The F-35 Lightning II: Strategic Capabilities, Industrial Participation, and the Future of UK Combat Air Power

Executive Summary

The F-35 Lightning II program constitutes the most significant, complex, and expensive defence procurement undertaking in the history of the United Kingdom. Far surpassing a standard acquisition of military hardware, the program represents a fundamental restructuring of the UK's aerospace industrial base, its strategic relationship with the United States, and its operational doctrine for the mid-21st century. As the sole Tier 1 partner in the System Development and Demonstration (SDD) phase, the UK secured a unique status that has embedded its industry into the global supply chain of an aircraft projected to dominate Western air power for decades.

This report provides an exhaustive analysis of the F-35 program from a UK perspective. It examines the turbulent history of the procurement, the evolving operational status of the fleet, and the profound economic impact on the British aerospace sector. Particular attention is devoted to the South East of England, a region that, while less visible than the final assembly lines, serves as the "nervous system" of the aircraft, supplying critical avionics, weapon release systems, and electronic warfare capabilities.

The analysis reveals a dichotomy at the heart of the program. Industrially, the F-35 is a triumph for the UK, with a projected Gross Value Added (GVA) of £45.2 billion and a secured workshare of approximately 15% on every aircraft built globally.[1] Operationally, however, the program faces acute challenges. Delays in the Technology Refresh 3 (TR-3) hardware and Block 4 software have pushed the integration of sovereign UK weapons—specifically the Meteor and SPEAR 3 missiles—into the 2030s, leaving the fleet reliant on interim capabilities for longer than anticipated.[2] Furthermore, the recent strategic pivot to procure a mixed fleet of F-35B and F-35A variants marks a significant evolution in UK defence posture, reinstating a tactical nuclear capability to the Royal Air Force (RAF) absent since the Cold War.[4]

1. Program Origins and the Tier 1 Strategic Partnership

1.1 The Convergence of Requirements

The genesis of the UK's involvement in the F-35 lies in the operational vacuum created by the impending obsolescence of the Sea Harrier FA2 and the Harrier GR7/9 fleets. In the 1990s, the Royal Navy identified a critical requirement for a carrier-borne strike aircraft to operate from its planned "future carriers" (what would become the *Queen Elizabeth*-class). Concurrently, the US Marine Corps sought a Short Take-Off and Vertical Landing (STOVL) successor to the AV-8B Harrier II. This convergence of requirements led the UK to join the US Joint Advanced Strike Technology (JAST) program in 1995, which subsequently evolved into the Joint Strike Fighter (JSF) program. [4]

1.2 The Economics of Tier 1 Status

In 2001, the UK formalized its participation through a Memorandum of Understanding (MoU) that established it as the sole "Level 1" partner. This status was not merely a diplomatic title; it required a substantial financial commitment of $2 billion USD (£1.7 billion at the time) toward the System Development and Demonstration (SDD) phase. [6] This investment, representing approximately 10% of the total development costs, was predicated on two strategic objectives:

1. **Industrial Workshare:** Securing a guaranteed percentage of the manufacturing work for UK industry, independent of the number of aircraft the UK eventually purchased.
2. **Operational Sovereignty:** Ensuring the UK had sufficient insight into the aircraft's software and systems to operate, upgrade, and maintain the fleet independently of the United States.

1.3 The Sovereignty Crisis and the ACURL Solution

The definition of "partnership" was severely tested in the mid-2000s. A public and acrimonious dispute arose over access to the F-35's sensitive software source code. The UK Ministry of Defence (MoD) argued that without the ability to modify Mission Data Files (MDFs)—the electronic libraries that tell the aircraft's sensors what is a threat and what is a friend—the UK would not have "operational sovereignty." The dispute escalated to the point where the UK threatened to cancel its procurement entirely. [6]

The resolution came not through full source code transfer, which the US refused, but through the establishment of the **Australia Canada United Kingdom Reprogramming Laboratory (ACURL)** at Eglin Air Force Base. This facility grants the UK (along with Australia and Canada) a privileged capability to generate and update its own Mission Data Files. This allows the UK to tailor the aircraft's threat libraries to its specific operational theatres, a capability not granted to lower-tier partners or Foreign Military Sales (FMS) customers, who must rely on US-generated data. [8] While this solution preserved the alliance, it highlighted the tension between American technology security and British operational independence—a tension that persists as the program expands to include more nations.

---

2. Procurement Strategy and Fleet Composition

The UK's procurement strategy has been characterized by volatility in variant selection and uncertainty regarding total numbers. The official program of record remains 138 aircraft, but current financial commitments cover only the first two tranches, totaling 74 jets.[7]

2.1 The Variant U-Turn (2010-2012)

Originally, the UK committed to the **F-35B (STOVL)** to operate from "ski-jump" equipped carriers. However, the 2010 Strategic Defence and Security Review (SDSR) controversially switched the order to the **F-35C (Carrier Variant)**. The rationale was that the F-35C offered greater range, payload, and interoperability with US Navy and French carriers. This necessitated outfitting the *Queen Elizabeth*-class carriers with catapults and arresting gear ("cats and traps").

By 2012, it became apparent that the cost of converting the carriers was prohibitive and

would delay the restoration of carrier strike capabilities by years. The decision was reversed, and the UK reverted to the F-35B. This U-turn had lasting implications, embedding the STOVL requirement into the heart of UK naval aviation and precluding the operation of other conventional fixed-wing aircraft from British carriers.[4]

2.2 The Strategic Pivot: Introducing the F-35A

In a significant doctrinal shift, the UK government confirmed in June 2025 that the next tranche of procurement would include a mix of F-35B and **F-35A (Conventional Take-Off and Landing)** variants. The procurement of an initial 12 F-35As marks the first time the UK will operate a mixed fleet of stealth fighters. [4]

Strategic Drivers for the F-35A:

1. **Nuclear Deterrence:** The F-35A is the only variant certified to carry the **B61-12** tactical nuclear gravity bomb. The procurement allows the RAF to rejoin NATO's nuclear sharing mission, providing a sub-strategic deterrent capability that has been dormant since the retirement of the WE.177 and the Tornado's nuclear role.
2. **Cost Efficiency:** The F-35A is approximately 25% cheaper to procure and 8% cheaper to operate than the complex F-35B. For land-based missions where STOVL is not required, the A-variant offers a more sustainable economic model. [4]
3. **Range and Payload:** The A-variant offers superior range and internal weapon capacity compared to the B-variant, making it more suitable for deep strike missions from land bases.

2.3 Current Fleet Status and Delivery Schedule

As of late 2025, the UK fleet stands at 37 operational aircraft (one loss in 2021). The delivery pipeline has been disrupted by global program delays:

- **Lot 17 Delays:** Seven F-35Bs from Production Lot 17 were scheduled for delivery in 2025. Due to software certification issues with Technology Refresh 3 (TR-3), these deliveries have slipped to April 2026. [10]
- **Squadron Establishment:**
  - **617 Sqn (Dambusters):** Fully operational.
  - **809 NAS (Immortals):** Standing up, but facing infrastructure delays at RAF Marham

until 2029.[11]

- **207 Sqn (OCU):** The training unit, which will also take on the initial F-35A cadre for nuclear mission training. [4]
- **17 TES:** Continues operational testing in the US.

---

3. Industrial Participation: The "15%" Global Workshare

The industrial logic of the F-35 program differs fundamentally from traditional offset arrangements. Instead of "work for orders," UK industry secured a competitive position in the global supply chain. The UK builds approximately **15% by value** of every F-35 aircraft produced, regardless of the final customer. [7] With a projected global fleet of over 3,000 aircraft, this represents a continuous manufacturing pipeline spanning decades.

3.1 Tier 1 Giants: Structural and Propulsion Leadership

BAE Systems: The Airframe Partner

BAE Systems holds the status of a principal partner, effectively a co-prime contractor alongside Lockheed Martin and Northrop Grumman. Its contributions are structural, electronic, and software-based.

- **Aft Fuselage Manufacturing:** The crown jewel of UK manufacturing is the production of the rear fuselage for every F-35 (A, B, and C variants) at the **Samlesbury** facility in Lancashire. This facility utilizes advanced digital manufacturing and robotic assembly to produce the complex titanium and aluminum structures. In 2023, the facility delivered its 1,000th aft fuselage, a milestone underscoring the scale of production. [13]
- **Horizontal and Vertical Tails:** BAE Systems also manufactures the empennage (tails) for the aircraft, further cementing its role in the airframe's aerodynamics and stealth geometry.

Rolls-Royce: The LiftSystem Engineering Marvel

While Pratt & Whitney supplies the main F135 engine, **Rolls-Royce** is the sole provider of the **LiftSystem** for the F-35B variant. This system is a feat of engineering that allows a supersonic fighter to hover. It consists of three main components:

1. **Rolls-Royce LiftFan®:** Located horizontally behind the cockpit, this 50-inch two-stage counter-rotating fan generates 20,000 lbf of cold thrust. It is driven by a shaft from the main engine, requiring a clutch mechanism capable of engaging at high RPMs.
2. **3-Bearing Swivel Module (3BSM):** A vectoring nozzle at the rear of the aircraft that can rotate 95 degrees in 2.5 seconds to redirect the main engine thrust downward.
3. **Roll Posts:** Nozzles in the wings that provide stability control during hover.

This technology is unique to the UK aerospace sector and represents a critical export control item; no other nation possesses the capability to manufacture this VSTOL propulsion system. [4]

Martin-Baker: The Escape System Monopoly

Based in Denham, **Martin-Baker** supplies the **US16E ejection seat** for all F-35 variants globally. This contract is particularly lucrative because it involves not just the seat, but the pyrotechnic cartridges and ongoing maintenance for the life of the fleet.

- **Technical Complexity:** The US16E is designed to accommodate a wider range of pilot sizes (from the 5th to 95th percentile female and male) than any previous seat. It integrates with the aircraft's Flight Control System to initiate auto-ejection in STOVL mode if a mechanical fai lure is detected during hover—a safety-critical feature for the F-35B.[1]
- **Contract Value:** Specific contracts, such as an $8.7 million award for explosive cartridges, highlight the recurring revenue stream generated by the consumables associated with the seats. [16]

---

4. Deep Dive: The South East Aerospace Cluster

While the heavy manufacturing of fuselages occurs in the North West, the **South East of England** serves as the "nervous system" of the F-35. This region, broadly defined by the

Farnborough Aerospace Consortium (FAC) area and the M3 corridor, hosts a dense cluster of companies specializing in avionics, electronic warfare, weapon release systems, and power generation. The ADS Group estimates that the South East and South West combined account for **47%** of the UK defence industry's economic output. [17]

4.1 The Strategic Ecosystem of the South East

The South East cluster benefits from proximity to key strategic assets: the MoD headquarters in London, the Defence Science and Technology Laboratory (Dstl) at Porton Down, and the Farnborough International Airshow venue. This ecosystem facilitates a high degree of R&D collaboration and systems integration work.

4.2 Key Suppliers and Technologies in the South East

BAE Systems Electronic Systems (Rochester, Kent)

The Rochester facility is a global center of excellence for cockpit controls and active inceptors.

- **Active Inceptor Systems (AIS):** The F-35 utilizes "active" side-sticks and throttles. Unlike passive mechanical sticks, active inceptors use motors and sensors to provide haptic feedback to the pilot. The stick can stiffen to simulate aerodynamic load, vibrate to warn of a stall (stick shaker), or provide soft-stops to indicate flight envelope limits. This technology allows the pilot to feel the aircraft's state through their hands, a critical safety feature in a fly-by-wire system where there is no mechanical link to the control surfaces.[13]
- **Vehicle Management Computer (VMC):** Rochester contributes to the VMC, the computer that acts as the aircraft's "brain" for flight control laws and utility management. [12]

Eaton (Titchfield, Hampshire)

Formerly part of Cobham, the Eaton Mission Systems facility in Titchfield plays a crucial role in the F-35's power and fuel systems.

- **Ground Maintenance Motor Pump (GMMP):** This component represents a significant engineering achievement. Originally, the aircraft required two separate pumps for ground maintenance and emergency power. Eaton engineers designed a single unit that combines an electric motor with two hydraulic pumps. It serves a dual purpose: enabling ground crews to operate doors and systems without starting the main engine, and providing emergency hydraulic power in flight if the main engine fails. This weight-saving innovation is critical for the F-35's performance.[18]
- **Refuelling Probes:** The site manufactures the retractable aerial refuelling probes used on the F-35B and F-35C variants.[20]

L3Harris (Brighton, Sussex)

The L3Harris facility in Brighton is a world leader in **Pneumatic Carriage and Release Systems**.

- **The Technology Shift:** Legacy aircraft use pyrotechnic cartridges (explosives) to forcibly eject bombs from racks. This leaves residue, requires frequent cleaning, and poses logistic / safety burdens. The Brighton facility developed the **BRU-68** and related high-pressure pneumatic release units for the F-35. These systems use compressed air to punch the weapon out of the internal bay, ensuring it clears the slipstream safely.
- **Stealth Implication:** Pneumatic release is cleaner and quieter, contributing to the aircraft's low observability and reducing turn-around times between sorties. The facility produces the compressors and release units for the global fleet.[21]

Collins Aerospace (Crawley & Havant)

Collins Aerospace (an RTX business) has a significant footprint in the South East, contributing to training and data systems.

- **Crawley:** This site focuses on simulation and training solutions, providing the visual

systems for the Full Mission Simulators (FMS) used to train pilots. Given the high cost of flying the F-35, a significant proportion of pilot training occurs in these high-fidelity simulators.

- **Havant:** This facility contributes to the intelligence and data link systems that underpin the F-35's role as an ISR (Intelligence, Surveillance, and Reconnaissance) node. Collins is also involved in the Gen III Helmet Mounted Display System (HMDS), which projects flight data and sensor video directly onto the pilot's visor, allowing them to "look through" the floor of the cockpit. [23]

Leonardo UK (Southampton & Luton)

Although Leonardo is an Italian-headquartered company (Italy is a Tier 2 partner), its UK division is deeply integrated into the F-35 supply chain.

- **Southampton (Millbrook):** This facility specializes in infrared detectors. It supplies the Cadmium Mercury Telluride (CMT) focal plane arrays used in the F-35's **Electro-Optical Targeting System (EOTS)** and the **Distributed Aperture System (DAS)**. These sensors provide the pilot with 360-degree thermal vision and precise targeting capability, day or night. [24]
- **Luton:** A hub for Electronic Warfare (EW) research. While the primary EW suite is US-led, Leonardo Luton contributes to the laser warning and defensive aids sub-systems.[25]

SME Ecosystem: Teledyne CML Composites

Located in Bromborough (with sales/admin links to the South East defence network), Teledyne CML Composites manufactures complex glass-fibre packers and composite components for the F-35 structure. These components are essential for maintaining the aircraft's stealth geometry and structural integrity under high-G loads.[20]

---

5. Operational Challenges and the Block 4 Delay

While the industrial story is one of success, the operational narrative is currently dominated

by delays to the aircraft's modernization pathway. The F-35 is software-defined; its capabilities are released in "Blocks."

5.1 Technology Refresh 3 (TR-3) and Block 4

The current crisis revolves on **Technology Refresh 3 (TR-3)**, a hardware upgrade (new core processor, memory, and panoramic cockpit display) required to run the future **Block 4** software.

- **The Delay:** TR-3 was scheduled for 2023 but faced significant software stability issues. This led the US government to halt deliveries of new aircraft (including UK jets from Lot 17) for months. While deliveries resumed in a "truncated" software state for training, full combat capability for TR-3 aircraft is not expected until 2025. [10]
- **Block 4 Implications:** Block 4 is the suite that enables the carriage of advanced weapons. Because TR-3 is the prerequisite for Block 4, the delays have cascaded. The "Block 4" upgrade is now effectively a program that will stretch into the **early 2030s**, significantly later than the original 2026 target. [3]

5.2 The Personnel Crisis

The operational fleet is further constrained by a severe shortage of qualified personnel. The Public Accounts Committee reported that in 2025, only **5 out of 16** flying instructor posts were filled. This creates a bottleneck: even if aircraft are available, the pipeline to generate new pilots is constricted. Additionally, a shortage of engineers and cyber specialists limits the ability to maintain the complex fleet, leading to availability rates that have missed targets by up to 50% in some periods. [27]

5.3 Infrastructure at RAF Marham

RAF Marham has seen massive investment, but key facilities remain unfinished. The infrastructure for **809 Naval Air Squadron** was delayed by six years to save short-term cash, pushing its full operational capability to 2029. Furthermore, service accommodation quality at

the base has been flagged as a retention issue, with upgrades not due for completion until 2034.[11]

---

6. Weapons Integration: The Sovereignty Gap

The most critical operational impact of the Block 4 delay is the postponement of UK sovereign weapons integration. The UK's operational independence relies on using its own missiles, which provide capabilities superior to standard US munitions in specific scenarios.

6.1 Meteor: The Air Superiority Gap

The **Meteor** Beyond Visual Range Air-to-Air Missile (BVRAAM) is widely considered superior to the US AMRAAM due to its ramjet propulsion, which allows it to maintain high energy and maneuverability at the end of its flight path.

- **Status:** Originally planned for integration by 2024/25, the date slipped to 2027, and has now been officially confirmed as the **"early 2030s"** .[3]
- **Impact:** Until the 2030s, UK F-35s must rely on the AMRAAM. While capable, it lacks the "no-escape zone" performance of Meteor, potentially placing UK pilots at a disadvantage against peer threats equipped with long-range missiles.

6.2 SPEAR 3: The Strike Gap

SPEAR 3 (Select Precision Effects At Range) is a UK-designed mini-cruise missile. It is network-enabled, turbojet-powered, and small enough that an F-35B can carry eight internally. It is designed to overwhelm enemy air defences.

- **Status:** Like Meteor, its integration is tied to the stalled Block 4 software. The in-service date has slipped from 2025 to the **early 2030s** .[2]
- **Impact:** The UK F-35B currently lacks a stand-off air-to-ground weapon. It relies on the Paveway IV laser-guided bomb, which requires the aircraft to fly relatively close to the target, increasing exposure to enemy air defences. The lack of SPEAR 3 significantly limits the F-35's effectiveness in "Day One" strike scenarios against sophisticated

integrated air defence systems (IADS).

---

7. Financial and Economic Impact Analysis

7.1 Gross Value Added (GVA) and Jobs

The F-35 program is a dominant engine of the UK aerospace economy.

- **GVA:** Reports from KPMG and Lockheed Martin estimate the program will contribute **£45.2 billion** to the UK economy between 2007 and 2046. [1]
- **Employment:** The program supports over **20,000 jobs** across the UK. Crucially, these are high-GVA jobs in engineering, software development, and advanced manufacturing.
- **Regional Benefit:** While the North West captures the bulk of the airframe manufacturing value (projected £14.8bn), the South East benefits disproportionately from the high-tech systems engineering work, which typically commands higher margins and fosters deeper R&D capabilities.[32]

7.2 The Export Levy Mechanism

Unlike most defence contracts, the F-35 MoU includes a mechanism for the UK government to recoup its initial investment. The UK receives a levy or royalty on every F-35 sold to export customers. As the global order book expands—with nations like Finland, Switzerland, Germany, Canada, and others joining—the returns to the UK Treasury increase. While the MoD does not publish exact figures, this revenue stream provides a long-term offset to the program's procurement costs. [31]

7.3 Economic Resilience

The program offers a degree of resilience to the UK aerospace sector. Because UK

companies supply the *global* fleet, they are not solely dependent on the UK MoD's budget cycles. Even if the UK were to pause its own purchases, factories in Lancashire and Hampshire would continue producing parts for US, Japanese, and European jets. This decoupling of industrial output from domestic procurement is a unique feature of the Tier 1 partnership.

---

8. Strategic Future and Conclusions

8.1 The GCAP Interaction

The F-35 program now coexists with the **Global Combat Air Programme (GCAP)**, the UK-Italy-Japan initiative to build a sixth-generation fighter (Tempest). There is a strategic interplay between the two:

- **Technology Transfer:** Capabilities developed for F-35 (e.g., advanced sensing, data fusion) are feeding into the GCAP knowledge base.
- **Budgetary Tension:** There is a risk that cost overruns in the F-35 program could crowd out funding for GCAP, or vice-versa. The decision to cap the F-35 buy at 74 for now (with the 138 figure remaining aspirational) reflects a balancing act between current stealth capability and future industrial sovereignty.

8.2 Conclusion

The F-35 Lightning II program is an industrial success story but an operational work-in-progress. For the UK aerospace sector, particularly in the South East, it has secured a generation of high-value work, embedding British engineering into the world's most ubiquitous fighter jet. The economic returns are tangible and immense.

However, the operational capability has not yet matched the industrial promise. The fleet is growing slowly, the training pipeline is fragile, and the critical sovereign weapons that would give the UK a qualitative edge are delayed by nearly a decade. The strategic pivot to the F-35A and the nuclear mission adds a new dimension of relevance to the fleet, ensuring it

remains central to UK defence policy. As the program matures into the 2030s, the challenge for the MoD will be managing the "Block 4" transition while ensuring that the industrial benefits continue to flow to the specialized clusters in the South East and beyond.

---

9. Data Appendices

Table 1: UK F-35 Fleet and Procurement Status (2025)

Metric	Status / Value	Notes
Operational Fleet	37 Aircraft	38 delivered, 1 lost (CSG21).
Tranche 1 Order	48 Aircraft	Deliveries ongoing; completion delayed to April 2026 due to TR-3 hold.[10]
Tranche 2 Commitment	27 Aircraft	Planned mix of F-35B and F-35A.[4]
Total Program of Record	138 Aircraft	Official requirement, though timeline undefined.
Basing	RAF Marham	617 Sqn, 207 Sqn (OCU), 809 NAS (standing up).

Table 2: Key South East England F-35 Supply Chain Cluster

Company	Location	Component / System	Significance
BAE Systems	Rochester, Kent	Active Inceptor Systems (Side-sticks)	Critical flight control interface; £220m site investment. [33]
Eaton	Titchfield, Hants	Ground Maintenance Motor Pump (GMMP)	Dual-use hydraulic/electric pump; safety critical backup. [18]
L3Harris	Brighton, Sussex	Pneumatic Carriage & Release Systems	Cleaner, stealthier weapon release; global monopoly on F-35.[22]
Collins Aerospace	Crawley, Sussex	Training Systems / Simulators	Visual systems for pilot training; critical due to high flight hour costs. [23]
Leonardo UK	Southampton, Hants	Infrared Detectors (CMT)	Sensors for EOTS and DAS; enables 360-degree vision.[24]
Martin-Baker	Denham (nr SE)	US16E Ejection Seat	Sole source for all F-35s globally; high recurring revenue. [16]

Table 3: Weapon Integration Delays (Sovereign Capability)

Weapon System	Original Target	Current Forecast	Cause
Meteor (BVRAAM)	2024/2025	Early 2030s	Block 4 Software delays; JPO integration scheduling.[3]
SPEAR 3 (Strike)	2025	Early 2030s	Block 4 Software delays; "Re-baselining" of program.[2]
Paveway IV	In Service	In Service	Integrated on early software blocks.
ASRAAM	In Service	In Service	Integrated on early software blocks.

Table 4: Economic Impact Indicators

Indicator	Value	Source
Total GVA (2007 - 2046)	£45.2 Billion	KPMG / Lockheed Martin Reports.[1]
Annual GVA (South East/West)	£7.1 Billion (2024)	ADS Group Defence Sector Output.[17]
Total UK Jobs Supported	~20,000	Direct and indirect engineering/manufacturing.[32]

Workshare per Aircraft	~15%	By value (excluding propulsion). [7]

Works cited

1. United Kingdom - F-35 Lightning II, accessed on November 27, 2025, https://www.f35.com/f35/global-enterprise/united-kingdom.html
2. No Spear 3 for British F-35B before 2030 - Calibre Defence, accessed on November 27, 2025, https://www.calibredefence.co.uk/no-spear-3-for-british-f-35b-before-2030/
3. Meteor integration on F-35B delayed from 2027 to early 2030s - UK Defence Journal, accessed on November 27, 2025, https://ukdefencejournal.org.uk/meteor-integration-on-f-35b-delayed-from-2027-to-early-2030s/
4. The UK's F-35 Procurement Strategy: A Balancing Act - Wavell Room, accessed on November 27, 2025, https://wavellroom.com/2025/07/04/the-uks-f-35-procurement-strategy-a-balancing-act/
5. Lockheed Martin F-35 Lightning II - Wikipedia, accessed on November 27, 2025, https://en.wikipedia.org/wiki/Lockheed_Martin_F-35_Lightning_II
6. Lockheed Martin F-35 Lightning II procurement - Wikipedia, accessed on November 27, 2025, https://en.wikipedia.org/wiki/Lockheed_Martin_F-35_Lightning_II_procurement
7. The UK's F-35 stealth fighter capability - Parliament UK, accessed on November 27, 2025, https://publications.parliament.uk/pa/cm5901/cmselect/cmpubacc/1232/report.html
8. British F-35 role shifts from 'Tier One' to specialist ally, accessed on November 27, 2025, https://ukdefencejournal.org.uk/british-f-35-role-shifts-from-tier-one-to-specialist-ally/
9. UK to purchase F-35As and join NATO nuclear mission under DE&S-supported deal, accessed on November 27, 2025, https://des.mod.uk/uk-to-purchase-f-35as-and-join-nato-nuclear-mission/
10. F-35 delivery delayed to 2026 with no penalty for contractor - UK Defence Journal, accessed on November 27, 2025, https://ukdefencejournal.org.uk/f-35-delivery-delayed-to-2026-with-no-penalty-for-contractor/
11. United Kingdom's F-35 Program Slammed For Cost-Saving Blunders - The War Zone, accessed on November 27, 2025, https://www.twz.com/air/united-kingdoms-f-35-program-slammed-for-cost-saving-blunders
12. F-35 Lightning II - BAE Systems, accessed on November 27, 2025, https://www.baesystems.com/en/product/f-35-lightning-ii---programme-overview
13. F-35 | Products & Services - BAE Systems, accessed on November 27, 2025, https://www.baesystems.com/en/product/f-35

14. Where the Lockheed Martin F-35 is actually built - Aerospace Global News, accessed on November 27, 2025, https://aerospaceglobalnews.com/news/where-is-the-lockheed-martin-f-35-built/
15. How Many International Parts Are In The US F35 Fighter Jet? - Simple Flying, accessed on November 27, 2025, https://simpleflying.com/how-many-international-parts-us-f-35-fighter-jet/
16. Martin Baker awarded $8.7m for F-35 ejection seats - UK Defence Journal, accessed on November 27, 2025, https://ukdefencejournal.org.uk/martin-baker-awarded-8-7m-for-f-35-ejection-seats/
17. The contribution of the defence industry to UK regions - The House of Commons Library, accessed on November 27, 2025, https://commonslibrary.parliament.uk/research-briefings/cbp-10335/
18. Eaton's ground maintenance motorpump for F-35 joint strike fighter, accessed on November 27, 2025, https://www.eaton.com/content/dam/eaton/markets/success-stories/lockheed-martin.pdf
19. Eaton's new ground maintenance motorpump optimizes safety, weight savings and power management for F-35 Joint Strike Fighter, accessed on November 27, 2025, https://www.eaton.com/us/en-us/markets/success-stories/lockheed-martin-F-35.html
20. MAPPED: The UK companies arming Israel, including producers for the F35 combat aircraft, accessed on November 27, 2025, https://caat.org.uk/data/countries/israel/mapped-all-the-uk-companies-manufacturing-components-for-israels-f35-combat-aircraft/
21. F-35 Lightning II Avionics | L3Harris® Fast. Forward., accessed on November 27, 2025, https://www.l3harris.com/all-capabilities/f-35-lightning-ii-avionics
22. L3Harris' UK-Based Release and Integrated Solutions Business Builds on 70 Years of Success, accessed on November 27, 2025, https://www.l3harris.com/newsroom/editorial/2025/09/l3harris-uk-based-release-and-integrated-solutions-business-builds-70
23. United Kingdom - Collins Aerospace, accessed on November 27, 2025, https://www.collinsaerospace.com/who-we-are/about-us/global/europe/uk
24. Airborne Lasers | Leonardo in the UK, accessed on November 27, 2025, https://uk.leonardo.com/en/electronics/airborne-lasers
25. Luton | Leonardo in the UK, accessed on November 27, 2025, https://uk.leonardo.com/en/about/uk-locations/luton
26. F-35 TR-3 Deliveries Begin, accessed on November 27, 2025, https://www.f35.com/f35/news-and-features/F-35-TR-3-Deliveries-Begin.html
27. Is the UK's F-35 fleet irrevocably broken? - Airforce Technology, accessed on November 27, 2025, https://www.airforce-technology.com/news/is-the-uks-f-35-fleet-irrevocably-broken/
28. MPs warn F-35 jet faces critical gaps and rising costs - UK Defence Journal,

accessed on November 27, 2025, https://ukdefencejournal.org.uk/mps-warn-f-35-jet-faces-critical-gaps-and-rising-costs/
29. The integration of the MBDA Meteor BVR missiles into the Royal Air Force's stealth F-35B fighters is facing new issues and delays - Zona Militar, accessed on November 27, 2025, https://www.zona-militar.com/en/2025/06/10/the-integration-of-the-mbda-meteor-bvr-missiles-into-the-royal-air-forces-stealth-f-35b-fighters-is-facing-new-issues-and-delays/
30. SPEAR 3: UK has "low confidence" in timeline as in-service now by 2030s, accessed on November 27, 2025, https://www.airforce-technology.com/news/spear-3-uk-has-low-confidence-in-timeline-as-in-service-now-by-2030s/
31. The importance of F-35 to the UK economy and defence - Politicshome.com, accessed on November 27, 2025, https://www.politicshome.com/members/article/importance-f35-uk-economy-defence
32. Of Defence Policy Procurement Frustration. PLUS – KPMG – UK Economic Contribution Impact Assessment of Lockheed Martin F-35 By Howard Wheeldon, FRAeS, Wheeldon Strategic Advisory Ltd. - BATTLESPACE Updates, accessed on November 27, 2025, https://battle-updates.com/of-defence-policy-procurement-frustration-plus-kpmg-uk-economic-contribution-impact-assessment-of-lockheed-martin-f-35-joint-s-by-howard-wheeldon-fraes-wheeldon-strategic-advisory-ltd/
33. Integrated Flight and Fire Mission Systems - BAE Systems, accessed on November 27, 2025, https://www.baesystems.com/en/product/mission-systems