

# Abrams/Bradley Master Gunner Conference MCoE, September 2013



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## 120mm Tank Ammunition

# AGENDA



1. M1002, TRAINING MPAT
2. ADVANCE CASE SYSTEM (ACS)
3. M865E/EXTENDED SABOT  
TRAINING ROUND



# M1002, TPMP-T

## Target Practice Multiple Purpose-Tracer



- a. Length: 38.74 in
- b. Weight: 46 lbs
- c. M/V: 1375 m/s



# Why M1002?



- *Simulates the M830A1 and M908 service rounds*
- *Appearance and handling similar to service rounds*
- *M830 HEAT, nearing end of historical service life, no war requirement*
- *M831A1, out of production, nearing end of availability*
- *M1002 best supports the Operational Needs Requirement Document (ORD)*



M908

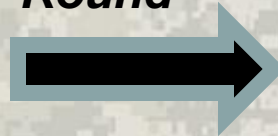


M830A1



M1002

■ **Current  
HEAT-TPT  
Round**



■ **Current  
HEAT  
Service  
Round**



M831A1



M830

Supports “Train as you fight” Concept



# M1002, TPMP-T

## Status



M1002  
TPMP-T

- DA, restricted fielding, expend current M831A1
- USMC, fielding, almost exclusively M1002
- 2ID, fully fielded, SDZ issue
- FORSCOM, limited numbers in the field
- NG, Gowen Field only at present
- CCF; R.10, U.55  
Several units report low impacts during LFAST  
Need to consolidate this data to determine if  
relook at CCF is required, Field Input Critical
- Range Impact Study (TCM-Live/USACoE/Ammo)



# M1002, TPMP-T



## Range Impact Study (TCM-Live/USACoE/PM-MAS, TCM-ABCT)

**PURPOSE:** To determine if damage on live fire ranges when using the M1002 TPMP-T (Target Practice Multi-Purpose-Tracer) round is manageable under current range maintenance procedures and if current range construction design standards are sufficient.

### M1002, M831A1, M865 Comparisons

~ 25mm = 1 in

Model/ Areas	Muzzle (M/V) M/S	M/V@ 600 m	M/V@ 800 m	M/V@ 1200 m	M/V@ 1600 m	M/V@ 2000m	Diameter Stabilizer	Diameter Body	Diameter Nose/Spike	Tracer Burn Time (s)
M1002, T-IMPAT	1375	1202	1146	1034	925	818	114.0 mm	Aluminum	Steel	7
M831A1, Heat	1140	979	927	827	730	633	119.03 mm	119.08 mm Aluminum	45.1 mm Steel	5
M865, Sabot	1700	1491	1423	1286	1149	1013	78.2 mm	38.3 mm Steel	Steel	5



M1002  
TPMP-T



# M1002, TPMP-T



M1002  
TPMP-T



# M1002, TPMP-T



**RESULTS:** Based on this limited assessment, berm impact damage from the M1002 round appears to be only slightly greater than the M831A1 and the M865 TPCSDS-T Sabot rounds. In most cases, ranges with berms designed and maintained in accordance with the standard berm protection design curves for 120mm ammunition should be adequate; with no change to the current maintenance cycles. There is a potential, however, that the maintenance cycle for some ranges with certain soil conditions (wet, poorly compacted, and or containing large amounts of organic materials) or which have target berms that are not built to current design guide standards may require reinforcement or more frequent maintenance to keep target devices protected and operational. There is no need for further scientific study at this point and that the round does not need to be modified to mitigate damage. The community of practice should remain vigilant as this round is fully fielded and follow the recommendations included in the study report.



M1002  
TPMP-T





# Advance Case System (ACS)



# Why ACS?



***The main purpose for the new ACS configuration is to make the 120mm tank rounds more robust at the Skive Joint Area.***

***At least 3 previous on-board tank ammunition fires have indicated damage to the current skive joint as being a contributor to these fires. Damage at the current skive joint area can release ether gas. Evidence has shown that damage to this area can occur when the round is being removed from the main gun chamber by being caught on the front edge of the stub base deflector tray.***

***All current training rounds use M14 propellant which contains ether. Ether is a combustible gas and when it leaks from the round in a certain degree of flow, a static discharge which can occur when handling the round in vicinity of the tank ammunition rack, can cause a fire.***

***Movement of the skive joint from the front of the round to the rear is designed to prevent damage at this area thus preventing the escape of ether gas.***

***An Ammunition Information Notice (AIN) is being developed to better inform the field of this new configuration and will be sent out as soon as possible. We don't anticipate any changes to the current inspection procedures.***



# Advance Case System (ACS)



## A. Past Performance:

- Successfully passed Engineering Performance Testing
- Successfully passed User Handling Testing
- First Army unit, 1-15 Infantry, no issues
- USMC 2<sup>nd</sup> and 4<sup>th</sup> Tank Bns, no issues

## B. Current Status:

- In production at the ammunition plant
- Fielding
- Next Army unit to fire, 3ID, Ft Stewart, GA





# M865E Extended Training Sabot Rd



← *Steel Nose*

← *3 Discarding Petals*

← *Combustible Cartridge Case*

← *Case Base & Seal Assembly/Aft Cap*

**We Hear You, You Need  
a Better Training Sabot  
Round!**

- a. Length: 38.7 inches
- b. Weight: ~ 44.0 lbs
- c. M/V: 1560 m/s



# Why M865E?



- Simulates the M829A3/E4 service rounds
- Appearance and handling similar to service rounds
- M829/A1 not intended for combat
- Current M865 nearing end of production run
- M865E best supports the Operational Needs Requirement Document (ORD)



M829A2  
APFSDS-T



M829A1  
APFSDS-T



M829A3  
APFSDS-T

Length ~ 38.7 in  
Weight ~ 46-49 lbs

Length ~ 34.7 in  
Weight ~ 42 lbs

Requirement  
Length ~ 1.2 in  
weight ~ +0/-6 lbs

Delta  
Length ~ 4 in  
weight ~ 1 lb



M865  
TPCSDS-T

***Supports “Train as you fight” Concept***



# M865E



M829 vs. M865

M829A3 vs. M865E1

- Current Status:  
\* Continued Testing
- Qualify M865E:  
\* FY14-17
- Estimated Low Rate Production:  
\* 3QFY19
- Estimated Date of Fielding:  
\* FY20-21





# Your Questions Please!



AND JUSTICE FOR ALL

