

AIR-2 Genie

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AIR-2A Genie nuclear air-to-air rocket on a MF-9 Transport Trailer at Hill Aerospace Museum

Type	Short-range air-to-air missile
Place of origin	United States
In service	1958–85
Manufacturer	Douglas Aircraft Company
Produced	1957–62
Weight	822 pounds (372.9 kg)
Length	9 feet 8 inches (2.95 m)
Diameter	17.5 in (444.5 mm)
Engine	Solid-fuel rocket
Wingspan	3 ft. 4 in. (0.9 m)
Operational range	6 miles (9.7 km)
Speed	Mach 3.3

The Douglas AIR-2 Genie (previous designation MB-1) was an unguided air-to-air rocket with a 1.5 kt W25 nuclear warhead. It was deployed by the United States Air Force (USAF 1957–1985) and Canada (Royal Canadian Air Force 1965–68, Air Command 1968–84) during the Cold War. Productions ended in 1962 after over 3000 were produced, with some related training and test derivatives occurring later.

Development



A Convair F-106 of the California Air National Guard fires an inert version of the Genie



Plumbbob John nuclear test, the only live test ever of a Genie rocket, on 19 July 1957. Fired from US Air Force F-89J over Yucca Flats, Nevada Test Site at an altitude of ~15,000 ft. (4.5 km).

The interception of Soviet bombers was a major military preoccupation of the late 1940s and 1950s. The revelation in 1947 that the Soviet Union had produced a reverse-engineered copy of the Boeing B-29 Superfortress, the Tupolev Tu-4 (NATO reporting name "Bull"), which could reach the continental United States in a one-way attack, followed

by the Soviets developing their own atomic bomb in 1949, produced considerable anxiety.

The World War II-vintage fighter armament of machine guns and cannon were inadequate to stop attacks by massed formations of high-speed bombers. Firing large volleys of unguided rockets into bomber formations was not much better, and true air-to-air missiles were in their infancy. In 1954 Douglas Aircraft began a program to investigate the possibility of a nuclear-armed air-to-air weapon. To ensure simplicity and reliability, the weapon would be unguided, the large blast radius making precise accuracy unnecessary.

The resultant weapon carried a 1.5-kiloton W25 nuclear warhead and was powered by a Thiokol SR49-TC-1 solid-fuel rocket engine of 162 kN (36,500 lbf) thrust. It had a range of slightly less than 10 km (6.2 mi). Targeting, arming, and firing of the weapon were coordinated by the launch aircraft's fire-control system. Detonation was by time-delay fuse, although the fusing mechanism would not arm the warhead until engine burn-out, to give the launch aircraft sufficient time to turn and escape. Lethal radius of the blast was estimated to be about 300 meters (1,000 ft.).

The first test firings of inert rounds took place in 1956, and the weapon entered service with the designation MB-1 in 1957. The popular name was *Genie*, but it was often nicknamed "Ding-Dong". About 3,150 rounds were produced before production ended in 1963. In 1962 the weapon was re-designated AIR-2A Genie. Many rounds were upgraded with improved, longer-duration rocket motors, the upgraded weapons sometimes known (apparently only semi-officially) as AIR-2B. An inert training round, originally MB-1-T and later ATR-2A, was also produced in small numbers.



A F-89 Scorpion firing the live Genie used in the Plumbbob John test

A live Genie was detonated only once, in Operation Plumbbob on 19 July 1957. It was fired by AF Captain Eric William Hutchison (pilot) and AF Captain Alfred C. Barbee (radar operator) flying an F-89J over Yucca Flats. Sources vary as to the height of the blast, but it was between 18,500 and 20,000 ft. above mean sea level. A group of five USAF officers volunteered to stand hatless in their light summer uniforms underneath the blast to prove that the weapon was safe for use over populated areas. They were photographed by George Yoshitake who stood there with them. Gamma and neutron doses received by observers on the ground were negligible. Doses received by aircrew were highest for the fliers assigned to penetrate the airburst cloud ten minutes after explosion.



The Montana Air National Guard F-89J that launched the live Genie.

The Genie was cleared to be carried on the F-89 Scorpion, F-101B Voodoo, F-106 Delta Dart, and F-104 Starfighter in U.S. service. A trapeze launcher was fitted beneath a Starfighter, but it was never carried in operational service. Convair offered an upgrade of the F-102 Delta Dagger that would have been Genie-capable, but it was not adopted. Operational use of the Genie was discontinued in 1988 with the retirement of the F-106 interceptor.

The only other user was Canada, who's CF-101 Voodoos carried Genies until 1984 via a dual-key arrangement where the missiles were kept under American custody, and released to Canada under circumstances requiring their use. The RAF briefly considered the missile for use on the English Electric Lightning.

Safety features included final arming by detecting the acceleration and deceleration of a fast aircraft at high altitude. The weapon was built too early to use a permissive action link security device.

The F-89J that was used to launch the only live test is on static display at the Montana Air National Guard in Great Falls, Montana.

Specifications (AIR-2A)



CF-101B of the Canadian Forces firing Genie in 1982

- **Length:** 2.95 m (9 ft. 8 in)
- **Diameter:** 0.44 m (17.5 in)
- **Wingspan:** 1.02 m (3 ft. 4 in)
- **Launch weight:** 373 kg (c lb.)
- **Speed:** Mach 3.3
- **Range:** 9.6 km (6 mi)
- **Guidance:** Inertial (None)
- **Warhead:** W25 nuclear fission, 1.5 kiloton yield
- **Date deployed:** 1957
- **Date retired:** 1985

Used with **MF-9 Transport Trailer**