

SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	TARDEC
TOPIC NUMBER	A06-228
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-228-2716
TITLE	A 42% Fuel Efficient, 650-HP, Advanced Diesel Technology Demonstrator
PROJECT MANAGER	Nicholas R. Hirsch (414) 342-1881 aedcorp@execpc.com
COMPANY	Advanced Engines Development Corp. 4338 West Monarch Place Milwaukee WI 53208-3126 Minority Owned: No Veteran Owned: Yes Number of Employees: 5
KEYWORDS	Power density, Transient variable compression ratio, High fuel efficiency, 42-hp/cu ft, Super turbocharger, Engine tribology, High pressure fuel injection system, Electronically-controlled cooling system
ABSTRACT	AED Corp., Digital-Engines, and C-K Engineering will structure and focus their collective expertise to design, optimize technologies, build, test, and develop a 650-hp advanced diesel technologies demonstrator. The work will be supported by AED's Phase II Advanced Military Diesel Engine (AMDE) program. During Phase I this team of experts will incorporate AMDE design features, specifications, and performance targets into custom modeling and simulation programs. Phase I Option: an AMDE will be reconfigured to test and validate the sample model and simulation programs. The Phase II program will be incorporated with AMDE work to explore all the technologies potentially beneficial to achieving the 42% fuel efficiency. Optimized technologies will be incorporated in a commercial off-the-shelf (COTS) based, dyno test and developed 650-hp prototype. AED's current AMDE program is hardware test and development oriented. Adding modeling and simulation, validated by AMDE demonstrators, is an ideal program to quickly explore and advance the diesel technologies needed to develop and produce a dual use range of horsepower size fuel efficient, high power density, advanced diesel engines needed to power Future Combat System (FCS) vehicles including hybrid electric – manned and unmanned. This proposal brings together the current and previous TACOM directed SBIR work of both AED and C-K Engineering in a delivered product that directly benefits the individual soldier and is invaluable to TACOM in its quest for advanced propulsion systems.
BENEFITS	High power, lightweight, fuel-efficient, low emissions, easy starting advanced diesel engines suitable for the FCS range of vehicles will have wide commercial applications in marine, power generators, hybrid vehicles, industrial/commercial

	<p>off-highway vehicles, and specialty high performance cars and trucks. General Engine Products (GEP) (an AM General subsidiary) has already expressed interest in manufacturing both military and commercial engines. GM, the potential COTS engine manufacturer, has a special engine manufacturing facility that could build the engine.</p>
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