



## The pilot who stole a secret Soviet fighter jet

When pilot Viktor Belenko defected 40 years ago, he did so in a mysterious Soviet plane – the MiG-25. BBC Future investigates the far-reaching effects of one of the Cold War's most intriguing events.

*By Stephen Dowling, BBC, 5 September 2016*

On 6 September 1976, an aircraft appears out of the clouds near the Japanese city of Hakodate, on the northern island of Hokkaido. It's a twin-engine jet, but not the kind of short-haul airliner Hakodate is used to seeing. This huge, grey hulk sports the red stars of the Soviet Union. No-one in the West has ever seen one before.

The jet lands on Hakodate's concrete-and-asphalt runway. The runway, it turns out, is not long enough. The jet ploughs through hundreds of feet of earth before it finally comes to rest at the far end of the airport.

The pilot climbs out of the plane's cockpit and fires two warning shots from his pistol – motorists on the road next to the airport have been taking pictures of this strange sight. It is some minutes before airport officials, driving from the terminal, reach him. It is then that the 29-year-old pilot, Flight Lieutenant Viktor Ivanovich Belenko of the Soviet Air Defence Forces, announces that he wishes to defect.

It is no normal defection. Belenko has not wandered into an embassy, or jumped ship while visiting a foreign port. The plane that he has flown 400-odd miles, and which now sits stranded at the end of a provincial Japanese runway, is the Mikoyan-Gurevich MiG-25. It is the most secretive aircraft the Soviet Union has ever built.

Until Belenko's landing, that is.

The West first became aware of what would become known as the MiG-25 around 1970. Spy satellites stalking Soviet airfields picked up a new kind of aircraft being tested in secret. They looked like enormous fighter planes, and the West's militaries were concerned by one particular feature; they sported very large wings.



*The XB-70 bomber would have been able to fly at three times the speed of sound  
(Credit: Science Photo Library)*

A large wing area is very useful in a fighter plane – it helps generate lift and it also decreases the amount of weight distributed across the wing, which helps make it more nimble and easier to turn. This Soviet jet seemed to combine this ability with a pair of enormous engines. How fast could it go? Could anything in the US Air Force or other militaries keep up with it?

There had also been glimpses in the Middle East. In March 1971, Israel picked up a strange new aircraft that accelerated to Mach 3.2 – more than three times the speed of sound – and climbed to 63,000ft (nearly 20 kilometres). The Israelis, and US intelligence advisors, had never seen anything like it. Following a second sighting a few days later, Israeli fighters scrambled to intercept the aircraft but couldn't even come close.

In November, the Israelis ambushed one of these mysterious intruders, firing missiles head on from 30,000ft below. It was a useless gesture. Their unidentified target streaked past at nearly three times the speed of sound – so fast the jet was already out of the danger zone by the time the missiles exploded.

The Pentagon put two and two together, and came up with a Cold War crisis. They believed this jet was the same one that had been glimpsed from the satellite photos. They were suddenly presented with the prospect of a Soviet fighter that could outrun and out-turn anything in the US Air Force.



*The US thought it was dealing with a Soviet fighter that could outfly anything (Credit: US Navy)*

It was a classic case of military misinterpretation, says Stephen Trimble, the US editor of Flightglobal. “They seemed to overestimate its abilities on pure appearance,” he says, “from the size of the wing and the huge size of its air intakes.

“They knew it would be very fast, and also thought it would be very manoeuvrable. They were right about the first one, but not so right about the second one.”

What the US satellites had seen, and the Israeli radars had tracked, were versions of the same aircraft – the MiG-25. It was built as a reaction to a series of aircraft the US were preparing to bring into service in the 1960s – from the F-108 fighter plane to the SR-71 spyplane and the massive B-70 bomber. These aircraft all had one thing in common – they would fly at three times the speed of sound.

In the 1950s, the Soviets had largely kept pace with the leapfrogging advances in aviation. They had bombers that could fly almost as fast and as high as the American B-52. Their fighter planes – many of which were made by the MiG design team – rivalled their American counterparts, though their radar and other electronics weren't quite so sophisticated.

But the technological leap needed to take an aircraft from Mach 2 to Mach 3 was an enormous challenge. And this is what Soviet designers would have to do, as quickly as possible.

Led by MiG's brilliant Rostislav Belyakov, the design team set to work. To fly so fast, the new fighter would need engines pushing out colossal amounts of thrust. Tumansky, the leading engine designer of the USSR, had already built an engine they believed could do the job, the R-15 turbojet, which had been intended for a high-altitude cruise missile project. The new MiG would need two of them, each capable of pushing out 11 tonnes of thrust each.



*The MiG-25 was almost as big as a World War Two-era Lancaster bomber (Credit: US Navy)*

Flying so fast creates enormous amounts of friction heat as the aircraft pushes against air molecules. When Lockheed built the SR-71 Blackbird, they built it out of titanium, which could withstand the enormous heat. But titanium is expensive and difficult to work with. Instead, MiG went with steel. And lots of it. The MiG-25 was welded together, by hand.

It's only when you stand next to a MiG-25 – and there are several spending their retirement parked on the grass at some of Russia's military museums – that you can fully appreciate just what a task it was. The MiG-25 is enormous. At 64ft (19.5m) long, it's only a few feet shorter than a World War Two-era Lancaster bomber. The airframe needed to be this big to accommodate the engines and the enormous amount of fuel needed to power them. "The MiG-25 could carry something like 30,000lbs (13,600kg) of fuel," says Trimble.

That heavy steel airframe was the reason the MiG-25 had such large wings – not to help it dogfight with US fighters, but simply in order to keep it in the air.

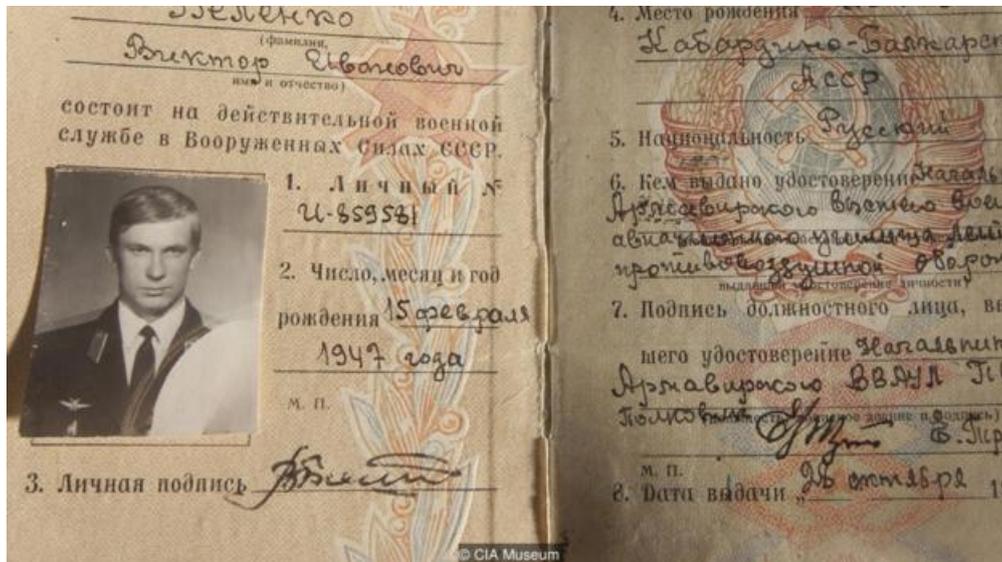
The MiGs were designed to take off and accelerate to Mach 2.5, guided to approaching targets by large, ground-based radars. When they were within 50 miles (80km), their own on-board radars would be able to take over, and they would fire their missiles – which, in keeping with the MiG's enormous size, were some 20-feet-long (6m).

As a counter to the American Blackbird, MiG also built a reconnaissance version, which was unarmed, but carried cameras and other sensors. Without the weight of the missiles and the targeting radar, this version was lighter – and it could fly as fast as Mach 3.2. This was the version spotted by Israel in 1971.

But in the early 1970s, defence chiefs in the US knew nothing about the MiG's capabilities – though they had given it the codename 'Foxbat'. They knew it only from blurred photos taken from space and from blips on radar screens above the Mediterranean. Unless they could somehow get their hands on one, it seemed that the MiG would remain a mysterious threat.

That is, until a disillusioned Soviet fighter pilot hatched his plan.

Viktor Belenko had been a model Soviet citizen. He was born just after the end of World War Two, in the foothills of the Caucasus mountains. He entered military service and qualified as a fighter pilot – a role that brought with it certain perks compared to the average Soviet citizen.



*Belenko's military ID is now on show at the CIA Museum in Washington DC (Credit: CIA Museum)*

But Belenko was disillusioned. The father-of-one was facing a divorce. He had started to question the very nature of Soviet society, and whether America was as evil as the Communist regime suggested. "Soviet propaganda at that time portrayed you as a spoiled rotten society which has fallen apart," Belenko told Full Context magazine in 1996. "But I had questions in my mind."

Belenko realised the huge new fighter he was training in might be his key to escape. He was based at the Chuguyevka Airbase in Primorsky Krai, near the far eastern city of Vladivostok. Japan was only 400 miles (644km) away. The new MiG could fly fast and it could fly high, but its two giant gas-guzzling engines meant it couldn't fly very far – certainly not far enough to land at a US airbase.

On 6 September Belenko flew off with fellow pilots on a training mission. None of the MiGs were armed. He had already worked out a rough route, and his MiG had a full tank of fuel.

He broke formation, and within a few minutes he was over the waves, heading towards Japan.

To evade both Soviet and Japanese military radar, Belenko had to fly very low – about 100ft (30m) above the sea. When he was far enough into Japanese airspace, he took the MiG up to 20,000ft (6,000m) so it could be picked up by Japanese radar. The surprised Japanese tried to hail this unidentified aircraft, but Belenko's radio was tuned to the wrong frequencies. Japanese fighters

were scrambled, but by then, Belenko had dropped below the thick cloud cover again. He disappeared off the Japanese radar screens.

All this time, the Soviet pilot had been flying by guesswork, on the memory of maps he'd studied before he'd taken off. Belenko had intended to fly his aircraft to Chitose airbase, but with fuel running low, he had to land at the nearest available airport. That, as it turned out, was Hakodate.

Japan only really knew what they were dealing with when the MiG made its surprise landing.

The Japanese suddenly found themselves with a defecting pilot – and a fighter jet that had so far evaded Western intelligence agencies. Hakodate's airport suddenly became a hive of intelligence activity. The CIA was scarcely able to believe its luck.



*The MiG-25 helped spur the development of the F-15, which still flies in US service today (Credit: iStock)*

The MiG was exhaustively examined after being moved to a nearby airbase.

“By disassembling the MiG-25 and inspecting it piece-by-piece over several weeks, they were able to understand exactly what they were capable of,” says Trimble.

The Soviets had not built the ‘super-fighter’ the Pentagon had feared, says Smithsonian aviation curator Roger Connor, but an inflexible aircraft built to do a very particular job.

“The MiG-25 was not a very useful combat aircraft,” says Connor. “It was an expensive, and cumbersome aircraft, and it wasn’t particularly effective in combat.”

There were other problems too. Flying at Mach 3 meant enormous pressure on the engines. Lockheed’s SR-71 had solved this by putting cones in the front of the engines, which slowed the air down enough so it didn’t damage engine

components. The air could then be forced out the back of the engine to help generate more thrust.

The MiG's turbojets generated thrust by sucking in air to help burn the fuel. Above 2,000mph (3,200km/h), however, things started to go wrong. The sheer force of the air could overwhelm the fuel pumps, dumping more and more fuel into the engine. And at the same time, the force exerted by the compressors would be so huge it would start sucking up parts of the engine. The MiG would start eating itself.

MiG-25 pilots were warned never to exceed Mach 2.8; the MiG tracked at Mach 3.2 by Israel in 1971 essentially destroyed its engines in the process, and was lucky to return to base.



*The threat of the MiG-25 prevented the SR-71 Blackbird from flying over Soviet territory  
(Credit: iStock)*

The spectre of the MiG-25 had caused the US to embark on a major new aircraft project – one that had helped create the F-15 Eagle, a fighter designed to be fast but also highly manoeuvrable like the MiG was thought to be. Forty years later, the F-15 is still in service.

In hindsight, the MiG, which the West had been so worried about, turned out to be a 'paper tiger'. Its massive radar was years behind US models because instead of transistors it used antiquated vacuum tubes (a technology that did, however, make it impervious to electromagnetic pulses from nuclear blasts). The huge engines required so much fuel that the MiG was surprisingly short-ranged. It could take-off quickly, and fly in a straight line very fast to fire missiles or take pictures. That is about it.

The MiG that the Soviet Union had kept hidden from the world for several years was partially reassembled, and then loaded on a boat for its return to the USSR. The Japanese charged the Soviets a \$40,000 bill for shipping costs and the damage Belenko had inflicted at Hakodate airport.

It soon became clear that the much-feared MiG was unable to intercept the US military's SR-71, one of the planes it was built to deal with.

"The one big difference between the MiG and the SR-7 is that the SR-71 is not only fast, but it's running a marathon," says Connor. "The MiG is doing a sprint. It's like Usain Bolt, except it's a Usain Bolt that's actually running slower than the marathon runner."

These limitations didn't stop MiG building more than 1,200 MiG-25s. The 'Foxbat' became a prestige plane for Soviet-backed air forces, who saw the propaganda value in fielding the second-fastest plane on Earth. Algeria and Syria are still thought to be flying them today. India used the reconnaissance model with great success for 25 years; they were only retired in 2006 because of a lack of spare parts.

The fear of the MiG-25 was its most impressive effect, says Trimble. "Until 1976, [the US] didn't know that it wasn't capable of intercepting the SR-71, and that kept them out of Soviet airspace the entire period. The Soviets had been very sensitive to the idea of these overflights."



*The MiG-31 is essentially an improved version of the MiG-25 (Credit: US Department of Defense)*

Belenko himself did not return to the USSR with his partially dismantled fighter plane. The high-profile defector was allowed to move to the United States – his US citizenship personally approved by US President Jimmy Carter – where he became an aeronautics engineer and consultant to the US Air Force.

His military ID, and the notes he scribbled on a knee pad as he flew above the Sea of Japan are now on display at the CIA Museum in Washington DC.

The MiG-25's shortcomings, and the arrival of the American F-15, spurred Soviet designers to come up with new designs. Trimble says this eventually led to the Su-27 series designed by MiG's rival Sukhoi. It has been built in a myriad of ever-improving versions. It is exactly the kind of plane the Pentagon worried

about at the beginning of the 1970s – fast and nimble – and the newer versions are probably the best fighter plane flying today, he says.

The MiG-25's story hasn't ended entirely either. The design was heavily modified to create the MiG-31, a fighter armed with sophisticated sensors, a powerful radar and better engines. "The MiG-31 is essentially a full realization of what the MiG-25 was supposed to be," says Trimble. The MiG-31 entered service a few years before the end of the Cold War, and hundreds still patrol Russia's vast borders. Western observers have had plenty of opportunities to see the MiG-31 at air shows, though much of their inner workings remain closely guarded.

After all, no Russian pilot has decided – for whatever reason – to seek exile outside of that vast country, and flown their MiG-31 to an unsuspecting foreign airfield.

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