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**NATO TRIALS EDITION
USER HANDBOOK**

for the

4.85mm WEAPON SYSTEM

consisting of

**RIFLE, 4.85mm, XL64E5 and XL68E2
(Individual Weapon)**

and

**MACHINE GUN, 4.85mm, XL65E4 and XL69E1
(Light Support Weapon)**

Published under the authority of:-
**ASSISTANT CHIEF OF THE GENERAL STAFF
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CHAPTER 4

AMMUNITION

SECTION 1 - INTRODUCTION

401. The ammunition designed for use with the 4.85mm IW and LSW consists of the following natures:

- | | | | | |
|----|---------------|------|----------|-----------------|
| a. | Round, 4.85mm | Ball | XL1E1 | |
| b. | " | " | Tracer | XL2E1 |
| c. | " | " | Blank |) Model numbers |
| d. | " | " | Grenade |) not yet |
| e. | " | " | Training |) available |

402. The rounds are currently to be supplied 640 rounds in 32 cartons, 20 rounds per carton. However it is envisaged that future supplies will incorporate the use of a charger clip holding ten rounds. These clips will be packed into a five pouch bandoleer each pouch containing 3 clips to give a total of 150 rounds per bandoleer.

SECTION 2 - DESCRIPTION OF ROUNDS

BALL ROUND (Fig 31)

403. The complete round weighs approximately 11.93g and comprises a bullet, case, cap percussion and propellant.

- a. Ball Bullet. The bullet weighing 3.63g

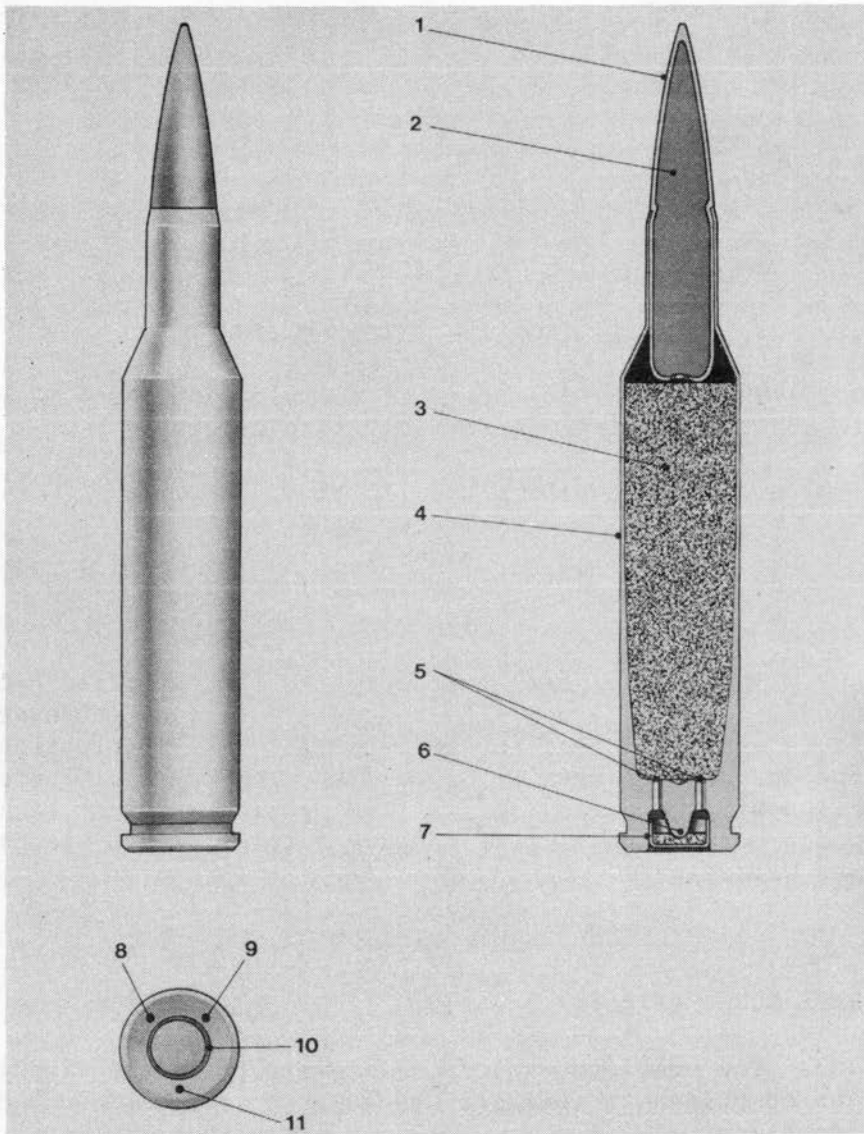


Fig 31 Round 4.85mm Ball

consists of a steel envelope coated with gilding metal which encloses a lead/antimony alloy core. The nominal overall length is 25.5mm and approximately 13mm from the tip a rolled cannellure is formed into which the neck of the cartridge case is coned on assembly.

b. Case. The case, made of cartridge brass is of rimless design. The mouth is necked to accept the bullet whilst the base is formed to provide a cap chamber with an integral anvil and two firing holes which provide the flash paths to the propellant on firing. The base of the case is stamped with the initials or monogram of the filler, date of filling and the calibre ie, RG, DATE, 4.85.

c. Cap Percussion. The cap is drawn from cartridge brass and varnished overall. It is filled with approximately 0.35 grain of an approved cap composition covered with a disc of paper foil and pressed to a specific dead load. After pressing is completed the surface is varnished to exclude all moisture and the complete cap ringed in to the case. The annulus formed by the ringing in process is finally lacquered purple.

Key to Fig 31

- | | | | |
|---|------------------------|----|--|
| 1 | Bullet Envelope | 7 | Percussion Cap |
| 2 | Bullet Core | 8 | Initials or Monogram
of Filler |
| 3 | Ball Powder Propellant | 9 | Date of Filling |
| 4 | Cartridge Body | 10 | "Ringing In" Annulus
Lacquered Purple |
| 5 | Two Fire Holes | 11 | Calibre |
| 6 | Anvil | | |

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d. Propellant. The propellant consists of a quantity of ball powder, nominal weight 1.565g, which is subject to adjustment to give the correct ballistics.

404. Tracer Round (Fig 32). The complete round weighs approximately 10.88g and comprises a tracer bullet, case, cap percussion and propellant.

a. Tracer Bullet. The bullet weighing 3.11g consists of a steel envelope coated with gilding metal which encloses a lead/antimony alloy core. The nominal overall length is 28mm and approximately 13mm from the tip a rolled cannellure is formed into which the neck of the cartridge case is coned on assembly. From the base of the envelope sufficient internal space is provided to receive 0.21g approximately of tracer composition followed by 0.0324g approximately of priming composition. The two increments are pressed together with a pipped drift at a dead load of 1500 lbs to give the requisite burning characteristics. To complete the assembly a plastics disc is inserted and varnished to

Key to Fig 32

- | | |
|------------------------------|---------------------------------------|
| 1 Tip of Bullet Coloured Red | 9 Two Fire Holes |
| 2 Bullet Envelope | 10 Anvil |
| 3 Bullet Core | 11 Percussion Cap |
| 4 Tracer Composition | 12 Initials or Monogram of Filler |
| 5 Priming Composition | 13 Date of Filling |
| 6 Plastics Disc | 14 "Ringing In" Annulus Lacquered Red |
| 7 Cartridge Body | 15 Calibre |
| 8 Ball Powder Propellant | |

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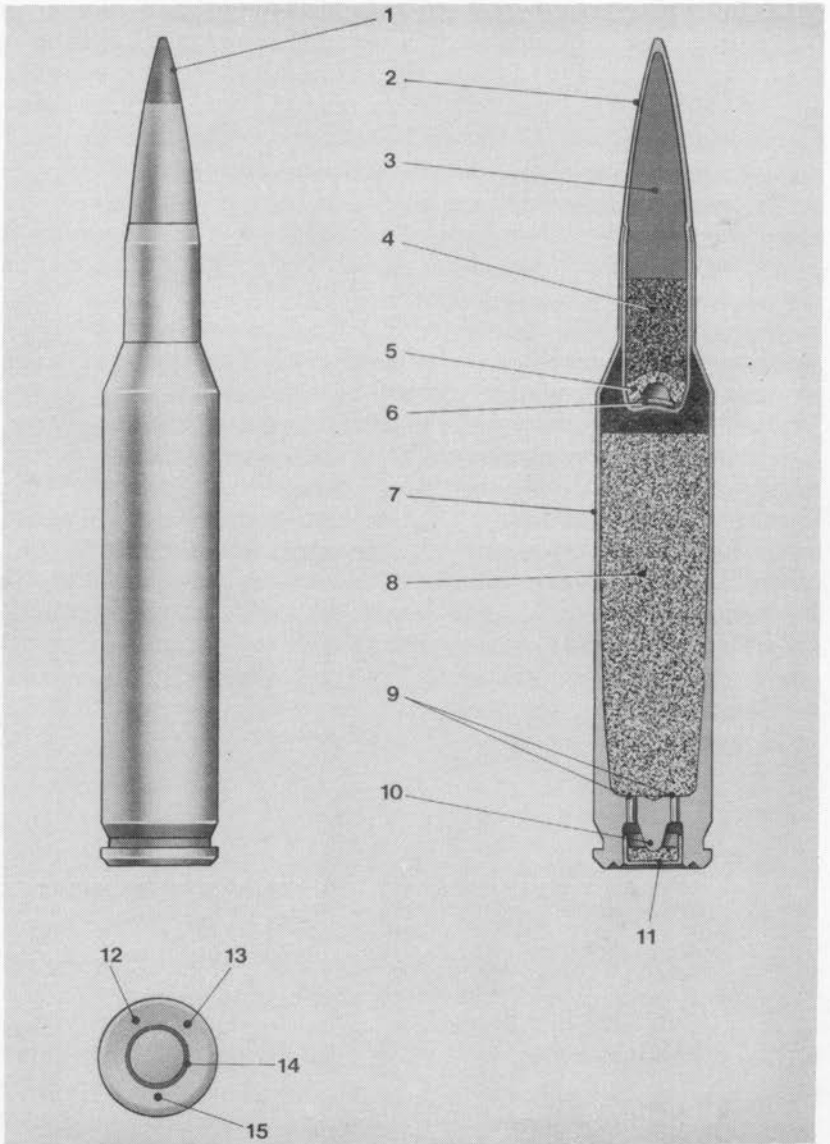


Fig 32 Round 4.85mm Tracer

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surmount the pressed increments. The end of the envelope is finally swaged over sufficient to retain the disc whilst allowing the propellant flash to effect ignition of the tracer composition. Identification of the tracer bullet is effected by colouring the tip red.

b. Case. There is no difference between the cartridge case used for the tracer and ball rounds.

c. Cap Percussion. There is no difference between the cap percussion used for the tracer and ball rounds. However, after ringing-in to the case the annulus is lacquered red.

d. Propellant. The tracer round is filled with the same type of propellant as the ball round. The nominal weight, however, is less and approximates 1.46g which is subject to adjustment to give the correct ballistics.

Key to Fig 33

- | | | | |
|---|--|----|---|
| 1 | Plastics Body Natural Colour | 6 | Initials or Monogram of Filler |
| 2 | Plastics Bullet and Plastics Cartridge Body Moulded Integrally Colour Blue | 7 | Date of Filling |
| 3 | NC Propellant | 8 | "Ringing In" Annulus Lacquered (Undyed) |
| 4 | Brass Plug | 9 | Calibre |
| 5 | Percussion Cap | 10 | Round 4.85mm Training/ Practice |
| | | 11 | Round 4.85mm Blank |

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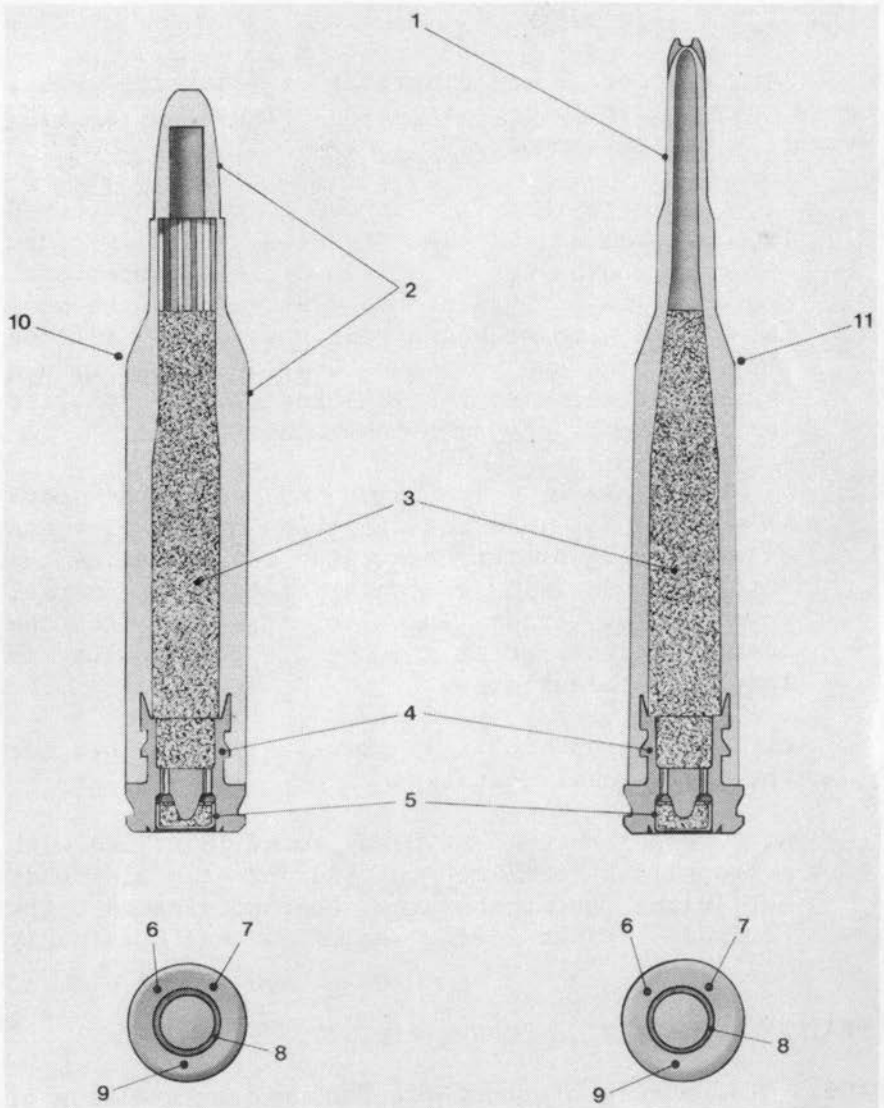


Fig 33 Round 4.85mm Training/Practice and Round 4.85mm Blank

BLANK ROUND (Fig 33)

405. The complete round comprises a plastics body, brass plug, cap percussion and propellant. (The weight is not yet known.)

a. Plastics Body. The body is manufactured from natural colour plastics to partially form the case and bullet profile of the operational rounds. The forward or "bullet" end of the body is formed with weakened ribs and after filling the open base end of the body is closed with a brass base which is formed externally to complete the profile of the complete round.

b. Brass Base. The brass base as stated above is a force fit into the open base of the body and after fitting of the percussion cap satisfies the function and firing characteristics of a normal round. The brass base is stamped with the identification details and the annulus is lacquered colourless.

c. Cap Percussion. As previously described for the operational rounds.

d. Propellant. The blank round is filled with a propellant similar to the operational rounds but with faster burning characteristics the nominal weight being adjusted as previously stated.

TRAINING OR PRACTICE ROUND (Fig 33)

406. This nature of round is designed as training or practice ammunition for use in areas where facilities are restricted. It has a reduced danger area and is only to be used on close quarter battle (urban) ranges. The body is manufactured from blue colour

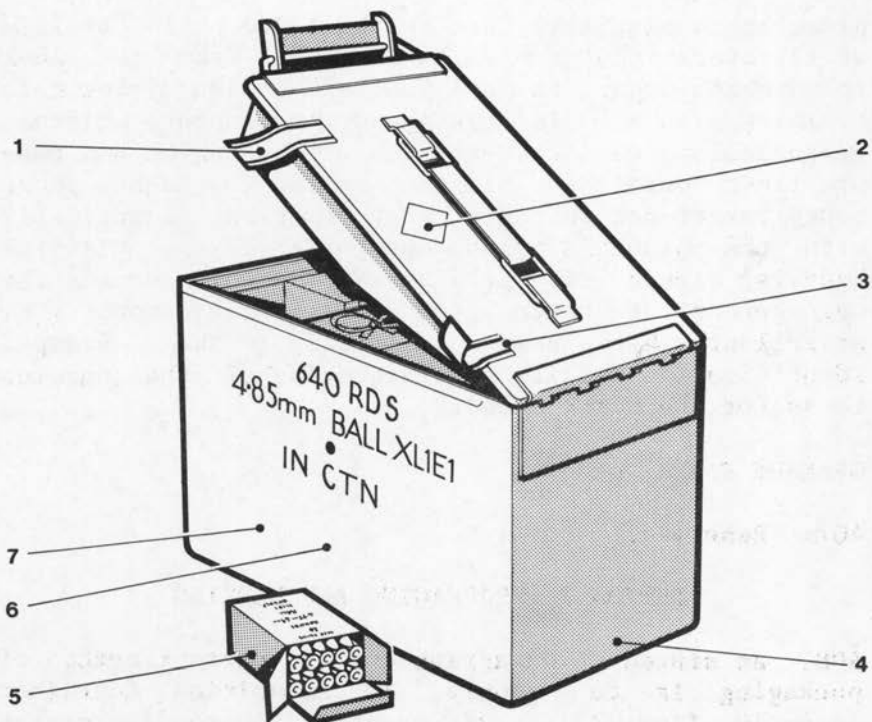


Fig 34 Ammunition Container Assembly and Marking (Provisional) for 640 Rounds 4.85mm (Typical)

Key to Fig 34

- | | | | |
|---|-----------------|---|---|
| 1 | Inspection Seal | 5 | 20 Rounds in Each of 32 Cartons |
| 2 | GEG Label | 6 | Lot No of Date of Manufacture (Day, Month and Year) |
| 3 | Station Seal | 7 | Initials or Monogram of Manufacturer |
| 4 | Box No H83 Mk 2 | | |

plastics to partially form the case and bullet profile of the operational rounds. Distinct from the blank round which opens at the "bullet" end on firing this training round is designed to rupture circumferentially around the junction of the bullet and case profile to permit the plastics bullet to reach a short range target and indicate shot position. Identically with the blank round the open base of the plastics body is closed with the brass base which houses the cap percussion after the requisite amount of propellant has been inserted. The stamped identification details and lacquering of the annulus is as for the blank round.

GRENADE CARTRIDGE

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SECTION 3 - PACKAGING AND MARKING

408. As stated at paragraph 402 the current method of packaging is to supply, in Ammunition Container Assembly (Box H83, Mk 2), quantity 640 rounds carton packed. The complete pack contains 32 cartons with 20 rounds in each carton. Figure 34 illustrates the package and typical marking requirements.