



Katsuhiko Tokunaga

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is one of the best aviation photographers in the world. He has flown in nearly 40 types of combat aircraft and jet trainers in the past 20 years and his pictures have been admired all over the world.

Tokunaga has now also been to Sweden to take air-to-air pictures of Gripen. During the photo sessions, he was flown in an FMV-operated Saab J 32 Lanser, both from the Vidsel base

in northern Sweden and from FMV headquarters in Linköping. You can see some of his breathtaking pictures on pages 4 and 5.

## Recce pod for Gripen

Following an international source evaluation, **W.Vinten Ltd, of the UK, subject to satisfactory final contract negotiations, as the supplier of the reconnaissance pod for the Gripen offered on the export market. The Vicon 70 Series 72c reconnaissance pod will, combined with onboard sensors such as the radar enhance the true multi role capability of Gripen.**

The Vicon 70 is a high performance day/night low and medium altitude EO/IR tactical reconnaissance pod designed for use on high performance aircraft platforms. The pod is of modular construction and is designed for operation on a wide range of aircraft types at speeds in excess of Mach 2.

Cont. on page 6

## Fantastic Fairford

**The Royal International Air Tattoo at Fairford, England, is the place for air force personnel from all over the world to meet, eat, have a pint and mingle with about 200,000 aircraft enthusiasts. This year RIAT had guests from 47 air forces, 28 of them having brought aircraft to be inspected and admired. One of these was the Swedish Air Force Gripen, visiting Fairford for the first time.**

Cont. on page 3



Ryszard Jaxa-Malachowski

# “A strong European defense industrial base is fundamental to our security”

**The European nations are today getting closer to each other in defense matters than ever before. Sweden has an ambition to be one of the key players in the reorganization of the European defense industry. Recent proof of this has come with the purchase by a UK company of Hägglunds Vehicles and the 35 percent stake taken by British Aerospace in Saab AB.**

**Swedish Defense Minister Björn von Sydow here gives his views on the importance of European cooperation.**

In the Government Defense Bill 1996/97:4 passed by Parliament on 20 November and 13 December 1996, Sweden stated its desire to increase cooperation with other countries on defense materiel. An active Sweden taking part in the international arena would give a better overview of prioritized types of materiel and provide defense authorities and the defense industry with improved and more direct opportunities for cooperation and coordination. A domestic defense industry is in itself a security asset, but greater international cooperation is essential if the industry is to survive and maintain its high technological standards.

The European defense industry has long been troubled by over-capacity and over-diversification, with many competences running in parallel in more than one country. Now, however, it is undergoing a firm process of change.

At a meeting in London on 6 July, defense ministers from six European Union countries endorsed an agreement designed to encourage our defense industries to form enterprises capable of competing with their American rivals. The Letter of Intent that was agreed upon identified key areas where progress was needed in order to facilitate the restructuring of the European



H.O. Arpfors

Swedish Defense Minister Björn von Sydow

defense industry. It manifested the Governments' determination to support this restructuring through to a successful conclusion. Under the agreement, working groups of experts will look into the problem areas that have been identified and give ministerial guidance on ways of resolving them. Our participation in the agreement is the outcome of our belief that a strong European defense industrial base is fundamental to our security and that it is essential to restructure if we are to achieve that base.

It is also fundamentally important to Sweden as a consumer that the defense industrial base is restructured. Sweden needs alternative suppliers if it is not to become dependent on a monopoly supply from the US which is, in effect, a supply controlled by the politicians in Congress. If it is to pursue its position of non-alignment, Sweden cannot be controlled by decision-makers in other countries. Moreover, high defense technology requires a structure without loss of competence if it is to be sustainable in core areas. Similarly, the armed forces need access to supplies from a defense industry that has sufficient capacity in times of crisis. The restructured aerospace industries

have a leading role to play in this context. Nevertheless, in spite of major structural change, there is over-capacity in most defense-system fields in Europe. On the other hand, we have to recognize that if Europe is interested in a defense industry with a suitable structure for future European needs, it should also be more concerned about the heterogeneous demand structure than a specific market structure.

It is now essential that the defense industry firmly grasp this opportunity of getting together. ■

# Gripen two-seater at Farnborough

**The Gripen two-seater is making its international debut at Farnborough International 98, where it will be on static display in the British Aerospace Partnership Village.**

**The two-seater is a true combat aircraft, able to take on the same demanding operational missions as the single-seater. But that is not all.**

"The Gripen two-seater was from the start designed and developed for tactical training and to be used for complex missions where crew workload is high", says Major General Jan Jonsson, Inspector General of the Swedish Air Force.

With the built-in "intelligence" of the two-seater's mission systems, one of the pilots working as a Mission Commander will have tactical control over a combat situation from the rear cockpit. He can also see exactly the same things as the other pilot and actually do the same things as well, if required. The easy handling and flying qualities of the Gripen are such that the two-seater is not needed for pilot training – the Swedish Air Force will use it for mission system training and tactics development.

"From the rear seat, he will be able to focus on a view of the tactical and geographical situation, as well as take on different tasks, from the pilot in the

front seat. One major role where the two-seater offers considerable potential for improvement is defense suppression or SEAD (Suppression of Enemy Air Defense). The autonomous systems in the rear cockpit will be better suited to support the Mission Commander in his coordination of the air battle", Major General Jonsson explains.

Two Gripen two-seaters have so far been delivered to the Swedish Air Force out of the 14 ordered in 1992 by the Defence Materiel Administration, FMV, as part of the second production batch. The full-scale development program was completed in April this year, with all FMV requirements having been met or exceeded. A further 14 two-seaters are included in the third batch, ordered in 1997.

The two-seat Gripen is 65 cm longer than the single-seater but has the same performance and armament with the exception of the internal gun, which has been removed to accommodate the rear seat. The rear cockpit is almost identical with that in the front, the only difference being that the head-up display is omitted. The view through the pilot's HUD, including the symbology, can be displayed on the flight data display in the rear cockpit. ■



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One of the themes for this year was the celebration of 80 years of the Royal Air Force, a history that goes hand in hand with that of British Aerospace and all its predecessor companies. Representing present-day RAF equipment were of course the British Aerospace-built Tornado, Hawk and Harrier, with Eurofighter representing the future. All this led to a daily eight-hour air display.

RIAT attracts aircraft from all over the world, from UK all the way to New Zealand. Traditionally there is also an interesting display of aircraft from former Warsaw Pact countries, a "first" this year being a Ukrainian Tupolev Tu-22M bomber, capable of carrying nuclear weapons. Ironically, this Cold War aircraft was placed next to the American U-2 spy plane.

A minor incident, before the general public was admitted, took place right in front of the Gripen display. A German Navy Tornado, being towed, seemed to be so impressed by Gripen that it wanted to sink into the ground.

The asphalt gave way under one of the main wheels and the aircraft got stuck, with one wheel so deep that an ALARM anti-radar missile mounted on the undercarriage door also buried a fin in the asphalt. The aircraft remained firmly stuck for half a day until it could be lifted by a special crane.

The high spirit at Fairford was somewhat dampened by the news of a Hungarian pilot being killed during practice for an air display in Hungary. Despite the tragic loss, another Hungarian MiG-29 pilot made a remarkable display at Fairford, which also gained him an award. Nevertheless, when the MiG-29 and Gripen performed their routines back-to-back, one could not help but notice the extremely short landing distance needed by the Gripen. The Gripen pilot, Major Ken Lindberg, had to change his touch-down mark after the first display since the aircraft came to a complete stop way before the rows of chalets and spectator stands.

Several VIPs managed to get a closer look at Gripen on the static display.

Among these were Prince Feisal of Jordan, the C-in-C of the South African Air Force, important delegations from Poland and the Philippines, and the Parliamentary Under Secretary of State at the UK Ministry of Defence, Mr. John Spellar, who also was the opening speaker at this year's Royal International Air Tattoo. ■



**A Philippine delegation with Swedish hosts; Gen. Arsenio Silva, Brig. Gen. Owe Wagermark, Maj. Anders Silwer, Colonel Neon Ebuén, Maj. Daniel Jose Pena and Colonel Ike Inserto.**

Håkan Brandt

# Gripen the Tokunaga way



**Like a battle between two aviation technologies with nearly a half-century gap between them, my recent photo session with the fourth-generation Gripen was held in northern Sweden with a J 32 Lansen arranged as camera ship. The Lansen entered service in the early 1950s, Gripen in the mid-1990s.**

With its 30 percent composite construction and mighty afterburning RM12 engine, very high thrust-to-weight ratio, advanced aerodynamics and fly-by-wire flight control system, Gripen cavorts around the sky at will. The Lansen, its all-metal structure painted dark green, tries to follow. It too has an afterburning engine but, with its 1950s aerodynamics and hydraulically boosted flight controls, it is obvious that there is a big performance gap between the two. Especially as Gripen has low drag even at high angles of attack, slipping out of the viewfinder of the camera just at the very best moment for a shot. It is extremely difficult to photograph the small gray-painted Gripen as it flies over the snow-covered ground.

Even before take-off when I watched them listening to my requests in the pre-flight briefing, and then later when I experienced their flying skills, the serious attitude to the task was enough to convince me that the sortie would be a success. I believe that this sort of mental approach, which is characteristic of and perhaps peculiar to the Swedish, is the driving force that made it possible for Saab to be the pioneer in putting the world's first fourth-generation fighter into service.

*Katsuhiko  
TOKUNAGA  
DACT, INC*



Peter Linder

But thanks to the excellent cooperation of the two pilots and despite the performance differences between the aircraft, I am able to have a successful photo session.



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The pod is fitted with high resolution day Electro-Optical (EO) and Infra-Red sensors. Imagery can be recorded on video tape for analysis on the ground ; and may also be displayed in the cockpit, thus enabling the pilot to



T. Caspersson

review areas of interest in real time, increasing the effectiveness of each reconnaissance mission.

The IR sensor, VIGIL, is a new generation Infra-Red Linescan sensor designed for tactical reconnaissance which images through a 180 degree across track.

A choice of Electro-Optical Type 8010 sensors may be fitted in the tail section of the pod. These sensors provide imagery with resolution equivalent to comparable film sensors, but with the added capability of haze, low light, shadow and camouflage penetration.

The on board real time display of imagery is possible in the cockpit from either EO or IRLS sensors.

The Ground Exploitation System is an advanced imagery workstation for the display of imagery, analysis and report writing with options for a secondary imagery transmission system and a full suite of hard and soft copy reproduction equipment.

W. Vinten Ltd is a world leader in the design development and manufacture of reconnaissance systems. The company was founded in 1909 and manufactures and supplies total reconnaissance systems ranging from single sensors fitted in light aircraft, helicopters, UAV's, to multi-role optical and infra-red systems fitted on high performance combat aircraft. ■

## Back in Kecskemét

**At this year's NATO Express at the Kecskemét air base in Hungary, Saab-BAe Gripen not only displayed Gripen on the ground and in the air but also announced a record year for pre-offset business and the launch of a new Gripen web site in Hungarian. As usual, attendance during the two public days rose to several hundred thousands, again demonstrating the huge interest in Hungary, especially in military aviation.**



L. Jansson

Last year at Kecskemét the Gripen exhibit focused on other companies in the Gripen Offset Trade Group. This year brought a display of, among other things, a wide selection of defense equipment that British Aerospace and Saab can offer – everything from handguns to the Meteor future medium-range air-to-air missile, with focus on Gripen with associated new weapons and equipment.

Two subjects frequently discussed at NATO Express were how to increase flying time for Hungarian pilots and the time when Hungary can afford to buy new fighters. Saab-BAe Gripen announced at the show that the value of business registered under the offset

protocol with the Hungarian Government had doubled during the past year. Today more than 54 billion Hungarian forints of business has been registered covering, among other things, increased Hungarian exports and investments made in Hungary by the Gripen Offset Trade Group.

Hungarian pilots demonstrated their skills during the 5hr-plus display program, both solo and in mixed formations. Foreign displays of course included Gripen and the other contenders, but also a Royal Air Force Harrier, a Swedish Air Force Viggen and an Austrian Air Force Draken, to mention a few.

Members of the new Hungarian

Government and newly elected Parliament visited the Gripen exhibit during all three days of the show. They were joined by a huge number of public visitors – sometimes almost too many since Saab-BAe Gripen was the only company to provide some shelter during Saturday's heavy rainfall. The rain did nevertheless give Gripen, flying early in the program that day, a chance to show that it is an all-weather fighter.

The new Gripen home page in Hungarian was also presented at the show. The address is [www.gripen.hu](http://www.gripen.hu) and the site contains pictures and information about the aircraft and the companies behind Gripen. ■

## M I S C E L L A N Y

**Polish Navy celebrations**

Celebrations to mark the 80th anniversary of the Polish Navy were boosted by a strong presence from the British Aerospace and Saab team, supported by the national governments of the United Kingdom and Sweden.

Visiting Babie Doly Naval Air Base, near Gdynia Poland, were British Defence Minister George Robertson and his Swedish colleague Björn von Sydow, guests of Polish Minister Janusz Onyszkiewicz.

Following tri-lateral defence discussions the three ministers, together with senior

Polish Naval officers, were guests of honour for a demonstration of Gripen's agility and manoeuvrability in the air by Saab pilot Fredrik Mühler and received a guided tour of the aircraft and its advanced cockpit layout.

In addition to Gripen, the Polish Naval Celebrations featured flying displays by Swedish Air Force Viggen and Royal Navy Sea Harriers. The carrier HMS Invincible, home to the Sea Harrier aircraft, also visited the area - the first time an aircraft carrier from a Western Navy had visited the port of Gdynia. ■



**Polish Defense Minister Janusz Onyszkiewicz in the Gripen cockpit with his Swedish and British colleagues waiting in line.**

**Gripen visits Romania**

Gripen made a brief visit to Romania as an airforce to airforce visit on August 25. Two Gripen aircraft spent a day at the Romanian airbase in Timisoara where important military and political delegations had been flown from

Bucarest. More than 500 people had a chance to see the aircraft in action. The Swedish Air Force delegation was aided by a team from Saab-BAE Gripen, proud to have a chance to show the Gripen aircraft for the first time in Romania. ■

**New organisation of Swedish Armed Forces**

Major General Jan Jonsson is, since July, the new Inspector General of the Swedish Air Force. He was previously Commander for the Southern Air Command, Commander of the Air Warfare Center between 1993-1997 and during 1989-93 Commander of the Gripen tactical evaluation unit. Brigadier General Owe Wagermark has been appointed deputy Inspector General.

After a reorganization of the structure of the Swedish Armed Force, the Former C-in-C of the Air Force, Lt General Kent Harrskog is now Commander of the Southern Joint Military Command. ■

Försvarets Bildbyrå



**Major General Jan Jonsson**

**US licence cleared**

In August Saab BAE Gripen received the United States authorization to market and subsequently re-export the US content in Gripen to South Africa. Gripen will also visit South Africa during the DEXSA exhibition in November, giving a lot of South Africans a chance to see Gripen "live" for the first time. ■

# 80 year celebrations in the Czech Republic

**The Czech Air Force celebrated its 80th anniversary during the Hradec Kralove air show on August 29-30. The traditional occasion is arranged by the Czech Air Force Benevolent Fund.**

This year Gripen got in early to the air show, straight from displays in Hungary and Romania. The two days in between, Thursday and Friday, were spent making special demonstrations to a group of Czech pilots. On the Saturday, Gripen display pilot Fredrik Mùchler was kept busy with two displays, separated by a reception hosted by the British and Swedish Embassies in the Czech Republic. There was also a short ceremony during which the Czech Air



Reino Lövrik

Force was presented with a painting of Gripen as a birthday present.

The Czech Republic has a newly elected Parliament and for several of the representatives this was their first opportunity to see Gripen. One of the

members of the new Government, Deputy Prime Minister Egon Lansky, was a very special guest among the Gripen team – for the past 15 years, before returning to his native country, he has lived in Sweden. ■

## ...and in Poland

**Celebrations to mark the 80th anniversary of the Polish Air Force were boosted by British Aerospace and Saab sponsorship of the Deblin Air Show on 29-30 August.**

Supporting flying and static displays of Gripen was the biggest-ever lineup of aircraft produced by British Aerospace and its international partners. This in-

cludes historic Spitfire and ME109 aircraft, Tornado, Hunter and Hawk.

Despite variable weather conditions during the weekend the flying display by Gripen and the Spitfire-ME109 Dogfights were widely acknowledged as being among the best – illustrating the proud history of Polish Air Force operations (Spitfire) and its potential future (Gripen).

The flying displays were supported by a large exhibition stand, high-

lighting the British Aerospace and Saab joint venture and products produced through international partnerships. ■



Marie Akro

## GRIPEN NEWS

**Publisher:** Jan Ahlgren  
**Editors:** Lars Jansson, Saab  
John Neilson,  
British Aerospace

**Saab AB, Gripen**  
SE-581 88 Linköping  
Sweden  
Telephone +46 13 18 00 00  
Telefax +46 13 18 18 02

**British Aerospace**  
Military Aircraft & Aerostructures  
Warton Aerodrome, Warton  
Preston, Lancashire, PR4 1AX  
England  
Telephone +44 1772 63 33 33  
Telefax +44 1772 85 52 79

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