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## F/A-18 E/F Super Hornet

## Boeing Briefing to the Danish Parliament Defence Committee Copenhagen, Denmark 4 December 2008

## **Advance Read-Ahead Material**

The F/A-18 E/F Super Hornet offers Denmark a low risk, combat proven, cost certain new fighter aircraft solution for Denmark. It will be offered with the commitment of the U.S. Government, Boeing and its Super Hornet Industry Supplier Team. The Super Hornet has a proven, auditable track record. You know what you will receive, how much it will cost and when it will be delivered.



### Tomorrow's Fighter--Today

# The F/A-18 Super Hornet is a key element of the U.S. Government's future force structure.

The Super Hornet is the world's most advanced, combat-proven, multi-role fighter in production and operation today and for the foreseeable future. The Super Hornet includes state-of-the-art military technology and is fully qualified in all missions, in full rate production and operational with U.S. Navy forces around the world. It provides a balanced approach to operational mission

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requirements with an optimum mix of range, speed, sensors, weapons payload and advanced stealth features.

During the Super Hornet's first deployment in 2001 in support of Operation Iraqi Freedom, 38 aircraft operated on sustained 12-14 hour days for a total of 16,300 flight hours. A variety of missions were flown including precision strike, close air support, forward air control, combat air patrol, refueling tanker and reconnaissance. Since this initial deployment in 2001, the Super Hornet has accumulated more than 540,000 flight hours.

The Super Hornet continues to play a significant role today in U.S. operations around the world, including Iraq and Afghanistan, providing interdiction, close air support and non-traditional intelligence, surveillance and reconnaissance (ISR) support such as detection of improvised explosive devices (IEDs) to protect multi-national ground forces.

# The Super Hornet is the safest tactical aircraft in U.S. Naval aviation history.



No Super Hornet has been lost due to aircraft structure or system failure.

# The U.S. Navy will operate the F/A-18 Super Hornet for at least 30-40 years.

The Super Hornet has replaced several single-mission aircraft in the U.S. Navy inventory. It will operate side-by-side with the F-35C Joint Strike Fighter (JSF) and still provide the bulk of tactical squadrons in the U.S. Navy. The Super Hornet will not be replaced by the JSF.

Advanced, corrosive-resistant materials and a rugged structure ensure a longlife airframe that is predicted to achieve a projected 9,500 average flight hour operational service in the Royal Danish Air Force land based environment. Unlike other aircraft that must go through one or more depot-level structural refurbishments to achieve their life expectancy, the Super Hornet requires no



scheduled structural maintenance to achieve its projected 9,500 airframe life with the RDAF.

The Super Hornet has been designed for technology and mission growth with additional compartment space, cooling and electrical power to accommodate future system upgrades and enhancements. To ensure the continued multi-role effectiveness and survivability of the Super Hornet well into the 21<sup>st</sup> century, the U.S. Navy has a defined and funded technology and capability insertion roadmap that will incorporate planned upgrades to the aircraft as future technologies become available. Denmark has the opportunity to participate with the U.S. Navy, other international customers and Boeing in this technology insertion plan throughout the life of the program to enable cost-effective future upgrades of the RDAF Super Hornet squadrons.

#### Balanced Approach to Survivability Against Modern Threats

## The F/A-18 Super Hornet provides the lowest risk solution for capability, versatility, reliability and survivability.

The Super Hornet provides a balanced approach to survivability against modern threats. It's hard to detect, hard to hit and hard to kill. The Super Hornet is designed for low susceptibility. Stealth features reduce adversary's detection ranges while advanced countermeasures, long-range sensors, standoff weapon delivery and superior situational awareness enhance lethality.

The Super Hornet has a long loiter capability, large payload (up to 14 air-to-air missiles) and long-range sensors including the world's only fully operational and most advanced Active Electronically Scanned Array (AESA) radar. Other state-of-the-art sensors include the Advanced Targeting Forward Looking Infrared (ATFLIR) pod and the Infrared Search and Track (IRST). Together the sensors detect, identify, track and range ground and airborne targets.



Multi-Source Integration (MSI) data fusion correlates target information from multiple on-board and off-board sensors to maximize situational awareness and enable effective mission completion.

If in harm's way, the Super Hornet is also designed for low vulnerability. Two reliable, easy-to-maintain and extremely durable engines provide an extra margin of safety for missions over water and remote areas, combat damage and bird strikes. A damage tolerant structure, system redundancy, a fire

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suppression system and the ability to launch towed decoys to deflect missile attacks also increase the likelihood that the pilot and aircraft will return home safely.

# The U.S. Navy and its industry partners are committed to providing comprehensive maintenance, modification and training support for the entire life span of the Super Hornet.

The Super Hornet has proven to be highly reliable and easy to maintain. Extensive use of advanced materials and a robust structural design have resulted in an airframe that is extremely corrosion resistant and damage tolerant and requires no scheduled structural maintenance over the projected life of the aircraft. The aircraft's subsystems were designed to be self-supporting for operations in environmentally extreme conditions with minimal ground support or ground handling equipment, which is especially beneficial during extended deployments to forward operating locations.

The Super Hornet's dynamic Integrated Logistics Support (ILS) and training programs are based on the U.S. Navy's demonstrated and highly effective Super Hornet sustainment approach, best practices and advanced technologies that have evolved over the past 25+ years of legacy Hornet service.



Sailors perform routine maintenance on an F/A-18E Super Hornet aboard the aircraft carrier USS Ronald Reagan.

Key elements of the Integrated Logistics Support program are an extensive onboard fault monitoring system that provides accurate fault detection (>95%) and fault isolation (>98%). Performance-Based Logistics (PBL) programs are demonstrating significant improvements in spare parts availability, repair turnaround time and the optimization of spare parts forecasting. These features enable the Super Hornet to be employed with exceptional operational availability at the lowest possible total ownership costs.



#### **Proven in International Operations**

# The Super Hornet provides excellent support for Homeland Defense and international operations. It is designed to operate in an expeditionary environment with coalition forces and in non-traditional roles.

The Super Hornet has been designed to operate independently around the globe with minimal support and maintenance infrastructure. The Super Hornet's reliable, rugged airframe, self-diagnosing systems, deployable maintenance, small logistics footprint and portable mission planning provide exceptional global expeditionary capability.

The Super Hornet is fully NATO interoperable and network centric capable with an integrated communication, navigation and identification suite to support multi-national NATO coalition forces in cooperative missions. In addition, the Super Hornet's ability to operate as an air-to-air refueling tanker in accordance with NATO standards provides extended range, endurance, time on station and autonomy for any Super Hornet fleet.

The Super Hornet provides the capability for expanded roles and nontraditional missions to support army and naval operations including close air support and protection of ground forces, coastal and shipping surveillance and maritime counter-piracy missions. The Super Hornet can also be used effectively for air policing, surveillance and reconnaissance, improvised explosive device (IED) detection and environmental monitoring (e.g. pollution control and wildlife tracking).

#### The missionized two-seat Super Hornet is a true "force multiplier."

The missionized two-seat Super Hornet variant provides exceptional situational awareness to enable increased mission effectiveness and reduced operational risk in all-weather, heavy threat and high task environments. With a full set of controls and displays in both cockpits, the aircrew, which in U.S. Navy operations is typically a pilot in the front seat and a Weapons Systems Officer (WSO) in the aft seat, can perform coordinated, parallel mission tasking, conduct airborne Command and Control for both air-to-air and air-to-surface missions simultaneously and directly support unmanned air vehicle operations.

#### The U.S. Navy and Boeing encourage international cooperation for Super Hornet future updates, modifications, training, integration, certification of new systems and logistics support.

As a member of the International Hornet community, Denmark will have the opportunity to participate in cooperative development, production and maintenance programs, committees and periodic conferences similar to those that have been successfully demonstrated with other international legacy Hornet air forces in Canada, Australia, Finland and Switzerland.

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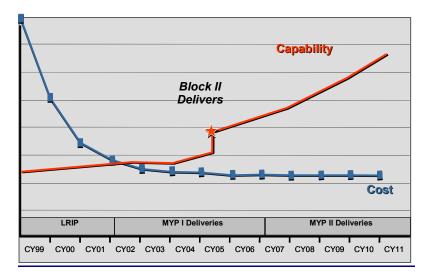


### **The Economics – A Low Risk Solution**

# The Boeing Super Hornet team's renowned reputation for high-quality production, on-time deliveries and proven results ensures a low risk, cost certain new combat aircraft program for Denmark.

The Denmark Super Hornet pricing is based on proven performance of the manufacture and on-time delivery of over 375 Super Hornet aircraft to the U.S. Navy to date, documented estimating methodologies certified by the U.S. Government and actual historical Super Hornet cost data for Boeing and subcontractor performance.

The Super Hornet program is a model defense program. The program is performing better than plan, costs are well within budget and planned capability growth is on track at no increase in cost. Cost reductions have been achieved over time through continuous productivity improvements, parts redesign, technology insertion, strategic supplier investment and U.S. Navy Multi-Year cost reduction initiatives.



Boeing has demonstrated proven program management and production delivery performance on the Super Hornet program. The original Super Hornet development and test program was completed on schedule, within budget and under weight to the original contract. Every delivery has been on schedule or ahead of schedule to the original contract. 98% of deliveries have been early and Boeing is currently delivering Super Hornets 2+ months ahead of schedule.

The baseline U.S. Navy/Boeing offer is 48 Denmark single-seat Super Hornet aircraft to be delivered to Denmark in 2016 and 2017, aircraft mission and support equipment, initial spares and repairs, training, initial contractor support and the initial structure for a long-term Performance-Based Logistics (PBL) program. Priced options include earlier aircraft deliveries in 2013-2016 and the missionized two-seat model.



Specific pricing information for the Denmark Super Hornet offer is included in the Commercial volume of the U.S. Navy/Boeing response to the New Combat Aircraft (NCA) Program Office Requests for Information (RFIs) which was delivered to the NCA Program Office on August 15, 2008. This pricing is based on Boeing and the U.S. Navy's certified estimating and pricing processes, is auditable by the U.S. Government and reflects relatively conservative pricing assumptions. Therefore, this pricing provides a realistic estimate of the financial obligation that Denmark customer should expect to incur at the time of finalizing a Super Hornet contract with the U.S. Government. Any improvement in the pricing assumptions prior to Denmark finalization of a contract with the U.S. Government would be reflected in lower prices.

### Long Term Industrial Benefit

The Boeing Company and its world class Super Hornet Industry Supplier Team have focused their efforts on developing a low risk, high value 100% Industrial Co-operation Program for Denmark that will create opportunities across a broad cross section of Danish companies of all sizes and capabilities.

Boeing and its supplier team's vast portfolio of aerospace and defense products and technology applications offer Danish companies significant industrial opportunities while supporting Denmark's objectives of enhancing company competitiveness and opening new markets for their products through technology, research and development, and joint collaboration.

Boeing is proud of the numerous industrial relationships that have continued long after completion of an Industrial Co-operation program. Our proven methodology of matching true business needs to the capabilities of qualified companies is being implemented for Denmark and will result in comparable long-term results for Danish industry.

Boeing submitted a comprehensive Industrial Co-operation Plan for Denmark to the Danish Enterprise and Construction Authority (DECA) on November 3, 2008. This plan included over 70 project concepts with Danish companies of all sizes and capabilities addressing the specific goals of both Danish government and Danish industry guidelines. Boeing is committed to refining these projects and adding additional high-value projects with Danish industry between now and a decision on the New Combat Aircraft competition.

The Denmark-unique Industrial Co-operation plan is comprised of projects in aerospace, defense and homeland security. The activities that will be undertaken to accomplish this plan include defense and aerospace work placement, market assistance, technology transfers, research and development, and selected special projects. Examples of these projects include parts fabrication, composite technology, homeland security applications, software development, missile defense,

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logistics support and lean training. Other projects are in accordance with key Danish initiatives in the energy and environment sectors.



Boeing Supplier Conference in Copenhagen September 11, 2008

Key activities to date include Boeing hosting a Supplier Conference in Copenhagen with over 200 meetings conducted between Danish companies and Boeing's Super Hornet Industry Supplier Team, conducting nearly 50 individual business and technical site visits in both the US and Denmark to survey Danish companies, establishing eight Proprietary Information Agreements with Danish companies and signing a Memorandum of Understanding (MOU) with Terma. MOU discussions are also underway with other leading Danish companies, with plans to have these in place in the next 30-60 days. In addition, Boeing will submit the first banking agreement status report in February 2009 with new and updated projects.



Jens Maaløe, Terma President & CEO, shakes hands with Jim Albaugh, Boeing Integrated Defense Systems President & CEO, after signing a cooperative MOU in Copenhagen on September 22, 2008



Boeing has successfully led and implemented Industrial Co-operation programs in over 35 countries and has completed over \$29 billion in Industrial Co-operation commitments. These obligations have been associated with a variety of programs and customer countries including Canada, Australia, Spain, Finland, Switzerland, Israel, UK, and UAE. Without exception, Boeing has successfully completed all of its Industrial Co-operation programs on or ahead of schedule. Similar results are being achieved on the 45 active Boeing Industrial Co-operation programs which involve 17 countries and represent multiple Boeing products.

The Boeing Company and the Super Hornet Industry Supplier Team are committed to providing a 100% Industrial Co-operation program in compliance with the Danish Industrial Co-operation requirements. The combined economic and business benefits of this program will exceed the value of the actual contract due to the long-term business relationships that will be established under this program.

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