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## **HISTORY IN THE AIR SINCE 1911**

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## Aviation's Greatest Controversies

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Germany's Starfighter affair
Switzerland's Mirage deal
Soviet record skulduggery?
The US air mail fraud

## COASTAL COMMAND VETERAN

May 2022 Issue No 589, Vol 50, No 5

Late-war 'Mossie' and 'Beau' ops

# **MOUNT OF ACES**

Flying WW1's Hanriot HD1 fighting scout

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A test of ZELL (zero-length launch) equipment on a Lockheed F-104G Starfighter, serial DA+102, of West Germany's Luftwaffe is carried out at Edwards AFB, California, in June 1963. KEY COLLECTION



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Coming towards the end of the Starfighter's service in Germany, F-104G 24+54 of Manching-based st establishment WTD 61 – the last German unit to operate the type – goes vertical. DR STEFAN PETERSEN

Fatal crashes and a bribery affair — the reputation of the Lockheed F-104 in Germany could hardly have been worse. hardly have been worse but the Starfighter barely But the Starfighter barely WORDS: ROLF STÜNKEL



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#### BELOW:

The then inspector of the Luftwaffe, Generalleutnant Josef Kammhuber, is greeted by defence minister Franz Josef Strauss (right) after a trip in the back seat of an F-104F at Nörvenich on 22 July 1960. Strauss survived repeated bribery allegations regarding the Starfighter deal and became a key player in Airbus, serving as the company's chairman before his death in 1988. Munich's new airport was named after him in 1992. ALAMY ven now, the name Starfighter is a byword for controversy in Germany. News features, TV dramas and documentaries still hark back to the days when the Lockheed F-104 was constantly in the headlines for the wrong reasons. As the accidents and fatalities mounted, so did public concern and press outrage. Once applied, the 'widowmaker' epithet proved almost impossible to shake off.

As the type's overseas launch customer, the Federal Republic of Germany purchased more Starfighters than any country except for the USA. Its air force and naval air arm, both still relatively young having been re-formed in the mid-1950s, suffered heavy losses during the aircraft's early years of service. Many wondered whether defence minister Franz Josef Strauss had been bribed by Lockheed — and, regardless of the answer, was the F-104 unsafe by nature?

DANGER

UPWARD EJECTION SEAT

Let's look quickly at some facts. In 1957, West Germany's Luftwaffe, equipped with Canadair and North American F-86 Sabre fighters and Republic F-84F Thunderstreak fighter-bombers, was looking for an all-weather fighter to support NATO's missile defence system. A wide range of possible contenders was whittled down to three: the Lockheed F-104 Starfighter, the Grumman F11F-1F Super Tiger and the Dassault Mirage III. Former members of the wartime Luftwaffe top brass were to decide, namely the new air arm's inspector - its most senior officer - Generalleutnant Josef Kammhuber, once godfather of the German night fighter force, and fighter ace Oberst Walter Krupinski.

Kammhuber was much taken by the Starfighter's outstanding speed and climb performance, far superior to the Luftwaffe's then-current 'cast iron' subsonic jets. On his behalf, Krupinski carried out comparison flights of the two American types in the USA during December 1957 and evaluated the Mirage at Melun-Villaroche the following May. In the end, Kammhuber and ex-Messerschmitt Me 262 pilot Krupinski opted for the F-104. "The Starfighter", Krupinski enthused, "is aerodynamically more stable than any other type of fighter. When I fly a roll and hold a glass of water in my hand, not a drop falls out."

After completion of a two-year selection process, the West German defence ministry announced on 24 October 1958 that it had elected to purchase the F-104 for both the air force and navy, and Strauss informed Lockheed of the decision. On 6 November, the defence committee of the Bundestag, the lower house of parliament, unanimously approved the procurement, "subject to a satisfactory solution to the price and licensing issues". Kammhuber told the committee, "We're not buying

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a pig in a poke... The Starfighter is a finished production aircraft."

The new F-104G — G for Germany - promised several advantages over previous versions. There were no development costs, and Lockheed granted generous concessions to the West German aviation industry and partner countries, including the licensed construction of engines and electronics. Franz Josef Strauss, a true-blue Bavarian, saw significant industrial development opportunities for the region. Furthermore, he wanted to ensure the Federal Republic became a nuclear power by arming the aircraft with US-supplied atomic bombs under NATO control. His support for the Starfighter led to the creation of Europe's first international aircraft manufacturing consortium, joining together companies from West Germany, Belgium, the Netherlands and Italy. It formed a central coordination office called NASMO (the NATO Starfighter Management Office) in Koblenz.

What the Germans had tested. however, was the original US version of the Starfighter — a very basic interceptor, not ready for European weather conditions and its later role. To operate in northern Europe, the F-104G was fitted with an autopilot, the NASARR (North American Search and Ranging Radar) multipurpose radar system, an infra-red tracking sight, bombing and attack computers, a position and homing indicator, camera installations, bomb hardpoints and the advanced Litton LN-3 inertial navigation system. To accommodate this additional load, the wings and fuselage had to be reinforced. The tail unit was enlarged by a quarter and the power of the General Electric J79 engine increased. In the end, a fully armed German Starfighter weighed almost a third more than its American predecessor.

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While the G-models were awaited, 30 two-seat F-104Fs were supplied directly by Lockheed for training purposes. An initial cadre of six Luftwaffe pilots, led by wartime ace Oberstleutnant Günther Rall, went to Palmdale, California to undertake conversion. This began in March 1960. When the aircraft were shipped across the Atlantic and delivered to Waffenschule der Luftwaffe (WaSLw) 10 at Nörvenich, Rall carried out the maiden Starfighter flight from German soil on 23 July.



It seemed like an exciting new era for both the Luftwaffe and the Marineflieger, but public fascination for the supersonic fighter soon declined. The losses began on 29 March 1961, when F-104F BB+375 from WaSLw 10 suffered a fuel system malfunction and came down near Korbach, in the state of Hesse. Both pilots ejected safely, as was the case on 6 September after BB+378 lost all its instrumentation and ran out of fuel. The aircraft revealed

## **66** Starfighter safety was becoming a very public matter in Germany **99**

problems with manufacturing quality and several system design faults, such as the afterburner system on the early J79 engines. An unscheduled nozzle opening caused the first fatal Starfighter accident in Germany on 25 January 1962, BB+366 crashing after take-off from Nörvenich with the loss of one of the two crew members on board, instructor Hauptmann Lutz Tyrkowski.

The new F-104G fared no better. A production example had undertaken

its initial flight at Palmdale on 5 October 1960, while the first airframe manufactured under licence by what was then Messerschmitt-Bölkow took to the air from Manching, Bavaria, a year later. Jagdbombergeschwader 31, also at Nörvenich, introduced the variant to operational service, but there was not long to wait until its loss account opened. On 22 May 1962, an engine failure put paid to DA+107, the pilot managing to escape. Another of the wing's pilots was not so fortunate on 3 September, losing control of DA+116 soon after take-off. He failed to eject in time, becoming the first F-104G fatality. All too many more would follow.

During 1965 alone there were 26 accidents and 16 deaths. Starfighter safety was becoming a very public matter. A January 1966 issue of German news magazine Der Spiegel devoted its cover to what it dubbed 'The Starfighter Affair'. Inside was an article suggesting corruption on the part of Franz Josef Strauss, who had quit as defence minister in December 1962 over a separate scandal involving the arrest of Der *Spiegel*'s proprietor and several journalists. Suspicions arose that he had been bribed by Lockheed, allegations denied by Strauss.

The technical problems continued. As it turned out, the poor safety statistics were also related to human error at a

#### ABOVE:

Two early F-104G arrivals with Jagdbombergeschwader 33 at Büchel in 1962 were DC+238 and DR+233, both Lockheedmanufactured. LUFTWAFFE



An engine test on F-104G KG+324, belonging to Jagdgeschwader 74 at Neuburg, in 1964. The afterburner system was among the early accident causes. LUFTWAFFE

#### **BELOW:**

One 1966 casualty was F-104G DB+237 of Jagdbombergeschwader 32, which suffered a compressor stall and subsequent engine failure on take-off from Lechfeld on 18 March. The pilot ejected, but later died of his injuries. managerial level. "The acquisition and implementation of the F-104G was an organisational management challenge for the ministry of defence", recalled the late Dieter Rode, head of F-104 final assembly at the Messerschmitt factory at Manching during the early years of the programme. "At the peak of the Starfighter crisis in 1966, the inspector of the Luftwaffe, Gen [Johannes] Steinhoff, criticised

the existing bureaucratic defence organisation and, as he put it, the total lack of a 'defence system management' mindset in ministerial bureaucracy. The ministry was overburdened with the high production rate of the final assembly lines in the USA, the Netherlands, Belgium, Italy and the Federal Republic of Germany, all of whom delivered the F-104G to the air forces."



Rear Admiral (retired) Wolfgang Engelmann, long-term commander of West Germany's naval air arm, the Marineflieger, puts it more bluntly. "The first years of F-104 operation in Germany were a complete disaster", incidentally, neither did the air force. We were looking for a twin-engined aircraft, but the procurement was decided for political reasons, to support our industry and German nuclear participation. The new aircraft had to be the same for the navy and the air force". When they received it, he adds, "On the squadrons, spare parts, tools and ground service equipment were still missing, and the infrastructure was totally inadequate. There was a lack of technical staff and industrial overhaul took much too long."

Another challenge was the number of technical directives for the elimination of various design and technical shortcomings. "A total of 1,600 were implemented", remembers Engelmann, "117 alone in 1967; their execution in one of our naval wings, for example, necessitated 170,000 working hours." The resulting ratio of flying to maintenance hours was absurd: initially one to 500, from 1967 onwards one to 115, and after 1969-70 one to 50. "The readiness

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LEFT: A splendid array of NATO fighters brought together on 2 June 1964 to mark 13 years of Allied **Air Forces Central** Europe: Luftwaffe F-104G DA+243 shares space with Starfighters of the Belgian Air Force, Royal Canadian Air Force and Royal Netherlands Air Force, a French Air Force Mirage IIIC, an **RAF** Javelin FAW9 and a US Air Force F-105D. NATO

of the aircraft was commensurate", Engelmann notes. "In 1966, one of our wings operated 46 aircraft and flew a total of 18 hours a day. In 1969, 39 available aircraft produced 39 flying hours per day. The low readiness had a negative effect on the training level of our pilots. High incident rates and several fatal accidents during the first few years could be attributed to that."

At the peak of the 'widow-maker'

**66** Steinhoff

maintenance and

pilot training **99** 

rearranged

era during August 1966, defence minister Kai-Uwe von Hassel sacked the inspector of the Luftwaffe, Generalleutnant Werner Panitzki. In an interview, Panitzki, a Luftwaffe

squadron commander under Kammhuber in World War Two, had criticised the procurement of the F-104 as a "purely political decision". He accused von Hassel — whose son Joachim, a Marineflieger pilot, would be killed in the crash of an RF-104G in March 1970 — of delaying improvements to the aircraft.

Panitzki's successor Generalleutnant Johannes Steinhoff, another former Me 262 pilot, finally took concrete action. After the 67th loss, when a boundary layer control failure caused DC+126 of Jagdbombergeschwader 33 to crash on landing at Büchel with the death of Oberleutnant Henning Kaupsch, he suspended all air force and navy Starfighter operations with effect from 6 December 1966. Steinhoff rearranged maintenance and pilot training in a very efficient manner, 'normalising' the Starfighter in the eyes of the public and subsequent generations of pilots. One prominent

Luftwaffe aviator, however, was never to be satisfied. Oberst Erich Hartmann, the highestscoring fighter ace of all time, considered the aircraft unsafe and retired prematurely from

the service in 1970.

In the aftermath of Steinhoff's 1966 Starfighter shutdown, which lasted for 15 days, major modifications made the F-104 safer. Early examples used the Stanley C-1 downward-firing ejection seat to avoid the 'T-tail' empennage during ejection. This presented obvious problems in low-altitude escapes, and 21 US Air Force pilots — including test pilot Capt Iven C. Kincheloe Jr — died as a result. It was replaced by the upward-firing Lockheed C-2 seat, which was capable of clearing the tail, but still had a minimum speed limitation of 90kt (104mph, 167km/h). The F-104 was eventually fitted with the Martin-Baker GQ-7(A), featuring a true zero-zero (speed/altitude) ejection envelope.

Most of the engine nozzle problems were solved with a new design. Other improvements included digital radio frequency

#### **BELOW:**

Generalleutnant Johannes Steinhoff took the Starfighter's problems in hand when he was appointed inspector of the Luftwaffe, improving maintenance procedures and flying training. BINDESARCHIV





#### SCANDALS German Starfighter affair



ABOVE: The author in the cockpit of a Marineflieger F-104G. He flew the type with Marinefliegergeschwader 1 from 1979-82. VIA ROLE STÜNKEL repeater displays in the pilot's field of view and radio altimeters with optical and acoustic warnings below a set flight altitude. Airflow separation over the wing due to boundary layer control duct separation became extremely rare, as did failures of the automatic pitch control, which engaged the aircraft's stick-shaker and kicker in case of an excessive angle of attack.

Occasionally, old issues kept popping up. Pilots were cautioned to watch afterburner performance on take-off and to pull an emergency 'T' handle for nozzle closure should it accidently open due to hydraulic failure. Fregattenkapitän (retired) Peter Krusemeyer of Marinefliegergeschwader 2 at Eggebek recalls such an eye-opening event. "On 8 May 1971, we were scheduled for a cross-country to Getafe, near Madrid. The weather was fine, so we planned to take off in formation and level off at 26,000ft. Shortly after take-off, the unexpected happed: the low engine oil level warning light in my cockpit came on, and I noticed a sudden loss of thrust. The nozzle had opened! Now everything had to run according to the emergency checklist. 'Nozzle handle - out. If nozzle does not close, mayday, return to base'.

"My wingman confirmed that the nozzle was stuck in the open position. I worked through the memorised procedures, turning away for a precautionary landing pattern. At 250kt, I put the landing gear lever down and selected the flaps to the take-off position. Without the usual thrust and only 'hot air' from the engine in spite of the throttle being in 'full military' position, the aircraft sank quickly. The touchdown was hard, the airframe shook and the right undercarriage leg collapsed. I was able to keep the F-104 on the runway until the end; the aircraft came to a stop, tilting slightly to the right.

**66** If bribery took place in the German deal, it was a wellkept secret **99** 

After repeated reassurances from the tower, the fire brigade and myself that everything was OK, I left the cockpit utterly cool but shaking in my boots."

Several pilots had to eject simply because the single-engine jet had ingested a flock of birds, killing the J79. A Luftwaffe pilot from Nörvenich, Harald Böhnke, once banged out due to a compressor stall. "[Speed] is rapidly decreasing", he recorded in his diary, capturing

the dramatic moments of his powerless glide towards the Ford car factory in Cologne. "[The] stick-shaker comes on, the stick is rattling ... my speed is too low! I can't fly much lower... now, over this obstacle and then [...] throttle off, start switches to start, throttle idle ... I have to get out. 'GCA, I'm bailing out now!' [I] activate the ejection seat by pulling the handles above my head down over my face with both hands... click, click, bang! The canopy flies off ... the seat cartridge detonates and pushes the ejection seat up the guide rails. Some 30 seconds later, the rocket bundle detonates.

"The white and yellow fire glow is mirrored in the instruments, then I can see the blue and white sky... shortly afterwards, green fields down below... The parachute opens and I can smell burning... I have my hands on the parachute shroud lines in order to steer away from the fireball. I hit the ground hard, approximately 8m away from my aircraft. Once the smoke has died away, a VW minibus drives up. 'This is an accident site and a secure area,' I hear myself yell at the driver. 'Stay away from here! Don't touch anything!"

When I began F-104 training in 1978, it was an aircraft highly respected for its performance and elegance, rather than for being dangerous. In my career with the German Navy, several of my fellow F-104 pilots were lost, none of them due to technical problems. Our focus was on flight safety, memorising 'bold face' emergency procedures, watching the limits and, most of all, flying as much as we could. Safety comes with experience, and around 1980 every pilot could expect to record 180, sometimes even 250 annual flight hours - three times today's average, or more. I got my share of hours, feeling safe and at home in the cockpit, until I left to fly the Panavia Tornado. To this day, I remember the F-104 as a fine machine with character and truly unique flying capabilities.

But what of the safety statistics? More than 2,000 of all variants of the F-104 were produced for international air forces. West Germany operated 916 Starfighters, some 35 per cent of all those built, over a 31-year period. It lost 292 of them in flying accidents, or approximately 32 per cent. In all, 116 pilots — including eight Americans — were killed, the last fatality occurring on 11 December 1984.



Some Starfighter operators came away with a better loss rate, others worse. The highest of all is believed to be Canada's, at 110 of 238 aircraft, or 46 per cent. However, published figures have stated that its CF-104s amassed more flying hours than did the German fleet.

Comparisons with other types are interesting, even if they are difficult to make directly given the varying roles for which each aircraft was used. A figure released by a British defence minister in 1989 put the English Electric Lightning's loss rate in RAF service — which had finished the previous year — at 45.58 per cent. However, the Lightning was used solely as an interceptor, unlike the multi-role F-104G, while it's perhaps worth noting that just two were written off while operating with RAF Germany.

The whiff of corruption never quite dissipated. In 1976, a US Senate investigation led by Frank Church accused Lockheed of having paid foreign officials US\$22 million while negotiating aircraft deals, including the F-104. According to statements by former Lockheed salesman Paul White, Strauss and Deutsche Bank chairman Hermann Josef Abs had received funds in connection with the sale of Lockheed Super Constellation and Electra airliners to Lufthansa, as well as for West Germany's purchase of the F-104 in 1961. This could not be proven, and without solid evidence — it emerged that key documents relating to the German Starfighter deal had been destroyed — no charges were brought. Prince Bernhard of the Netherlands wasn't as lucky: on 26 August 1976, he was forced to resign as inspector-general of the Dutch armed forces after being accused of accepting bribes. Lockheed was fortunate to find an overseas market for its highperformance, if demanding, fighter. West Germany and its European NATO partner countries were happy to join the Mach 2 club and secure long-term jobs for their aviation industries — a win-win situation, they felt. And if bribery ever took place in the German procurement phase, it was a well-kept secret.

#### ABOVE:

The low-level central European environment, often experienced in much worse weather than this WTD 61 F-104G was pictured in during 1990, was a demanding one for the Starfighter, but it came to excel. DR STEFAN PETERSEN



# "MY GOD..."

If one particular event marked the Starfighter's card with the German public, it occurred on 19 June 1962. For several months, a group of pilots from the Nörvenich-based Waffenschule 10 had been working up an aerobatic display. It involved five F-104Fs, comprising a four-aircraft main formation and a solo. Now the team was almost ready for its first appearance, as part of ceremonies set for 20 June to mark the establishment of Jagdbombergeschwader 31 at the same location. A final rehearsal duly got under way.

In the lead was a USAF pilot, Capt John Steer. With him in the four-ship were three Germans, Oberleutnants Heinz Frye, Bernd Kuebart and Wolfgang von Stürmer. Around 10 minutes into the sortie, Steer endeavoured to bring the formation back towards the airfield in a steep 180° turn. The Starfighters entered cloud, and subsequent investigation suggested spatial disorientation may have been responsible for what happened next. According to a piece in *Der Spiegel* a week later, the Nörvenich air traffic controller heard Steer say, "Go away!", followed by, "Hold it!" and finally, "My God". The first of those remarks suggested one of the wingmen had flown uncomfortably close to the leader. Emerging from the cloud, the formation was too low and in too steep a descent to pull out. All four F-104s crashed into a lignite mining area near Frechen, north-east of the air base. None of the pilots attempted to eject, though it did appear that von Stürmer had sought — too late — to recover from the manoeuvre.

The following day's festivities were cancelled, and the Luftwaffe prohibited its units from mounting aerobatic team displays. Whether the Starfighter's reputation in Germany ever recovered from this very public disaster is a matter for debate. **Ben Dunnell**