

TECHNICAL MANUAL

ARMY AMMUNITION DATA SHEETS

ARTILLERY

AMMUNITION

GUNS, HOWITZERS,

MORTARS,

RECOILLESS RIFLES,

GRENADE LAUNCHERS,

AND

ARTILLERY FUZES

(FSC 1310, 1315, 1320, 1390)

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**ARMY AMMUNITION DATA SHEETS
 FOR ARTILLERY AMMUNITION:
 GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, GRENADE LAUNCHERS AND
 ARTILLERY FUZES
 (Federal Supply Class, 1310, 1315, 1320, 1390)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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CHAPTER 1

INTRODUCTION

1.1. PURPOSE

This manual is a reference handbook published as an aid in planning, training, familiarization and identification of artillery ammunition, including guns, howitzers, recoilless rifles, mortars, 50mm grenade launchers, and artillery fuzes.

1-2. SCOPE

a. For each item of materiel, there are illustrations and descriptions together with characteristics and related data. Included in the related data are weight, dimensions, performance data, packing, shipping and storage data, type classification, and logistics control code (LCC).

b. Information concerning supply operation, and maintenance of the items will be found in the publications referenced for those items. A complete listing of these publications is maintained in DA Pam 310 series indexes.

c. Appendix A and TM 43-0001-28-4 through TM 43-0001-28-10 list authorized Cartridge/Projectile Fuze and Propelling Charge Combinations. These lists (i.e., charts) supersede the fuze and propelling charge combinations referenced on the data sheets.

d. Within this manual, items with the following type classifications are included:

- (1) Standard (LCC-A, LCC-B)
- (2) Contingency (CON)
- (3) Limited Procurement (LP)
- (4) Reclassified obsolete (OBS) for regular Army use, but used by National Guard or Reserve Units.
- (5) Reclassified OBS for all Army use, but used by Marine Corps, Air Force, or Navy
- (6) Reclassified OBS, no users, but U.S. stocks remain.

Items with the following type classification are not included: Reclassified OBS for

all U.S. use. No U.S. stocks remain. (Foreign use or stock may remain.)

f. Numerical values, such as weights, dimensions, candlepower, etc., are nominal values, except when specified as maximum or minimum. Actual items may vary slightly from these values. Allowable limits can be obtained from the drawings indicated in the data sheets.

1-3. KEY TO ABBREVIATIONS AND SYMBOLS

AP -----	Armor piercing
APC -----	Armor piercing capped
APDS -----	Armor piercing, discarding sabot
APERS -----	Antipersonnel
AT -----	Antitank
BD -----	Base detonating
BE -----	Base ejection
CS -----	A tactical riot control agent
DS -----	Discarding sabot
GB.....	Nonpersistent toxic (casualty) nerve gas
H -----	Mustard gas
HC -----	Hexachloroethane-zinc
HD -----	Distilled mustard gas
HE -----	High explosive
HT -----	Mixture of HD&T
HEAT -----	High explosive antitank
HEAT-T-MP ---	High explosive antitank with tracer, multipurpose
HEDP -----	High explosive dual purpose
HEI -----	High explosive incendiary
HEP -----	High explosive plastic
HERA -----	High explosive rocket assisted
HVAP -----	Hypervelocity, armor piercing
HVTP -----	Hypervelocity, target practice
ILLUM -----	Illuminating
LCC -----	Logistics Control Code (class)
MOD -----	Modified
MK -----	Mark
MP.....	Multipurpose
MT -----	Mechanical time
MTSQ -----	Mechanical time and superquick
MV -----	Muzzle velocity
PD -----	Point detonating
PIBD -----	Point initiating, base detonating
PROX -----	Proximity
PWP	plasticized white phosphorous
RAP -----	Rocket assisted projectile

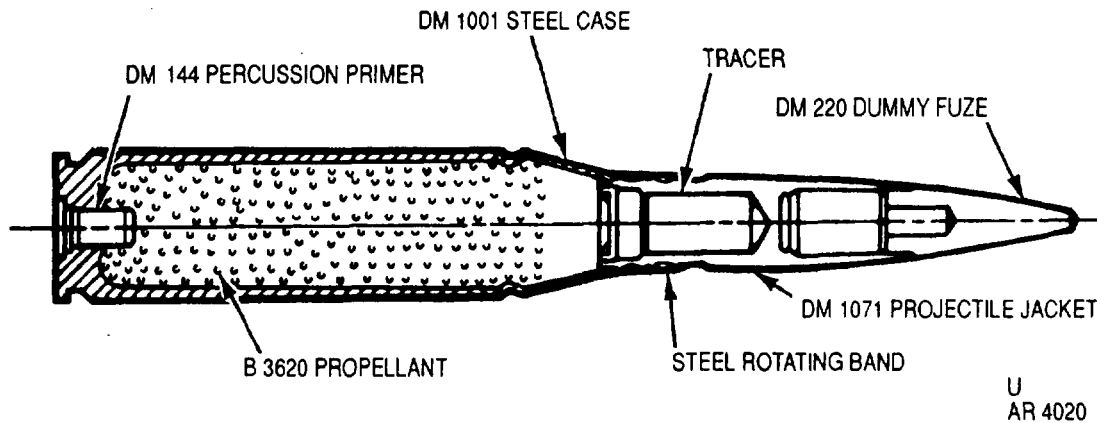
CHAPTER 2

ARTILLERY AMMUNITION

FOR

GUNS

CARTRIDGE, 35 MILLIMETER: TP-T M968 WITH IGNITOR, ELECTRIC, M63



Type Classification:

LPU, 30 May 88.

Use:

The M968 cartridge and the M63 igniter are assembled to the cartridge adaptor component of the weapon system. See Mauser Tank Precision Gunnery Inbore Device (TPGID) Operator's Manual for loading sequence. The M968 cartridge is a target practice round for use in the 35mm TPGID system, which is mounted inside the 120mm smooth bore M256 cannon. It is designed to simulate the flight characteristics of the M830 and M831 rounds out to 1,800 meters.

Description:

Cartridge M968. The projectile consists of a DM1071 projectile jacket, a DM220 dummy point-detonating fuze, a tracer, and a press-seated steel rotating band. The projectile is crimped to a DM1001 steel cartridge case, which holds approximately 0.69 pound (0.31 kg) of B3620 single-base propellant and is fitted with a DM144 percussion primer.

Igniter M63. The M63 igniter consists of a closing plug assembly, an igniter body assembly and an igniter element assembly. The igniter element assembly is loaded with approximately 0.006 ounce (0.17 g) of igniter material (40% Potassium Chlorate, 32% Lead Thiocyanate, 18% Charcoal, and 10% Egyptian Lacquer) and is assembled to the igniter body.

The closing plug assembly contains approximately 0.007 ounce (0.198 g) of black powder and is also assembled to the igniter body.

Functioning:

The TPGID cartridge adaptor is loaded into the 120mm smooth bore cannon in the normal manner. Upon initiation of the M63 igniter in the weapon, gases from the igniter force the piston/firing pin mechanism to strike the percussion primer of the M968. Functioning of the percussion primer initiates the B3620 propellant. The resulting gases drive the projectile from the gun and ignite the tracer. The projectile is spin stabilized during its flight to target.

Tabulated Data:

M968 Cartridge.

Type classification -----	LPU, 30 May 88
Complete round:	
Type -----	Fixed, TP-T
Length -----	15.24 in. (38.71 Cm)
Weight -----	3.46 lb (1.57 kg)
Cannon used with -----	35mm TPGID system mounted to 120mm smooth bore M256 cannon
Assembly drawing -----	12910291
Color-----	Blue w/white marking on projectile

Temperature limits:

Firing:
 Lower limit ----- -25°F (31.7°C)
 Upper limit -----
 (+37.8°C)

Storage:
 Lower limit ----- -25°F (-31.7°C)
 Upper limit ----- +125°F
 (+51.7°C)

Packaging:

Packing and marking
 drawing ----- 12910292
 *Packing ----- 2 rounds per
 styrofoam
 pack; 8 styro-
 foam packs per
 metal container;
 10 metal con-
 tainers per
 pallet

Metal container:

Weight (w/ammo) ----- 99 1b (45 kg)
 Dimensions ----- 27.1 in. L x 7.8
 in. W x 7.8 in. H
 (68.9 cm L x
 19.8 cm W x
 19.8 cm H)
 Cube ----- 0.96 cu ft
 (0.03 cu m)

M63 Ignitor.

Type classification ----- N/A
 Complete round:
 Type ----- Ignitor, electric
 Length ----- 1.72 in. (4.37
 cm)
 Weight ----- 1.68 oz (47.63 g)
 Cannon used with ----- 35mm TPGID
 system mounted
 to 120mm
 smooth bore
 M256 cannon
 Assembly drawing ----- 8839497
 Color ----- Brass with
 black marking

Temperature limits:

Firing:
 Lower limit ----- -25°F (-31.7°C)
 Upper limit ----- +100°F
 (+37.8°C)

Storage:
 Lower limit ----- -25°F (-31.7°C)
 Upper limit ----- +125°F
 (+51.7°C)

Packaging:

Inner packing drawing ----- 8837898
 Outer packing drawing ----- 8837897
 *Packing ----- 50 igniters per
 carton; 9 car-
 tons per box

Box container:

Weight ----- 75 lb (34 kg)
 Dimensions ----- 15 in. L x
 9.375 in. W x
 7.44 in. H
 (38 cm L x
 23.813 cm W x
 18.9 cm H)
 Cube ----- 0.7 cu ft (0.02
 cm)

* NOTE: See DOD Consolidated Ammunition Catalog for complete packing data including NSN's.

Shipping and Storage Data:

M968 Cartridge.

UNO serial number ----- 0339
 DOT hazard class ----- (08) 1.4C
 DOD storage comparability
 group ----- C
 DOT designation ----- AMMUNITION
 FOR CANNON
 W/SOLID
 PROJECTILE,
 CLASS C
 EXPLOSIVE
 DODAC ----- 1310-B591

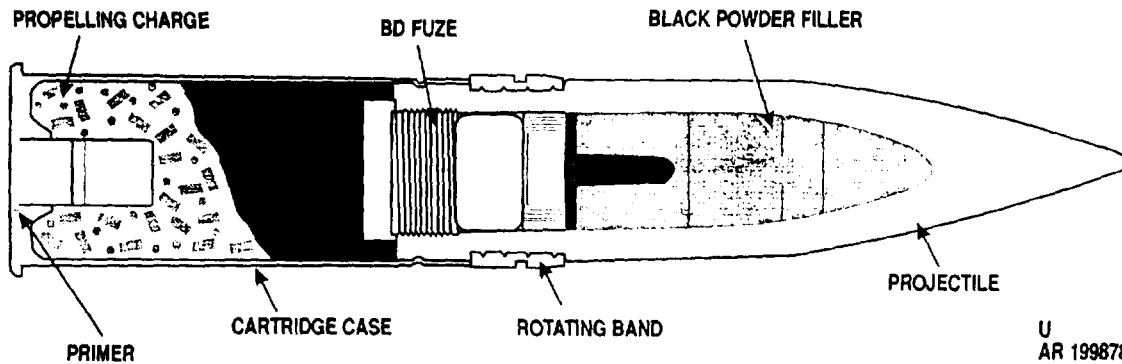
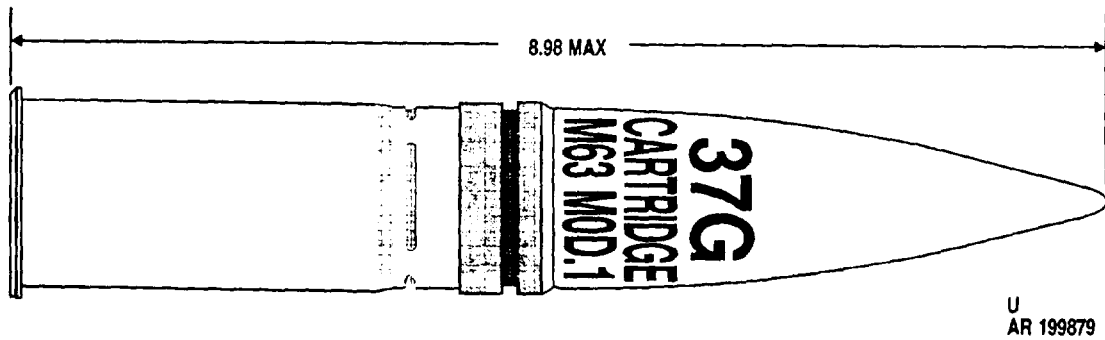
M63 Ignitor.

DOT hazard class ----- (04) 1.2 C
 DOD storage compatibility
 group ----- G
 DOT designation ----- CANNON
 PRIMER -
 HANDLE
 CAREFULLY
 DODAC ----- 1305-N700

NOTE

Only the M968 is to be fired from the 35mm TPGID system.

CARTRIDGE, 37 MILLIMETER: TP, M63, MOD 1



Type Classification:

STD OTCM 37119 dtd 1959.

Use:

This target practice cartridge is used in subcaliber 37mm guns fitted to larger weapons for practice firing and training.

Description:

The cartridge consists of a black powder-filled steel projectile crimped to a steel cartridge case and fitted with a base-detonating practice fuze. A rotating band encircles the projectile near the base. The cartridge case is loosely filled with propellant and is fitted with a percussion primer.

Functioning:

When the weapon is fired, the firing pin strikes the primer to ignite the propelling charge. The rotating band engages the barrel rifling to impart spin to the projectile and prevent escape of pressure past the projectile. Rapidly expanding gases from the burning propellant drive the projectile through the barrel with the velocity required to reach the target. Upon impact, the base-detonating fuze ignites the black powder filler in the projectile, simulating the detonation of a service projectile.

Tabulated Data:

Complete round:	
Type	TP
Weight	2.01 lb
Length	8.98 in.
Cannon used with	M12, M13, M14, M15, M1916

Projectile:
 Body material ----- Steel
 Color ----- Blue w/white markings (and brown band for later manufacture)
 Filler and weight ----- Black powder,
 Fuze ----- M58

Propelling charge:
 Cartridge case ----- MK1A2, MK1A2B1
 Propellant ----- M2, 0.56 lb
 Primer ----- M23A2 percussion

Performance:
 Maximum range ----- 4459 m (4980 yd)
 Muzzle velocity ----- 328 mps (1100 fps)

Temperature limits:
 Firing:
 Lower limit ----- -40°F
 Upper limit ----- +125°F
 Storage:
 Lower limit ----- -80°F (for period not more than 3 days)
 Upper limit ----- +160°F (for period not more than 4 hr/day)

*Packing ----- 1 round per fiber container; 20 containers per wooden box

* Packing box:
 Weight ----- 60.5 lb
 Dimensions ----- 23-11/16 x 11-7/16 x 6-19/32 in.
 cube ----- 1 cu ft

* NOTE: See DOD Consolidated Ammunition Catalog for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class ----- 4
 Storage compatibility group--- E
 DOT shipping class ----- A
 DOT designation ----- AMMUNITION FOR CANNON WITH EXPLOSIVE PROJECTILES
 DODAC ----- 1310-B526
 Drawing number ----- 8831141

References:

AMC-P 700-3-3
 SB 700-20
 TM 9-1300-251-20