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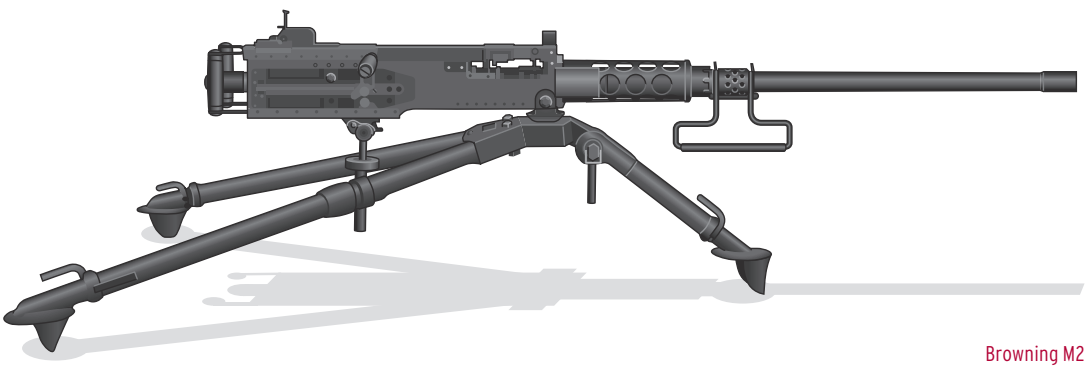
Heavy Machine Guns (including anti-aircraft guns)

Heavy machine guns (HMGs) are defined as having a calibre equal to or greater than 12.7 mm and less than 20 mm, where it is generally accepted that cannon ammunition starts.[1] They are man-portable, but are typically mounted on vehicles or ground mounts as an anti-personnel and anti-aircraft weapon. They are effective against: personnel; light armoured vehicles; low, slow flying aircraft; and small boats. Modern HMGs are belt-fed, gas or recoil operated, air-cooled, and have an effective range up to 2,000 meters (Jane's, 2007, pp. 353–415). For all intents and purposes any HMG can serve in an anti-aircraft role. The distinguishing features between these two roles rests largely on the placement of the firer and the type of weapon mounting and sights. With the exception of the Russian Kord (see below), HMGs cannot be fired effectively 'off-the-mount,' (i.e. without a tripod or without being secured to a sturdy structure, such as a vehicle).[2]

HMGs date back to the late 1800s, yet most modern models fashion themselves after the US Browning .50 Calibre M-series Heavy Machine Gun, first designed in 1918. Extended firing of early models of this weapon generated very high temperatures, which could in extreme cases result in the destruction of the barrel and also posed a potential hazard to firers. Later models such as the Browning M1921 used a water-cooling system to reduce the barrel's heat. To overcome the inconvenience associated with water-cooling, the 1928 Browning M2HB (Heavy Barrel) replaced this system, and addressed barrel heating by designing a thicker barrel construction which acted as a heat-sink and allowed higher volumes of fire to be obtained. The Soviets responded to the Browning in 1938 with the DShK, which featured similar capabilities as the Browning M2. The Soviets and later the Russians replaced the DShK with newer models, such as the NSV (1972) and Kord (2001). Improvements in weight, reliability, and production capability made these weapons superior to their predecessor (Jane's, 2007, pp. 381–391). In contrast to developing new models, the US has continued to produce improved variants of the Browning M2 for the better part of the 20th century.[3]

There are over 20 countries worldwide that have produced HMGs. By 2007, nearly half of them have ceased production. Of these, it was primarily the 14.5 mm HMG that they stopped producing. With the exception of the Chinese, who have developed one new model per decade since the 1950s, most countries produce copies or variants (either licensed or unlicensed) of the Russian DShK and the US Browning M2 (Jane's, 2007, pp. 353–415). Pakistan, for example, produces its 12.7 mm Type 54 anti-aircraft gun under an official license from China, which itself acquired the DShK technology without formal license from Russia (Small Arms Survey, 2007, p. 19).

HMGs have undergone numerous changes over the past 30 years. In 1986, for example, the Belgian firm FN Herstal introduced the M2HB-QCB (quick change barrel) (Hogg, 1999, p. 215). This invention reduced the likelihood of operator damage when re-assembling the gun or replacing the barrel, and has been copied widely for that model weapon and other HMGs. In 2001, the Russian Kord entered service, which differed from other HMGs in that it could operate effectively from only a bipod (in a ground-defense role). The Chinese have produced a series of lighter and more versatile HMGs, such as the Norinco Type 85 (a 20% decrease in weight over its predecessor



Browning M2

A young man next to his heavy machine gun in Akobo, Jonglei State, South Sudan. Violence in the state is delaying the repatriation of displaced civilians. © IRIN

the Type 77), followed by the QJZ89 (which reduced the Type 85's weight by another 30 percent) (Jane's, 2000, p. 316). The US developed the XM312 .50 calibre HMG but it is not likely to produce it in large numbers because of perceived under-performance. It has awarded General Dynamics with a contract to develop a lighter-weight version of the M2, which is still under development.[4]

HMGs have made their way into the arsenals of numerous non-state actors including pastoralist groups. Means of acquisition include leakage from government-held stockpiles through seizure and corruption. They have also been seized from contingents within peace operations. Corresponding ammunition, while not as plentiful as those servicing assault rifles, is widespread enough to make these weapons particularly sought after given their range and fire power. ■

Sourcing

This *Research Note* is based on Eric G. Berman and Jonah Leff, "Light Weapons: Products, Producers, and Proliferation," *Small Arms Survey 2008: Risk and Resilience*, Cambridge: Cambridge University Press, pp. 7–41. It has been updated by Eric G. Berman.

Notes

1 Thus, the General Dynamics XM307 Advanced Crew Served Weapon, for example, is not included here as it fires a 25 mm round even though it is not significantly heavier than some 12.7 mm models in use.

2 Author correspondence with Richard Jones, Consulting Editor, Jane's Infantry Weapons Yearbook, 1 November 2010.

3 The US has done so in part because of military necessity to support on-going military operations and also because the original design has allowed significant design changes to be made to field product-improved variants that more clearly meet the current needs of the user. Author correspondence with Richard Jones, Consulting Editor, Jane's Infantry Weapons Yearbook, 1 November 2010.

4 Author correspondence with Richard Jones, Consulting Editor, Jane's Infantry Weapons Yearbook, 1 November 2010; and 24 January 2011.

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