

Mark 77 bomb

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The **Mark 77 bomb** (MK-77) is a US 750-lb (340 kg) air-dropped incendiary bomb carrying 110 U.S. gallons (415 liters) of a fuel gel mix which is the direct successor to napalm.

The MK-77 is the primary incendiary weapon currently in use by the United States military. Instead of the gasoline and the benzene fuel used in napalm, MK-77 use kerosene-based fuel, which has a lower concentration of benzene. The Pentagon has claimed that the MK-77 has less impact on the environment than napalm. The mixture reportedly also contains an oxidizing agent, making it more difficult to put out once ignited.^{[1] [2]}

The effects of MK-77 bombs are so similar to those of napalm that even many members of the US military continue to refer to them as "napalm" bombs in informal situations. (The official designation of Vietnam-era napalm bombs was the Mark 47.)

Use of aerial incendiary bombs against civilian populations, including against military targets in civilian areas, was banned in the 1980 United Nations Convention on Certain Conventional Weapons Protocol III. The US however, has only signed Articles I and II, not Protocols III, IV, And V.



A Mark 77 bomb being loaded on an F/A-18 Hornet, 1993.

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Use in Iraq and Afghanistan

MK-77s were used by the US Marine Corps during the First Gulf War and Operation Iraqi Freedom. Approximately 500 were dropped, reportedly mostly on Iraqi-constructed oil filled trenches. They were also used at Tora Bora, in Afghanistan.^[2]

At least thirty MK-77s were also used by Marine Corps aviators over a three-day period during the 2003 invasion of Iraq, according to a June 2005 letter from the UK Ministry of Defense to former Labour MP Alice Mahon. This letter stated:

"The US destroyed its remaining Vietnam era napalm in 2001 but, according to the reports for 1 Marine Expeditionary Force (1 MEF) serving in Iraq in 2003, they used a total of 30 MK 77 weapons in Iraq between 31 March and 2 April 2003, against military targets away from civilian areas. The MK 77 firebomb does not have the same composition as napalm, although it has similar destructive characteristics. The Pentagon has told us that owing to the limited accuracy of the MK 77, it is not generally used in urban terrain or in areas where civilians are congregated."^[3]

This confirmed previous reports by U.S. Marine pilots and their commanders saying they had used Mark 77 firebombs on military targets:

Then the marine howitzers, with a range of 30 kilometres, opened a sustained barrage over the next eight hours. They were supported by US Navy aircraft which dropped 40,000 pounds of explosives and napalm, a US officer told the *Herald*.

"We napalmed both those [bridge] approaches," said Colonel James Alles, commander of Marine Air Group 11. "Unfortunately there were people there ... you could see them in the cockpit video. They were Iraqi soldiers."

According to the Italian public service broadcaster RAI's documentary, MK 77 had been used in Baghdad in 2003 in civilians-populated areas. However, there were never any confirmed reports of the use of incendiaries specifically against

civilians.

In some cases where journalists reported that the U.S. military has used napalm, military spokesmen denied the use of "napalm" without making it clear that MK-77 bombs had actually been deployed instead.^{[2][4]}

Pentagon misinforms UK Ministry of Defence

U.S. officials incorrectly informed UK Ministry of Defence officials that MK-77s had not been used by the U.S. in Iraq, leading to Defence Minister Adam Ingram making inaccurate statements to the UK Parliament in January 2005.^[5] Later both Adam Ingram and Secretary of State for Defence John Reid apologized for these inaccurate statements being made to Members of Parliament.

Variants

Later variants of the bomb were modified to be carry a reduced load of 75 gallons (284 litres) of fuel, which resulted in the total weight decreasing to around 230 kg (550 lb).

- Mk 77 Mod 0 - 340 kg total weight with 416 litres of petroleum oil.
- Mk 77 Mod 1 - 227 kg total weight with 284 litres of petroleum oil.
- Mk 77 Mod 2
- Mk 77 Mod 3
- Mk 77 Mod 4 - Approx 230 kg total weight with 284 litres of fuel (Used during the 1991 Gulf War)
- Mk 77 Mod 5 - Approx 230 kg total weight with 284 litres of JP4/JP5 fuel and thickener (Used during the 2003 invasion of Iraq)
- Mk 78 - 340 kg total weight with 416 litres of petroleum oil. No longer in service.
- Mk 79 - 454 kg total weight with 424 litres of napalm and petrol. No longer in service.

References

- MK-77 Dumb Bombs (<http://www.fas.org/man/dod-101/sys/dumb/mk77.htm>) , Federation of American Scientists
- *Jane's Air-Launched Weapons Issue Thirty Six*, Duncan Lennox, ISBN 0-7106-0866-7

Endnotes

1. ^ RAI documentary, English, Italian, Arabic (<http://www.rainews24.rai.it/ran24/inchiesta/en/mk77.asp>)
2. ^ *abc* MK-77 (<http://www.globalsecurity.org/military/systems/munitions/mk77.htm>) , GlobalSecurity.org
3. ^ UK Ministry of Defence letter to Alice Mahon (document) (http://www.rainews24.rai.it/ran24/inchiesta/foto/documento_ministero.jpg)
4. ^ US acknowledgment of use of "napalm" (i.e. MK-77) and white phosphorus (http://www.rainews24.rai.it/ran24/inchiesta/en/illegal_weapons.asp)
5. ^ UK Parliament 10 Jan 2005 (http://www.publications.parliament.uk/pa/cm200405/cmhansrd/cm050110/text/50110w21.htm#50110w21.html_sbhd6) UK Parliament 11 Jan 2005 (http://www.publications.parliament.uk/pa/cm200405/cmhansrd/cm050111/text/50111w01.htm#50111w01.html_sbhd3)

Use in Iraq

- 'Dead bodies are everywhere' (<http://www.smh.com.au/articles/2003/03/21/1047749944836.html>) , Sydney Morning Herald, 22 March 2003 - probably the first published report on Mk 77 use in Iraq
- Napalm by another name: Pentagon denial goes up in flames (<http://www.smh.com.au/articles/2003/08/08/1060145870882.html>) , Sydney Morning Herald, 9 August 2003
- US admits it used napalm bombs in Iraq (<http://www.highcountrypeace.org/article.php?sid=1181>) , The Independent, 10 August 2003
- US State Department Response to Illegal Weapon Allegations (http://usinfo.state.gov/media/Archive_Index/Illegal_Weapons_in_Fallujah.html) , 27 January 2005
- US lied to Britain over use of napalm in Iraq war (<http://www.commondreams.org/headlines05/0617-01.htm>) , The Independent, 17 June 2005
- Parliament misled over firebomb use (<http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2005/06/20/nfire20.xml&sSheet=/news/2005/06/20/ixhome.html>) , Daily Telegraph, 20 June 2005
- *The Hidden Massacre* by Sigfrido Ranucci, Video documentary shows actual chemical bombing on civilians in Fallujah with testimony of interviewed U.S. soldiers - English, Italian and Arabic (<http://www.rainews24.rai.it/ran24/inchiesta/en/body.asp>) , Rai News 24, 8 November 2005
- Italian TV documentary alleges U.S. used chemical weapons in Fallujah (http://www.adnki.com/index_2Level.php?cat=Terrorism&loid=8.0.226404219&par=) , 7 November 2005
- US forces 'used chemical weapons' during assault on city of Fallujah

(http://news.independent.co.uk/world/middle_east/article325560.ece), The Independent, 9 November 2005

See also

- Napalm
- White phosphorus
- Fallujah, The Hidden Massacre
- Mark 81 bomb
- Mark 82 bomb
- Mark 83 bomb
- Mark 84 bomb
- Mark 117 bomb
- Mark 118 bomb
- Mark 7 nuclear bomb

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