

**Faster Than A Speeding Bullet,
Three Times Higher Than The Tallest Mountain**

Preface

The idea of attaining and staying at Mach 3.2 (more than three times the speed of sound) over long flights was the toughest job the Skunk Works ever had and the most difficult of my career.

Aircraft operating at those speeds would require development of special fuels, structural materials, manufacturing tools and techniques, hydraulic fluid, fuel tank sealants, paints, plastics, wiring, and connecting plugs. Everything about the aircraft had to be invented.

Clarence Leonard "Kelly" Johnson
Founder of Lockheed's Skunk Works
In regard to the A-12

In 1995, Ben R. Rich wrote in his memoirs of the Skunk Works,

Had we built Blackbird in the year 2010, the world would still have been awed by such an achievement. But the first model, designed and built for the CIA as the successor to the U-2, was being test-flown as early as 1962. Even today, that feat seems nothing less than miraculous.

Ben R. Rich was writing about the A-12, the fastest and highest flying jet airplane ever built and it's now 2020. He thought the building of the A-12 was miraculous, I view it as impossible. Yet it was done within two and a half years after the contract for twelve airplanes was awarded. Yes, it was completed a little behind schedule and it overran its original cost estimate--but it was done.

When I began writing this brief article, I wanted to write about a beautiful black airplane that thrilled a young man's heart. Then, I realized it wasn't what I thought it was. It was something different and rarely known. After its final flight in 1968, it was physically hidden for over 20 years. Throw in the CIA, Area 51, Kelly Johnson and I was hooked. So, how do I write about an impossibility with all these historical names involved?

I decided to keep it simple and let you slowly discover what I did. I added some images and videos in an attempt to whet your appetite. Then I added a modest bibliography to pull you all in. Many of the wonderful anecdotes about the A-12 are in the reading. It's one step at a time and then you are hooked--as I am.

The CIA documents that I used are all declassified at the CIA website. The same with the images. Some of the material wasn't declassified until about 2007. In reading Kelly Johnson's writings from the 1980s, there are some things he wanted to say about the A-12 but couldn't because it was still classified. I hope to be at Blackbird Airpark in Palmdale, California in 2021, looking at Article 121. It was the first A-12 in the air and you can view its maiden flight if you read this article.

Robert Antonio
September 2020

Faster Than A Speeding Bullet, Three Times Higher Than The Tallest Mountain

The blast of flame that sent the black, insect-shaped projectile hurtling across the tarmac made me duck instinctively. It was as if the Devil himself were blasting his way straight from Hell.

Richard Helms,
Director of Central Intelligence, 1966 - 1973

Many years ago, as a teen, I noticed a magazine on a barbershop table with an incredible black airplane on the cover. Huge engines on each side of a delta wing and a long thin fuselage with a cockpit near the front. I never forgot that airplane, it was an SR-71 Blackbird. Now, 55 years later, I'm writing a brief article about the first Blackbird -- the A-12. It's the fastest and highest flying jet airplane that was ever built.

Everything about the A-12 was incredible. Imagine this. A requirement is developed to: make an airplane so fast that nothing can catch it, make it fly so high that nothing can reach it, and make it nearly invisible. Add to that the fact that no one knew how to do it, the materials didn't exist, and it had to be done quickly. How about a few names for good measure: Groom Lake, Area 51, Kelly Johnson and his Skunk Works . . . That's the story of how the A-12 was conceived, finally built, and then flown. Before I write about the A-12, I need to provide some perspective on the times in which it was born.

Sandwiched Between a Glider and a Satellite

It was in the early days of the Cold War, from about the mid-1950s to the mid-1960s. In 1952, the Soviet Union had shot down an Air Force RB-29 reconnaissance plane in the Kuril Islands between Japan and the Soviet Union. The Air Force wanted a reconnaissance airplane that could fly high, have multiple engines, and be armored in case it was attacked. Lockheed, on the other hand, proposed its CL-282 design which its designer, Clarence L. "Kelly" Johnson, referred to as a glider with a jet engine. The CL-282 was designed to fly at about 70,000 feet to avoid Soviet fighter jets while remaining undetectable by radar. It was slow at less than 500 mph, flimsy and it wasn't what the Air Force had in mind. Because of that, the Air Force chose another design. After some maneuvering by the supporters of the CL-282 design, President Eisenhower authorized it and had the CIA run the project with assistance from the Air Force.

Before the CL-282 could fly, it needed an Air Force designation. For example, fighters have an "F", bombers have a "B," etc. The Air Force had a U designation for its utility airplanes, the U-1 and U-3. Thus, the CL-282 became the U-2. The CIA signed the U-2 contract with Lockheed on March 2, 1955 and the U-2 was flying by June 1956. Although the CIA believed that the U-2 would fly undetected by the Soviet Union for up to 2 years as it flew

over its airspace, the Soviet Union's radar detected the U-2 immediately. It didn't take long for Soviet radar and missile technology to improve enough to track and down a U-2 on May 1, 1960.

About the time that the U-2 began flying operationally in 1956, the Air Force was developing a program to place reconnaissance satellites into orbit. In 1958, part of that Air Force satellite program was diverted to the CIA to run with assistance from the Air Force. The first successful CIA satellite mission was on August 18, 1960 and the quality of its photos stunned CIA analysts and President Eisenhower. In 1960, the CIA's U-2 spy plane could still fly safely over most lands except the Soviet Union and a CIA spy satellite had just finished its first successful mission over the Soviet Union with astonishing results. The A-12 was birthed into this reconnaissance world. In the end, it's demise was inevitable.

Sky of Dreams

Knowing that the U-2 would eventually be susceptible to Soviet radar and missile technology, the CIA began looking for its successor in the Summer of 1956, the year it became operational. It wanted a reconnaissance airplane that could fly over the Soviet Union with advanced cameras that could:

- cruise at Mach 3.2. (Somewhere around 2,100 mph.)
- cruise at an altitude of between 84,500 to 97,600 feet, and
- be nearly invisible to radar.

Fly fast enough so nothing could catch it, high enough so nothing could reach it and be stealthy enough so that it was nearly invisible. Although nothing existed that came close to those goals, such an airplane, if built, might be invulnerable to Soviet radar and missiles. The two final competitors for such an airplane were the

- Convair Division of General Dynamics which was producing the supersonic bomber, the B-58 Hustler and
- Lockheed Corporation's Skunk Works, headed by "Kelly" Johnson, the designer of the U-2.

By the Summer of 1959, Convair and Lockheed had submitted proposals for the new airplane. On July 14, 1959, the Convair proposal was determined to be unusable and the Lockheed design, the A-11, was unacceptable because it was susceptible to radar detection. Drawing 1 below is Lockheed's A-11 design.

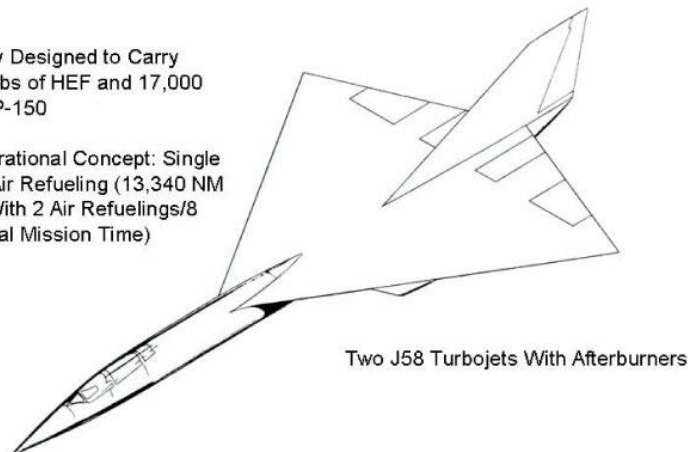
Drawing 1: Sketch of Lockheed's 11th design proposal. (Source: Central Intelligence Agency)

**A-11
MARCH 1959**

Length:	116.67 ft	Zero Fuel Weight:	36,800 lbs	Cruise Mach:	3.2
Span:	56.67 ft	Fuel Weight:	55,330 lbs	Cruise Alt:	93.5 kft
Height:	21.03 ft	Takeoff Gross:	92,130 lbs	Radius:	2,000 NM

Originally Designed to Carry
31,000 Lbs of HEF and 17,000
Lbs of JP-150

Key Operational Concept: Single
Base + Air Refueling (13,340 NM
Range With 2 Air Refuelings/8
Hour Total Mission Time)

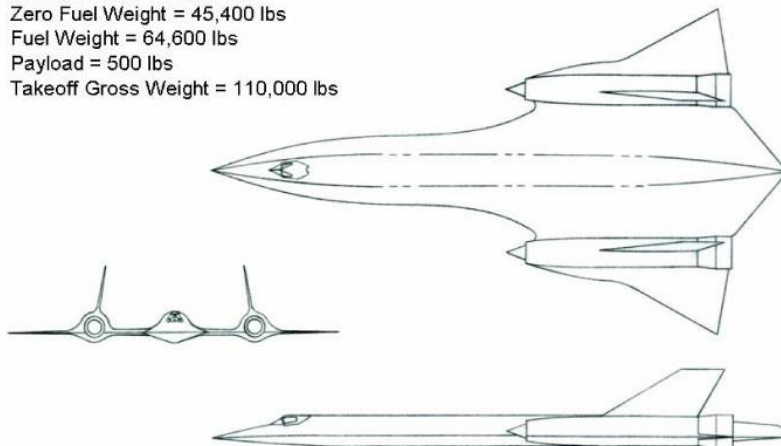


After designing the A-11 and failing, Johnson and his Skunk Works' engineers started from scratch and came up with a new design that was more focused on radar evasion. On August 20, 1959, both Convair and Lockheed submitted new proposals and both designs claimed to meet all the requirements. Lockheed's design, the A-12, was accepted. Drawing 2 below is a drawing of the Lockheed A-12 design.

Drawing 2: Sketch of the A-12. (Source: Central Intelligence Agency.)___ -

A-12 INITIAL CONFIGURATION 3-VIEW

Empty Weight = 43,645 lbs
Zero Fuel Weight = 45,400 lbs
Fuel Weight = 64,600 lbs
Payload = 500 lbs
Takeoff Gross Weight = 110,000 lbs



22% Increase in Empty Weight Compared to A-11 - "Cost of Stealth"

There it is, the first stealth airplane -- the A-12. It may look like something you're familiar with but this is the design that started it all. Initially, the CIA awarded a four-month contract to Lockheed for \$4.5 million to proceed with antiradar studies, aerodynamic structural tests, and engineering designs. On February 11, 1960, satisfied with Lockheed's work on reducing the radar image, the CIA awarded another contract for twelve A-12s, **without engines**, for \$96.6 million.

First-of-Its-Kind

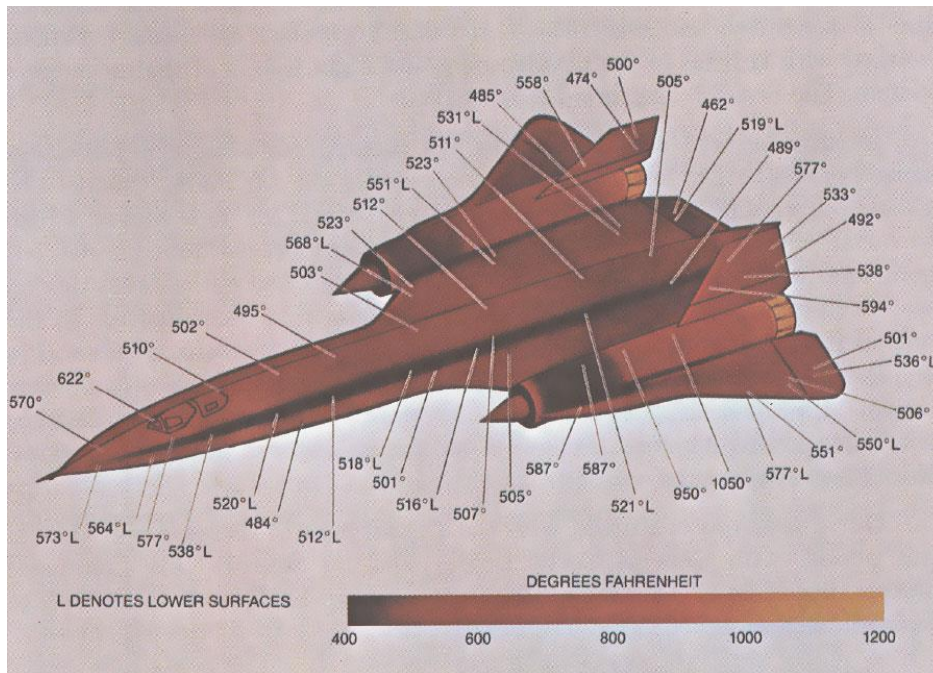
Since the A-12 was a classified CIA spy plane, it was codenamed OXCART. The A-12 also was referred to as Archangel because its predecessor, the U-2, was sometimes called the Angel. Since none of the CIA pilots wanted to fly in something named OXCART, Lockheed unofficially named it Cygnus. If you've read something about OXCART, Archangel, or Cygnus in reference to an airplane built in the 1960s, you were reading about the A-12. Having a contract to build the A-12 was one thing but building a first-of-its-kind spy plane with the CIA's requirements was something else. As Ben R. Rich, an engineer on the A-12 and a future Director of the Skunk Works wrote:

All the fundamentals of building a conventional airplane were suddenly obsolete. Even the standard aluminum airframe was now useless. Aluminum lost its strength at 300 degrees F, which for our Mach 3 airplane was barely breaking a sweat. At the nose the heat would be 800 degrees -- hotter than a soldering iron -- 1,200 degrees on the engine cowlings, and 620 degrees on the cockpit windshield, which was hot

enough to melt lead. About the only material capable of sustaining that kind of ferocious heat was stainless steel.

Drawing 3 below is a schematic of the A-12 with the temperatures it reached as it moved through the atmosphere at Mach 3.2 speeds.

Drawing 3: Sketch of the A-12 surface heat. (Source: Central Intelligence Agency.)



Aluminum couldn't handle the heat generated by the A-12, stainless steel was too heavy for the A-12 to meet its required altitude, so another metal was needed. Titanium, although rarely used at that time, could handle the heat and was half the weight of stainless steel. However, there were two initial problems with titanium: there wasn't enough of it available in the United States and no one had ever built a titanium airplane. The CIA fixed the first problem by setting up dummy companies to acquire enough titanium from one of the largest suppliers of the metal -- the Soviet Union. That's right, Soviet titanium was used to build an airplane that was intended to spy on the Soviet Union.

The Skunk Works engineers solved the second problem by developing a new manufacturing process for fabricating titanium through trial and error. They knew titanium would be hard to work with but they never anticipated all of the problems associated with it. Nothing was easy. Tough to refine, tough to make parts with, tough to drill through, just plain tough. Tests of titanium at a cruising speed of Mach 3.2 showed that the A-12's friction-caused heat would stretch the airframe by inches. This resulted in an aircraft with joints that didn't fit together when it was on the ground. It wouldn't be until the A-12 had time to stretch its wings in the sky and heat up, that its joints would expand to the proper fit. Titanium also

was incompatible with other materials used in the regular aviation manufacturing process. For example,

- ink from common ballpoint pens ate through it like acid,
- cadmium-plated wrenches used to tighten bolts caused the bolt heads to fall off,
- chlorinated public water caused spot welds on body panels to fail.

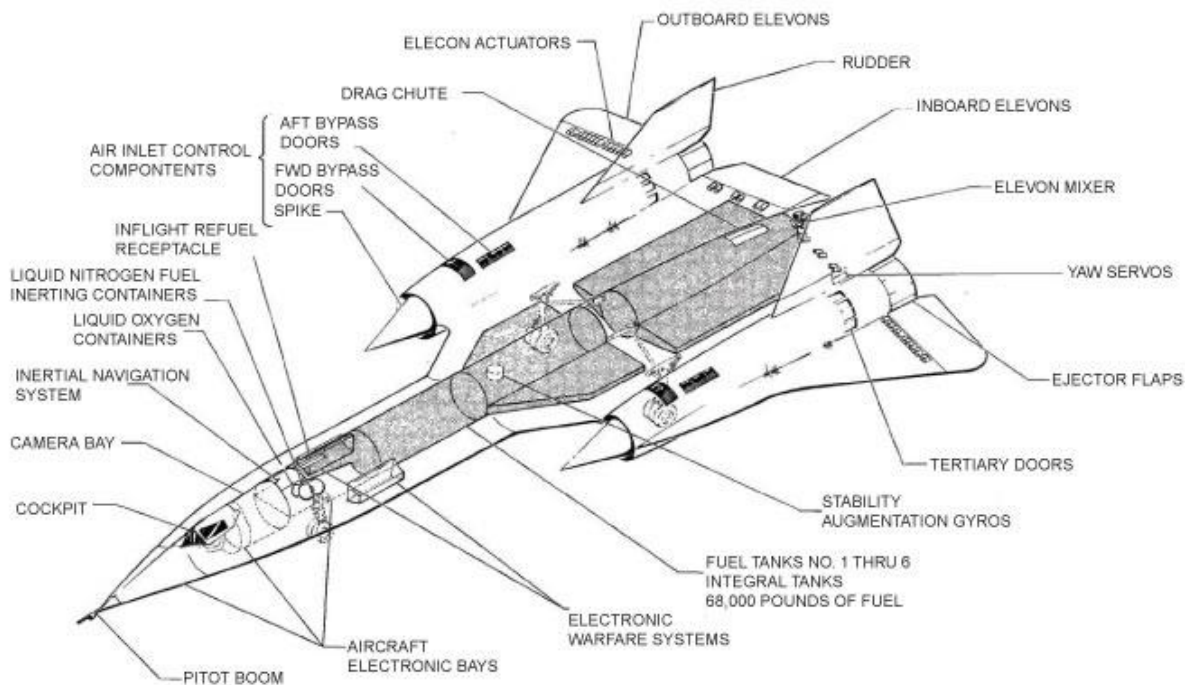
Components and fluids needed to be invented or modified. Problem solving was a way of life on the A-12. For example, it was determined that a softer titanium alloy could be used to make the manufacturing of the aircraft *easier* and by painting the aircraft black it would lower its external temperature in flight. As a result of the black paint idea, the A-12 was painted black and became known as the Blackbird. By the end of the A-12 project, the Skunk Works had manufactured 13 million of its own parts. It was the only way to get the titanium A-12 to fly.

In a February 29, 1964 speech, President Johnson pointed out that

one of the most important technical achievements of this project has been the mastery of the metallurgy and fabrication of titanium metal which is required for the high temperatures experienced by aircraft travelling at more than three times the speed of sound.

Drawing 4 below is a schematic of the A-12's insides.

Drawing 4: Inside the A-12: (Source: Central Intelligence Agency)



The Finished Product

The A-12 had a menacing look. All of the CIA's performance requirements were achieved and it was ready to fly. We saw the design drawings and now we see the finished airplane. The A-12 was designed to fly over the Soviet Union, undetected, at incredible speeds and height. Although it could fly higher and outrun anything, the CIA and President Eisenhower still wanted more. They wanted it to deflect radar signals so that it would be nearly invisible to the radar of its time.

When we look at the A-12's shape, we see this sculpted airplane. However, it looks this way because of the stealth built into its design.

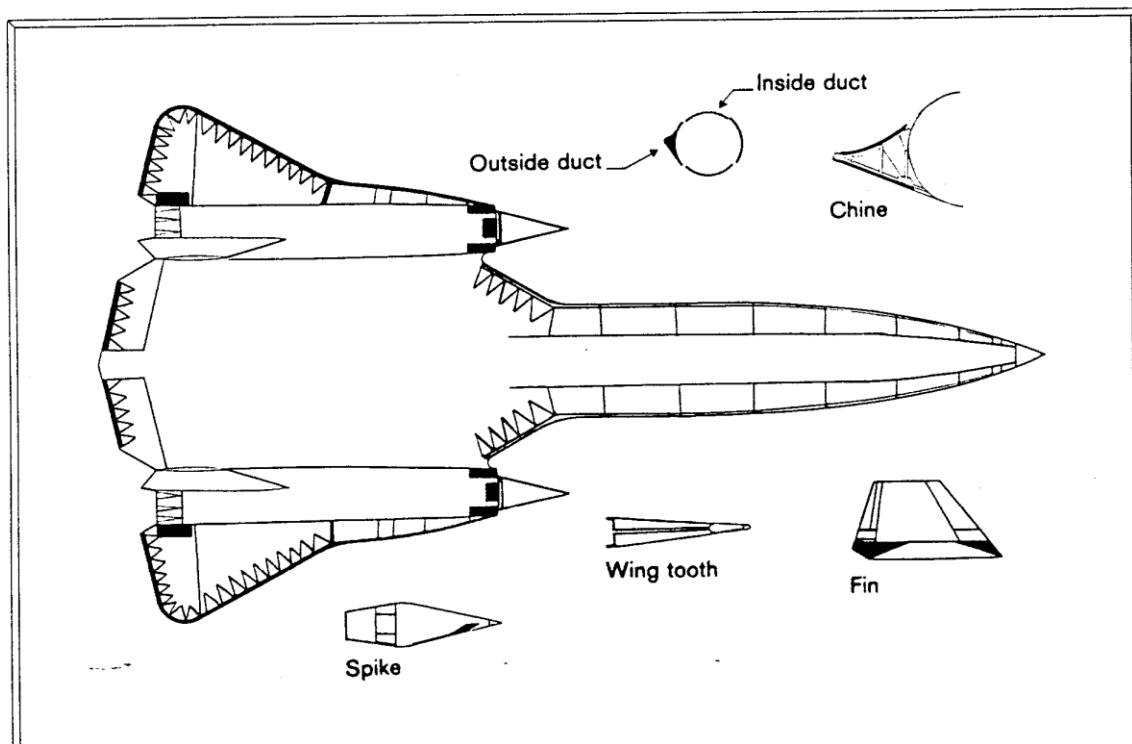
Image 1: The finished product - - an A-12. (Source: Central Intelligence Agency)



It's fuselage started out as a long cylinder. Then the A-12 was fitted with something called composite "chines" that were attached to the cylinder to round it out and make it stealthy. The chines also helped with the A-12's lift for takeoff. The delta wing, which was so thin that it was corrugated between the engines to add strength, had composite "teeth" attached in a zigzag pattern to all of its sides. Those fins on top of the huge engines, were made of composites that were canted at just the right angle to add to its stealth. In addition to its shape, a cesium-based additive called A-50 was included in the A-12's fuel which greatly reduced the radar image caused by the thrust from its huge engines. However, as the Skunk Works was reducing the radar image, the Soviet Union was improving its radar detection. To counter that, a new surface coating made of iron-ferrite was added to the A-12's paint to further reduce its radar image. The A-12 became so stealthy that its radar image was less than that of a B-1B bomber that was produced a quarter century later.

Although the A-12 was designed and built to its meet performance requirements nearly 60 years after it was built it is still unique and demands that you look at it. Drawing 5 below is the A-12's composite chines, teeth, and fins as they would fit on the airplane.

Drawing 5: Chines, teeth, and fins to reduce the A-12's radar image. (Source: Central Intelligence Agency)



In the image below, notice how the chines are being fitted to the tubular fuselage and how the canted fins are being fitted to the nacelles during the building of A-12s.

Image 2: The A-12 on the factory floor. (Source: Central Intelligence Agency)

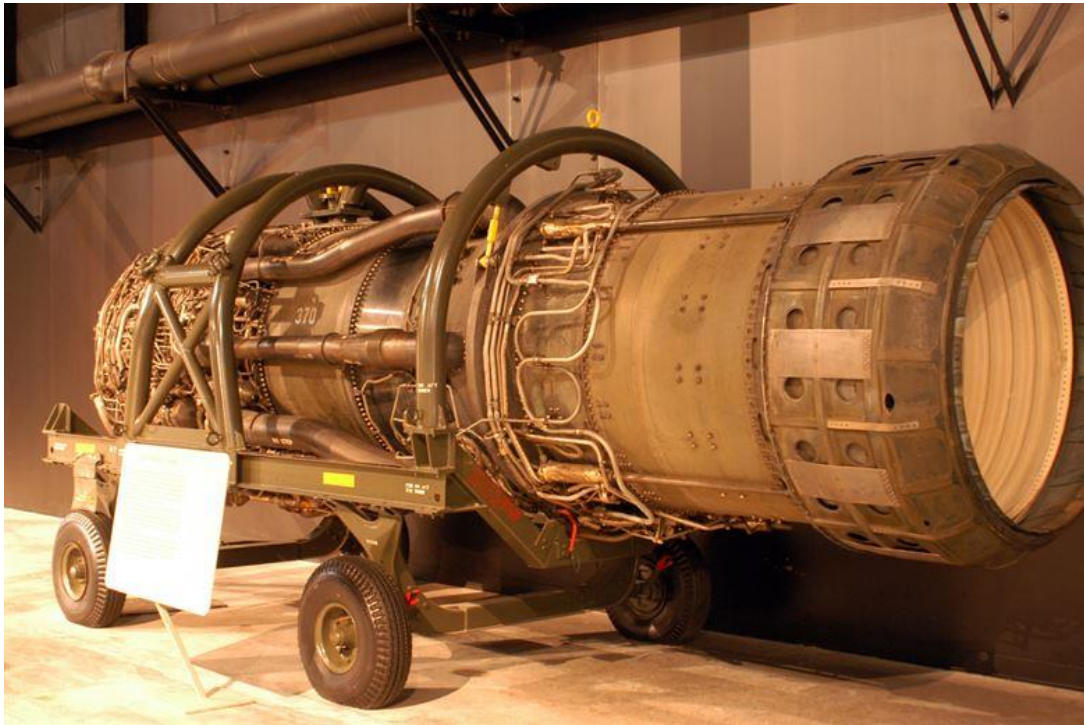


The J-58s, The Spike, and The Air Inlets and Outlets

In simple non-technical terms, a jet engine operates by taking air into the front of the engine, compressing the air to increase its pressure and temperature, sending the compressed air into a combustion chamber where it is ignited, and sending the ignited air out of the back of the engine to create thrust. To increase thrust in a fighter jet, afterburners are used to inject fuel into the engine's exhaust and burning the remaining oxygen. Although afterburners can greatly increase an engine's thrust, they burn large amounts of fuel and are used for brief periods of flight.

The A-12 used 2 modified Pratt & Whitney J-58 turbojet engines that could run their afterburners continuously. In addition, six unique bypass tubes took air from the compressor and sent it directly to the afterburners where it was ignited to provide more thrust. The bypass tube design was developed and patented by a Dr. Robert Abernethy who noticed a pressure problem in the engine at Mach 3. According to Dr. Abernethy, the bypass tubes made the J-58 a partial ramjet. The bypass tubes kicked in and opened when the A-12 flew at about 1,700 mph.

Image 3: Pratt and Whitney J-58 engine. The J-58, designed for the A-12, had 3 bypass tubes on each side going from the compressor and into the afterburner. (Source: U. S. Department of the Air Force)



Although the J-58 engines were massive, most of the A-12's thrust came from the 6-foot inlet spikes at the front of the nacelles and an array of other air inlets and outlets. The cone-shaped spike directed the airflow and the air pressure as it hit the engine. At Mach 1.6, about 1,200 mph, the spike would begin moving back into the nacelle until it had moved a full 26 inches back at cruising speed of Mach 3.2 or about 2,100 mph. At cruising speed, with the spike fully retracted, each A-12 inlet would swallow about 100,000 cubic feet of air a second.

Flying the A-12 required the pilots to delicately balance the airflow with the spikes as it entered the J-58s. When the airflow wasn't at the J-58's optimal level, things went wrong and the engine stalled. This thing was called an "unstart" and unstarts are best described by pilots of the airplane. For example, one helmeted A-12 pilot was flying at about 1,800 mph when

he was deafened by a loud bang and violently flung forward in his harness, smashing his head against the cockpit glass and almost knocked unconscious.

The unstart problem was reduced but never completely eliminated in the A-12 nor in its derivatives. Years later, an SR-71 pilot flying a reconnaissance mission encountered an unstart and described it as

The airplane yawed to the right so far and so fast, it felt like it was going sideways!

It Leaked A Bit

As I've written earlier, the A-12's body expanded by several inches when it reached supersonic speeds. To allow for this expansion, the A-12s joints were several inches apart when it was at rest. As a result, the A-12 leaked fluids from its joints when it was on the ground, on the runway, or anywhere under Mach 3.2. Lockheed had researched sealants in attempts to reduce the leakage and coated the interior of the A-12 with the most promising sealant it could find. Unfortunately, sealing the A-12 was like sealing a giant sieve. After using the best sealant available, Kelly Johnson explained:

When we first poured fuel in the aircraft, it developed 68 leaks.

Since the A-12 leaked with the best sealant, Lockheed ended up using a lesser sealant and the A-12 lived with its leaks. If you ever see an image of an A-12 waiting on a runway or anywhere else on the ground, look for puddles under the airplane. A "leak rate" of between five and 60 drops per minute was considered acceptable. If an A-12 was being prepared for a flight, it would be filled with enough fuel to get airborne. After it was airborne, it would meet with a KC-135 to have its tanks completely filled and then immediately climb to operating altitude. Once there, friction and the resultant heat caused the joints to expand, the fuel tanks to seal, and the leaks to stop.

It's Off To Area 51

It was always planned for the A-12s to be transported overland from the Lockheed plant in Burbank, California to the secure testing grounds at Groom Lake, Nevada -- also known as Area 51. If you're going to travel overland with a secret airplane, you must hide it, or in the A-12's case put it in boxes for the ride. The largest of the A-12's boxes was 33 feet wide and 65 feet long.

According to the Federal Highway Administration, rural road lanes should be about 12 feet wide. Since a rural road usually has 2 of them, the width of the road would be about 24 feet wide. If you compare the 24 foot rural road width to the A-12's larger 33 foot-wide box, you can tell you're going to have some problems getting your box up and down the road. Now compare the length of the A-12's large 65 foot-long box to the trailer section of an 18-wheeler that is 53 long and you can tell you're going to need a special trailer. Putting it mildly, the A-12's boxes were not very maneuverable. The A-12's trailers were built at the Lockheed plant and were equipped with rear wheel steering--similar to hook and ladder fire engines.

Before the A-12's ever left Burbank, surveys were made of the probable routes to Area 51. A pickup truck with movable poles designed to mimic the height and width of the A-12's boxes drove the routes noting obstacles that needed to be moved or cleared so the A-12's boxes would fit.

On February 26, 1962, this move began for the first A-12, Article 121, also known as Serial Number 60-6924. The route was northwest from the Lockheed plant in Burbank, California, then East staying South of Death Valley, then North with Death Valley to the West, North

into Nevada, East toward Mercury, Nevada and then into Groom Lake. During the ride, there was a minor skirmish with a bus which was handled informally by paying-off the bus driver and there was a number of times that trailers sank into the mud. By March 1, 1962, Article 121 arrived in Groom Lake. Once at Groom Lake, the A-12 boxes were dismantled and the parts were unpacked and put back together.

Image 4: An A-12 in boxes on the way to Groom Lake, Nevada. (Source: Central Intelligence Agency.)



Once Article 121 was reassembled, partially fueled, and leaked, it was ready for flight. Earlier, I mentioned that there was a delay in delivering the initial A-12s. Part of that delay was caused by problems in the development of the J-58 engines. To speed-up the testing

of Article 121, it was temporarily fitted with J-75 engines which were much smaller than the J-58s. All A-12s, with the exception of a trainer, were fitted with the J-58s as the J-58s were completed.

"Engage Buicks"

The A-12 did not have onboard starters to fire up its J-58s. Instead, they had something called an "AG330 Start Cart" which was used to "spool up" the J-58s and get them started. Inside the start cart were 2 Buick 401 cubic inch engines each producing 325 horsepower and 445 pounds of torque. This was the same engine used in the Buick muscle cars of that era. The Buick engines were linked together and connected to an automatic transmission--with no muffler. They were then attached to the J-58 engines from below.

When the A-12 pilot was ready, he would tell the ground crew "engage Buicks" and the first Buick engine would be revved to near its limits, then the second Buick engine would be revved to near its limits until the J-58 hit about 3,200 RPM. After a J-58 reached the proper RPMs, an onboard tank holding a chemical known as Triethylborane (TEB) would release a spray into the engine and afterburners and it would start with a green puff. At that point the J-58 roared to life with smoke belching out of the engine. When the J-58 started, the A-12 pilot would instruct the ground crew with the words "Buicks Out" and the start cart would have completed its mission. Two muscle car engines without any muffling giving life to the loudest jet engine of its time.

Image 4: An AG330 Start Cart with 2 Buick nailhead engines inside. Later A-12 derivatives used the same or similar start cart. (Source: Jaydec at English Wikipedia)



First Flight Great Success. Mission Duration 59 Minutes

Within 2 months of its arrival at Groom Lake, Article 121 was on the runway. It was April 26, 1962 and it was scheduled for its first trip down the runway. However, the night before the test, it was agreed that Lou Schalk, Jr., Lockheed's Chief Test Pilot, would lift the airplane off the ground and quickly set it back on the runway. Article 121 moved down the runway, lifted off the ground, wobbled, and safely landed back on the runway. Lou Schalk explained that he didn't have Article 121's directional dampers on and that caused the instability.

Four days later on April 30, 1962, Article 121 made its first official flight. Again, it moved down the runway, lifted off, and smoothly flew into the sky. After the flight, Herbert Scoville, the CIA's Deputy Director for Research, sent a cable to James A. Cunningham the CIA's Deputy Director in the Office of Special Activities with the headline [*First Flight Great Success. Mission Duration 59 Minutes*](#). He quoted Kelly Johnson as saying *Smoothest first flight in his experience*.

The only mar in the test of April 30, 1962 was the fact that Article 121 was flying the temporarily fitted J-75 engines. The [Nevada Aerospace Hall of Fame](#) has provided a [9 minute and 37 second video](#) on YouTube of both the April 26, 1962 and April 30, 1962 flights narrated years later by Lou Schalk, Jr. who flew the A-12 on those 2 days.

Ready for Operations

From its first flight in April 1962 into 1965 the A-12 made test flights to prove itself. During that period of time, issues caused by the heat of supersonic flight and the spike that controlled the air flow into the J-58s were gradually reduced.

On August 20, 1965, a memo was sent to President Lyndon Johnson by the Director of Central Intelligence that

On 14 August 1965, an A-12 aircraft flew nonstop from its secret base [Groom Lake] to Orlando, Florida, back to the Test Site [Groom Lake], then to Kansas City and return to its base. The flight was accomplished exactly as planned, simulating an operational mission with two air refuelings and three cruise legs. On each leg of the mission the aircraft cruised at its designed operational speed of Mach 3.1 at altitudes between 80,000 and 90,000 feet. The flight covered a total distance of 6500 nautical miles in 5 hours and 27 minutes, including air refueling times. A total time of 2 hours and 20 minutes was flown at cruise speed of Mach 3.1. The aircraft landed in excellent condition with only three minor malfunctions.

On November 12, 1965, the CIA's Director of Special Activities sent a memo to the CIA's Director of Reconnaissance stating

As of this date I am very pleased to announce that, in my judgment, the A-12 aircraft, its technical intelligence sensors, and its operating detachment are operationally ready.

Kelly Jonson, the Skunk Works, the CIA, the A-12 pilots, and everyone else associated with the A-12 -- DID IT! They created a 21st century airplane in the middle of the 20th century.

The Beginning of the End

On November 1965, the same month that the A-12 was announced as being ready for operations, the Bureau of the Budget began seeking its elimination from the budget. The same month, a memo was floating around the CIA in an effort to answer a question posed by the National Security Advisor for President Johnson. The question was

Granted that OXCART now represents an operationally ready reconnaissance with unique capabilities, under what circumstances and in what areas should we commit this new resource?

Directly under that quote the memo explains that the A-12 was developed to fly over the Soviet Union and it could accomplish that task. However, the memo further explained that spy satellites could do that without upsetting the Soviets. Then the memo mentioned Southeast Asia where U-2 flights were dodging Soviet SA-2 missile sites, the surface-to-air missile that downed the U-2 in 1960. It was thought that the A-12 could help there some. Then Cuba was mentioned but there were concerns that any A-12 flights over Cuba could be used by Soviet specialists in Cuba using the A-12 flights to improve Soviet surface to air technology.

As these concerns were being raised, the Air Force was building its own fleet of the A-12 derivative, the SR-71. These SR-71s were in addition to 3 A-12s modified and tested as YF-12A interceptors. Although never placed into production because of the cost of the Vietnam conflict, the YF-12A prototypes proved effective as interceptors. At the end of 1966, there were 11 CIA A-12s and 30 Air Force SR-71s. The U-2s flew spy missions, spy satellites photographed the Soviet Union, the Air Force's SR-71s were being tested but not yet operational, and the CIA's operational A-12s were waiting for a mission. Within 5 years, the A-12s were being squeezed out of existence by U-2s, spy satellites, and itself in the form of its derivative -- the SR-71.

President Johnson was presented with a memo in late 1966 that listed 3 alternatives for the A-12s and SR-71s. The alternatives were

1. Maintain both the A-12 and SR-71 fleets but mothball 12 SR-71s,
2. Retain the SR-71s but assign a few to the CIA,
3. Retain all SR-71s but mothball all A-12s.

In late December 1966, President Johnson chose to mothball the A-12 fleet by January 1, 1968. This date was later extended to the end of June 1968. The A-12 was now a dead airplane flying.

A Final Hurrah: Project Blackshield

In May 1967, months after President Johnson decided to mothball the A-12s, a need arose to determine if North Vietnam had surface-to-surface missiles that it could use against

South Vietnam. The Director of Central Intelligence, Richard Helms spoke with President Johnson about using A-12s to meet that need and the President approved the Director's request. Project Blackshield began and three A-12s arrived at Kadena Air Force Base in Okinawa, Japan as the *1129th US Air Force Special Activities Squadron (SAS)*.

On May 31, 1967, Article 131 took off from Kadena on the first flight and successfully flew over North Vietnam for over 3 hours at Mach 3.1 and at 80,000 feet. The A-12s continued to fly successful missions over Vietnam and North Korea for the next year with the final reconnaissance flight taking place on May 6, 1968.

The A-12 vs. SR-71 Flyoff

While the A-12s were in operation over Southeast Asia, government officials started having second thoughts about mothballing the A-12s because of the success they were having doing what they were built to do. To make the bureaucrats feel better, the government designed a flyoff called *Operation Nice Girl* that would be conducted between the A-12 and the SR-71. In the CIA's corner was the A-12 with narrower chines and less weight while in DoD's corner was the SR-71 with wider chines for more storage and fuel and significantly more weight. Although the A-12 had better cameras, the SR-71 had more sensors.

The flyoff took place over the Mississippi River from late October to early November 1967. In the flyoff, the A-12 flew a little faster and several thousand feet higher than the SR-71 because of the SR-71's added weight. Although the match was judged inconclusive, the SR-71 carried sensors in the flyoff that had to be torn out and replaced by electronic counter measures once it was put into operations.

In reality, it was easier and less expensive for the government to mothball 11 A-12s than it was to mothball the 30 SR-71s. And so it was.

From Stratosphere to Sausage Warehouse

On June 21, 1968, Article 131 took the final flight from Groom Lake and it shortly landed at the Lockheed plant in Palmdale, California. After it cooled off a bit, its fuel and lubricants were drained and a Lockheed employee, wove the A-12s together for storage in a Lockheed hanger. There, the classified A-12s remained in a state of purgatory for about 20 years until they were declassified and distributed to museums. Image 5 below, shows the A-12s in Lockheed's warehouse.

Image 5: The A-12s stored like sausage in Lockheed's Palmdale warehouse.



Notice the A-12 with the tail number 77835. That is Article 131 that made the final A-12 flight from Groom Lake, Nevada to Palmdale, California. Its CIA tail number is 60-6937 but the tail number that is on it is from Operation Black Shield. The Black Shield tail numbers were changed after reconnaissance flights in an attempt to disguise their classified status. Likewise, the A-12s wore U. S. Air Force markings in an attempt to disguise them. Article 131 is now at the [Southern Museum of Flight](#), Birmingham, Alabama with the last tail number it wore at Kadena Air Force Base in Okinawa, Japan.

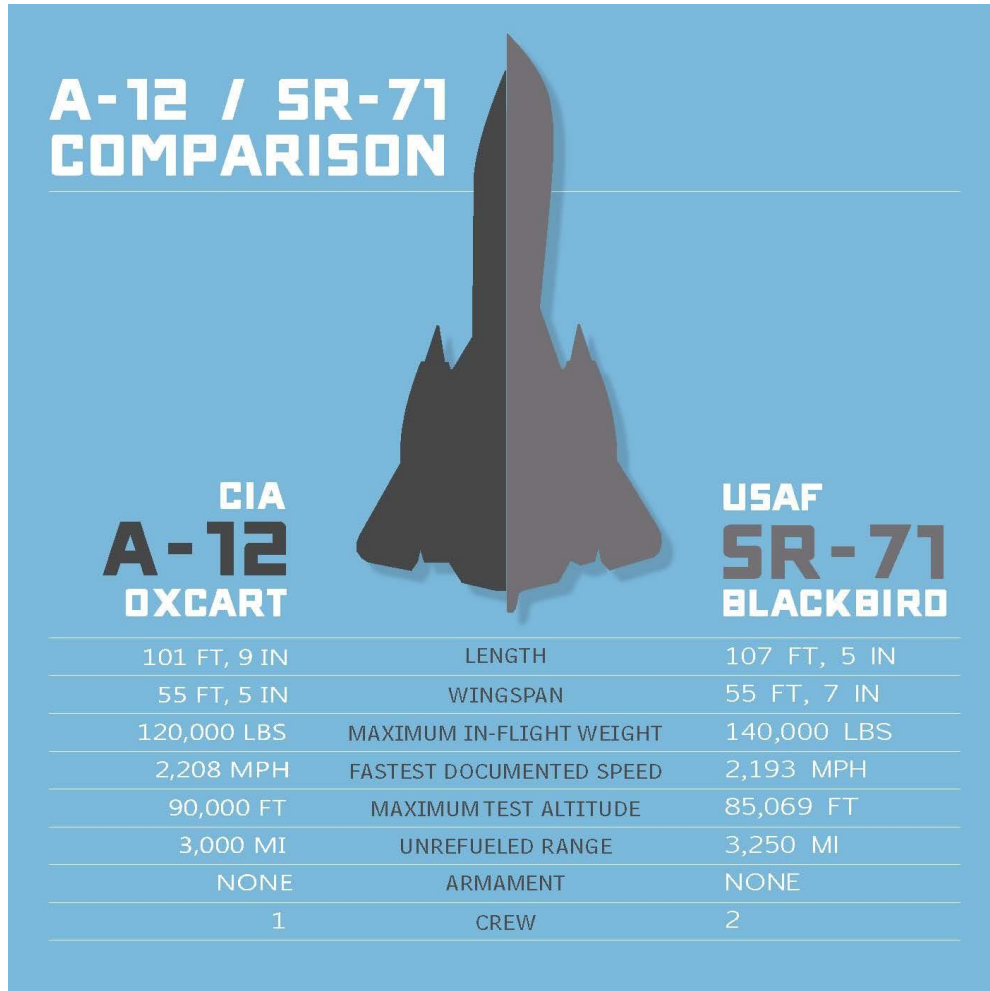
Before the A-12s were placed in this warehouse, reusable parts were taken from them and used in the SR-71s. That includes the A-12s engines -- the J-58s. The A-12 and its derivatives the 3 YF-12As, the 2 M-21s, and the SR-71s all used J-58s.

But Which Airplane Is Faster?

When the Skunk Works was building the A-12, Kelly Johnson constantly stressed the importance of weight reduction because each pound that the A-12's weight was reduced allowed it to fly higher. The SR-71 was 20,000 pounds heavier than the A-12, primarily because of added storage and fuel. This added weight consistently allowed that A-12 to fly 3,000 to 5,000 higher than the SR-71 as shown in Operation Nice Girl.

The fastest speed is a little closer. Depending on which source you can find, the A-12 is consistently a little faster than the SR-71. Image 5 below is a CIA chart that compares the 2 airplane's statistics.

Image 5: A-12 / SR-71 comparison.



Perhaps the most amusing comparison of the A-12 and SR-71 is given by Frank Murray, an A-12 pilot, who refers to the A-12 as the "hotrod" and the SR-71 as the "family model."

Final Thoughts

At the beginning of this article, I briefly introduced you to the U-2 for two reasons: to set the stage for the existence of a supersonic reconnaissance airplane existed and as an ironic ending to this article.

Most of all, I wanted to introduce you to the A-12 because it is the fastest and highest flying jet airplane that you probably never knew existed. I didn't know about it either but now we

do. If you head to an airplane museum and see an airplane painted black, hold your breath because there are still nine A-12s at museums and you may have found one.

Now, back to the second reason why I mentioned the U-2. [Lockheed still sells it](#)--new. After photographing Iraq and Afghanistan, U-2s are based at [Beale Air Force Base](#) with the 9th Reconnaissance Wing. Yes, they still fly and they are still being sold by Lockheed.

I bet the U-2s have photographed more of the earth than all of humanity combined. The supersonic A-12s, YF-12A, M-21s, and SR-71s are now in museums and that sub-sonic, flimsy, U-2 is still working for a living. Is that a Tortoise and the Hare story?

Where The A-12s Are At Today

Article	Serial Number	Purpose	Where Is It?
121	60-6924		Blackbird Airpark, Palmdale . Looking clockwise, the D-21, A-12, SR-71 and U-2.
122	60-6925		USS Intrepid Sea, Air, & Space Museum . New York. The A-12 sits at the back of the USS Intrepid.
123	60-6926		Crashed.
124	60-6927		California Science Center , Los Angeles
125	60-6928		Crashed
126	60-6929		Crashed
127	60-6930		U. S. Space and Rocket Center, Huntsville .
128	60-6931		CIA Headquarters , Langley.
129	60-6932		Crashed
130	60-6933		San Diego Air and Space Museum . It sits on a pole at the front door.
	60-6934	YF-12A	On August 14, 1966, damaged beyond repair by fire at Edwards AFB
	60-6935	YF-12A	National Museum of the U. S. Air Force , Dayton. This is the only YF-12A in existence.
	60-6936	YF-12A	On June 24, 1971, caught fire due to a faulty fuel line and crashed north of Edwards AFB.
131	60-6937		Southern Museum of Flight , Birmingham.
132	60-6938		USS Alabama Battleship Memorial Park , Mobile.
133	60-6939		Crashed
134	60-6940	M-21, D-21	Museum of Flight , Seattle. The M-21 was a variant of the A-12 designed to carry the D-21 drone that sits on top of the M-21.
135	60-6941	M-21	On June 30, 1966 crashed.

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Early flight of an A-12, apparently without paint and coating. Source (Central Intelligence Agency)

The End