Above: This JAS 39B, owned by Saab, has been used for several years by Britain’s Empire Test Pilots’ School at MoD Boscombe Down in Wiltshire.

Below: Conscript aircraft mechanics loading a BK M90/DWS 39 Mjölner stand-off submunitions dispenser.

Swedish Defence giant Saab Svenska Aeroplan Aktiebolaget – Swedish Aeroplane Corporation – can trace its roots back to a 1936 decision by the Swedish Government that the neutral country should establish its own comprehensive arms industry, including the capability to design and produce its own military aircraft. Saab was formed the following year and launched its first aircraft, the single-engine B17 light attack bomber, based on contemporary American designs. It made its first flight in May 1940.

The first swept-wing jet fighter to emerge from its Linköping plant, the J29 Tunnan (– so named because of its shape), owed much to other early jet designs, including the North American F-86 Sabre, MiG-15 Fagot and, most notably, the Nazi-era Messerschmitt P1101. The Tunnan, which first flew in September 1948, was succeeded in service in 1971 by the double-delta Draken and the canard/delta-winged Viggen, which in turn were replaced by the world’s first operational 4/5.5-generation fighter, the JAS 39 Gripen. Now, 25 years after the type’s first flight on December 9, 1988, development of the next-generation Gripen E/F has started, the new jet forming the basis of Sweden’s air defence well into the 2040s.

Basic design
When the time came to plan for a replacement for the Viggen, the preference was for a multirole aircraft. That was the conclusion reached after a long evaluation process during the 1970s to determine if a development of the Viggen, a completely new design or a foreign aircraft was the best option for Sweden – which had offers from General Dynamics (F-16), McDonnell Douglas (F-18), Northrop (F-5) and Dassault (Mirage 2000).

Sweden opted once again to develop a completely new domestic design, a single aircraft that could perform every mission that could be performed by every mission flown by the several different versions of the Draken and Viggen still in service, fully adapted to the customer’s requirements. In 1982 the Swedish Parliament voted to start the new project and a contract was signed with Saab to develop the JAS 39 and deliver five prototypes plus a first batch of 30 aircraft. JAS is a Swedish abbreviation where ‘J’ stands for ‘Jakt’ (fighter), ‘A’ for ‘Attack’ and ‘S’ for ‘Spaning’ (reconnaissance).

The specification for the first-generation Gripen included many flight control system (FCS) to the mix. The result was a very agile and responsive aircraft at subsonic speeds with low induced drag and good supersonic characteristics and short take-off and landing (STOL) performance. The general benefits of this design are well known, but in the 1980s these complex technologies were new and unproven so the project had its share of mishaps in its early years. The specification for the first-generation Gripen included many
expertise. A SaAF technician told the author that when the Gripen has taken part in multinational exercises and a comparison is made of the serviceability rates of the competing nations’ aircraft, the Swedish jet always does well. “At the end of the exercise the results are presented and analysed. We’re often in the lead, and always top three. The aircraft is relatively easy to maintain and prepare for a mission. It has had its initial problems, but most of them have been solved today and everyday issues are easily taken care of.”

Engine – power and reliability
Safety, reliability and cost-effectiveness were keywords for Gripen’s powerplant. The General Electric F404-400, the type installed in a twin-engine configuration in the Boeing F/A-18, was selected, but the basic version didn’t quite meet Swedish requirements for the single-engine JAS 39. The variant installed in the Gripen, called the RM 12, incorporates a number of modifications made by Volvo Flygmotor (Volvo Aero, now part of GKN) to increase performance. First the original analogue engine control unit was replaced by digital engine control (DCC) in the early JAS 39 and ’B versions, and full authority digital engine control (FADEC) in the later ’As and ’Ds, from serial numbers 39193 and 39806, and all ’Cs and ’Ds. As an extra safety measure Volvo added a mechanical back-up system to the double digital control, for triple redundancy. This means that if the double FADEC fails after, for example, electrical power loss, the pilot can rely on a mechanical control system. While not as exact and smooth as FADEC, the back-up may save the aircraft and pilot in a critical situation. The ignition system is also doubled for redundancy and a startable fuel pump replaces the original. With only one, it is very important to make the engine capable of withstandng damage.

A troubled birth
Incidents and crashes are not uncommon in the early stages of a new aircraft’s test regime, but especially unfortunate for the Gripen was that it crashed in front of the TV cameras – twice. And each time, the same Saab test pilot was at the controls. The first incident involved prototype 39-1 during landing at the company’s airfield in Linköping on February 2, 1989. Pilot Lars Rådeström escaped with injuries although the jet, which was on its sixth flight, was seriously damaged. The second incident was with production aircraft 39102, which crashed on August 8, 1993, during a public display in the centre of Stockholm very shortly after delivery to the SaAF. On this occasion Rådeström ejected safely and, almost miraculously, only one person was injured on the ground. Accident investigation reports showed both incidents were related to the ‘unstable’ design and the comprises FCR system, which in certain circumstances, in combination with control inputs from the pilot, resulted in heavy oscillating movements and ultimately an uncontrollable aircraft. Video of the first incident shows the jet pitching up and down in a phenomenon known as pilot-induced oscillation – PIO. This, together with gusty wind conditions, were blamed for the crash.

PDD was cited as a contributing factor in the second incident too. The crashes brought criticism of the Gripen and particularly its FCS, which had yet to be completely developed and tested. They were not the best advertisements for the aircraft. So far there have been very few incidents and no casualties in its operational history.
The first thing you notice when you climb into the cockpit of Gripen C and D are the now large 6 by 8 inch (16 by 20 cm) colour 3 Display Systems. Displays information is shown in English using imperial units, which is great for non-Swedish-speaking pilots. But according to test pilots, setting both the two-switch areas around a couple of years ago and fitted in front of the pilot’s eyes under the instrument panel. This important innovation was the consequence of the fact’s eye ability to fly longer missions thanks to the installation of the air-to-air re-fueling system. The cockpit was also updated with better air-conditioning and an on-board oxygen generating system (OBGOS) was installed.

The Tactical Information Data Link System (TIDLS) is a secure and highly jam-resistant digital network developed by IVV, now Saab A/B. TIDLS makes it possible for up to four Gripen’s to distribute and share radar and other sensor information automatically. All aircraft in a formation or within 100 miles (160 km) get information about the others’ speed, position, heading, fuel state and weapons—which significantly improves situational awareness and offers radar data sharing. Everyone connected to the link can see what the others are tracking and targeting.

An attacking pilot can use the tracking data from one of his wingmen flying at a distance to guide a missile to the target. The attacker can therefore be in silent mode—no matter how any detectable emissions—and close in on its prey to fire a weapon without revealing its presence. The aircraft will then continue sending data to the advanced medium range air-to-air missile (AMRAAM) after it has been launched and guide it to the target, which means the missile itself can be in ‘silent mode’ for longer. The pilot of the targeted aircraft may be unaware of the danger until it’s too late to respond. If he detects the guiding aircraft at all, he may disregard it because it is obviously too far away to be a threat. TIDLS can also be used to connect PS-05A radars from two fighters and combine the data for more accurate target positioning than can be achieved using only one. Simultaneous tracking of the target from different directions can give heading and speed information with minimal radar transmission. Data can be shared with ground stations and electronic warfare (EW) aircraft, such as the Erieye-equipped Saab 340 or 2000. TIDLS is fully operational as soon as the jet is up and running and the pilot has good situational awareness even before he takes off. Both Viggan and Draken used data links long before network-centric warfare became fashionable, so the Swedes were ahead of the game in many respects. Gripen’s ‘C’ and ‘D’ have been integrated with Link 16 datalink which, being a broadcast style system, is fundamentally different from TIDLS. Both have their advantages but although it can be accessed by fewer users, TIDLS can exchange more data more quickly.

The cockpit ‘office’

Situational awareness in serial warfare is essential—to be able to see without being seen, make the first move and strike first for sure. The Gripen NG is a multirole fighter that can be used for pure fighter or bomber. It can carry the Saab S/Sk 54 or a robust external fuel tank. To succeed, a pilot has to handle a constantly increasing flow of information, make decisions regarding weapons, countermeasures, targets and so on, and do it all quickly. The difficulties are compounded in a multiliner fighter where there are many more mission-sets than for a pure fighter or bomber. To ease the workload Saab put a lot of work into simplifying the cockpit layout. The result is an intuitive and ergonomic environment that gives the pilot an information overview and technical assistance for easier multi-tasking.

In Asa 39As and ‘B’, the pilot had visual information via four presentation areas—three head-down 5 by 6 inch (12.7 by 15.24 cm) monochrome multifunctional displays (MFDS) and one wide-angle head-up display (HUD). The three MFDS give the pilot flight and system information (continued on p5.)
**AIRCRAFT PROFILE** SAAB JAS 39 GRIPEN

### GRIPEN OPERATORS

**Sweden**

The SwAF became the first operator of the C version in 2004, but it was not until 2007 that the Swedish Government settled the final number of jet fighters at 100 ‘Cs and ‘Ds. When the so-called F 100 programme, for 100 fighters, was started, the air force had 156 JAS 39s, of which only 69 were the latest version with 39CJ and 39Ds remaining. When the latter reached 1,000 flight hours, they were stripped down, many parts being used to build ‘new’ JAS 39Cs and 39Ds. No two-seat JAS 39s were used in the programme, but 26 JAS 39As are being cannibalised to provide parts for 13 new two-seat JAS 39Ds.

The conversion from ‘A to ‘C is not straightforward. What can be reused are the engines, some electronic units, gearboxs, hydraulic pumps, ejection seat, control stick, some switches, air intakes and the radome. But a ‘C model differs from an ‘A in that it has a more robust main landing gear, an air-to-air refuelling system, higher cabin pressure and other changes in the cockpit described above. These, combined with a different APU, a higher maximum load plus more refinements and modifications, are why the complete fuselage is scrapped and replaced with a new-build. To manufacture a two-seat ‘D-model in this way requires the seats and sticks from two 39As.

The first F 100 aircraft were delivered in 2009 and deliveries will continue until 2014. However, one ‘C and one ‘D have been lost in accidents and will not be replaced.

So the SwAF will have 98 Gripens – 74 ‘Cs and 24 ‘Ds, distributed between the F 17 and F 21 fighter wings, the Gripen Centre at F 7 and the FMV test centre.

The SwAF Gripen fleet flies around 11,000 flight hours a year. Two aircraft plus one spare stand quick reaction alert around the clock. All operational pilots in the air force perform this duty, including instructors at training units as well as some pilots with staff functions.

**South Africa**

South Africa ordered 28 Gripens in 1999 as part of a bigger arms deal which included BAE Systems Hawks, helicopters and ships. The country’s government later reduced the order to 26 fighters, of which nine were two-seat ‘Ds. Deliveries began on April 30, 2010, when the first ‘D landed at Air Force Base (AFB) Waldo implant to replace the ageing Atlas Cheetahs of the 2nd Squadron, the only frontline fighter squadron in the SAFA.

All 26 Gripens were delivered by September 2012 when the last four arrived by boat in Table Bay, Cape Town, having remained in Sweden to take part in the multinational Exercise Lion Effort, an exclusively Gripen exercise held every three years when their operators train, exchange experiences and develop combat tactics with the JAS 39.

Despite recent maintenance issues the SAAF has all its new fighters operational and is keen to apply the updates necessary to achieve air superiority in the region. It is looking into options for re-establishing the BVR capability lost with the R-Darter missiles used with the now-retired Cheetahs – the SAAF did not buy any BVR missile system to go with its new Gripens, only the short-range DRSS.

It also has the General Dynamics A-Darter and is thus well equipped for short-range air-to-air combat. However, the South Africans learned from their losses in the Lion Effort that you don’t stand a chance in a BVV environment without having the capability yourself.

Other countries in Africa have BVV capability: for example Morocco and Egypt with their AMRAAM-equipped F-16s and Uganda with the AA-12 Adder armed Sukhoi Su-20 Flankers. Thus, and the lack of air-to-air refuelling tankers, were cited by an SAAF official as shortcomings as well as a lack of BVV capability – which has received a lot of attention in the media and continues 14 years after the deal was signed. The nation’s Financial problems have affected the SAAF: in March 2013 the South African defence minister said 12 Gripens had been placed in long-term storage to save money. There is also a lack of qualified pilots and money to fly the remaining aircraft more than a few hours per year.

The sale is unique in that it was signed directly with Saab while all other customers’ contracts are with Fw. As a consequence the SAAF does not benefit from the Gripen support scheme developed by the Fw, which provides upgrade and other customer information. This meant that between April and December 2013 the SAAF didn’t appear to have a support contract for its Gripens after its most recent short-term agreement had lapsed. In December Saab announced it had signed a SEK 380 million (£137 million) support contract with Armstrong, the body that supervises South African arm deals, for the years 2013 to 2016. Despite the huge problems, the 3rd Squadron has taken part in at least three high-profile missions: First, it provided air cover for the 2010 FIFA World Cup, which helped accelerate the deployment of Gripens and the datalink system developed for the SAAF. Second, it was involved in operations in the Central African Republic (CAR) in early 2013 when SAAF Gripens were based in the Democratic Republic of Congo to support South African ground troops. More recently six Gripens flew over Nelson Mandela’s funeral ceremony.

**Hungary**

The Gripen’s first European export contract was signed by Hungary in December 2001. The original intention was to lease 14 JAS 39As and ‘Ds for ten years between 2005 and 2015, but the contract was re-written in 2003. The new one called for ‘C and ‘Ds instead of the earlier models and the initial ten-year lease was to be followed by the purchase of the 14 jets in 2016. Hungary’s aircraft were originally 39As from delivery Batch One that went through the conversion process, ending up as ‘12s and two ‘Ds.

The first five Gripens landed at Kecskemét AFB in March 2006, followed by the last nine in December 2007. The Hungarians operate 18 standard Gripens, but unlike the SwAF they continue to use the AGM-65 Maverick. The Hungarian Air Force is also affected by defence budget restrictions, but has announced it is ready to:

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*Above: Hungarian AF technicians load Swedish, South African and Czech aircraft for the Gripen Exercise Lion Effort, hosted by the Swedish Air Force in March 2012.*

*Left: JAS 39C 39402 was delivered to Thailand as serial 92-14-7/94 with the cn 70120 and serves with 701 Sqn at Don Muang AB, Thailand.*

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*Below: Hungarian and Swedish technicians load the gun with practice rounds. The first Hungarian technicians underwent on-the-job training in Sweden.*
Aircraft Profile

SAAB JAS 39 GRIPEN

participate in NATO Baltic Air Policing duties from 2015. Despite a shortage of money, the fleet is still well used: on December 17, 2013, it passed 10,000 flight hours.

Czech Republic

The Czech Republic also opted for a leasing contract and signed a deal with FMV in June 2004 for 14 aircraft over a period of ten years from 2005. These were new-build jets, 12 Cs and two Ds, which were delivered in Batch 3.

With the end of the lease approaching, Czech air defence has been the subject of much debate in the Republic recently. Various options were discussed including purchasing new or second-hand F-16s or even giving up supersonic fighters altogether. Eventually, after a year of negotiations, a new 14-year contract continuing the lease of the 14 Gripens was signed on September 11, 2013.

The Czech Republic is a NATO member that upgraded to E19 standard with Link 16 during the new lease period. The Czechs have been very successful with their Gripens and are the only JAS 39 operator that has full membership of the NATO Tiger Association (NTA).

In 2005, 211 Tactical Squadron, based at the Air Component of the Czech Republic’s Joint Force (Letecká Složka (LS) – Czech Air Force) and the Empire Test Pilots’ School (ETPS) at MoD Boscombe Down, Wiltshire, also uses the Gripen – the JAS 39B model. Specially-painted 39402 is one of three available for service with the ETPS since 1999. The other two have usually been 39410 and 39813. The ETPS buys simulator time and leases the Gripen from Saab for its advanced pilot training. The Empire Test Pilot School is the only test pilot school to include a fourth-generation aircraft in its syllabus, vital for students who are likely to be involved in testing modern weapons. The Gripen is used in the ETPS’ medium-scale flight test procurement programmes. The Gripen is used as a training platform in aero-systems, communications and effectiveness was the higher advantage. Without exaggerating, the JAS 39s have had a bad reputation ever since the JAS 39C was introduced. The JAS 39C is a mainstay of the JAS 39 series, as the seat of choice. It is a zero-seater, meaning the pilot can easily eject on the ground, with a limit of 500 [lbs feet] of inverted.

Multi-role

The Gripen can switch between tactical roles in the air. The pilot can change the electronic and sensor settings instantly by making a choice from a list on the display or a hard point mounted on the throttle handle. A major advantage is that the aircraft is small, with only eight hardpoints and a relatively small amount of fuel – which means that, even with the capability of changing role in the air, weapon load-outs need to be planned more carefully than with larger aircraft with greater payload and range.

A Swedish Gripen pilot, Captain Anja, gave an example of how the multirole capability was practised during Exercise Red Flag 13 at Nellis AFB, Nevada. The radar warning screen is full of symbols, some of which that are still present and also enemies fighters! The

national level. The SAAB JAS 39 Gripen, with its excellent capability and cost-effectiveness, is still a very modern and capable aircraft and, if a country should decide to buy it, the Gripen can easily be maintained and supported in the air and on the ground.

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SAAB JAS 39 GRIPEN

Above: A South African Gripen C landng at Roswell AB during Exercise Lion Focus 2012 which brought together Gripens from every nation that operate the type.

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The JTAF is a challenge when it comes to network-centric warfare. The Empire Test Pilots’ School (ETPS) at MoD Boscombe Down, Wiltshire, also uses the Gripen – the JAS 39B model. Specially-painted 39402 is one of three available for service with the ETPS since 1999. The other two have usually been 39410 and 39813. The ETPS buys simulator time and leases the Gripen from Saab for its advanced pilot training. The Empire Test Pilot School is the only test pilot school to include a fourth-generation aircraft in its syllabus, vital for students who are likely to be involved in testing modern weapons. The Gripen is used in the ETPS’ medium-scale flight test procurement programmes. The Gripen is used as a training platform in aero-systems, communications and effectiveness was the higher advantage. Without exaggerating, the JAS 39s have had a bad reputation ever since the JAS 39C was introduced. The JAS 39C is a mainstay of the JAS 39 series, as the seat of choice. It is a zero-seater, meaning the pilot can easily eject on the ground, with a limit of 500 [lbs feet] of inverted.

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airframe with software from an ‘A’ model. Its performance was disappointing, but it provided a lot of information for scientists and engineers to improve the aircraft. Technicians took the opportunity to familiarise themselves with the new systems and prepare for the jet’s introduction into air force service.

The first JAS 39C was delivered to the SwAF in September 2004, operational with the flight-approved E17 standard – but that iteration was a long way from the finished article. For instance, the air-to-air refuelling system was installed but not working and usable weapons were few. By standard E19, many of the growing pains that caused restrictions and limitations were fixed; the aircraft now featured a functional air-to-air refuelling system, more weapons choices, a LDP, countermeasures systems and radar warning receivers. A further developed standard, E19S, is now in service and incorporates Link 16 and modern weapons such as the AIM-9S-2 Sidewinder and the MBDA Meteor range IRIS-T, replacing the older FIM-92 Stinger. The Gripen can also carry the Taurus KEPD 350, a high-precision cruise missile. Although Sweden has opted not to buy it and two important attack weapons, the AGM-65 Maverick and the DWS bomb dispenser (SwAF BK 800), which are no longer used by the SwAF. The Gripen C and D have improved as a fighter with the introduction of the fifth-generation short-to-medium range IRIS-T, replacing the older Sidewinder and the MBDA Meteor VR/AA (beyond visual range air-to-air missile). Gripen was used easily in the trial phase and the SwAF test aircraft, 39101, was used as the air launch demonstration (ALD) platform. The first Meteor ALDs were in May 2006 and in September that year the first successful launch was performed at the Vidsel test range in northern Sweden. Since then there are intense trials and testing programmes that continued as planned and in June 2013 Gripen was the first fighter to fire a production example of the Meteor. On December 18, 2013, Saab received an order from the FMV for the integration of the MBDA Meteor with Gripen E.

The “T” part of the JAS designation was finally updated on the “C” and “D” equipped to E19 standard. After the retirement of the AJSF, the photo reconnaissance version of the Viggen, the SwAF lacked a PR capability because the JAS 39D had no nose cavity facility. The introduction of an LDP and the new Spanningskapsel 39 (SPK 39 – modular reconnaissance pod, MRP) provided the jet with a fully developed reconnaissance system.

The SPK 39 was prepared by Danish company Terma, which had previous experience in this field from its work on the MPR for the F-16. The Gripen pod comes in three versions with different camera and sensor setups – SPK 39 IV (incident and visual) with a digital CA 270 camera plus a SCA 24 wide-field-camera, and SPK39’V (visual), which is digital only but has a 360° rotation window providing horizontal-to-horizon coverage. The SPK is built using an international-standard link 16 is now an option, but at the moment is integrated only in Swedish and Hungarian Gripen. TIDLS may be susceptible to certain eavesdroppers, but it is Saab’s – and limited to four aircraft. Link 16 opens the door to full interoperability with NATO forces.

International operations
The Gripen’s ability to work with NATO colleagues and its worth as a reconnaissance platform were thoroughly tested over Libya in 2011 during Operation Unified Protector (OUP). After a formal request from NATO in March, the Swedish government sent eight JAS 39C Gripen to Libya with the caveat they must not engage any ground targets. The SwAF began its deployment to Sigonella in Sicily on April 2 to take part in the air campaign over the Mediterranean and North Africa. The jets remained deployed until the end of October, flying their first mission on April 7. The first part of the deployment, given the designation FL01 and manned mainly by 17 personnel, lasted from April 1 to July 1 and covered the no-fly zone (NFZ) over Libya plus tactical air reconnaissance. The second period came under the command of F 21 with personnel from F 17, F 17 21, and other parts of the air force. Known as FL02, it ran from July 1 to October 25 with the task of providing tactical air reconnaissance across the full spectrum of UN-mandated tasks, enforcing the NFZ and the arms embargo as well as supporting the mission to protect civilians. This was the first international operation for the SwAF in more than 50 years and it learned a lot – not only how to work within the NATO organisation but also new ways of using the Gripen. Despite being a non-NATO member, the SwAF was able to fully integrate with its forces worked well although there were some initial teething problems, such as fuel incompatibility and the lack of access to the Secret Mission Network. Challenges such as these were soon overcome and even the Gripen fitted in well with NATO forces. All missions were tasked by combined air operations centre No 5 (CADC 5) in Poggio Renatico, Italy. Usually the Gripen followed specific corridors, when you see a live: just find out from your nose it’s amazing. We don’t actually need to refuel, we break from the tanker to go on a chase with a second JAS 39D. We do some tactical manoeuvres, vertical climbs, sharp turns, infrared misses, vertical rolls, and fly the low-level high-speed passes above ground level to the tank. It’s all very exciting, but sailing a turning and my stomach has felt fine so far, we go back to base it’s when we do the smoothest riding I have ever done that I can confirm what I have already realised, it’s the power that impresses, not the high turns or rapid climbing. It’s how the aircraft is moving. How it keeps the energy in the turns, how it moves rapidly and precisely if needed to the pilot’s handling. Impressive. Well, this 25-year-old fighter is definitely not an unpolished aircraft.

What’s it like?
AFM flies the JAS 39 demonstrator, Saab JAS 39D demonstrator 39D01 on display at an airshow in Pordenone, Italy in 2011.

AIRCRAFT PROFILE

SAAB JAS 39 GRIPEN

A three-step off 17 Gripen over Lake Garda on their way back to their home base at Sace Air Force Base.
Aircraft Profile: SAAB JAS 39 Gripen

NG – Next Generation

The Swedish Government issued a concept study programme in 2007 to get an idea of how the Gripen system could be developed to meet the needs of a future Swedish fighter. The downsizing of theSwAF had seen a drastic reduction of fighter units and available bases as well as the shutdown of the former ‘Bas’ road base system. Today the SwAF consists of two fighter wings, one training wing and a few temporary bases. To put this into perspective, during the ‘Cold War’ era the SwAF was regarded as the fourth strongest air force in the world with 17 active wings and about a thousand aircraft at its disposition. Sweden is a big country with a long coastline to police and is strategically located between NATO and the Russian Federation. With the two fighter wings remaining, approximately 560 (5100km) apart, the SwAF needed an aircraft with better reach and load capacity. As a result, Saab built a demonstrator aircraft (39-7, former JAS 19B s/n 1980) to use as a test platform - for a new engine, avionics, sensor systems and landing gear - that would become the Gripen NG next generation system, which has been flying since 2008. The Gripen NG has since been designated Gripen E and F.

Finding partners to spread development costs was vital for any project of this magnitude and such liaison was more than ever a condition for the Swedish Government to give the go-ahead on the project. In August 2012 it signed a partnership contract with Switzerland and announced that 40 to 60 aircraft would be ordered to enter service in 2023 in the SwAF. Even though political negotiations are ongoing in Western Europe, the question is what is expected from it? As a result of the ‘Cold War’ era the SwAF was regarded as one of the four strongest air forces in the world with 17 active wings and approximately 1,000 aircraft at its disposition. Sweden is a big country with a long coastline to police and is strategically located between NATO and the Russian Federation.

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The immediate impression is log. “I have only tested 39-7 in fighter pilot since 1998 and has 39-7. He has been a SwAF the specification set by the SwAF.”

Effective and fastest way to achieve tics. At this stage we can say that the balance and flight characteristics incorporate them in the existing ‘C

changes we needed to do proved airframe structure to accommodate which places a lot of weight physical size, it also affects the operation of radar is not only a matter of millimetres, it’s a realisation.

2012 we’ve been flying with the modifications to the basic design outwards to make room for more internal fuel. Sweden, plus another two who had two pilots trained to basic status. To do so, we must keep track of the competition and technological developments and keep on top of the systems, sensors and EW up-to-date. It’s also technically possible to upgrade the radar and engine, but it’s not a relevant alternative since it will require pretty much the same structural changes we did on the demonstrator aircraft, which will be very expensive.

“We also look into new options and possibilities so we can offer them an interest on the market. Optionally Manned Gripen is, for instance, very much a realistic possibility. I can see many scenarios where such a solution will make sense, such as relocation or operations in distant or contaminated zones. The weight occupied by the pilot, seat and other systems can instead be used for fuel or for additional weight. Within a limiting human being in the aircraft we can also push the limits further. We have to take into account the necessary unmanned aerial vehicle technology from products like Skeldar and the Flir unmanned combat air vehicle plus sensor and weapon systems. We can use a small drone, which is relatively easily be implemented in the existing aircraft design. We will wait and see what the market says.

“Gripen is another example of the need to be flexible. We need to be able to adapt our offer to meet the user’s needs.”

The choice took into account new users in Europe, Asia and Africa are satisfied with Gripen, and are prolonging and extending contracts, is sending positive signals to other potential customers in these regions. Gripen is definitely on the list when Sweden and Malaysia are looking to buy new fighters. In Europe, Denmark is looking at the alternatives again and will probably make a decision in 2015. Finland and Belgium are also interesting to Gripen.

Brazil is the key to that market. Brazil is the key to the market. The region is big and we have seen some interest from other nations as well, Chile, Peru and Mexico. The choice took into account performance, technology transfer and cost, not only for acquisition, but also for maintenance. The decider was based on the best balance of those factors,” Amorim said.

The Gripen Centre

F7 wing in Sidetacs was commissioned by the Saab and the Swedish Government to establish a training centre for all Gripen pilots and technicians. The Gripencentrum was founded on June 8, 1996, and since then around eight Swedish pilots each year have passed through its doors. From recent years they have been joined by foreign jet jockeys. All technicians begin their training in Halmstad at the Armed Forces' Gripencentrum was founded on April 12, 2000. A “Swedish Gripen” shows the customer exactly where to add up combat kit and can be seen during the first flight of the Gripen NG.

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