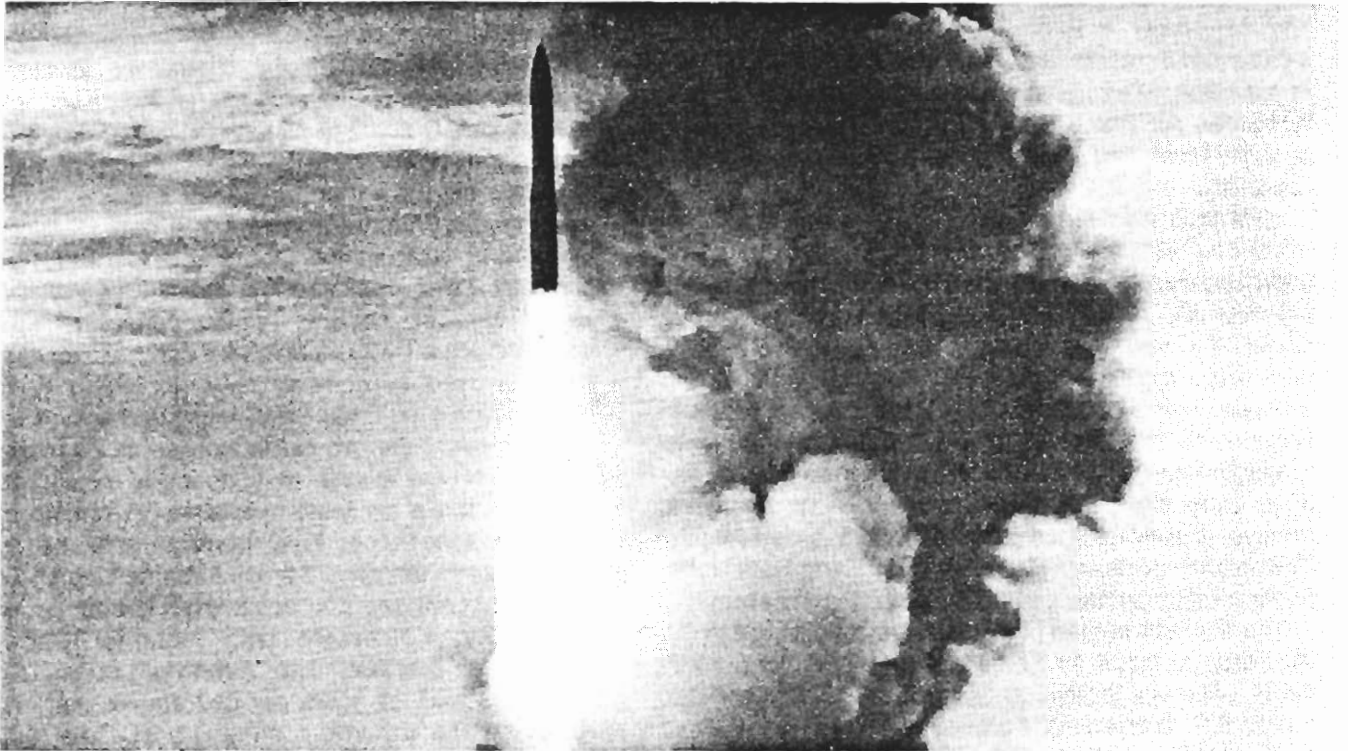




# United States Air Force

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## LGM-30 Minuteman

The LGM-30 Minuteman intercontinental ballistic missile is an element of the nation's strategic deterrent force. The L in LGM is the Department of Defense designation for silo-launched; G means surface attack; and M stands for guided missile. The LGM-30 Minuteman has been on alert and ready to defend this nation since October 1962.

Minuteman missiles use a solid-fuel propellant and are always on alert. In the event of a confirmed attack on the United States, Minuteman missiles could be launched within minutes after combat crews receive direction from higher authority.

Strategic Air Command operates and maintains 500 Minuteman IIIs and 450 Minuteman IIs. These missiles are dispersed throughout the North Central United States. Launch sites usually cover an area of two to three acres. Each flight of 10 missiles is controlled from a launch control center located away from the launch sites and approximately 50 feet below ground. Each launch control

center is a blast-resistant, shock-mounted capsule manned by two officers.

Minuteman can be kept on alert for long periods with minimal maintenance. Each missile is in an underground launch silo hardened to survive an enemy attack. A typical silo is approximately 80 feet deep and 12 feet in diameter with two underground equipment rooms extending 28 feet below the surface around the silo casing. In 1980 a program was completed that increased the hardness of the silos and, therefore, the survivability of Minuteman missiles.

LGM-30A Minuteman I became operational with Strategic Air Command in October 1962, followed in June 1963 by the LGM-30B Minuteman I. Both had the same Thiokol first-stage rocket motor with four swiveling nozzles for control purposes now used in Minuteman II and III. The second-stage motor was made by Aerojet-General and the third-stage motor by Hercules Inc. Each of these motors had four nozzles. LGM-30A Minuteman

I had a single target capability, later expanded to two pre-stored targets in the LGM-30B model. In 1970 Minuteman III began replacing Minuteman I, and in September 1974 the last Minuteman I model was removed from its silo.

LGM-30F Minuteman II missiles became operational in October 1965. This improved Minuteman missile looks similar to Minuteman I and uses the same first- and third-stage motors but has a larger second-stage rocket motor. It also has increased range providing greater targeting coverage. This missile has increased target accuracy and can carry a larger payload than Minuteman I. Minuteman II missile units are located at Malmstrom Air Force Base, Mont.; Ellsworth Air Force Base, S.D.; and Whiteman Air Force Base, Mo. Minuteman II missiles at Malmstrom and Whiteman have a remote targeting capability.

LGM-30G Minuteman III is the newest and most advanced version of the Minuteman systems. The improved third stage was increased in diameter to match the missile's second stage and a pointed-arch shroud covers the warheads, giving it a new shape. The new third stage makes it possible for this missile to deliver a larger payload than the other Minuteman models and provides for incorporation of the multiple, independently targetable re-entry vehicles. It also allows Minuteman III to carry more penetration aids, such as chaff and decoys, to counter enemy anti-ballistic missile systems. This missile is equipped with the Command Data Buffer System that provides a remote retargeting capability.

The first Minuteman III missiles were delivered to the Air Force at Minot Air Force Base, N.D., in June 1970. Other units are located at Malmstrom Air Force Base, Mont.; F.E. Warren Air Force Base, Wyo.; and Grand Forks Air Force Base, N.D. Production of Minuteman IIIs ended in December 1978.

A tested system of authentication codes and hardware safeguards ensures that Minuteman cannot be launched without the valid direction of the National Command Authorities. National Command Authorities are the president and the secretary of defense or their duly deputized alternates or successors. Launch orders must be validated by both combat crew members, who must simultaneously turn launch keys located approximately 12 feet apart. Strategic Air Command crew members

are directed to prevent unauthorized launches. These safeguards ensure positive control of the Minuteman force.

The alert readiness of the Minuteman missile force is monitored from the underground command center at Strategic Air Command headquarters, Offutt Air Force Base, Neb. From this command center, the Strategic Air Command commander in chief is ready to respond immediately to National Command Authorities directives.

A variety of communication systems provides the National Command Authorities and Strategic Air Command direct, reliable means to command, control, coordinate and execute the Minuteman force. These systems connect all Minuteman launch control centers to National Command Authorities and Strategic Air Command headquarters. Communication systems include radio (ultra high frequency and low frequency), wire (Primary Alerting System) and data (Strategic Air Command Automated Command Control System, currently being replaced by Strategic Air Command Digital Network). Missile launch control centers are interconnected by hardened wire communications links that are used by combat crews for status reporting, coordination of missile programming and launch actions.

In the event the ground launch control centers lose contact with the missile silos, specially configured EC-135 aircraft are available to assume command control of the missile force. Fully qualified airborne missile combat crews are aboard these Airborne Launch Control System aircraft and can accomplish launch actions as necessary, consistent with National Command Authorities direction. The Airborne Launch Control System is aloft 24 hours per day aboard the Strategic Air Command airborne command post. Other Airborne Launch Control System aircraft are on ground alert at Ellsworth and Minot Air Force bases to provide coverage for the entire Minuteman force.

The Minuteman Integrated Life Extension (RIVET MILE) program is a joint Strategic Air Command and Air Force Logistics Command initiative. The program began simultaneously at all Minuteman wings in June 1985. By using Air Force Logistics Command teams to inspect, repair and install new components, the Air Force expects to keep all systems maintainable and supportable into the 21st century.

## Specifications

**Primary function:** intercontinental ballistic missile

**Assembly and test:** Boeing Co.

**Power plant/manufacturer:** three solid-propellant rocket motors; first stage — Thiokol; second stage — Aerojet-General; third stage — Minuteman II, Hercules Inc.; Minuteman III, Aerojet-General/Thiokol

**Thrust:** first stage — 202,600 lb.; second stage — 60,000 lb.; third stage — Minuteman II, 17,650 lb.; Minuteman III, 33,800 lb.

**Length:** Minuteman II — 56 ft., Minuteman III — 60 ft.

**Maximum diameter:** 5 1/2 ft.

**Inertial guidance system:** Autonetics Division of Rockwell International

