
JOINT STRIKE FIGHTER STATUS REPORT 2011

JSF SCREENED

Rarely purchasing a plane caused more controversy in The Netherlands as the Joint Strike Fighter (JSF) for which our country signed a contract in 2002 (as Italy did) as level 2 partner. Contribution in advance for development (5%) cost: € 800 million ! The United Kingdom which signed itself in for level 1 partner the amount came up to 2 miljard Euro. Why not purchase pff-the-shelf production equipment such as was proposed by Belgium ? The concept was that every sold airplane would give a discount within the participation, and profit sharing for sales to partners. In addition, the Dutch business would have a full benefit.

HIGH COST

It was different. There were many hurdles, such as political difference of opinion between the various coalition partners in the Dutch government. Cost overruns in the estimated budgets, longer test periods and thereby suspension in delivery time, several rounds compared with competitors, and finally the global economic crisis that evaporated allocated budgets and forced governments to dramatic cuts. The drama is emerging that the JSF will become priceless for many. By the time of the presentation of the JSF the price was based on an order of 85 pcs F-35A in a total budget of a sloppy 6 billion with a unit price of \$ 49,5 million (€ 34,8 million) but now it has been adjusted already up to € 59,7 million ! But there is more, is the stealth JSF - or better said - the Lockheed martin F-35 Lightning-II capable of performing that what it was designed for ?

About this issue the last word has not been spoken yet. Officially the common American Forces of USAF, US Navy and US Marine corps are willing to order a number of 2443 aircraft to replace the fourth generation aircraft like the F-16 'Fighting Falcon' and F-18 'Hornet', in response to the disire to have a fully complete stealth fleet. It assumes a production of 3100 units to 2035 and in the initial phase the most optimistic plan was even mentioning of a production of 6000 pieces, this can be seen as a risky assumption mentioned. It is provided in three versions. The first is the F-35A, the Conventional Take-Off and landing (CTOL), the choice of The Netherlands. next to that the F-35B which is to replace both the Royal Airforce Harriërs and the AV-8B of the USMC. This version is capable of taking off and landing completely vertical, it's called Short Take-Off/Vertical landing (STOVL). Finally there is a US Navy Carrier Variant (CV) equipped with a little larger wing and strengthened landing gear.

TEST UNIT FOR THE NETHERLANDS

Besides the high cost of purchase the JSF also brings high operating cost, as a JSF costs € 3.9 million per year for maintenance and logistics. In the meantime the United Kingdom switched to the F-35C which is about € 10 million cheaper each, and the

number of copies to be purchased is also a matter of discussion. Upon reduction of numbers that could lead to even higher prices for everyone. The Dutch business to include STORK and united in the 'Netherlands Industrial Fighter Aircraft Replacement Platform' (NIFARP) is satisfied with the incoming orders, but is in dispute with the minister on the development of reimbursement to the Treasury. According to Minister Hillen (by that time) about 20% less aircraft can be purchased, under continuing the estimated € 6 milliard budget. For now (2011) the procurement issue was postponed until the next cabinet and The Netherlands currently committed to the acquisition of two test aircraft. These will not fly in The Netherlands but in the United States with Dutch engineers. On July 1st 2011 a picture was shown of the fuselage section of the first Dutch unit, supplied by Northrop Grumman. This fuselage is to be produced to a complete aircraft by the 'prime contractor' Lockheed Martin in cooperation with the other business partners of aircraft industry involved. The picture shows clearly the green color of the composite material.

NEW STEALTH TECHNOLOGY

For a long time Lockheed Martin presented the F-35 as the only full capable fifth generation jetfighter to be able to answer on the demands of the airforces of tomorrow, but what was expected actually? Most important demand: Stealth technology! This point is certainly successful (note*, red.) although there is no question of the absolute need to use the more maintenance-intensive techniques as radar absorbing paint, but new sort of stealth technologies are tested and used. The secret is hidden in a new composite material in which a radar-absorbing substance is processed called fiber-mat. There is a construction of bismaleimide (BMI) and composite epoxy material, particularly carbon nanotube reinforced epoxy. This composite is processed in 42% of the aircraft. The radar invisibility is called 'low observability' (LO) this also indicates that the F-35 is almost invisible, but not entirely. The F-35 flight pattern may not contain certain curves that allow discovery, so there has to be flown under the existing international rules. In other words, radar devices may perceive unfavorable flying patterns which they can follow, as happened with the unfavourable F-117 shot down in 1999.

A Serb Colonel used a smart judiciously combination of classic techniques, human intelligence and common sense. Never do underestimate your enemy! nevertheless, low observability is of great value. A first strike without being noticed can give a big impact in attacking the enemy. Special ammunition can be taken such as smart bombs and JDAM ammunition, hold in the F-35's fuselage in the internal weapon bay which gives a significant contribution to the stealth aspect. Downside of the story however is the limited capacity of this internal weapon bay which allows only two AMRAAM missiles and two class JDAM bombs of 2000 pound to be taken. Consideration is being given to a redesign of the weapon delivery system with multiple and smaller rockets. Four external hardpoints and two wingtips may allow additional weapons, but this of course to the disadvantage of the stealth technology. Furthermore, there are concerns about the survival and resilience of many composite materials. Foreign customers are concerned about application of the full stealth on the export version and suggest that the USA only permit a downgrade version, which of course is denied on US side.

NO COMPLETE FIFTH GENERATION ?

critics also point us to something else. Not all the goals in the fifth generation plan were achieved. Apart from complete stealth there is a sensor-fusion capacity and net-enabled capability in the form of high speed data networking, but there is no question of the ability to super-cruise, a very high degree of maneuverability, or range to very high altitude. This despite the fact that the specially developed Pratt & Whitney F135 is claimed as the most powerful engine ever developed for a fighter jet. These defects able the fourth generation aircraft to act hostile, because they actually do have this high maneuverability which give them advantage in a dog fight with the mentioned fifth generation plane. However, the vision of today is that there is strong confidence in 'beyond visual range' tactics in combination with AWACS aircraft. May we refer to: 'never estimate your enemy' ? The current position of the F-35 is still a bit unclear, and for this purpose in some places in the world as the RAND company in South Africa computer simulations are testing several aspects. The results of simulations against Sukhoi Flankers and the Eurofighter Typhoon are not favourable says RAND company. Lockheed Martin however claims that these situations only concern the flight characteristics and not the dog fights and they claim that the JSF as a complete weapon platform is even a 400 % more effective against fourth generation aircraft. Only the future will learn us about the outcome of these statements.

Deelnameniveau	Land	Inschrijfdatum ^[10]	Bijdrage ^[10]
Level 1	 Verenigd Koninkrijk	17 januari 2001	\$2 miljard
Level 2	 Italië	24 juni 2002	\$1 miljard
	 Nederland	17 juni 2002	\$800 miljoen
Level 3	 Turkije	11 juni 2002	\$175 miljoen
	 Canada	7 februari 2002	\$150 miljoen
	 Australië	31 oktober 2002	\$150 miljoen
	 Denemarken	28 mei 2002	\$125 miljoen
	 Noorwegen	20 juni 2002	\$125 miljoen
Security Cooperation Participation	 Israël^[11]		
	 Singapore^[11]		

JSF in oorspronkelijke begroting (Original requirements)

USAF	1763 stuks F-35A
USMC	349/80 stuks F-35B/C
US.Navy	260 stuks F-35C
Groot Britannië	138 stuks F-35B
Italië	69/62 stuks F-35A/B

Turkije	135 stuks F-35A
Australie	100 stuks F-35A
Nederland	85 stuks F-35A
Canada	65 stuks CF-35A
Denemarken	48 stuks F-35A
Noorwegen	20 stuks F-35A
Israel	20 stuks F-35I
Singapore	12 stuks F-35A (en optie voor 8 extra)

Several countries however have postponed their orders for several years and sometimes adjusted.

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** Read 'Status report 2013' about new counter developments in this matter already.*

