

# *'Growler' edition is next plan for Gripen, says senior SAAB exec*



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SAAB is the [International Fighter 2015](#) Associate Sponsor. Senior Executive Vice President and head of SAAB Aeronautics, [Lennart Sindahl](#), talks to Georg Mader for *Defence IQ* about the company's activities in the fighter domain and beyond...



**Defence IQ:** When I was your visitor at Linköping in August 2014, they were just beginning preparations to install the jigs and tools to build the first Gripen-E for Sweden. At the last *International Fighter* Conference in London (November 2014), the head of the Brazilian Air Force (FAB)'s acquisitions head, General Crepaldi, was painting a bright of a Gripen-based future. Meanwhile Brazil finds itself in economic trouble, India may open up its fighter tender again, Slovakia might join the club...and that's all before

we get to the potential for new submarines. All this must have meant an exciting and busy year for you...

**Lennart Sindahl (smiling):** Oh yes, it has been a busy year for us – and for me, personally. You're completely right. The Swedish-AF Gripen programme is well under way now that we've reshuffled it. Originally we planned to deliver to the *Flygvapnet* their first new aircraft in 2022. At that time the Swiss-AF was asking for planes by 2018. Following the Swiss rejection in 2014 the referendum





however, FMV [the Swedish armament agency] asked to align the offerings with Brazil's timeframes. So now Sweden and Brazil will start deliveries of the single-seat E-model from 2019 on, delivered from Linköping. This gives us time to harmonise the configuration – and it's very important to have as close a configuration as possible. We are undertaking much more flight-testing now, on the JAS-397 (demo) aircraft, which is a modified D-model. We modified that -D with the new engine, new avionics, the new AESA-radar and the new IRST. Basically, all the new 'gadgets', except for the EW-suite, are now involved in the flight-tests...

**DIQ: ...The radar was switched on in flight, already? And the IRST – is it**

**located just in front of the front canopy?**

**LS:** Yes, correct on both counts. The IRST sits off the front canopy, behind the radar. We've also established a ground-based test facility at Linköping, with a better a tower-based facility atop the highest building, allowing a free 360-degree view. We've put the radar there, the IRST and the datalinks, all the tactical equipment needed to test things out, and everything that the aircraft would 'fly against'. This will help us to research the emissions-envelopes.

**DIQ: Good idea, it's really flat out there. How many new-built Gripen-Es are now in production, or at least in preparation to be built at**

**Linköping?**

**SINDAHL:** At the moment, we're producing the first two aircraft – both E-models – according to serial standards. First cut-of-metal happened some time ago. It's on the site you saw last August. Meanwhile all the staff have moved in there now, all the design offices are in operation. With the E-model, we now go for this model-based engineering – no paper-drawings anymore on the workshop-floor. Everything is computer-modelled with 3D-rotation of all parts.

**DIQ: Who put together the necessary software? SAAB?**

**LS:** Well, we ourselves put together the flying and tactical software on the plane



itself. But the construction software on the workshop computers is CATIA by Dassault Systems. We recently had a visit from Dassault and they said that SAAB is by far is the most advanced user of CATIA, even more so than those building the Rafale. I expect that with using it we'll be able to shorten the assembly times considerably. No more manipulating parts as we go anymore, as in the past. They simply fit! CATIA really is the best system – and it's widely used in Sweden already, by VOLVO and SCANIA, for example. It gives you a quick learning-curve and broadens the possibilities for low-cost assembly.

**DIQ: Could this also be playing into other SAAB products, like in the assembly of C/D-Gripens?**

**LS:** It's funny – In fact, when we made our R&D work, prior to implementing it, we did this on the 'nEURON' unmanned vehicle...

**DIQ: Ah, the UCAV study where SAAB has had a leading-role...**

**LS:** Correct. That role-demonstrator was a test vehicle, also designed with CATIA. We used it in an operational capacity when we designed and manufactured large cargo-doors for the Boeing-787. Now it is fully implemented on the Gripen-E single-seater line.

**DIQ: So let's talk about Brazil. What are the latest Gripen-related developments there?**

**LS:** Well, the latest news is that, since August, we have 150 engineers from Brazil assigned to us in Sweden. They will be here for two years to work with SAAB on the design of the two-seater, the F-model...

**DIQ: ...which has still not been requested by the Swedish-AF?**

**LS (smiling):** Not requested – yet! We'll see... Anyway, the

Brazilians, including Embraer and the other big-players there, will take part in designing and building the first two-seaters here in Sweden. SAAB will remain the so-called 'design authority'. After 2020, production will subsequently move to Embraer's facilities in Brazil, to the site where they undertake work on the KC-390, AMX, Super-Tucano, and so on. All-in-all we have a very interesting journey in front of us.

**DIQ: When I was talking to Crepaldi, he mentioned a possible demand of up to a 108 aircraft! That's a distant future projection, of course. Since then, Brazil has slid into economic troubles, putting a clear 'dent' in the budget. How much does this influence your partnership with them?**

**LS:** The 108 is their final – and you're right – long-term number, if counting the replacement of their entire current inventory. Our contract is for 36 and these recent economic issues have made no changes in the schedule. There are discussions between the two governments because of export-financing and interest rates, but that will all be settled. For Sweden this is done by the 'export credit organisation'; they finance exports by Volvo, Scania, Ericsson and all the other Swedish companies,





## GRIPEN DEMONSTRATOR AIRCRAFT 39-7



## GRIPEN E DEVELOPMENT



not just for defence contracts. There are very stringent rules associated with their loans, but the 'dent' did not do any damage to SAAB's contracts with Brazil. It doesn't make an impact. That's very important because we have to transfer technology in close partnership. The Swedish programme is running and they need to catch-up. And they know that.

**DIQ: With Sweden and Brazil, this new Gripen series is secured for maybe**

**decades. Are there further long-term ideas for this model that you can disclose at this time?**

**LS:** One of the ideas, once we have that F-model – and I can say this without 'disclosing' anything – is that the future market will need a dedicated electronic-attack version...

**DIQ: Ah, you mean a 'Growler Gripen', with pods, and full of humps and blades.**

**LS (laughing):** Yes, exactly. If you look into future combat scenarios, if you have a high-end air force with a broad threat situation, such as the 'GG' as you called it, would make a real difference. That's what we're looking into and that's why it's so good to have Brazil on board with the F-model.

**DIQ: And in all that, the Swedish-AF still has no interest?**

**LS:** Well, they maybe have interest but it's...

**DIQ: ...a question of funding?**

**LS (laughing):** You said that, not me! But it will definitely be a part of our future considerations. For example, when we have the new Erieye AEW&C, we can combine the E, the F and your 'GG' into a tremendous system – a battle cell. This could be interesting to several countries.

**DIQ: What about those export campaigns in other European nations?**

**LS:** In general, we're looking into Finland, which is slowly beginning to prepare for the replacements of the F-18C/Ds. Also into Belgium where the F-16AM/BM fleet needs replacing. Another case is Croatia. They need replacements for the few MiG-21s but their issue certainly is

financing. We talked to them in detail two or three years ago but they didn't proceed. Then we're still looking into Switzerland, in case they choose to re-think or consider fresh decisions.

**DIQ: How far along are Slovakia's plans? It seems they could go along with their Czech neighbours.**

**LS:** Slovakia has had good discussions with the Czech Republic and with Sweden on how to proceed with their air defence. We have high hopes for the near future, but nothing is signed yet. We're able to deliver to them C/Ds on very short notice. Their MiG-29s were once made NATO-compatible, but they should last to 2017. C/Ds are the right choice, with the MS-20 standard.

**DIQ: This means the C/D is still on the market, and with prospects still available.**

**LS:** Oh yes, very much. Even aside to Slovakia we'll soon be presenting current and potential operators an upgraded radar for the C/D.

**DIQ: An AESA antenna on the C/D set's back end?**

**LS:** No, the other way around. Not an AESA, but a big improvement which supports the METEOR BVR-missile very well. The Gripen is the first fighter to have integrated



this mighty weapon, with MS-20 standard. We changed the back-end together with a new software package.

**DIQ: So that's to give the existing operators a chance to opt for METEOR? Like Thailand or South Africa?**

**LS:** Yes, why not! With the constant development of new computing, they can get a great capability for quite low cost. Much lower than it would be to acquire a new BVR-capable platform.

**DIQ: Did the Flygvapnet already order their first METEORs?**

**LS:** Yes. The first missiles are in delivery now.

**DIQ: What about other markets for the Gripen beyond Europe?**

**LS:** Well, we're looking into India again. They have for the moment decided for a direct

buy of 36 Rafales and the former 'commercial' tender [MMRCA, for 126] is cancelled. However, they need a large amount of additional aircraft – several squadrons, in fact. Also we have indications that Thailand, a present Gripen operator, would like more aircraft. There are also programmes in Malaysia and Indonesia that are very interesting to us. Both are for fighters and also airborne early warning platforms. On the other side of the globe, Colombia has declared an interest in replacing the 'Kfirs'.

**DIQ: Recently, it looked like Indonesia would go for additional Sukhoi – Su-35s, maybe.**

**LS (smiling):** Hm, let's talk about that the next time we meet. I want to point out another side-effect of the Gripen's R&D. We've developed a new low-cost

avionics suite that's scaleable. Components like a HUD-unit that can be plugged in. We actually already sold it to PILATUS for the PC-21. With that suite, they can do a lot more with the aircraft than just flight training.

**DIQ: Is there still a possibility for a PC-21 for the *Flygvapnet*, despite the Swiss 'No' to the Gripen?**

**LS:** Could be, yes. The FMV will not select the new trainer just because we have a business in the bidder's country. They'll look very deeply into the requirements. Their main focus is to request a bidder to provide the whole pilot school for the *Flygvapnet*, as we're now doing as an industrial solution on the basis of the SAAB Sk60. The air force just wants to have the flying-hours provided. In the foreseeable future, this is going to require a new platform. But it's not yet decided if that's to be a turboprop or a jet. Maybe we'll have a T-X proposal ready by then.

**DIQ: The T-X is the USAFs T-38 replacement programme, for which SAAB will bid with Boeing. You've been studying the requirements carefully, I take it?**

**LS:** The requirements came out in March. The Americans basically want a strong, highly-

capable design and these requirements will be hard to fulfil with an existing aircraft. Even with the M346, which is the latest trainer design – that's been around for 10 years with its roots in cooperation with Yakovlev. When we got together with Boeing, we looked into this, keeping in mind that there would be demand for future growth-potential and with low operating costs. The conclusion was that we need to have a new design. The way production has changed, the methods, it's changed so much. When we built the Gripen C/D, for example, the bulkhead where the radar is fitted consisted of 35 different parts screwed together. On the E model, this will be one single part of milled metal.

**DIQ: Impressive. But let's now move on towards the AEW&C and MPA platforms. Of course the 'Erieye' series is well known and established, but what's this 'Swordfish' concept? Is this a new platform?**

**LS:** The 'Swordfish' is more or less a demonstrator to test customers' interest in a maritime-patrol aircraft, based on the former SAAB-2000 commuter airliner. Our main focus remains on the AEW&C segment and the successful employment of 'Erieye' on various platforms.

**DIQ: Who are the current operators of this 'force multiplier'?**

**LS:** Thailand, Pakistan, Sweden, Mexico, Greece and Brazil. We're optimistic to extend this stock of customers because with the new generation we get a tremendous extension in coverage and range. If you look on a typical fighter of the 1970s, with its RCS, there were vast ranges – from the old systems – that you could detect. Today it's totally different. Latest stealth- (or stealthy-) fighters can only be spotted at much closer ranges, if you're lucky. But with new radars and current signal-processing, stealth will not remain that decisive as a technology forever.

**DIQ: You are talking about shift towards accommodating more low-wave band technology, right? Everybody – especially the Russians and the Chinese – are pursuing this, while many colleagues and analysts ask the uneasy question: "Why is the US putting all its eggs into the external-shaped, stealth-basket, for decades to come?"**

**LS:** And they're justified to ask! This is exactly what I mean. Nothing stays the same forever. The same issue arises when we compare the

Gripen against 5th generation fighters, listing the compromises and disadvantages between these aircraft. Of course everybody developing or upgrading AEW/AWACS platforms today has to have an extra eye on this invisible 'war of emissions' around wavelengths and sensors. So do we. This will develop across the international market, from Southeast Asia to Northern Europe.

**DIQ: So you're saying a new 'radar-bar' atop the particular platform will come with this broadened or 'enhanced' wavelength-spectrum, compared to**

**models currently being operated?**

**LS:** Yes. We've been able to make use of commercial technology. All the investments which are nowadays done in the telecommunications business can be made of use. In terms of weight, this means the miniaturisation of the signalling- and transceiver-modules, the computing parts, and so on. All of this has rapidly paved the way for our engineers to come to a new, much more capable radar than we may have thought possible five years ago.

**DIQ: And this radar would also be flexible enough to**

**either put on the SAAB-340 or a jet-platform like the Embraer?**

**LS:** Why not? We're even looking into placing it atop an Airbus A320.

**DIQ: Ambitious. Is that because of the extra space for consoles and workstations for the mission-specialists?**

**LS:** In part. The striking idea is in fact to put two radars up there, one after the other, which electronically means you get a very, very long antenna. This then means you have an extremely precise angle or return. ➔







**DIQ:** Finally, we should discuss the submarines. Last year I was given a tour aboard the Gotland at Karlskrona by the Commander of the 1st Swedish U-Boat Flotilla. He was very excited that there was a modernisation due and covering the two new A26 boats. FMV's Director, Lena Erixon, told me it was down to her decision that SAAB is now working on submarines. This is all totally new for the company. How's the experience for you?

**LS:** The Swedish submarine case is a very long and winding story. You remember the issues with the German TKMS owning the KOKUMS yard. I don't want to repeat all that but it's now been about a year since we bought-out KOKUMS. In early July we signed the contract for the lifetime-

extension of the two Gotland-class boats and the two new ones – with options. It's a huge undertaking. Shortly after acquiring KOKUMS, we became aware that the design office in Malmö needed to be extended. The day before signing the final contract with FMV, the design team moved into their new facilities. The construction work will of course be almost totally done at Karlskrona. Facilities there also need to be modernised for the A26 production, but we're cutting metal there for the new subs this autumn. What doesn't need to be modernised is the workforce. The people at KOKUMS have been doing this for a hundred years. They have all the experience we need!

**DIQ:** Do you already have an idea on how they'll approach the construction of the A26s?

**LS:** You know, I'm an aeronautical engineer by profession. From what I understood, they'll follow a new and interesting concept. If you build a submarine, you always have the problem of building the pressure-hull first and then you have to 'squeeze' all the systems into it. They'll now construct a lot of the interior outside of the submarine and then slide it in. The hull, which will be made of demagnetised steel, will then be welded. That steel, by the way, is already contracted and will start to arrive at Karlskrona this year. Swedish steel.

**DIQ:** Another aspect to consider... In the light of recent Russian activity, we hear a lot about increasing and deepened cooperation between the Nordic countries. What are SAAB's

feelings in that respect?

**LS:** You're right. Many in our region had hoped for a different development around our regional security architecture. Subsequently, there is now a constant increase in security cooperation among Scandinavian nations, but in particular between Sweden and Finland. The Finnish Navy now has a new requirement for new multi-purpose corvettes. They call the concept 'MTA-2020'. We have now started to look into this in detail because if Sweden and Finland could agree to the same configuration, this could emerge as a large class of corvettes.

**DIQ:** Maybe looking a bit like the legendary Visby series of 'stealth'-corvettes?

**LS:** Yeah, it could be a further development of the Visby concept, but of course involving the Finnish shipbuilding industry and suppliers, like Patria. We've already cooperated with them on 8x8 APCs for Australia. We supplied the C2 system and they supplied the vehicles.

**DIQ:** How you've managed

to branch out from the aerospace business is fascinating!

**LS:** Oh yes, SAAB has seriously broadened! But we won't branch out too far. Overall, we will remain concentrated on the Gripen, on the AEW segment, and on the submarines. ■



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