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Sauer-Danfoss Prepares Emission Solutions for Upcoming Vehicle Generations

New Emissions Section on Web Site Assists OEMs in Meeting Impending Emissions Regulations without Sacrificing Productivity or Performance

AMES, Iowa, USA, September 10, 2009 – Sauer-Danfoss Inc. (NYSE:SHS) In 2008, Sauer-Danfoss initiated a Global Emissions Team to assist off-road machine manufacturers with the challenges posed by the Tier IV/Stage IV Diesel Engine Emissions legislation change. Today, Sauer-Danfoss announces a new, dedicated emissions solutions section on the web site as an additional resource for OEMs to address the challenges that come with Tier IV and Stage IV compliance.

“For off-road vehicle manufacturers, it’s no secret that lower emission requirements for new engines will have a significant impact on future generations of machines,” according to Rick Sporrer, Sauer-Danfoss Sales Quality and Technical Services Director. “By our estimates, over 10,000 different machines will need to be redesigned. This is much more than an engine issue – machine design is taking a quantum leap in complexity right now.”

The Sauer-Danfoss Global Emissions Team has been working on both technologies and performance variables related to power losses, heat rejection, and space constraints associated with the new regulations. The goal is to assist OEMs in designing machines for greater productivity, using less energy.

Changing Performance Characteristics

In order to meet the required emission regulations, a number of engine characteristics will be affected. For example, engine application operating speeds and speed bands will be reduced. Engine power levels and torque will change. Along with all this, there will be greater system heat rejection. What does this mean for vehicle performance? According to the Sauer-Danfoss team, several things, including the following:

- Available hydraulic flow will be reduced
- Net vehicle power output will be reduced
- Heat rejected to the environment will increase
- Available installation space around the engine will be reduced

Sporrer adds, “All this will change components and the way power is distributed in the machine. How we determine the most viable solutions is dependent on any of number of technologies which may be employed.”

Sauer-Danfoss is performing lab tests, conducting dynamic simulations, evaluating proof of concepts, validating and documenting how best to recover horsepower losses so customers produce more efficient, productive machines. Focused on providing solutions for propel, work, control and vehicle management functions, Sauer-Danfoss is positioned to integrate best-in-class products to meet the significant challenges posed by the arrival of Tier IV and Stage IV. “The best solutions help customer identify the most efficient way to design more productivity

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into their machines, while consuming less energy to get the work done,” says Sporrer, adding, “The best approach is to match the right solutions with the right applications.”

Ready Solutions on the Web Site

To assist OEMs in identifying the right solutions, the new emissions solutions section features research articles, tools, white papers and industry publication features, all resulting from Sauer-Danfoss research. The web section also serves as a repository to links that are relevant to global emissions regulations and engine technology information.

In addition, new and recently developed Sauer-Danfoss products serve as the building blocks of new machine systems. These include the PLUS+1™ family of microcontrollers and related products, electronically actuated H1 piston pumps and motors, SGM and D Series gear motors:

- PLUS+1 provides pre-engineered control solutions resulting in reduced machine development and test time.
- H1P Piston Pumps provide greater overall efficiency and power density to increase power available and increase flow in the same package.
- H1B Piston Motors improve overall efficiency, increasing power available for work and reducing heat.
- SGM and D Series Gear Motors are the basics for fan drive systems made simple and robust, improving engine power utilization.

Sporrer concludes, “In this convergence of machine development challenges – new engine regulations, the economic downturn and limited resources – our Global Emissions Team has taken the time to both understand the impact of engine requirements and to investigate and develop both products and systems that meet the performance needs of the future.” To learn more about Sauer-Danfoss solutions for Tier IV and Stage IV compliance, visit the special web site section at www.sauer-danfoss.com/emissions.

About Sauer-Danfoss

Sauer-Danfoss Inc. is a worldwide leader in the design, manufacture, and sale of engineered hydraulic, electric and electronic systems and components for use primarily in applications of mobile equipment. Sauer-Danfoss, with 2009 revenues of approximately \$1.2 billion, has sales, manufacturing, and engineering capabilities in Europe, the Americas, and the Asia-Pacific region.

More details online at www.sauer-danfoss.com.

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PHOTO CAPTION:

Sauer-Danfoss assists OEMs in meeting the challenges of Tier IV and Stage IV regulations with its new “Emissions Solutions” web site section. Visit www.sauer-danfoss.com/emissions to learn more.

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