

GENERAL DYNAMICS

Ordnance and Tactical Systems

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***"Shaping the Future in Weapon System Development,
Deployment, and Reset"***

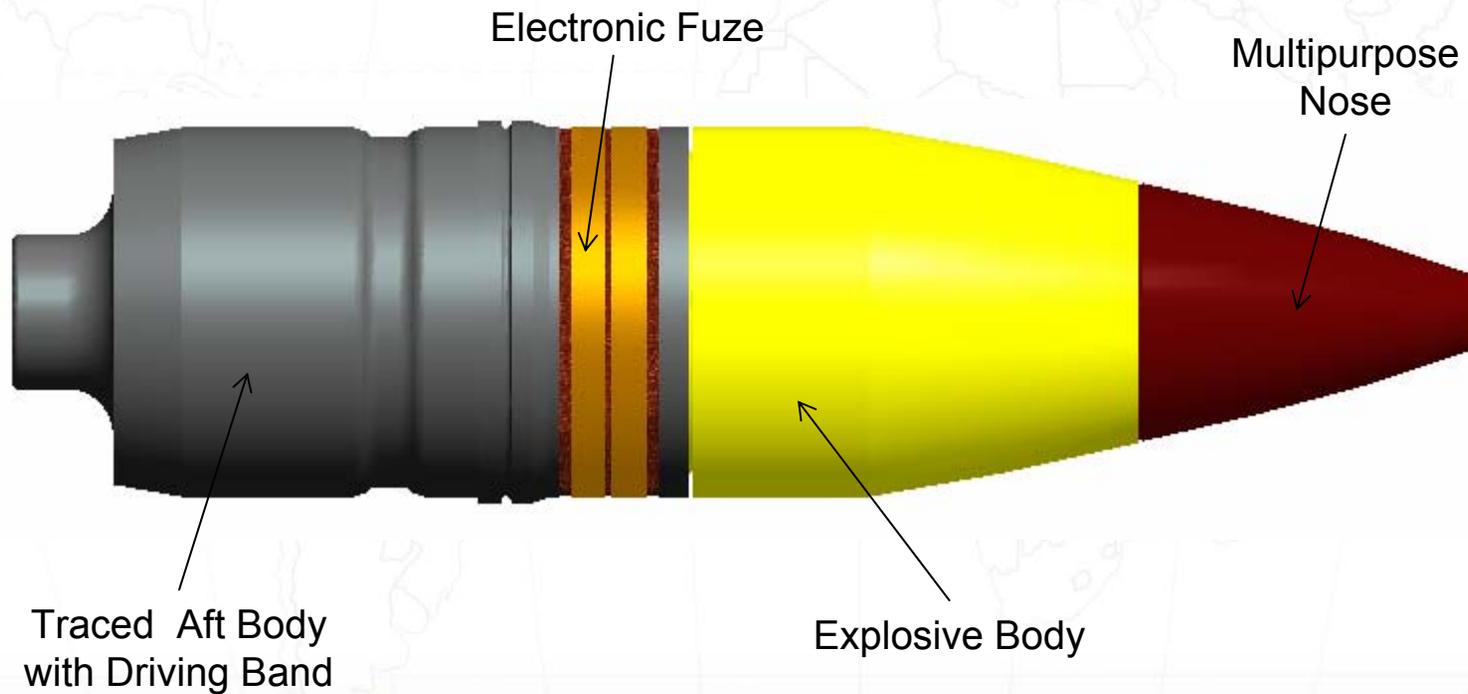
GD-OTS Super 40mm High Explosive Air Burst - Trace Program



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S40mm Air Burst Overview

For the last several years, GD-OTS has invested funds into the development of a S40mm High Explosive Air Burst - Trace (HEAB-T) Cartridge.



S40mm Air Burst Features

- Common case length with the APFSDS-T cartridge
- Incendiary filled, multipurpose nose
- Contact set, time-based, electronic fuze
- Lethal, fragmenting explosive body

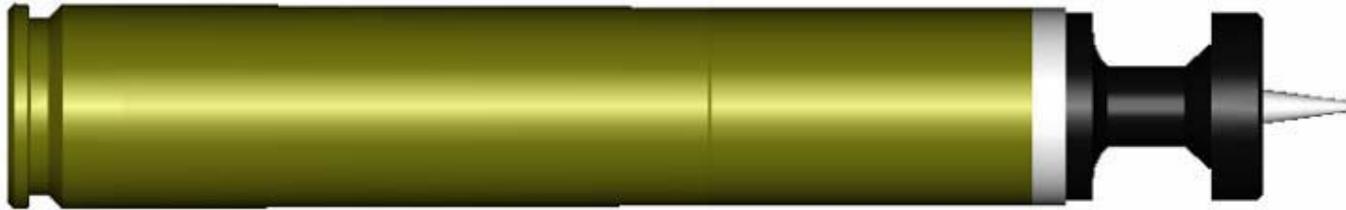


S40mm - Common Case

- Original HEAB-T design utilized a 165mm long case, much shorter than the 218mm case for the APFSDS-T
- In addition to not being common with the APFSDS-T, the 165mm case allowed ~2" of free travel in the barrel causing excess barrel wear
- Parametric study was performed to determine the optimal common case length



S40mm
HEAB-T



S40mm
APFSDS-T



S40mm - Common Case

- Outcome of parametric study was a 180mm case. This solution:
 - Locates forward edge of driving bands at forcing cone resulting in decreased barrel wear
 - Provides adequate area for communication and bearing surface in the HEAB-T
 - Allows for acceptable taper for case extraction



S40mm
HEAB-T



S40mm
APFSDS-T



S40mm Air Burst - Multipurpose Nose

- The HEAB contains a multipurpose nose to:
 - Increase capability of the ammunition and eliminate the need for HEI PD ammunition
 - Defeat light materiel targets
 - Provide PD function in the unlikely event that an air burst communication signal fails



S40mm Air Burst Fuze Description

- Programmable electronic time-based fuze
- Precision air burst function
- Contact communication system
- Fuze powered and set in weapon feed system
- Fuze reset each time target is lased
- Scalable across: 25mmx137 → 30mmx173 → 30mmx113 → S40mm → 35mmx228 → 50mmx228
- Integration into the weapon system is similar across Bushmaster platforms



S40mm Air Burst Fuze Description

- **Fuze Setting Flexibility**

- Fuze can be set and reset multiple times before commitment by pulling the trigger. This enables the user to change targets as needed.
- Manual override is an additional capability in the event a range finder cannot lock on a target. The solution is a progressive or regressive string of pearls that can cover the target.



S40mm Air Burst - Demonstration



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S40mm Air Burst - Demonstration



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Summary

- A lethal S40mm air burst munition exists today
- The munition has been successfully demonstrated out of the MK44 cannon in both single and burst mode (200 spm) at multiple ranges
- The munition has been demonstrated against mannequins standing, prone, and behind a sandbag barrier. Fragment patterns have been scored by the Eglin Vulcan System
- Fuze is scalable across calibers with similar integration across Bushmaster platforms

