

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

OPERATOR/MAINTENANCE INFORMATION
ON CARTRIDGE, 120MM: TPCSDS-T, M865

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Headquarters, Department of the Army, Washington, DC
28 February 1991

REPORTING OF ERRORS

You can help improve this bulletin. If you find any mistakes or know of a way to improve the procedures, please let us know. Mail your DA Form 2028 (Recommended Changes to Publications and Blank Forms), direct to Commander, U.S. Army Armament, Munitions and Chemical Command, ATTN: AMSMC-MAY-T(D), Picatinny Arsenal, NJ 07806-5000. A reply will be furnished directly to you.

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SECTION I. INTRODUCTION

1. Purpose. The purpose of this bulletin is to provide supplemental operator/maintenance level information on cartridge 120mm: TPCSDS-T, M865. The cartridge includes the Standard Sabot (old) round, the 1-inch Shorter Sabot round, the new Alliant form, fit and function (F3) design round, and the new Olin F3 design round. These rounds are designed for firing in the 120mm smooth bore M256 cannon mounted on the M1A1 General Abrams Tank and associated NATO 120mm tank systems.

2. General. This bulletin contains data that will be incorporated into the following ammunition and weapon technical manuals:

a. TM 43-0001-28 Army Ammunition Data Sheets, Artillery Ammunition for Guns, Howitzers, Mortars, Recoilless Rifles, Grenade Launchers, and Artillery Fuzes.

b. TM 9-1300-251-20 Organizational Maintenance Manual Artillery Ammunition for Guns, Howitzers, Mortars, Recoilless Rifles, and 40mm Grenade Launchers.

c. TM 9-1300-251-34 Direct Support and General Support Maintenance Manual, Artillery Ammunition for Guns, Howitzers, Mortars, Recoilless Rifles, and 40mm Grenade Launchers.

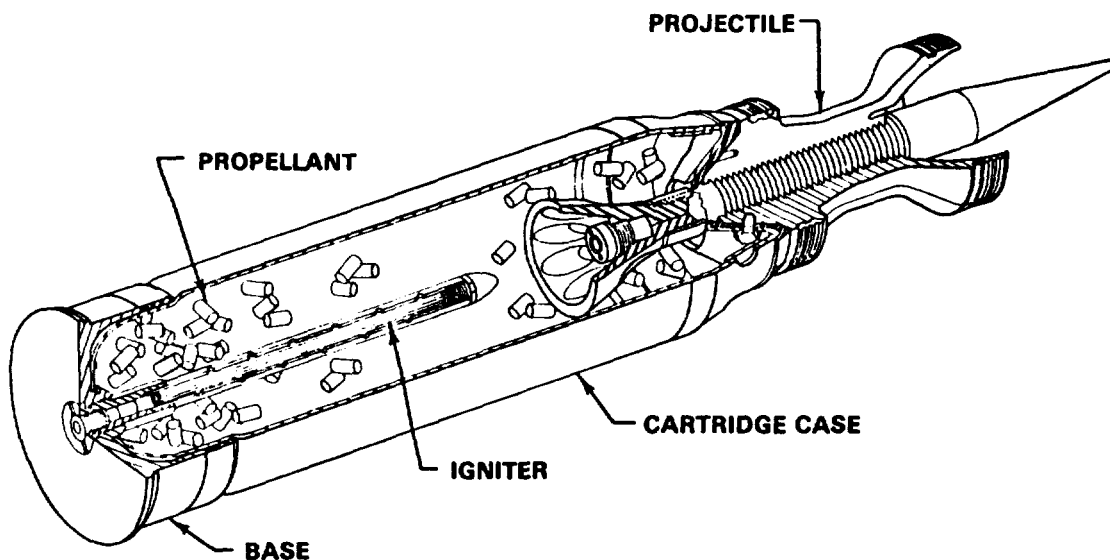
d. TM 9-2350-264-10 Tank, Combat, Full Tracked 120mm Gun, M1A1 (2350-01-087-1095) General Abrams.

SECTION II. INFORMATION AND PROCEDURES TO BE INCORPORATED INTO OPERATOR/MAINTENANCE TECHNICAL MANUALS

3. General. The information in the following paragraphs will be incorporated as changes to the ammunition chapter of the effected manuals.

4. Description and Tabulated Data.

a. Description. The cartridge, 120mm: TPCSDS-T, M865 (fig. 1) contains a propulsion system consisting of a stub metal case with combustible sidewall, granular propellant, and electric M125 primer, while the projectile consists of the subprojectile and aluminum sabot. The core is a one-piece steel design with a tail cone assembly which is assembled into the sabot by means of threads. The tail cone contains nine holes or six slots which in conjunction with the conical shape provide stabilization. Reduced range is achieved by the aerodynamic blocking effect of the holes or slots. The tail cone assembly also contains a tracer. The aluminum sabot is composed of three 1200 noninterchangeable segments with internal screw threads matching those on the outer diameter of the subprojectile. The sabot has a silicone rubber seal at the rear to prevent gas leakage. The weight of the complete cartridge is approximately 19.0 Kg (41.9 lb) and the weight of the subprojectile is approximately 3.2 Kg (7.1 lb).



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Figure 1. Cartridge, 120MM: TPCSDS-T, M865.

(1) Use. These cartridges are kinetic energy, target practice rounds for use with the 120mm smooth bore M256 cannon. They are designed to simulate the service round characteristics at reduced maximum ranges to allow practice firings on short-range proving grounds and training areas.

(2) Functioning. The M865 is loaded and fired from the 120mm tank gun in the normal manner.

Upon initiation of the electric primer in the breech of the weapon, the resulting flash ignites the propelling charge and combustible case generating gases which drive the projectile from the gun and ignite the tracer. The rear seal of the sabot prevents gas leakage between the sabot segments and the driving forces (gases) propelling the projectile down bore. Upon leaving the gun, aerodynamic forces cause the sabot to separate from the subprojectile allowing it to continue to target, while the sabot segments fall quickly to earth. The tail cone segment of the subprojectile, due to the nine hole (old design) or six slot arrangement, causes aerodynamic slowing of the subprojectile to limit its range to 8000 m.

b. Tabulated Data.

Complete Round:

Type	Fixed, TPCSDS-T
Weight	41.9 lb (19.0 Kg)
Length	34.7 in max
Assembly Drawing:	
Standard Sabot (Old) ...	12525000
1-Inch Shorter Sabot	12525000
New Alliant F3 Design	28251796
New Olin F3 Design	700062
Color	Blue w/white markings

Temperature Limits:

Firing:	
Lower Limit	-50°F (-46.0°C)
Upper Limit	+ 145°F (+ 63.0°C)

Storage:

Lower Limit	-50F (-46.0oC)
Upper Limit	+ 145°F (+ 63.0°C)

Performance: Breech Pressure @ 210C*

Standard Sabot (with LKL Propellant)	4800 bars
Short Sabot (with LKL Propellant)	4600 bars
Alliant (Short Sabot, with LKL Propellant)	4600 bars
Olin (Short Sabot, with M14 Propellant)	4950bars

*Note: Expected average breech pressure values at 8.9 cm from rear face of tube.

Packaging (Wooden Box):

Inner Pack Drawing.....	12527220
Outer Pack Drawing.....	12527240
Dimensions	45.6 in x 9.02 in
.....	x 10.24 in
Weight (with Cartridge)	77.9 lb
Cube	2.4 cu ft
Explosive Weight (Propellant)	19.03 lb
Packing *.....	1 round per fiber container, 1 container per wooden box, 20 boxes per pallet

Packaging (Metal Container):

Packing and Marking:	
Standard Sabot	12561273
Short Sabot	12913175
Alliant F3 Design.....	12913175
Olin F3 Design.....	12913175
Dimensions	44.5 in x 7.75 in
.....	x 7.75 in
Cube	1.55 cu ft
Total Weight (with Cartridge)	63.2 lb
Total Explosive Weight	19.03 lb (LKL propellant)
.....	16.28 lb (M14 propellant)
Packing**	1 round per metal container, 30 metal containers per pallet

**Note: See SC for complete packing data including NSN's.

Shipping and Storage Data:

DOD Hazard Class	1.3 (Wood Box) (08) 1.2 (Metal Can)
Storage Compatibility	
Group	C
DOT Shipping Class	B
DOT Designation	AMMUNITION FOR CANNON WITH SOLID PROJECTILES
DODAC	1315-C785

WARNING

DO NOT FIRE OVER THE HEADS OF FRIENDLY TROOPS, UNLESS TROOPS HAVE ADEQUATE COVER.TROOPS MAY BE STRUCK BY THE DISCARDED SABOT. CAUTION

Even though this is a target practice round, the core can cause damage and penetrate armored vehicles.

DIFFERENCES BETWEEN NSN'S:

1315-01-165-6488

9 hole cone
 Standard sabot
 Marking located on sabot mid-section (3 lines of 12mm letters)
 Sabot with nylon holding ring on bourrelet
 Wood box/fiber container

1315-01-242-4796

9 hole cone
 Standard sabot
 Marking located on sabot mid-section (3 lines of 12mm letters)
 Sabot with nylon holding ring on bourrelet
 Metal container (PAI 16)

1315-01-288-5545*

6 slot cone
 1-inch shorter sabot
 Marking located on front bourrelet or with reduced letter height (6.35mm) and two lines on sabot midsection
 Sabot without nylon holding ring on bourrelet Metal container (PAI 16)

1315-01-288-5545A

6 slot one (Alliant)
 1-inch shorter sabot
 Marking located on front bourrelet or with reduced letter height (6.35mm) and two lines on sabot midsection
 The case cover is glued to the rear of the sabot as opposed to being attached by screws. Eliminated the inner ring and access holes in case cover.

Metal container (PA 116)

1315-01-288-5545*

6 slot cone (Olin)
 1-inch shorter sabot
 Marking located on front bourrelet or with reduced letter height (6.35mm) and two lines on sabot midsection
 The propulsion system uses M14 propellant rather than LKL propellant used in the current M865. Eliminated the inner ring, subprojectile break groove and access holes in case cover.

Metal container (PA116)

* Note: Cartridges of this NSN must be replaced in metal containers of the same lot number due to the shortened sabot requiring a different internal container support.

5. **Markings.** Typical markings for the projectile are shown in Figure 2. A difference in location and size (fig. 3) will distinguish the M865 with the slotted cone and reduced sabot size, NSN 1315-01-288-5545 from the 9 hole cone and standard length sabot as follows:

a. Marking for 9 hole cone/standard sabot: 1/2 inch letters (12mm ± 1) in 3 lines on sabot midsection.

b. Marking for 6 slot cone/reduced length sabot: 1/4 inch letters (6mm ± 1) in 2 lines on sabot midsection or bourrelet.

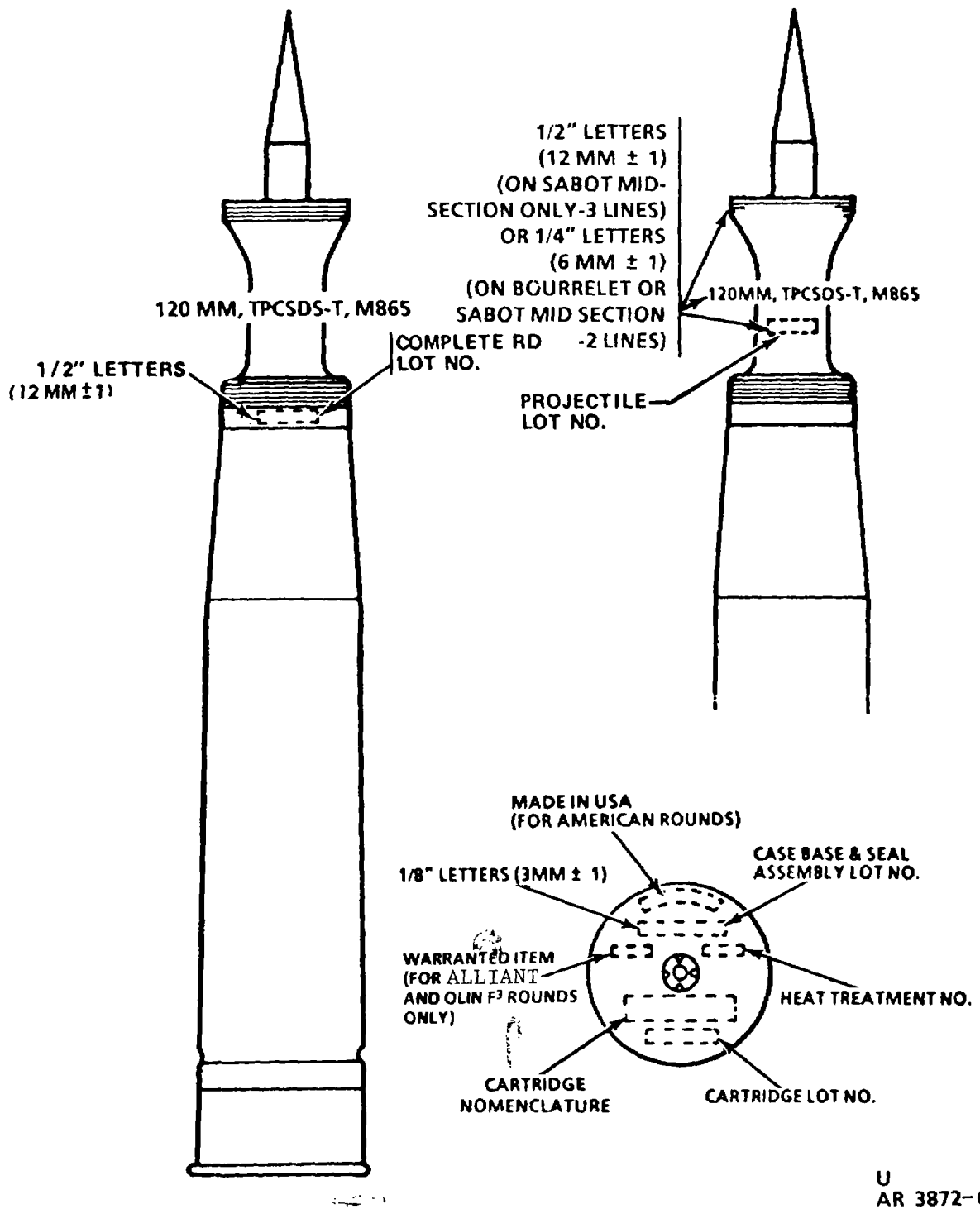
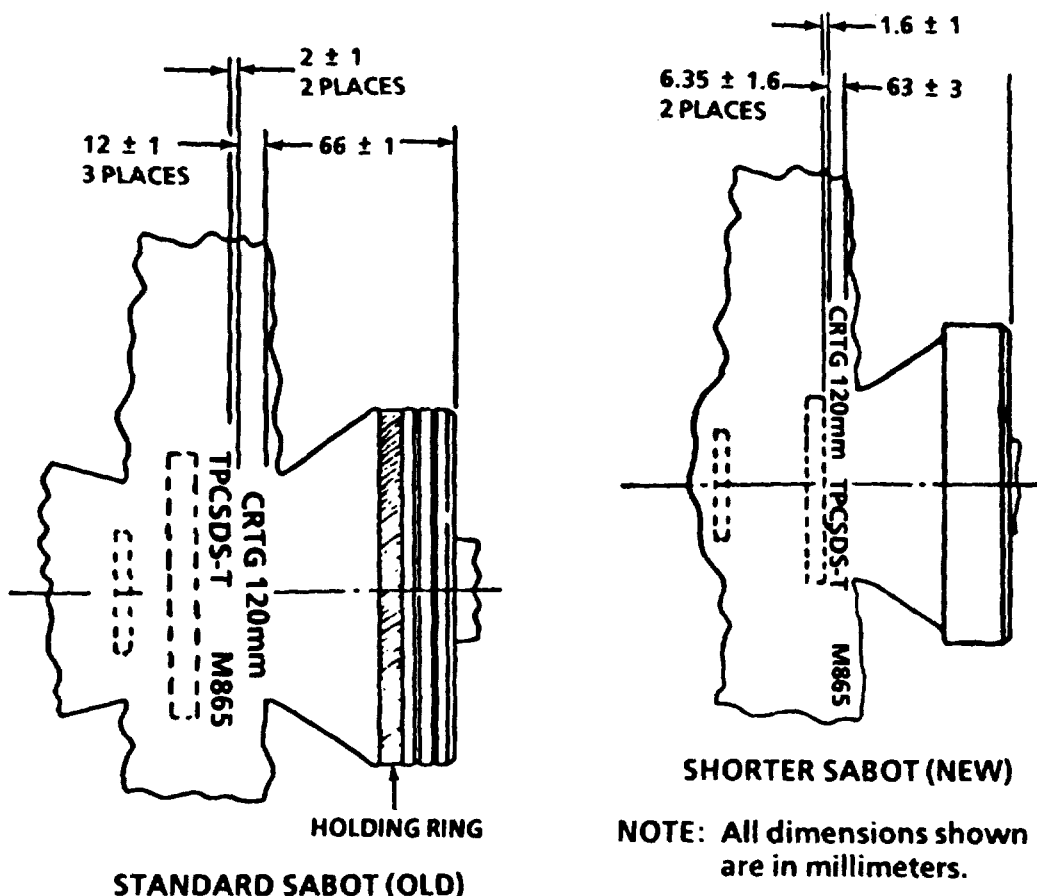


Figure 2. Typical marking for 120mm gun cartridges, M865.



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Figure 3. Differences between standard and shorter Sabot for 120MM gun cartridge, M865.

6. Army-Authorized Ammunition for Guns. The authorization with the introduction of the slotted cone/reduced length sabot M865 (including the Alliant F design round and the Olin Fd design round) does not change, but it should be noted that cartridges with NSN 1315-01-2885545 must be replaced in metal containers of the same lot number due to the shortened sabot requiring a different internal container support.

7. Repair Parts List. The introduction of the slotted cone/reduced length sabot M865 will require the addition of a second container for specific use with these rounds (NSN 1315-01288-5545).

The Repair Parts List of TM 9-1300251-20 and TM 9-1300-251-34 should be annotated respectively as follows:

SMR code	XB000
Part No.	12913178
Federal supply code	
for mfg	19200
Description	Container
	Ammunition
	Metal PA 116 for
	cartridge 120mm
	TPCSDST, M865
Unit of measure	each
Quantity incorporated	
in unit	1

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

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Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-34-E, Block 1163, Operator and Maintenance Information for Cartridge, 120mm, TPCSDS-T, M865.

*U.S. G.P.O.:1991-543-050:40068

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