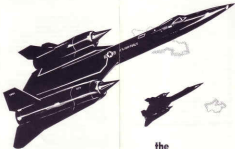


DEPARTMENT OF THE AIR FORCE



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the  
Remarkable  
**SR-71**

# THE REMARKABLE SR-71...



In January, 1968, the Strategic Air Command received the first of its SR-71s—the world's most advanced reconnaissance vehicle. Since that time it proved to be one of the fastest and highest flying aircraft in the skies.

The SR-71 flies at more than three times the speed of sound, and operates at an altitude above 80,000 feet—more than 15 miles up. SAC's 9th Strategic Reconnaissance Wing (SRW), located at Beale Air Force Base in California's Sacramento Valley near Marysville, operates this aircraft.

Three times the speed of sound—Mach 3—is more than 3,000 miles per hour or about 1,200 feet per second. Compare this with the 3,000 feet per second muzzle velocity of a .30-06 rifle bullet. This aircraft started a new era in aviation for the Strategic Air Command.

## Some Characteristics...

The SR-71 is a two-engine deltajet aircraft, slightly over 187 feet long, 55 feet wide, and 58½ feet from the ground to the top of the vertical stabilizers. Each of the two J-58 engines is housed in a nacelle mounted away from the pencil-shaped fuselage on either side of the aircraft and in the double delta wing. These engines generate better than 20,000 pounds of thrust each. A similar aircraft, the Air Force's prototype YF-12A, interceptor, set nine world speed records in one day, May 1, 1965.

## SR-71 Crew...

The two-man crew of this high-performance airplane consists of a pilot and a reconnaissance systems officer (RSO). All are volunteers. All of the pilots have many hours in jet aircraft and a variety of backgrounds and experience, including pilot time in fighters, F-105, F-99s, and the U-2. Some of them formerly were test pilots. The RSOs are all former radar-navigators with SAC border crew experience. Duties and responsibilities of the SR-71 RSO encompass a new era for navigators.



Selection criteria for SR-71 crewmembers are stringent. Each man receives virtually the same physical as that given the astronauts. This examination is exhaustive and exacting. Before starting training, each man is fitted for the full pressure flight suit, similar to the "silver tan" of the astronauts. Training includes ground studies, pressure chamber and simulator experience, flights in T-38 companion trainers, and finally flight training in the SR-71.

In preparation for even a routine flight, the two-man crew reports to the 9th SRW's unique physiological support division (PSD) for a mandatory pre-flight physical the day before the actual flight. Each man also receives a high protein meal and intensive briefings on weather and special mission characteristics.

Once this is completed, crew members are hauled into the full pressure flight suit by PSD technicians, who will stay with the crew until they are aboard the SR-71 and "plugged in" to its systems. After a final check of the suit, and another for the aircraft, the crew is ready to fly the SR-71 on one of its high-speed, high-altitude missions.

#### **Reconnaissance Systems ...**

This revolutionary new aircraft, with its speed and advanced reconnaissance systems, will out-perform all previous reconnaissance aircraft. It carries a wide variety of observation equipment and is capable of both pre-attack and post-attack reconnaissance missions. An SR-71 could fly from Los Angeles to Washington, D.C.—a distance of more than 2,000 miles in just over an hour—and could survey 50,000 square miles of the earth's surface from an altitude of 80,000 feet in that hour's trip.

When former President Johnson announced the existence of the SR-71 on July 24, 1964, he stated, "The system will be used during periods of military hostilities and in other situations in which the U.S. military forces may be confronting foreign military forces."

#### **Training Flights—A Must ...**

Supersonic flights are now being flown over many parts of the United States to test the systems, the aircraft, and to maintain crew proficiency. These missions include numerous air refuelings over several corridors approved by the Federal Avia-



tion Administration (FAA). Care was taken in choosing these paths to avoid highly populated areas, insofar as possible.

Such refuelings and air refuelings are routine with SAC. Training in air refueling is necessary because it is a vital part of nearly all SAC missions to assure that bomber and reconnaissance aircraft have global range.

Due to the high altitude of these flights, west refuelings along the routes will not be aware of the SR-71's presence. However, it cannot refuel at its operational altitude because the KC-135 tanker cannot fly that high or at supersonic speeds. Instead, the SR-71 must descend to a lower altitude of about 30,000 feet to hook-up with the KC-135, fly at subsonic speeds during the refueling, and then climb back to its cruising altitude of 80,000 feet. During the descent and ascent, sonic booms will occur.

#### **What About Sonic Booms?**

Undoubtedly at one time or another you have heard the sonic booms of aircraft flying faster than sound. But if you are like most Americans, you probably do not know what causes the sharp sounds, what they can do, and what they cannot do, and whether they are really necessary.

Since they come without warning, they startle you and may even make you angry. You can hear and feel them, but you cannot see them. They are caused by pressure waves—like the bow wave in front of a boat—built up around an aircraft, a missile, or a rifle bullet, etc., traveling faster than sound. These pressure waves spread in all directions and, if they are



strong enough to reach the ground, you will hear the sonic boom.

It is widely believed that sonic booms are created only at the point where the aircraft "breaks through" the invisible "sound barrier", and then speeds silently on without further disturbance. This is not true. An aircraft flying at supersonic speed "drags a cone of sound" along its path.

#### Can Sonic Booms Do Damage?

Air Force research and tests have proved that the pressure created by an airplane flying supersonically cannot di-

rectly injure a person. However, a strong sonic boom can break glass or aggravate plaster cracks. They cannot cause damage to a structurally sound building.

Radio and television stations as well as newspapers in your area normally are told of planned SAC training flights so that they may inform you in advance. You can make your contribution to our nation's defense by understanding the need for supersonic flights.

SAC aircrews flying the SR-71—like the aircrew of other commands and military services who fly aircraft which also cause sonic booms—are mature, dedicated, carefully trained men who daily risk their lives to perfect their ability to protect our country. They are on directed missions—not "stunting" or "hot rodding."

Chances are that you will not even realize that an SR-71 has passed overhead. The noise level becomes very faint by the time it reaches the earth from the SR-71's operating altitude.

Everything possible is being done to reduce the effects of sonic booms—but they do occur. Only military aircraft presently are capable of supersonic flight. But in the near future, civilian airplanes flying faster than sound will join them. Research efforts are trying to reduce the effects of the noise, but without total success. For the foreseeable future, they will be an unavoidable part of the age of supersonic flight.

