

SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	TARDEC
TOPIC NUMBER	A06-233
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-233-0535
TITLE	Advanced Military Cooling Designs and Techniques(AMCDAT)
PROJECT MANAGER	Frank J. Cantor (714) 540-1000 fcantor@dynamic-air.com
COMPANY	Dynamic Air Engineering Inc 620 East Dyer Road Santa Ana CA 92705-5697 Minority Owned: No Veteran Owned: No Number of Employees: 46
KEYWORDS	Engine cooling fans, vehicle cooling systems, high temperature electric motors, variable speed drives
ABSTRACT	Military vehicle cooling systems must operate over a broad temperature range in hostile environments. The fans used in these systems are large, heavy, and require over 100 hp. These fans are usually driven by hydraulics or directly from a power take-off on a gear box. Operating speeds are limited by these drive technologies. Using a variable speed drive technology, such as an electric motor, would allow the fan to operate at higher speeds on demand. Operating at higher speed could reduce the fan envelope and weight. The challenge is to cool the electric motor in this hostile environment.
BENEFITS	Having an electric motor that can operate in a high temperature ambient environment will provide a variable speed capability while allowing for the possibility of increased operational speeds at high cooling load demands. Increasing the fan speed would make it possible to decrease the fan diameter for the same system resistance requirements. This could result in an overall system weight saving, lower overall power consumption by the cooling system, and reduce the total heat rejection requirements of the system.