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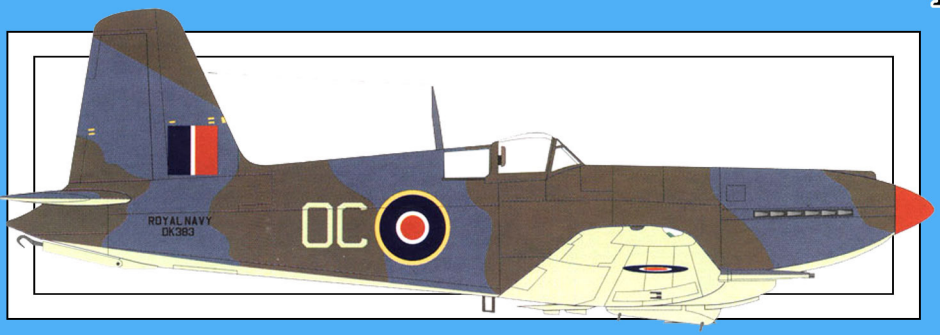
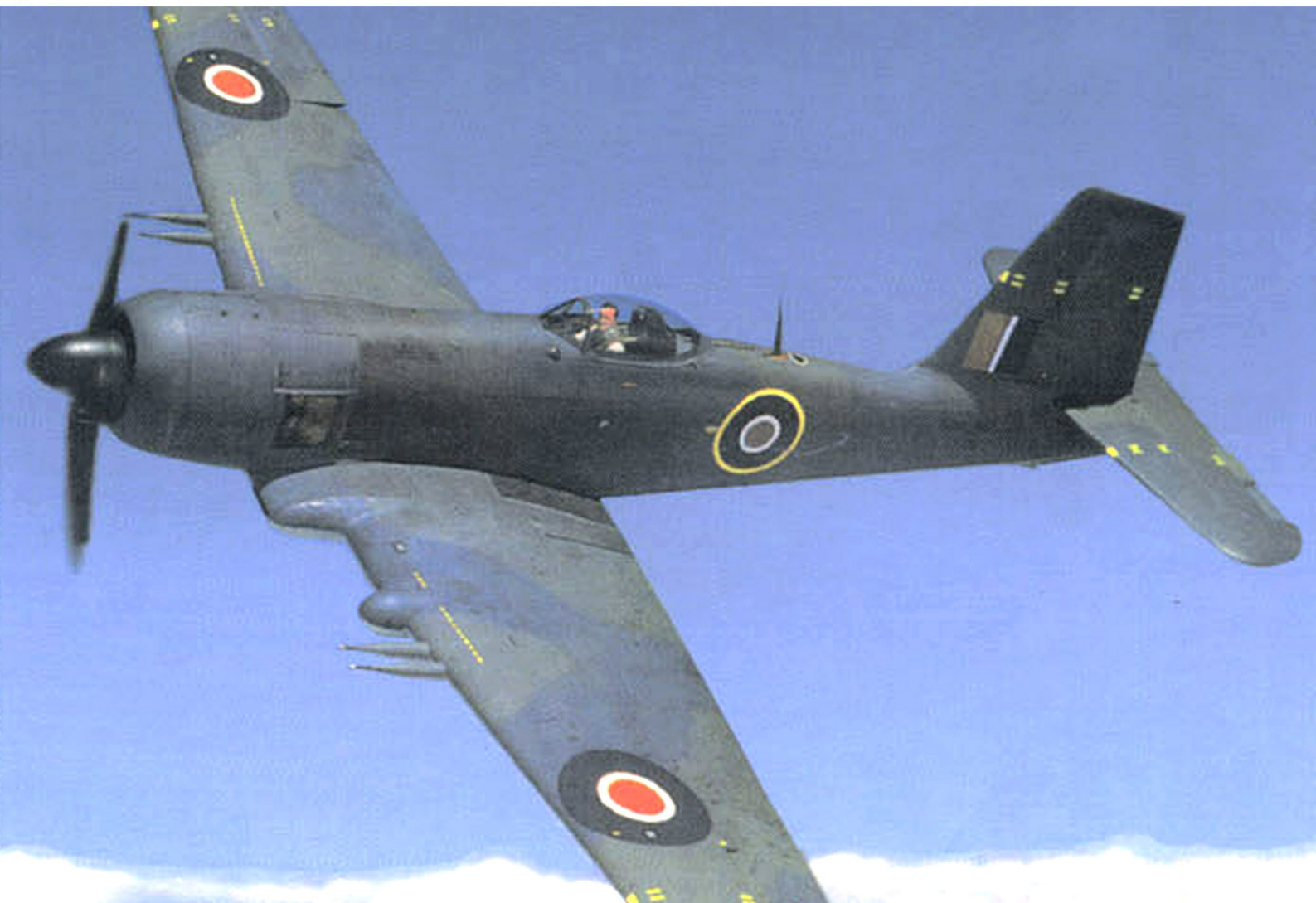


WARPAINT SERIES

Blackburn FIREBRAND



Blackburn FIREBRAND

The third production Firebrand Mk.5A EK743, appeared at the first SBAC show that took place after the war at Radlett, the Handley Page airfield north of London. Fitted with underwing tanks and an 18-inch torpedo it took part in the flying display with obvious agility. (APN)

THE Blackburn Firebrand was one of World War 2's most unfortunate aeroplanes. It also exemplified what the Royal Navy had always maintained that RAF requirements came first when ordering large numbers of new aircraft. This was especially so in the case of the Firebrand as the designated power plant, the Napier Sabre, was also to be fitted to the Hawker Typhoon and in spite of a very obvious need for an efficient carrier-borne fighter to replace the Fulmar, the Typhoon had priority.

The Firebrand had its beginnings as the company Type B-37 designed to meet Specification N.8/39 which was promulgated by the Air Ministry in March 1939 as a two-seat replacement fighter for the Skua, Fulmar and Sea Gladiator. Another Specification N.9/39 called for a fixed four cannon armament or alternatively a four-gun power-operated turret.

The period was one in which minds and requirements were changed by the day. The turret idea was abandoned in the light of experience with the Roc and the aircraft was re-configured as a single seat fighter.

Given the go ahead to build a prototype Blackburn's chief designer G. E. Petty and his team were able to complete a full scale mock-up a mere two months after the go-ahead was given on 25 July 1940. A further 18 months later, on 27 February 1942, the first of three prototypes DD804, made its first flight of ten minutes duration.

Each machine was fitted with the new 2,035 hp Napier Sabre III liquid cooled 24-cylinder H-type engine. The cowling was neat and well streamlined with the radiators protruding forward of the wing roots. A three-blade de Havilland variable pitch propeller with a large spinner completed the rather pleasing lines of the new fighter.

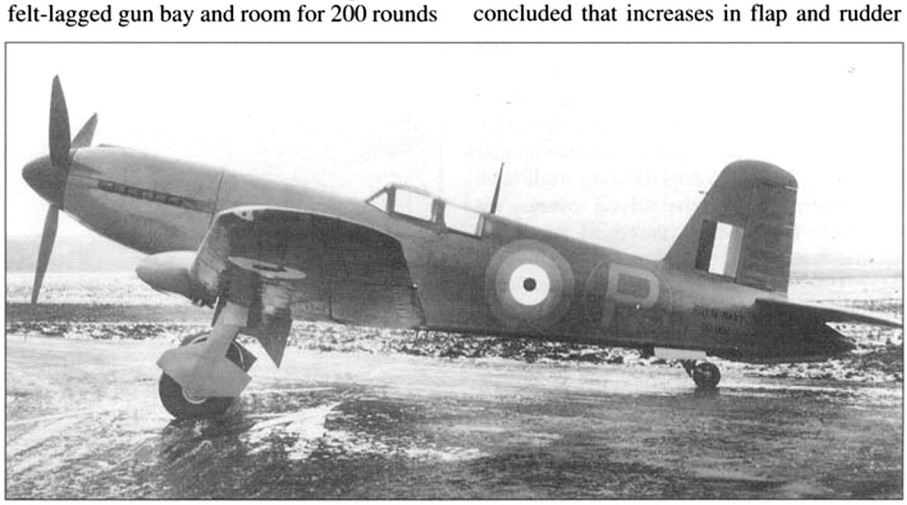
CONSTRUCTION

The wings had a remarkably wide span and when the hydraulically operated Fowler and subsidiary flaps were extended the whole of the rear part of the wing appeared to move. These flaps gave the Firebrand an attractive low-speed handling characteristic needed for carrier operations. The wings were made to fold using a series of latch pins and a Skua-type crank and screwjack mechanism in the wheel well. Provision for four Hispano 20-mm cannons was made in the wings with a felt-lagged gun bay and room for 200 rounds of ammunition for each gun.

The Firebrand's fuselage was made in two halves. Forward of the wing this had a circular cross section but aft of the wing trailing edge it was oval with stressed skinning of semi-monocoque construction. The main and auxiliary fuel tanks housing 239 gallons were mounted in the nose section.

Like the Skua and Roc, Blackburns chose to place the Firebrand's fin and rudder well forward of the elevator to prevent blanking. The extension aft of the tail unit was conveniently placed to allow room for a snug fitting hydraulically-operated arrester hook and the tailwheel.

Initial flight trials at Brough showed the need for tailplane and elevator modifications and these were finished before the aircraft left for the first of many test periods at A&AEE Boscombe Down. The first took place between 23 June and 28 July 1942 and reports from those who flew the machine concluded that increases in flap and rudder



The Firebrand Mk. I was originally designed as a Fleet fighter aircraft fitted with the new Napier Sabre engine. It made its first flight on 27 February 1942 serialled DD804.This view shows the distinctive leading edge radiators which were a feature of the type. (MAP)

The sea trials of the Firebrand Mk.I were held in the Clyde on board HMS Illustrious in February 1943. The obviously inclement weather, seen in this picture of DD810, the second prototype, could not have helped their successful conclusion (IWM)

Firebrand F.I DD810 suffered a landing accident and became the prototype for the TF.Mk.II with a widened fuselage to accommodate the torpedo and reserialled as NV636. Nine aircraft were converted from Mk. I airframes. (MAP)

area were needed to reduce float and improve directional control at the low speeds required in carrier landings. The forward view was also critisised because of the curved side panels to the windscreen.

Blackburn named their new aircraft the Firebrand in a cermony at Brough on 11 July 1941. In the meantime the second prototype, DD810, had flown on 15 July and was the first to have the four cannon fitted. Provision was also made for two 500-lb bombs under the wings. It started deck landing trials with *HMS Illustrious* in the Clyde estuary in February 1943 whilst the third prototype DD815 was delivered to Boscombe Down in May 1943 for armament trials over Poole Harbour.

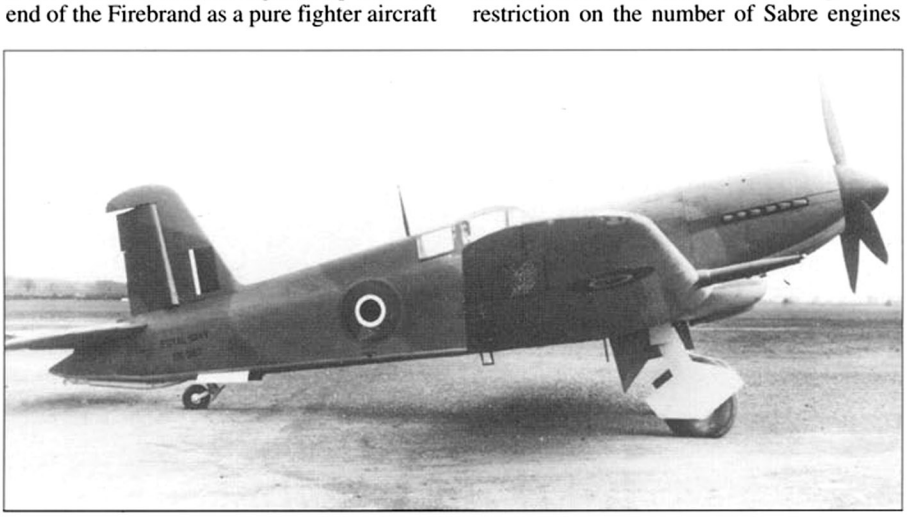
The first prototype was seconded to the Napier works at Luton for a complete redesign of the engine installation as a removable power plant pod with the engine slung on forged light alloy bearers.

It was at this stage the the Ministry of Aircraft Production stepped in and ordered that all Sabre engine production should be allocated to the Typhoon. This, combined with the entry into service of the Seafire and a number of American fighters spelled the end of the Firebrand as a pure fighter aircraft and as the MAP saw that the work done to date on the aircraft should not be wasted, asked Blackburns to consider changing the design to make it into a hard hitting carrier-borne strike aircraft fitted with both bombs and a torpedo.

TORPEDO FIGHTER

The second prototype DD810 which had suffered damage in a forced landing was chosen for the modifications. These consisted of rebuilding the centre-section some one foot three and a half inches wider to make room for a torpedo between the undercarriage legs. Reserialled as NV636 the first TF. Mk.II was rolled out at Brough on 31 March 1943 and it was soon found that the modifications had little effect on performance.

Nine production aircraft DK363 to DK371 followed and were all Mk. Is suitably modified. Each went to either the engine manufacturers, Boscombe Down or RNAS Lee-on-Solent for evaluation. But once again the restriction on the number of Sabre engines



Firebrand Mk I DK363 was the first production machine which went to Luton for engine trials which included the repostioning of the air intake under the nose. This picture shows it immediately before the modifications were made. (MAP)

Right: The first TF. Mk. II serialled NV636 was originally Mk. I DD810. It was given a widened fuselage and torpedo crutches for trials work. Handling qualities did not differ very much from the original fighter design. (IWM)

available restricted the entire production run to only 12 aircraft. Most of these were used for evaluation purposes with 708 Squadron at Lee-on-Solent where several were fitted with rails for eight rocket projectiles.

ENGINE CHANGE

Frustrated by the lack of Sabre engines Blackburns, in cooperation with MAP suggested that if the engine were changed the aircraft could go ahead into production. Accordingly Specification N.8/43 was issued in October 1943 which allowed the 2,400-hp Bristol Centaurus VII two-row, 18-cylinder sleeve valve radial to be married to the TF.Mk.II airframe.

This taxed the ingenuity of the design staff as the narrow fuselage of the Firebrand was in no way suited for the wide frontal area of the Centaurus. They overcame the difficulty but with a penalty of restricting the forward view on landing.

The two prototype TF.Mk.IIIs, DK372 and DK373 were conversions of the last of the batch of Mk.Is, the first flying on 21 December 1943. Several design changes were made including a different cockpit shape and because of directional instability an offset fin was fitted.

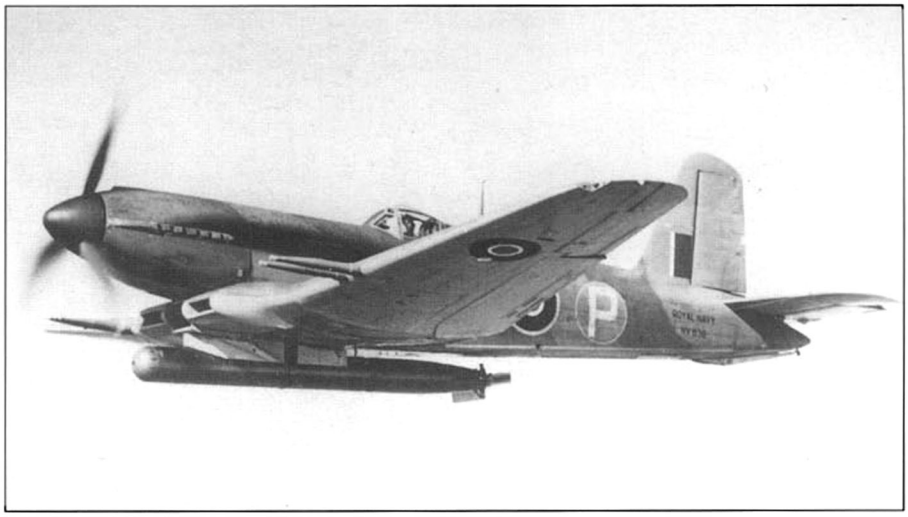
Production followed with 27 Firebrand TF.IIIs being produced. Once again they were widely dispersed for trials with both the experimental establishments, engine and propeller manufacturers and the Royal Navy at Anthorn.

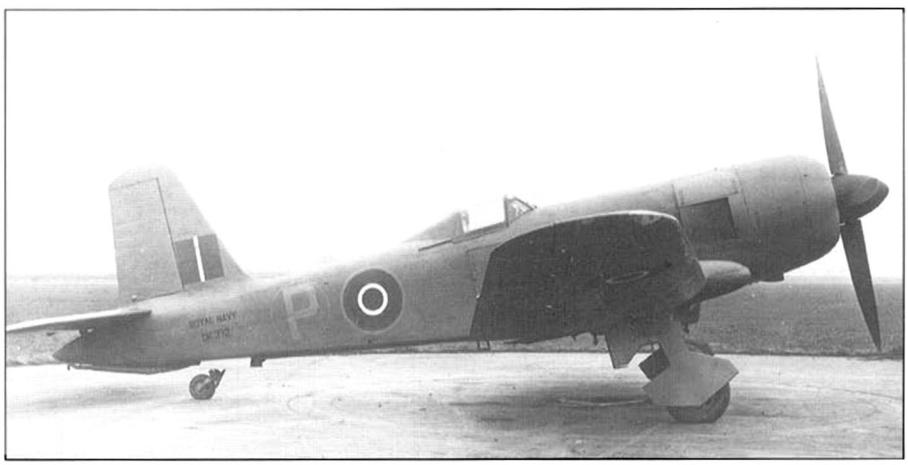
PENULTIMATE VERSION

During the trials a number of problems were encountered with the TF.III which were rectified with the Blackburn Type B-46 which became the Firebrand TF.IV. The fitting of a horn balance and an increase in rudder area plus a larger fin, offset to port by three degrees, were obvious plus a completely clear tear-drop canopy.

Armament changes allowed provision for dive bombing and the fitment of two 2,000-lb bombs under the wings. Spoilers limiting the diving speed to 350 mph were fitted to the tops of the wings. An alternative load of 16 60-lb rocket projectiles could be carried or two 45-gallon tanks. A further long range tank of 100-gallons was capable of being fitted on the centre fuselage torpedo crutches. RATOG take-off assistance spools were standard and the torpedo was fitted in such a way that it could be winched up or down so that clearance was given on landing or take-off and brought parallel to the fuselage in flight to reduce drag.

Firebrand TF.IV production reached a total of 102 aircraft the first of which was EK601 which made its first flight on 17 May 1945. On completion most were ferried to either Arbroath, Anthorn, Stretton and Donibristle Maintenance Units. Some were used for propeller tests, others for engine development whilst two EK633 and EK657 were seconded to the Aircraft Torpedo Development Unit, Gosport for dropping trials.





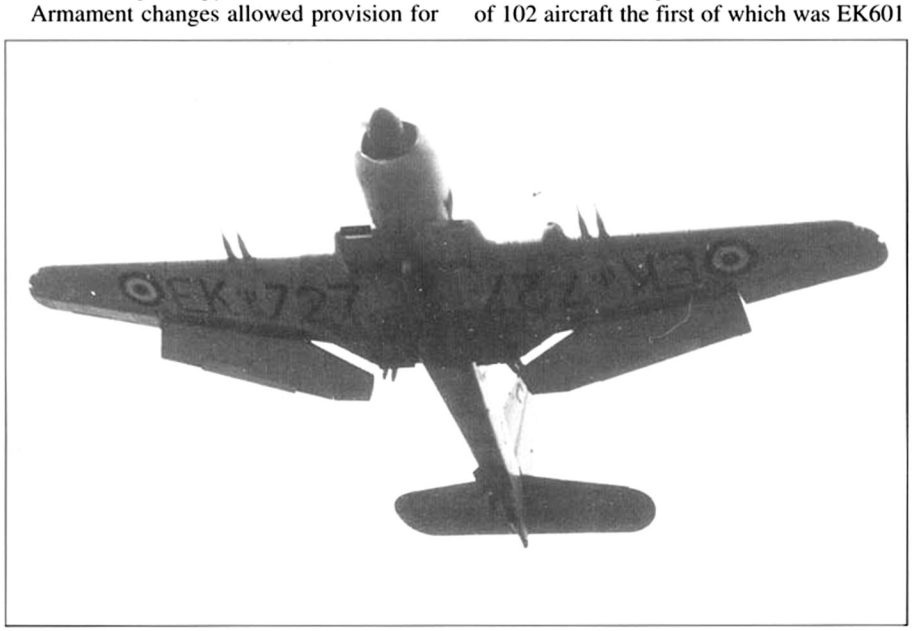
The first Firebrand TF. Mk. III was DK372 which was fitted with a Centaurus engine and a modified cockpit canopy. Both this aircraft and the one that followed were originally Mk. I airframes. (MAP)

OPERATIONAL SQUADRON

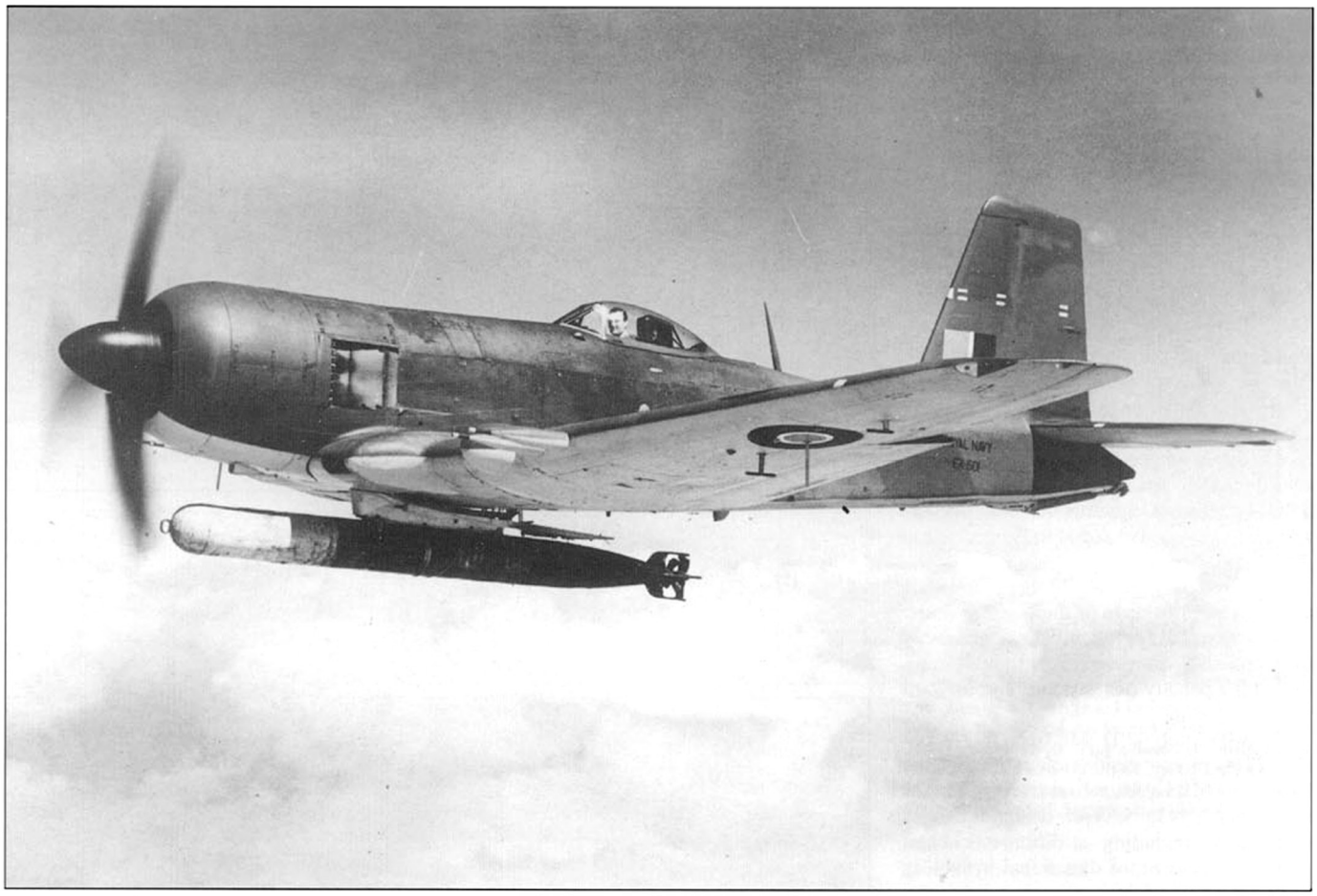
On 1 September 1945, after the end of the war, the first operational squadron was formed at RNAS Ford with 15 Firebrand TF.4s. This was 813 and they were unique in being the first to fly a single-seat torpedo aircraft since the withdrawal of the Blackburn Dart 22 years earlier.

The squadron took its time in working up. The war was over, people were being demobbed and the urgency had gone. The squadron's aircraft first appeared in public at the Victory fly-past over London on 8 June 1946 and EK746 went on display at the aircraft exhibition held in Green Park. A Firebrand was present at the British aircraft display held at Farnborough on 28 June.

But the writing was on the wall for the Firebrand even at that stage because the con-



Illustrating the wide span and extensive trailing edge flaps, this near plan view of a Firebrand TF. Mk. IV also illustrates that it had a radar bulge on the port wing inboard of the cannon (MAP)



Above: Firebrand TF.4 EK601 the first prototype, in flight. Right: DK373 was the second TF. Mk. III to be built. It differed from the first by having a totally clear bubble canopy which remained standard on all other Firebrands (IWM)

tract for the last 50 TF.4s was cancelled at the end of 1947 with the 220th aircraft coming off the line.

SWAN SONG

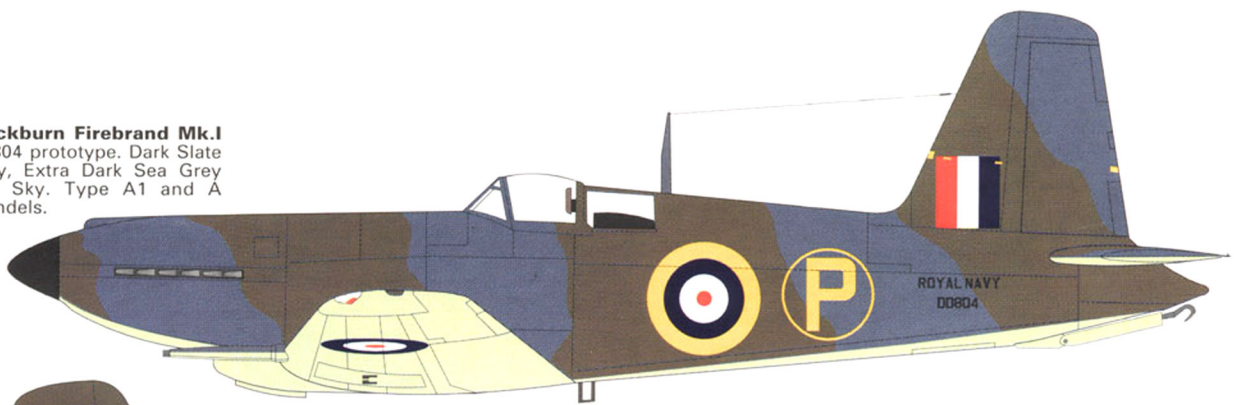
The Firebrand Mk.5 and 5A were, however, still to be produced and a Contract for 70 aircraft was issued which also included the conversion of approximately another 40 TF.4s to the later standard. The first deliveries began on 31 January 1946 and the contract completed on 24 February 1947.

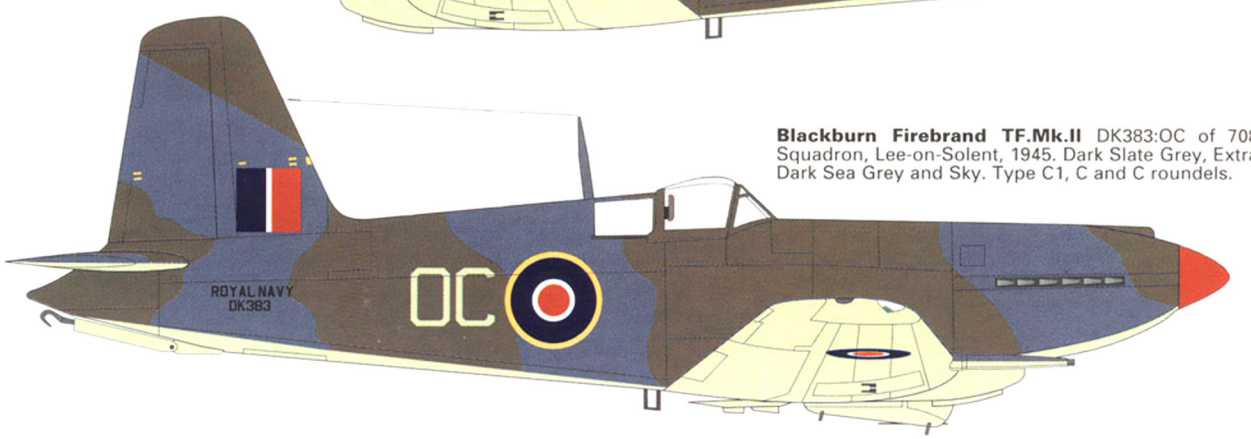
The Mk. 5 embodied detailed improvements such as horn balanced elevators and long span aileron tabs. The TF.5A also had hydraulically-boosted aileron controls to increase the rate of roll at high speeds.

The peacetime routines took over. Firebrands were much in demand for air shows and for public display. EK472, for example gave a polished display of aerobatics with a torpedo attached when it was exhibited at the first post-war SBAC show at Radlett, Hertfordshire. The pilot was P. G. Lawrence who had been the person responsible for conducting the deck landing trials with the TF.4 while serving with the Firebrand Tactical Trials Unit at Lee-on-

Firebrand TF.5 EK784:103 was attached to 813 Squadron. It is seen in its Extra Dark Sea Grey and Sky colour scheme at a Naval Air Day, probably at Lee-on Solent in about 1949. The size of the aircraft can be seen when compared to the people nearby.

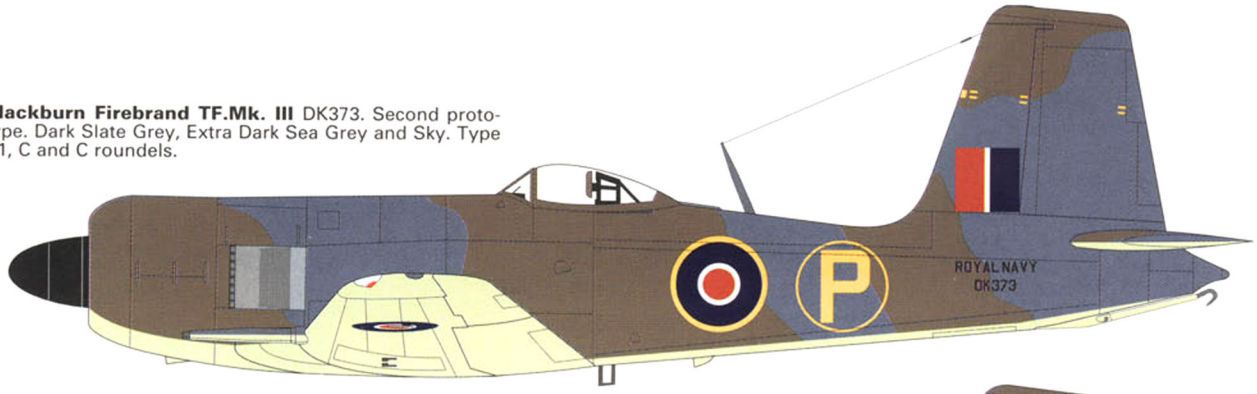
Blackburn Firebrand Mk.I DD804 prototype. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type A1 and A roundels.



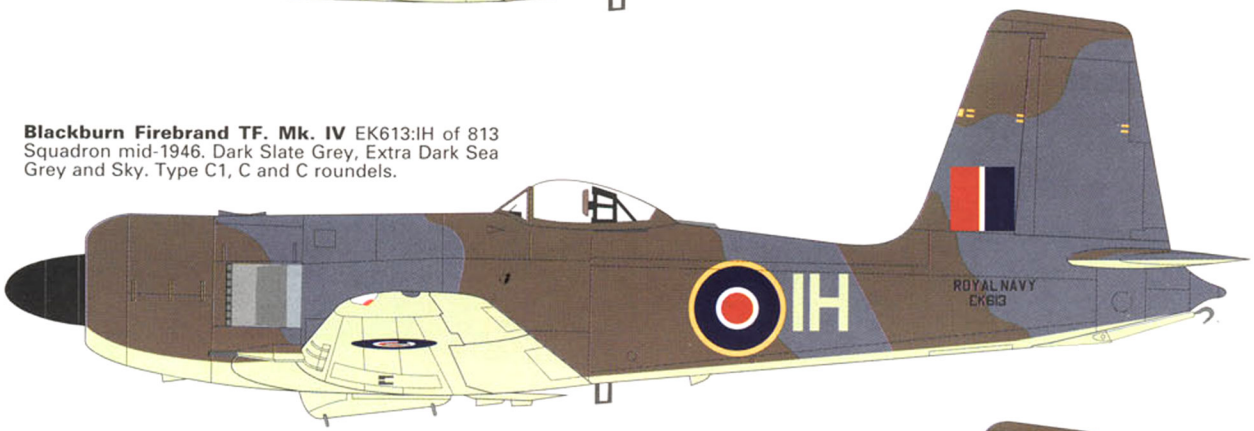


Blackburn Firebrand TF.Mk.II DK383:OC of 708 Squadron, Lee-on-Solent, 1945. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type C1, C and C roundels.

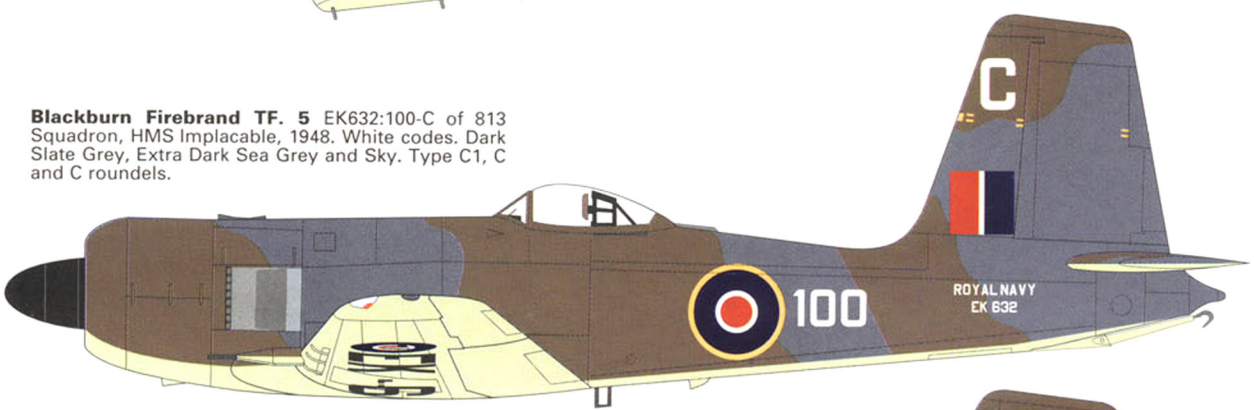
Blackburn Firebrand TF.Mk. III DK373. Second prototype. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type C1, C and C roundels.



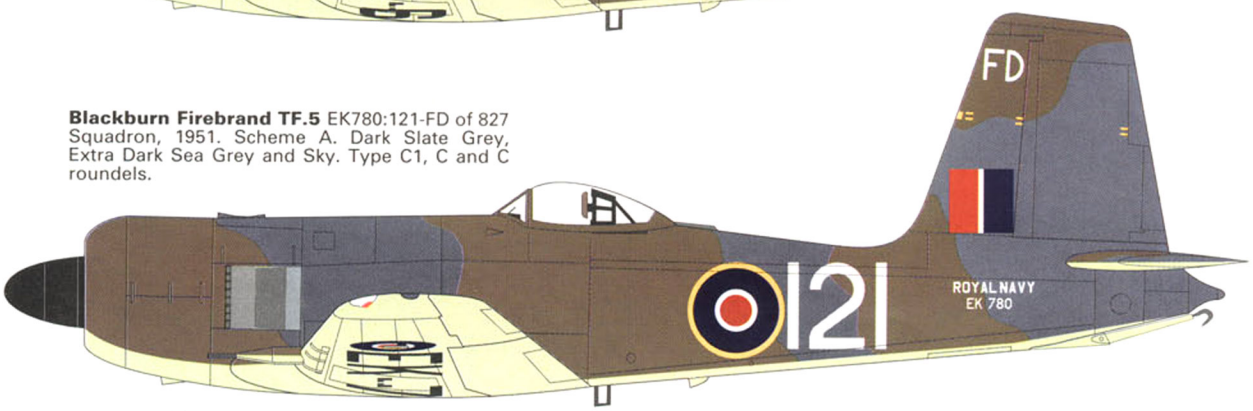
Blackburn Firebrand TF. Mk. IV EK613:IH of 813 Squadron mid-1946. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type C1, C and C roundels.



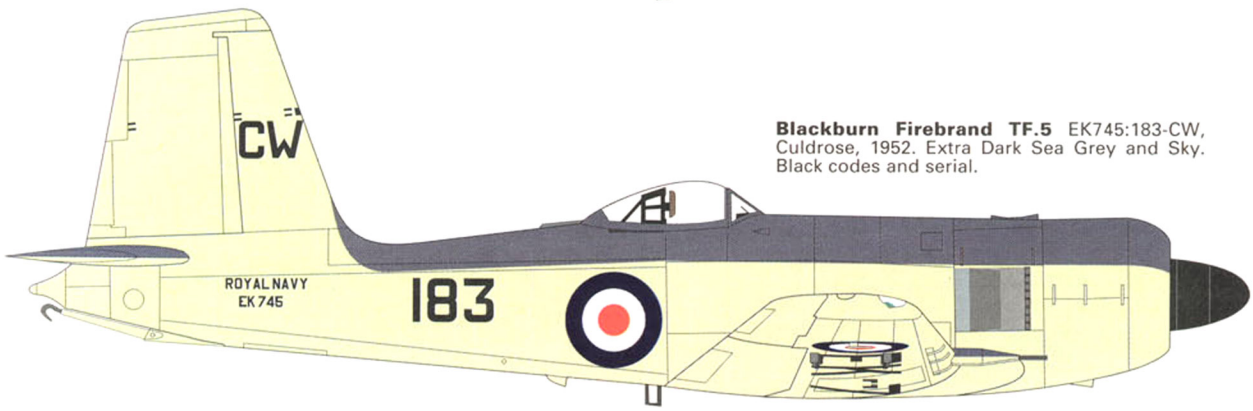
Blackburn Firebrand TF. 5 EK632:100-C of 813 Squadron, HMS Implacable, 1948. White codes. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type C1, C and C roundels.



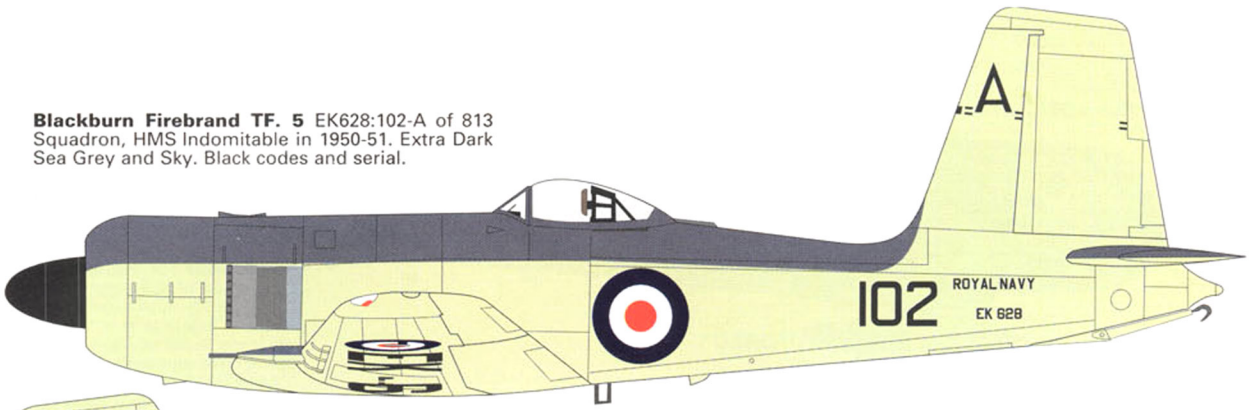
Blackburn Firebrand TF.5 EK780:121-FD of 827 Squadron, 1951. Scheme A. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type C1, C and C roundels.



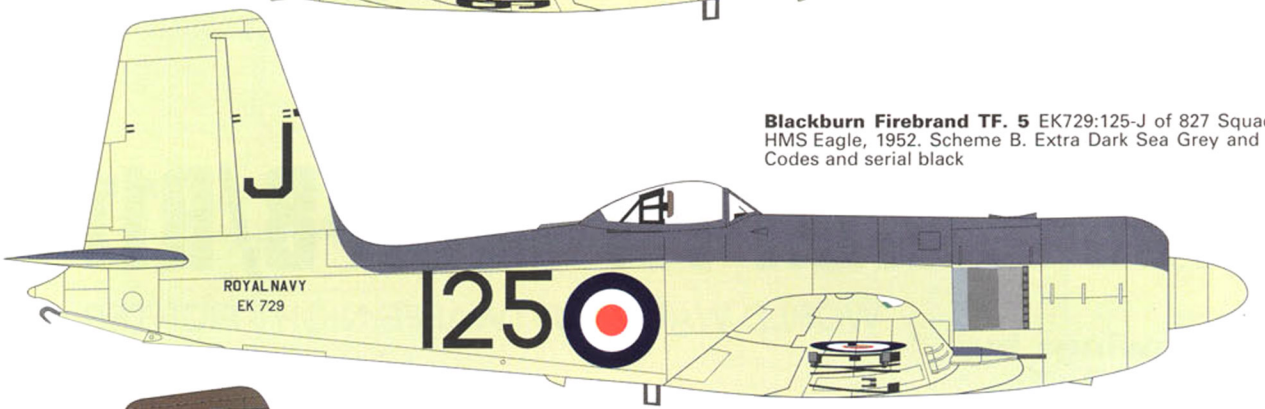
Blackburn Firebrand TF.5 EK745:183-CW, Culdrose, 1952. Extra Dark Sea Grey and Sky. Black codes and serial.



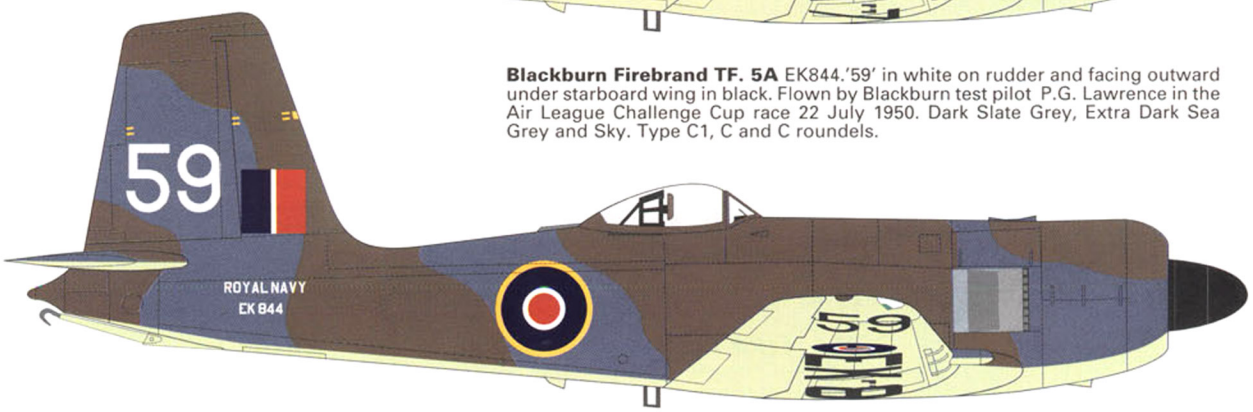
Blackburn Firebrand TF. 5 EK628:102-A of 813 Squadron, HMS Indomitable in 1950-51. Extra Dark Sea Grey and Sky. Black codes and serial.

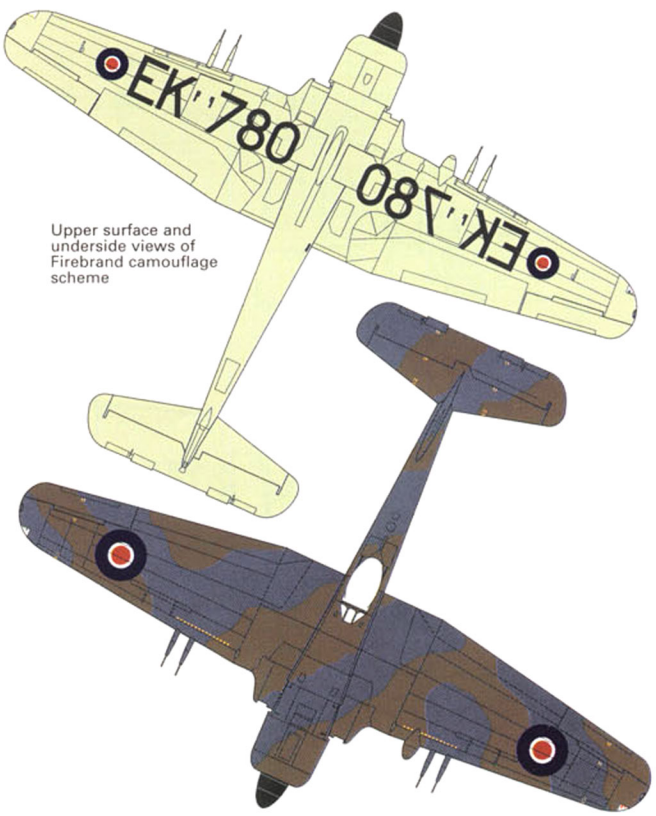


Blackburn Firebrand TF. 5 EK729:125-J of 827 Squadron HMS Eagle, 1952. Scheme B. Extra Dark Sea Grey and Sky. Codes and serial black



Blackburn Firebrand TF. 5A EK844.'59' in white on rudder and facing outward under starboard wing in black. Flown by Blackburn test pilot P.G. Lawrence in the Air League Challenge Cup race 22 July 1950. Dark Slate Grey, Extra Dark Sea Grey and Sky. Type C1, C and C roundels.





Upper surface and underside views of Firebrand camouflage scheme

Blackburn Firebrand general arrangement

DRAWINGS BY CHRIS BOWLEY

BLACKBURN FIREBRAND Mk.III, IV and TF.5
Upper surface plan view

All upper surface plan views are similar except that the Mk. III and early Mk. IV did not have spoilers

Note that fin and rudder are offset three degrees to starboard

W1

W2

F.46 torpedo camera, port side only

A-A B-B

C-C D-D

Dotted lines show trim tabs on TF.5

BLACKBURN FIREBRAND TF.5
Front view

Outline of starboard wing in folded position shown dotted.

Spoilers on upper and lower wing

BLACKBURN FIREBRAND TF.5
Rear view

BLACKBURN FIREBRAND TF.5
Port side view

Wings shown in folded position

This version has longer cannon barrels with slimmer fairings, smaller fin and rudder than Mk. IV, lower cockpit canopy and no spoilers. The Mk. III prototype had the fin and rudder of the Mk. II.

A B C D E F G

BLACKBURN FIREBRAND Mk.III
Port side view

Typical camouflage scheme for the Firebrand IV or V during the late 40s. Colours are the same as for World War 2 aircraft namely dark slate grey and extra dark sea grey on all upper surfaces. 'C' Type roundels were used above and below the wings and 'C1' roundels on the fuselage sides.

Dotted lines show outline of horn balanced elevators on TF.5 version.

SCALE Metres Feet

Oil cooler intake

Radiator intake

BLACKBURN FIREBRAND Mk. III, IV and TF.5
Underside plan view

BLACKBURN FIREBRAND TF.Mk.IV
Port side view

E-E F-F

G-G

WING CROSS SECTIONS

W1

W2

Blackburn test pilot shown flying a production Firebrand TF. Mk. 4 EK660. A total of 102 of this version were built and became the first to be used by an operational squadron when 813 formed at Ford in September 1945. (Charles Brown/RAFM)

Solent in 1944 before he left the Navy to become a Blackburn test pilot. At the following SBAC show in 1947 which was held for the first time at Farnborough, Lawrence demonstrated EK743 with drop tanks fitted.

With working up complete 813 Squadron embarked on *HMS Illustrious* in December 1947 and followed this by a tour at Arbroath during which they took part in Exercise Dawn returning on board *HMS Implacable* at the end of the month. Another squadron formed, namely 827, in December 1950 receiving 12 Firebrand Mk. 5s and 5As. After a five month working up period at RNAS Ford they were flown to Malta and in October 1951 embarked in *HMS Illustrious* for the return journey to the UK. Then there followed a cruise in *HMS Eagle* during which they took part in Exercise Castanets in the North Sea. In 1953 both squadrons were re-equipped with Westland Wyverns and the remaining Firebrands pensioned off as fire dump practice airframes or for scrap. Most were flown to the scrap yard at Milnathort, Kinrosshire for disposal.

Thus ended the somewhat meagre operational career of the Firebrand but not before both of the operational squadrons had shown the flag at many air shows and even took part in a number of air races. The first most noteworthy of these was when Group Captain C. J. P. Flood flew a Mk.5, EK850, into second place in the High Speed Handicap Race at Lympne on 31 August 1947 at an average speed of 310.69 mph.

Test pilot P. G. Lawrence won the Air League Challenge Cup at an air race held at Elmdon on 30 June 1949 at an average speed of 302 mph in EK621.

A rather spectacular air show of the period is also worthy of mention when Firebrands of No. 1 Carrier Air Group demonstrated rocket assisted take-offs in a show at the Lee-on-Solent air day on 26 August 1950.

One can speculate on what the success of the Firebrand might have been under combat conditions. It had, in its later versions, the speed and carrying capacity together with the agility not only to place bombs or torpedos in the right position but also defend itself if challenged by enemy fighters. It is also true to say that the Firebrand, because it started a series of aircraft types devoted to the role of single seat strike, carrier-borne aircraft culminating in some of today's high speed successors such as the Harrier FRS.2, that it was an important aircraft in military development.

Because of the lack of a suitable power plant at a critical stage in its development the Firebrand has been largely forgotten in the annuls of naval aviation. It is felt certain that had the aircraft entered Fleet Air Arm service in 1943, as was intended, then many more would have been built and its reputation enhanced.

Provision was made for 16 60-lb rockets under wings of the Firebrand TF.5. This aircraft EK770:180 has been modified with underwing rails as well as carrying an 18-inch torpedo. It is sen on display at the 50 years of Flying exhibition at Hendon in July 1951. (APN)

ALBACORE AND FIREBRAND KITS AND MODELS

Models of both of these aircraft are few. Both that have been produced are in 1:72nd scale and come from Pegasus Models for the Albacore and Magna Models for the Firebrand. Both are limited run kits, the former haveing both white metal and vacuform parts. The Firebrand is a resin moulded kit with white metal parts. No other accessories or decal sheets are available for either type. The Pegasus model does have decals provided in the kit but the Magna Models Firebrand does not although Modeldecal sheets can be utilised to make up anything required.