

SLBM			1,020	
Air-launched systems (Bombers, etc.)	630		630	
Strategic bomber Payload	550	1	550	10)
Non-strategic nuclear weapons	80	1	80	B61-3/-4 11)
Retired warheads awaiting dismantlement, etc.			~2,385	12)
Total inventory			~6,185	

[Notes]

- 1) In line with the latest estimates on operational deployment (**Kristensen, Hans M. & Korda, Matt 2019-2**).
- 2) The United States has announced that the number of deployed ICBMs will be 400 on completion of New START implementation (**U.S. Department of Defense 2014**). It was announced that, as of September 1, 2017, there were a total of 399 ICBMs in deployment (**U.S. Department of State 2018**). While the Minuteman III Mark 12A used to carry a maximum of three W78 warheads, single-warhead modification is reported to have been complete by 2014 (**NTI 2014**), so deployed warheads are estimated to be 400. This matches the latest estimate (**Kristensen, Hans M. & Korda, Matt 2019-1**).
- 3) The United States announced that it would have 240 SLBMs deployed on completion of New START implementation (**U.S. Department of Defense 2014**). This required cutting back on the 24 launch tubes to 20 on each of twelve strategic nuclear submarines in operational deployment. This process was complete by the end of 2017, bringing down the number of warheads to 240 (**Kristensen, Hans M. & Korda, Matt 2019-1**). The New START Treaty data as of September 1, 2017 (**U.S. Department of State 2018**), SLBMs in deployment were 212, with no direct reference to warheads involved. Here, we estimate 900 warheads with SLBMs by subtracting 400 on ICBMs and 300 on strategic bombers from a total 1,600 strategic warheads in operational deployment.
- 4) On February 22, 2019, the Pantex Plant completed the first production unit of the W76-2 warhead, a variant of the W76-1 warhead with reduced yields ranging 5-7 kilotons. Turnover to the navy is expected to begin by the end of FY2019 (**Kristensen, Hans M. & Korda, Matt 2019-1**).
- 5) Of nuclear nuclear warheads allocated to bombers in operational deployment, about 300 are estimated to be strategic and 150, non-strategic. Those nuclear-capable bombers are 20 B-2s and 46 B-52Hs (**Kristensen, Hans M. & Korda, Matt 2019-1**). Since the B-52 can carry up to 16 nuclear bombs, our estimate is a total 320. The B-52H carries up to 20 cruise missiles but, considering operational conditions, we estimate their allocation to be 530 warheads. Of these, we see about 100 nuclear bombs and about 200 cruise missiles in operational deployment. 150 weapons are deployed in five European countries for use by NATO forces.
- 6) These 150 warheads break down into 20 in Belgium, 20 in Germany, 40 in Italy, 20 in the Netherlands, and 50 in Turkey (**Kristensen, Hans M. & Korda, Matt 2019-1**).
- 7) In March 2018, the Pentagon announced that, as of the end of September 2017, the U.S. stockpile in deployment and reserve consisted of 3,822 warheads (**U.S. Department of Defence 2018**). Based on this figure, we have applied a retirement rate and estimate the current stockpile to be 3,800 warheads. Subtracting 1,750 in operational deployment, we arrived at a reserve storage of 2,050 (**Kristensen, Hans M. & Korda, Matt 2019-2**).
- 8) These are W78 warheads made redundant by the single-warhead modification on the Minuteman III Mark-12A.
- 9) From 2,050 warheads in reserve, subtracting 400 in reserve for ICBMs, 550 for strategic bombers, and 80 non-strategic warheads. The figure includes arsenal for two Ohio-class nuclear submarines in overhaul (20 missiles, some 170 warheads) and hundreds of the W76-0s replaced by W76-1s.
- 10) Of all nuclear weapons allocated to strategic bombers, those stored not on other air force bases but in central storage at Kirtland Air Force Base (**Kristensen, Hans M. & Korda, Matt 2019-1**).
- 11) They are stockpiled in central storage at Kirtland Air Force Base, New Mexico. This consists of B61-3 and B61-4 warheads only, with all B61-10s retired by the end of September 2016 (**NNSA 2017**). They may be deployed in future on fighter bombers to assist allies outside of Europe.
- 12) According to the January 2017 fact sheet, there are approximately 2,800 nuclear warheads are currently retired and awaiting dismantlement (**The White House 2017**). Following this announcement, 354 were dismantled by the end of September 2017 (**The Department of Defence 2018**). Assuming further retirement and dismantlement, those warheads retired or awaiting dismantlement are estimated to be 2,385. In addition, 20,000 plutonium pits for primary detonation and 4,000 for secondary detonation are thought to be stockpiled at the Pantex (Texas) and Y-12 plants (Tennessee) (**Kristensen, Hans M. & Korda, Matt 2019-2**).

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a) ICBM LGM-30G	
Designation :	MinutemanIII
Propulsion :	Three-stage solid-propellant
Launch platform :	Silo
No. of warheads :	Maximum 3 warheads
Warhead :	W78, W87
Specifications :	Length 18 m, Diameter 1.67 m, Weight 32.2 ton
Range :	Over 9,600 km
Circular error probability :	110 m
Where deployed :	F.E. Warren Air Base (Wy) Malmstrom Air Base (Mont) Minot Air Base (N.D.)
Remarks :	The Minuteman III is deployed on three air force bases. Annually, each of the these bases conducts a test launch from Vandenberg Air Force Base aimed at the test range in Kwajalein Atoll in the Marshall Islands. 2018 saw a total five such tests (of which one was a failure); in 2019, as of the end of May, there were three (February 5, May 1 and 9). The "Mk-" designation is the identifying mark for the heat-resistant protective capsule for the nuclear warheads. Work

on conversion of the Mk-12A/W78 warheads to single warheads has been proceeding since 2002, and the Obama administration completed that work in 2014. Development is under way to modify the W78 warhead and use this variant (previously known as IW-1) on the Mark-21 and SLBMs. The W87 warhead, too, will be compatible with the SLBM. The Minuteman III completed a modernization program in 2015, extending its service life into 2030. Currently, the U.S. is planning the development of ground-based strategic deterrent (GBSD) missiles, the next-generation ICBMs. It will appoint manufacturers in 2020 and produce 600 units to replace all Minuteman IIIs by 2030.

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b) **SLBM UGM-133A**

Designation : Trident II D5
 Propulsion : Three-stage solid-propellant
 Launch platform : Ohio-Class strategic nuclear submarine
 No. of warheads : 4~5warheads (Maximum 8 warheads)
 Warhead : W76, W76-1, W88
 Specifications : Length 13.4 m, Diameter 1.85 m, Weight 59.0 ton
 Range : 6,500 km
 Circular error probability : 120 m
 Remarks : The Trident II D5 is being replaced by the D5LE with improved precision and extended service life. This new model will deploy with Columbia-class strategic nuclear submarines currently projected for construction. The "Mk-" designation is the identifying mark for the heat-resistant protective capsule for the nuclear warheads. Mk-4A/ W76-1 warheads are modifications of Mk-4/ W76 warheads and have the same yield but with modernized armor, fusing, and firing (AF&F) systems. It is this W76-1 warhead that is being supplied to the United Kingdom. The modernization is expected to be completed by FY2019. The Mark 5/W88 warhead, too, is undergoing modernization, in which the arming, fusing, and firing (AF&F) device is updated and the neutron-generating device and gas (deuterium and tritium) storage pit are replaced. This life-extended upgrade, W88 Alteration (Alt) 370, will be in production by FY2020 and have completed the replacement program by FY2024. Several Trident test launches are conducted every year. Last year there were two, the most recent being May 9, 2019, from off the coast of Florida. An alteration of the W78 warhead for ICBMs for use with SLBMs is also in development. There are also plans to standardize the ICBM W87 for SLBMs and the SLBM W76-1 for ICBMs.

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c) **Ohio-Class strategic nuclear submarine**

No. of tubes : 20
 SLBM : Trident II D-5/D-5LE
 Specifications : Length 171 m, Width 13 m, Emissions 16,600 ton
 Submerged speed : 25 knot (46 km/h)
 Depth : Around 250 m
 Where deployed : Kings Bay Naval Base(Ga) 6 vessels
 Bangor Naval Base(Wa) 8 vessels
 Remarks : Deployment started in 1981, and 14 vessels are presently engaged in nuclear missions. Of them, two are always being overhauled. In order to satisfy the New START Treaty's restrictions on the number of launch platforms (allowing a total 280 launchers for the U.S.), the Ohio-class reduced through 2017 launch tubes on each vessel by 20. Plans are presently being made for 12 Columbia-class nuclear submarines to replace the Ohio-class. The first of them is scheduled to start building in FY2021 and to be commissioned around FY2026. The U.S. Navy estimates the total procurement cost at USD 122 billion.

[Source]

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d) **Cruise missile AGM-86**

Type : Air-launched cruise missile
Warhead : W80-1 (5–150kt, Variable-yield)
Specifications : Length 6.29 m, Diameter 0.62 m, Weight 1.4 ton
Max. speed : 880 km/h
Range : 2,500 km
Carried by : B52-H Stratofortress
Remarks : The missiles are planned to be kept operational by the 2020s. Ordinarily they are not carried by bombers but instead stored at Minot Air Base in North Dakota. They are said to be ready for loading onto delivery systems within several days if needed. Reserve stockpile is stored in central storage at at Kirtland Air Force Base. Meanwhile, new-model Long Range Stand Off (LRSO) missiles are in development, and its production will begin from 2026. Its warhead will be the W80-4, a life-extended modification of the W80-1. The U.S. Air Force plans to purchase 1,000 warheads, twice as much as its current arsenal of 1,000 warheads.

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e) **Strategic nuclear bomb**

Type : Gravity bomb
B61-7 (Variable-yield : 10–360kt)
B61-11 (Earth-penetrating weapons : 400kt)
B83-1 (Variable-yield : low–1,200kt)
Specifications : B61-7/B61-11
Length 3.56 m, Diameter 0.33 m, Weight 0.32 ton
B83-1
Length 3.7 m, Diameter 0.46 m, Weight 1.1 ton
Carried by : B-2 Spirit
Remarks : Ordinarily not carried by bombers but instead stored at Whiteman Air Base in Missouri. They are thought to be ready for loading onto delivery systems within several days if needed. Reserve stockpile is stored in central storage at at Kirtland Air Force Base. The B61-12 new-model precision guided bomb is presently being developed with the B61-4 tactical nuclear bomb as a base, and the production of the B62-12 is schedule to be started by FY2020. The B61-12 will replace all gravity bombs by FY2024.

[Source]

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f) **Strategic bomber B52-H**

Designation : Stratofortress
Nuclear Weapons : Maximum 20 warheads (Air-launched cruise missile AGM-86)
Specifications : Length 48.5 m, Span 56.4 m
Max. speed : 1,000 km/h
Range : 16,000 km
No. of deployed : 93 (Nuclear mission : 44)
Where deployed : Barksdale Air Base (LA)
Minot Air Base in North Dakota
Remarks : In service since 1961. Improvements in GPS functionality as well as storage and operational capability have been under way since 1989. It will carry longer-range cruise missiles and the B61-12 precision guided nuclear bomb currently under development to replace cruise missiles it presently carry. With replaced engines, the B-52H is set to remain in service into the 2050s. Northrop Grumman is the main contractor developing the B-21 Raider, a new stealth long-range bomber to replace B-52s and B-1Bs. The unit cost is estimated to be about USD 600 million per aircraft. It is scheduled to be in operation in the late 2020s. It will carry new cruise missiles, also in development, and the B61-12 guided nuclear bomb.

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g) Strategic bomber B-2

Designation : Spirit
Nuclear Weapons : Maximum 16 warheads (Gravity bomb B61-7, B61-11, B83-1)
Specifications : Length 21 m, Span 52 m (Stealth aircraft)
Max. speed : 1,100 km/h
Range : 11,100 km
No. of deployed : 20 (Nuclear mission : 16)
Where deployed : Whiteman Air Force Base (Missouri)
Remarks : In service since 1997. Between 2000 and 2015, the U.S. spent USD 9.5 billion upgrading the bomber's nuclear command and control, radar and satellite communications capability. Plans are to carry B61-12 new-model precision guided bombs and new-model Long Range Stand Off (LRSO) missiles to replace the B61-7 and B61-11 from the 2020s. Currently, flight tests continue with the B61-12 released from the B-2. Originally, the B-2 was to remain operational, even after the new B-21 strategic bomber has entered service, but the Air Force changed course in 2018, opting to keep the B-52H instead, whose fleet size is four times as large as the B-2 counterpart. Once a certain number of B-21s are operational, the B-2 will commence its retirement program.

[Source]

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h) Air-launched, Non-strategic nuclear weapons

Type : Gravity bomb
B61-3 (Variable-yield : 0.3, 1.5, 60, 170kt)
B61-4 (Variable-yield : 0.3, 1.5, 10, 50kt)
Specifications : Length 3.56 m, Diameter 0.33 m, Weight 0.32 ton
Carried by : F-15E, F-16, PA200 Tornado
Where deployed : Belgium : Kleine Brogel Air Base
Germany : Büchel Air Base
Italy : Aviano Air Base (U.S.)
: Ghedi Torre Air Base
Holland : Volkel Air Base
Turkey : Incirlik Air Base (U.S.)
Remarks : Shared with NATO forces. The earth-penetrating, precision-guided B61-12 is in development and slated to begin replacing the B61-3 and B61-4 from mid-2022. It is projected to deploy aboard the latest stealth fighter F35-A.

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