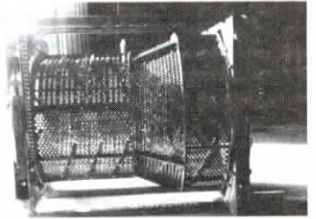


Farmers Invent Axial Flow Combine

Two Kansas farmers, fed up with the high maintenance cost of conventional combines, have invented, patented and built their own axial flow machine.

FARM SHOW first featured the new machine, developed by Ralph Lagergren and Mark Underwood, back in 1986 (Vol. 10, No. 3) when the design was first patented and before anything had been built. The two men, who farm near Burr Oak, Kan., have worked on the project ever since - with the help of Dr. Stanley Clark, head of ag engineering at Kansas State University.

To test the idea, the men first built a stationary model at KSU. After a couple years experimentation, they went to phase two, gutting an existing machine (a Case/IH 1480) and installing the revolutionary new "bi-rotor" system. "So far we've tested it in wheat, corn, milo and soybeans and it worked so well we're moving into the final development phase - building a combine from the ground up using all our patented ideas. We will end up with a much smaller machine with 50% less moving parts that will hopefully cost much less. Everything will be new from the feederhouse and back," explains Lagergren, who has raised some \$200,000 from private investors to help fund the machine's development.



Main feature of the new combine is the "Bi-Rotor" 360° cylinder and concave (pictured). The concave cage, covered with holes, turns in the same direction as the threshing cylinder inside of it but at a slower speed. Because grain is threshed over the 360° surface, the Bi-Rotor is just 4 ft. long, compared to the 8 to 10-ft. length of cylinders in other rotary machines.

Lagergren says the shorter length of the cylinder means straw doesn't get ground up as much, so cleaning efficiency of the straw walkers and sieves is improved. Another special design feature of the machine is that it vents chaff out the side of the combine before it ever reaches the shoe, improving the work of the chaffers.

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Tractors Equipped With Sleeper Cabs

Brian Simonson, Plentywood, Mont., built a hybrid tractor (Vol. 10, No. 2) using a combination of parts from a 1970 IH semi-truck and an industrial scraper. It's unique in that it features a sleeper compartment for extra long workdays, and room in the cab for two people to ride in comfort.

Simonson says that at a total cost of about \$16,000, his home-made sleeper-tractor is easier to fix, rides smoother, and has the added advantage of extra room. He in-

stalled electrically controlled air over hydraulic brakes with switches to control each side independently in the cab so he can use the brakes to help steer the tractor, if needed. To counter potential problems due to the tractor's lighter weight, he added 10,000 lbs. in the form of fenders, a 210 gal. fuel tank, a 25 gal. hydraulic oil tank, plus a set of 7,000 lb. oil field pump weights. Powered by a 318 Detroit diesel, with a 13 speed transmission, top road speed is 32 mph.



Self-Propelled Baler

"It's more maneuverable, visibility is great, and it frees up a tractor for other work," says Clarence Stonebring, Enterprise, Ore., who combined a Vermeer round baler and a Hesston swather to produce a slick new first-of-its-kind self-propelled big round baler.

"It turns around in its tracks so you don't have to drive in circles or make big turns to pick up lost hay, as with a pull-type baler."

The match-up of the Hesston 620 swather and the Vermeer 504 baler was a natural

because the swather is equipped with both hydrostatic and mechanical drives needed for ground drive and operation of the baler.

Both the drive wheel on the swather and the baler-mounted wheel are hydrostatically driven. A driveshaft on the swather drive unit, which was originally used to power the swather header, runs to a right angle gearbox on the baler — originally driven by a tractor pto — to provide power for baling.

Combine Converted To 4-WD

"It's great insurance for combining in mud and it cost far less to build than any commercial rear axle drive on the market," says Robert Greenlee, Okmulgee, Okl., who converted a Massey 510 combine to 4-WD by replacing the rear axle with the front steering axle from a 4-WD military truck driven by an extra engine and transmission from a 1971 Ford Pinto car.

The add-on engine mounts on top of the combine, behind the grain tank. A drive-shaft off the transmission powers a pair of sprockets that chain-drive a pto shaft beneath the rear of the combine that drives the steering axle.



"Side Steer" Tractor

Here's the first "side steer" tractor we've ever seen. Alberta farmer Larry Empey, of Swalwell, mounted a second steering wheel on the side of the cab and mounted the seat so it swivels toward either steering wheel, allowing Empey to do fieldwork with his Massey 1800 4-WD without ever looking

back over his shoulder. With the exception of a throttle pedal, there are no extra controls for the second steering wheel. Whenever Empey wants to use the tractor's original brakes, clutch or hydraulic controls, he simply swivels the seat toward the forward steering wheel.



4-WD "Truck-Tor"

Darrel Foster's 4-WD "truck-tor" looks like any other pickup from the front. But, walk to the rear and you'll see that the back half is a tractor.

"It gets lots of attention wherever I go," says Foster, of Springfield, Ohio. He built the "truck-tor" from a 1974 IH 3/4 ton 4-WD pickup and a Minneapolis Moline 302 tractor. It's equipped with a 3-pt. hitch,

hydraulics and reversible pto. Foster controls all tractor functions from inside the cab by means of rods connected to the tractor rear end's brakes, pto, high-low transmission, gear shift lever and hydraulic levers. There are four transmissions — two in the pickup and two in the tractor. The combination provides 36 forward gears and 16 in reverse.