

**Apache AH-64**

**30x113mm Target Practice Spotter**



**Alternative Training Ammunition**

**for the M788 TP**

**Apache AH-64**

**30x113mm  
Target Practice  
Spotter**

**44<sup>th</sup> Annual Armament  
Systems: Guns and Missile  
Systems Conference and  
Exhibition**

**Event #9590**

**April 6-9, 2009**

**Kansas City, Missouri**

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

**GENERAL DYNAMICS**  
Ordnance and Tactical Systems

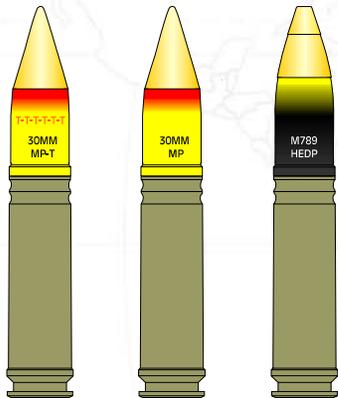
# Overview

30mm x 113 Target Practice  
Spotter Cartridge  
Background  
Design Description  
Ballistic Performance  
Safety Compliance



# 30mm x 113 Ammunition Family for M230 Gun

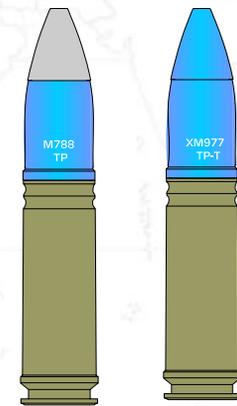
## Tactical



PIE-T · PIE · HEDP



## Training

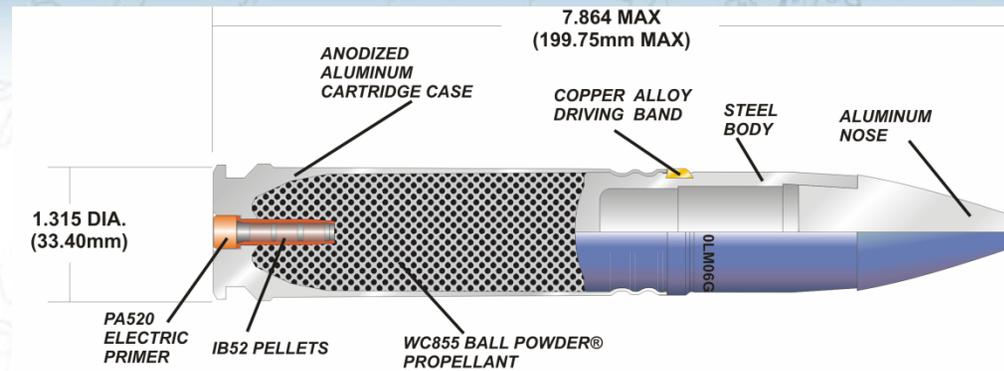


Spotter TP

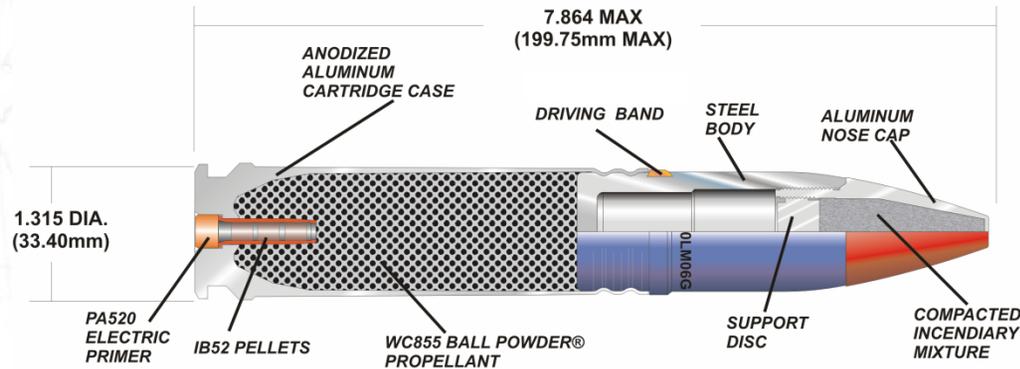
## ***30mm x 113 Spotter Cartridge - Background***

- In 2007 the US Army issued a Market Survey for an Apache training cartridge with a visible impact signature at ranges up to 3000m in day and night conditions while using an unaided eye, FLIR, night vision goggles, and day TV.
- The US Army invited contractors to participate in a technical demonstration at Ft Rucker in December 2007
- General Dynamics Ordnance and Tactical Systems delivered and demonstrated a 30mm x 113 Target Practice Spotter (TPS) cartridge for enhanced Apache M230 weapon training that is:
  - Compatible with the M230 weapon system
  - A ballistic match to the current M788 training ammunition
  - Visible under required conditions while impacting a steel target

# 30mm x 113 Target Practice Spotter Cartridge



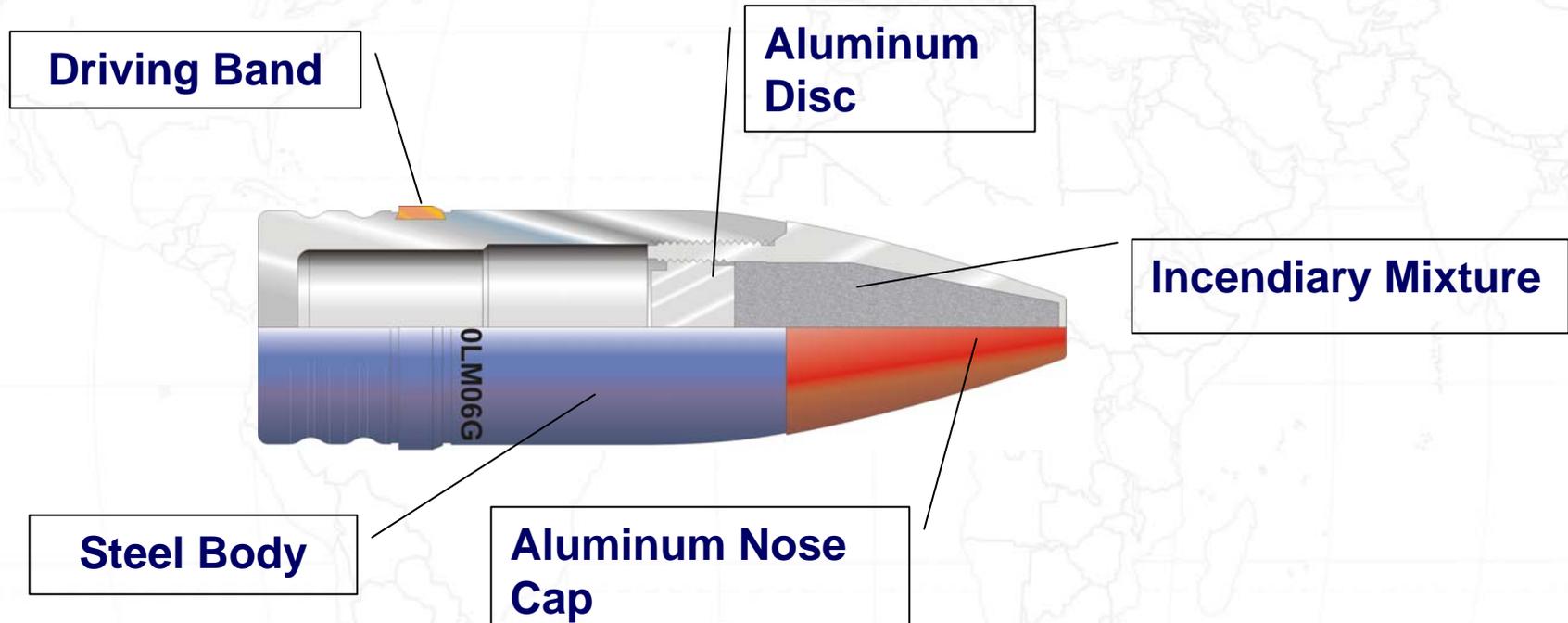
**30mm x 113 TARGET PRATICE, M788**



**30mm x 113 TARGET PRATICE SPOTTER CARTRIDGE**

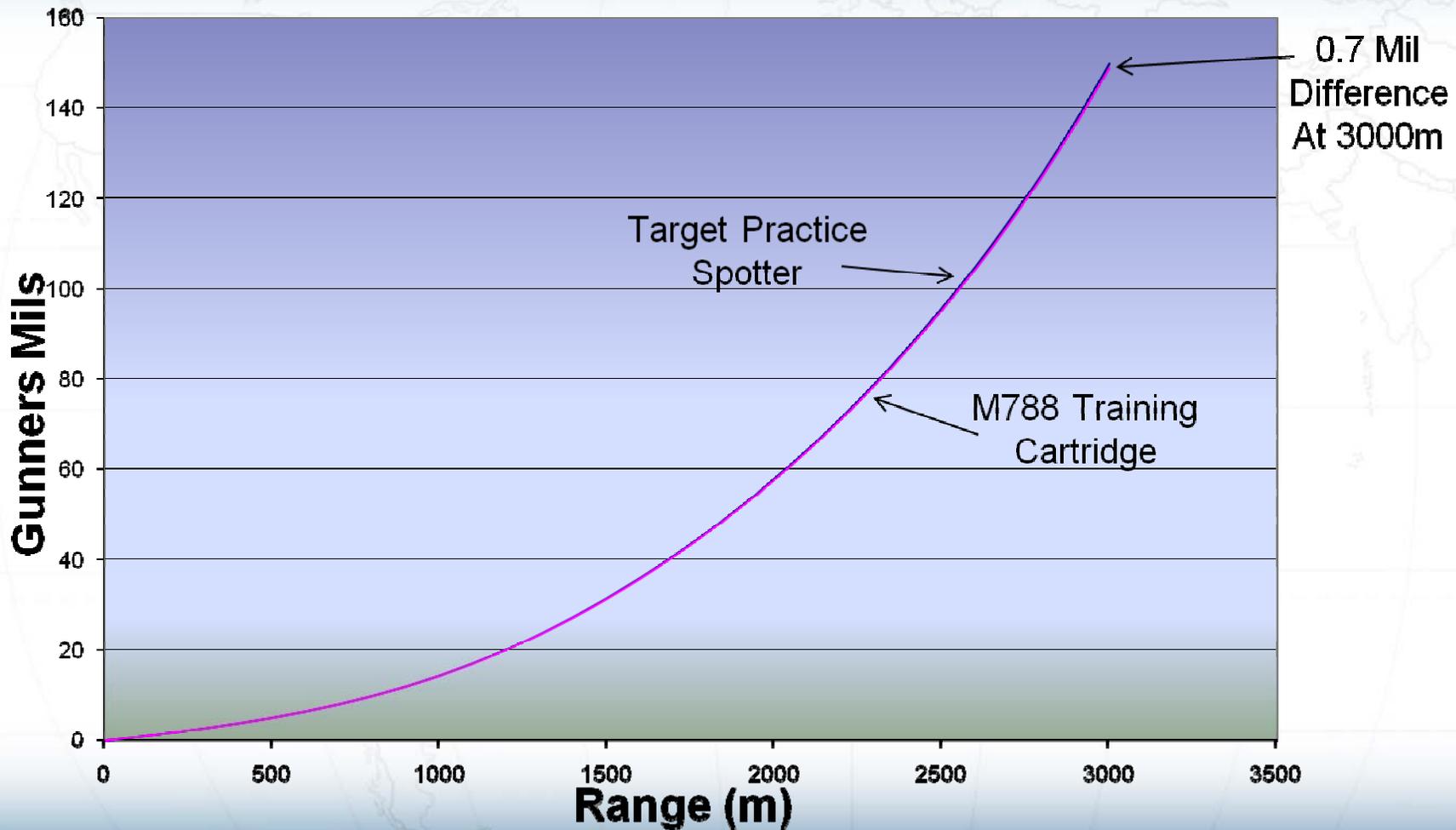
*The 30mm Spotter Cartridge is Fully Compliant with the 30mm Gun System including Interior and Exterior Ballistic Performance*

# 30mm x 113 Target Practice Spotter Projectile



***GD-OTS Has Demonstrated Launch Survival and Reliable Function at Terminal Impact.***

# 30mm x 113 Spotter Cartridge – Ballistic Match to M788 Training Cartridge



# 30mm x 113 Spotter Cartridge Testing at Fort Rucker



**1500m Steel Target**



**1500m Day Impact**



**1500m Night Impact**

# ***30mm x 113 Spotter Cartridge Testing at Fort Rucker: 1500m Day Impact***



***30mm x 113 Spotter Cartridge  
Testing at Fort Rucker: 1500m Night Impact***



# 30mm x 113 Spotter Cartridge Testing at Fort Rucker: 1500m Day Target



White  
Steel  
Target  
at  
1500m  
~3.5se  
c  
Time of  
Flight

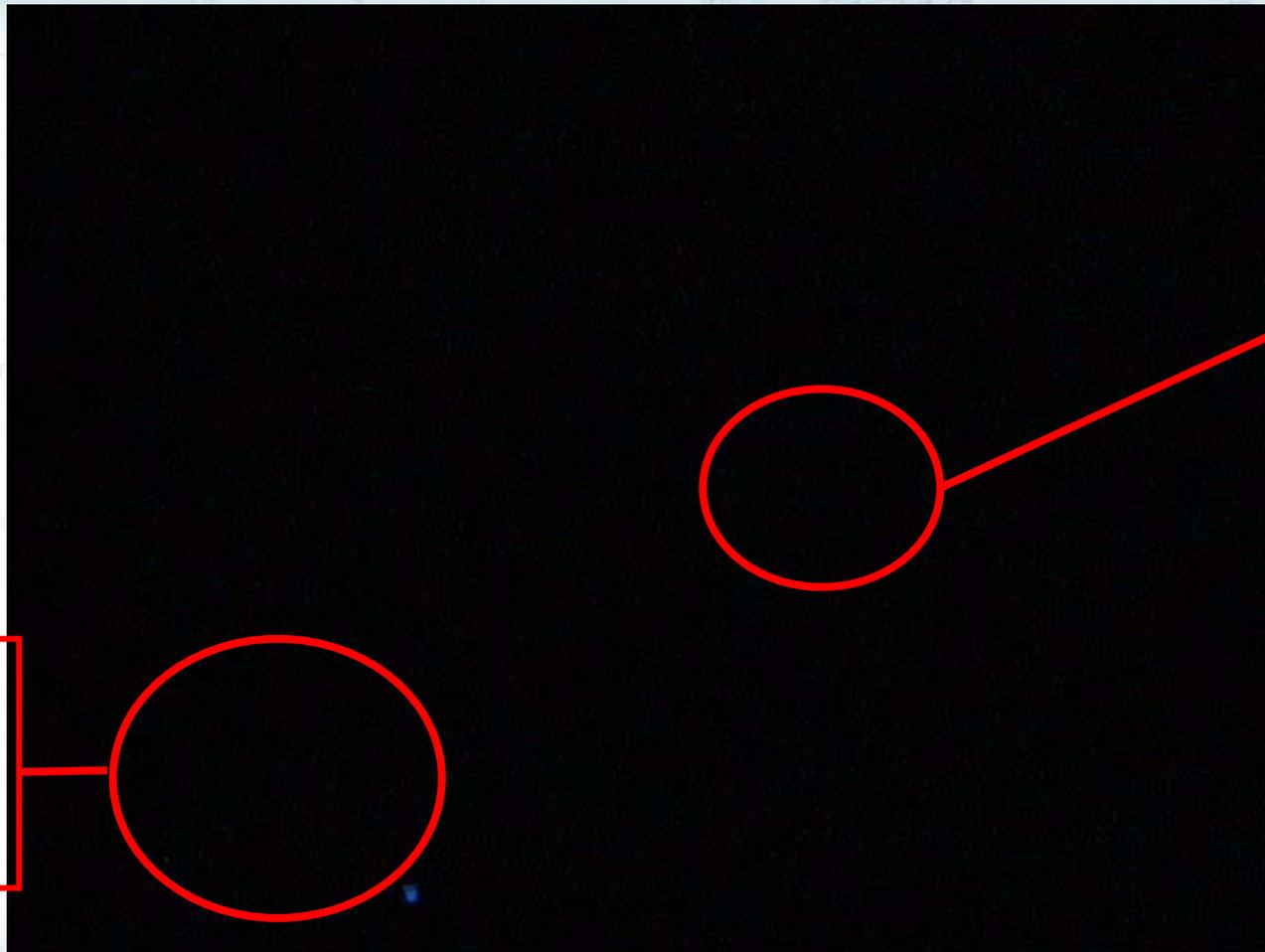
# 30mm x 113 Spotter Cartridge

## Testing at Fort Rucker: 3000m Night Target

Six  
Round  
Burst  
With  
One  
Impact

M230  
Gun  
Position

Steel  
Target  
at  
3000m  
~12sec  
Time of  
Flight



# 30mm x 113 Target Practice Spotter Cartridge Safety Performance

40 Feet Drop Simulation: Air gun accelerated projectile with piston simulating cartridge mass for controlled velocity impact simulating drop from 40 feet



Pre-drop  
condition

Survives Extreme Drop Conditions and Is Safe to Handle

# M230 Weapon Double Cartridge Feed Condition



Survives Double Ram Feed Loads in the M230 Gun System

## Summary

30x113mm Target Practice Spotter cartridge:

- Is functional in the M230 automatic weapon
- Is a ballistic match to the 30x113mm cartridge family: M788 TP, M789 HEDP, PIE, and PIE-T
- Is designed using qualified components currently used in other production rounds such as: M788, PGU-28A/B and M940
- Has been demonstrated at 1500m and 3000m for the US Army at Fort Rucker in night and day conditions



**30mm Spotter Cartridge is Operable in M230 Gun and Has Been Demonstrated for the US Army**

# Conclusion



GD-OTS is Ready to Produce for Current Needs or Develop for Future Apache AH-64 Needs

# ***30mm x 113 Spotter Cartridge***

**Questions / Comments**

**LAND SEA AIR**

**GENERAL DYNAMICS**  
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