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HYDRO-GEAR STUCK IN MUD;
TRANSMISSION NOT STRONG ENOUGH FOR BUV COMPETITION

JOHN BROWN UNIVERSITY WINS GRAND CHAMPIONSHIP AT YANMAR - TUFF TORQ SPONSORED BUV COMPETITION

INDIANAPOLIS, IN – Speed, endurance, agility and dependability were certainly tested at the 9th Annual Basic Utility Vehicle (BUV) Competition held in Indianapolis, Indiana. Eighty engineering students from 14 schools designed and built a three-wheel BUV that met the challenge of being able to be driven by polio survivors, landmine survivors, amputees and others who do not have use of their legs. Students gained real-world knowledge by experiencing first-hand how important it is to spec the right transmission that was capable of performing under stressful conditions such as wet, rough, uneven terrain often found in developing countries. John Brown University took home the first place championship trophy, while the University of Cincinnati's front-end suspension was recognized as the most innovative feature. Alabama's Calera High School won the first place award in the open class as well as being recognized for their pipe frame design as the most innovative feature for the class.

The BUV Competition is a capstone/senior design-engineering project for schools in North America, presented by the Institute for Affordable Transportation (IAT), a not-for-profit public charity located in Indianapolis. Students typically have spent at least one semester developing the design concept and producing a working prototype vehicle to demonstrate at the competition. Each vehicle is professionally judged based on how closely the teams met the specifications of the challenge, as well as performance, durability, engineering innovation and production budget. Japanese engine manufacturer Yanmar Company, LTD and Tuff Torq Corporation, the global drive system manufacturer headquartered in the U.S., sponsor the competition nationally.

Schools competing in the 2009 event included Purdue University, Northern Illinois University, Trine University, John Brown University, State University of New York - Alfred, University of Cincinnati (two teams), Valparaiso University, University of Missouri - Columbia, Hamblen County Schools (Tennessee), and Calera High School (Alabama).

"Each year we try to address an immediate transportation need in Africa, Central America and other developing countries," explains Austin. "For the 2009 event, the design specs called for a BUV capable of being operated by someone who does not have use of their legs, such as an amputee or landmine survivor. We asked each team to build a simple, low-cost, reliable vehicle that could easily

be manufactured in a rural setting. In addition, the IAT has incorporated a 'green initiative' into this year's competition by requiring hybrid drives and renewable biodiesel fuel."

According to Austin, engineers from industry were on hand to judge the competition. Each of the teams was ranked based upon design and performance during field tests including typical conditions such as mud crossings, load pulling and obstacle course. Each vehicle carried nearly 1000 pounds of sand in the competition to simulate a working load. Judges also reviewed documentation from each team, as well as interviewed students during the events of the day.

"This is the second year that the BUV Competition has been sponsored by Yanmar and Tuff Torq," says Austin. "We were very excited to have both Yanmar as an engine manufacturer and Tuff Torq as a drive system manufacturer be part of the BUV Competition. Together they represent the two most expensive components of the vehicle – the engine and the transmission."

"Being part of the BUV Competition is a great opportunity for our companies to expose our technology to these young engineers," adds Frank Freeman, sales and marketing manager for Tuff Torq. "Plus, this year, one of the schools used a transmission manufactured by our major competitor Hydro-Gear, so the students were able compare the performance of competing products. Needless to say, BUVs powered by Tuff Torq drive systems took home the trophies.

"Currently Tuff Torq, who has about 70% share-of-market in hydrostatics in the lawn and garden industry, is expanding more into utility-type vehicles such as the BUV. This competition allows our drive systems and Yanmar engines to be incorporated into new vehicle designs. The students and professors experience the performance and quality of our products first hand."

Approximately 50 schools have participated in the BUV Competition since its beginning in 2001. The State University of New York – Alfred (SUNY Alfred) took home first place honors at the 2008 event.

"Basic Utility Vehicles promote trade at a grass-roots level by enabling micro-business growth," says Austin. "IAT's vision is 'Basic Vehicles. Changed Lives.' BUVs help children get to school; the sick to visit medical clinics; and small businesses to expand their territory."

Headquartered in the motor-racing capital of the world, the IAT is devoted to developing high-quality, low-cost transportation for the working poor in the developing regions of the world. To date, approximately 75 BUVs have been distributed in Africa and Central America.

IAT is based in Indianapolis, Indiana and funded by individuals, foundations, churches and international corporations. For more information about IAT or the competition, go to www.driveBUV.org; to learn more about Tuff Torq or Yanmar, go to www.tufftorq.com and www.yanmar.co.jp.