

# GENERAL DYNAMICS

Ordnance and Tactical Systems

**44th Annual Armament Systems: Gun and Missile  
Systems Conference & Exhibition  
Event #9590**

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**Kansas City, Missouri**

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

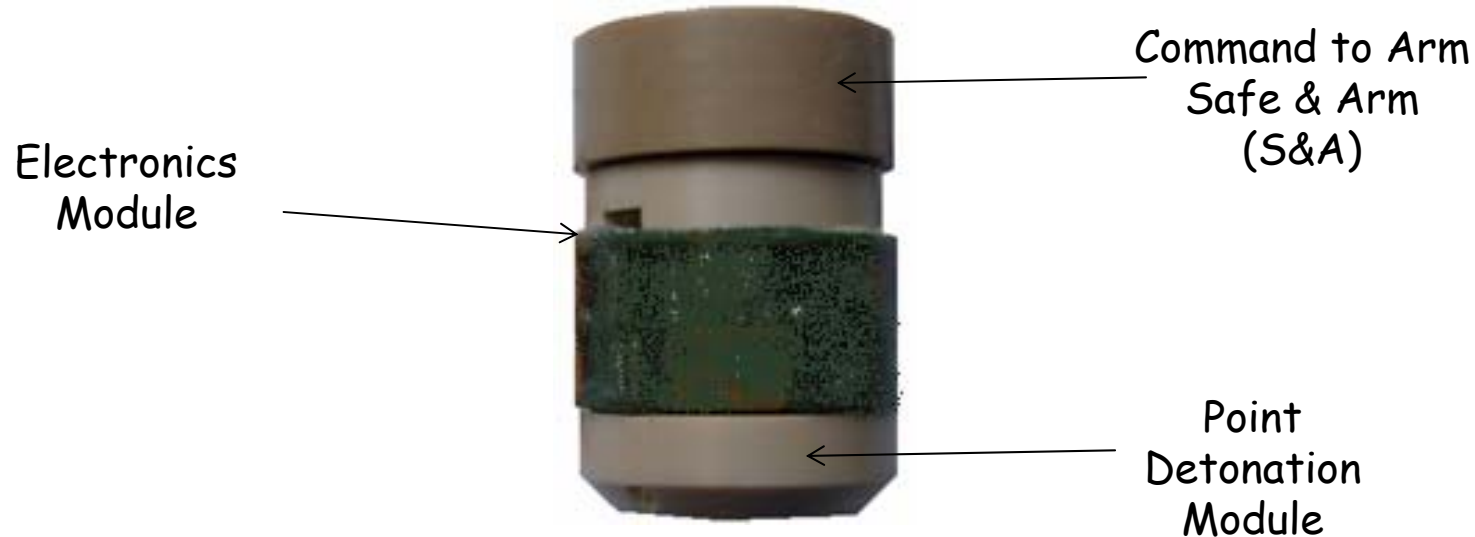
**Scalable Air Burst Fuze Program**



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# Scalable Air Burst Fuze Overview

Since 2007, GD-OTS has been under contract with the US Army - Picatinny for the development of a scalable air burst fuze. Current focus is on fuze safety tests and demonstrations in the M242 and M230 weapons.



**Air Burst Fuze Commonality for 25mm - 50mm Calibers**



# Scalable Air Burst Fuze Objectives

- Create an air burst fuze that is scalable for applications from 25mm through 50mm
- Perform Mil-Std-331 fuze safety tests
- Demonstrate fuze setting in the Bradley's M242 weapon fired at  $200\pm 25$ spm and Apache's M230 weapon fired at  $625\pm 25$  spm
- Demonstrate airburst capability at various ranges using 25mm Bushmaster and 30mm Apache cartridges
- Develop selectable Point Detonate (PD) module for PD or PD delay capabilities
- Present airburst fuze design and test results to Army Fuze Safety Review Board



# Scalable Air Burst Fuze - Safety Testing

MIL-STD-331 fuze safety tests were performed on the S&A device of the scalable air burst fuze

MIL-STD-331 Safety Test	Result
Transportation Vibration	Pass
1.5m Drop	Pass
Jolt	Pass
Jumble	Pass
Subverted Safety (setback lock omitted)	Pass
Subverted Safety (spin lock omitted)	Pass
Primary Explosive	Pass

Fuze Passes Key Safety Tests  
Ensuring Warfighter Safety



# Scalable Air Burst Fuze - 2009 Development Testing

Description	Qty	Caliber	Standards
Transportation and Vibration	5	25mm	MIL-STD-331C
1.5m Drop	5	25mm	
1.5m Drop (subverted setback)	5	25mm	
1.5m Drop (subverted spin)	5	25mm	
Primary Explosive Comp. Safety	15	30mm	
Progressive Arming	20	30mm	
ESD - Personnel Borne	5	30mm	
ESD - Helicopter Borne	5	30mm	
HERO	1	25mm	
Aircraft Vibration	5	30mm	
Normal Impact Function - PD	5	30mm	
Normal Impact Function - PD Delay	5	30mm	

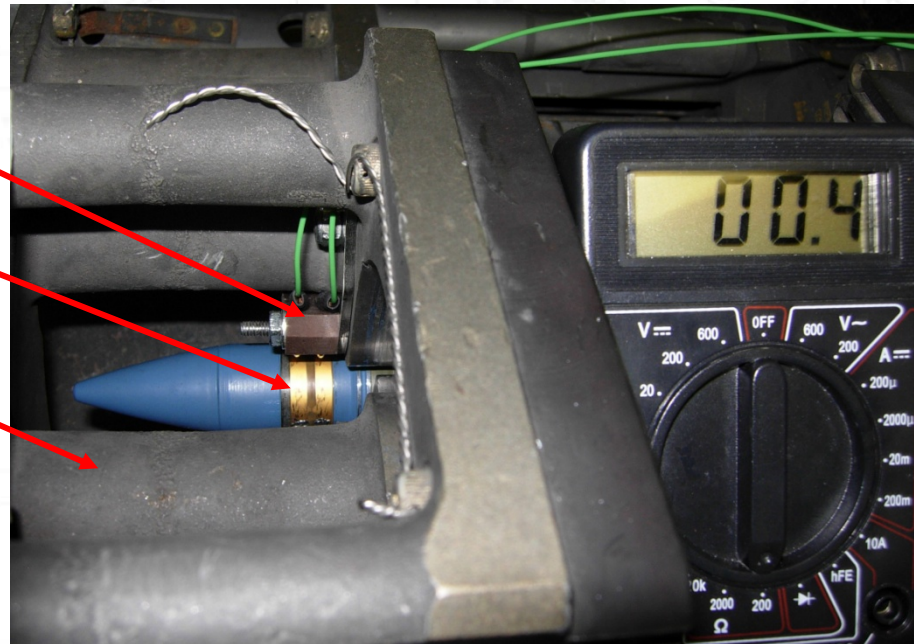
**A Multiple Caliber Air Burst Fuze  
Ready for Demonstration**



# Scalable Air Burst Fuze - 25mm M242 Integration

GD-OTS successfully integrated fuze setting contacts into the 25mm M242 and demonstrated functionality at  $200 \pm 25$  spm.

Weapon contacts  
Projectile contact  
bands  
Weapon feeder



High Rate Burst of  $200 \pm 25$  Shots per Minute Demonstrated



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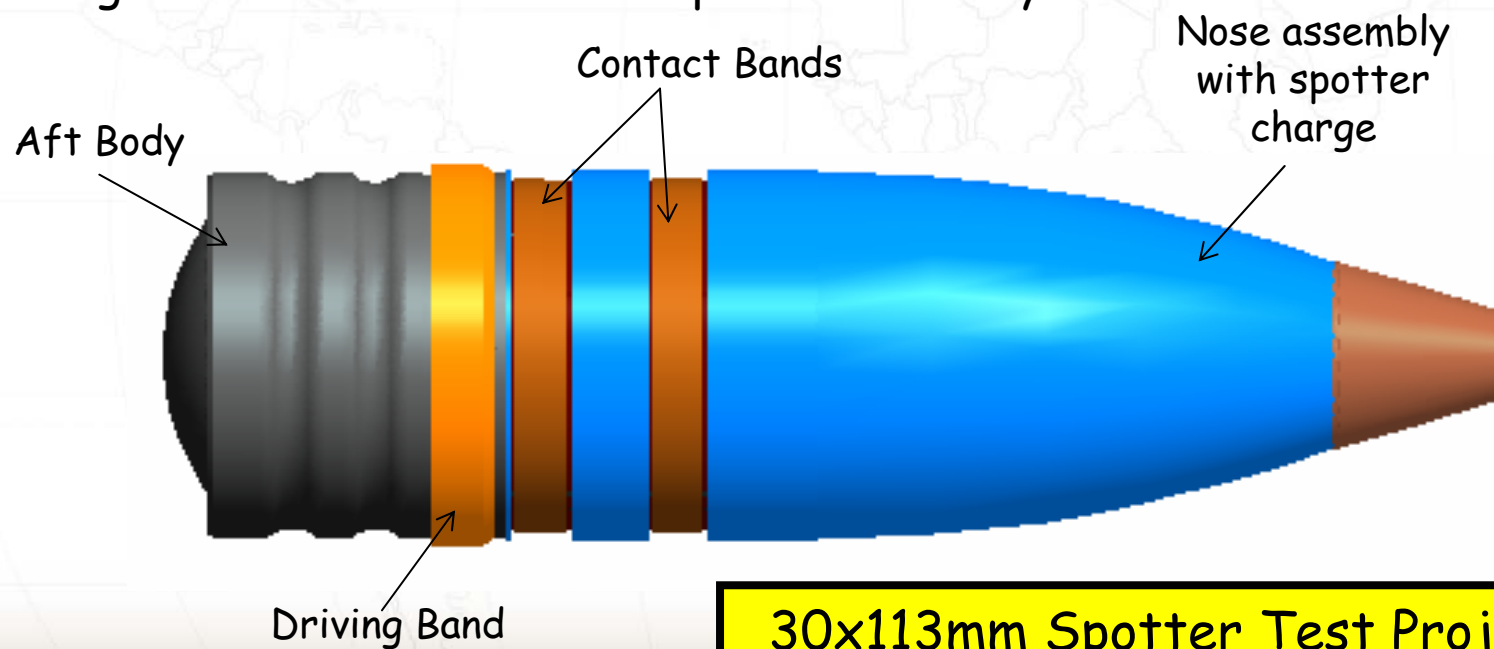
# Scalable Air Burst Fuze -25mm M242 Demonstration

Test Demonstration	Range	Qty	Objective	Status
Self-Destruct	2700m	5	Demonstrate capabilities vs. models & simulation	Scheduled for 4/2009
Burst Point Accuracy	600m, 1500m, 2500m	90	Demonstrate capabilities vs. models	Scheduled for 4/2009
M242 single shot & high rate bursts	1500m	32	Demonstrate capabilities vs. models	Scheduled for 4/2009



# Scalable Air Burst Fuze - 30mm M230 Demonstration

- 30x113mm test projectile has been designed
- Selectable PD/PD delay design is underway
- Integration into the M230 weapon is underway



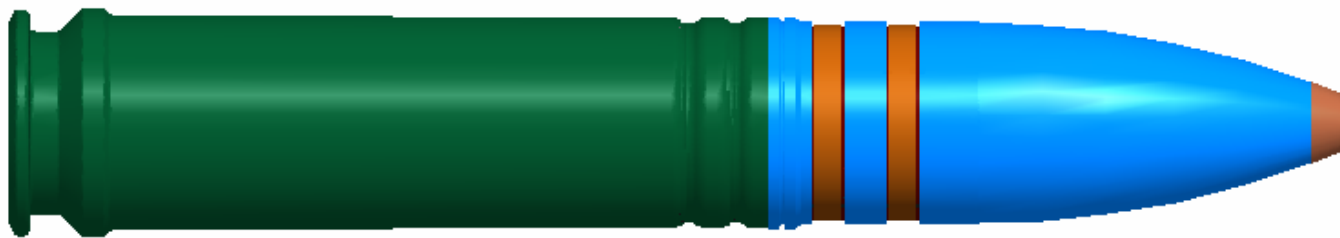
30x113mm Spotter Test Projectile





# Scalable Air Burst Fuze - 30mm M230 Technical Demonstration

Description	Quantity
Standard Point Detonation	5 rds at 200m
Point Detonation Delay	5 rds at 200m
Burst Point Accuracy	30 rds at 600m 30 rds at 1500m 30 rds at 3000m
M230 Single Shot	5 rds at 1500m
M230 Burst Shots (625spm using 5 rd bursts)	3ea 5 rd bursts at 1500m (single point) 3ea 5 rd bursts at 1500m (progressive) 3ea 5 rd bursts at 1500m (regressive)



Scalable Air Burst Fuze Capable of Firings at  $625 \pm 25$ spm



## Summary

- Fuze setting in M242 to function at high rate burst ( $200\pm 25$  spm) has been demonstrated
- S&A has passed Mil-Std-331 safety tests
- PD module with programmable delay will be tested in 30mm
- Integration of fuze setting contacts into M230 for function at high rate burst ( $625\pm 25$  spm) is in progress
- Fuze is scalable across calibers with similar integration across Bushmaster platforms
- Design incorporates U.S. Army Fuze Safety board guidance to assure soldier safety





**Questions?**



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