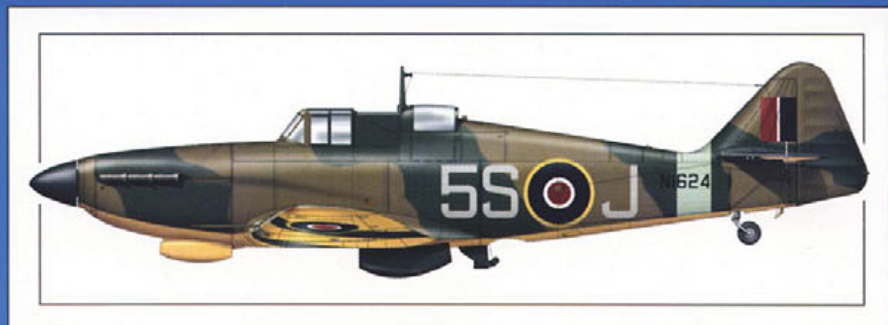




**WARPAINT SERIES No. 42**

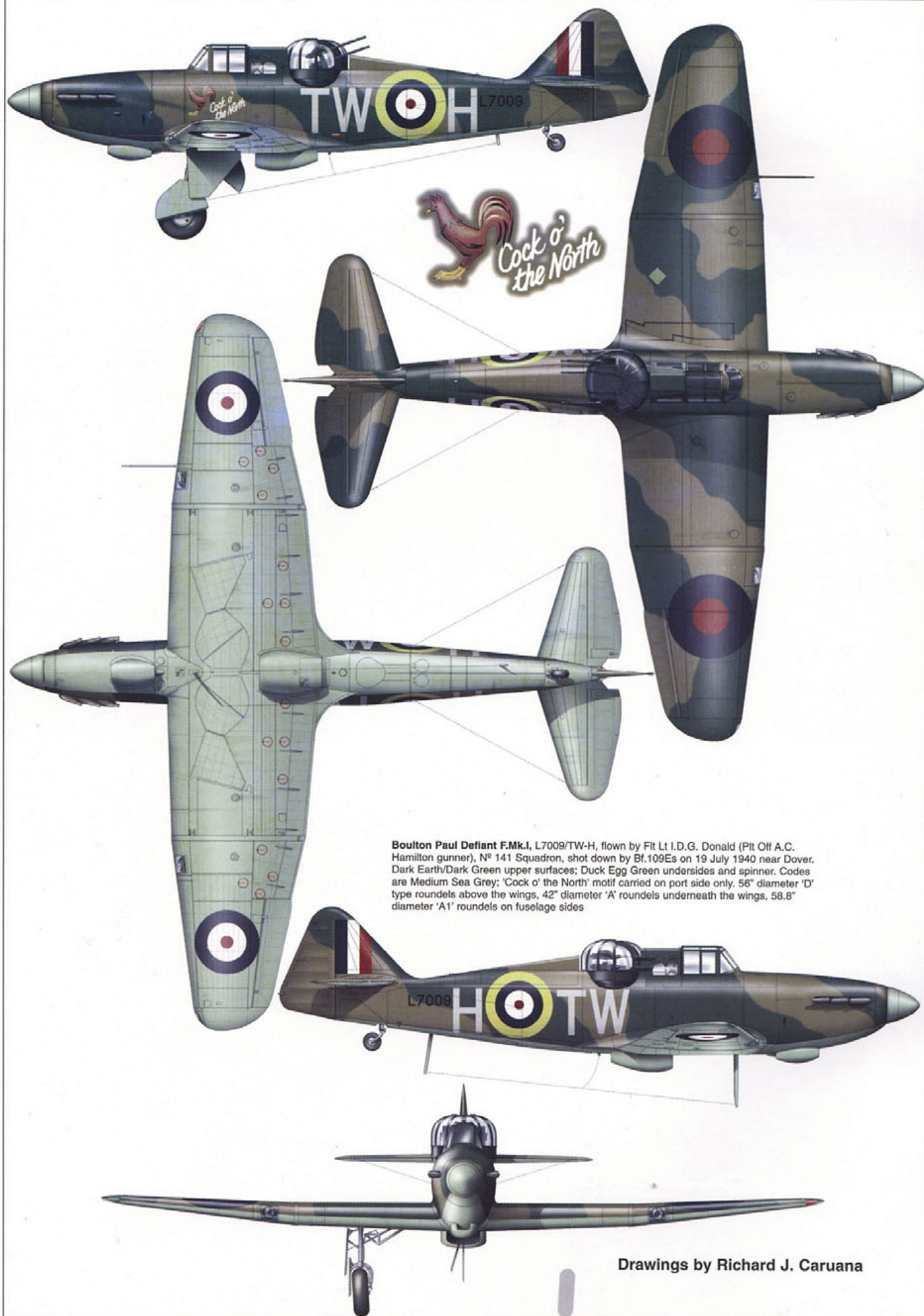
# Boulton Paul **DEFIANT**

BY ALAN W. HALL

Boulton Paul Defiant N1671 on display in night fighter Black overall seen at the Royal Review of the RAF at Abingdon in 1968. The work of refurbishing the airframe was completed at St. Athan and the aircraft has its pride of place in the Battle of Britain Museum, Hendon. Note that the four .303 Browning machine guns are pointing forward over the pilot's cockpit in what was common practise. Regretably nobody thought of synchronising the guns to fire through the propeller arc otherwise the Defiant's history may have had a different ending. (Richard L.Ward)



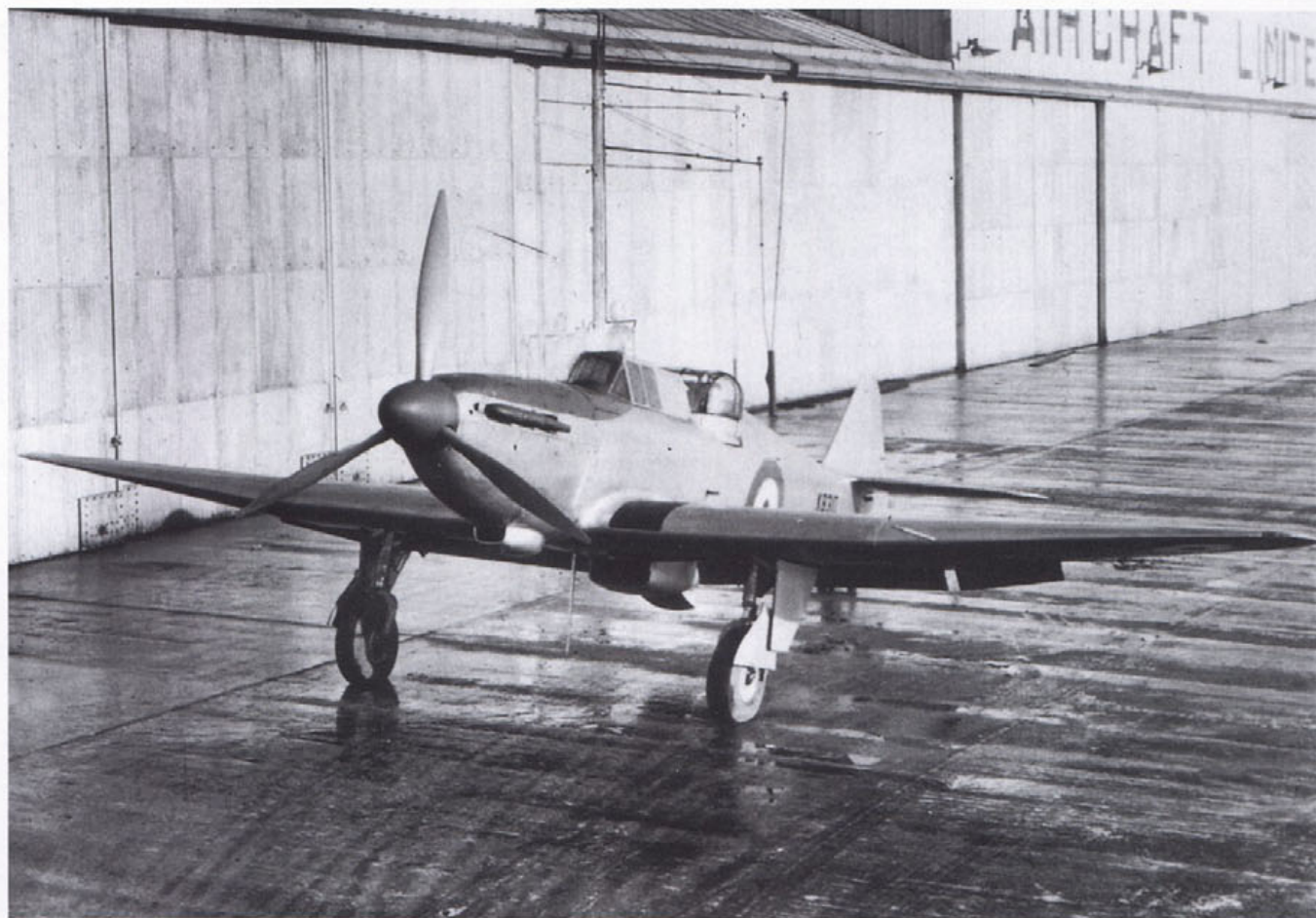




**Boulton Paul Defiant F.Mk.I, L7009/TW-H**, flown by Flt Lt I.D.G. Donald (Plt Off A.C. Hamilton gunner), N° 141 Squadron, shot down by Bf.109Es on 19 July 1940 near Dover. Dark Earth/Dark Green upper surfaces; Duck Egg Green undersides and spinner. Codes are Medium Sea Grey; 'Cock o' the North' motif carried on port side only. 56" diameter 'D' type roundels above the wings, 42" diameter 'A' roundels underneath the wings, 58.8" diameter 'A1' roundels on fuselage sides

Drawings by Richard J. Caruana





# Boulton Paul P.82 Defiant

By Alan W. Hall

WITH ADDITIONAL MATERIAL BY  
ANDREW THOMAS

**T**HREE different low-winged monoplane fighters faced the Luftwaffe at the time of the Battle of Britain in 1940. The Hurricane and Spitfire are well known and bore the brunt of the fighting, but the other, the Defiant, led a rather different life throughout its career.

Those responsible for its Specification and conception harked back to World War I technology in that a heavily armed two-seat aircraft like the Bristol F2b had two pairs of eyes to watch out for enemy fighters and by use of both forward firing guns and a rear armament it could achieve a distinct advantage in the dog fights over the trenches of Flanders.

But did this technology still hold good during the Battle of Britain? Initially it did and the Defiant surprised Luftwaffe pilots

Because of the Air Ministry's urgent need to get the turret-armed fighter into production the first prototype, K8310, was flown as a single-seat aircraft. It also had a skid in place of a tail wheel. Powered by a Rolls Royce 1,030 hp Merlin Mk.I. The first flight was on 11 August 1937 from Boulton Paul's Wolverhampton airfield.

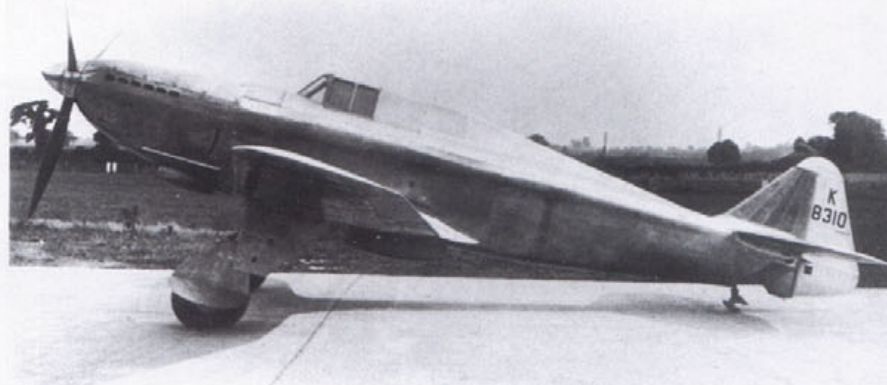
flying Bf 109s and 110s so much that they were shot out of the sky. But not for long. One has to give it to the Germans as they were very quick to learn and very soon different techniques were evolved in dealing with this enemy that could sneak up underneath, beside or above them and place a lethal burst from its four-gun turret mounted machine guns before they realised it.

But the Defiant did not have forward firing machine guns which put it somewhat at a disadvantage when coming head on to a sky crowded with opposing fighters all capa-

The first prototype of the Defiant K8130, seen outside the company's factory and airfield at Wolverhampton, considerably changed since its first flight days as a single-seater. The turret has been fitted, a tail wheel exchanged for the skid, light bomb racks fitted under the wings and a black anti-dazzle panel painted on the nose.

ble of a higher turn of speed and manoeuvrability. It might have been an advantage for the Defiant to have at least two .303s in the wings but already somewhat overloaded, these were not given too much thought by the Air Ministry planners.

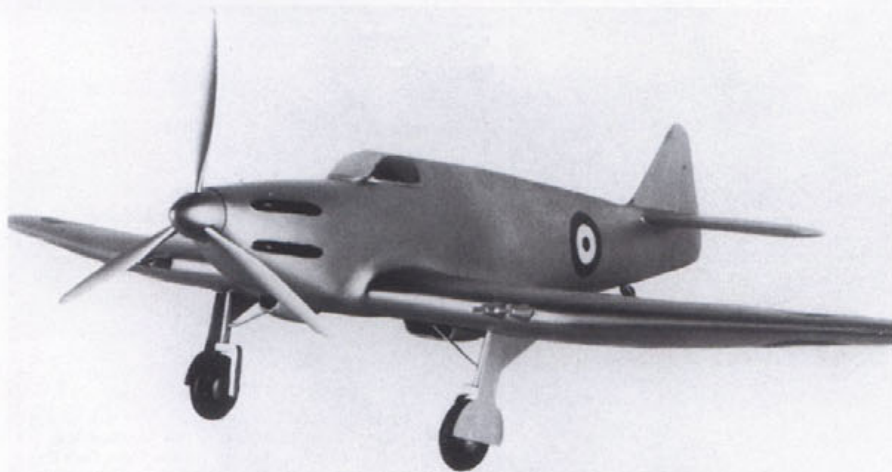
In spite of this the Defiant gave good service. Finding that it was not good enough for day fighting in the south of England squadrons were moved northwards and there they did good work when the Luftwaffe tried its savage attacks on airfields and industrial areas in 'bomber' country. After that they were relegated to the role of night fighters and then when newer, more suitable, types







Boulton Paul's first power operated turret was fitted to the nose of a Boulton Paul Overstrand which equipped No.101 Squadron before World War 2. Apart from the Defiant Boulton Paul four-gun turrets featured on Lancaster and Halifax bombers during the war.



One of many designs put forward by the various aircraft manufacturers to gain pre-war production contracts was this early design by Boulton Paul on which much of the thinking that went into the Defiant was based. It had a four-cannon armament and two exhausts on each side of the fuselage.

like the Beaufighter, came along found roles in the target towing and training roles in various parts of the world.

#### GENEOLOGY

The two-seat fighter concept had for over

two decades been kept alive by the aircraft manufacturers as much as those who drew up the Specifications in the first instance. Immediately before the advent of the Defiant, power operated gun turrets had been tried out on bombers such as the Boulton Paul Overstrand so it was no stretch of the imagination that this company should be in the forefront of developing their techniques into fighter design.

Immediately before the Defiant came one of Hawker's fighter and bomber series, but with a twin rear gun armament, was the main

two-seat fighter in the RAF. This was the Hawker Demon which went to the absolute limit that was possible for an open cockpit aircraft albeit that the 'turret' had a protective shield fitted behind the gunner's position. It was too heavy and out-weighted its usefulness. Radical new thinking was needed.

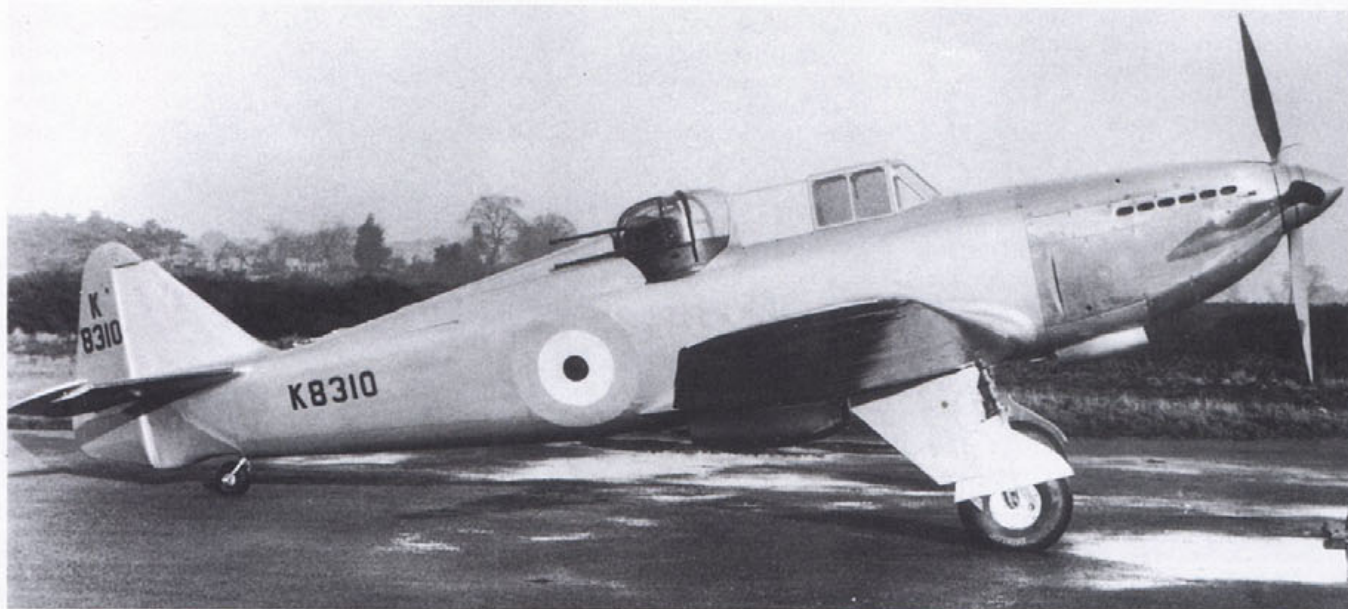
During the mid-war period several other companies had also had their design staff look at two-seat fighters. Amongst them was Hawker who designed the Hotspur, Bristol's Type 147 which had a radial engine, and Armstrong Whitworth who put forward a twin-engined turret fighter.

Only the Defiant and the Hotspur were considered suitable for future development and the others did not leave the drawing-board.

Prototypes of the Defiant (K8130) and Hotspur (K8309) were ordered in the autumn of 1935. A second Defiant prototype (K8620) was subsequently ordered. Construction of a wooden mock-up having been built, the Defiant, was scheduled for its first flight in 1936 but this was delayed until 11 August 1937 when, powered by a 1,030-hp Rolls Royce Merlin I it was flown by Flt. Lt. Cecil Feather at Boulton Paul's Wolverhampton factory airfield. It reached a maximum speed of a little over 300 mph. Painted silver overall with highly polished engine panels it completed its initial trials during 1938 then on 18 May 1939 the second prototype was flown. Little was considered necessary for change from the prototype apart from increased area for the fin and rudder.

Air Ministry was sufficiently satisfied with the early trials that a first production order for 87 Defiants under Specification F.9/35 was placed. Meanwhile the Hotspur had not

This shows prototype K8310 almost at pre-production stage. Ejector exhausts have yet to be fitted and modifications made to the air intakes under the nose and fuselage





## Boulton-Paul Defiant camouflage and markings

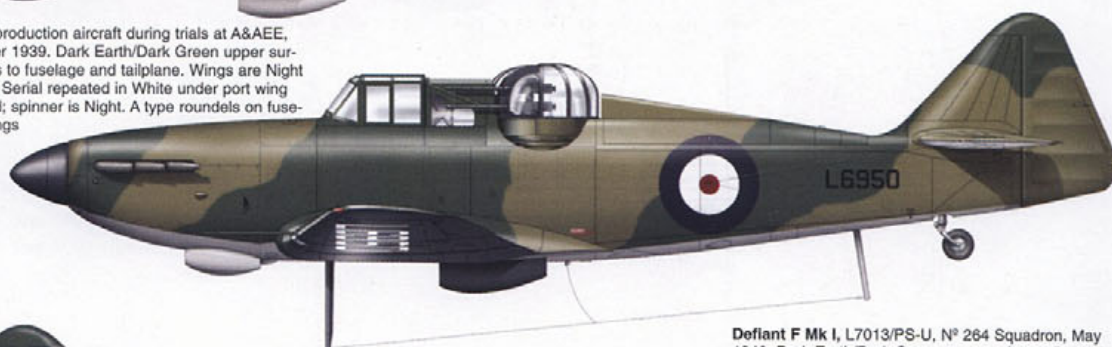
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|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |  |  |
| Aluminium                                                                         | Ident Red (Bright)                                                                | Ident Blue (Bright)                                                               | Dark Earth                                                                        | Dark Green                                                                        | Ident Red (Dull)                                                                  | Ident Blue (Dull)                                                                   | Ident Yellow                                                                        | Ident White                                                                         |
| <b>BOULTON PAUL DEFiant COLOUR KEY</b>                                            |                                                                                   |  |  |  |  |   |  |                                                                                     |
|                                                                                   |                                                                                   | Duck Egg Green                                                                    | Sky                                                                               | Night                                                                             | Ocean Grey                                                                        | Medium Sea Grey                                                                     | Ident Blue (USAAF)                                                                  |                                                                                     |

**Defiant Prototype** K8310 in its revised form, 1937. Silver overall with natural metal engine cowl panels; black spinner and anti-dazzle panel. 'A' type roundels in six positions (light pre-war colours); 8" serial in black on fuselage sides, repeated under the wings (24" high) reading from leading edge under port, and from trailing edge under starboard

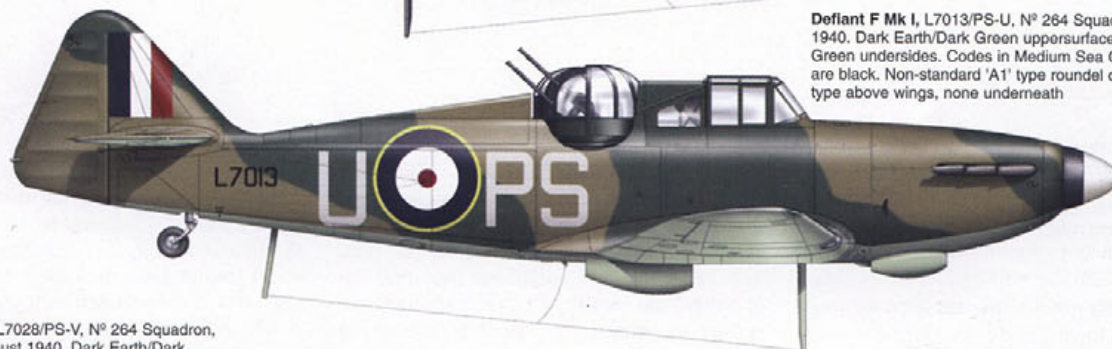
Drawings by Richard J. Caruana



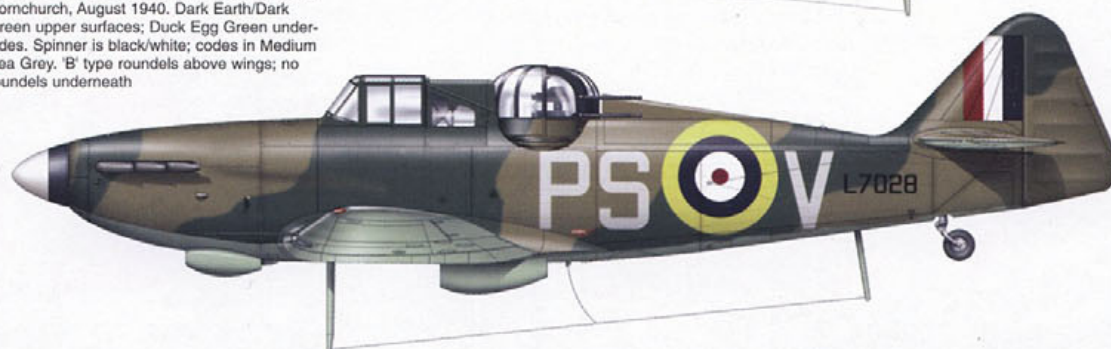
**Defiant F.Mk.I**, L6950, first production aircraft during trials at A&AEE, Boscombe Down, September 1939. Dark Earth/Dark Green upper surfaces; Aluminium undersides to fuselage and tailplane. Wings are Night (port) and white (starboard). Serial repeated in White under port wing and in Night under starboard; spinner is Night. A type roundels on fuselage sides; B type above wings



**Defiant F Mk I**, L7013/PS-U, N° 264 Squadron, May 1940. Dark Earth/Dark Green upper surfaces; Duck Egg Green undersides. Codes in Medium Sea Grey, serials are black. Non-standard 'A1' type roundel on fuselage; 'B' type above wings, none underneath



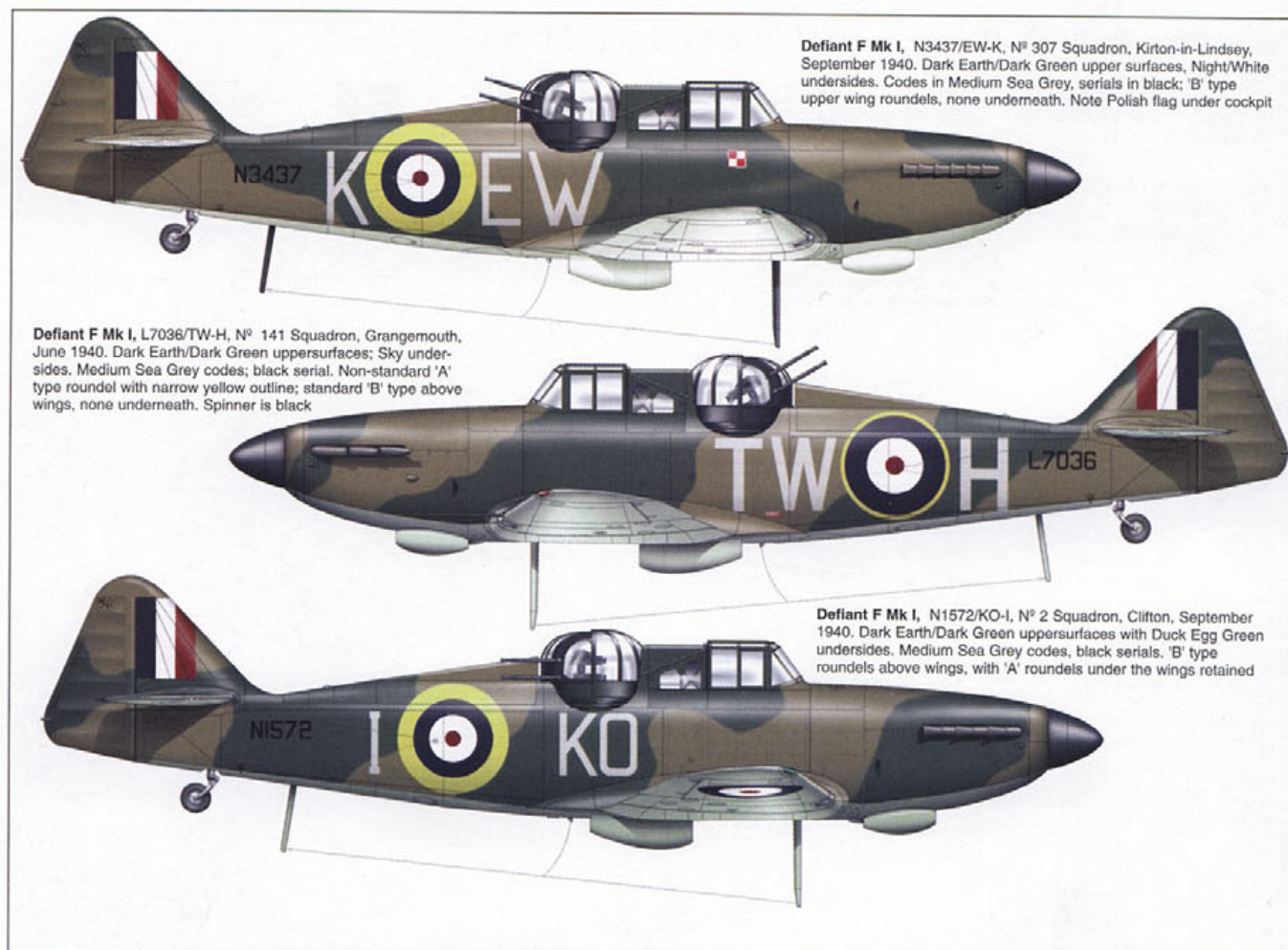
**Defiant F Mk I**, L7028/PS-V, N° 264 Squadron, Hornchurch, August 1940. Dark Earth/Dark Green upper surfaces; Duck Egg Green undersides. Spinner is black/white; codes in Medium Sea Grey. 'B' type roundels above wings; no roundels underneath



**Defiant F.Mk.I**, N1801/PS-B flown by Frederick Hughes of N° 264 Squadron, mid-1940. Special Night RDM.2A overall with Medium Sea Grey codes; serial is in Dull Insignia Red. 'B1' fuselage roundels, 'B' upper wing roundels; no roundels under wings. Note personal emblem, 'Coimbatore II' under exhaust stacks and five victories under cockpit







made the same impression and though built in quite large numbers, and renamed Henley, subsequently, it was not as a fighter aircraft but in the training role.

Production Defiants were fitted with a Merlin 3 of similar horsepower as the Mk.I and the first aircraft off the line appeared

One of a set of pictures taken by Press photographers shortly after No. 264 Squadron was declared operational at Kirton-on-Lindsey in 1940. (IWM)

being flown in July 1939 and delivered to A&AEE Martlesham Heath in September of that year. By then it was fitted with a Boulton Paul 'A' Mk.2D turret with 600 rounds per gun. This was fitted with an integral self-contained pump and motor which supplied the power for its operation. To reduce the drag of the turret a proposal to use fairings of spruce and plywood which retracted downwards when the guns were rotated were fitted.

Because of the Air Ministry's urgent need for the turret-armed fighter, the first prototype flew without the turret fitted. Other ideas included a retractable tailwheel, a dual set of controls in the rear turret and bomb racks under the outer wing panels. All of these were abandoned and in their place extra space was found for fuel tankage instead.

Over half of the initial 87 aircraft had been completed by the end of 1939 but mean-







Undercarriage detail on this No. 264 Squadron Defiant at Kirton-on-Lindsey is interesting. These six aircraft were shown to Press photographers in 1940 before they took part in the Battle of Britain. Regretably many were shot down by German fighters when it was understood that the Defiant had no forward firing armament. (IWM)

while decisions had been made to increase the quantity and 202 aircraft were ordered in May 1938. This was further upgraded at the end of December 1939 by a further 150 with an add-on order for 50 two months later. The largest repeat order came in July 1940 for 280 Defiants making a total of 769 awaiting production before battle with the Luftwaffe had been joined in earnest.

### CONSTRUCTION

The Defiant's construction was probably the best of all three monoplane fighters ordered for the RAF during the 1930s. It was more advanced than the Hurricane's which was simply a follow on from the Hart series with a fabric covered fuselage and rather thick wing. The Defiant was very much simpler to build as a stressed metal skinned aeroplane

A Defiant gunner wearing the specially designed all-in-one back pack that allowed him to get in and out of the turret without too much trouble and which contained a parachute and dinghy. A glance at the turret interior shows how confined the space available was for all but the shortest stature gunners. Also worth noting is the retractable step in the trailing edge of the wing and rarely shown in drawings. (IWM)







No.264 Squadron's Defiants in formation. This picture shows the extent of the under-fuselage radio mast so positioned that the gunner did not shoot it off. (IWM)

than the Spitfire with its complicated wing structure which in the event delayed the Spitfire's entry into service.

The Defiant on the other hand was built from several basic components which could

be brought together on the production line and lent themselves to sub-contracting with other companies quickly and efficiently. The main sub-assemblies were two outer wings, centre wing, two wingtips, upper and lower engine cowlings, two side engine cowlings, forward fuselage, forward upper fairing, two rear fuselage sides, rear fuselage transit section, rear upper fairing, radiator fairing,

ailerons, rudder, elevators and flaps. Only the control surfaces were fabric covered. No pre-forming of the skinning was required, alloy sheet simply being wrapped around the assembly and flush riveted in place. The whole of the wing for example was covered with flat alloy sheets which did not require any forming operations. Only the wing leading edges needed to be pre-shaped.





L6950, the first production Defiant was used for experimental installations both at A&AEE and the manufacturers. In this picture it has bomb racks under the wings for ground attack work. The turret is ranged to go over the rear part of the pilot's canopy but no provision was made for firing the guns through the propeller arc. (IWM)

The wing was built with two spars each consisting of upper and lower extruded light alloy booms connected by vertically corrugated light alloy sheet. The centre section spars had booms of T-section whereas the outer wing spars were L-shaped.

Two 52-gallon fuel tanks were housed in the centre section at its outer edge. They were covered with Lynatex to make them leak proof and also imparted self-sealing capabilities. Production undercarriage legs were by Lockheed Airdraulic which retracted inwards being entirely submerged in the wing and centre section by two flaps attached to the legs themselves and another which dropped down from the centre section.

Because of the gun turret the radio aerials had to be fitted under the fuselage with the rearmost one retractable during landing and on the ground. The first prototype had a tail skid but this was changed to a retractable tailwheel. Again this was revised on production aircraft where the tailwheel remained fixed.

The rear fuselage was assembled from three parts, an upper corrugated deck and two opposite handed sides built up on two L-shaped longerons linked by channel section formers, five of which were braced by tubes creating wing rib-like structures. The fuselage skin was wrapped around the unit and the stringers were rivetted to the formers, though the edges were rivetted directly to the longerons. This made a very simple form of construction ideal for mass production



and for aircraft repair through battle damage.

Both elevators were interchangeable with trim tabs on the upper side of one elevator and the other on the lower side. The rudder also had a trim tab. Both elevators and rudder were horn-balanced.

An oil cooler was fitted under the nose with a duct which was fitted for cockpit and turret heating. The radiator was fitted under the centre section in the same position as that on the Hurricane. It had a flap in the rear to control the flow of cooling air. Care had to be taken when taxiing on wet ground as the radiator soon became clogged with mud.

Unlike other front-line fighters the Defiant's control column was mounted on the seat frame so that when the adjustable seat was moved the column remained in the relative position for the pilot's hand. Also unlike the other two fighters there were no switches to arm guns and no firing button on the control column.

The turret had been developed by Boulton Paul from a French de Boysson design after they had bought the rights for UK manufacture in spite of protests from the Air Ministry who wanted a turret of British design. Delivery of the first was made in September 1936 and subsequently fitted to Boulton Paul Overstrand K8175 for firing tests. Four .303 machine guns were fitted though a version equipped with a single 20-mm cannon was suggested but not put into production. Service trials showed that the prototype K8310 was a delight to fly. Originally it was flown as a single-seater because the turret was not ready for installation. As such it reached a top speed of 320 mph at 10,500 ft. when in the hands of Martlesham Heath test pilots.

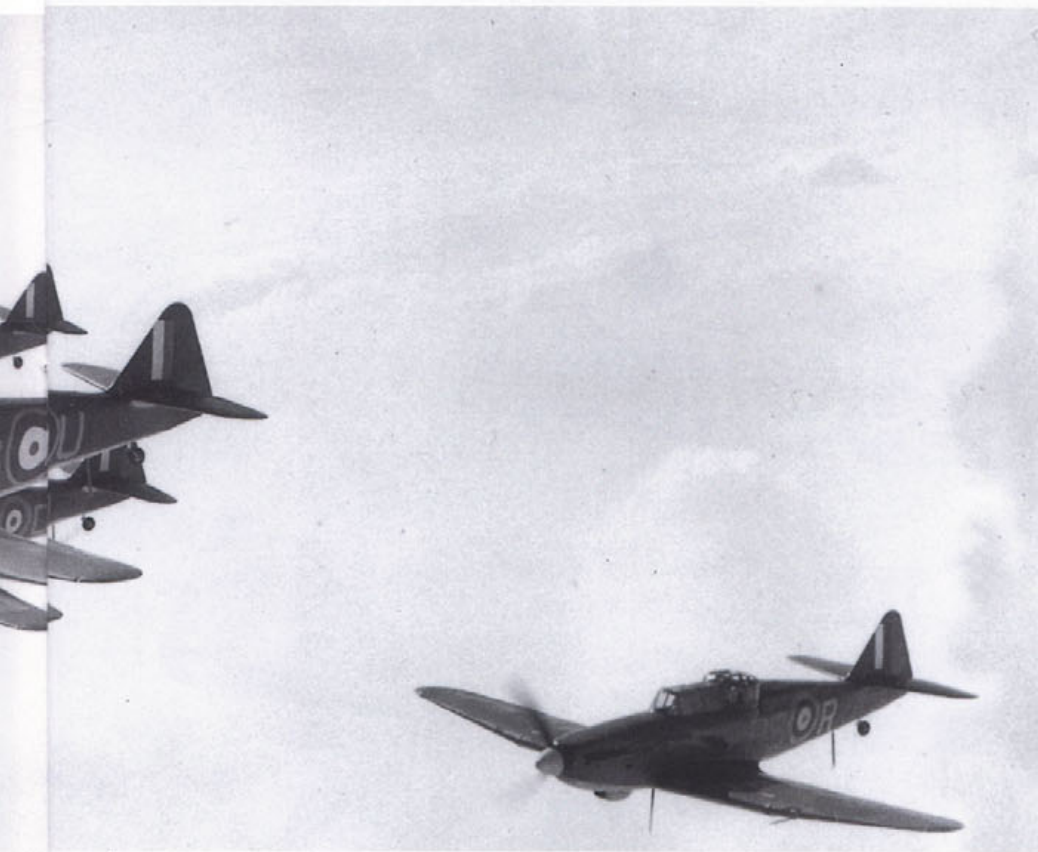
#### FIRST SQUADRONS

No. 264 Squadron was formed at Sutton Bridge in 30 October 1939 to become the first to receive Defiants with the arrival of the first two on 8 December that same year. Previously they had been flying the Fairey Battle.

A move was made to Martlesham Heath that same day but from then on the squadron's aircraft were plagued with teething troubles. Frequent engine failures, undercarriage collapses and hydraulic systems led to the Defiant being grounded on 28 January 1940 whilst Rolls Royce and Lockheed, who had designed the undercarriage, strove to rectify the faults. In record time the ban was lifted in late February.

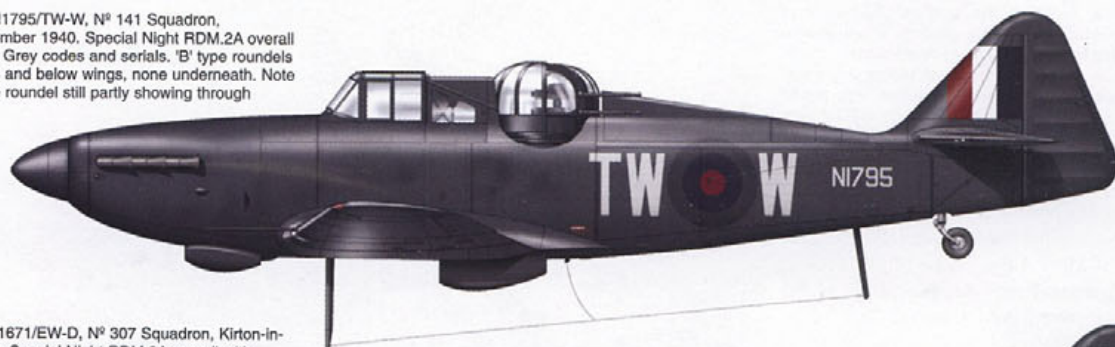
During the squadron's working up period relative speed tests were flown against Hurricanes on 11 February and four days later the first night flying sorties were carried out. Dive bombing trials were held at the Orfordness range using L6968 two weeks later to check on the Defiant's ability in the ground attack role which it will be recalled was one of the ideas that were shelved during its early construction. Trials were also conducted in the Army co-operation role and as a result No. 2 Squadron was equipped with a number of Defiants in

Six of No.264 Squadron's Defiants on patrol. Interestingly three styles of roundel are shown in use on these aircraft. The correct standard is on PS:A whilst PS:U has the wide white segment used pre-war and PS:Z even has the pre-war light blue used until camouflage was introduced. (IWM)

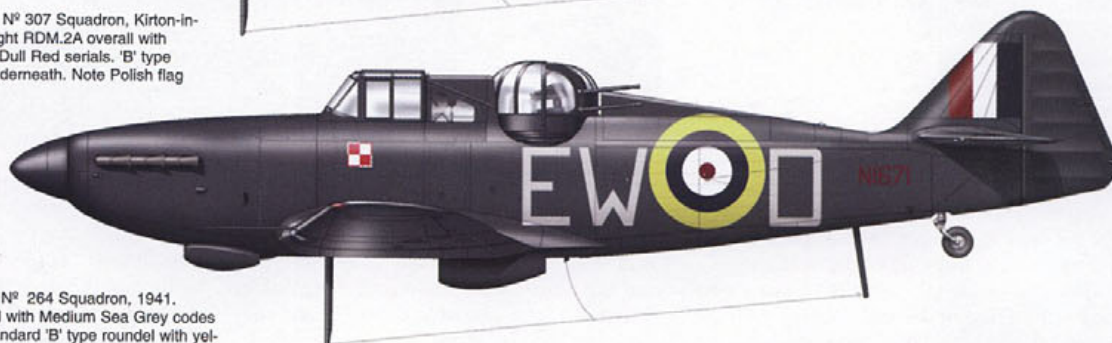




**Defiant F Mk I**, N1795/TW-W, N° 141 Squadron, Gravesend, November 1940. Special Night RDM.2A overall with Medium Sea Grey codes and serials. 'B' type roundels on fuselage sides and below wings, none underneath. Note previous fuselage roundel still partly showing through



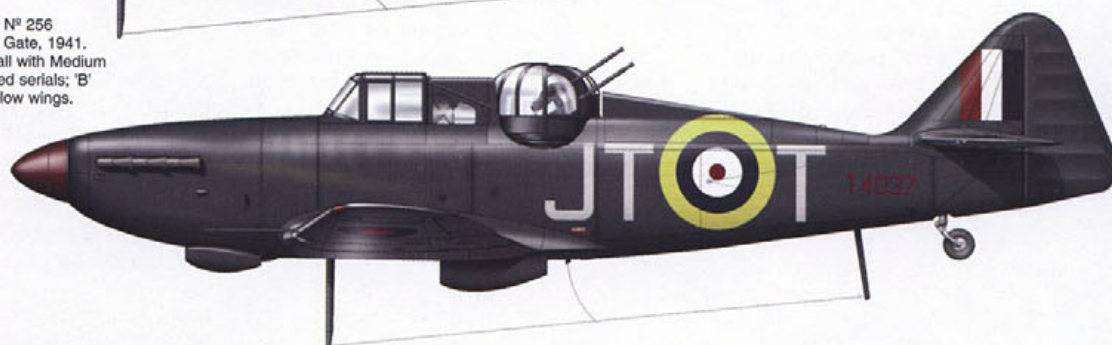
**Defiant F Mk I**, N1671/EW-D, N° 307 Squadron, Kirtlington, late 1940. Special Night RDM.2A overall with Medium Sea Grey codes and Dull Red serials. 'B' type roundel above wings, none underneath. Note Polish flag underneath cockpit



**Defiant F Mk I**, N3313/PS-P, N° 264 Squadron, 1941. Special Night RDM.2A overall with Medium Sea Grey codes and Dull Red serials. Non-standard 'B' type roundel with yellow outline on fuselage sides; standard 'B' type above wings, none underneath



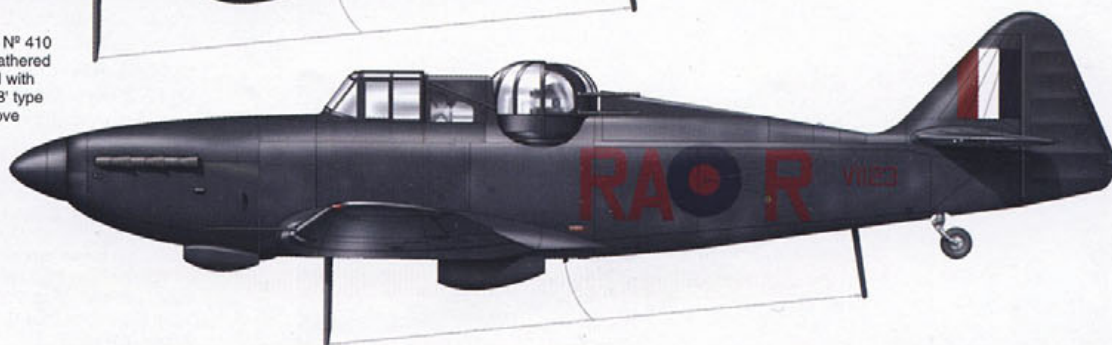
**Defiant F Mk I**, L4037/JT-T, N° 256 Squadron, October Squire's Gate, 1941. Special Night RDM.2A overall with Medium Sea Grey codes and Dull Red serials; 'B' type roundels above and below wings. Spinner is Dull Red



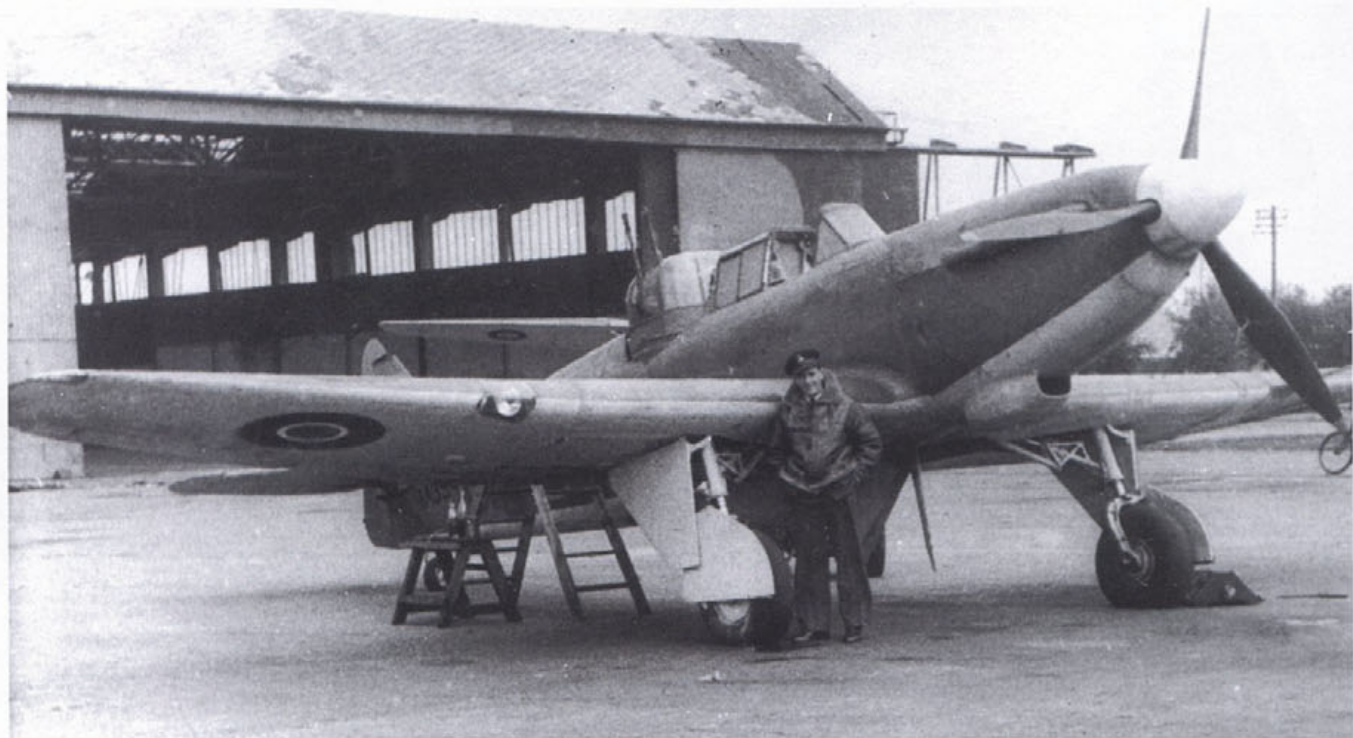
**Defiant F Mk I**, T4052/ZJ-H, N° 96 Squadron, Valley, 1941. Night overall with Medium Sea Grey codes and Dull Red serials; 'B' type roundels above wings, none underneath



**Defiant F Mk I**, V1123/RA-R, N° 410 (RCAF) Squadron, 1941. Weathered Special Night RDM.2A overall with Dull Red codes and serials. 'B' type roundels on fuselage and above wings, none underneath







One of the air-sea-rescue units based at Martlesham Heath was No.277 Squadron. AA354 was in service during 1943 flown by Flt Lts Cox and Morrison. The squadron was formed in May 1942 and disbanded in May 1943. (Andrew Thomas)

August 1940 but the aircraft were subsequently withdrawn after a brief period and they were never flown operationally.

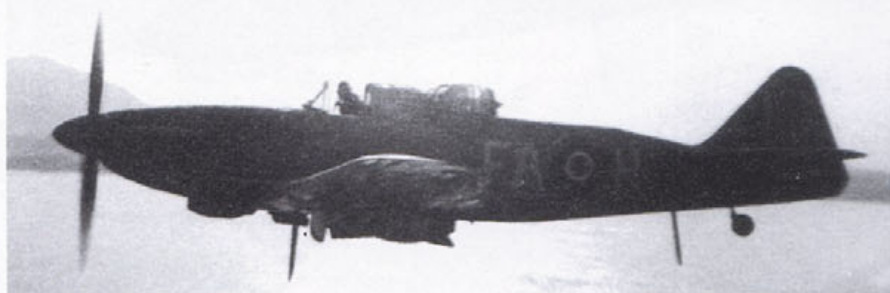
Considered ready for operational use in mid-March 1940 two sections of three aircraft from No.264 Squadron were detached to Wittering from where they flew convoy patrols over the North Sea but without contact with the enemy. The first combat success came on 12 May 1940 when the two sections, now moved to Duxford, and on patrol with six Spitfires, claimed to have shot down a Junkers Ju 88 and a Heinkel He 111 without loss. But the following day brought their first combat losses as they ran into a formation of Junkers Ju 87s with a top cover of Bf 109s and suffered through lack of experience. Four Ju 87s were shot down before the avenging Messerschmitts descended out of the sun and shot down five of the six Defiants for the loss of only one Bf 109.

This action resulted in a change of role for No. 264 Squadron as they were shifted to anti-bomber escort of English Channel convoys whilst the Luftwaffe's action in France and the Low Countries fully occupied their resources.

The Defiants were called upon to help during the Dunkirk evacuation. This was their most famous hour for in one day, 29 May, they claimed no fewer than 37 German aircraft shot down consisting of 19 Ju 87s, 15 Bf 110s, two Bf 109s and a Ju 88. In a later reconsideration of these claims it was obvious that they had been overstated.

But the Defiants had a weak spot under

Another of the five air-sea-rescue squadrons to use the Defiant Mk.I was No. 276 which used the codes AQ. This aircraft was serialised T3997. (Andrew Thomas)



Above: Silhouetted against the setting sun this Defiant Mk.I belonged to No.281 Squadron based at Woolsington, on air-sea-rescue duties and coded FA-H in late 1942. Below: No. 277 Squadron had various bases during the year it was operational. Defiant Mk.I N3398, BA-A is seen at Shoreham in 1942 before the hangars were demolished by bombing. (Andrew Thomas)





Defiant F.Mk.I, N3340/YD-D, N° 255 Squadron, Kirton-in-Lindsey, March 1941. Night overall with Medium Sea Grey codes and Dull Red serials. Modified B type roundel on fuselage; B type above wings

Defiant F.Mk.I, N1581/YD-U, N° 255 Squadron, Kirton-in-Lindsey, early 1941. Special Night RDM.2A overall with Medium Sea Grey codes and serials; 'B' type roundels above wings, none underneath. Note aft fuselage spine fairing is shown lowered

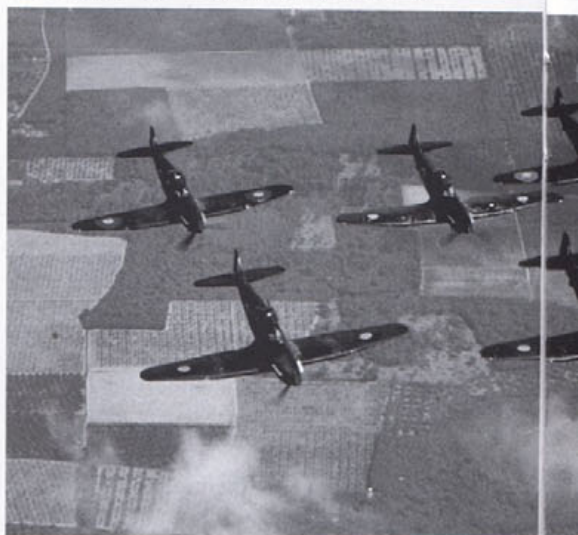
Defiant F.Mk.I, N3328/DZ-Z, N° 151 Squadron, early 1941. Special Night RDM.2A overall with Dull Red codes and serial; 'B' type roundels above wings, none underneath. Red/white 'sharkmouth' motif on engine cowlings

Another of No.264 Squadron's named Defiants during their night fighting role was this one *East Codavari III* which had a badge incorporated showing a witch on a broomstick. The ejector exhausts and the slight scuffing of the engine panels are typical of most night fighters operational during this period. (IWM)

the tail where the pilot could not manoeuvre the aircraft so that the gunner could fire back. This was soon recognised by Luftwaffe pilots who acted accordingly. In action again on 31 May the Defiants lost seven of their number and after moves to Martlesham and Duxford finally retired to Kirton-on-Lindsey on 23 July.

## SECOND SQUADRON

Before this enough Defiants had been built to equip a second squadron. This was No.141 which reformed at Turnhouse on 4 October 1939 with three Tutors, a Tiger Moth and an Anson. It moved to







A Defiant Mk.I sweeping low over its parent airfield at the start of a night flying sortie. Not a great amount of detail is known about this picture or its date of origin. (IWM)

Grangemouth there to work up as a night fighter squadron before receiving its first Gladiator on 27 October and a Blenheim with which it was initially equipped.

These were followed by two Battles and a Harvard to prepare the pilots for powerful single-engined aircraft. On 4 April the first Defiants arrived and by 3 June its full complement of 14 Defiants had been delivered and the squadron was declared operational as part of No.13 Group.

With the pressure of immediate action building up the squadron moved to West Malling on 12 July with the ground crews flown down from Scotland in a Bombay and HP.42. Hawkinge was selected as their forward base and 12 aircraft were based there on 19 July.

Their first action was a disaster. Ordered to intercept a force of Ju 87s at 5,000 ft. the escort of protecting Bf 109s swept down

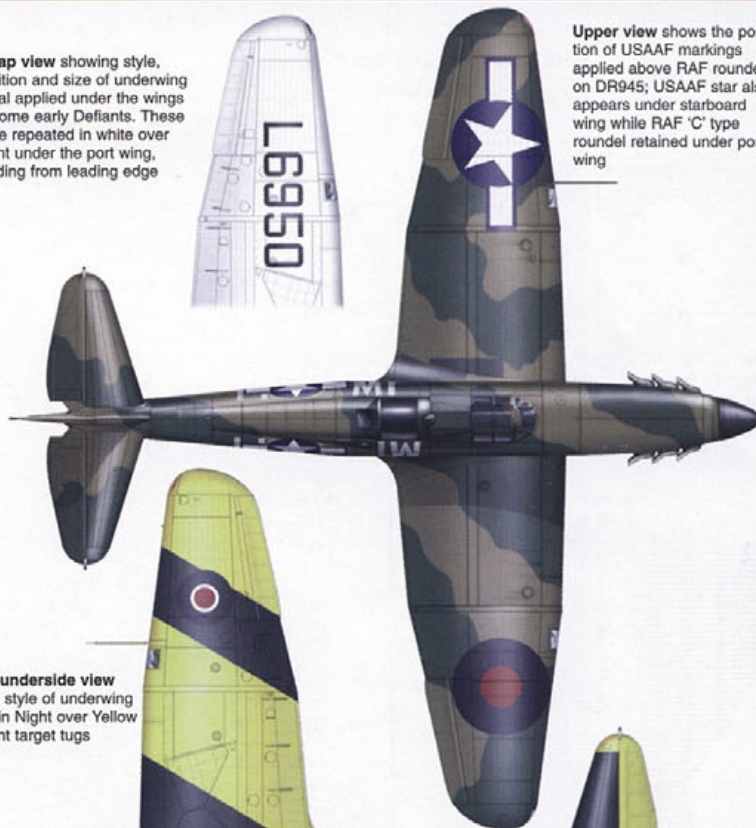
Both in their day fighter and night fighter roles No.264 Squadron often flew perfect formation sorties for publicity purposes. This one was in early 1942. (IWM)



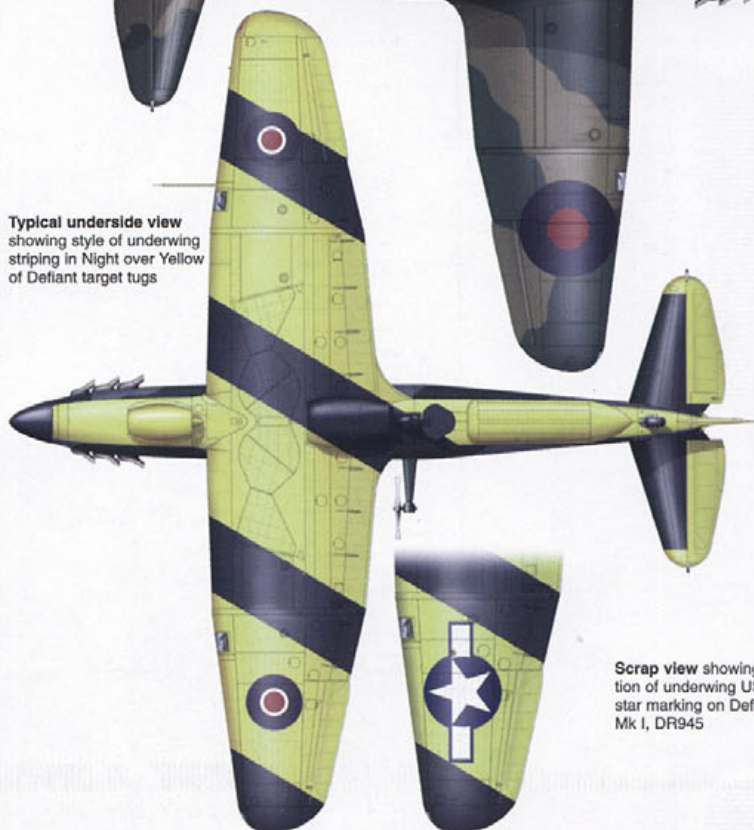
Scrap view showing style, position and size of underwing serial applied under the wings of some early Defiants. These were repeated in white over Night under the port wing, reading from leading edge



Upper view shows the position of USAAF markings applied above RAF roundels on DR945; USAAF star also appears under starboard wing while RAF 'C' type roundel retained under port wing



Typical underside view showing style of underwing striping in Night over Yellow of Defiant target tugs



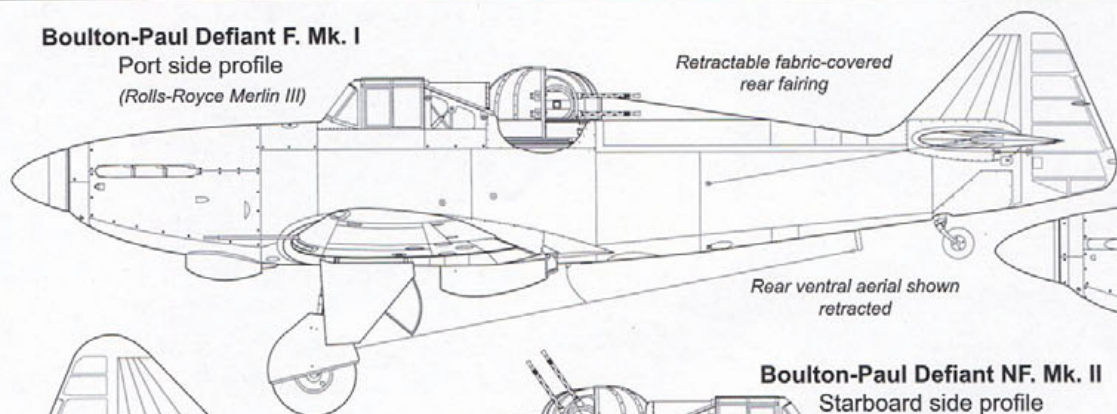
Scrap view showing position of underwing USAAF star marking on Defiant TT Mk I, DR945



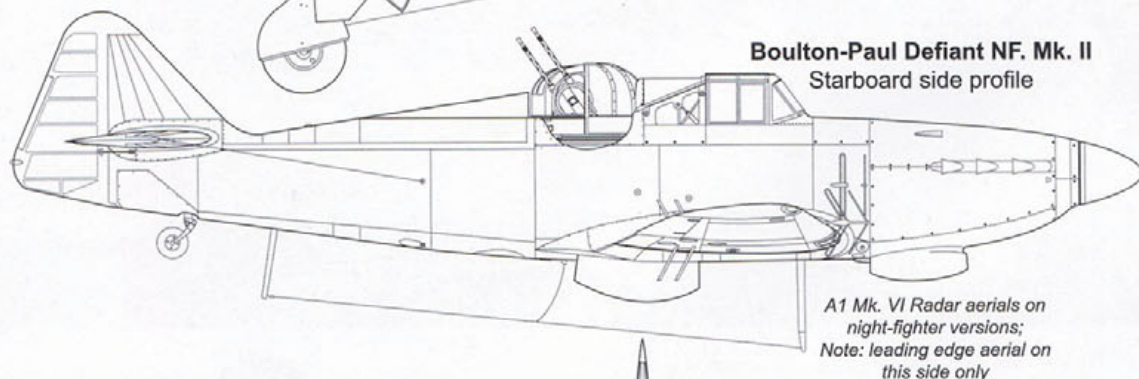
**Boulton-Paul Defiant F. Mk. I**

Port side profile

(Rolls-Royce Merlin III)

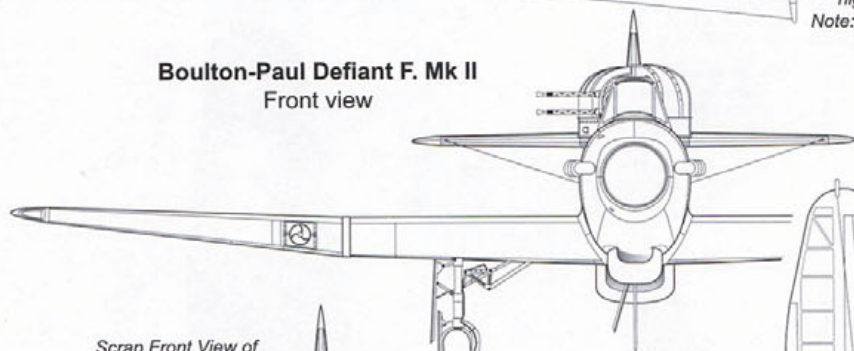


**Boulton-Paul Defiant NF. Mk. II**  
Starboard side profile



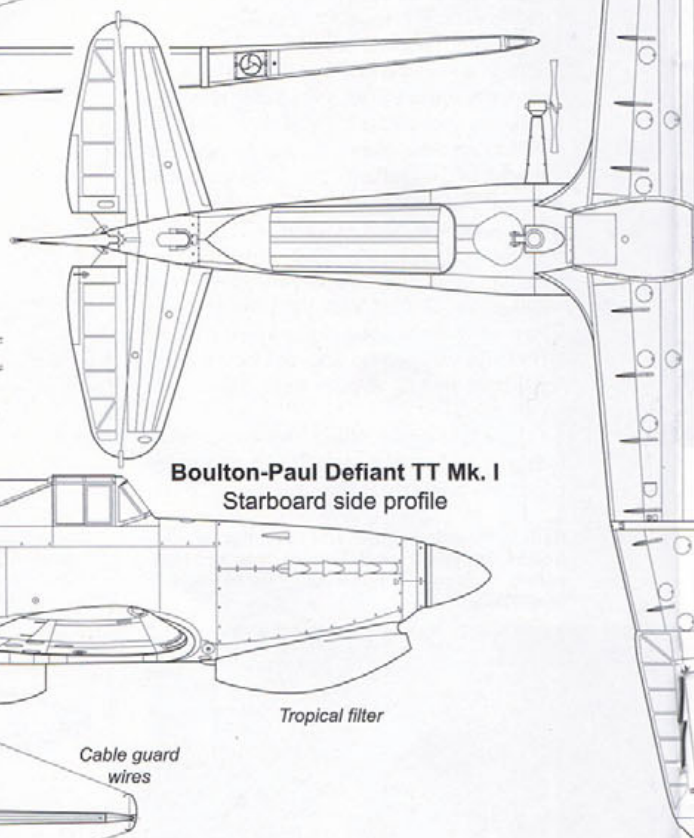
**Boulton-Paul Defiant F. Mk II**

Front view

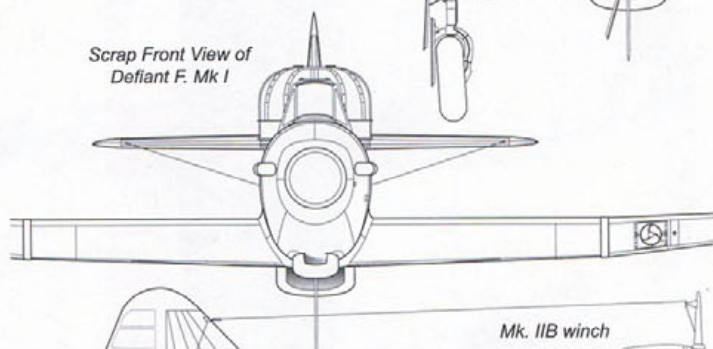


**Boulton-Paul Defiant TT Mk I**

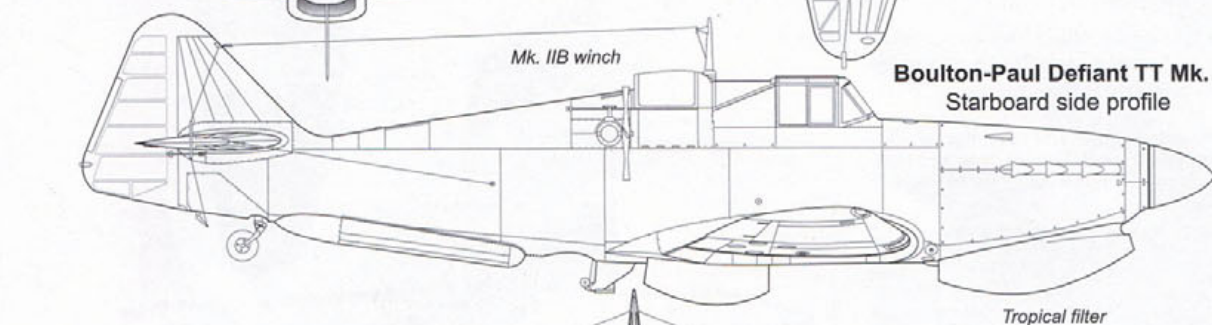
Underside plan view



Scrap Front View of  
Defiant F. Mk I



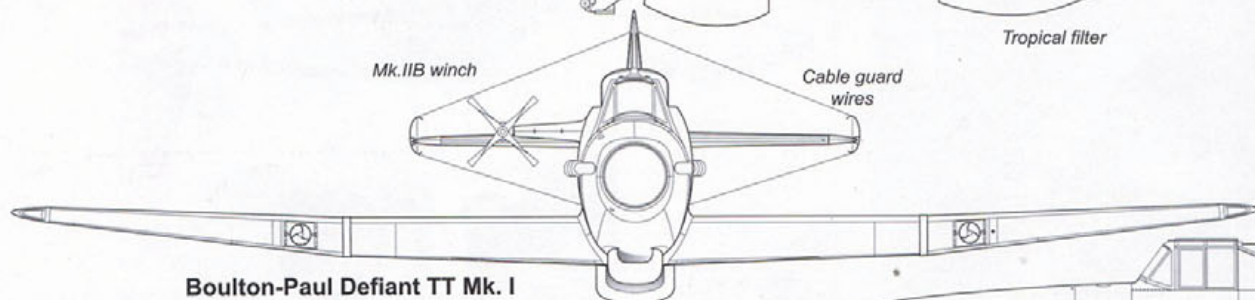
**Boulton-Paul Defiant TT Mk. I**  
Starboard side profile



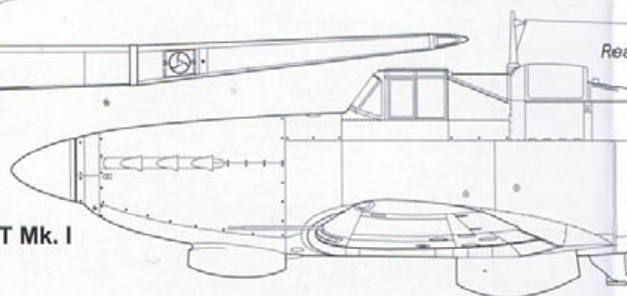
Mk. IIB winch

Cable guard wires

**Boulton-Paul Defiant TT Mk. I**  
Front view



**Boulton-Paul Defiant TT Mk. I**  
Port side profile





**Boulton-Paul Defiant F. Mk. II**  
Port side profile  
(Rolls-Royce Merlin XX)

**Drawings by  
Richard J. Caruana**

1:72nd SCALE



**Boulton-Paul Defiant F. Mk. I**  
Upper surface plan view

**Boulton-Paul Defiant F. Mk. I**  
Underside plan view

Scrap views above and right  
show main changes between  
F. Mk. I and F. Mk. II. Note  
larger oil cooler and radiator,  
longer engine cowling housing  
the Rolls-Royce Merlin XX and  
fish-tail style exhausts

Rear canopy slides  
rearwards

Drogue storage box



# Boulton Paul Defiant squadron and unit markings

Contributed by Andrew Thomas

## 1. RAF Squadrons

Codes only listed if used on Defiants  
+ = partial equipment only  
Examples are Mk I unless noted

### a. Fighter Squadrons

| Sqn No       | CODE/S             | EXAMPLE            | DATES USED    |
|--------------|--------------------|--------------------|---------------|
| 2+           | KO                 | N1572/KO-I         | Aug-Nov 40    |
| 85+          | VY (prob not worn) | N3389              | Jan-Feb 41    |
| 96           | ZJ                 | T4072/ZJ-H         | Mar 41-Jul 42 |
| 125          | VA                 | AA583/ZJ-M (Mk II) | Feb-Jun 42    |
| 141          | TW                 | N3459/VA-R         | Jun 41-Apr 42 |
| 151          | DZ                 | AA404/VA-P (Mk II) | ca Feb-Apr 42 |
| 153          | TB                 | L7036/TW-H         | Apr 40-Aug 41 |
| 255          | YD                 | N3328/DZ-Z         | Dec 40-Jul 42 |
| 256          | JT                 | AA436/DZ-V (Mk II) | Apr-Jul 42    |
| 264          | PS                 | N3425/TB*          | Oct 41-May 42 |
| 307 (Polish) | EW                 | N3312/YD-T         | Nov 40-Sep 41 |
| 409 (RCAF)   | KP                 | N3445/JT-F         | Nov 40-May 42 |
| 410 (RCAF)   | RA                 | AA570/JT* (Mk II)  | ca Feb-Jun 42 |
| 456 (RAAF)   | SA                 | L7029/PS-Z         | Dec 39-Sep 41 |
|              |                    | AA410/PS-T         | Sep 41-Jul 42 |
|              |                    | N3437/EW-K         | Sep 40-Aug 41 |
|              |                    | T3937/KP-S         | Jul-Sep 41    |
|              |                    | V1123/RA-R         | Jul 41-May 42 |
|              |                    | N3477/SA-V         | Jul-Oct 41    |

### b. Air Sea Rescue Squadrons

|      |    |            |               |
|------|----|------------|---------------|
| 275+ | PV | T3920      | May 42-Jun 43 |
| 276+ | AQ | N3372/AQ-T | May 42-May 43 |
| 277+ | BA | V1121/BA-O | May 42-May 43 |
| 278+ | MY | T4036      | May-Dec 42    |
| 281+ | FA | T3951/FA-H | Apr 42-Jul 43 |

### c. Anti-Aircraft Co-operation Squadrons

|      |    |                     |               |
|------|----|---------------------|---------------|
| 285+ | VG | T3923/VG-M (TT III) | Mar 42-Jan 44 |
| 286+ | NW | AA628/NW-V (TT I)   | Apr 42-Jul 44 |
| 287+ | KZ | N1569/KZ-G          | Apr 42-Oct 43 |
| 288+ | RP | V1181               | Mar 42-Apr 43 |
| 289+ | YE | DR866 (TT I)        |               |
| 667+ | U4 | AA287               | Mar 42-Jul 43 |
| 691+ | 5S | AA296/U4-J (TT III) | Dec 43-Feb 45 |
|      |    | T3919/5S-W (TT III) | Dec 43-Apr 45 |

### d. Radio Countermeasures (RCM) Squadrons

|     |     |         |               |
|-----|-----|---------|---------------|
| 515 | nil | AA652/B | Jun 42-Dec 43 |
|-----|-----|---------|---------------|

## 2. RAF Miscellaneous Units (all partially equipped only)

### a. Operational Training Units

|    |                |                |  |
|----|----------------|----------------|--|
| 5  |                | L 7010         |  |
| 10 | UY*            | AA327          |  |
| 11 | KJ-A           | L7011          |  |
| 12 |                | AA322          |  |
| 13 |                | T4055          |  |
| 14 |                | N1767          |  |
| 15 |                | N1700          |  |
| 16 |                | AA325          |  |
| 17 |                | V1128          |  |
| 18 | XW-C (TT III)  | AA323          |  |
| 19 | XF*            | N1653          |  |
| 20 |                | T3930          |  |
| 22 |                | AA295          |  |
| 23 |                | AA317          |  |
| 24 | UF-V (TT III)  | N3315          |  |
| 25 |                | V1107          |  |
| 26 |                | AA282 (TT III) |  |
| 27 |                | N3395          |  |
| 29 |                | AA327          |  |
| 54 |                | N1804          |  |
| 55 |                | N1580          |  |
| 57 |                | L7000          |  |
| 60 |                | N1730          |  |
| 73 |                | AA485 (TT I)   |  |
| 79 |                | AA475 (TT I)   |  |
| 81 |                | T4047          |  |
| 83 | GS-G           | N172*          |  |
| 2  | DR968 (TT III) |                |  |
| 21 | DS152 (TT III) |                |  |
| 22 | DS155 (TT III) |                |  |

Continued on page16



immediately shooting down two Defiants followed by four more. The enemy lost four Bf 109s which made the score more even but 141 lost four pilots and five gunners were killed.

It had by then become obvious that the Defiant was no match for the opposition and the squadron accordingly withdrew to Prestwick to await any attacks from unescorted bombers.

Meanwhile No.264 Squadron, still based at Kirton, had detachments at Ringway in the defence of Manchester and Coleby Grange. They took part in the semi-abortive raids by the Luftwaffe on north-eastern targets but much of the success of this action went to the Hurricanes and Spitfires of Nos. 73, 219 and 616 Squadrons. Yet one success was claimed as No 264 put up a number of night flying standing patrols which claimed the destruction of one Heinkel He 111 but this was not confirmed.

In spite of the reluctance to use the Defiant in the south of England No.264 was dispatched to Hornchurch using Manston as its forward base. No.141 A Flight meanwhile





had moved to Montrose with B Flight at Dyce. The Defiants had some very close calls as on the 24th Manston was attacked whilst nine of their aircraft were refuelling. It happened again on the same afternoon when the squadron had recovered to Hornchurch when enemy bombers arrived. In these and the following days No. 264 lost six aircraft and was almost hastily withdrawn to Duxford. The role of the Defiant as a day fighter had come to an end.

#### NIGHT FIGHTER

Envisaged as one of the Defiant's original roles both Nos.264 and 141 Squadron were adapted for night fighter work by the removal of day time fighter camouflage and its replacement by RDM2 Night black. But in spite of standing patrols and the assistance of ground-based radar these were very much a hit and miss affair as the controllers could only bring the fighter into an approximate position for an interception. The Defiants were used in conjunction with Turbinlite Havocs which with their powerful search-

Above: No.264 (Madras) Squadron during their period as a night fighter unit. This is one of the few aircraft to be named, the words *Coimbatore II* appearing on the cowling next to a hand on a shield. The squadron had better success in this role than in day fighting hence the five kill markings just below the cockpit. Below: Defiant Mk.I of No. 256 Squadron during its night fighting role. The retractable coverings for the front and rear of the turret are shown in the down position.(IWM)





Continued from page 14

## Boulton Paul Defiant units

### b. Anti-Aircraft Co-operation Units

#### Unit Example serial and variant

|    |                |
|----|----------------|
| 1  | DR865 (TT III) |
| 2  | DR968 (TT III) |
| 21 | DS152 (TT III) |
| 22 | DS155 (TT III) |
| 23 | AA513 (TT I)   |
| 25 | AA491 (TT I)   |
| 26 | AA507/B (TT I) |

### c. Flights

|      |                |
|------|----------------|
| 1422 | N3392          |
| 1479 | AA304          |
| 1480 | AA298          |
| 1481 | AA322          |
| 1482 | T4103          |
| 1483 | T4068          |
| 1484 | V1126          |
| 1485 | T3989          |
| 1566 | DR990 (TT III) |
| 1592 | AA666          |
| 1600 | DR881 (TT III) |
| 1602 | DR867 (TT III) |
| 1616 | DR915 (TT III) |
| 1622 | DR919 (TT III) |
| 1623 | DR938 (TT III) |
| 1624 | DR930 (TT III) |
| 1631 | DR876 (TT III) |
| 1692 | AA405 (Mk II)  |

### d. Air Gunnery Schools

|               |              |
|---------------|--------------|
| 1 AGS (India) | AA499 (TT I) |
| 2 AGS         | N1614        |
| 3 AGS         | N1552        |
| 7 AGS         | N1772        |
| 10 AGS        | AA310/49     |

### e. Other Units

|                                          |                |               |
|------------------------------------------|----------------|---------------|
| 1 Air Armament School                    | 7006           |               |
| 1 Coastal Artillery Co-op Unit           | N1615          |               |
| 1 School of Army Co-Op                   | N1761          |               |
| 9 Air Observers School                   | T3952          |               |
| 9 (Observers) AFU                        | N3486          |               |
| 5 (Pilots) AFU                           | V1109          |               |
| 9 (Pilots) AFU                           | L7002          |               |
| 18 (Pilots) AFU                          | N3490          |               |
| 8 School of Technical Trg                | N1611          |               |
| 9 Gp Comms Flt                           | AA297          |               |
| 11 School of Technical Trg               | N1611          |               |
| 11 Combat Crew Replacement Centre, USAAF | DR945          | JW-U (TT III) |
| 14 Gp Comms Flt                          | V1132          |               |
| 81 Gp Comms Flt                          | T3922          |               |
| AFDU                                     | V1121          | AF-P          |
| Comms Flt Iraq                           | DR975 (TT III) |               |
| Ftr Experimental Est                     | T4055          |               |
| FIU                                      | AA357          |               |
| TFU                                      | T4055          |               |
| SD Flt                                   | N1533          |               |

lights were intended to illuminate the target so that a fighter could attack. Hurricanes were the principal type used for these operations but the Defiants also took part but without any successes.

No. 264 Squadron had, since their withdrawal, been based at Kirton-in-Lindsey whilst No.141 had returned to Turnhouse. With the start of the Luftwaffe's night bombing offensive against major British cities from October 1940 onwards, B Flight of No. 141 Squadron moved to the Biggin Hill sector whilst No. 264 Squadron found a new home at Rochford. Several engagements were recorded the most significant of which was the action fought by Plt.Oftrs. Benson and Blair of No. 141 Squadron who shot down a Heinkel He 111 on 22 December.

By late 1940 no less than 12 squadrons of Defiant night fighters had been formed. Their bases ranged from Northern Ireland to Scotland, the Midlands and the south of England. Several had a mixture of Hurricanes on strength.

Yet this was to change with the introduction of airborne interception radar (AI) in both Blenheims and Defiants and night contacts improved.

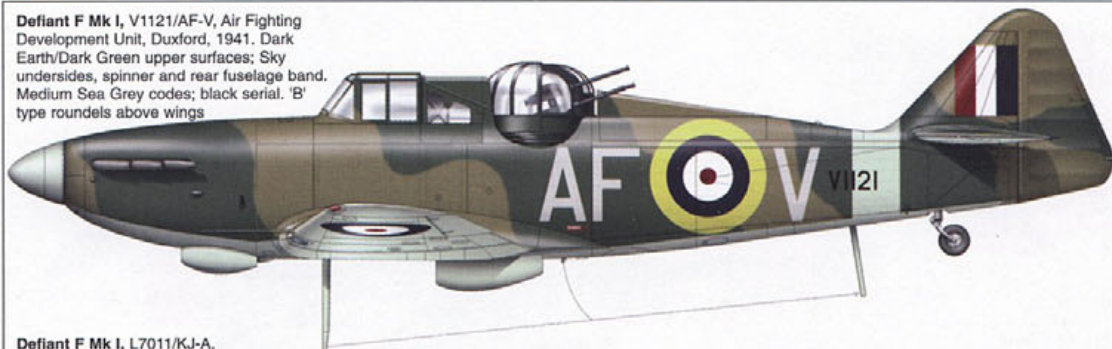
During 1941 the rudimentary AI Mk.IV radar became available and was fitted to a few Defiants but the main radar used was the Mk.VI, the installation drawings of which were completed by Boulton Paul as early as November 1940 although the equipment did not become available in quantity until August 1941. Long before that the possibility of fighter aircraft carrying their own airborne radar was considered in 1936. In 1937 an Anson Mk.I was flown with elementary radar but by 1939 advances had not been sufficient apart from being able to give a rough indication of enemy range measurement and bearing. The equipment was also far from compact if it were to be fitted into

Early radar (AI) was fitted to Defiant night fighters as soon as this was available. Initially the Mk.IV was used but this was superseded by the centimetric AI Mk.VI as shown here. The first squadron so fitted was No. 264 in January 1941 followed by seven others by the end of that year. Transmitter and receiver aerials were fitted above and below each wing whilst azimuth was determined by the aerials just forward of the cockpit. All radar-equipped Defiants were redesignated Mk. IA. Because of the size and bulk of the equipment the AI screen had to be mounted in the pilot's cockpit and associated units fitted elsewhere. (A.W.Hall collection)





**Defiant F Mk I, V1121/AF-V**, Air Fighting Development Unit, Duxford, 1941. Dark Earth/Dark Green upper surfaces; Sky undersides, spinner and rear fuselage band. Medium Sea Grey codes; black serial. 'B' type roundels above wings

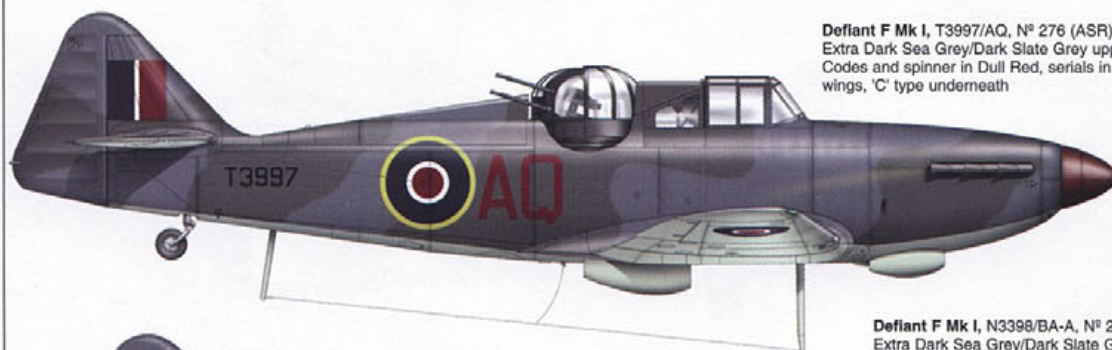


**Defiant F Mk I, L7011/KJ-A**, Gunnery Training and Fighter Affiliation Duties, N° 11 OTU, November 1942. Special Night RDM.2A overall with Dull Red codes and serials; A1 roundel on fuselage sides and B roundels above wings. Note name 'Skatz' under cockpit in Dull Red (some sources claim this to be in white)

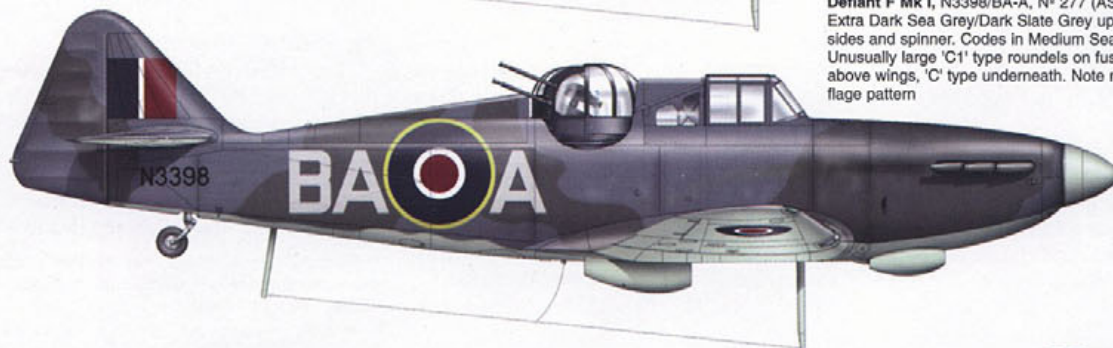
Skatz



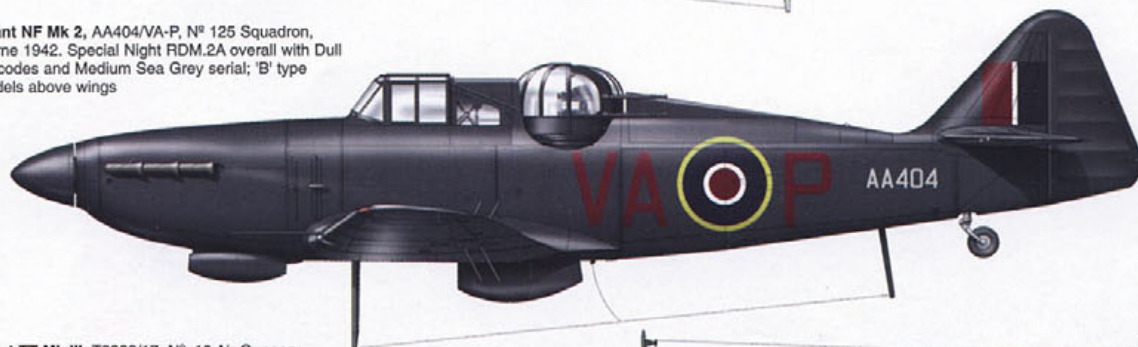
**Defiant F Mk I, T3997/AQ**, N° 276 (ASR) Squadron, Harrowbeer, 1942. Extra Dark Sea Grey/Dark Slate Grey upper surfaces, Sky undersides. Codes and spinner in Dull Red, serials in black. 'B' type roundels above wings, 'C' type underneath



**Defiant F Mk I, N3398/BA-A**, N° 277 (ASR) Squadron, 1942. Extra Dark Sea Grey/Dark Slate Grey upper surfaces; Sky undersides and spinner. Codes in Medium Sea Grey, serials in black. Unusually large 'C1' type roundels on fuselage; standard 'B' type above wings, 'C' type underneath. Note non-standard camouflage pattern



**Defiant NF Mk 2, AA404/VA-P**, N° 125 Squadron, Colerne 1942. Special Night RDM.2A overall with Dull Red codes and Medium Sea Grey serial; 'B' type roundels above wings



**Defiant TT Mk III, T3988/17**, N° 10 Air Gunnery School, 1942. Dark Earth/Dark Green upper surfaces; Yellow/Night undersides and Sky rear fuselage band. 'B' type roundels above fuselage; 'C' type under wings. Code '17' is white while spinner is Night





## Royal Navy Units using Defiants

### a. Squadrons

|      |           |               |
|------|-----------|---------------|
| 700+ | T3986     | Feb-Mar 45    |
| 726+ | DR883     | Dec 43-May 44 |
| 727+ | AA576     | May 43-Dec 44 |
| 728+ | DS145     | May 43-Dec 44 |
| 733+ | DR961     | Jan 44-Oct 46 |
| 770+ | DR893     | Aug 42-Aug 43 |
| 771+ | DR933/T8M | Jun 42-Aug 43 |
| 772+ | DR971     | Jun 42-Aug 43 |
| 774+ | N1614     | Nov 44-Mar 45 |
| 775+ | DR870     | Nov 44-Mar 45 |
| 776+ | V1107     | Apr 44-Mar 45 |
| 777+ | DR962/T   | Oct 42-Aug 44 |
| 779+ | DR977/A   | Apr 43-May 44 |
| 788+ | DR872     | Feb 44-Jul 45 |
| 789+ | DR883     | Feb-Dec 44    |
| 791+ | N1617/A8N | Apr-Jun 44    |
| 792+ | N3379     | Dec 43-Jan 45 |
| 794+ | DR974/P8M | Nov 42-Jun 44 |
| 797+ | DR915     | Nov 43-Aug 45 |

### b. Units

|    |                |
|----|----------------|
| 1  | DR865 (TT III) |
| 2  | DR968 (TT III) |
| 21 | DS152 (TT III) |
| 22 | DS155 (TT III) |
| 23 | AA513 (TT I)   |
| 25 | AA491 (TT I)   |
| 26 | AA507/B (TT I) |

### c. Flights

|      |                |
|------|----------------|
| 1422 | N3392          |
| 1479 | AA304          |
| 1480 | AA298          |
| 1481 | AA322          |
| 1482 | T4103          |
| 1483 | T4068          |
| 1484 | V1126          |
| 1485 | T3989          |
| 1566 | DR990 (TT III) |
| 1592 | AA666          |
| 1600 | DR881 (TT III) |
| 1602 | DR867 (TT III) |
| 1616 | DR915 (TT III) |
| 1622 | DR919 (TT III) |
| 1623 | DR938 (TT III) |
| 1624 | DR930 (TT III) |
| 1631 | DR876 (TT III) |
| 1692 | AA405 (Mk II)  |

All Target Tugs unless noted.

fighter aircraft. But frenzied activity required to improve the situation caused by enemy night operations had been made and the first sets suitable for airborne operation were shortly to become available.

The Defiant was fitted with radar trans-



Two views of an early conversion to target towing standard of an all-black night fighter Defiant. The serial or previous squadron is not known but it is interesting to note the considerable changes to the aircraft's outline that took place. The turret has been replaced by an observer's position, a four-bladed wind driven unit was placed on the starboard side of the fuselage and the targets placed in a container under the rear fuselage. The deeper radiator of the Mk.II should be noted and the radio aerial moved to the top of fuselage position behind the pilot.



mitter and elevation receiver aerials above and below the wings and azimuth aerials on both sides of the fuselage just forward of the cockpit. Because there was insufficient room in the turret to place the cathode ray display tube it was fitted to the pilot's cockpit with the associated equipment placed in the fuselage. Defiants fitted with radar were re-designated Mk.IA going first to No. 264 squadron followed by No. 96 Squadron by the end of 1941. Nos. 125, 256 and 410

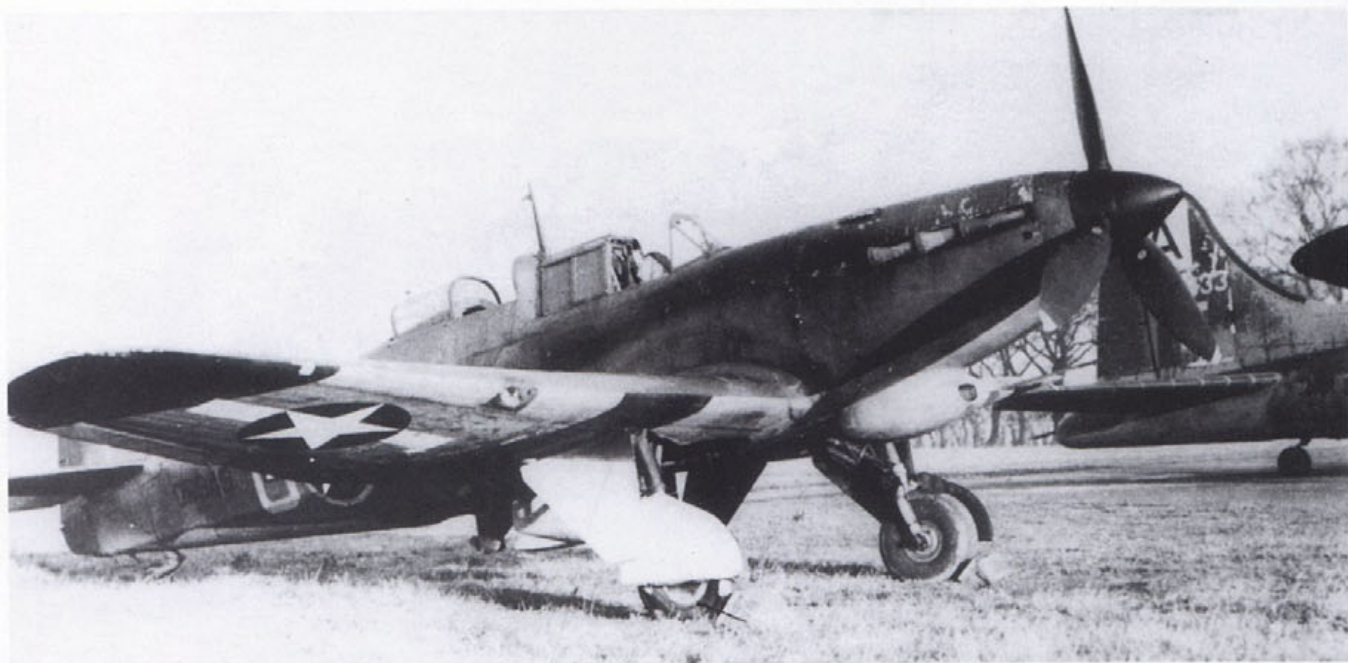
Squadrons followed.

The AI Mk.IV had a maximum range of four miles and a minimum of 600 ft. Its disadvantage was that if the interceptor was flying above the height of the enemy, ground returns swamped the cathode ray tube. The development of centimetric radar which came with the Mk. VI solved this to a con-

Defiant TT.I N1624: 5S-J of No.691 Squadron based at Roborough, Plymouth, between 1944-45. (Andrew Thomas)







One of two known Defiants to see USAAF service was based at Bovington, Hertfordshire and belonged to the 11th Combat Crew Replacement Centre (CCRC). It was serialised DR945:JW-U. (Andrew Thomas)

siderable extent.

Meanwhile the number of Defiant squadrons continued to increase. No.307 Squadron based at Squires Gate was one of the first on 5 September 1940 as a day fighter squadron but this soon converted to the night fighting role. By mid-February a section of No. 256 Squadron was operational at Kirton-in-Lindsey with No. 85 at Debden. By 10 May 1941 seven squadrons were using night fighting Defiants including No. 96 at Cranage along with some Hurricanes; Nos. 141 and 151 at Wittering; No. 255 at Kirton with some Hurricanes as was No. 256 at Squires Gate. Crews for the first squadrons were trained at 54 OTU Church Fenton followed by 60 OTU at Leconfield. The third was at Cranfield as No.51 OTU but Defiants were withdrawn in favour of Blenheims and then Beaufighters.

#### DEFIANT Mk.II

The need for increased engine power was

always predominant in fighter design. The Defiant was no exception and the Mk. II was developed.

Two Defiant Mk.IIs N1550 and N1551, were modified to take the Merlin XX which had a horsepower of 1,260 at 12,500 ft. The first of these made its first flight on 20 July 1940 followed by the second at the end of that summer.

A new engine mounting was incorporated, modifications were made to the engine cowl and radiator, additional fuel tankage was provided along with a pressurised fuel system. These modifications resulted in the requirement for an enlarged fin and rudder. A contract for 280 Mk.IIs was placed in July 1940 but was amended to 63 Mk.IIs and 210 Mk.IIs. In addition seven Mk.IIs were converted to Mk.IIs on the production line. Delivery was completed in January 1942 but no further orders were envisaged and although two more batches were contemplated these were cancelled.

Another 1940 idea was to produce a single-seat Defiant with four wing mounted guns. This was to have carried the Merlin III and although the original prototype Defiant, K8310, was modified the scheme was discontinued. Other ideas were for a two-seat

trainer version with a semi-enclosed rear cockpit and a version for the Royal Navy to the same specification as the Blackburn Roc, O.30/35.

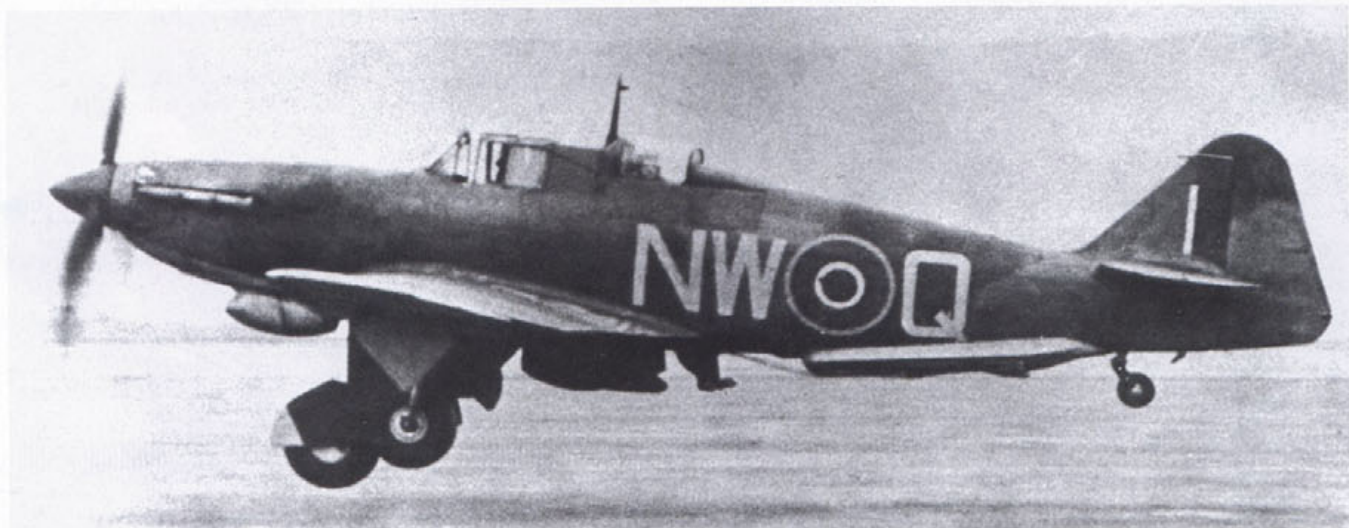
#### OTHER DUTIES

Although the Defiant gave good service as a night fighter its capabilities were overtaken by more modern aircraft with far greater armament and twin-engines such as the Beaufighter and later the Mosquito. The last Defiant NF.Mk.II was delivered on 15 February 1942.

With so many Defiants now surplus to requirements other roles had to be found for them. One of these was with the Air Sea Rescue squadrons.

The earlier project of making the Defiant a ground attack aircraft with external bomb racks under the wings was revised and specially modified Defiant Mk. I and II were allocated to the task. Previously ASR work was mostly carried out by Lysanders but these were somewhat slow for the task and the range and speed of the Defiant greatly

Defiant TT.III NW:Q of No. 286 Squadron which operated the type between 1944 and 1945. (Andrew Thomas)







**HMS Spurwing** was a Royal Navy training station in Sierra Leone which used some Defiant TT.Is and IIs for target towing purposes. Both the tropicalised and UK versions of the Defiant are shown. (IWM)

increased the chances of finding downed aircrew quickly. The turrets were retained as defensive armament.

Trials were completed in February 1942. At the end of March No. 281 Squadron was formed at Ouston with Defiant Mk.Is whilst a detachment was based at Turnhouse. In April 1942 it was decided that a further four more squadrons should be allocated to the ASR units based round British coasts and these began to form in May. At the same time No. 277 Squadron strength was increased to 12 Defiants plus four Lysanders and based along the south coast.

Rescue equipment in the shape of two 'M' type dinghies were fitted in bomb containers under the Defiant's wings compared to four that could be carried by the Lysander.

Squadrons using Defiants for ASR work were Nos. 275 at Valley; 276 at Harrowbeer; 277 at Stapleford Tawney; 278 at Coltishall and Matlack and 281 at Ouston with detachments at Drem and Blyth.



Defiants drawn from No. 277 Squadron gave ASR cover during the operations surrounding the landings at Dieppe on 19 August 1942. These and other operations brought forward a number of disadvantages in using Defiants for the role including its wide turning circle and high stalling speed. Needless to say the aircraft allocated were rather old and engine and airframe malfunctions were high. Eventually Spitfires

Far East Defiants were used for target towing duties. This TT.Mk.I DS155 of 'A' Flight, No.22 AACU was based at Karachi between 1944-45. It is being flown by Sqdn.Ldr W.Young in this picture. (Andrew Thomas)

replaced them and the Defiant phased out by the last two months of 1942.

#### TARGET TUGS

There were a number of ideas put forward for the use of the many surplus Defiants including one which gave the aircraft a second lease of life and indeed put it back into production.

This was as a target tug.

Major modifications were called for. Firstly the turret was removed and replaced by an observer's canopy. A box containing targets was fitted under the rear fuselage and a windmill and arm fitted to the port side of the fuselage which operated the winding mechanism. The removal of the turret great-

A Middle East target tug Defiant not conforming to standard camouflage schemes. This one has the black and yellow stripes over all. It is a Defiant II AA507 coded '8' belonging to No. 26 AACU in Egypt in 1945. (Andrew Thomas)





Eight aircrew members of No. 277 Squadron seen in front of one of their Defiants at Martlesham Heath in 1942 whilst engaged in air-sea-rescue duties. (Andrew Thomas)

ly reduced the aircraft's all up weight but the addition of target towing equipment in fact reduced the top speed to 250 mph in the TT.Mk. I. which retained the Merlin XX engine and was based on the Defiant Mk.II.

An order for 140 target tugs was placed in July 1941 and the prototype, DR863, was delivered from Wolverhampton on 31 January 1942. In addition to the newly ordered aircraft many conversions were made to existing airframes. The last 40 NF.IIs for example were built as TT.Mk.Is. Other modifications included the proposed fitting of a Merlin 24 to increase the aircraft's top speed and efforts were made to reduce the all up weight for better performance.

Many of the modified Defiants released from front line duties and re-configured as target tugs were designated TT.Mk.IIIIs. The first aircraft to be modified was N3488 and went to Boscombe Down for test work and later to Farnborough in the summer of 1942. In all a total of 150 Mk.Is were modified into TT.Mk.IIIIs.

Requests for an aircraft to tow targets at a relatively high speed came from many home and overseas based units. Because many were destined to go to the Middle and Far East most were fitted with an extended filter over the oil cooler and also had other tropicalisation such as cockpit and observer's station cooling.

Defiant target tugs were to be found on many RAF stations in home commands. They also reached anti-aircraft co-operation units (AAC) for the training of gun crews. Flights of one or two aircraft were allocated to the group under whose control they came. For example No. 288 Squadron originally formed at Digby, had one aircraft at Coleby Grange whilst the remainder were at Digby. Detachments were also made to Wellingore and Coltishall during the next six months. Another squadron that came under AAC control was No.667 which formed on 1 December 1943. It had target tugs dispersed all along the south coast at locations like Christchurch, Gosport, Friston and Thorney Island. Another unit in the command was

**Tugs in a tangle. Two Defiant TT.IIs N1728:G-5S of No. 691 Squadron and a 667 Squadron aircraft coded S-U4 seen in a May 1945 accident. (via Andrew Thomas)**



No. 691 Squadron at Roborough near Plymouth.

Even Bomber Command demanded the use of Defiant target tugs and these were based at Binbrook, West Raynham and Driffield. Overseas the aircraft formed detachments in Cyprus, South Africa, Trinidad, East Africa and also the Met Flight at Khormaksar.

The Fleet Air Arm wanted target tugs in 1943 for Fleet Requirements duties and accordingly small numbers were transferred to serve at several home bases as well as Gibraltar, Algiers, Dekheila and Malta. Others went further afield to Ceylon.

Defiants were even seen in USAAF markings like DR925 which went to 11 Combat Crew Replacement Centre at Bovingdon.

One well remembers logging many a Defiant plodding up and down various parts of the south coast towing a target for 3.7 and 4.5 gun batteries on the cliff tops after restrictions on visiting former coastal resorts were partially lifted in 1944 after the invasion of Europe. It seemed that every station had at least one on strength though the actual units themselves remained shrouded in secrecy.

#### EXPERIMENTAL

In common with other aircraft types the Defiant was used for various experimental purposes including the need for ejector seats to go with the first jet aircraft.

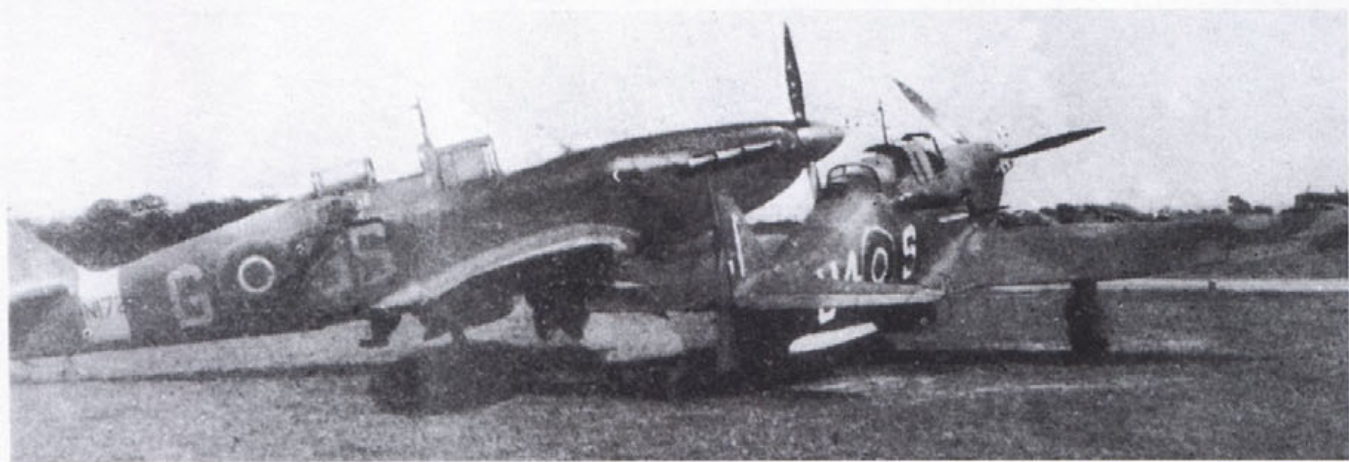
In December 1944 DR944 was on loan to Martin Baker Aircraft who modified it to fit their earliest experiments with ejector seats.

The aircraft was taken to Wittering for trials which began on 11 May 1945 heralding many flights and later the production of countless numbers of ejector seats for aircraft throughout the world. On this date the first dummy ejection was made whilst the aircraft was being flown by Brian Greenstead chief test pilot for Rotol's. On 17 May six further dummy ejections were made at Beaulieu up to an indicated speed of 300 mph. By then the Air Ministry was taking an active interest in Martin Baker's experimental trials and a further Defiant AA292 was allocated for trial purposes.

Gunsight development work was another experimental use for the Defiant, based at Exeter to begin with, then at Colly Weston. Rotols' at Staverton used N3322 and N3430 for propeller vibration investigations but the largest numbers went to the RAE Farnborough.

Both engine and airframe experimental work was carried out there starting in the middle of 1941 and not ending until late in 1944. The Merlin XLV was fitted in June 1941 followed by a Merlin XLVI. The pilot's canopy was retained and the retractable fairing behind it locked in the down position with the turret faired over. Carburettor development also came within the aegis of Farnborough's work especially at high altitude. N3512 flew some 70 hours in these tests. Attempts were made to boost the Defiant's speed in 1942 when L7002 and N3331 were used, the latter for wing pressure experiments. Armament department

*Continued on page 24*







1

1. The Boulton Paul gun turret fitted to the Defiant had four .303 Browning machine guns and could fire at most angles but not forward over the aircraft's nose. 2. Defiant's tail unit and tail wheel. Construction was of simple frames and metal skinning making it easy to construct and repair.

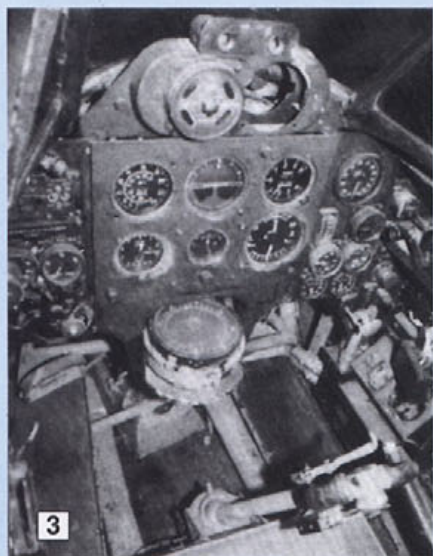


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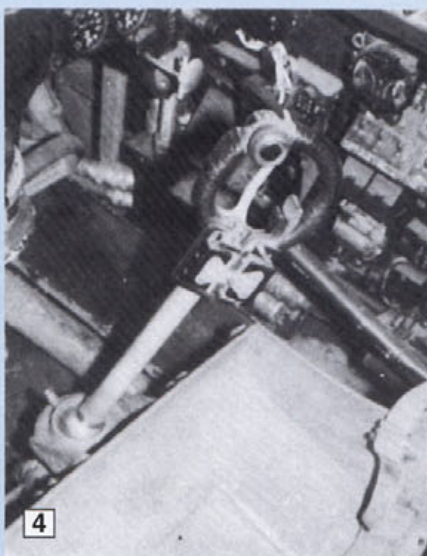


2

3 & 4. Two pictures of the Defiant's cockpit interior. Of very similar design to the Hurricane and Spitfire the only main difference was that the pilot had no gun sight. The blind flying panel and compass were centrally mounted and in the left picture the control column was pulled right back. (Richard Caruana)



3



4

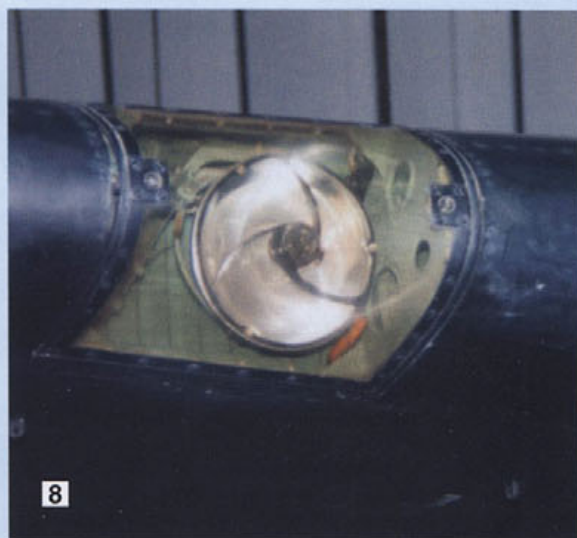
# Boulton Paul DEFIANT

IN DETAIL  
Pictures by Martin Waligorski



6





5. The underside of the Defiant's nose. 6. Left hand undercarriage leg and wheel. 7. Under fuselage showing the radiator. Note that the rear radio aerial is retracted but that it is offset to the right hand side of the fuselage. 8. The landing light in the starboard wing. A similar light was fitted in the port wing. 9. The size and shape of the roundel and the colour of the codes. Some doubt has been expressed that N1671 in the RAF Museum should have been coded EW:W and not EW:P as shown. 10. The Defiant's cockpit cover slid backwards to allow the occupant to get in or out. The turret had to be swung at 45 degrees to allow entry and exit. 11. The Defiant's nose showing the ejector exhausts







Above and right: Rebuilt from the remains of a Boulton Paul Defiant turret and other parts, the Boulton Paul Association members constructed this full scale replica using plastics, wood and metal over a period of four years. The aircraft which has been serialised L7005 and painted in the colours of No. 264 Squadron during the Battle of Britain, was unveiled to the public for the first time at the Boulton Paul Association's museum, near Wolverhampton, on 15 September 2002. (Mark Ansell)

Continued from page 21

had the use of AA354 and DR966 was used for the first towed target trials.

By the end of 1945 the Defiants had more or less disappeared from the many units that had used them. Target tugs were replaced by the Miles Martinet which had been designed for the role from its inception.

A few remained on airfields as wrecks including 2740M at Farnborough and several others at small airfields which in themselves were due for closure. Only one has survived. This is N1671 which, painted in the colours of a night fighter, now belongs to the RAF Museum. Previously it had served with Nos. 153 and 307 Squadrons followed by 1671 Flight before being placed in storage. It was refurbished at St. Athan and subsequently displayed at the Queen's Jubilee celebrations at Abingdon in 1968.

The only other Defiant, albeit a replica was built by the Boulton Paul Association's members and is now on display at Wolverhampton.

The Defiant was an aircraft worthy of its time but, lacking forethought in armament and top speed as a fighter, provided a useful secondary role as a target tug throughout the many RAF and RN Stations that used it.



## Boulton Paul Defiant kits and accessories

| Scale | Variant          | Manufacturer       | Reference | Remarks                             |
|-------|------------------|--------------------|-----------|-------------------------------------|
| 1:72  | Defiant          | Aeroclub           | ABP056    | Defiant propeller blades            |
| 1:72  | Defiant          | Airwaves           | AEC72187  | Modifications for Airfix kit        |
| 1:72  | Defiant Mk.I     | Airwaves           | AES72029  | New nose and spinner for Defiant    |
| 1:48  | Defiant          | Moskit             | MOS4860   | Defiant exhausts                    |
| 1:72  | Defiant          | Almark Decals      | AKC02     | B of B Hurricane and Defiant        |
| 1:72  | Defiant          | Mini Print decals  | MPD 72532 | -                                   |
| 1:72  | Defiant NF.I     | Airfix             | AX01031   | Original Airfix Defiant kit         |
| 1:48  | Defiant          | Classic Airframes  | CF404     | Sqdn decals, resin interior         |
| 1:48  | Defiant          | Classic Airframes  | CF471     | Revised kit, new tool               |
| 1:48  | Defiant NF.Mk II | Flash Back Models  | FB8914    | Complete kit                        |
| 1:72  | Defiant Mk.II    | MPM Czech          | MPM72513  | Complete kit                        |
| 1:72  | Defiant Mk.II    | MPM Czech          | MPM72519  | Complete kit. Radar version         |
| 1:72  | Defiant          | Pavla              | PAV72035  | Complete kit                        |
| 1:72  | Defiant          | Pavla              | PAV72032  | Complete kit                        |
| 1:72  | Defiant TT.I     | Pegasus            | PEG2004   | Target tug complete kit. No decals. |
| 1:72  | Defiant          | Czech Master Resin | CMR0159   | Without turret                      |
| 1:72  | Defiant F.I      | Czech Master Resin | CMR1115   | Complete kit in resin               |
| 1:72  | Defiant          | ESCI               | ESD37     | Old kit. Not very accurate          |
| 1:32  | Defiant          | ID Models          | ID3277    | Vacuform kit                        |



**Defiant TT Mk I, DR945, US 8th Air Force CCRC (Combat Crew Replacement Centre), Bovingdon. Dark Earth and Dark Green upper surfaces; Yellow and Night undersides. Night spinner; Medium Sea Grey codes. US stars and bars on fuselage sides, above port wing and under starboard wing**



**Defiant TT Mk I, N1624/5S-J, 691 Squadron. Dark Earth/Dark Green upper surfaces with Yellow undersides and Night striping. 'C1' roundels on fuselage sides and underneath wings; Sky band around rear fuselage. 'B' type roundels above wings; spinner is black**



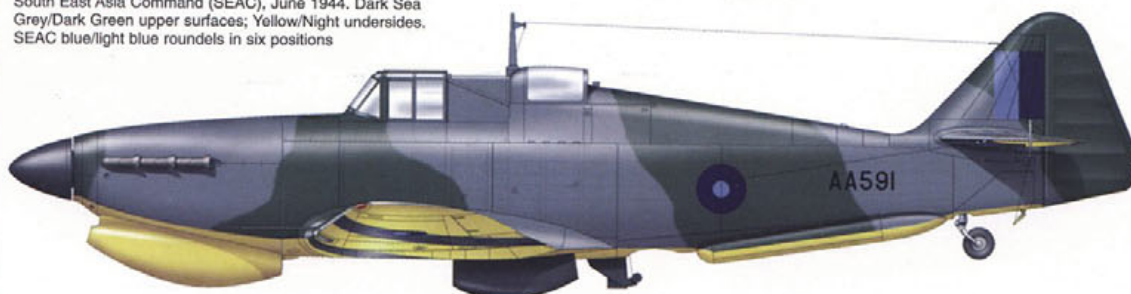
**Defiant TT Mk III, N3431/U4-J, N° 667 Squadron, Gosport, 1944. Dark Earth/Dark Green upper surfaces; Yellow/Night undersides. Sky spinner and rear fuselage bands; Medium Sea Grey codes. 'C1' roundels on fuselage; 'C' roundels above and below wings**



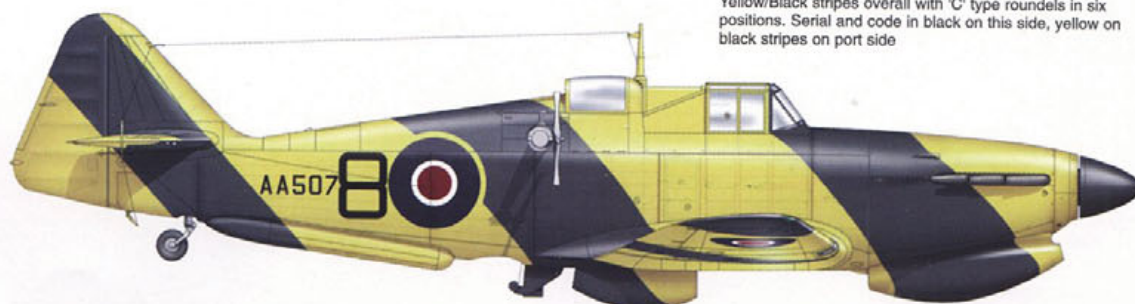
**Defiant TT Mk I, AA628/NW-V, N° 286 Squadron, Exeter, 1944. Ocean Grey and Dark Green upper surfaces; Yellow and Night undersides. Night spinner, Medium Sea Grey codes. A1 roundels on fuselage sides, B type above wings and C type under wings**



**Defiant TT Mk I, AA581, Tezgaon (now Bangladesh), South East Asia Command (SEAC), June 1944. Dark Sea Grey/Dark Green upper surfaces; Yellow/Night undersides. SEAC blue/light blue roundels in six positions**



**Defiant TT Mk I, AA507/8, N° 26 AACU, Egypt, 1945. Yellow/Black stripes overall with 'C' type roundels in six positions. Serial and code in black on this side, yellow on black stripes on port side**







Another view of Defiant N1671 on display at Abingdon for the Queen's Royal Review in 1968. The aircraft now lives in the RAF Museum, Hendon in the Battle of Britain section. (Richard L.Ward)



Defiant TT.III T391:5S-W part of 691 Squadron who operated Defiants between 1943 and 1945. At the time the picture was taken the aircraft was working in co-operation with the destroyer *HMCS Iroquois* and was being flown by Plt. Offr. Tony Cole. (Andrew Thomas)

## Boulton Paul Defiant specification

**Boulton Paul Defiant F.Mk.I, F.Mk.II, TT.Mk.I and TT.Mk.III**

### Dimensions:

Span: 39 ft 4 ins; length: 35 ft. 4 ins; height: 11 ft 4 ins (Mk.I). Wing area: 250 sq ft.

### Power plant:

One 1,030 hp Rolls Royce Merlin III. (Mks.F.I and TT.Mk.III)  
One 1,280 hp Rolls Royce Merlin XX (F.Mk.II and TT.Mk.I)

### Performance:

Max speed: 302.5 mph at 16,500 ft (F.Mk.I)  
Mk.II Max speed: 315 mph at 16,500 ft.  
TT.Mk.I: Max speed: 280 mph.  
TT.Mk.III: Max speed: 250 mph.  
Climb: to 25,000 ft 23.8 mins. (Mk.I with two-  
Midland Counties 01455 233 747  
1 9.95  
ller) To 25,000 ft with constant  
18.2 mins (Mk.I).  
ng: 28,100 ft (F.Mk.I) 33,600 ft

Range: 465 miles at 259 mph (Mk.I)  
Endurance: 1.78 hours.

### Weights:

Empty weight: 6,078 lbs (Mk.I) 6,282 lbs (Mk.II)  
Loaded weight: 8,318 lbs (Mk.I), 8,424 lbs (Mk.II)  
TT.Mk.I: 8,250 lbs.  
TT.Mk.III: 8,227 lbs.

### Armament:

Four .303 Browning machine guns in Boulton Paul turret aft of pilot's cockpit. (Mks.I and II)  
Provision for light bombs or air-sea-rescue equipment under outer wing panels.

### Production:

Two prototypes K8310 and K8620  
Total production 713 Mk.I; . Delivery rate at 60 a month during peak production period. 298 Mk.II cancelled on line and converted to TT.I during 1942. A further 140 TT.Mk.Is were ordered as new with delivery dates extending to March 1943.

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