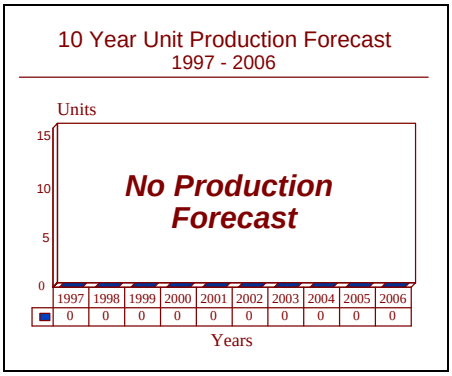
Sky Flash - Archived 12/98

Outlook

- BAe is still awaiting an initial customer order for the Active Sky Flash
- UK defense budget problems have repeatedly delayed the anticipated procurement by the RAF of a new medium-range AAM
- Production of the original Sky Flash missile has been concluded



Orientation

Description. All-weather, medium-range air-to-air missiles.

Sponsor. British Ministry of Defence; London, England through the Royal Air Force. The Active Sky Flash and S225X programs are private development efforts sponsored by British Aerospace, Saab Missiles and Thomson-CSF.

Contractors. British Aerospace Dynamics Group; Hatfield, Hertfordshire, England, UK, is the prime contractor for the Sky Flash, which was developed from the AIM-7E Sparrow missile airframe, and the Active Sky Flash. Production is accomplished at Lostock, Lancashire, England. This program was formerly known as UK Sparrow. British Aerospace is also cooperating with Saab Missiles and Thomson-CSF on the S225X concept study for Sweden.

Major Subcontractors. Aerojet, BAJ Ltd (Hoopoe Mark II SPR motor, hydraulic accumulator), EMI Electronics Ltd, Ericsson Radio Systems AB (Viggen aircraft integration), M-O Valve (magnetrons, trigger switch), Marconi Defence Systems Ltd (active radar seeker), Morfax (launch mechanism), Raytheon, Saab-Scania (GR-G5 rate gyros), Smiths Industries (500 series accelerometers), Sterling Metals (casing equipment), Thomson-CSF and Thorn EMI Electronics Ltd (radar proximity fuze) and Volvo Flygmotor (motor technical assistance).

Licensees. Forenade Fabriksverken, Eskilstuna and Saab-Scania, Linkoping, Sweden (component production under subcontract to British Aerospace for the RB71, Swedish version).

Status. Development of Active Sky Flash is proceeding, although British Aerospace is awaiting an initial customer order prior to completing development. The Active Sky Flash is approximately 80-percent complete. British Aerospace's initial Sky Flash follow-on program, known as Sky Flash Mark II, was halted on January 20, 1981. Production of the original Sky Flash has been concluded; first deliveries of the Swedish RB71 were made in October 1980.

Saab Missiles and British Aerospace, in cooperation with Thomson-CSF, are proceeding with a concept study for the development of a new, medium-range air-to-air missile, the S225X. This new program would provide a follow-on to the RB71/RB71A (the Swedish designations for the Sky Flash and Active Sky Flash missiles), and could help to form the basis for a next generation, pan-European MRAAM.

Total Produced. Approximately 4,600 Sky Flash, Active Sky Flash and RB71 missiles were completed or in production as of the end of 1993. The British Royal

Air Force requirement for Sky Flash was estimated at about 2,500 missiles. BAe estimates the total Active Sky Flash market as roughly 4,500 missiles.

Production of the original Sky Flash ended in 1990 after the United Kingdom's inventory requirement was met (this figure had once been said to stand at 3,000 units). BAe is offering to upgrade the Royal Air Force's inventory of Sky Flash missiles with the Active Sky Flash seeker. In Sweden, fabrication has been completed with the acquisition of 1,850 missiles.

Application. Medium-range air-to-air missile which equips Royal Air Force Panavia Tornado F2 and F-4 aircraft. The RB71 equips Sweden's Saab JA 37 Viggen interceptors.

Price Range. The unit cost for serially produced Sky Flash/RB71 missiles is placed at $458,200 per unit in Fiscal 1994 dollars.

Technical Data

Dimensions	**Metric**	**US**
Missile Length	366 cm	12.01 ft
Missile Diameter	20.3 cm	7.99 in
Missile Weight	193 kg	424.6 lb
Missile Finspan	102 cm	40.16 in
Performance		
Speed	Mach 4	Mach 4
Altitude	75-16,000 m	246.06-52,493 ft
Range (min)[(a)]	5 km	2.7 nm
Range (max)	50 km	26.98 nm
Maximum g load at 6,000 m	30 g	30 g
Max Target Altitude	18,200 m	59,500 ft

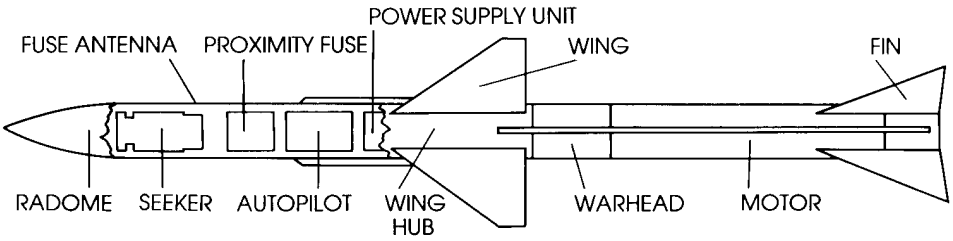
[(a)] estimate

Propulsion. One Aerojet Mark 52 PB/AP solid-propellant rocket designated Hoopoe. The Active Sky Flash could be equipped with a new solid-propellant rocket motor. The new motor could be based on the engine used onboard the Alenia-built Aspide missile. The new motor would give the Active Sky Flash and Sky Flash a maximum speed of Mach 5. Saab and BAe were considering the integration of a ramjet, but this was shelved on cost grounds. However, these plans could be resurrected as part of the S225X program.

Control & Guidance. Semi-active, inverse-monopulse Doppler radar homing head manufactured by Marconi Space & Defence Systems Ltd; Stanmore, England. Other components are supplied by Raytheon. The cruciform aerodynamic control surfaces are hydraulically actuated. The Active Sky Flash seeker will be supplied by Thomson-CSF. The Active Sky Flash is also expected to be equipped with a semi-digital autopilot with some retention of analog control; plus the receiver will be digitized. Active Sky Flash would also be equipped with a mid-course correction system.

Launcher Mode. Air-launched from underwing or centerline racks; Sky Flash can be launched from any aircraft capable of mounting the AIM-7 with little or no modification. Frazer-Nash has developed a new launcher for the Tornado F2 ADV. The F2 variant of the Tornado carries four missiles.

Warhead. A 30-kilogram (66-pound), continuous-rod high-explosive warhead, with contact and proximity fuzes produced by EMI Electronics Ltd; Hayes, England. The Active Sky Flash may be equipped with a new blast-fragmentation warhead. Bofors is developing the Active Sky Flash's new, more destructive warhead.



SKY FLASH

Source: British Aerospace

Variants/Upgrades

The Sky Flash program involves various systems, including the original semi-active guided missile developed by British Aerospace. Others include the Sky Flash Mark II, a development program to enhance range and maneuverability, which was eventually canceled. Active Sky Flash, also known as Sky Flash 90 and RB71A (the latter is a Swedish designation), is the currently developmental system and features an active radar homing head and slightly longer range. The RB71 is the Swedish designation for the original Sky Flash, which was produced under license by Stockholm. The RB73E is a follow-on to the RB71/RB71A, and will provide Sweden with a next-generation, medium-range air-to-air missile for its future combat aircraft. The RB73E could feature a new integral rocket/ramjet propulsion system. The S225X is a Saab/BAe concept study that could provide a system for the Swedish RB73E requirement, or even form the basis for a new, pan-European, medium-range air-to-air missile. BAe has also offered to upgrade the RAF's inventory of semi-active Sky Flash missiles to fully active configurations for its Tornado F.3s.

For additional information, please see the pertinent entries under the Program Review section.

Program Review

Background. The original requirement for Sky Flash arose in 1972, when it was decided that the RAF Phantom fleet should take over the air-defense role from the Lightning. As a consequence, a larger number of missiles was required than originally purchased. As the limitations of the existing Sparrow were known, particularly its vulnerability to electronic countermeasures (ECM), it also was decided that the missiles to be purchased should incorporate the latest technology, to allow a service life into the 1990s. An Air Staff Target was issued in January 1972, specifying a radar-guided, medium-range missile for the Phantom and the Tornado F2 air-defense variant when it entered service.

The United Kingdom's Ministry of Defence awarded Hawker Siddeley Dynamics a contract for project definition and pre-development studies of a medium-range, all-weather air-to-air missile derived from the Raytheon AIM-7E Sparrow. Raytheon had cross-licensing agreements with Hawker Siddeley Dynamics and Marconi Space and Defence Systems. The latter developed the new homing head, while EMI Electronics designed the advanced fuze system. The joint industry/Royal Aircraft Establishment study came to the conclusion that these two components, combined with a standard Sparrow airframe, would produce an advanced missile with low development costs. This was accepted and an Air Staff Requirement based on this concept, designated XJ521, was issued in January 1973. The Air Staff Requirement defined more closely the required improvements to the Sparrow, specifically: ECM resistance, discrimination in clutter and between grouped targets, reduced miss distance, improved fuzing, and increased reliability. Following project definition, which was completed in July 1973, the approval for full development was issued in December 1973.

In early 1974, Hawker Siddeley Dynamics was authorized to initiate full development and initial production of the boost and coast XJ521 missile, then redesignated as Sky Flash. The manufacturer began full production of the missile in 1977, and deliveries to the RAF commenced in early 1978. In April of 1978, Hawker Siddeley Dynamics became an integral part of British Aerospace and is now called British Aerospace Dynamics Group.

New Radar Homing Head. Under a separate contract, Marconi developed a new, semi-active radar homing head for the Sky Flash. This unit is completely self-contained and of modular construction, to provide the flexibility for later applications. The homing head measures 28.3 centimeters (11 inches) in length and is adaptable to a missile airframe of 18 centimeters (7.08 inches) inside diameter. This unit has flown in several AIM-7F missiles in place of similar monopulse seekers developed by Raytheon and General Dynamics, and also participated in the competitive fly-off to determine the supplier of these units for the United States' improved AIM-7F. Marconi was also involved in the initial stages of the AIM-120 AMRAAM program with Ford Aerospace & Communications (now part of Loral Corporation).

Missile Models. The Sky Flash program overall has included a number of different versions, ranging from the original missile system to the S225X.

Sky Flash. The Sky Flash program has been a very successful one, featuring relatively low development costs and a high success rate in tests of various types of targets operating in various flight parameters in varying levels of electronic countermeasures.

Sky Flash is based on the Raytheon AIM-7E Sparrow. It retains the US-manufactured airframe, motor and warhead. These are combined with UK-designed seeker, autopilot, fuzes and power supply unit. It can be rail- launched from underwing pylon mountings or ejected from semi-recessed positions under the fuselage. Some adaptation is required to fit Sky Flash, but this has been quoted as being only around 1,000 pounds per platform. The capability to fire standard Sparrow is retained. From front to rear, the missile comprises the radar seeker, radar proximity fuze, auto pilot and electrical power unit.

The semi-active radar seeker, which has high subclutter visibility, was developed by Marconi Defence Systems. It is of the inverse-monopulse type, with an antenna steerable in elevation and azimuth, providing an all-around look-angle of more than 40 degrees, a receiver and a signal processor. The seeker is a self-contained unit which can be easily removed for maintenance and testing, and simplified further by the use of printed circuit boards for specific functions. The seeker operates in J-band and is tuned to the frequency of the aircraft's airborne intercept (AI) radar after take-off. This is done by activating the missile, selecting the frequency and switching off. This, in turn, reduces the reaction time before firing to the two or three seconds required for the thermal batteries to activate, supply enough power for the various systems, and ignite the motor.

After the target has been detected and tracked by the aircraft radar, its expected Doppler frequency is supplied to the seeker, whose antenna is slaved to that of the radar as the aircraft is steered toward the target. The pilot selects short- or medium-range control system gains, while those for altitude are set automatically. When the firing button is pressed, the thermal batteries are activated, and the missile is launched two to three seconds later, accelerating to Mach 4 within five seconds and coasting until intercept.

The seeker detects the energy reflected by the target from the launch aircraft's Continuous Wave (CW) radar. A rear-facing antenna, which picks up signals transmitted directly from the launch aircraft, provides reference and comparison with the Doppler-shifted signals from the target, providing discrimination between the target and land or sea clutter, or between grouped targets. Any aiming error at launch can be corrected by steering commands, and the seeker then locks onto the signals reflected from the target. Having acquired the target, the missile follows a trajectory to interception which is based on proportional navigation. The lateral acceleration acquired is proportional to the missile/target sight-line rotation rate and closing speed. The flight is controlled by the autopilot, which turns commands from the seeker into movements of the wings, with one pair providing pitch control and one pair providing roll control, the latter being backed up by a roll-rate gyro.

A radar proximity fuze, developed by Thorn EMI Electronics, is fitted to the missile, which triggers the 30-kilogram (66-pound) continuous rod warhead when it is within lethal range of the target. This system also is inhibited until it is a safe distance from the launch aircraft. Contact fuzes are also fitted. The manufacturer claims that this system provides an increased single-shot kill capability against targets at all altitudes. This fuze has demonstrated a 100-percent reliability record in test firings. It is said to be almost immune to electronic countermeasures.

The missile has a snap-up/snap-down capability to engage targets flying 6,096 meters (20,000 feet) above or below the launch aircraft. Sky Flash has a snap start time of less than two seconds, and a 30-g capability at 6,100 meters altitude.

In April 1976, firing trials with Sky Flash were carried out by F-4J aircraft at the Pacific Missile Test Center in Pt. Mugu, California. The missiles, fired from a US Navy F-4J Phantom, scored direct hits better than 80 percent of the time, while also passing within lethal distance of the target on other occasions. Targets at all altitudes have been successfully engaged in snap-down, snap-up, level, and maneuvering attacks. Direct hits

were also scored against targets seeking to jam Sky Flash's guidance system.

By December 1978, the test program of firings for the United Kingdom were completed, with a total of 22 successful firings or passes and only two failures. Further firings carried out in the United States were part of a US Air Force and Navy technical evaluation, including a separation trial from an F-16, conducted in July 1979. Other test firings of note were the first firing by a Swedish Air Force Viggen in April 1979, resulting in the destruction of the target drone; and the first firing by a RAF Phantom in the United Kingdom in August 1979, which resulted in the destruction of the Meteor drone aircraft over the RAE Aberporth range in Wales.

The first unguided live firing of Sky Flash from a Tornado ADV aircraft was successfully conducted in November 1981. In February 1985, the first guided launch of a Sky Flash missile from an RAF Tornado F.2 interceptor aircraft was executed successfully. The firing, against a subsonic Jindivik target drone, was performed out of visual range, with the missile tracking the target until a direct hit was scored.

Prior to the aircraft's demise, British Aerospace had been touting Sky Flash as an excellent beyond-visual-range missile for Northrop's F-20 (formerly F-5G). Meanwhile, another push is still being made by British Aerospace to integrate Sky Flash with the F-16. This effort is being made in the F-16 export market, as it is felt that some customers might not wish to wait for the AIM-120 AMRAAM for the F-16, as the US Air Force plans to do. As of this writing, nothing has come of this effort.

Perhaps the most promising effort is the one to integrate Sky Flash with the Sea Harrier. A separate, continuous wave illuminating radar would have to be added to supplement the Ferranti Blue Fox radar already on the Sea Harrier. This plan has gained followers since the Falklands War, where the lack of a medium-range air-to-air missile was a severe handicap on operations.

Sky Flash Upgrade. British Aerospace has offered an upgrade package for the Royal Air Force's Sky Flash missile inventory. BAe has proposed to integrate the active seeker developed under the Active Sky Flash program, using the same airframe, but also a new digital control system. Funding for this upgrade became available due to the cancellation of the Tornado F3 mid-life upgrade, which included avionics and wiring, so the aircraft could have carried the AMRAAM. The interceptor is scheduled to continue service through the year 2005.

RB71 Sky Flash. In October 1976, the Swedish Air Force selected Sky Flash for evaluation on the Saab JA 37 interceptor. The Swedes have since made additional purchases of Sky Flash, which is known as the RB71 in that country. The missile/airframe integration program proceeded smoothly, and the initial service date was achieved ahead of schedule. Forenade Fabriksverken and Saab-Scania undertook component production for the RB71 under a subcontract to British Aerospace. The total contract is now reportedly worth $161.5 million (US). Flight testing was completed in early 1980 and first deliveries commenced in late 1980.

Sky Flash Mark II. British Aerospace Dynamics Group had started development of a Sky Flash Mark II with enhanced range and maneuverability along with an advanced fire-control system with multi-target capability. Operational reliability in an intense electronic-countermeasures environment was paramount in the design of this missile, which was intended to directly compete with the AIM-120 AMRAAM. However, on January 20, 1981, British Defence Minister John Nott announced that Sky Flash II would be terminated and that the United Kingdom would await development of AMRAAM, which was expected to be available by 1989.

British Aerospace has reassigned some of the 400 personnel formerly involved with Sky Flash II to the AIM-132 ASRAAM program. (See separate report.)

Active Sky Flash/Sky Flash 90/RB71A. While the United Kingdom canceled the Mark II version of Sky Flash in 1981 in favor of the AIM-120 AMRAAM, British Aerospace, Marconi Defence Systems and the Swedish government embarked on the preliminary stages of a program to develop a new active seeker Sky Flash. Originally designated Sky Flash 90 but now called Active Sky Flash by British Aerospace and RB71A by Sweden, this missile is to feature active radar homing and technology equal or superior to the AIM-120 AMRAAM. The Active Sky Flash/RB71A will have a slightly longer range than the original Sky Flash due to the integration of a new rocket motor from Royal Ordnance. Sometime in the latter part of the 1990s, the missile could receive a new, more powerful rocket motor (see Propulsion section). Marconi Defence Systems was developing an active-radar millimeter wave seeker for the missile, but British Aerospace eventually selected a Thomson-CSF alternative.

Thomson-CSF was selected as the subcontractor for the Active Sky Flash's seeker system in 1989. According to company officials, the seeker will use technologies originally developed by Thomson-CSF, such as a highly frequency-stable, all-solid-state transmitter and very advanced signal processing, to ensure target detection even in a severe electronic countermeasures (ECM) environment. Much of the technology used will come

from the Kormoran 2 antiship missile (see separate report).

While the United Kingdom has shown only a little interest in Active Sky Flash due to its involvement with AMRAAM, British Aerospace states that government support could come about as a guarantee against AMRAAM's technical troubles, excessively high per unit price, or cancellation. The most significant feature of Active Sky Flash/RB71A will be its price, which is expected to be around $260,000. British Aerospace also sees potential for Active Sky Flash with other nations unwilling or unable to procure the AMRAAM. The team is also considering offering a modification kit to convert the current worldwide Sky Flash missile inventory into active systems.

In 1988, the Swedish government allocated $254.1 million (SEK 1,500 million) for the development of the RB71A (Sweden is said to be developing a seeker system for the RB71A independently, and this is the part of the program expected to be terminated). The missile is presently 80-percent complete, with British Aerospace awaiting its first order to finish the remaining 20 percent. The company has said that it could have production missiles ready for delivery three years after placement of the order. However, the Active Sky Flash program received an additional setback in 1994 with Sweden's decision to procure the US-built AIM-120 AMRAAM.

RB73E. With the denial of the AIM-9L Sidewinder still fresh in their minds, the Swedish government has been considering the initiation of a development program in the event that the AMRAAM is also denied by the United States. However, this program has been an on-again/off-again affair, with its fortunes changing from year to year. The new missile requirement, designated RB73E, would be a follow-on improvement to the RB71/Active Sky Flash, featuring a new integral rocket/ramjet propulsion system. This combination would enable the missile to attain speeds of Mach 4 or 5, reducing engagement time despite having to cover twice the distance of the RB71 and RB71A. A ramjet system is proposed for this missile, and work on such a propulsion system is being undertaken by Volvo Flygmotor, which has cooperated with Marquardt of the United States or Aerospatiale of France.

The missile, if built, would retain the same basic seeker system as Active Sky Flash/RB71A, although possibly with some enhancements. Sweden did hold talks with Marconi and Dassault Electronique (formerly Electronique Serge Dassault or ESD), the team that lost to Thomson-CSF for the Active Sky Flash seeker contract, concerning alternative seekers. There was a possibility that the Swedish RB73E could have used a Marconi/Dassault active seeker, although no agreements were reached. Feasibility studies by Volvo and Saab have been completed. A vertical-launch, surface-to-air version of the RB73E is under consideration.

An official decision on whether to proceed with this development program has yet to be made, although Swedish industry officials have indicated that the RB73E will not be developed at this time. Sweden may simply fulfill its near-term, medium-range air-to-air missile requirement with a foreign-designed system (such as MICA, AMRAAM, etc.), and merely delay development of a next-generation medium-range system. Swedish government officials had previously recommended shelving the RB73E program in favor of a foreign alternative, and to concentrate on the development of a new air-to-surface (TSA - Heavy Guided Attack Weapon) missile.

The Swedish supreme command said that the $1.6 billion needed to develop the RB73E made it too expensive for the Swedish air force. However, the Swedish military's statements were based on the highest estimated RB73E per-unit price. An evaluation of ways to integrate the alternative missile systems with the JAS 37 and JAS 39 has been recommended by the Swedish Defense Material Administration. A possible indication that Sweden will continue its RB73E efforts could be the initiation of the S225X concept study by Saab Missiles and British Aerospace. Sweden has stated that it wants to maintain its air-to-air missile development/production capabilities.

S225X. The S225X medium-range air-to-air missile concept study was launched by Saab Missiles and British Aerospace, in cooperation with Thomson-CSF. The S225X is being privately funded by BAe and Saab and is seen as a follow-on to Active Sky Flash. The missile is aimed at equipping the JAS.39 and Eurofighter 2000 (formerly the European Fighter Aircraft or EFA). However, wider exports are also being examined. The S225X has an in-service target date of around the year 2000, although presently the missile exists in laboratory form only. For additional information please see the separate Pan-European MRAAM report.

Funding

The Sky Flash program is funded by the British Ministry of Defence through the Royal Air Force. The Sky Flash total program costs are placed at about £770 million by the British Ministry of Defence. Active Sky Flash is a

privately funded program. If the Active Sky Flash is procured, it will likely be in the form of a modification effort for the existing Sky Flash inventory. The funding became available when plans to perform a Tornado F3 mid-life upgrade was canceled.

Swedish Missile Cost Concerns. The Swedish government had expressed growing concern over the rising costs of both the RB71A and RB73E missile programs. Apparently, the government was worried that spiraling costs could lead to the system's becoming too expensive to procure. Estimates had placed Active Sky Flash development cost in Sweden at $1 billion, and rising. According to reports, the RB73E program may have been as much as $300 million (SEK 2,000 million) over its original budget. (Sweden had budgeted only $254.1 million [SEK 1,500 million] for both programs.) The Swedish Defense Ministry and the Defense Material Administration were considering cost-cutting measures which could have lead to changes in technical specifications or a modification of the Swedish/United Kingdom work-sharing agreement.

Sweden was said to be feeling that the UK's interest in the new missile had diminished as the result of altered missile priorities (the possibility of a UK procurement program for Active Sky Flash is quite unlikely) and US offers of the AMRAAM. BAe's original Active Sky Flash offer had been rejected by Sweden, but the company made a new, less expensive offer which was under consideration prior to the selection of AMRAAM. BAe was attempting to establish improvements that could have been added in-country to bring the baseline missile in line with JAS 39 requirements.

Recent Contracts

No specific information is available concerning missile procurement contracts pertaining to any of these systems.

Timetable

	1973	Program outline conceived
Jan	1973	Air Staff Requirement issued
Jul	1973	Project definition complete
Mid	1973	Research and development initiated
Dec	1973	Full-scale engineering modifications
Late	1975	Full Sky Flash production contract awarded
	1976	Flight evaluations/selection by Swedish Government
	1976	Firing evaluations by USAF
Late	1977	Sky Flash evaluated by US Navy
May	1977	Delivery of first production Sky Flash to RAF
Dec	1978	Swedish air force awarded BAe contract for Sky Flash
Late	FY78	Successful launch with General Dynamics' F-16
	1979	Sky Flash component production agreement with Sweden
Mar	1980	Start of firing trials with Tornado ADV
	1980	Initial deliveries to Sweden
		Limited IOC JA 37 Viggen
	1981	Full operational capability with RAF
Jan	1981	Sky Flash II development terminated
Dec	1981	Sky Flash launched from Tornado
Late	1985	Active Sky Flash program announced
Oct	1987	Foxhunter radar fires two Sky Flash missiles
Nov	1988	Production continued for the United Kingdom and Sweden; development of Active Sky Flash continued
	1989	Thomson-CSF seeker selected for Active Sky Flash
Late	1990-91[(a)]	First live firings of Active Sky Flash
	1992	Active seeker upgrade package offered to RAF for Sky Flash
	1994	Sweden selects AMRAAM for medium-range missile requirement

[(a)]estimated

Worldwide Distribution

British Aerospace plans to market the semi-active and fully-active variants to those areas unlikely to receive speedy delivery of the AIM-120A AMRAAM. Also targeted by BAe are users of the F-16. A recent sales push conducted by BAe and Thomson-CSF to market the Active Sky Flash to Asian air forces equipped with the F-16 has revealed heavy interest in the system. Potential customers for the missile include Bahrain, Indonesia, Pakistan, Singapore, the Republic of (South) Korea and Thailand. The missile will also be offered to Israel and Egypt.

In 1994, Sweden selected the US-built AIM-120 AMRAAM for its medium-range air-to-air missile need, edging out the MICA-Active and Active Sky Flash. The United Kingdom's Royal Air Force has yet to make a firm decision on whether it will procure the Active Sky Flash. Other potential customers include Saudi Arabia and Kuwait.

User Country(s). Sky Flash is deployed by **Sweden** and the **United Kingdom**. Aircraft platforms include: Royal Air Force - F-4J Phantom, Tornado F. Mark 2/3; Swedish air force - JA 37 Viggen and JAS 39 Gripen; Others - Hawk 200 and Tornado ADV for **Saudi Arabia**. No country currently operates the Active Sky Flash.

Forecast Rationale

Matra BAe Dynamics is not expected to be awarded any production contracts for the Active Sky Flash. Support for this program seems to have waned and the current UK government is unlikely to invest considerable amounts in a missile that will not be able to match the capabilities of its closest competitor – the AIM-120 AMRAAM. The Royal Air Force (RAF) repeatedly stated its misgivings with the Active Sky Flash program, especially concerning the missile's less-than-desirable performance capabilities.

Presently, the RAF is more interested in acquiring a true next generation medium-range air-to-air missile than allocating funds for Active Sky Flash. In the competition to win the UK SR(A) 1239 FMRAAM contract, Matra BAe Dynamics, along with its European partners, is offering an all-new missile called Meteor, not the Active Sky Flash. With no interest in the Active Sky Flash at home and little being expressed overseas, production of this missile is not even a remote possibility.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

			High Confidence Level			Good Confidence Level			Speculative				
Missile	(Engine)	thru 96	97	98	99	00	01	02	03	04	05	06	Total 97-06
BRITISH AEROSPACE PLC/DYNAMICS													
ACTIVE SKYFLASH (a)	UNSPECIFIED	18	0	0	0	0	0	0	0	0	0	0	0
RB71	HOOPOE	1947	0	0	0	0	0	0	0	0	0	0	0
SKYFLASH (b)	HOOPOE	2633	0	0	0	0	0	0	0	0	0	0	0
SKYFLASH II (c)	HOOPOE	2	0	0	0	0	0	0	0	0	0	0	0
Total Production		4600	0	0	0	0	0	0	0	0	0	0	0

(a)Thru years include component test and integration systems, and other RDT&E units.
(b)Thru years include about 30 RDT&E prototypes, contractor and operational test missiles.
(c)RDT&E prototypes.