



Advanced Light Armament for Combat Vehicles (ALACV) Program Status

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by

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Program Goals, Objectives and Funding

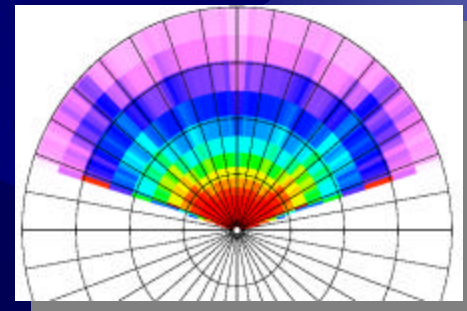
★ BACKGROUND:

- ★ ARDEC STO
- ★ FY00-FY03
- ★ Total Funding: \$7.73M
- ★ FY03 Funds: \$2.2M

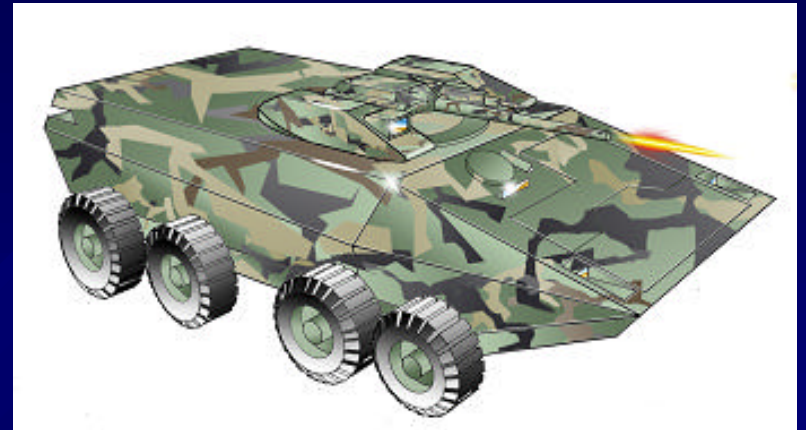
★ GOALS:

- ★ 30% Improvement in KE Behind Armor Effects
- ★ 400% Improvement in Lethal Area for Air Bursting Munitions
- ★ TRL 6 by end of FY03

★ CALIBER: Super 40

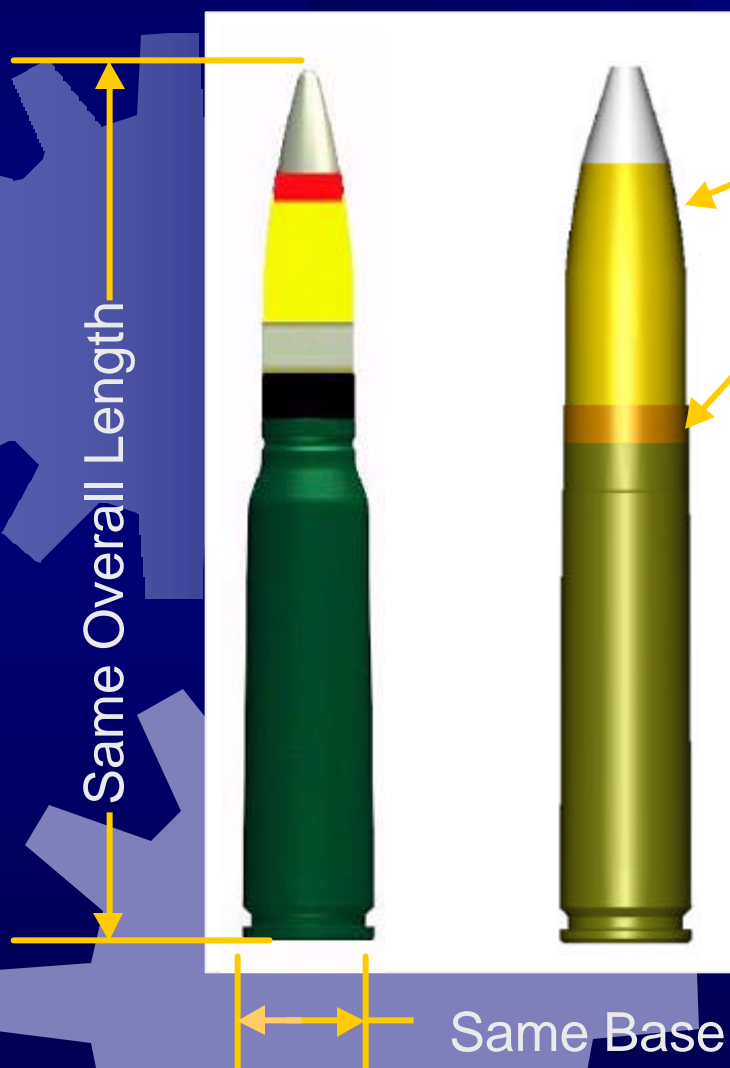


ICV Lethality Requirements



- ✦ Provide Protected Transport for a 9-Man Squad with Equipment
- ✦ Identify and Defeat Enemy Infantry at 1500m (T), 2000m (O)
- ✦ Identify and Defeat Light Armored Vehicles at 1500m (T), 2000m (O)

Super 40 or “Lightweight 40” Concept



Larger Projectile

Additional Propellant

- *Compatible with Mk44 w/ Barrel Change*
- *Provides Built-In Growth from 30mm to Super 40*
- *Same Round Stowage as 30mm*
- *Significant AB Performance Gain*
- *Modest AP Performance Gain*
- *Super 40 Development Initiated within ALACV Program*

Same Base Diameter

Why the Mk44 / Super 40 System?

Results of Medium Caliber Armament Study (MCAS) and Lethality IPT Study



- ★ Highest Kills per Stowed Load Lethality (Super 40)
- ★ Second Lowest System Weight (25mm is Lowest)
- ★ Least Cost System
- ★ Lowest Risk (Mk44 and 30mm Ammo are in Production)
- ★ Super 40 Growth Potential
- ★ In Service with USMC, US Navy, Norway, Finland and Switzerland

Joint Service Opportunities with the Mk44 Super 40 System



- ✦ Mk44 30/40 Gun in Production for AAV and US Navy
- ✦ Armament for AAV, LPD-17 Class Ship, RAMICS and Possible use on AC-130 Gunship
- ✦ Approximately 1000 Systems to be Produced
- ✦ 30mm Defeats Current USMC Threat Array
- ✦ Super 40 is Growth Path
- ✦ USMC Willing to Partner with the Army on Super 40

ALACV Development "Team"

- Mk44 Weapons: **ATK GSC and PM AAV**
- Target Assessments: **ARL, AMSAA and PM AAV**
- Telemetry: **FSAC**
- Adv. Algorithm: **ARL Adelphi**
- Tungsten Rods: **AOT**
- Demonstration Testing: **ATC**

Safe & Arm: **CCAC Fuze Division**

Turns Count Electronics: **ATK**

Warhead: **WECAC/CCAC**



Explosive: **ATK**

Projectile/Trace: **CCAC/GDOTS**

Cartridge Case: **GDOTS/Santa Barbara**

Propulsion System: **GDOTS**

Super 40 AB-T Development



★ Warhead Development

- ★ Gen I: 250% Improvement Demonstrated
- ★ Gen II: 300% Improvement Estimated
- ★ Gen III: +400% Improvement Expected

★ Fuze Development

- ★ ATK, GDOTS and Oerlikon 30mm AB Fuzes Demonstrated 6-7 Nov 02 at APG

★ AB Cartridge

- ★ TP-Ts Fired from both Mann Barrel and Mk44 Autogun
- ★ Approximately 260 Rounds Tested to Date

Super 40 APFSDS-T Development



★ Advanced Penetrator Development

- ★ NOVEL: 30% Improvement at up to 56% Range
- ★ ENLE: 30% Improvement at up to 87% Range
- ★ ENLE w/MIC: Plus 30% but Target Specific

★ APFSDS-T Rounds w/ Monolithic Core

- ★ Approximately 150 Rounds Fired to Date
- ★ Fired from both Mann Barrels and Mk44 Autogun
- ★ Excellent Dispersion and Armor Penetration
- ★ Demonstrated at APG 6-7 Nov 02





ALACV Accomplishments

- ✦ **Medium Caliber Armament Study (MCAS) Completed**
- ✦ **Successful Testing of NOVEL and ENLE Penetrators**
- ✦ **Super 40 AP and AB (Inert Warhead) Rounds Successfully Fired from Mk44 cannon**
- ✦ **Super 40 TP-T and APFSDS-T Rounds Successfully Fired at 6-7 Nov 02 Demonstration at APG**
- ✦ **Low Profile Turret Study Conducted**
- ✦ **ALACV Follow-On Program Proposal Initiated**

Application to FCS ICV

- ✦ Mk44 Super 40 Leading Candidate for ICV
- ✦ Lightweight Low Profile Turret Concepts Initiated
- ✦ Armament Integration Issues Being Examined



Planned Activities

- ✦ Arena Testing of Gen III Warhead- Apr 03
- ✦ Continued Testing of ENLE Rods against Classified Targets- 3QFY03
- ✦ Super 40 AB-T Demonstration- Jul 03
- ✦ Continued Support to ICV Integration Efforts
- ✦ Follow-On Program Planning

ALACV Summary

- ☀ Super 40 Airburst and Advanced KE Developments Going Very Well
- ☀ Program On-Track to Complete all STO Requirements
- ☀ Super 40 AB Demo Planned for Summer 03
- ☀ Mk44 Super 40 Leading Candidate for ICV
- ☀ Follow-On Efforts in Planning Stages