

# M40 recoilless rifle

## M40 Recoilless Rifle



Greek infantry with an M40

<b>Type</b>	Recoilless rifle
<b>Place of origin</b>	 United States

### Service history

<b>In service</b>	Mid 1950s–present
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### Production history

<b>Manufacturer</b>	Watervliet Arsenal
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### Specifications

<b>Weight</b>	209.5 kg (462 lb)
<b>Length</b>	3.404 m (11 ft 2 in)
<b>Height</b>	1.12 m (3 ft 8 in)

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<b>Shell</b>	106×607mmR (HEAT, HEP, HEAP, Canister)
<b>Caliber</b>	105 mm (4.1 in)
<b>Recoil</b>	Recoilless
<b>Carriage</b>	Tripod

<b>Elevation</b>	-17° to +65° (between mount legs) -17° to +27° (over mount leg) <sup>l</sup>
<b>Traverse</b>	360°
<b>Rate of fire</b>	1 rpm
<b>Muzzle velocity</b>	503 m/s (1,650 ft/s) (M344 HEAT)
<b>Effective range</b>	1,350 m (1,480 yd)
<b>Maximum range</b>	6,870 m (M346A1 HEP-T).

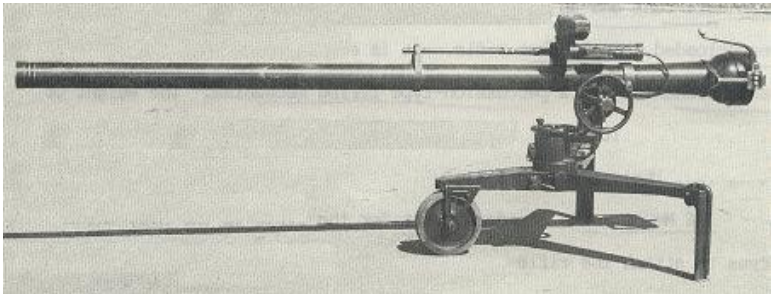
The **M40 recoilless rifle** was a lightweight, portable, crew-served 105 mm weapon intended primarily as an anti-tank weapon made in the United States. The weapon is commonly described as being 106 mm, but it is in fact 105 mm; the 106 mm designation was designed to prevent confusion with the incompatible 105 mm ammunition from the failed M27. It could also be employed in an antipersonnel role with the use of the antipersonnel-tracer flechette round. It can be fired primarily from a wheeled ground mount. The air-cooled, breech-loaded, single-shot rifle fired fixed ammunition. It was designed for direct firing only, and sighting equipment for this purpose was furnished with each weapon.

The M27 recoilless rifle was a 105-mm weapon developed in the early 1950s and fielded in the Korean War. Although a recoilless rifle of this caliber had been a concept since the Second World War, the weapon was hurriedly produced with the onset of the Korean War. The speed with which it was developed and fielded resulted in problems with reliability caused by trunnions that were mounted too far to the rear. The M27 was also considered too heavy by the U.S. Army and had a disappointing effective range due to the lack of a spotting rifle. Taking the M27 as a basis for a new design, the Army developed an improved version of the M27 that was type-designated the M40 106-mm recoilless rifle. Although unsuitable for military purposes, M27 recoilless rifles were used to trigger controlled avalanches at ski resorts and mountain passes in the United States.

The M40 primarily saw action during the Vietnam War and was later replaced by the BGM-71 TOW anti-tank missile system.

## Description

The M40 is shaped like a long tube with a **M8 0.50 cal spotting rifle** above. The spotting rifle fires a round that flies like the 106 mm round and gives off a puff of smoke on impact with the target. On the left hand side, there is an elevating wheel, in the centre of which is the trigger wheel used to fine adjust the elevation and at the same time firing the spotting rifle when pulled, and the gun when pushed. The mounting is a tripod, but the front leg has a castoring wheel. On top of the mount is a traverse wheel. On the centre of the traverse wheel is a locking wheel, when the wheel is down, the rifle is locked in traverse, and can only be moved right and left with the traverse wheel. When the wheel is raised, the rifle can be traversed by hand.



M-40 Recoilless Rifle

The whole mounting can be placed on an M151 Jeep for mobile use. It has also been mounted on Land Rover Defenders, M113s, Mercedes-Benz G-Wagen, HMMWVs, Toyota Land Cruisers, AIL Storms and M274 Mechanical Mules. They were also used on US Navy Minesweepers (MSO) during operation Market Time in Viet Nam.



M-40 Recoilless Rifle mounted on M-151 Jeep

A special vehicle called Ontos carried six M40s. A version specific to the T195E5 mount, the M40A1C, was used. It was used only by the U.S. Marine Corps.











M-40A1C Ontos

## **Ammunition**

Ammunition for the 105 mm rifle was issued as one-piece fixed cartridges. The term "fixed" means that the projectile and the cartridge case are crimped together. This ensures correct alignment of the projectile and the cartridge case. It also permits faster loading because the projectile and the cartridge case are

loaded as one unit. The rear end of the cartridge case is perforated, to allow the propellant gas to escape through the vented breech, thus neutralizing recoil. The projectiles used are pre-engraved, that is, the rotating bands are cut to engage the rifled bore.

Types of ammunition included HEAT (High Explosive Anti-Tank), High Explosive Plastic-Tracer (HEP-T)(High Explosive Plastic – Tracer), canister, High Explosive Anti Personnel, and the M368 dummy round which could not be fired and was used for crew drill. The original U.S. HEAT round penetrated more than 400 mm of armor. Near the end of the M40's service life, both Austria and Sweden produced HEAT rounds for the weapon capable of penetrating more than 700 mm of armor.

Producer	Round name	Type	Proj. Weight	Proj. Filler	Filler weight	Armor penetration	Effective range
	M581	APERS	9.89 kg	flechettes	4.94 kg	N/A	300 m
	M-DN11	HEAP	3.6 kg	Hexogen	0.77 kg	N/A	1500 m
	NR 160	HEAT-T	N/A	N/A	N/A	N/A	N/A
	NR 483	APERS	N/A	flechettes	N/A	N/A	N/A
	NR 601	HESH-T	7.8 kg	Comp. A3	N/A	N/A	N/A
	PFF	HE	9.89 kg	Comp. B	N/A	N/A	N/A
	M346A1	HEP-T	7.96 kg	Comp. A3	3.5 kg	N/A	N/A
	M344A1	HEAT	7.96 kg	Comp. B	1.27 kg	over 400 mm	1350 m
	106 3A	HEAT-T	5.5 kg	Octol	1.0 kg	over 700 mm <sup>l</sup>	2000 m
	RAT 700	HEAT	5.0 kg	N/A	1.1 kg	over 700 mm	N/A

The ammunition for the 0.50 cal spotting rifle is not .50 BMG. The round used is a special round designed to simulate the flight path of the 105 mm ammunition.