

PowerSource

A publication of John Deere Power Systems

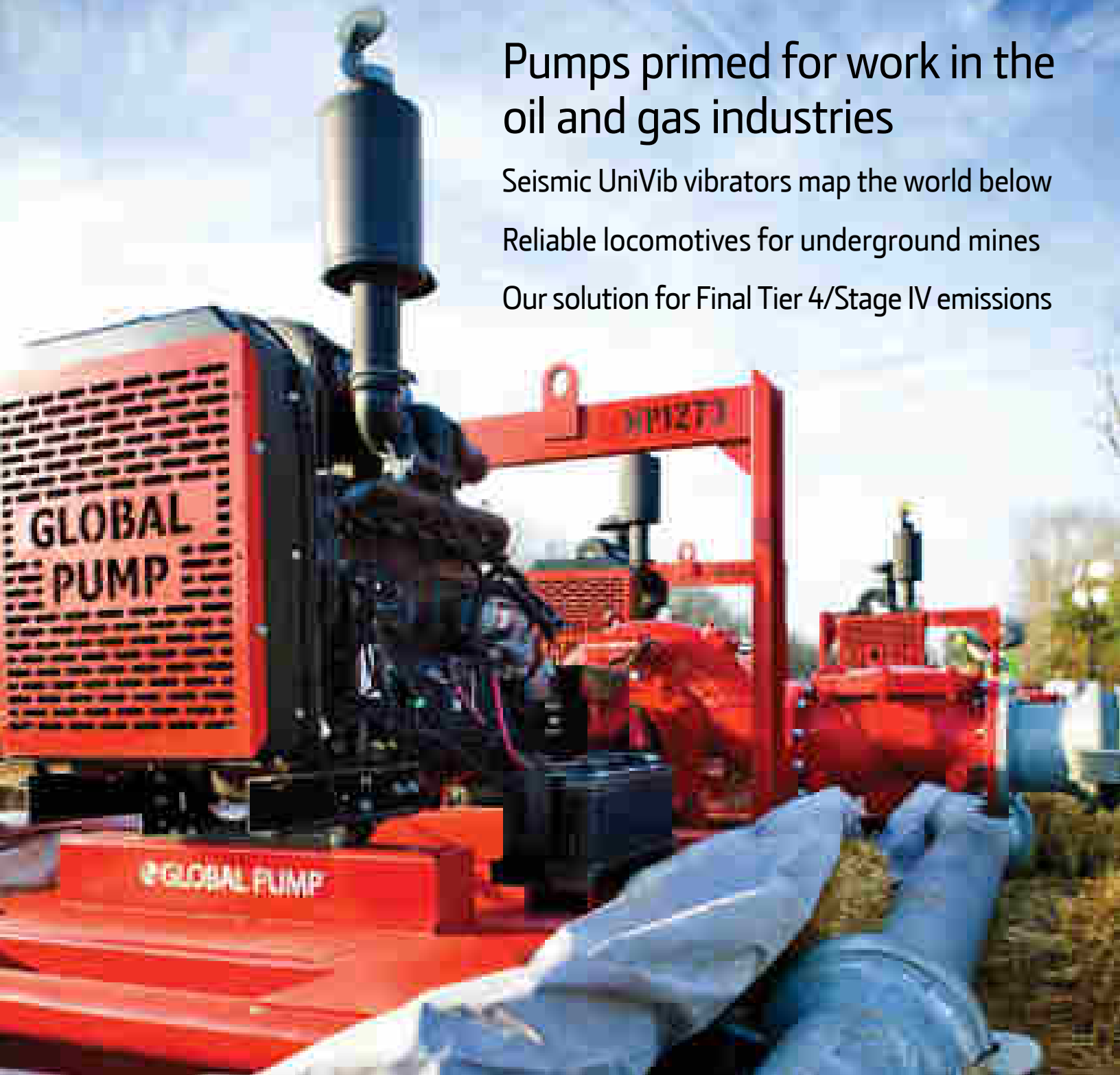
Vol. 2, 2012

Pumps primed for work in the
oil and gas industries

Seismic UniVib vibrators map the world below

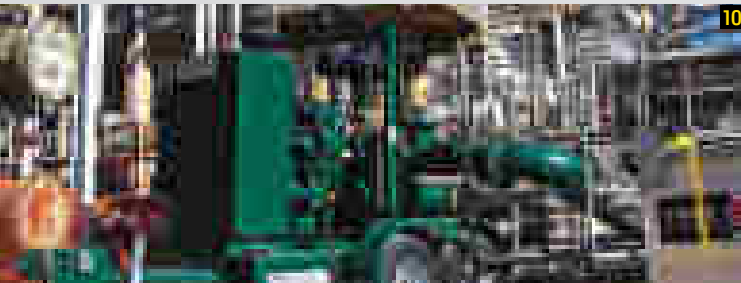
Reliable locomotives for underground mines

Our solution for Final Tier 4/Stage IV emissions





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Global Pump continues to grow worldwide by manufacturing robust, reliable pumping units powered by John Deere engines. Field-tested by its sister company and rental companies around the globe, these John Deere-powered pumps are working in a growing number of industries. On the cover, three Global pumps driven by PowerTech 6.8L engines temporarily divert stream water during a natural gas pipeline installation in North Carolina. 12

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Conveyors of innovation

Convey-All Industries takes John Deere Interim Tier 4 engines to the oilfields

Sand King units feed sand for hydraulic fracturing into a John Deere-powered Unibelt conveyor. The fracking sand is conveyed to a mixer, where sand and water are combined. The mixture is then pumped into the ground to hydraulically fracture the wells and to release oil.

After much success helping farmers move grain in the farm fields, Bob Toews is finding that his custom portable conveyors are gaining even more momentum in the oilfields.

This farmer-turned-inventor spent 25 years custom-building conveyor systems for agricultural and industrial uses. But it wasn't until six years ago when Bob "struck oil" by designing a new line of conveyors for handling sand used for hydraulic fracturing in the oilfields. Just last year alone, sales shot up a whopping 300 percent.

"We have customers who own up to 100 of our conveyors," says vice president Henry Friesen. "On a fracking job, there can be as many as 10 operating."

Convey-All Industries' substantial growth has led to multiple plant expansions. The company now operates out of seven large assembly plants in Winkler, Manitoba, Canada. With that growth came a need for more engines. Frustrated with the service and engine delivery times supplied by a competitive engine manufacturer, Convey-All began integrating John Deere 4.5L diesel engines into three portable conveyors: the Unibelt, the Dual-Belt, and the Sand King.

To comply with Interim Tier 4 emissions, Convey-All will begin installing the PowerTech M 4045T engine this spring. Two engines will power the Dual-Belt conveyor, while a single engine will power the Unibelt.

Convey-All purchases its John Deere engines as a complete power unit from its John Deere engine distributor, Frontier Power Products. "Frontier offers the value-added services of packaging the engine as a complete power unit — adding mounts, radiator, the proper adaptor for mounting hydraulic pumps, and an automatic air-shut-off valve," explains Carl Toews. Furthermore, Frontier Power saves Convey-All time



by painting each engine to a customer-specified color, whether it's orange, red, or blue. Prior to purchasing John Deere engines, all competitive-brand engines purchased by Convey-All had to be manually disassembled, painted, and reassembled before being installed on the conveyor.

Convey-All appreciates the support it receives from Frontier Power Products. "Of all the engine providers, John Deere has been the most helpful, responsive, and on time with deliveries," says Henry. That's important to a company like Convey-All, which prides itself for putting its own customers first. "We build a close relationship with each customer," states Henry. "We listen, we do what we say, and we follow up with our customers."

And customers relate that they are pleased with the John Deere engines on Convey-All conveyors. Peter Banman, production manager for the Sand King units, says the John Deere engines have been solid performers in the oilfield. "John Deere is an all-around good engine. They run nice and smooth. They offer more power and torque (than the competitive engine).

A high-torque engine is an advantage when conveying sand. "We convey 13.5 t (30,000 lbs.) per minute," explains Henry. "These engines get worked, and unlike the other engines, the John Deere engines don't bog down."



A PowerTech M 4045T engine hydraulically powers a Unibelt Conveyor.

Emissions Cert.	Interim Tier 4	Tier 3/Stage III A
Engine Model	PowerTech M 4045TF290	PowerTech E 4045HF285
Displacement	4.5L	4.5L
Rated Power	55 kW (74 hp) @ 2400 rpm	93 kW (125 hp) @ 2200 rpm
Cylinders	4	4
Aspiration	Turbocharged	Air-to-air aftercooled
Distributor	Frontier Power Products Winnipeg, Manitoba, Canada (204) 949-1526 www.frontierpower.com	

Primed for growth

National Pump & Compressor reveals the ingredients for rapid success

National Pump & Compressor of Beaumont, Texas, certainly has some impressive numbers for such a young company. Since its inception almost five years ago, this privately owned company has opened more than 30 branches nationwide and has grown its rental fleet to over 2,500 pumps that work in mines, oilfields, petrochemical companies, and refineries, to name a few.

When you get some of the best people and products onboard and provide top-rate, 24-hour customer service, it's no wonder why this company is *primed* for success.

"Our company has evolved by listening to the customer," explains Ike Phelps, fabrication manager. "If we don't have a pump package that fits their needs, we end up custom building a package, and that pumping unit eventually becomes part of our rental and sales fleet."

Listening to customers, National Pump & Compressor came to the fast conclusion that Pioneer pumps and John Deere diesel engines generate a lot of satisfaction in the field. National Pump & Compressor is the world's largest distributor of Pioneer pumping units. The company uses a range of John Deere engines from 36 to 448 kW (49 to 600 hp).

National Pump & Compressor purchases John Deere engines from two John Deere engine distributors. Engines Inc. supplies engines to its Beaumont, Texas, manufacturing facility. Frontier Power recently began selling engines to a new sister company, Canadian Pump & Compressor, located in Nisku, Alberta, near Edmonton.

"The support that we get from John Deere is tremendous," says Ike. "They provide us with a lot of engineering support as we make modifications to our pump packages. They are also excellent in getting our people trained on the John Deere engine technologies, which have changed with all of the advancing emission tiers."

Company vice president Michael Nix works closely with oil and gas customers in the United States, where the demand for John Deere-powered Pioneer Pumps has grown dramatically. Among the most popular unit in Texas is the PP108-6090 vacuum-assisted pump powered by the 242 kW (325 hp) PowerTech Plus 6090H engine. With a 224 mm (10 in.) suction and 203 mm (8 in.) discharge, this pumping unit is commonly used to pump water at flow rates of 11,900 l/min (100 barrels/min) to the oil well during the hydraulic fracturing process.

"We actually have 600 of the 10x8 in. (224x203 mm) pumping units in our rental fleet, and we've sold another 500 of them," Michael says. In the eastern United States, he adds, the 448 kW (600 hp) PowerTech Plus 6135H engine is commonly used with the Pioneer 203x152 mm (8x6 in) pump to frack wells at higher elevations.

Michael says he's pleased with the fuel economy of the John Deere engines. Compared to a competitive engine brand of the same horsepower, the PowerTech Plus 6090H engine consumes 15 l (4 gal.) less fuel per hour. "That's a savings of \$12 per hour," remarks Michael. "That's significant, considering some of these jobs run 24/7."

Equipment reliability is also key to National Pump's success. "When they're fracking a well, and you quit pumping water because of a mechanical failure, you're shutting down a million-dollar fracking operation," he says. "It's very costly if you have problems."

John Deere engines and Pioneer Pumps have a proven track record of reliability. When service is needed, customers know they can quickly access support from the vast John Deere dealer network. "No matter how good a piece of equipment is, it's only as good as the support that goes with it," says Ike. "Between the Pioneer Pump and the John Deere engine, we've been growing by leaps and bounds. The combination of the two is a driving force of our business."

Emissions Cert.	Tier 3/Stage III A	Tier 3/Stage III A
Engine Model	PowerTech Plus 6090HF485	PowerTech Plus 6135HF485
Displacement	9.0L	13.5L
Rated Power	242 kW (325 hp) @ 2200 rpm	448 kW (600 hp) @ 2100 rpm
Cylinders	6	6
Aspiration	Air-to-air aftercooled	Air-to-air aftercooled
Distributor	Engines, Inc. Jonesboro, Arkansas (870) 268-3700 www.enginespower.com	
	Frontier Power Products, Edmonton, Alberta Canada (708) 455-2260 www.frontierpower.com	



National Pump & Compressor responds to an emergency failure of an industrial customer's cooling tower pumps. On site is a Pioneer Prime 10x8 pump package with a PowerTech 9.0L engine.

A new turn

Customer request leads to a John Deere engine on an Acker drill

When Maple Leaf Drilling of Manitoba, Canada, set out to purchase a new drill, they decided that Acker Drill Company's RENEGADE offered the best package on the market with its robust, compact, multipurpose design.

"We like the drill; it has the right size and versatility we need to handle the work we perform, whether its geotechnical drilling, environmental testing, or drilling water wells," says Albert Van Linge, vice president of Maple Leaf Drilling.

There was one request: Maple Leaf Drilling wanted a John Deere diesel engine on the drill.

"John Deere engines power several other pieces of equipment in our fleet, such as Ingersoll Rand air compressors and a Deep Rock drill, and those engines have been good to us," relates Albert. "We're also in farming region, and if I need a John Deere part, service, or a question answered, I can contact a local John Deere dealer or our distributor, Keith Verhaeghe of Frontier Power Products."

Always priding themselves on meeting customers' requirements, Acker Drill Company engineer Joe Rochinski contacted his John Deere engine distributor, Bob Jones of Bell Power, and set the wheels in motion to satisfy Maple Leaf Drilling's request with a 74 kW (99 hp) PowerTech E 4045T engine.

Bell Power Systems provided Acker Drill with a complete power unit with a sheet-metal enclosure with two removable doors. Bob also conducted an application review and tested the new engine. "We received good support from Bell Power Systems," says Joe. "Bob Jones answered our questions quickly. We fired up the engine on the first try, and it ran smoothly."

The PowerTech E 4045T was noticeably quiet, too. "When you're standing behind a drill rig for eight to 10 hours a day, the lower noise levels are just safer," says Joe. Improved fuel economy was another major advantage.

In addition to the John Deere engine, the RENEGADE also features a Funk™ HMD 12700 transmission — a John Deere component that's been in the Acker Drill product line for many years.

"Auguring calls for brute power. It's always pushing, turning," explains Albert. "When you pair the horsepower of the John Deere engine with the Funk transmission, that's where the magic is. The drill has a lot of torque — more than we're even used to."

Emissions Cert.	Tier 3/Stage III A
Engine Model	PowerTech E 4045TF285
Displacement	4.5L
Rated Power	74 kW (99 hp) @ 2400 rpm
Cylinders	4
Aspiration	Turbocharged
Distributor	Bell Power Systems, Inc. Essex, Connecticut (860) 767-7502 www.bellpower.com

"We're paid by the hour, and the faster we can get the holes done, the happier the clients are," adds Albert. "When you put the John Deere engine to it, this drill gets the work done."

Funk Transmission Model	12700 HMD
Speeds	4
Input power	104 kW (140 hp)
Max input speed	2500 rpm
Input torque	407 Nm (300 lb-ft)

The John Deere engine and HMD 12700 transmission provides power and torque to the drill head of the Acker RENEGADE drill.

