

Sweden's Multirole Fighter Spreads Its Wings

Defense-Update

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SAAB rolled out the newest member of the Gripen family of fighter jets – the Gripen E. SAAB defines the new fighter as 'revolutionary' because it combines advanced technology and operational effectiveness in an affordable package that no other fighter aircraft can. Defense-Update takes a look at what the new fighter jet can do.

Based on the proven Gripen C/D platform, the Gripen E (also referred to as Gripen E/F) is designed as a multi-role fighter designed to perform air/air, air/ground and aerial recce with the same aircraft on a single mission. Compared with previous Gripen models (C/D) the new version has increased range and mission endurance. Its redesigned airframe operates at higher weights and is configured for maximum takeoff weight of 16.5 tons, allowing Gripen E to carry more fuel and weapons. The aircraft has 10 hardpoints and carries additional pylons to increase weapon capacity.

The integration of a powerful (98 kN) and efficient GE F414G engine provides a higher level of thrust. Digital fly-by-wire and canards are providing the high aircraft agility while the excess power delivered by the new engine sustains high speed (Mach 2) and super-cruising capability, a unique feature for a fighter jet of this size.

SAAB is developing the single-seat version of the aircraft – Gripen E – for the Swedish Air Force and the Brazilian Air Force. Brazil's Embraer is responsible for the development of a two-seater variant (Gripen F). The Brazilian Air Force plans to operate six such aircraft.

Since the Gripen A/B and C/D fighters currently fly with several NATO air forces, Gripen E is also designed to be NATO-interoperable and is tailored for the future Network Centric Warfare (NCW) environment. Such capabilities comprise advanced data communications, dual data links, satellite communications and video links. A formation of Gripen E will be able to share tactical and logistical information including the position, fuel and weapon status of each aircraft. Besides, the pilot can communicate two ways with every networked element, in the air, on the ground or at sea through the secure and multi-frequency data links, using line-of-sight or satellite links.

Advanced sensors available on board add new capabilities to air/air and air/ground warfighting capability, these include the Leonardo Selex ES-05 Raven Active Electronic Scan Array (AESA) Radar and Infrared Search and Track (IRST) adding passive tracking and target acquisition capability to the Gripen's tactics portfolio. The antenna uses a swash-plate solution that gives the radar an area coverage of $\pm 100^\circ$.



The Skyward IRST enables Gripen E pilots to track and engage targets without giving away their positions. Photo: Saab

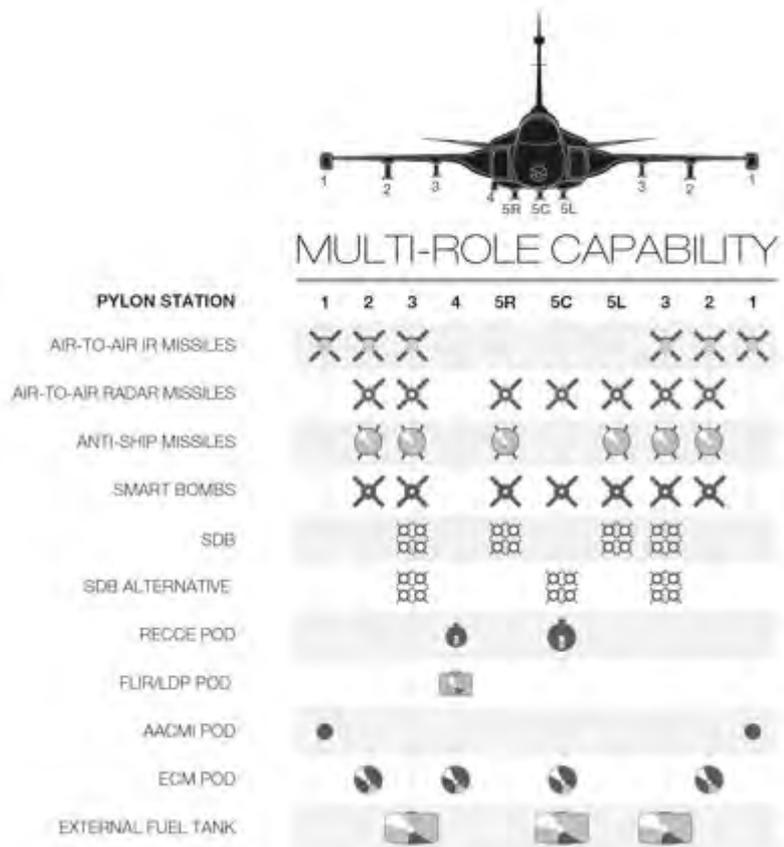
The Skyward IRST (also built by Selex) can operate in synch with the radar, to provide visual target identification from a long distance, or function as 'passive radar', enabling Gripen E pilots to track and engage targets without giving away their positions. The sensor is looking forward over a wide sector, registering heat emissions from other aircraft, helicopters, objects on the ground and sea surface.

The third sensor on board is the electronic countermeasures system, that can operate with active (Missile Approach Warning – MAW) and passive (Radar Warning Receiver – RWR) sensors, detecting hostile radar emissions that 'paint' the Gripen from a distance, or missiles closing in from afar, guided by radar signals. The EW system couples with active countermeasures, including chaff, flares and expendable decoys such as the BriteCloud, as well as RF jammer pod and anti-radiation missiles that could be integrated in the future, to defeat such threats.

These sensors are combined with cockpit instrumentation to provide the pilot with situational picture, using comprehensive display systems that include Helmet Mounted Display (which also combines night vision), Head-Up Display (HUD) and Wide Area Displays (WAD) to be integrated into the Gripen NGs destined for the Brazilian Air Force. This combination of displays delivers the ability to detect and destroy a wide variety of targets, even at night or in poor weather conditions.



SAAB Gripen C carrying a weapon configuration including eight GBU-39 Small Diameter Bombs, two Meteor and Two IRIS_T Air/Air missiles. The aircraft also carries a fuel tank on the centerline, Litening targeting pod and an internally mounted 27mm Mauser cannon. Photo: SAAB



SAAB Gripen E weapons load configuration

A wide range of weapons is slated for integration with the Gripen E, providing the small fighter its big claws. For air superiority missions the MBDA METEOR extended range air/air missile (AAM) would be used. In fact, the Gripen is expected to be the first platform to carry the new weapon in operational service. Gripen E will also be able to carry the Raytheon AIM-120C7 AMRAAM and Rafael's Derby Mk III, as well as Diehl/BGT IRIS-T, Denel Dynamics A-Darter, Rafael Python 4/5 and Raytheon AIM-9 short-range missiles. On air-to-surface missions, the Gripen will be able to carry an array of guided weapons. These include missile and unitary warheads such as Raytheon's AGM-65 Maverick, various Paveway laser-guided bombs, Rafael Spice 1000 autonomous E/O gliding weapons, Boeing JDAM GPS guided bombs, Raytheon AGM-154 Joint Standoff Weapons (JSOW), Saab RBS15 anti-ship missile and Taurus KEPD-350 or Lockheed Martin AGM-158 (JASSM) cruise missiles.

The new class of small, precision-guided bombs is also well represented within the Gripen E weapon portfolio that will also provide the Gripen-E the weapon load-out that enables a small fleet of multi-role fighters to carry out massive attacks. Each fighter will be able to carry 9-12 MBDA Brimstone laser/MM guided missiles mounted on 2-4 racks, or 12-16 smart, rack mounted guided weapons of the Raytheon SDB-II (GBU-53), MBDA SPEAR or RAFAEL Spice 250 class, along with RAFAEL Litening or Lockheed Martin Sniper targeting pods.

Reconnaissance missions that would complement the Gripen E multirole mission capability will utilize various reconnaissance pods. Systems considered for Gripen E include the Digital Joint Reconnaissance Pod (DJRP) from Thales, Terma Modular Recce Pod System (MRPS) or Rafael Reccelite reconnaissance pods, the later will be able to be configured on fully armed and maneuverable aircraft flying tactical Air/Air and Air/Surface missions.

This ambitious integration roadmap would not be feasible without the open architecture avionics with separation of critical functions, enable Other Equipment Manufacturers (OEM) to provide avionic and weapon systems and technologies that quickly interface with the aircraft, with simpler integration, cross testing and verification processes.

Gripen E has already won two orders – from the Swedish MOD and Brazil. Saab failed to secure another order from Switzerland after a popular vote rejected the acquisition despite the Swiss MOD and Air Force recommendations to buy the aircraft as a replacement for the old F-5E. Nevertheless, Saab officials are optimistic about the Swiss potential acquisition of Gripen E in the future, especially since the F/A-18 is also nearing the end of service will require the Parliament to revisit the decision. Another potential customer that could revisit its decision not to buy the Gripen E is India that decided to reconsider its procurement of 126 Rafale fighter jets. The urgent need to replace old fighters, such as MiG-21 and MiG-27 that are phased out of service, will require the Indian Air Force to buy new jets off-the-shelf. Saab is trying to convince the Indians that Gripen E could be the best prospect to fulfill this requirement.



Saab Gripen C fighter armed with air/air and air/ground weaponry. Photo: Saab