a shipment to Europe.

“I’ve been spraying fungicides on corn for years, and you need to be able to get in close to the time of tasseling,” says Simon. “The lift kit lets you do that.”

The high clearance, R-Series Suspension Kit is priced at just under \$30,000 (U.S.). Simon also makes custom lift kits for a variety of other equipment.

“We’ve built kits to provide as much as



Steve Simon wanted to be able to raise and lower his Deere hi-boy sprayer as needed.



“On a Deere sprayer with 46-in. wheel rims, our lift kit will provide up to 71 in. of clearance,” says Simon. Large strut rods guide the lift system as it moves up and down.

90 in. of clearance for a blueberry grower and are working on another custom lift kit for a New Zealand vineyard,” says Simon.

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