

Why not fly it?

When the Royal Netherlands Air Force retired Lockheed's legendary F-104, many assumed the type's distinctive howl would disappear from Dutch skies – until now. **Bob Fischer** explains...

When F-104G D-8258 and TF-104G D-5803 were ferried to Ypenburg Air Base near The Hague on November 26, 1984, the Royal Netherlands Air Force (RNLAf) brought the Starfighter era to a close. Shutting down, the pair joined a line of withdrawn Starfighters awaiting their fate – the final chapter of the country's relationship with the type had been written. Or so it seemed. That was until 2004 when the Historische Vliegtuigen Volkel (Historical Aircraft Volkel/HVV) at Volkel Air Base in the south of the Netherlands, asked the question 'Would it be possible to return one of these fighters to the sky?' In 2018, after several years of working behind the scenes, the Dutch Starfighter Foundation (DSF) was formed to help make it happen.

Unexpected answer

"The Starfighter is an exceptional machine, even by today's standards," explains DSF chairman Hans van der Werf. A former Dutch F-104 flyer, he operated in the type for more than 11 years, including six as the demonstration pilot. He continues: "The aircraft was completely different from all the others at that time – it was such a revolutionary design

and a landmark in military aircraft development. During the 1960s it was a true workhorse with most NATO countries making use of it." The brainchild of Volkel's then deputy base commander, Lt Col Harry 'Hopper' van Duren, the HVV was established more than 20 years ago. Also an ex-Starfighter pilot, van Duren believed the base needed several 'gate guardians' along the Poortlaan, or main road; there being just a solitary weather-beaten F-104G (serial D-8279) on show. Forming the Werkgroep Historische Vliegtuigen Volkel (Volkel Historical Aircraft Working Group) he aimed to display at least three aircraft, but ideally wanted as many as seven. Sergeant Major Theo van den Boomen, who was involved in those early days, recalls: "In 1999 a group of us started restoring an F-104G [D-8256] and F-84F Thunderstreak from the technical school at Schaarsbergen. It was about then we came up with a plan to also display an F-104 cockpit in Volkel's Tradition Room. When we explained what we wanted to do to van Duren, he surprised us when he responded, 'Why not to fly it?'"

Despite the Starfighter being absent from the base's taxiways for nearly 30 years, no fewer than four F-104Gs could be found in Volkel's Hangar 3 during the early 2000s – D-8279 undergoing refurbishment before returning to its spot on the

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gate; D-8063 being stripped for spares use before being scrapped; D-8256 ready to donate its forward fuselage to the Tradition Room, and D-8312 as the possible return-to-flight candidate. Van der Werf continues: "We thought the idea of getting one flying was marvellous – until we found out D-8312 was plagued by corrosion. Sadly, it had been parked outside pretty much



LEFT The HVV prepares to refit D-8114's port wing (minus its ailerons) in April last year. ALL HISTORISCHE VLIETUIGEN VOLKEL UNLESS NOTED

BELOW Lockheed F-104G Starfighter D-8114 in front of Volkel's Hangar 1 – home of the HVV. The aircraft wears the markings of 312 Squadron.



Restoration Scene

since retirement. The problem is aeroplanes rust – you can practically hear these old jets corroding away.”

Building blocks

The number of suitable F-104 airframes within the Netherlands was incredibly low, as van der Werf explains: “The main issue is the Dutch have a poor sense of history. Many people don’t think about saving mobile heritage, like the Starfighter, for posterity.” He laughed, adding: “It is often just mad guys like us that try to – that’s why we are already looking for suitable F-16s!”

hangar wall, it looked perfect. The guys at Delft were great, but we were only allowed to take parts if we really needed them. However, that soon changed when we found out they intended to scrap the airframe. So, we made a deal – D-8114 was handed over to the HVV, while D-8312 was stripped for parts and scrapped instead.” Starfighter D-8114 is a former Volkel resident having flown from the base for some 15 years, with 311 and 312 Squadrons.

Delivered to the HVV on April 5, 2012, investigations revealed most of the electrical



History in the making: D-8114 cycles its undercarriage for the first time in nearly 25 years.

With the project seemingly stalling before getting off the ground, someone suggested inspecting an F-104G (D-8114) in storage with the Nationaal Militair Museum (National Military Museum/NMM) in Soesterberg – about 35 miles (56km) northwest of Volkel.

Following retirement in mid-1984, the jet was sent to the Delft University of Technology just north of Rotterdam for use as a ground instructional airframe; it was replaced by an F-16 in May 2008. Van den Boomen remembers: “We were really impressed by the condition it was in, especially when compared with our jet back at Volkel – not much had been done to it apart from some standard demilitarisation stuff. Apart from obvious damage from where it was backed into a

system wiring harnesses in the cockpit had been cut through, instead of being disconnected properly. Chuckling, Van den Boomen says: “We spent three years fixing those wires – and finding those that were missing. Although D-8114 is a good aeroplane, the restoration is still an incredibly complex process – everything needs to be disassembled, cleaned, inspected, reassembled and ground tested to meet regulations.” It should be noted that to make D-8114 airworthy, the cable harnesses that have been repaired will need to be replaced outright. While this is technically not impossible, it is a massive undertaking. Other tasks have also included replacing the damaged rear end, rebuilding the cockpit and most of the instruments, scrutinising the fuel tanks

IN DETAIL...



ABOVE Wingless wonder: Starfighter D-8114 ‘airborne’ on jacks prior to its first undercarriage retraction tests in July 2018.



ABOVE Rudd van der Horst, a former F-104 avionics specialist, works on reconnecting the electric wiring in the jet’s port wing root.



ABOVE Ferry Lotterman finishes refitting D-8114’s port mainwheel. Although the HVV has several original F-104 tyres in stock, the team is currently using those from an F-16 (which are the same size) for ease.

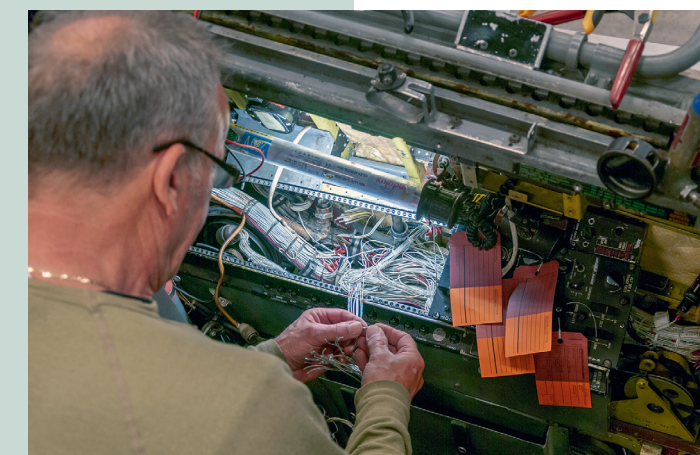


ABOVE Countless hours have been spent examining and recreating decals for the electrical and hydraulics systems, which had become unreadable. Here, Rudd van der Horst inspects wiring in the port mainwheel bay.

RIGHT Theo Rombout photographs the next stack of the HVV’s extensive cache of spares, all of which have now been catalogued.



A sign of things to come? Starfighter D-8114 sitting on one of Volkel’s taxiways during a rare appearance outside Hangar 1.



ABOVE LEFT Volunteer Djamilla Breuer (left) an electrical problem with the late Joep Schillings. Known as the HVV’s ‘walking F-104 encyclopaedia’, Joep passed away in August last year. As the team reveals: “We will miss him, his great knowledge and his wonderful stories.”

ABOVE On arrival to Volkel in 2012, it was discovered D-8114’s cockpit wiring harnesses had been cut instead of disconnected prior to transportation. It took more than three years’ dedicated repair work.

LEFT Three greens: Ferry Lotterman in the cockpit during the first undercarriage retraction tests – a huge moment for the team.



inside and out, and removing the undercarriage for non-destructive testing. The wings have also been removed and new sealing rings fitted, while the ailerons and leading and trailing edges have all been taken apart and examined.

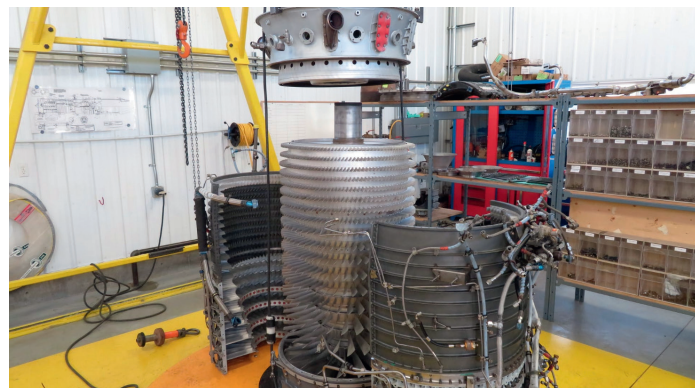
“We spent three years fixing those wires”

One of the major goals was restoring the hydraulic systems, which allowed the team to demonstrate the gear, flying controls and speed brakes during the Luchtmachtdagen (Air Force Open Days) at Volkel last year. Meanwhile, considerable time was also spent sourcing and obtaining spare parts – all of which have been catalogued, photographed and placed in storage. Van der Werf: “We have enough spares to cover us for several years – but we have room for more, the hangar isn’t quite bulging yet!”

Restoration Scene

In addition to the return-to-flight project, the HVV has also undertaken numerous additional tasks to meet its original objective – including restoring an F-84F Thunderstreak and F-16 for gate guardian duties and installing D-8312 in the Tradition Room. With several ongoing projects, including refurbishing an Orpheus reconnaissance pod and completing regular maintenance on the gate guardians, it soon became apparent that the HVV had its work cut out. Van der Werf

we receive no money from them or the Dutch Ministry of Defence – we are completely self-funded, which means we need to arrange the budget ourselves.” Like many similar projects, the foundation is on the lookout for potential sponsors. However, it doesn’t want one that will demand the aircraft be sprayed in its colours or covered in huge advertising stickers. Van den Boomen: “The aim is to keep the jet as authentic as possible – even the gun camera is operational, as is the air data computer and INS [inertial



ABOVE The J79 engine destined for D-8114 undergoing overhaul with Canadian company S&S Turbine.

continues: “We realised to do this properly we needed to look ahead and prioritise D-8114’s progress – so the team came up with and introduced a business plan. This not only included bringing D-8114 back to life but also getting our hands on another F-104G for instructional purposes, and an airworthy two-seat TF-104G.”

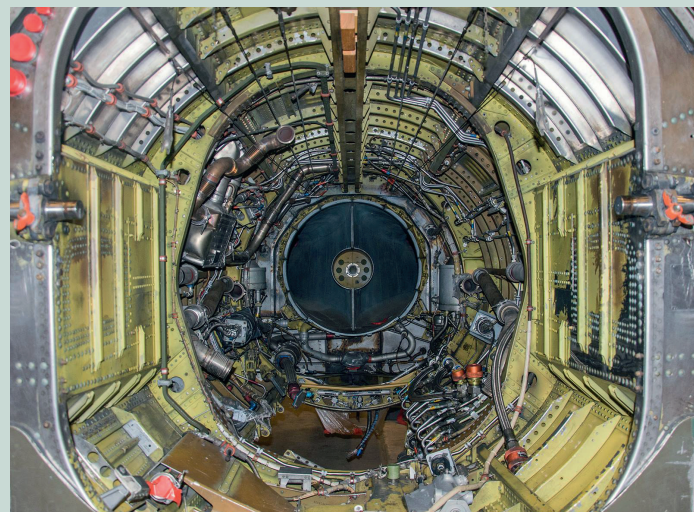
Given that this plan didn’t fit with the HVV’s overall scope, and that finances would be key, the team established an independent organisation on September 17, 2018. “The Dutch Starfighter Foundation was born,” says Van der Werf proudly.

The aim of the DSF is to generate funds to support the HVV’s restoration and maintenance of D-8114, while ensuring the finances already available are used properly. Van de Werf adds: “Although we have RNLAf connections,

navigation system]. We have also recreated the decals for the electrical and hydraulic systems that were unreadable.”

O Canada!

Even though D-8114 was a suitable airframe, it lacked an important component – the engine. Powered by a General Electric J79 afterburning turbojet, the airframe had long since given up its own, and finding a usable unit was expected to be as difficult as locating a workable aeroplane. “Unbelievably, Facebook was the answer” explains Van der Werf. “We took to social media early last year, and to our amazement, Robin Sipe of S&S Turbine Ltd in Canada replied that they had several J79s in storage, including some F-104G standard J-79-GE11s obtained from the Netherlands – and that we could pick one. They agreed that if we



ABOVE Looking forward, the engine bay reveals just some of the complexities of the F-104’s inner fuselage.



ABOVE Willem de Groot works to prepare the Starfighter’s engine bay earlier this year.



ABOVE Starfighter D-8114 in late 2016 – it’s easy to see where the nickname ‘missile with a man in it’ came from.

covered the transport costs, the engine could be considered free if we promoted the company as a sponsor.” However, there was one major issue – the powerplant lacked the necessary documents. It was believed the paperwork might still exist in the Netherlands, but a search suggested that the forms had probably been destroyed when the RNLAf moved its headquarters. “The engine needed to be overhauled and certified once again, which cost around €25,000,” reveals Van der Werf. “Luckily, someone is sponsoring that money without interest – after we pay that back the DSF will own the engine. Once fitted, we should be able to run it for around 400 hours before it needs to be overhauled again.”

In late January, the HVV was visited by three former RNLAf engine specialists – Jan van As, Jan van Duivenbode and Arno van Orsouw – to discuss how they could help once the refurbished powerplant is delivered. “We look forward to seeing them on a regular basis because that means the engine has arrived” says Van der Werf, before adding: “Without knowledge, and especially manpower, nothing happens at the HVV – people are indispensable.”

Frowning, Van der Werf explains: “We do have one big challenge still to face – the ejection seat. Like the engine, it has to be approved. Originally Dutch Starfighters were fitted with Lockheed’s upward-firing C-2 seat, but you can’t get them serviced and no one makes the [cartridges] anymore. So, we will have to look elsewhere, most likely Martin-Baker.

“Technically speaking we plan for the jet to be 100% operational. However, it is all dependent on certifications and qualifications – paperwork is becoming more and more crucial.”

Twin trouble

The DSF is also looking to operate a two-seat Starfighter alongside D-8114, as Van de Werf alludes: “Flying a twin is technically easier as it has fewer systems, and a second person can fly in the backseat for training – or as a guest. We thought we had found the ideal airframe last year when the NMM brought TF-104G (D-5803) to Volkel for static display during the Luchtmachtdagen – it gave us a good opportunity to get a proper look.”

Sadly, despite its immaculate appearance, closer inspection



On January 18, 1984, D-8114 was joined by F-16A J-232 as it undertook the RNLAf’s final target-towing flight with the type. DUTCH MINISTERIE VAN DEFENSIE

revealed huge amounts of corrosion and that its wiring harnesses had been cut. Van de Werf admits: “It was quite disappointing. The only other suitable ex-RNLAf two-seater is D-5810, which is currently in the US.” Owned by Starfighter enthusiast Stephen ‘Steve’ Alex, it was retired from RNLAf service in 1984 with 3,754 hours on the clock and has been gradually restored. As it stands, the jet’s fuel and electrical system have been brought back to life. However, with other ventures ongoing, the project was put up for sale several years ago. “It is currently on the market for \$325,000 and comes with a good zero-houred J79 and a spare set of wings – it

would be perfect. The DSF is currently trying to raise the money to buy the aircraft and transport it back to the Netherlands.”

What’s next?

Van der Werf looks to the future: “Our next major goal is to install the J79 when we have it. Once that is done, we will sort out some of the other jobs to get D-8114 taxiing... and look at getting it into the air. Then the question is, what will the air force want to do with an airworthy ‘104 on its doorstep? A RNLAf test pilot could fly it without problem and it is far cheaper to run than an F-16 or F-35. Who knows, maybe it could even act as ‘red air’...” **FP**

BELOW Night ops: A former Volkel resident with 311 and 312 Squadrons, D-8114 will once again operate on the same taxiways as it did when in service.

