

HEXAGON

AMERICA'S EYES IN SPACE

NRO launched
20 Hexagons from
June 1971 – April 1986.

The U.S. Air Force launched Hexagon systems from Vandenberg Air Force Base. The Hexagon did not need an upper stage to provide power, attitude control, and orbital adjusts in space. They were built directly into the satellite's body.



Launch of Hexagon Mission 1215 on 3/16/1979, using a Titan III D booster with 5-segment solid rockets.



NATIONAL RECONNAISSANCE OFFICE

50 YEARS OF VIGILANCE FROM ABOVE

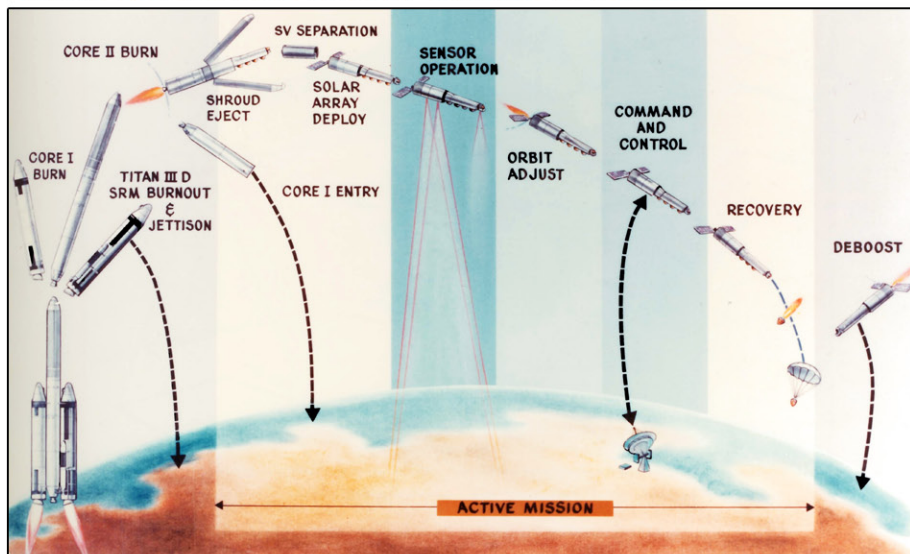
ORIGINS OF PHOTORECONNAISSANCE

Following World War II, the United States developed new photoreconnaissance capabilities to penetrate the denied areas in the Soviet Union, Eastern Europe, and Asia. President Eisenhower directed the Central Intelligence Agency to develop the U-2 reconnaissance plane, and later the more innovative supersonic A-12, in order to improve the nation's photoreconnaissance capabilities. He also directed the CIA to develop, in conjunction with the U.S. Air Force, the nation's first photoreconnaissance satellite, codenamed Corona. First launched in 1960, Corona operated with much less risk than photoreconnaissance aircraft and searched broad areas to capture incredibly valuable imagery while orbiting high above the Earth. These air and space platforms propelled the United States into an unparalleled position of dominance in photoreconnaissance capabilities that helped the U.S. win the Cold War.

INTELLIGENCE NEED FOR PHOTORECONNAISSANCE

Although Corona provided the capability to search large areas from space, the U.S. still lacked high resolution imagery. Approximately one year after the first launch of Corona, the National Reconnaissance Office began development of its first high resolution satellite program, codenamed Gambit. Over time, the Gambit program evolved into two different systems. The first Gambit system, launched in 1963, was equipped with the KH-7 camera system that included a 77-inch focal length camera for providing specific information on scientific and technical capabilities that threatened the nation. Intelligence users often characterized this capability as surveillance, allowing the United States to track the advancement of Soviet and others' capabilities. The second system, Gambit 3 was equipped with the KH-8 camera system that included a 175-inch focal length camera. The system was first launched in 1966 and provided the U.S. with exquisite surveillance capabilities from space for nearly two decades. The NRO launched a final system, codenamed Hexagon, in 1971 to improve upon Corona's capability to search broad and wide denied areas for threats to the United States. The system sometimes carried a mapping camera to aid in U.S. military war planning. The United States depended on these search and surveillance satellites to understand the capabilities, intentions, and advancements of those who opposed the United States during the Cold War. Together they became America's essential eyes in space.

Launch, operation, and recovery sequence for Hexagon

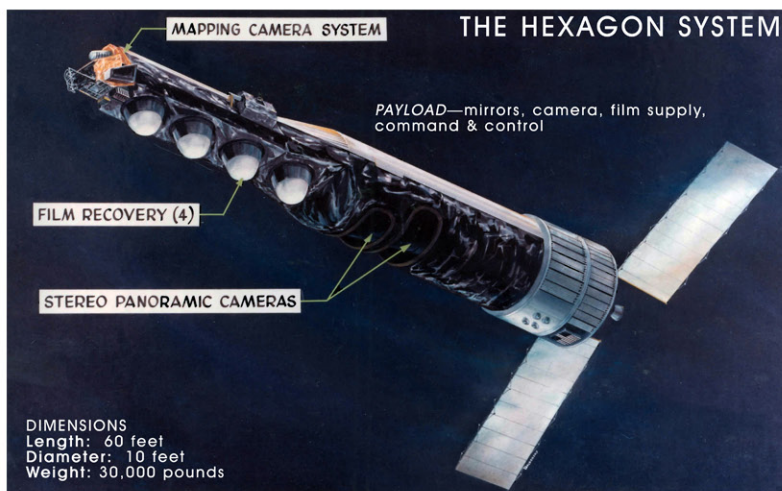


After a parachute slows the bucket's descent, an airplane would capture the bucket mid-air.

HEXAGON (KH-9)

AMERICA'S EYES IN SPACE

Hexagon provided the U.S. with impressive broad-area search & mapping capabilities from June 1971– April 1986.



PROGRAM FACTS

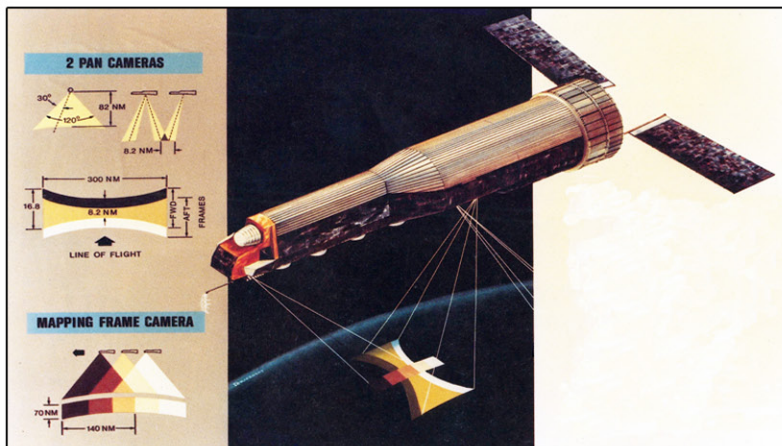
Missions: 20, 12 with the MCS (19 successes)
Mission Length : 124-day average
Imaging Days: 31-270 days
Altitude: 80-370 nautical miles
Roll Control: attitude control gas
Payload Weight: 7,375 lbs
Image Retrieval: Film Return Capsule
Program Coverage: 877 million square miles

PANORAMIC OPTICS/IMAGING

Camera Developer: Perkin-Elmer
Lens: f/3.0
Aperture: 20 inches
Focal Length: 60 inches
Image Resolution: 3-2 feet
Film Length: 320,000 ft (60 miles)
Film Width: 6.6 inches

MAPPING OPTICS/IMAGING

Camera Developer: Itek
Lens: f/6
Focal Length: 12 inches
Image Resolution: 30-35 feet



ADVANCEMENTS

Hexagon, with its multiple recovery buckets and extended mission life, moved the U.S. closer to achieving continuous space imaging capability. Hexagon's primary panoramic camera provided improved search coverage and resolution. Hexagon's mapping camera provided global geodetic positioning, accurate point locations for military operations, and data for military targeting.



One Hexagon frame covered a ground distance of 370 nautical miles, about the distance from Cincinnati, OH to Washington D.C.