



A MOST UNCOMMON STRIKE FIGHTER



JSF

MAKE THE MOST OF COMMONALITY...

**AND YOU GET A MOST UNCOMMON
STRIKE FIGHTER - THE BOEING JSF**



Boeing is creating an affordable, next-generation, multi-role strike fighter that is more lethal, more survivable and more supportable than any strike fighter before it. Its highly common variants will replace aging aircraft of the U.S. Navy, Air Force, Marine Corps, the U.K. Royal Navy and Air Force and those of other nations.

High commonality is essential for affordability – to lower the cost of procurement and ownership. Development, production, support and training costs are dramatically reduced

because the Boeing Joint Strike Fighter is 90% common among its multi-service variants. And while affordable, the Boeing JSF will elevate warfighting capability to new levels in the 21st Century – without compromise.

The Boeing JSF has combined and enhanced the characteristics of our entire lineage of Boeing strike fighters into an aircraft never before possible. It is a stealthy, supersonic, highly maneuverable aircraft, yet its combat radius and payload are greater than any of today's strike fighters.

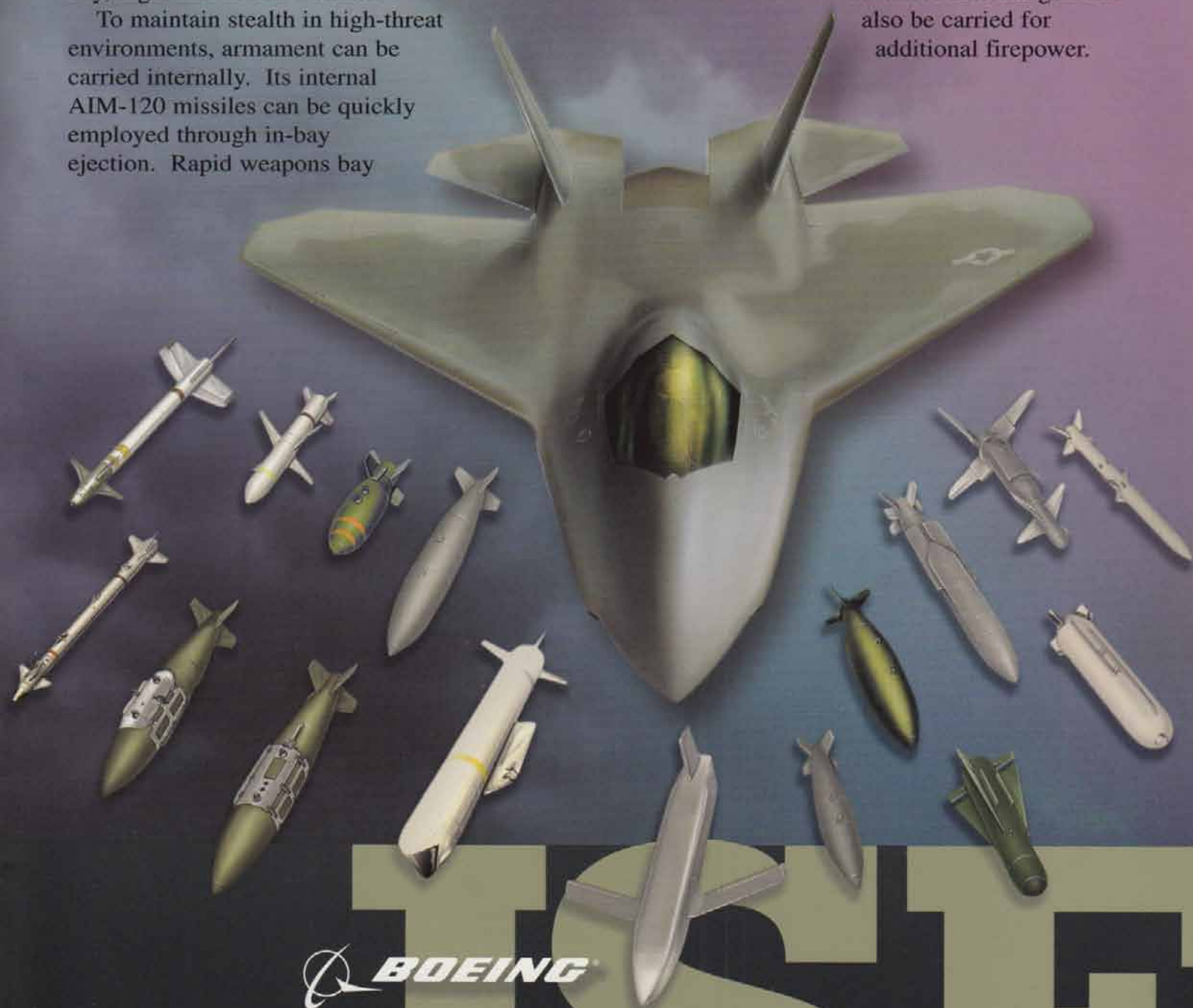
LETHAL

The Boeing JSF is optimized for multimission combat. Its STOVL variant will operate from carriers, amphibious ships and austere forward bases with the same up and away capabilities as its conventional variants. Whether providing close air support or engaging in air-to-air combat, it can search for, detect, track and destroy targets close-up or at standoff ranges – day, night and in bad weather.

To maintain stealth in high-threat environments, armament can be carried internally. Its internal AIM-120 missiles can be quickly employed through in-bay ejection. Rapid weapons bay

cycle times allow delivery of air-to-ground weapons without compromising survivability.

For close air support, interdiction or SEAD missions, four wing stations, equipped with non-pyrotechnic ejectors for ordnance, can carry more than 10,000 pounds of today's and tomorrow's most advanced weapons. Two of the stations accommodate additional fuel tanks. An advanced internal gun can also be carried for additional firepower.



 **BOEING**

JSF

AFFORDABILITY MORE THAN SKIN-DEEP

Boeing has designed affordability into its JSF by applying best practices from both the military and commercial worlds. Our JSF capitalizes on our expertise in rapid prototyping, high-speed machining, large composite structures and lean manufacturing. We've advanced these technologies through our vast experience with the 777 jetliner, F-22 air superiority fighter, F/A-18E/F strike fighter, Joint Direct Attack Munition, the experimental X-36 and the Malcolm Baldrige Award-winning C-17 airlifter program.

Airframe definition, tooling and manufacturing processes were developed and verified through virtual reality and advanced

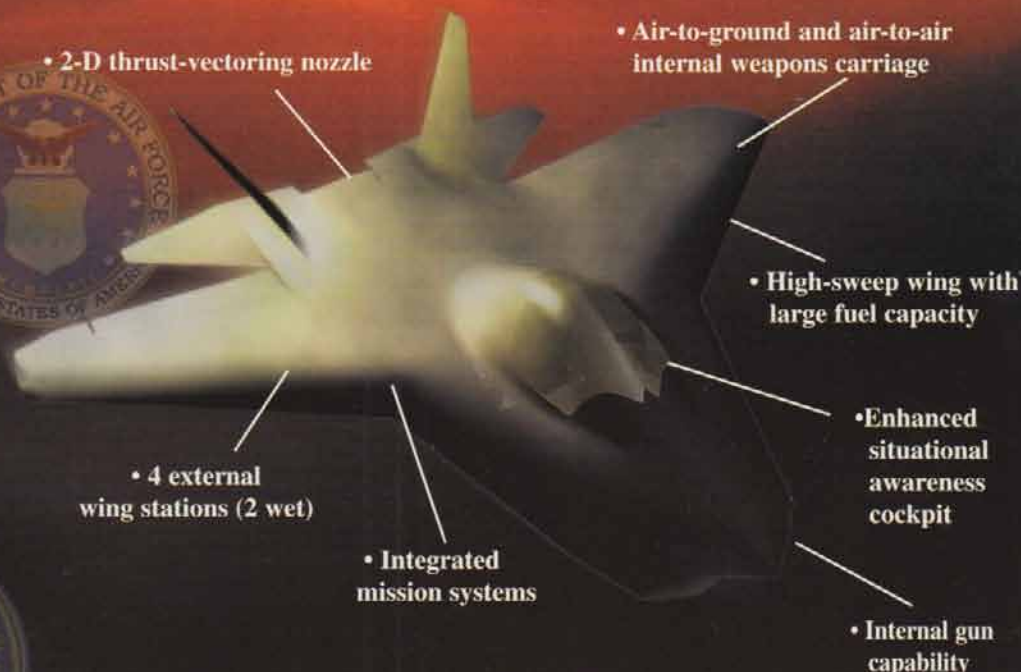
3-D solid modeling and simulation. The result – fewer parts, less expensive tooling, faster assembly. The wing, for example, is a single-piece composite structure common to all variants and offers an affordable solution without sacrificing aerodynamic performance.

In the development of the Boeing concept demonstrator forward fuselage, design cycle time and costs have been lowered up to 50%. Tooling requirements throughout the program were 75 percent less than those for the YF-22 prototype.



CTOL

The Boeing JSF provides the U.S. Air Force with a powerful, light-weight and extremely maneuverable complement to the F-22. With more than 16,000 pounds of internal fuel and more than 17,000 pounds of ordnance, its combat radius and payload surpass that of the F-16. Two wing stations accommodate additional fuel tanks. For additional firepower, an internal gun can also be carried.



• Length: 46' • Wingspan: 36'

CV

Boeing is creating a stealthy, supersonic and highly maneuverable strike fighter for the U.S. Navy. With more than 16,000 pounds of internal fuel and more than 17,000 pounds of ordnance, the Boeing JSF gives the Navy survivable, first-day-of-the-war multimission strike capability...and an ideal complement to the F/A-18E/F. On the boat, its small spot factor makes a folding wing unnecessary. Two wing stations accommodate additional fuel tanks. For additional firepower, an internal gun can also be carried.



• Length: 46' Wingspan: 36'

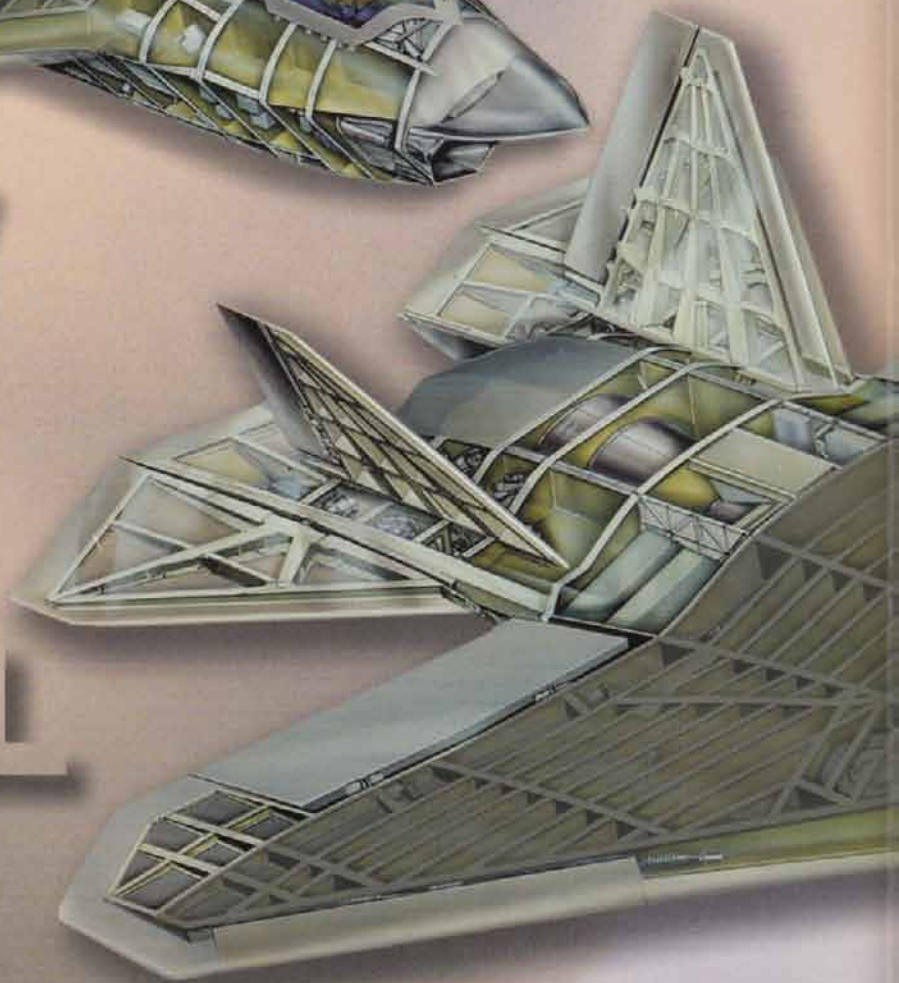
 **BOEING**

JSF

UNCOMMON INGENUITY,



CV



CTOL

For Boeing, designing for commonality is a prerequisite, not a handicap. Our design philosophy is that only by optimizing the number of common parts among the variants can the aircraft truly be affordable.

Consider the wing: It is a model of simplicity – a single-piece composite structure, common to all multi-service variants. It saves weight and simplifies assembly.

The wing provides an affordable solution without sacrificing performance. Combined with in-flight, 2-D thrust vectoring, it gives the airplane superior agility in all maneuvering regimes.

KEY TO AFFORDABILITY



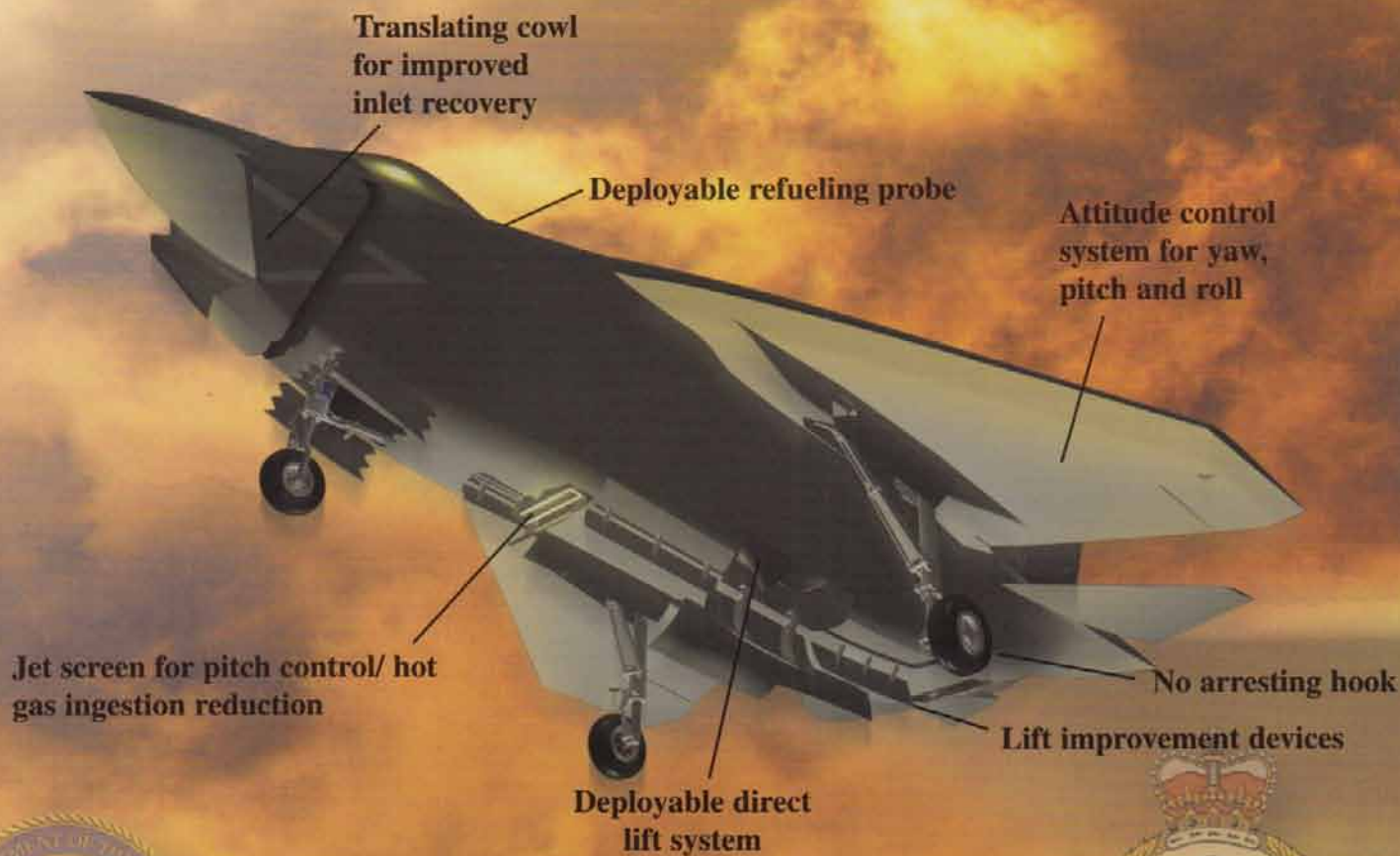
STOVL

 **BOEING**

JUST

STOVL

SIMPLE, LOW-RISK DIRECT LIFT

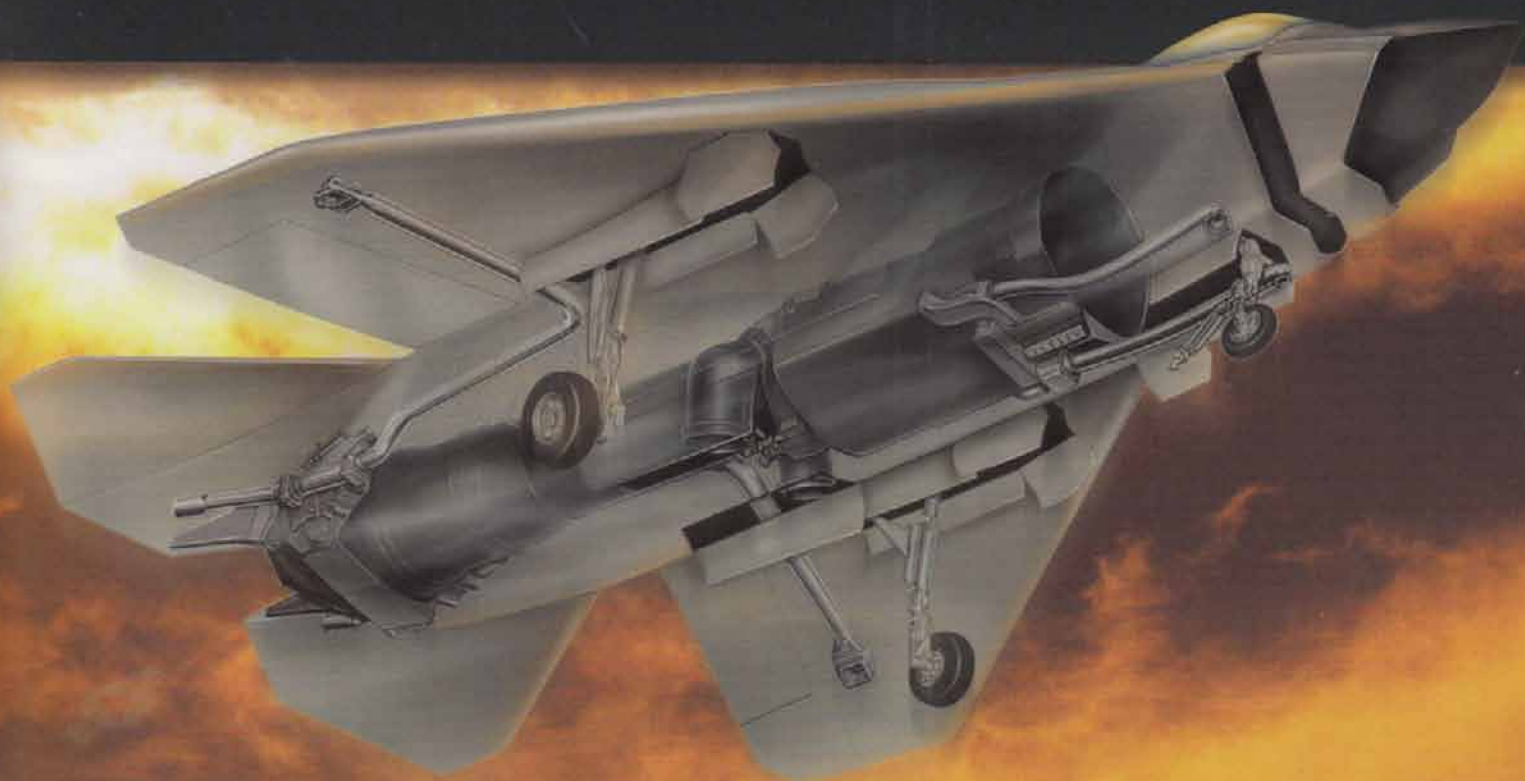


Length: 46' Wingspan: 32'



The STOVL variant is designed to replace the USMC AV-8B Harrier, F/A-18C/D Hornet and the United Kingdom Royal Navy and Royal Air Force Harrier fleet. This aircraft provides both nations with a stealthy, supersonic, highly maneuverable airplane. With 12,800 pounds of fuel and 13,700 pounds of ordnance, its combat radius and payload exceed those of the aircraft it will replace. Two inboard stations accommodate external fuel tanks and space is available for an internal gun.

The Boeing STOVL JSF operates from carriers, amphibious ships and austere sites with the same up and away performance as its conventional variants.



The complex STOVL requirement demands an uncomplicated solution – a simple, deployable direct-lift propulsion system. Lift nozzles are hidden within the airframe. They are coupled with a three-axis attitude control system – similar to the AV-8B – to give the Boeing JSF its short takeoff and vertical landing capability. It is a proven, light-weight, low-risk concept that provides seamless transitions between jet-borne and wing-borne flight within 2 seconds and at full power.

Up and away, the low-signature, 2-D thrust vectoring rear nozzles and the Pratt & Whitney F119

derivative engine give the airplane highly maneuverable supersonic flight.

The Boeing STOVL direct lift system is less complex than a lift-fan concept. It will be simpler to maintain and support in the field or in the confines of a hangar bay. It will operate safely and efficiently from ship or shore.

Because the STOVL aircraft's design is so nearly identical to its more conventional variants, the Boeing JSF will be more affordable for all services.

 **BOEING**

JSF

INTELLIGENT, AGILE, ELUSIVE . . . SURVIVABLE



The Boeing JSF is intelligent. It is fully integrated into the emerging system-of-systems architecture and is at once lethal and survivable. On-board and off-board sensor information, combined with advanced pilot-vehicle interfaces and helmet-mounted displays, gives pilots unambiguous situational awareness and fused targeting information. Over-the-horizon detection of threats and targets provides real-time ability to replan missions enroute to their targets.

The Boeing JSF will accelerate faster and be more agile than any of today's strike fighters. The 2-D thrust-vectoring P&W F119 derivative engine – supplying high specific excess power – will enable pilots to exploit the aircraft's superb aerodynamic qualities, especially in high-alpha maneuvers.

An advanced low-observable design, a robust countermeasures suite and a rugged, damage-isolating structure make the Boeing JSF hard to find, hard to hit, hard to kill.

SELF - SUFFICIENT...

**SUPPORTED BY AN ESTABLISHED
WORLDWIDE SYSTEM**

Self-sufficiency is designed into the Boeing JSF. Its highly dependable systems introduce new levels of reliability and maintainability to reduce its logistics footprint and minimize requirements for mobile support equipment and spares in the field. Onboard prognostics and health management systems isolate problems and alert maintainers before failures result in aircraft downtime.

Routine servicing is conducted at eye level, without stands and ladders. Weapons bays are also situated at eye level to ease loading ordnance. The engine can be replaced within the shadow of the aircraft. And its highly reliable, paintless composite structures and low-observable features are easily maintained.

The Boeing JSF can be backed by an established, worldwide commercial logistics and training organization. Merged with the best of military legacy systems, it provides true, affordable, single-source support to ensure that the Boeing Joint Strike Fighter is always ready to fight.



 **BOEING**

JSF

AFFORDABLE

SURVIVABLE

LETHAL

SUPPORTABLE



 **BOEING**

JSF

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