

ONBOARD POWER FOR MARS ROVER VEHICLE

POWER SOLUTIONS
CASE STUDY of the
**UNIVERSITY OF MICHIGAN
MARS ROVER PROGRAM**

UNITS

5 kW Diesel RV Genset

LOCATION

Ann Arbor, Michigan



POWERING THE RED PLANET ROVER

Mankind has always gazed to the heavens, enraptured by the mystery it contained. Some of mankind, however, have not been satisfied with mere gazing. Their imaginations fueled by the great beyond, these passionate few have motivated the rest of the human race to pursue fantastic goals. Visionaries like those helped take Neil Armstrong and Buzz Aldrin to the moon in 1969, and people like that are now looking to put a man on Mars, perhaps as early as 2012.

In order to accomplish this monumental task, many expensive puzzle pieces must be brought together. Unfortunately, due to budget constraints, the National Aeronautics & Space Administration has cut all programs dealing with the human exploration of Mars. The dreamers have not given up that easily, however. The Mars Society, an independent, privately-funded organization, has taken it upon itself to continue the Mars research.

As a way to involve more people and generate interest in the Mars program, the Mars Society held a competition challenging groups to build a Mars Rover. Engineering

students from the University of Michigan entered this worldwide competition with their design proposal. The Michigan team was one of three chosen to receive sponsorship from the Mars Society, as well as \$10,000 in start-up funding.

“All three teams have the same basic goal,” says Anna Paulson, a student at the University of Michigan and the project manager for the Rover Program there. “We’re all designing a Mars Rover—but each team has a unique approach to the problem.”

The hope of the Michigan team, as well as the Mars Society, is to gain public and political support for a manned trip to Mars. They believe that if they can do enough preparatory work to show that a Mars trip is feasible, they will gain the support they need.

The first major contributor to the Rover Project at the University of Michigan was TACOM, a military program that researches

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and designs combat vehicles. They donated an FMTV truck, which was built by Stewart & Stevenson, a major supplier of military vehicles since World War II.

It was through the Mars Rover Project's association with Stewart & Stevenson that Generac came into contact with the mission. When the students from the University of Michigan approached Generac about providing a small RV (recreational vehicle) genset, Generac was happy to help.

"Generac has always been a company that leads in innovation. Through this effort, we encourage innovation in America's youth, and we're more than willing to do that," says Mike Carr, Generac marketing communications manager.

The 10-ton FMTV unit will carry everything a Mars exploration team would need. The highly modified truck is 11 feet tall, 17 feet long, and 8 feet wide, with living and working space for up to three people, and its own self-contained life support system. In addition to this, it also contains equipment for researching and analyzing the Martian surface.

The 5 kilowatt diesel RV genset that Generac provided would typically be supplying power to a refrigerator, microwave, and television in a luxury motor home. In the Mars Rover the unit not only powers the aforementioned amenities, but also generates electricity for a sophisticated electronics system, interior lighting, and by far the most important system in the unit: life support. "While the vehicle is in operation, our systems are powered by the engine," says Paulson. "Obviously we can't leave the engine running constantly, so we use the generator to power the rover when the engine is off. Having constant, reliable power is critical to the project, and that's what Generac provides for us."

GENERAC®

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