= Hawker Siddeley P.1154 =

The Hawker Siddeley P.1154 was a planned supersonic vertical / short take @-@ off and landing (V / STOL) fighter aircraft designed by Hawker Siddeley Aviation (HSA) .

Developed alongside the subsonic and smaller Hawker Siddeley P.1127 / Kestrel , the P.1154 was derived from the P.1150. The P.1150 proposal did not meet NATO Basic Military Requirement 3 and , consequently , the P.1154 was born . This Mach 2 @-@ capable aircraft retained plenum chamber burning previously designed for the P.1150. Although the technical winner of eleven submissions , follow @-@ on testing and production for the P.1154 did not proceed as a result of political strife .

Meanwhile , Hawker Siddeley considered modifying the airframe for a joint specification for an aircraft by the RAF and Royal Navy . Between 1961 and 1965 the two services harmonised their specifications to preserve design commonality . However , the RAF 's desired configuration was to take precedence over that of the Royal Navy 's . A number of proposals were submitted ? at one stage , a twin @-@ Spey design was considered , then rejected . Following the Labour government 's coming to power the project was cancelled in 1965 . The Royal Navy would acquire the McDonnell Douglas F @-@ 4 Phantom II , while the RAF continued to foster development of the P.1127 (RAF) , leading to the successful Harrier Jump Jet family .

= = Development = =

= = = NATO requirements = = =

In 1961 , during the development of the V / STOL P.1127 and Kestrel , HSA considered the feasibility of a supersonic V / STOL aircraft . This was influenced by a general perception at the time that supersonic aircraft held significantly more value than subsonic aircraft . Consequently , on 13 April 1961 , HSA decided to conduct preliminary work on a supersonic P.1127 under the guidance of Ralph Hooper . The aircraft , designated P.1150 and 50 % larger than the P.1127 , would employ plenum chamber burning (PCB) ? essentially an afterburner in the previously cold forward nozzles ? in the engine . The engine was a Pegasus development named the BS.100 , and had four swivelling exhaust nozzles . The front nozzles were equipped with PCB , which uses the same principle as an afterburner , allowing the aircraft to theoretically reach speeds of Mach 1 @.@ 7 ? 2 .

The design effort was initially undertaken to cater for NATO Basic Military Requirement 3 (NBMR @-@ 3) , which was issued in August 1961 . Specifications called for a supersonic V / STOL strike fighter with a combat radius of 460 kilometres (250 nmi) . Cruise speed was to be Mach 0 @.@ 92 , with a dash speed of Mach 1 @.@ 5 . The aircraft , with a 910 @-@ kilogram (2 @,@ 000 lb) payload , had to be able to clear a 15 @-@ metre (50 ft) obstacle following a 150 @-@ metre (500 ft) takeoff roll . However , as requirement specifications changed , the aircraft was considered undersized ; subsequent studies confirmed these fears , and so Bristol enlarged the original PCB engine and raised the exhaust heat to increase thrust to 146 @.@ 8 kN (30 @,@ 000 lbf) . A new larger design emerged , initially named P.1150 / 3 before being redesignated the P.1154.

NBMR.3 also attracted ten other contenders , among which was P.1154 's principal competitor , the Dassault Mirage IIIV . This design employed a separate lift / thrust engine concept whereby eight Rolls @-@ Royce engines would provide lift , with a single Turboméca Atar for thrust . The Mirage IIIV was supported by British Aircraft Corporation . HSA submitted its design to NATO through the Ministry of Aviation (MoA) on 8 January 1962 and , in May that year , the P.1154 emerged as the winner in the competition for the NBMR.3 over the Mirage IIIV . The P.1154 was judged to be technically superior , however the Mirage was politically palatable due to the co @-@ operative development and production across member nations . The project was terminated in 1965 after the French government subsequently withdrew following the selection of the P.1154 over the Dassault design .

= = = RAF and Royal Navy requirements = = =

On 6 December 1961 , before the design was submitted to NATO , it was decided that the P.1154 would be developed with the requirements for use by both the RAF and the Royal Navy . In February 1962 , the Royal Navy 's Admiralty received the aircraft concept with great interest as the Royal Navy was seeking a new interceptor aircraft for their aircraft carriers . As a single aircraft , the P.1154 would replace Hawker Hunters of the RAF and the de Havilland Sea Vixens of the Fleet Air Arm (FAA) . However , the services sought different characteristics in their aircraft ? the RAF desired a single @-@ seat fighter with secondary intercept capability , while the Royal Navy wanted a two @-@ seat interceptor capable of secondary low @-@ level strike capability .

Although financially and politically committed to a joint requirement with the Royal Navy , the RAF 's single @-@ seat design took precedence over the two @-@ seat version of the Royal Navy . However , RAF P.1154s would have to accommodate the Navy 's large airborne intercept (AI) radar . When HSA submitted the design on 8 August , the Royal Navy criticised the proposal , which had a tandem undercarriage layout incompatible with catapult operations ; consequently , a tricycle undercarriage design was investigated and accepted as practical . In December that year , Rolls @-@ Royce offered a PCB @-@ equipped vectored thrust twin @-@ Spey design as an alternative . This was seen as inferior , however , and was not considered in great detail . The aircraft required PCB for vertical takeoff , but this caused significant ground erosion . The aircraft would have been armed with the Red Top missile .

With the RAF and Royal Navy requirements diverging , the aircraft 's development started to stumble . While modifications towards naval requirements had been made , by July 1963 weight gain had become a considerable issue , and the Navy was openly criticising the choice of V / STOL . However , despite a stated Navy preference for a swing @-@ wing fighter , on the 16 July 1963 the services agreed that the aircraft would be completely common , with the exception of different radar systems . By August 1963 Hawker Siddeley was expressing the view that range of changes made were damaging the aircraft 's potential for export . At the same time , the Navy stated that it regarded the P.1154 as a second @-@ rate interceptor , and the RAF openly decried the loss of strike performance . By October 1963 , the MoA was concerned with the project 's progress , and noted that the effort to combine a strike aircraft and a fighter in a single aircraft , and trying to fit that same airframe to both of the services , was " unsound " .

= = = Disfavour and cancellation = = =

In November 1963 , the RAF still found the P.1154 to be a suitable platform , while the Royal Navy appeared to consider the McDonnell Douglas F @-@ 4 Phantom II a better fit for its needs . In response , Hawker Siddeley focused its efforts on the RAF version . On 26 February 1964 , it was announced in the House of Commons by the Conservative government that a development contract had been placed for the P.1154 , equipped with the BS.100 engine , as an RAF strike aircraft . At the same time it was announced that the Naval requirement would be met by Spey @-@ engined Phantoms . More positive news emerged in 1964 ; on 30 October the BS.100 engine ran for the first time and Hawker Siddeley received favourable reports that the P.1154 was competitive with the performance of other aircraft , including the F @-@ 4 Phantom II .

However , on 2 February 1965 , the incoming Labour government , led by Harold Wilson , cancelled the P.1154 on the grounds of cost , along with several other aircraft such as the BAC TSR @-@ 2 strike aircraft and Hawker Siddeley HS.681 VSTOL transport . At the time of cancellation , at least three prototypes were under construction . Following the cancellation , the RAF and Royal Navy adopted the F @-@ 4 Phantom II instead , but the government also gave a contract for continued work on the P.1127 (RAF) , which led to the Harrier ; this name had originally been reserved for the P.1154 should it enter service . In retrospect , aviation author Tony Buttler considered the cancellation of the aircraft to be justified , noting the time consuming and expensive failures of attempts by other nations (such as Soviet / Russia 's Yak @-@ 41 and West Germany 's EWR VJ 101) at a supersonic VTOL aircraft . These aircraft all used a multiple engines configuration like the

Mirage IIIV , and not the single vectored thrust turbofan of the likes of the BS.100 and Pegasus which went on to great success in the Harrier .

= = Specifications (P.1154 ? RAF version) = =

Data from The British Fighter since 1912
General characteristics
Crew : 1
Length : 49 ft 5 in (15 @.@ 07 m)
Wingspan : 24 ft 0 in (7 @.@ 32 m)
Height : ( )
Max. takeoff weight : 30 @,@ 970 lb (14 @,@ 050 kg)
Powerplant : 1 × Bristol Siddeley BS.100 / 9 vectored @-@ thrust turbofan engine with PCB , 33 @,@ 000 lbf (147 kN) (with afterburning)
Performance
Maximum speed : Mach 1 @.@ 3 at sea level (Mach 2 @.@ 0 at altitude)
Service ceiling : 49 @,@ 000 ft (15 @,@ 000 m)
Armament
2 x 1000 lb bombs