

# **GENERAL DYNAMICS**

Ordnance and Tactical Systems

# **Nammo**

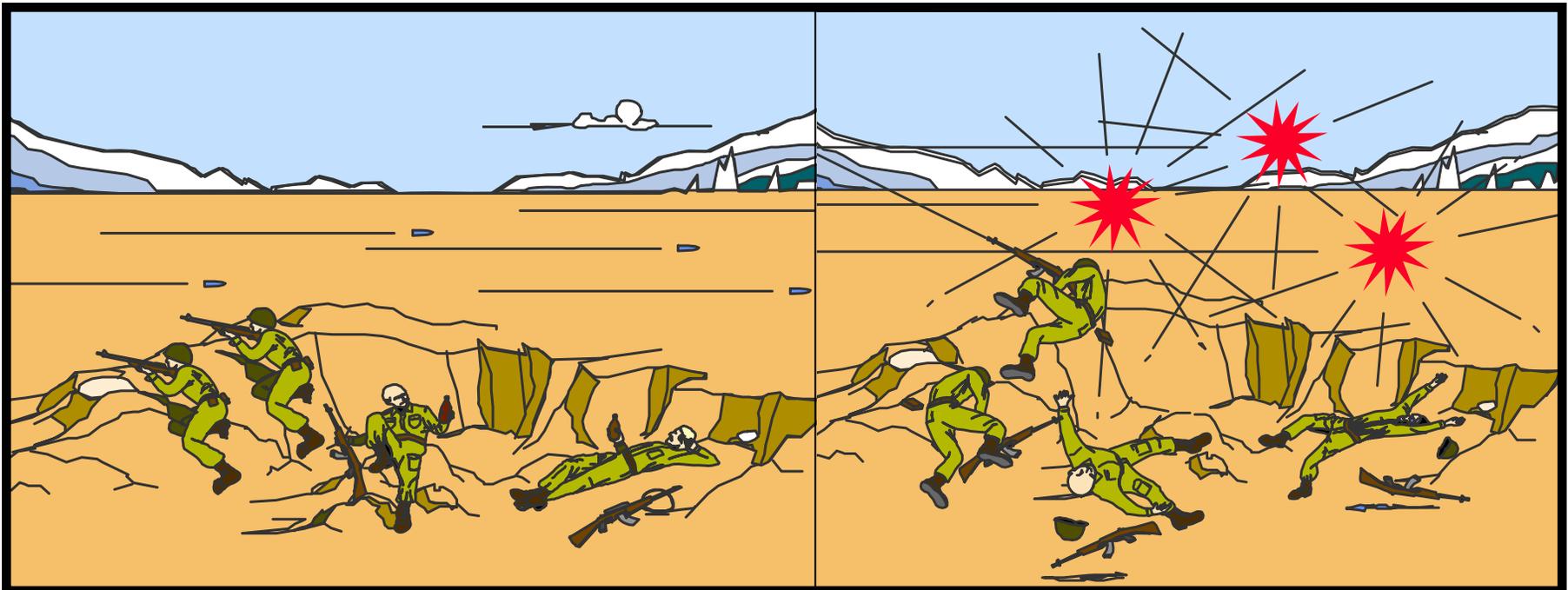
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**41<sup>st</sup> Annual Armament Systems:  
Gun and Missile Systems Conference & Exhibition  
Event #6590  
March 27-30, 2006  
Sacramento Convention Center  
Sacramento, CA**

**30x173mm High Explosive Air Burst – Trace (HEAB-T)  
Capabilities for Tomorrow**



# Why Do We Need Air Bursting Munitions



**KE Ammunition Can Only Suppress Personnel In Defilade**

**Air Burst Ammunition Kills**

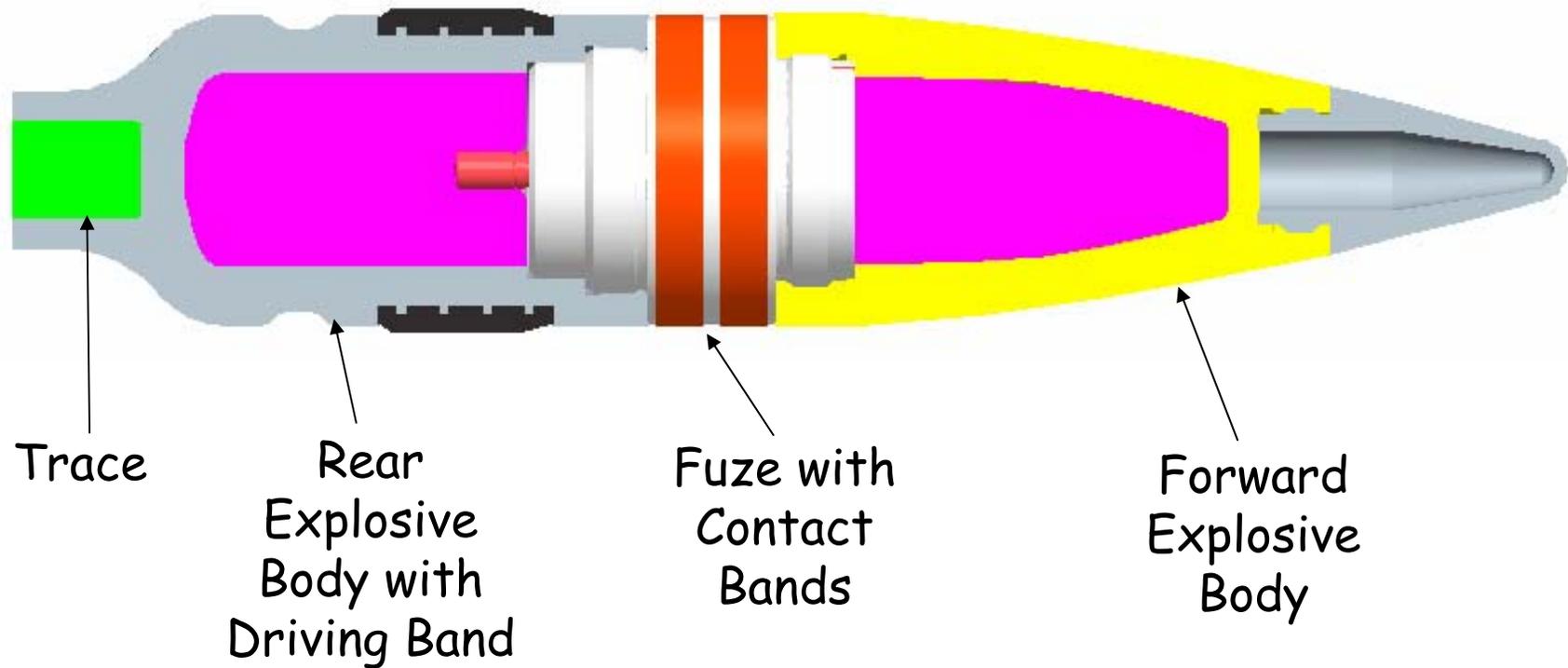
# Why Do We Need Air Bursting Munitions

## Emerging Threats

- Troop Personnel
- ATGM Sites
- Light Armored Vehicles
- Unarmored Vehicles
- Urban Structures
- Bunkers
- Watercraft



# A 30mm Airburst Solution

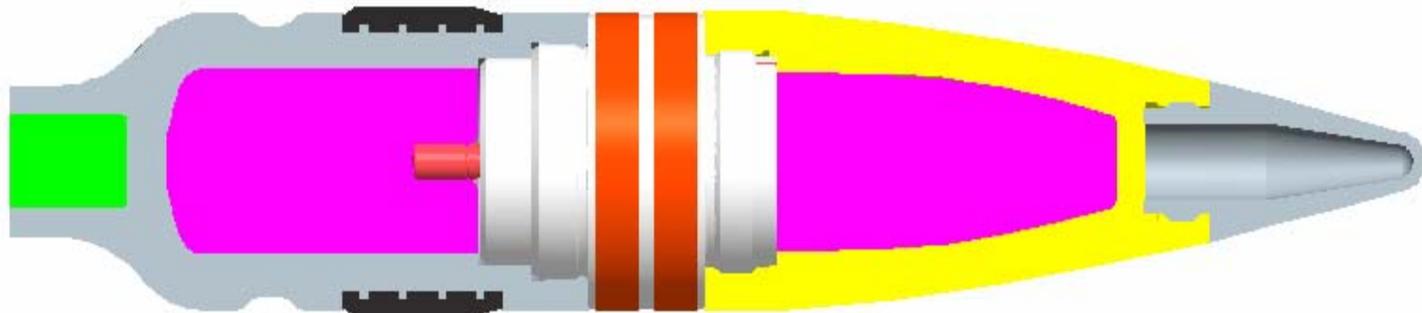


## 30mm Air Burst Fuzing Approach

- Remote settable electronic time fuze
- Independent point detonating backup with super quick or delay
- Independent sterilization
- Precision air burst function
- Contact communication system
- Fuze powered and set in weapon feed system
- Fuze re-set each time a target is lased

## 30mm Air Burst Fuzing Approach

- 25mm ACSW / 30mm Air Burst Commonality
- Significant development cost savings

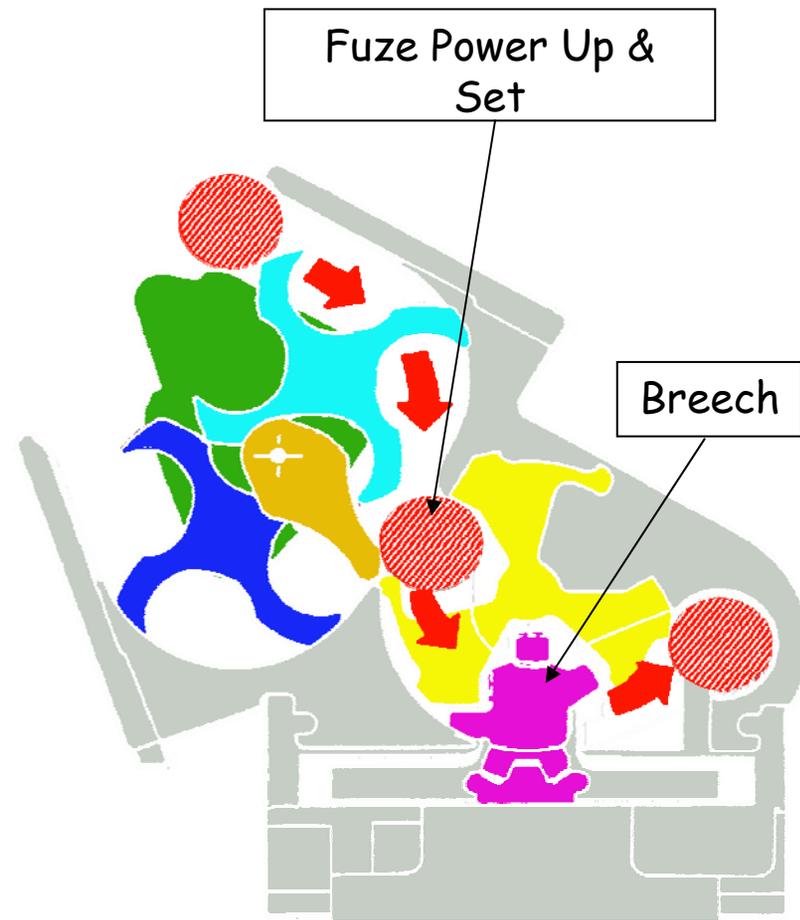


30mm HEAB-T

## 30mm Airburst

### 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.



## 30mm Airburst

The HEAB contains a point detonating (PD) function to:

- Increase capability of the ammunition and eliminate the need for HEI PD ammunition
- Defeat materiel targets
- Have a functional PD round in the unlikely event that an airburst communication signal fails
- Provide round "Sterilization"

# Demonstration of 30mm Airburst

# 30mm Airburst Target Located at 750m



# 30mm Airburst at 750m

Traced  
airburst  
round  
enters from  
the left and  
"kills" all  
but two of  
eight  
balloons.  
Also note  
fragments  
hitting  
rocks all  
around the  
cave.



# 30mm Airburst at 750m

Traced  
airburst  
round  
enters  
from the  
left and  
"kills" all  
but two of  
twelve  
balloons.  
Again note  
fragments  
hitting  
rocks all  
around the  
cave.



# 30mm Airburst Penetration Capabilities

# 30mm Airburst Penetration Capabilities 10.6mm Steel Target



Test setup at 100m



10.6mm Steel Target  
with Witness Panel 0.5m  
Behind

# 30mm Airburst Penetration Capabilities

Penetration through a 10.6mm steel target at 100m at zero degrees.



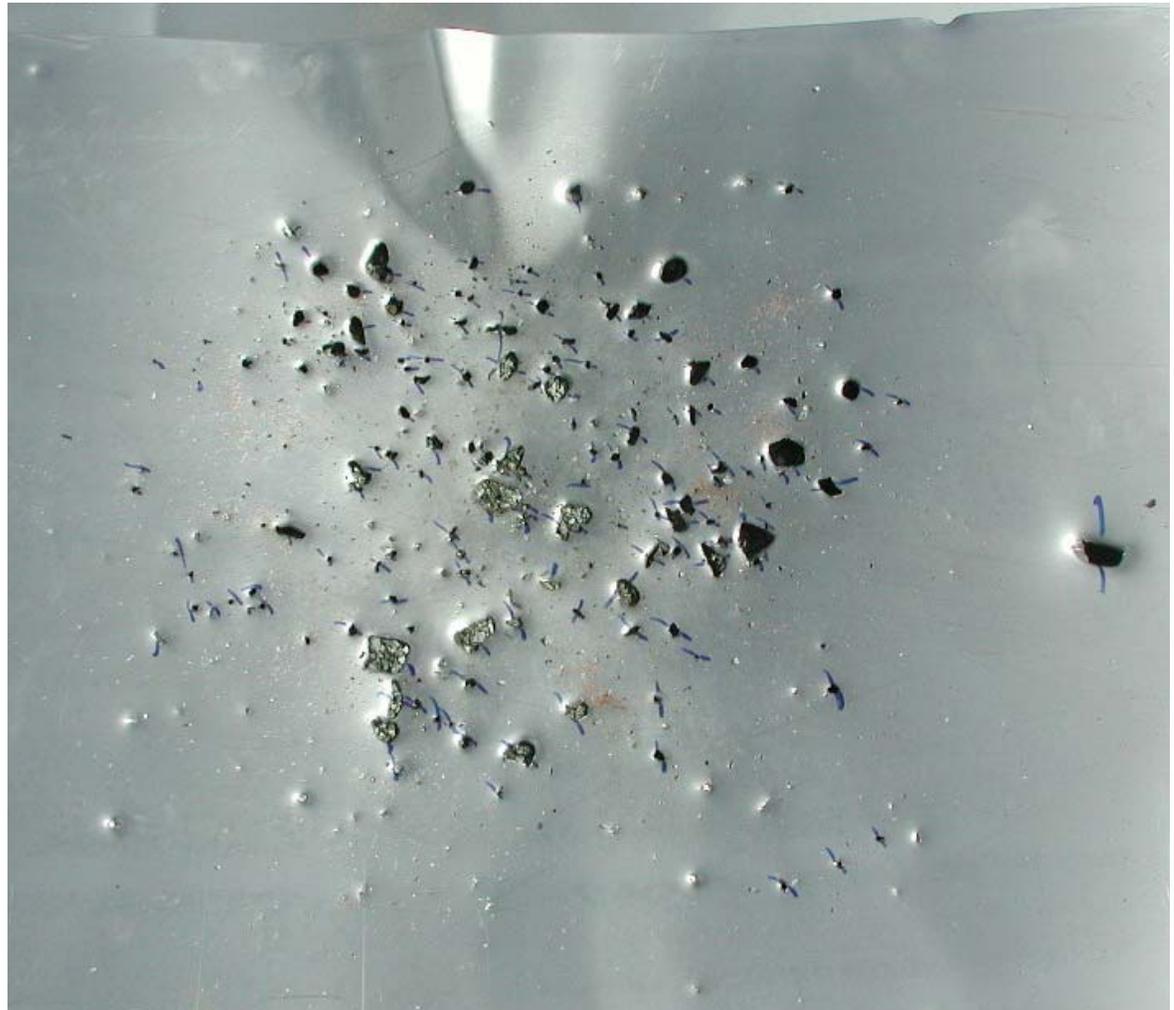
# 30mm Airburst Penetration Capabilities

The witness panel located 0.5m behind 10.6mm steel target had 122 fragment holes from the 30mm airburst round.



# 30mm Airburst Penetration Capabilities

Repeating this test, the witness panel located 0.5m behind 10.6mm steel plate had 156 fragment holes from the 30mm airburst round.



# 30mm Airburst Penetration Capabilities



Test setup at 100m  
using a 3mm DURAL  
target with a  
witness panel 0.5m  
behind.

Witness  
Panel

Target Plate

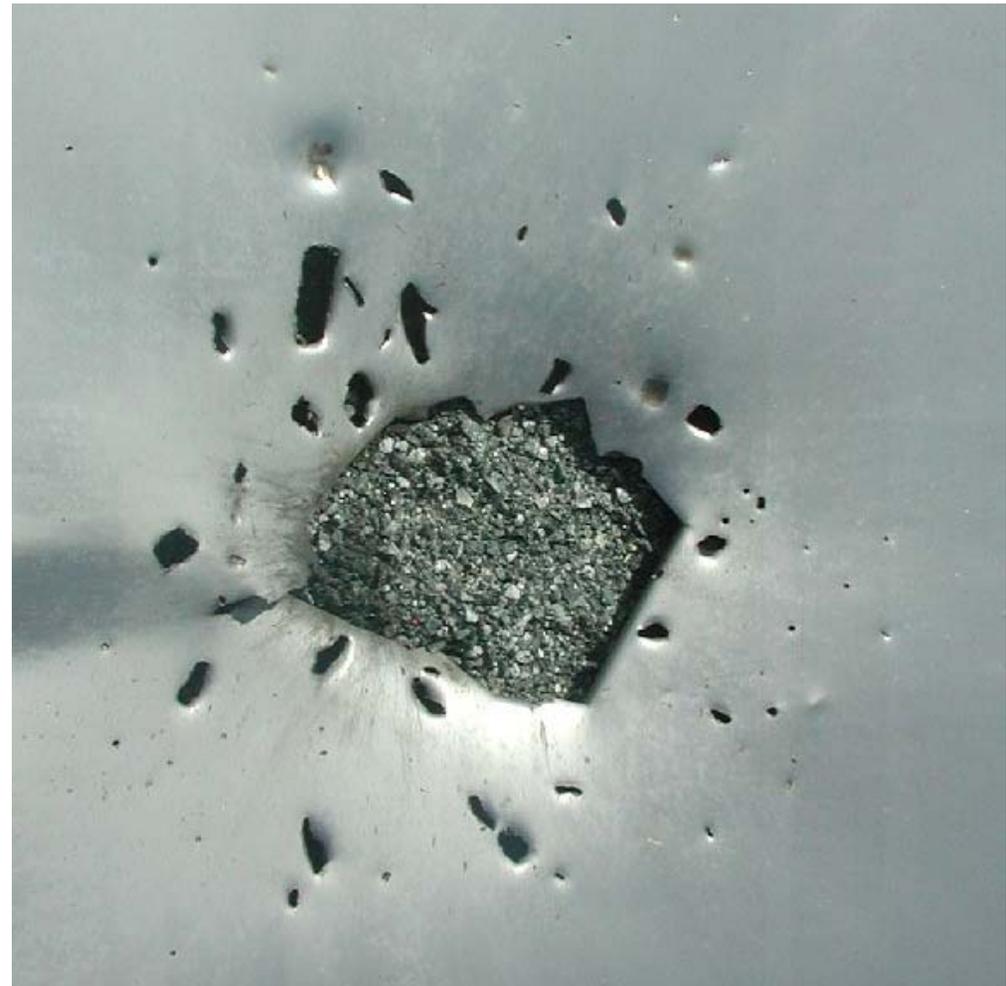
# 30mm Airburst Penetration Capabilities

Penetration through a 3mm DURAL target at 100m at zero degrees.



# 30mm Airburst Penetration Capabilities

The witness panel located 0.5m behind 3mm DURAL plate had 47 fragment holes from the 30mm airburst round.



# 30mm Airburst Penetration Capabilities

Test setup at 100m using a 10.6mm steel target with a witness panel 0.5m behind and a fuel container.

NOTE: Plate is 45° to line of flight.



# 30mm Airburst Penetration Capabilities

Penetration through a 10.6mm Steel target at 100m and 45 degrees.



## 30mm Airburst Lessons Learned

### Summary

- A lethal 30mm air burst munition exists today.
- The munition has been successfully demonstrated out of the Mk44 cannon in both single and burst mode (200spm) at multiple ranges.
- The munitions have been demonstrated against mannequins in standing, prone, and behind sandbag barriers. Fragment patterns have been scored by the Eglin Vulcan System.
- Work continues on bringing new capabilities into 30mm.

Questions?