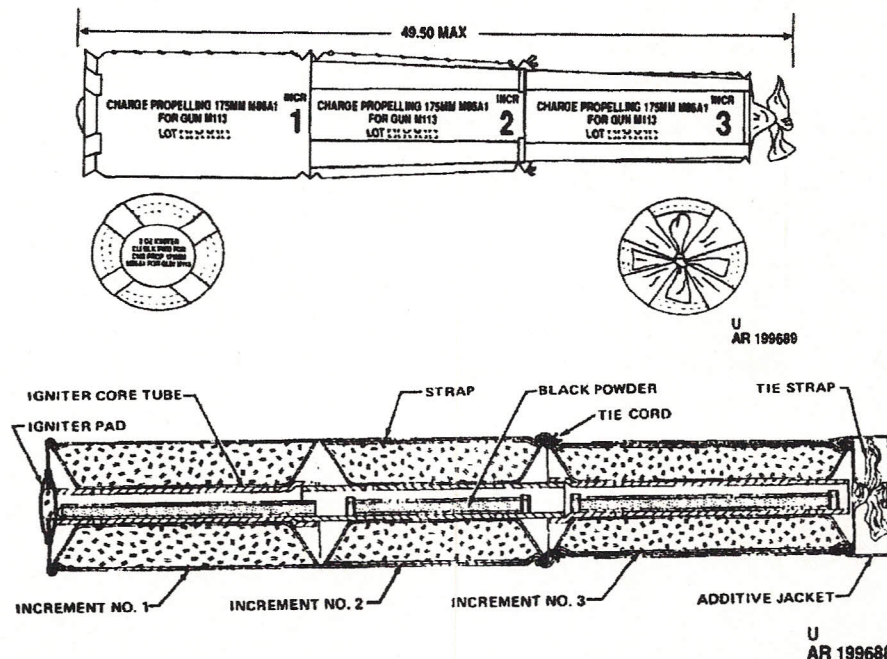


CHARGE PROPELLING, 175-MILLIMETER: M86 SERIES**Type Classification:**

Std AMCTC 5851 dtd 1968.

Use:

M86 series propelling charges are used in the 175MM M107 Self-Propelled Weapon System.

Description:

(Ancillary items used only with these charges are the M1 additive jacket and the M5 flash reducer-described below.)

The charge is an adjustable three-increment white bag type. It is approximately 49-1/2 inches long and contains a total of 55 pounds of multiperforated Propellant M6 in acrylic viscose-rayon bags. The bags are tied together by four tying straps attached to the top of Increment 1 and knotted on top of Increment No. 3. The tying straps are reinforced by cord tied tightly around the junction of Increments No. 2 and 3. Each propelling charge has an igniter core assembly extending through the center of the charge. The core assembly consists of three rigid polyurethane tubes containing bagged igniter cores of black powder. The igniter tubes for Zones 1 and 3 contain bell shaped ends which assemble over the

ends of the igniter tube in Increment 2. A red cloth igniter pad, filled with black powder, is sewn to the base of Increment 1. The igniter core for Increment 1 is sewn to the igniter base pad and is loose in the Increment 1 igniter tube. The cores for Increments 2 and 3 are tied inside the igniter tubes for these increments. An igniter protective cap is placed over the igniter base pad for protection in shipment and storage. An additive jacket is issued separately for assembly over Increment 3 when firing full charge. (The majority of M86A2 charges are shipped with the additive jacket already assembled over Increment 3.) All charges are packed with an M82 percussion primer. An M5 flash reducer is also issued separately to be assembled around the junction of Increments 2 & 3 on certain M86A1 charges. It is designed to reduce excessive blast and flash effects associated with certain lots of Propelling Charge M86A1. The flash reducer, which contains 16 ounces of potassium sulphate, is an apron-type cloth bag designed to be tied around the forward end of Increment No. 2 with its leading edge at the junction of Increment No. 2 and 3.

NOTE

Use Flash Reducer XM5 with Lots IND 1-19 through IND 1-77 of Propelling Charge M86A1 when fired at Zone 3 only.

TM 43-0001-28

Bore-wear-reducing Additive Jacket M1 is used with Increment No. 3 when firing M86 Series Propelling Charges at full charge. It consists of two 10-1/2 x 18 x 1/8-inch cloth-backed sheets of additive mixture stitched together. The additive mixture is composed of 47 percent titanium dioxide and 53 percent wax. The cloth backing, which is bonded to and overlaps the sheets of additive mixture, is stitched to an unbended tough plastic film casing which serves as a jacket liner. When compressed along the seams, the jacket arches to form a cylinder with a diameter of approximately 7-1/2 inches.

NOTE

- If the additive mixture is cracked or the plastic sheet is ripped, the additive jacket is still acceptable for use. Use the additive jacket over Increment No. 3 only. Use of the jacket on Increments No. 1 and 2 is ineffective.
- In a tactical situation, if additive jackets are not available and the mission is in jeopardy, a maximum of 100 rounds per tube may be fired at full charge without affecting current condemnation limits of the tube.

Functioning:

When the primer is initiated in the breech-block of the gun, flash ignites the black powder in the igniter pad. The flame proceeds through the powder in the igniter tubes to accomplish uniform ignition of the propelling charge through all three increments. The burning propellant generates rapidly expanding gases to propel the projectile through the gun tube at the velocity required to reach the target. When the additive jacket is employed for full charge firing, the mixture of titanium dioxide and wax in the cloth backing serves to reduce bore wear at the origin of rifling in the cannon. When the M5 flash reducer is employed for full charge firing, the potassium sulfate serves to reduce the amount of blast and flash which occurs.

Difference Between Models:

The M86 has a 4 ounce igniter pad and all 3 tubes are perforated. The M86A1 has a 2 ounce igniter pad and an unperforated Increment No. 1 tube. The M86A2 is identical to the M86A1 except for the igniter tubes, which are reinforced with dacron scrim. Early production M86A2's are packed without additive jackets.

Tabulated Data:

Propelling Charge:	
Type	White bag separate loaded propelling charge
Weight	58.0 lb
Length	49.5 in. (max.)
Diameter	8.0 in. (max.)
Cannon (Weapon) used with--	M113, M113A1 (M107)
Propellant:	
Composition	M6
Grain type	7 perforated cylinder, L/D = 2.35
Weight	55 lb
Web	0.0776 in.
Primer	M82

Temperature Limits:

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

***Packing:**

(Propelling Charge)	1 charge with additive jacket in plastic barrier bag or metal container; 16 metal containers per pallet
Container	M460
Weight	96.0 lb
Dimensions	9-13/16 in. Dia. x 55 in.
Cube	3.1 cu ft
*Pallet:	
Weight	2020 lb
Dimensions	40 x 55 x 45-1/2 in.
Cube	57.9 cu ft

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

Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility	J
DOT shipping class	B