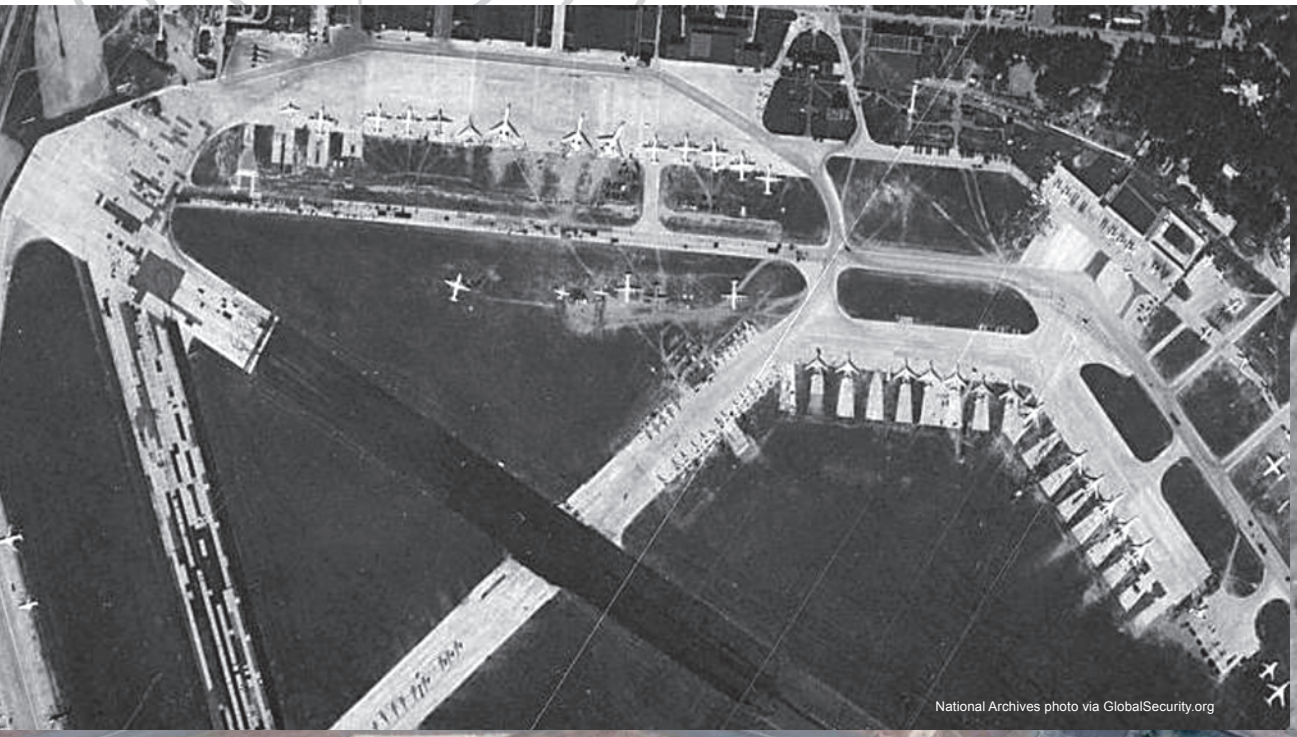
TARGET: Ramenskoye

By Jeffrey T. Richelson



National Archives photo via GlobalSecurity.org

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A ceremony held on May 30, 2016, about 25 miles southeast of Moscow, marked the opening of Zhukovsky Airport, Moscow's fourth international airport. For decades the facility had been known by a different name—Ramenskoye—and had been a major target of America's spies.

National Archives photo via GlobalSecurity.org

The US kept a close watch on the Soviet Union's premier air and space testing facility, just outside Moscow.

What made it important was that it was the Soviet equivalent of Edwards AFB, Calif.: A procession of Soviet military aircraft appeared there during the early stages of their development, before they were produced in large numbers and deployed to Soviet air bases across the country. (See "Ramenskoye: Past and Present," April 2008, p. 48.) US intelligence collection directed against Ramenskoye provided a first step in determining the existence and capabilities of new Soviet military aircraft.

In 1952, the United States had limited means of gathering intelligence on Soviet military developments. The CIA did not even open a station in Moscow until the following year, but even that didn't go well.

ULTIMATE FLYAWAY FIELD

Dedicated intelligence overflights of Moscow were not possible, and captured German photography dated back to 1941. The CIA was able to debrief individuals with knowledge of the airfield, although sometimes that knowledge was also from an earlier decade.

A late January 1952 agency information report focused on the airfield's runways, the presence of a radar set, and the unsuccessful attempts, in 1947, of a pilot to get his four-jet airplane off the ground.

The US did have one set of intelligence officers operating in Moscow years before the CIA arrived—military attachés, who in addition to collecting data during the public Soviet military parades also conducted their own, less authorized, intelligence gathering activities.

During a July 30, 1953, visit to Ramenskoye, the US air attaché observed and photographed an aircraft similar to the B-47. The images showed the aircraft to be one-and-a-half times larger than the Tu-4 Bull, the main Soviet bomber. The attaché also reported observing 30 to 35 Tu-4s; 25 to 30 Il-28 bombers; and 15 to 20 MiG-15s.

Three years later the US would have an important new asset for monitoring Soviet military activities. On July 5, 1956, CIA pilot Carmine Vito took off from Wiesbaden Air Base in West Germany on the second U-2 mission over Soviet territory. His route took him over East Germany, Warsaw, Minsk, and Moscow before heading back. While the Soviet capital was almost completely covered by clouds, two key facilities in the vicinity were available to the spyplane's cameras. One was the Fili airframe plant, where the Myasishchev-4 (Mya-4) bombers, spotted at Ramenskoye in 1953 and later designated Bison by US intelligence, were built.

The second was Ramenskoye itself—"the ultimate flyaway field for Bisons assembled at Fili," according to an official history of the CIA's photographic interpretation center.

Former CIA photo interpreter Dino A. Brugioni recalled in his book, *Eyes in the Sky,* that Vito's mission solved one puzzle involving Ramenskoye. "We had wondered," he wrote, "how the Soviets could get a Bison bomber out of the Fili plant because the runway was far too short for such a large plane to take off." He then explained, "We got our answer when the images showed a large barge on the Moscow River next to the plant. The Bisons were placed on the barge and ferried to the Ramenskoye test field."

Vito's mission would be the first and last U-2 flight over Moscow and its vicinity.

The next month ground photography, taken from some distance, showed the construction of several new buildings at Ramenskoye. But in 1960, with the first successful Corona mission, the US would finally have the means for repeated overhead coverage of any target on Soviet territory.

Corona (KH-1 through KH-4B, 1960-72) would be augmented by the Gambit high-resolution spacecraft (KH-7, 1963-67 and KH-8, 1966-84), and then supplanted by the Hexagon (KH-9, 1971-86) search

Above left: A photo of the north end of the runway at Ramenskoye and a photo of a Tu-95 Bear bomber (right), both taken by a US KH-7 Gambit satellite on May 30, 1967. Left: Ramenskoye, now Zhukovsky Airport, today.

system. Finally, electro-optical imagery arrived in December 1976 with the first launch of a Kennen (KH-11) spacecraft. Deployment of those spacecraft was the key factor in permitting US intelligence analysts to produce detailed reports on the flight test center at Ramenskoye, associated research institutes, and the Soviet aircraft and spacecraft at the facility.

Ramenskoye had been of sufficient importance to be listed as one of the highest priority targets for the August 1960 Corona mission. Seven years later a CIA report described it as "the most important flight test center in the USSR," explaining that "all Soviet aircraft under development are usually tested at this center." The report also stated that subsequent to its initial identification, the test center had been photographed on 34 KH-4 and two KH-7 missions.

Declassified National Photographic Interpretation Center (NPIC) reports on the Ramenskoye Flight Test Center, based on the product of satellite reconnaissance missions, include those from 1968, 1974, and 1981-83. The first of those reports identified over 15 different types of assorted structures at the test center—including the airfield and its runway, maintenance areas, an air warning and airfield surveillance radar, visual landing aids, and a probable aircraft landing area. Along with identifying what could be found at the test center, the report specified locations and dimensions and noted that a particular concrete hangar apron was "used mainly by MiG aircraft" while another was "used mainly by Sukhoi aircraft." In addition to examining satellite photography, assorted tables, and drawings of specific buildings (from different perspectives), the reader could consult a complete layout of the test center—with each element identified.

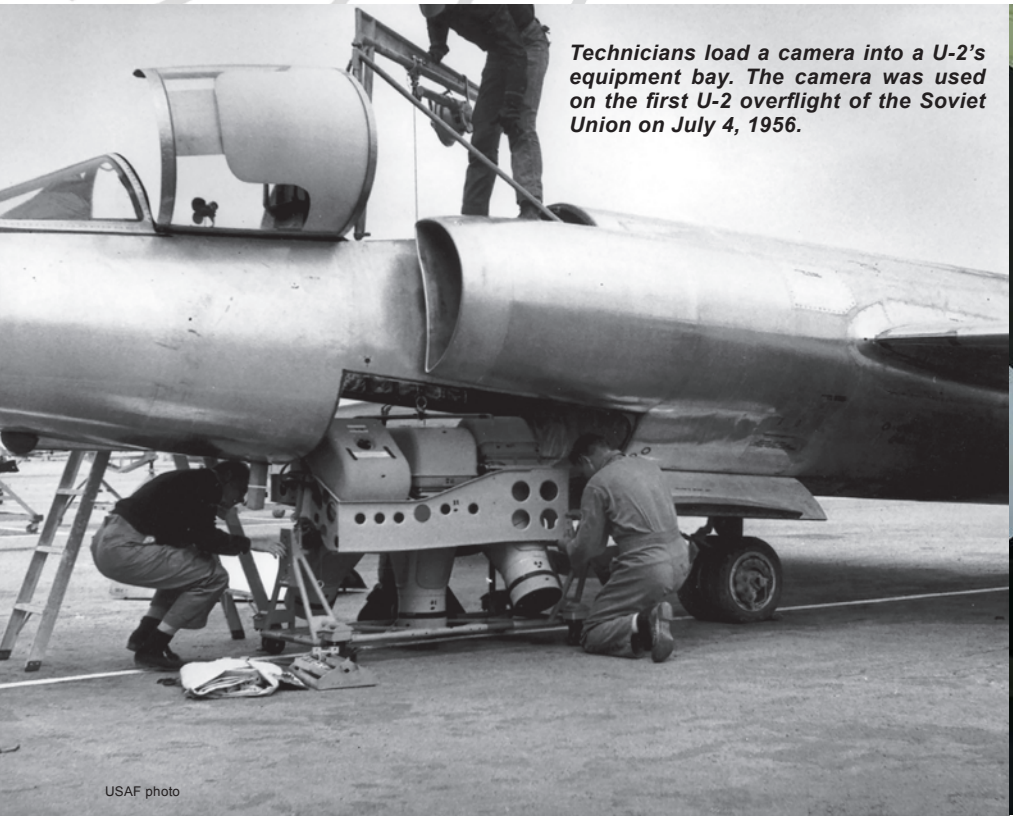
NEW CONSTRUCTION

Six years later NPIC produced a report whose main focus was on construction activity at the test center. It said that over 80,000 square feet of floor space had been added since September 1971 and ongoing building efforts would add at least another 211,520 square feet. Also noted was the presence of an "eye chart" for spy satellites—targets used to test the capabilities of high-resolution overhead photographic reconnaissance systems—some first discovered in May 1973. The Siemens stars at Ramenskoye and other Soviet facilities were generally a series of alternative light and dark spokes radiating from a center point, spokes broadening as they became more distant from the center.

In November 1982, an NPIC publication on the flight test center reported on new construction—providing descriptions of the additions, their estimated dimensions and floor space, date of completion, and short remarks. The document reported removal of a structure that had served as environmental protection for an object similar in appearance to the US space shuttle's external fuel tank. The center's imagery analysts devoted several paragraphs to Ramenskoye's Telemetry Collection and Processing Center, consisting mainly of two buildings and telemetry collection equipment. They commented on the presence of a "square building of unusual design" with "three large, circular patterns" on three sides of the building, but were uncertain whether the building was part of the processing center.

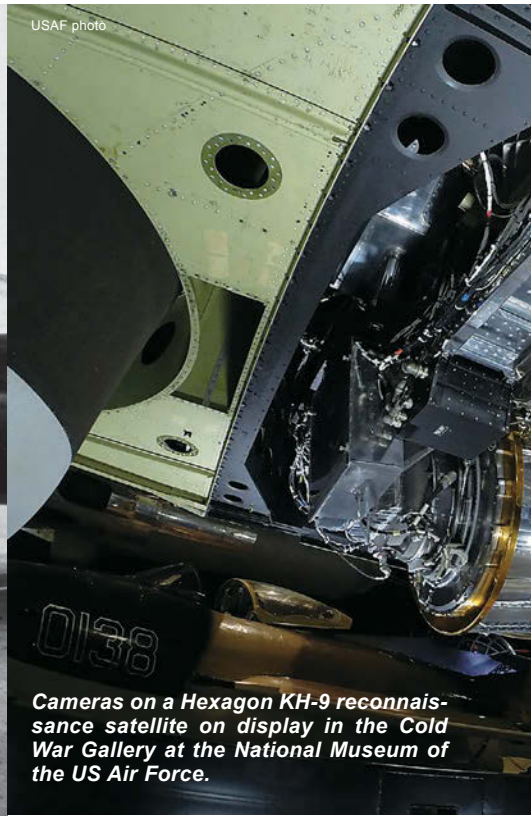
Adjacent to Ramenskoye is an institution established in the early days of Soviet rule. The Central Aerohydrodynamic Institute (TsAGI) was founded on Dec. 1, 1918. The 1952 CIA information report had linked Ramenskoye and TsAGI, listing the institute's location, dimensions, and security arrangements—including a guard force of 20 men from the Soviet air force. It said 17 German specialists worked there, and "it was believed that jet aircraft with swept-back wings and high rudder assembly were manufactured at the plant."

A 1967 NPIC report described it as "one of the most important of all the installations associated with aerospace



USAF photo

Technicians load a camera into a U-2's equipment bay. The camera was used on the first U-2 overflight of the Soviet Union on July 4, 1956.



USAF photo

Cameras on a Hexagon KH-9 reconnaissance satellite on display in the Cold War Gallery at the National Museum of the US Air Force.

programs in the Soviet Union"—so that its work was closely related to much that was taking place at Ramenskoye. In the 1980s, some of its efforts were directed toward improving the maneuverability of jet fighters, including the MiG-29. The report provided highlights of the chronological development of TsAGI from 1941, based on captured German photography, ground photography from 1947, 1953, and 1956, and Corona photography starting in 1962.

The 1962 images revealed continued expansion of TsAGI, with "significant construction observed for the first time," including four laboratory buildings and an aircraft engine test facility. Later imagery made it "evident that during 1965 ... TsAGI was in the initial [phase] of another large-scale expansion program." The report went on to identify 95 different elements of the institute, state their probable functions, and give their estimated dimensions along with occasional comments. There was the standard line drawing of the full layout of the institute, showing the locations and shapes of each building and a key that described their purpose.

Intelligence about what was going on inside TsAGI may have also come to the United States from 1979 through 1985 from CIA asset Adolf G. Tolkachev, the chief designer of Phazotron, the Scientific Research Institute for Radio Engineering and a victim of CIA turncoat Aldrich H. Ames. His institute's work involved the radar systems of the MiG-29, MiG-31, and Su-27—just the type of aircraft that would be among the more important airplanes photographed at Ramenskoye and all likely to have been the subject of study at TsAGI.

But the most important intelligence on Ramenskoye concerned the aircraft and spacecraft photographed by the National Reconnaissance Office's imagery spacecraft and sometimes the subject of reports by US attachés. One consequence of the reconnaissance effort directed at Ramenskoye was the occasional inventory of aircraft, including aircraft well-known to US intelligence, at the test center.

BEARS, BADGERS, FOXBATS

A Corona/KH-4A mission in August 1964 allowed imagery interpreters to report on the presence of a variety of aircraft at the site, although the resolution of the images apparently made it difficult to distinguish some aircraft from others.

A 1971 report, based on higher resolution KH-4B imagery, noted the presence and precise numbers of an assortment of fighters, bombers, transports, intelligence, and other aircraft at different areas of Ramenskoye. In one of those areas, imagery interpreters concluded that the aircraft included one Bear (Tu-95) and eight Badger (Tu-16) bombers, seven MiG-25 Foxbat fighters, two Tu-124 passenger airplanes, and one Tu-144 supersonic transport.

Far more important than an inventory of known aircraft at Ramenskoye was providing imagery interpreters and intelligence analysts at the CIA, Defense Intelligence Agency, and Air Force Foreign Technology Division with their first looks at new Soviet aircraft—aircraft new enough to have no US designation or only a provisional one. Thus, the 1971 report, relying on both satellite and ground photography, pointed out a jet transport with a high wing and "underslung jet engines similar to those on the Lockheed C-141" as well as a tail with a T configuration. The aircraft's first flight had occurred only a month before, and its description and history matched what the US Intelligence Community would eventually refer to as the Ilyushin-76 Candid. But at the time it was simply identified as "a new Soviet four-engine jet transport."

It probably received, as was standard practice for newly identified aircraft and spacecraft at Ramenskoye, a designation consisting of RAM, followed by a letter. In January 1980, NPIC reported on observations of the fuselage of a "probable" RAM-K aircraft, an airplane; it would become better known as the Su-27 Flanker.

A Department of Defense illustration of a Soviet Buran space shuttle transported atop a Myasishchev M-4 Bison bomber. In December 1984, the US obtained imagery showing two Soviet space shuttles, although only one was capable of an outer space journey.

DOD illustration

An aircraft design undergoes testing at the Central Aerohydrodynamic Institute's T-101 wind tunnel. Adjacent to Ramenskoye, the testing facility was one of the most important aerospace installations in the Soviet Union.

Along with satellite imagery the authors had access to ground photography obtained when attachés snapped pictures of a canvas-covered aircraft fuselage being towed on Moscow's Garden Ring Road, part of a convoy that included Militsiya cars and motorcycles, trucks, and other vehicles that took up four lanes of the road. Further analysis indicated the images were probably of a RAM-K fuselage.

Among the aircraft with provisional designations noticed at the test center—although only briefly—in a May 1981 NPIC study of Ramenskoye were the RAM-J and RAM-L. Those fighter aircraft became better known as the Su-25 and MiG-29. Initial identification of the MiG-29 was due to observation while it was being towed through the test center's east parking area and the ability of interpreters to correlate those images with an aircraft that was always under canvas cover when US satellites took its picture. The canvas covering had finally come off the RAM-K/Su-27, which had been seen without its shroud in time to be included in the study. Also noted was a Badger with Aeroflot markings that the analysts said "may have been modified to support high-ranking officials/officers"—the type of airplane closely monitored by US intelligence agencies since its movements were often signs of impending military tests or other events.

In August 1981, KH-11 imagery resulted in a one-page report titled "New Prototype Aircraft." Designated RAM-M, it was covered by a "loose non-formfitting canvas," but the analysts were still able to conclude that the airplane appeared to have a dropped nose and high-visibility bubble canopy. Other characteristics estimated were its overall length (66 feet) and wingspan (49 feet). It was first photographed in fully assembled form at Ramenskoye in January 1982 while subsequent imagery indicated the Soviets had begun flight testing the aircraft. CIA weapons analysts said its small fuselage suggested RAM-M "may have been designed to carry high-density, relatively low-volume payloads such as photographic reconnaissance equipment and electronics" and that "RAM-M could be used for the same type missions as the U-2." The airplane entered service in 1982 and would be known to US intelligence as the Myasishchev-55 or Mystic. As estimated, it was as a high-altitude reconnaissance platform.

AIR-BREATHING SHUTTLE

In addition to fighters and reconnaissance aircraft, bombers and spacecraft were spotted at Ramenskoye during the early 1980s.

The May 1981 report stated the presence of Backfire B and modified Backfire B aircraft at Ramenskoye—and noted the differences between the two, including nose attitude.

Sometime in 1981, the Blackjack bomber, initially designated RAM-P, was photographed at the test center, prior to its initial flight in December. The discovery was, according to a November 1982 NPIC report, "the most significant observation at the FTC during the period [covered by the report]." Those bombers, capable of carrying between 12 and 24 cruise missiles as well as different types of bombs, would begin reaching Long-Range Aviation units in May 1987.

In December 1984, analysts received imagery showing two Soviet Buran (Snowstorm) space shuttles—although no more than one would be capable of an outer space journey. Exploitation group analysts listed assorted details about the shuttles, including the apparent presence of tankers—one of them possibly transferring fuel. They observed that "the presence of the shuttle in a hangar with facilities to test jet engines lends strong credence to the theory that the Soviet shuttle will have air-breathing engines for endo-atmospheric maneuvering."

The analysts reported that one of the shuttles had two blisters on either side of the fuselage. They had not been previously seen on the shuttle when it was photographed at Ramenskoye and "might be attachment points or air scoops for air-breathing engines." Eventually, it would become clear that while training versions used in atmospheric flight had such engines, the operational Buran spacecraft did not.

In any case, it was almost four years later, November 1988, before the unmanned spaceplane made its only flight.

The importance attached to Ramenskoye, resulting in repeated coverage by US reconnaissance satellites and attention from attachés, was a reflection of its status as the most important Soviet flight test center. In some cases satellite imagery showed objects concealed under canvas coverings—part of the extensive Soviet denial and deception efforts. In other cases, imagery interpreters could say much more about the aircraft or spacecraft based on high-resolution images of aircraft that were in plain view.

Not all of the initial conclusions would prove correct, but the process of developing accurate descriptions of the existence and capabilities of Soviet military aircraft often began by watching what was happening at the premier Soviet air and space test center—relying on both US technical and human intelligence assets. As a result, what happened at Ramenskoye often did not stay at Ramenskoye. ✪

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