

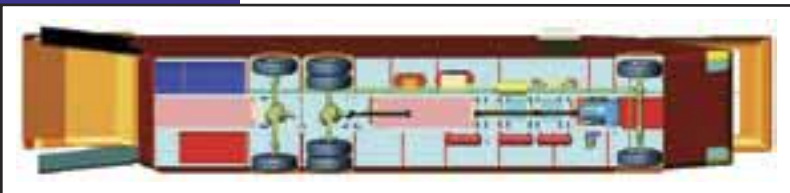
ADVANCED HYBRID ELECTRIC COMMAND AND CONTROL VEHICLE

Program Capabilities:

SwRI designed and is fabricating a Command and Control vehicle for the U.S. Army that incorporates and showcases advanced hybrid electric technology to power the vehicle and an advanced electronics suite of information technology. Both advanced technologies were selected in order to demonstrate commercial applicability of the hardware.

The vehicle is designed to be a totally self sufficient, multi-functional mobile platform. The vehicle is capable of being deployed to a battlefield/natural disaster site at any time with immediate response. It can travel to the site in a highly fuel efficient manner using the best combination of diesel and electric power, which will be dependent on the wide range of road conditions that it will encounter. Upon arriving on site the diesel engine will operate the onboard electric motors and produce electric power. The electric power will be used for such functions as vehicle lighting, climate control, communication with ground personnel, satellite communication, information transfer, control function, water production, emergency ice manufacture and to power electric equipment

Achieving the absolute highest system efficiency is critical for this vehicle's mission success and depending on the duty cycle, fuel economy improvements of 30 to 50% can be realized. A secondary benefit of fuel economy improvement is to extend the vehicle's operating range to 900 miles.



The vehicle is 45' long, 8' wide and 13' high, weighs 36,000 lbs and has a 25' wheelbase, with dual rear axles. A vehicle of this size would normally be powered with a 400 to 500 hp engine. This vehicle however will be powered with a 225hp diesel engine and a unique transmission containing two 100 hp electric motors/generators, that can operate in either a series or parallel mode. Each motor/generator is controlled by its own IGBT based power electronics working in tandem with one of two battery packs of high reliability, valve regulated, lead acid batteries. A high voltage distribution center works in tandem with a 30kVA inverter to provide AC power for the advanced electronics suite and to support vehicle services.

The advanced electronics suite provides an 'anywhere-anyplace' display within the vehicle to over 31 plasma displays including six power walls and an eight foot passive stereo wall. The communication/information system utilizes its own on-board network

powered by a Sun 450 Enterprise Server, a 4-processor server with 4 GB of physical memory with over a 100 GB of disk space connected to an Ethernet LAN via two Ethernet switches.

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