

# Afterburners: Air War

## Afterburner

*with afterburners, would power the Grumman swept-wing fighter F9F-6, which was about to go into production. Other new Navy fighters with afterburners included*

An afterburner (or reheat in British English) is an additional combustion component used on some jet engines, mostly those on military supersonic aircraft. Its purpose is to increase thrust, usually for supersonic flight, takeoff, and combat. The afterburning process injects additional fuel into a combustor ("burner") in the jet pipe behind (i.e., "after") the turbine, "reheating" the exhaust gas. Afterburning significantly increases thrust as an alternative to using a bigger engine with its added weight penalty, but at the cost of increased fuel consumption (decreased fuel efficiency) which limits its use to short periods. This aircraft application of "reheat" contrasts with the meaning and implementation of "reheat" applicable to gas turbines driving electrical generators and which reduces fuel consumption.

Jet engines are referred to as operating wet when afterburning and dry when not. An engine producing maximum thrust wet is at maximum power, while an engine producing maximum thrust dry is at military power.

## Falklands War order of battle: Argentine air forces

*actions of the Argentine air forces in the Falklands War (Spanish: Guerra de las Malvinas), which comprised units of the Air Force, Army, Navy and other*

This article describes the composition and actions of the Argentine air forces in the Falklands War (Spanish: Guerra de las Malvinas), which comprised units of the Air Force, Army, Navy and other services.

For a description of air forces of the United Kingdom, see Falklands War order of battle: British air forces.

## Korean Air Lines Flight 007

*an idea. I dropped below him about two thousand metres (6,600 ft)... afterburners. Switched on the missiles and brought the nose up sharply. Success! I*

Korean Air Lines Flight 007 (KE007/KAL007) was a scheduled Korean Air Lines flight from New York City to Seoul via Anchorage, Alaska. On September 1, 1983, the flight was shot down by a Soviet Sukhoi Su-15TM Flagon-F interceptor aircraft. The Boeing 747-230B airliner was en route from Anchorage to Seoul, but owing to a navigational mistake made by the crew, the airliner drifted from its planned route and flew through Soviet airspace. The Soviet Air Forces treated the unidentified aircraft as an intruding U.S. spy plane, and destroyed it with air-to-air missiles, after firing warning shots. The South Korean airliner eventually crashed into the sea near Moneron Island west of Sakhalin in the Sea of Japan, killing all 246 passengers and 23 crew aboard, including Larry McDonald, a United States representative. It is the worst Korean Air disaster to date.

The Soviet Union initially denied knowledge of the incident, but later admitted to shooting down the aircraft, claiming that it was on a MASINT spy mission. The Politburo of the Communist Party of the Soviet Union said it was a deliberate provocation by the United States to probe the Soviet Union's military preparedness, or even to provoke a war. The U.S. accused the Soviet Union of obstructing search and rescue operations. The Soviet Armed Forces suppressed evidence sought by the International Civil Aviation Organization (ICAO) investigation, such as the flight recorders, which were released in 1992, after the dissolution of the Soviet Union.

As a result of the incident, the United States altered tracking procedures for aircraft departing from Alaska, and President Ronald Reagan issued a directive making American satellite-based radio navigation Global Positioning System freely available for civilian use, once it was sufficiently developed, as a common good.

## Air gun

*An air gun or airgun is a gun that uses compressed air or other pressurized gases to fire projectiles, reminiscent of the principle behind the ancient*

An air gun or airgun is a gun that uses compressed air or other pressurized gases to fire projectiles, reminiscent of the principle behind the ancient blowgun. This is in contrast to a firearm, which shoots projectiles using pressure generated via combustion of a chemical propellant, most often black powder in antique firearms and smokeless powder in modern firearms.

Air guns come in both long gun (air rifle) and handgun (air pistol) forms. Both types typically propel metallic projectiles that are either diabolo-shaped pellets or spherical shots called BBs, although in recent years Minié ball-shaped cylindro-conoidal projectiles called slugs are gaining more popularity. Certain types of air guns (usually air rifles) may also launch fin-stabilized projectile such as darts (e.g., tranquilizer guns) or hollow-shaft arrows (so-called "airbows").

The first air guns were developed as early as the 16th century, and have since been used in hunting, shooting sport and even in warfare. There are three different power sources for modern air guns, depending on the design: spring-piston, pneumatic or bottled compressed gas (most commonly carbon dioxide and recently nitrogen).

## Aerial refueling

*Once airborne, the Blackbird would accelerate to supersonic speed using afterburners to facilitate structural heating and expansion. The magnitude of temperature*

Aerial refueling (en-us), or aerial refuelling (en-gb), also referred to as air refueling, in-flight refueling (IFR), air-to-air refueling (AAR), and tanking, is the process of transferring aviation fuel from one aircraft (the tanker) to another (the receiver) while both aircraft are in flight. The two main refueling systems are probe-and-drogue, which is simpler to adapt to existing aircraft and the flying boom, which offers faster fuel transfer, but requires a dedicated boom operator station.

The procedure allows the receiving aircraft to remain airborne longer, extending its range or loiter time. A series of air refuelings can give range limited only by crew fatigue/physical needs and engineering factors such as engine oil consumption. Because the receiver aircraft is topped-off with extra fuel in the air, air refueling can allow a takeoff with a greater payload which could be weapons, cargo, or personnel: the maximum takeoff weight is maintained by carrying less fuel and topping up once airborne. Aerial refueling has also been considered as a means to reduce fuel consumption on long-distance flights greater than 3,000 nautical miles (5,600 km; 3,500 mi). Potential fuel savings in the range of 35–40% have been estimated for long-haul flights (including the fuel used during the tanker missions).

Usually, the aircraft providing the fuel is specially designed for the task, although refueling pods may be fitted to existing aircraft designs in the case of "probe-and-drogue" systems. The cost of the refueling equipment on both tanker and receiver aircraft and the specialized aircraft handling of the aircraft to be refueled (very close "line astern" formation flying) has resulted in the activity only being used in military operations; there are no regular civilian in-flight refueling activities. Originally trialed shortly before World War II on a limited scale to extend the range of British civilian transatlantic flying boats, and then employed after World War II on a large scale to extend the range of strategic bombers, aerial refueling since the Vietnam War has been extensively used in large-scale military operations.

## Air engagements of the Gulf War

*as Anderson awaited firing clearance, but Dawoud shut off his jet's afterburners, causing Anderson to lose sight of him, and fled eastward. Dawoud then*

During the 1991 Gulf War and subsequent operations in no-fly zones over Iraq, Coalition air forces faced the Iraqi Air Force (IQAF), the fourth largest air force in the world at the time. In the opening days of the war, many air-to-air engagements occurred, between Iraqi interceptors and a variety of different Coalition aircraft.

## War emergency power

*takeoff power, as well as simultaneously increasing fuel flow to the afterburners. When this mode was selected, an orange indicator light would illuminate*

War emergency power (WEP) is a throttle setting that was first present on some American World War II military aircraft engines. For use in emergency situations, it produced more than 100% of the engine's normal rated power for a limited amount of time, often about

five minutes. Similar systems used by non-US forces are now often referred to as WEP as well, although they may not have been at the time, as with the German Luftwaffe's Notleistung and Soviet VVS' forsazh systems.

## Mikoyan-Gurevich MiG-25

*(SFC) of the engines is 1.12lb/(h·lbf) in cruise and 2.45lb/(h·lbf) with afterburners. For comparison purposes, this is 50% worse in cruise than the first*

The Mikoyan-Gurevich MiG-25 (Russian: ????? ? ????? ?-25; NATO reporting name: Foxbat) is a supersonic interceptor and reconnaissance aircraft that is among the fastest military aircraft to enter service. Designed by the Soviet Union's Mikoyan-Gurevich bureau, it is an aircraft built primarily using stainless steel. It was to be the last aircraft designed by Mikhail Gurevich, before his retirement.

The first prototype flew in 1964 and the aircraft entered service in 1970. Although it was capable of reaching Mach 3.2+, this would result in the engines accelerating out of control and needing replacement, therefore the operational top speed was limited to Mach 2.83. The MiG-25 features a powerful radar and four air-to-air missiles, and it still has the world record for reached altitude of 38 km (125,000 ft).

Production of the MiG-25 series ended in 1984 after completion of 1,186 aircraft. A symbol of the Cold War, the MiG-25 flew with Soviet allies and former Soviet republics, remaining in limited service in several export customers. It is one of the highest-flying military aircraft, one of the fastest serially produced interceptor aircraft, and the second-fastest serially produced aircraft after the SR-71 reconnaissance aircraft, which was built in very small numbers compared to the MiG-25. As of 2018, the MiG-25 remains the fastest manned serially produced aircraft in operational use and the fastest plane that was offered for supersonic flights and edge-of-space flights to civilian customers.

## Aarne Lakomaa

*Saab 1325 was a Draken replacement fighter with Gyron jets with partial afterburners on the wingtips and an (automatically starting in case of engine failure)*

Aarne Lakomaa (1914–2001) was a Finnish aircraft designer. Born in Finland, Lakomaa graduated from Helsinki Polytechnics. He fought as an Army Lieutenant in the Winter War (1939–40) and the Continuation War (1941–44) against the Soviet Union. There he became famous for fitting captured Russian engines to the obsolete French fighter Morane-Saulnier M.S.406, thereby creating a first rate fighter, the Mörkö-Morane ("mörkö" being Finnish roughly for "bogeyman" or "hobgoblin"). Aarne Lakomaa first replaced the original

Hispano-Suiza 12Y 31 liquid-cooled V-12 rated at 860 hp with a 1,100 hp Soviet engine— the Klimov M-105P—which was a war booty. This engine was installed under the cover of a more aerodynamic cowling and fitted with a different pitch propeller. The French M.S.406's airframe was strengthened, and an oil cooler from a Messerschmitt-109 replaced the old one. In this way over-heating problems was finally solved. As a result of these modifications, the improved version of Morane had a 36-mph speed advantage over all previous versions.

Lakomaa was recruited to Saab in 1944 as an aircraft designer. He was involved in the development of the fighters Saab 35 Draken and Saab 37 Viggen, and later headed R&D at Saab where he designed a number of prototypes, including a rocket propelled interceptor, nuclear weapon carriers, replacements for the Draken and Viggen, which was initially developed to substitute the Saab 32, and a supersonic business jet. Aarne Lakomaa was a part of team that first began studies on this theme in 1952–57. They were aimed at producing an aircraft with excellent short runway performance.

### Bodø Main Air Station

*were delivered to Bodø. The increased noise, especially from use of afterburners during take-off, resulted in significantly more noise pollution in town*

Bodø Air Station (IATA: BOO, ICAO: ENBO) is a military air base of the Royal Norwegian Air Force (RNoAF) located in the town of Bodø in Bodø Municipality, Nordland county, Norway.

The base is home for a detachment of AgustaWestland AW101 search and rescue (SAR) helicopters of the 330 Squadron.

The base was, until 2022, the home base for NATO's Quick Reaction Alert (QRA) mission. The mission is now carried out by F-35s from Evenes Air Station, located in Nordland county. Bodø serves as the main air station for Northern Norway and shares its 3,394-meter (11,135 ft) runway with Bodø Airport.

The first airfield was a simple wooden runway built in May 1940 by Allied forces during the Norwegian Campaign (8 April–10 June 1940) of World War II. The airfield was quickly bombed by the Luftwaffe, who chose to build a new airport in the same location. It remained in German use until 1945, when it was taken over by the RNoAF. Upgradation to North Atlantic Treaty Organization (NATO) standards started in 1950, and fighters have been stationed at Bodø since 1955. Aircraft previously stationed are the F-84 Thunderjet, the F-86 Sabre and the F-104 Starfighter. The air station will be closed with the delivery of the F-35 Lightning II, and only the SAR detachment will remain.

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