

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CARTRIDGE, 105-MILLIMETER: HEP-T, M393 (U.K. HESH L37A1), U.K. HESH L35A1, AND M393A1 (M393E1) AND CARTRIDGE, 105-MILLIMETER: TP-T, M393E1 FOR GUN M68 (T254E2) : DESCRIPTION AND USE

Refs: TM9-1300-203
TM9-1900
TM9-1903

Headquarters, Department of the Army, Washington 25, D.C.

17 November 1961

1. Purpose. This bulletin provides information regarding the description and use of Cartridge, 105-millimeter: Hep-T, M393 (U.K. Hesh L37A1), U.K. Hesh L35A1, and M393A1 (M393E1) (fig. 1) and Cartridge, 105-millimeter: TP-T, M393E1.

2. General. The Hep-T (or U.K. Hesh) cartridges are provided for the 105-mm Gun M68 for use against personnel and materiel, producing blasting effect and fragmentation at the target. They also may be used against armor causing a spall to be detached on the far side of the target. There are three versions of these cartridges, the U.K. Hesh L35A1, M393 (U.K. Hesh L37A1), and M393A1 (M393E1). The U.K. Hesh cartridge L35A1 incorporates the primer L1A3. The cartridge M393 (U.K. Hesh L37A1) utilizes primer L4A1. Primer L4A1 utilizes a bridgewire cap instead of a conductive cap used in the primer L1A3. The cartridge M393A1 (M393E1) incorporates the primer M86.

Note. The U.K. manufactured cartridges L35A1 and L37A1 are marked in accordance with British specifications and drawings as follows: "Round, 105-mm, TK, Hesh, L35A1 or L37A1".

The target practice with tracer (TP-T) cartridge M393E1 is similar to the Hep-T cartridge M393A1 (M393E1) except for the inert-loaded projectile and the dummy fuze XM553. This cartridge can

be identified by the painting (blue) and marking (white) on the cartridge.

Warning: The United Kingdom cartridge L35A1 is authorized for use under emergency combat conditions only. When utilizing the Hep-T cartridge L35A1 the clip is not to be removed until the cartridge is partially chambered in the weapon.

3. Description. *a. M393A1 (M393E1).* This cartridge is of the "fixed" type with two gilding metal rotating bands to produce spin for flight stabilization. Only part of the forward band is visible on the assembled cartridge; the remainder is concealed by the cartridge case. The cartridge consists of a fuze projectile, cartridge case, propellant, and an electric primer. The cartridge is 37 inches in overall length, weighs 45 pounds and the projectile as fired weighs 24.8 pounds. A description of these components is given in (1) through (4) below.

- (1) *Projectile.* The projectile consists of a steel body containing a Composition A-3 bursting charge, a base detonating fuze M534, and a tracer M12 assembled to the fuze in the base of the projectile. Two gilding metal rotating bands with a rubber ring between the bands encircle

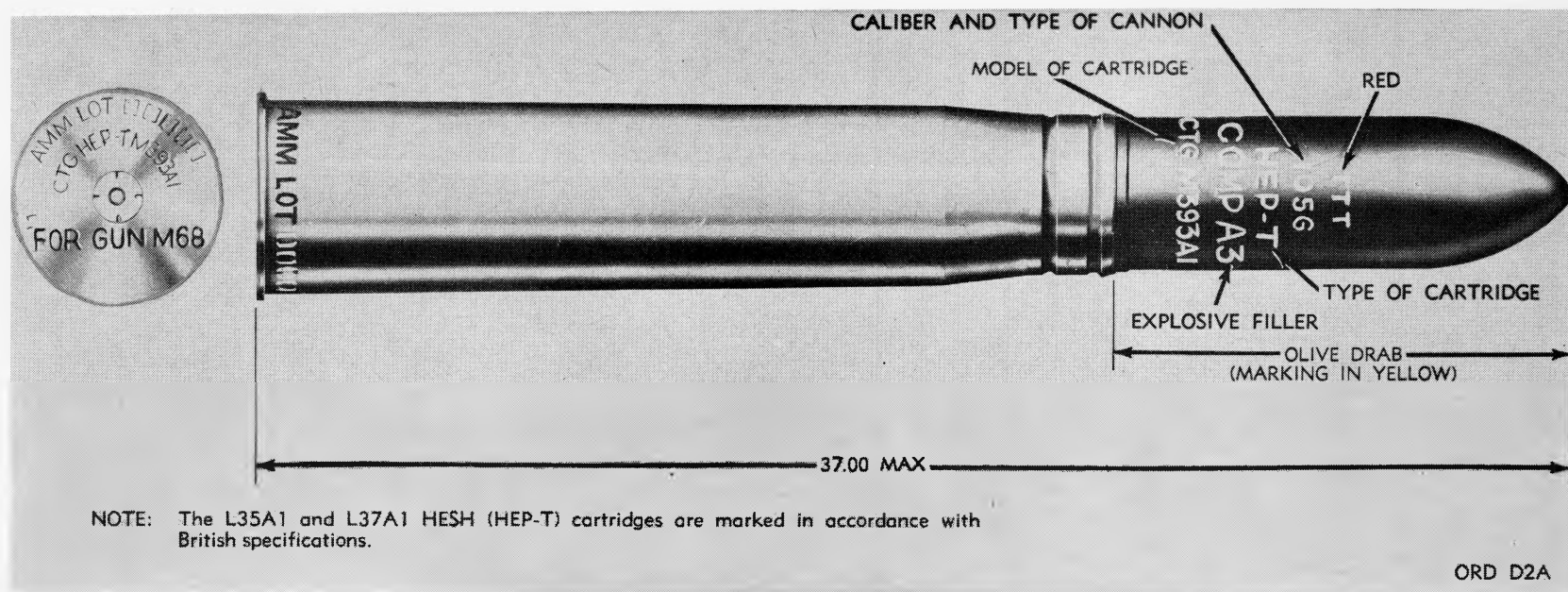


Figure 1. Cartridge, 105-millimeter: HEP-T, M393A1

the projectile at the base end. The tracer provides a visible red trace during the projectile's flight. The tracer will function for a minimum of 6 seconds.

- (2) *Cartridge case.* The cartridge case is made of brass. The overall length of the cartridge case is 24.31 inches (maximum). The base of the cartridge case contains a threaded hole to accommodate a screw-in type electric primer. When assembled into the cartridge case, the base of the projectile fits into the mouth of the case and the cartridge case is crimped to the projectile. Sealing of the cartridge case is effected by the rubber ring between the projectile and the cartridge case.

- (3) *Propellant.* The cartridge case is loaded with approximately 5.9 pounds of propellant M1 contained within a cloth bag.

- (4) *Electric primer.* The primer M86, utilized in this cartridge, consists of a steel body which contains the primer composition and a steel primer head which contains the igniter. The overall length of the primer is 16.8 inches (maximum).

b. *M393 (L37A1) and L35A1.* The M393 (L37A1) and L35A1, cartridges of U.K. manufacture, are similar to the M393A1 (M393E1) cartridge, except for the following:

- (1) The projectiles are manufactured with two copper rotating bands.
- (2) The U.K. manufactured cartridges utilize fuze L19A3 or L29A1 and tracer, shell No. 30 MK $\frac{1}{2}$, which is assembled by means of an adapter assembled to the fuze.
- (3) The U.K. projectiles are loaded with RDX/wax.
- (4) The L35A1 and L37A1 cartridges contain a threaded button plug in the nose of the projectile.
- (5) The cartridge case is loaded with approximately 5.9 pounds of propellant NOH

.033 and can be distinguished by four equally spaced recesses, 1 inch in diameter and .020 inch deep machined in the base of the case.

- (6) The U.K. cartridge L35A1 incorporates primer L1A3. The U.K. cartridge M393 (L37A1) incorporates primer L4A1 (modified primer L1A3).

- (7) The U.K. cartridges weigh 46.11 pounds; the as fired weight of the projectile is 24 pounds 13 ounces.

4. Functioning. The cartridge is electrically fired from the gun M68. Upon firing, the primer ignites the propellant which propels the projectile and also ignites the tracer. The base fuze M534 functions upon impact of the projectile at the target, initiating the bursting charge in the projectile.

5. Precautions in Firing. The precautions in firing of artillery ammunition as prescribed in TM 9-1300-203 and AR 385-63 should be closely observed.

Warning: The United Kingdom cartridge L35A1 is authorized for use under combat emergency conditions only. When utilizing the HEP-T cartridge L35A1 the clip is not to be removed until the cartridge is partially chambered in the weapon.

6. Care, Handling, and Preservation. The general provisions for care, handling, and preservation of artillery ammunition are contained in TM 9-1300-203 and TM 9-1903.

7. Packing and Marking. a. Each cartridge is packed in a fiber container, two containers per wooden box. The weight of the box and contents is 137 pounds; dimensions (inches) are 44 by 14 $\frac{3}{8}$ by 8 $\frac{1}{2}$. The U.K. manufactured cartridges are packed, one per steel container. Complete packing data will be published in Department of the Army Supply Manual 9-5-1315.

b. All boxes are marked in accordance with regulations prescribed in TM 9-1900.

BY ORDER OF THE SECRETARY OF THE ARMY:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

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NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

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