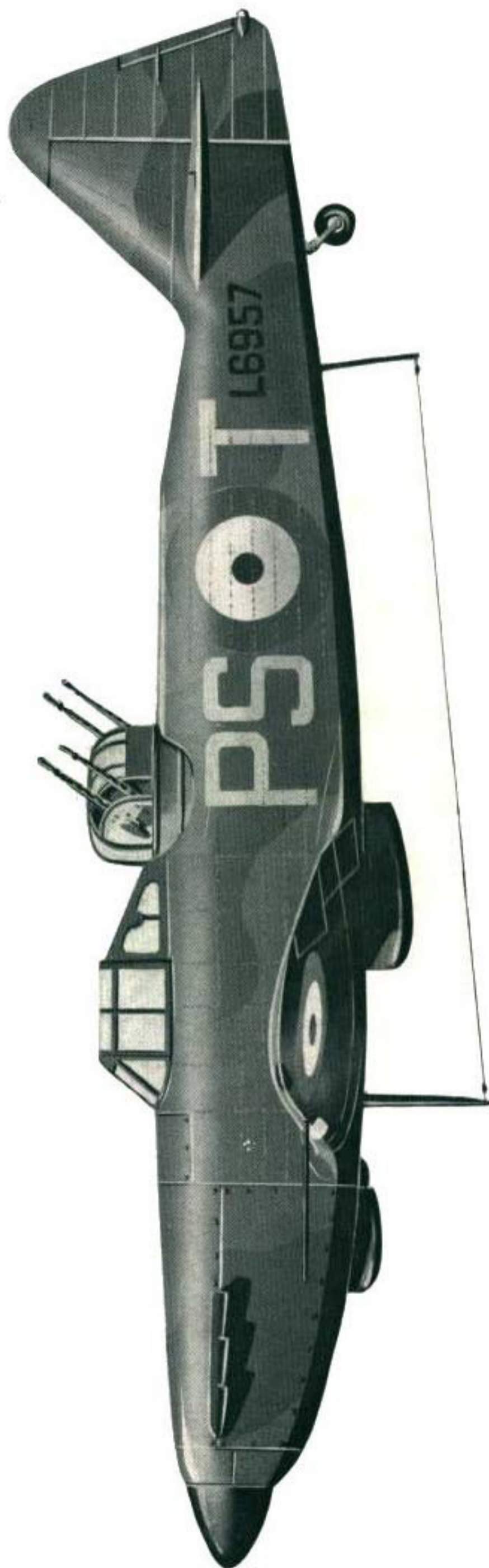


PROFILE PUBLICATIONS

The Boulton-Paul Defiant

NUMBER 117
TWO SHILLINGS





BOULTON PAUL DEFIANT
Mk.I, L6957, of No. 264 (Fighter)
Squadron, R.A.F.; working-
up programme, Martlesham
Heath, U.K., March 1940.
This aircraft later saw action
over Dunkirk during the
evacuation of the B.E.F.;
it was repainted with Sky
Type S undersurfaces and
revised roundels. It
is illustrated here in "B"
Scheme camouflage.



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The Boulton-Paul Defiant



by Michael J. F. Bowyer

Typical Defiant Mk. II night fighter, fitted with A.I. Mk. IV radar, summer 1942.

(Photo: Boulton Paul)

In the 1930's, the increasing speed of new military aircraft made the problem of manual gun traverse progressively more difficult; and following successful developments by the French aircraft industry the practice of concentrating defensive armament in turrets commenced. French advances aroused great interest in Great Britain, particularly at Boulton & Paul Aircraft; and under the leadership of J. D. North the company adapted a design of the *Societe Anonyme Machines Matrices*, building it under licence for installation in their Sidstrand bomber, which was then produced as the Overstrand. The company further developed the basic ideas, devising a four-gun power-operated turret which formed the central concept around which the F.9/35 Defiant fighter was designed.

Great importance was attached to F.9/35 by the Air Staff, whose brochure of April, 1935, stipulated that the fighter, of clean design, should have its armament concentrated in a power-operated turret. Despite this weight penalty, accepted performance would be only slightly less than that of other emergent fighter designs, and would have to be matched by a fuel capacity which allowed the aircraft to fly standing patrols. It was felt that a turret fighter offered increased operational flexibility, being capable of engaging enemy bombers from many quarters, particularly from below; and a 360° upper hemisphere field of fire was therefore specified.

Boulton & Paul, with turret work occupying much of the firm's energy, were naturally interested in F.9/35, and submitted plans for a fighter super-

ficially similar in size and appearance to the Hawker Hurricane. On a wing-span of 39 feet 4 inches, with an area of 250 square feet, it carried 1,500 lb. more weight than the Hurricane, whose comparative measurements were 40 feet and 257 square feet. A clean design had been achieved, with a simple, weight-saving structure.

Two metal cones comprised the rear fuselage, joined by a two-foot transition section and a flat upper deck. The two-spar five-part mainplane embraced a centre section with a fuel capacity of 104 Imp. gallons, two outer wing sections and detachable wing-tips. A large ventral radiator and inward-retracting main undercarriage members were selected. The snugly-fitting turret rotated through 360°, allowed by automatic retraction of wooden sections in the upper rear fuselage. Automatic cut-out prevented the gunner from shooting directly at the tail unit, and triangular windows gave the pilot a limited degree of rear vision.

Seven F.9/35 prototypes were provisionally ordered, since all designs submitted were untried. Four were accepted next, and subsequently two prototypes of three designs and one of a fourth. Financial allocation was thus exceeded and special Treasury permission was required before plans could be finalised. Ultimately only the two most promising designs, by Hawker and Boulton & Paul, were selected for development, and prototypes were ordered in the autumn of 1935. Hawker's already heavy commitments delayed their machine, the Hotspur (K8309) which did not fly until 14th June, 1938—and then

The first prototype, K8310, shortly before initial turret installation.

(Photos: Imp. War Mus. MH 5681, MH 5507)





K8310 with modified exhaust stacks and spinner, and anti-glare panel.



(Photos: Boulton Paul, Imp. War Mus. CH 148)

only with a wooden turret mock-up. It handled well, and was faster than the Defiant in similar condition, but was never flown at all-up weight.

Construction of K8310, the first Boulton & Paul F.9/35, commenced in 1936 at Wolverhampton, where the firm had moved by August of that year. Some delay had been caused by the move and it was 11th August, 1937, before Mr. Cecil Feather first flew the turretless machine. Meanwhile a second prototype had been ordered (K8620), and the type was named "Defiant". The first prototype was powered by a 1,030 h.p. Rolls-Royce Merlin I; of all-metal stressed skin construction, it had a loaded weight of 7,500 lb. Trials with the turret fitted revealed a top speed of 302 m.p.h.; but the absence of the turret on early flights proved to be only the first of several delays. It was nine months before the prototype embarked on official acceptance trials, and K8620 (Rolls-Royce Merlin II) did not fly until 18th May, 1939. Apart from a slight increase in the vertical tail area and exhaust stack modifications, prototypes resembled the early production aircraft closely. Among the changes which delayed K8620 were modifications to the undercarriage fairing plates, telescopic radio masts and revisions to the cockpit canopy.

Overlong development impaired the usefulness of the Defiant; this was unfortunate, as its flight characteristics were good, and it proved very stable. The confidence bestowed on the type was such that before the first prototype flew an order for 87 machines was confirmed, on 28th April, 1937. However, when the Second World War began only three production Defiants had been delivered, and these for trial purposes only. Four years and five months after F.9/35, fighters and bombers were serving with the world's air forces which rendered the whole concept of the turret fighter outdated. Because of production delays there were too few Defiants available for standing patrols in 1940, and they were forced to operate as interceptors alongside the Spitfires and Hurricanes. Combat experience was to prove almost immediately at what a grave disadvantage the Defiant entered active service.

PRODUCTION AND DEVELOPMENT

On 30th July, 1939, the first production Defiant L6950 made its maiden flight, commencing official A. & A.E.E. trials in September. At that time L6951 was at the Central Flying School for handling trials and L6952 at Northolt for a series of comparative flights with the Hurricane. These latter tests showed the Defiant to be at a distinct disadvantage, and underlined the vital necessity for close pilot-gunner liaison.

By January, 1940, more than half the initial production batch had been completed. Following the decision to proceed with the Defiant, two further orders had been placed: one for 202 machines in February, 1938 and another for 161 three months later. Another, for 150 aircraft, came in December, 1939, making a total of 513, increased to 563 early in 1940. A further 280 were ordered under a rearrangement of production plans in the summer of 1940; by that time the inadequacies of the Defiant were realised and continued production was for economic rather than military reasons.

From a service request for improved performance materialised the Mk. II, powered by a 1,260 h.p. Merlin XX. The first machine with the new engine, N1550, flew on 20th July, 1940, and N1551 followed in October. Characteristics of the Mk. II were a modified engine mounting, a longer cowling and a deeper radiator; a compensatory feature was the enlarged rudder. A pressurised fuel system and additional tankage was incorporated. Like other Defiant fighters the Mk. II was fitted with the self-contained B.P. "A" Mk. IID turret mounting four .303 in. Browning guns with 600 rounds per gun. Official trials of a production Mk. II revealed a top speed of 315 m.p.h. at 16,500 feet at an all-up weight of 8,424 lb. With sufficient Merlin XX's available, production of the Mk. II commenced and the first deliveries were made in August, 1941. By then, the Defiant was being employed in a slightly less hazardous rôle than that of day fighter.

A.I. radar in 1940 was bulky, heavy and inaccurate. Fitting it into a small and heavily-laden aircraft was impracticable. However, by the onset of winter progress had been made, and A.I. Mk. IV sets, with a

Left: The second prototype, K8620, with telescopic radio masts, modified undercarriage cover plates, and a rear-view window added on each side of the canopy. Right: The only Defiant competitor to fly, the Hawker Hotspur. (Photo: Imp. War Mus. HU 2171)





L7012 in the early black-white-silver undersurface colour scheme. This machine was used by Nos. 141, 255 and 256 Squadrons. (Photo: Boulton Paul)

range extending from 600 feet to four miles, were small enough to be installed in the Defiant. The first sets went into Beaufighters and Blenheims but by the autumn of 1941 Defiants (re-designated Mk.IA) were fitted with A.I.Mk.IV, and later Mk.VI. The first squadron to operate in the night fighter rôle with A.I.Mk.IV was No. 264.

By 1942 the Beaufighter had assumed the main responsibility for Britain's night defence, and Hurricanes and Defiants became available for other duties. Trials were undertaken with the Defiant Mk. I to ascertain whether it was suitable to replace the Lysander in shallow-search air-sea rescue units. It was decided that the type was suitable, and in March, 1942 No. 281 Squadron began to equip for this task. Two months later four further squadrons received Defiants for these duties. Modifications to standard rescue equipment had to be carried out to suit it for carriage on the Defiant's wing lugs, the work required once again delaying the type's introduction to service. Bomb containers, each carrying two "M" type dinghies, were fitted. About 40 Defiants were modified for air-sea rescue duty. Six months after their introduction it became obvious that the choice had been a bad one; the well-worn aircraft were difficult to maintain and flew few useful sorties. High stalling speed and wide turning radius were obvious disadvantages; and at the end of 1942 Defiants were phased out of service with A.S.R. units.

During 1940, when possible alternative duties for the Defiant had been under consideration, army co-operation was examined. In February, 1940 the School of Army Co-operation conducted a brief appraisal of L6968 and in the summer No. 2 Squadron held further trials with N1571. Again, the type was

A Defiant F.1 in standard mid-1940 camouflage in flight during manufacturer's trials. (Photo: Boulton Paul)

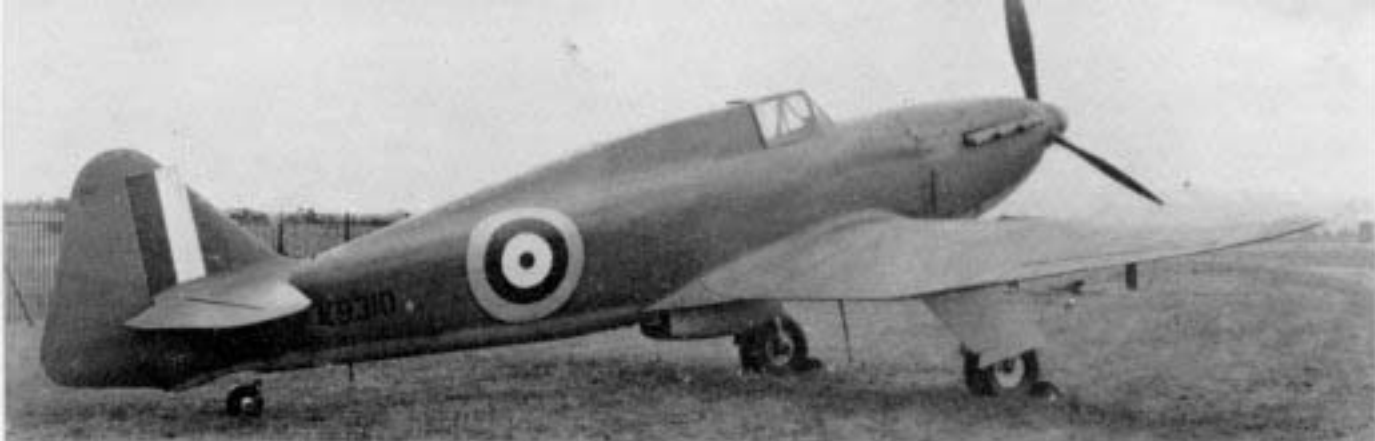
found to be unsuitable. There was, however, an increasing need for a high-speed gunnery trainer, and it was decided to continue Defiant production for this purpose; later a new line of target-towing Defiants was to be developed.

Major modifications were called for, and a new range of unusually allocated mark numbers devised. Turret removal cut the weight, but the excrescences of the target-towing equipment reduced the machine's performance still further. A target stowage box was placed beneath the rear fuselage, and a wind-driven winch positioned on the starboard side of the fuselage; a canopy covered the winch operator's cockpit aft.



L6950, the first production Defiant, during service trials (Photo: Imp. War Mus. MH 5689)





In an attempt to produce a more effective fighter the first Defiant had its turret removed and eight mock-up wing guns fitted. In this 1940 photograph, the superficial similarity between the Defiant and the Hurricane, which has received more attention than it perhaps warrants, is quite striking.

The T.T.Mk.I was based on the F.Mk.II. In July, 1941 150 T.T.Mk.I's were ordered. DR863, the prototype flew in January, 1942. Fighter production was phased out, the last 40 F.Mk.II's being completed as T.T.Mk.I's. The last of these, AA670, was delivered in May, 1942; and some earlier Mk.II's were also converted to T.T.Mk.I configuration.

Consideration was next given to fitting the 1,620 h.p. Merlin 24 to a version to be designated T.T.Mk.II, in which weight was to be reduced to 7,500 lb. Sufficient Defiants were already available to meet service needs, however, and the project was cancelled. Instead it was decided to convert existing F.Mk.I's into target-tugs as T.T.Mk.III's, the work to be carried out by the firm of Reid & Sigrist at Desford. Apart from its Merlin III powerplant the T.T.Mk.III resembled the T.T.Mk.I. The trial installation machine, developed during 1942, was N3488. About 150 Defiants were converted into T.T.Mk.III's in 1943-4, with an all-up weight of around 8,220 lb. and a top speed of about 250 m.p.h.

Target-towing needs rapidly became world wide, and tropicalisation of the type was therefore undertaken in 1943-4. Large filters were fitted beneath the nose. Tropical Defiants found their way to the Middle East, Africa and India. The Fleet Air Arm operated many machines overseas, and some from second-line home based naval units.

Several Defiants were selected for special work. N3311 and DR863 were used at the Gunnery Research Unit. Tactical trials were flown by V1121 at A.F.D.U. Duxford, and Rotol employed N3322 and N3430 for propeller research. N3514 appeared at Farnborough in April, 1941, following brief service with de Havilland Propellers. In June of that year a Merlin XLV was installed for measurement of power; later a Merlin XLVI was fitted. The aircraft appeared to be a single-cockpit type at this time; the turret had been removed to save weight and the fairings fixed in the down position. For the most part, the machine flew carburettor tests.

Before its eventual eclipse, the Defiant was to fulfil one important task. Several passed in to the hands of the U.S. 8th A.A. F. in Britain, including

DR925 based at Bovington. Another was DR944, which spent nearly two years with the Americans. On 11th December, 1944 it was despatched to Martin Baker Aircraft at Denham. Into the observer's position was fitted a primitive ejector seat, the first of thousands since produced by Martin Baker and used by air forces all over the world. The machine was in poor condition, and it was May, 1945 before tests commenced. For the trial programme it was flown to Wittering; and, on 11th May, the first dummy ejection was made in flight from DR944 flown by Brian Greenstead. Six more dummy ejections were made on 17th May, from Beaulieu, at speeds of up to 300 m.p.h. DR944 was retained for various tests until May 1948. The Ministry of Supply used AA292 for ejector seat trials also.

Only one Defiant survives today; it is N1617, progressively used by Nos. 264, 255, and 151 squadrons and No. 1485 Gunnery Flight.

DAY FIGHTER OPERATIONS

Squadron acceptance of the Defiant began in December, 1939. No. 264 Squadron moved to Martlesham Heath on 8th December to equip with the type; but frequent engine difficulties and malfunctions of the hydraulics caused a grounding order on 28th January, 1940. Flying was resumed the following month.

A special operational technique was required for the effective handling of the Defiant. Without fixed forward armament, the pilot positioned his machine for the attack with his gunner's field of fire in mind. It was clear from the outset that the type was only suited to bomber-destroyer duties. After a period of training, during which combat techniques were not fully worked out, No. 264 Squadron became operational and posted two flights to Wittering on 21st March, 1940. On 10th May, the squadron assembled at Duxford. "A" Flight proceeded to Horsham St. Faith on the 12th, and later that day sent six aircraft



Line-up of No. 264 Squadron's Defiants at Kirton-on-Lindsey in 1940.

(Photo: Imp. War Mus. CH 873)



Five 264 Sqn. Defiants in flight, all apparently bearing patches over recent combat damage; note the two camouflage schemes. Aircraft 'A' and 'T' are finished in a scheme which mirrors that of 'X', 'D' and 'V'. (Photo: Imp. War Mus. CH 877)

over the Channel to patrol off S'Gravenhage. After attacking ground targets, under top cover provided by Spitfires of No. 66 Squadron, they investigated bomb splashes round a destroyer and drew first blood by destroying a Junkers Ju 88A.

The following day "B" Flight made its first sorties, again along the Dutch coast. They engaged a formation of Ju 87B's, destroying four Stukas. At that point the Defiants were "bounced" by a force of Bf 109E's; five of the six Defiants were shot down, only L6974 escaping to limp home. The Defiant's vulnerability to head-on and belly attack had rendered it easy prey. It was clear that when forced to "mix it" Defiant pilots had great difficulty in placing the gunner in an effective firing position. Badly depleted, No. 264 was transferred to a further programme of working up flights and Channel patrols.

By the end of May, 264's claims stood at 65 enemy aircraft. Although this seems an extremely unlikely total, the squadron had distinguished itself, particularly in the fighting over the Dunkirk beaches during the evacuation of the British Expeditionary Force. Squadron Leader Philip Hunter's plan of mixing Hurricanes with Defiants in formation paid



The Defiant Mk. II prototype N1550 at Boscombe Down in July 1942. Note deep radiator and retracted rear fuselage combing. (Photo: Peter Moss collection)



The second Defiant Mk. II, N1551, used for trials by the makers after its modification from Mk. I standard, and also at Boscombe Down, before being broken up in 1943. (Photo: Imp. War Mus.)



In this formation of Defiants from No. 264 Sqn., three distinct types of fuselage roundel are visible; compare aircraft 'A', aircraft 'Z' and aircraft 'U'. (Photo: Imp. War Mus. CH 888)



A flight of four Defiants of No. 264 Squadron. L7026 'V' and N1535 'A' were both lost in action in August 1940. (Photo: Imp. War Mus. CH 883)

dividends; the superficial resemblance was striking at medium range, and the resultant confusion of German pilots may be traced in the victory claims. Between 27th and 31st May no less than 57 German aircraft were claimed, 37 of these without loss during two patrols on 29th May. Postwar research established that only 14 aircraft were destroyed that day; but the Defiant undoubtedly made use of its brief hour of glory. This was to pass all too soon; on 31st May seven Defiants were lost in action. During June No. 264 worked up at Duxford, flying convoy patrols from Martlesham and Debden before retiring to Kirton-on-Lindsey on 23rd July.

A second squadron, which had begun equipping on 4th April, experienced shattering defeat at this time. No. 141 Squadron became operational at Grange-moath on 3rd June, with 14 Defiants, and patrol activity began on 1st July. After a few scrambles, squadron H.Q. was established at Biggin Hill on the 10th, while the aircraft awaited action at West



V1110, RA-H of No. 410 (R.C.A.F.) Squadron, photographed in January 1942. The machine is finished in RDM2 super-matt black overall, with red-blue roundels in all positions. This aircraft was later converted to T.T. Mk. III configuration.

(Photo: The Aeroplane)



N1551 with the retractable fuselage sections lowered for firing. (Photo: Imp. War Mus. MH 5988)

Malling. On the 19th twelve aircraft proceeded to the forward base at Hawkinge and were scrambled at 12.30 hrs. to patrol over Folkstone. The call was so sudden that only nine aircraft took off. Almost immediately, as the Defiants flew in threes, line astern, they were bounced by Bf 109E's from high in the sun. Two Defiants fell to the first diving pass, and two more to attacks from below. Another was shot down over Dover. One crashed near Hawkinge; and only a badly shot-up L7014 landed at the home base. Pilots of No. 111 Squadron reported seeing four Bf 109E's fall to the guns of the Defiants; but two days later the remnants of No. 141 were withdrawn to Prestwick for further training and convoy patrols.

As fighting over the South-East of England increased in intensity, No. 264 was again prepared for battle, maintaining detachments at Coleby Grange and at Ringway for the defence of Manchester; they also flew North Sea patrols. Around noon on 15th August a force of Ju 88A's from KG 30 *Adler Geschwader* crossed the Yorkshire coast to attack Driffield; Blenheims, Hurricanes and Spitfires were ordered up to intercept, and ten Defiants of No. 264 were sent to guard a convoy in the Humber. They had been cheated of a rare chance for an ideal engagement.

It was decided that No. 264 must now play a part in the fight for Britain's survival, whatever the possible consequences; and on 22nd August the squadron moved down to Hornchurch in the thick of the fighting, using Manston as a forward base. No. 141 awaited possible attacks on Scotland at Montrose and Dyce. On 24th August nine Defiants from 264 scrambled as re-fuelling and re-arming was taking place at Manston; they engaged the enemy, losing two of their number but claiming three Ju 88's and a Bf 109E. Later a force of bombers arrived in the area of Hornchurch while seven Defiants were

re-fuelling. L7013 was damaged, and L6967 was shot down, but three others engaged and claimed five victories; L7025 two Ju 88's, L7005 a Bf 109E and L7003 a Ju 88 and a Bf 109E. On 26th August the squadron claimed three Dornier Do 17's and lost L7025 in the process. Two days later the squadron was all but bombed out of Rochford, losing four aircraft and claiming a Heinkel He 111. No. 264 Squadron ceased operations late in the afternoon of 28th August, and withdrew to Duxford the following morning. Completely unsuited to day fighting in a summer when the skies were ruled by the lean Spitfire and angular, deadly Messerschmitt, they had put up a gallant resistance. During eight days at Hornchurch they destroyed fifteen enemy bombers confirmed and one unconfirmed in four actions; but they had lost five pilots, nine air-gunners and eleven aircraft in the process.

The delivery of the first Defiant batch was completed in early June, 1940. By 31st August some 120 machines had been delivered; and over half of this number had already fallen to the guns of the *Luftwaffe*. Such slaughter was unacceptable, and a new rôle was allocated to the Defiant.

NIGHT FIGHTING

On 1st July No. 141 Squadron despatched L6997 on night patrol, the first by a Defiant. A second was flown at the end of July. These by coincidence were the first of many such flights, for it was as a night-fighter that the Defiant was now to be employed.

In August, 1940, 141 Squadron was flying operationally by night and day, and No. 264 on 15th August scored the first possible night success. From the start of September both squadrons were operating almost entirely by night.

Defiant Mk. I's of No. 264 Squadron after changing from day-fighter to night-fighter operations.

(Photo: Imp. War Mus. CH 3452)



When night attacks on London began in earnest "B" Flight of 141 Squadron moved to Biggin Hill Sector, was busy immediately, and claimed two He 111's on 15/16th September. "A" Flight joined the other in October at Gatwick, and on 4th November the squadron settled at Gravesend to guard the approach to London. No. 264 Squadron worked north of the Thames from Rochford, and later Debden. Successes were few, but *N1622* claimed a He 111 on 10th November, although it was 22nd December before its squadron, No. 141, had a confirmed claim. Pilot Officers Benson and Blair then destroyed a He 111 off Beachy Head.

Without A.I. radar there was only a keen eye or waving searchlights to locate the enemy. As production reached its peak more Defiant night-fighter squadrons formed. First came No. 307 (Polish) Squadron, planned as a day-fighter squadron but now night-fighting from Jurby. With a detached flight of 264 Squadron it gave cover to Northern Ireland and over the Irish Sea, and moved to Squire's Gate in January, 1941, to defend Merseyside.

In the early months of 1941, with the German night offensive at its height, Nos. 85, 96, 151, 255 and 256 Squadrons were busy on night patrols, although very few claims were laid for many sorties. Shorter nights and the Russian Campaign brought the main offensive to a close, just as radar-equipped Defiants began to filter into the squadrons. The positions of the night-fighter Defiant units on 10th May, 1941, a night of considerable success, was:—

No. 9 Group 96 Squadron: Cranage, 256 Squadron: Squire's Gate.

No. 10 Group: 307 Squadron: Exeter.

No. 11 Group 264 Squadron: West Malling, detachment Nutt's Corner.

No. 12 Group: 151 Squadron: Wittering, 255 Squadron, Kirton-in-Lindsey.

No. 13 Group: 141 Squadron: Acklington and Ayr.

In September, 1941, No. 264 Squadron became the first to receive Defiant Mk.II's. Fitted with A.I. Mk. IV, they came into operational use in mid-September at West Malling. Relatively few N.F.II's saw squadron service, principal users being Nos. 96, 151 and 264 Squadrons.

Squadrons which used Defiants in the fighter rôle are listed on page 12.

Squadron crews were trained by No. 54 O.T.U., Church Fenton, between December, 1940, and May, 1941, after which No. 60 O.T.U. Leconfield took over



N3313, a night-fighter Mk. I of No. 264 Squadron. Later the machine served with No. 10 A.G.S.

(Photo: Imp. War Mus. CH 3448)



T4037 'T' of No. 256 Squadron, photographed in October, 1941. Night-fighter markings had to some extent been rationalised by this stage, and included dull red serial numbers and slightly off-white codes.

(Photo: Imp. War Mus. MH 4532)



A Defiant Mk. II after conversion to the target-tow configuration; January 1942.

(Photo: Imp. War Mus. MH 5987)

the task, which ended in March, 1942.

In addition, No. 515 Squadron operated specially equipped Defiant II's. It formed from Defiant Flight Northolt on 1st October, 1942, to carry out special work with radio counter measures, and jammed enemy radar ahead of Bomber Command operations until mid-1943. No. 1692 Flight at Drem trained crews for this special task.

AIR-SEA RESCUE

No. 281 Squadron formed at Ouston at the end of March, 1942, partly equipped with Defiant I's. In May four squadrons received Defiants to supplement their Lysanders and Ansons. For its busy operations off the South Coast No. 277 Squadron used twelve Defiants. By the end of 1942 few Defiants were left in service with the A.S.R. squadrons. Those units which equipped with Defiants were:—

Completed Defiant N.F.II's await delivery in February 1942. The aircraft visible through the hanger doors are AA572 and AA579.

(Photo: The Aeroplane)





Note the drogue storage box under the rear fuselage of DR863, the T.T. Mk. I prototype.

(Photo: Imp. War Mus. E 1181 MOS)



N3488, prototype for the Mk. III target-tow Defiants.

(Photo: Imp. War Mus. MH 5989)



Tropicalised late production T.T. Mk. I, DR967.

(Photo: Imp. War Mus. MH 5986)

Sqn.	Bases	Sqn. code	Example
275	Valley	PV	T3920
276	Harrowbeer	AQ	N1623
277	Stapleford Tawney	BA	N1675
278	Coltishall, Matlask	MY	N3515
281	Ouston, Drem, Blyth	FA	T3912

Gunnery training and other second-line duties

Defiants largely ousted Lysanders from Gunnery Flights, Gunnery Schools, anti-aircraft co-operation units and Operational Training Units. Many of the latter had a Defiant on strength, usually for target-towing but also to offer special training for air-gunnery. Soon Defiants were doing similar work overseas, and the Royal Navy began to employ them in 1943, usually at its overseas stations and with second-line squadrons towing drogues for Fleet gunnery practice, or fighter pilot training. The principal units employing Defiants in gunnery and training or target-towing rôles were:—

(i) Anti-aircraft co-operation units with Defiants as main equipment;

Sqn.	Base	Sqn. Code	Example
285	Wrexham	VG	AA353: VG-Z (T.T.III)
286	Colerne	NW	AA628: NW-V (T.T.I)
287	Croydon	KZ	N1537: KZ-Q (T.T.III)
288	Digby	RP	N3365
289	Kirknewton	YE	N1536 (cv. to Mk. II)

No. 1479 Flt. Peterhead and Inverness N3320
No. 1480 Flt. Newtonwards N3381

Defiants were used for similar duties with No. 567 Sqn. (14) at Hawkinge, Manston and Detling, by No. 667 Sqn. (U4) the main user of the T.T.Mk. III e.g. U4-J: AA296 and No. 691 Sqn. (5S) based at Roborough examples used there being DR862 a T.T.I and N1728 T.T.III.

(ii) Bomber defence training flights;

No. 1481 B.D.T.F. Lindholme, operated for 1 Group (eg AA357).

No. 1482 B.D.T.F. West Raynham, operated for 2 Group.

No. 1483 B.D.T.F. Marham, operated for 3 Group (eg T3960).

No. 1484 B.D.T.F. Driffield, operated for 4 Group (eg N3330).

No. 1485 B.D.T.F. Fulbeck, operated for 5 Group (eg N1617).

(iii) Specialist training units;

No. 2 Air Gunnery School, Dalcross.

Example: N1759:42(T.T.III).

No. 3 Air Gunnery School, Mona.

Example: N1552.

No. 7 Air Gunnery School, Stormy Down.

Example: N1683.

No. 10 Air Gunnery School, Barrow.

Example: N1540:33.

No. 9 Air Observer School, Penrhos.

Example: N3340.

No. 2(0) Advanced Flying Unit, Millom.

Example: N3313:G1.

No. 9(P) Advanced Flying Unit, Errol.

Example: L7002.

No. 18(P) Advanced Flying Unit, Church Lawford.

Example: N1793.

Central Gunnery School, Warmwell, Catfoss.

Example: N1646.

Target-towing flights formed within Nos. 1 and 2 A.A.C.U.'s which used Defiants included Nos. 1600, 1616, 1622-1624 and 1631. These formed from the respective Flights of the units, "M" Flight, one of whose aircraft was DR875:MI-M, for instance, becoming 1612 Flight.

Bomber O.T.U.'s in 1942-44 usually operated at least one Defiant fighter or target-tower for gunnery training, and most other O.T.U.'s also.

(iv) Royal Navy Squadrons

Nos. 725 (Eglington 1944), 726 (Speke 1941-42), 727 (Gibraltar 1943-44), 728 (Gibraltar, Malta 1943-44), 733 (Trincomalee, Mineriya 1944 eg. AA363), 770 (Crail 1942-43), 771 (Hatston, Twatt, 1942-43), 772 (Machrihanish, 1943), 775 (Dekheila, 1944), 776 (Speke, 1943-44 eg. N1771 Mk.III), 777 (Freetown, 1943-44, eg. AA366), 779 (Gibraltar 1943-44, eg. AA419), 788 (Kilindini, 1943-45, eg. AA480), 789 (1942-43), 792 (St. Merryn, 1943-44), 793 (Trinidad, 1944) 794 (Yeovilton, Angle, Dale, 1943), 797 (Katararunda, 1943).

DEFIANT PRODUCTION

F. Mk. I K8310 (Ordered October, 1935), K8620 (Ordered 1936; supplementary prototype), L6950-7036 (Ordered April, 1937, delivered September, 1939, to June, 1940). N1535-1582, N1610-1653, N1671-1706, N1725-1773, N1788-1812 (Ordered February, 1938, 202 aircraft delivered June, 1940 to October, 1940). N3306-3340, N3364-3405, N3421-3460, N3477-3520 (Ordered May, 1938, 161 aircraft delivered November, 1940, to February, 1941). T3911-3960, T3980-4010, T4030-4076, T4100-1414 (Ordered December, 1939, 150 aircraft delivered February, 1941 to April, 1941). Peak production of 60 aircraft a month



Defiant Mk.I, N1536, of No. 264 Squadron; Kirton-in-Lindsey, July 1940. "A" scheme camouflage.

Defiant Mk.I, N1581, of No. 255 Squadron, operating over East Midlands in early months of 1941, night defence duties.



Defiant Mk.II, AA436, of No. 151 Squadron, Wittering, early 1942; night defence duties.



Defiant Mk.I, L7011, "Skatz". Gunnery training and fighter affiliation duties, No. 11 O.T.U., November 1942.



Defiant Mk.I, T3929, of No. 276 Air-Sea Rescue Squadron, 1942.



Defiant T.T.Mk.I, AA507, target towing duties at a fighter O.T.U. in Middle East, 1945.



Defiant T.T.Mk.III, N3431, No. 667 Squadron, 1944.



N3514, as on 29th September 1944; a converted Defiant Mk.I used for experimental flying at R.A.E. Farnborough, 1941-46.





Left: N1697, a T.T. Mk. III, served initially as a night-fighter with No. 256 Squadron and later with Nos. 288 and 667 Squadrons as a target and target-tow machine. (Photo: Imp. War Mus. MH 5991). Right: A standard production T.T. Mk. I photographed at Wolverhampton. (Photo: Boulton Paul).



reached in February, 1941, one year five months after the commencement of production. V1106-1141, V1170-1183 (Ordered February, 1940, 50 aircraft delivered April, 1941 to June, 1941). AA281-330, AA350-362 (Ordered July, 1940, 73 aircraft delivered June, 1941 to May, 1942. Remainder of order completed as F.Mk. II upsetting production schedule).

F. Mk. II N1550 and N1551 converted from Mk. I to become prototypes for Mk. II. AA363-369 (Conversions on the line to Mk. II; delivered October-November, 1941). AA370-384, AA398-447, AA469-513, AA531-550, AA566-595. (Continuation of order for 300 aircraft, placed July, 1940. Delivered August, 1941 to 15th, February 1942). AA614-633, AA651-670 (Ordered as Mk. II and converted to T.T. Mk. I on the line; delivery during 1942). AA671-673, AA687-713 cancelled production of Mk. II AV508-944 range: cancelled order for 298 Mk. II.

T.T. Mk. I AA614-633, AA651-670 (see above). DR863-896, DR914-949, DR961-991, D5121-159. (140 aircraft ordered July, 1941. Further ten D5160-169 cancelled. Delivered January, 1942 to March, 1943).

DEFIANT CONVERSIONS

Conversions from F. Mk. I to F. Mk. II included N1536 and AA350. Conversions from F. Mk. III to T.T. Mk. I included AA287, AA370, AA380, AA413, AA444, AA472, AA580, AA592.

Conversions from Mk. I to T.T. Mk. III included L6967, N1537-38, N1540-46, N1548-49, N1553, N1558-59, N1562-63, N1571, N1577, N1579, N1610, N1614, N1618-19, N1622, N1624, N1631-34, N1638, N1639-40, N1642-44, N1648-49, N1653, N1672, N1674, N1683, N1686, N1689, N1691, N1693, N1696-97, N1699, N1700-1701, N1706, N1716, N1726, N1728, N1730, N1732-33, N1735, N1736, N1742, N1744, N1747, N1751, N1756, N1764, N1771-72, N1789, N1796, N1807, N1812, N3309, N3312, N3317, N3321-24, N3126, N3129, N3135, N3138, N3167, N3170, N3172, N3179, N3184, N3196, N3197, N3199, N3421, N3423, N3427, N3430-31, N3433-36, N3438, N3440-41, N3454, N3456, N3477, N3480, N3487-89, N3491, N3497-98, N3502, N3505, N3508, N3511, N3517, N3519, T3915, T3519-20, T3923, T3925, T3928, T3935, T3942, T3947, T3948, T3950-51, T3954, T3957, T3982-84, T3986-90, T3992, T3994, T4000-

4002, T4004, T4005-6, T4009, T4035-36, T4043, T4046-47, T4050, T4053, T4060, T4062, T4064-66, T4068, T4072, T4076, T4103, T4108, T4109, T4111-12, T4114, T4118, T4120-21, V1106-8, V1110-12, V1114-15, V4119-20, V4123-27, V4132-35, V4139, V4170-71, V4181. AA282-86, AA288-92, AA294-96, AA300, AA301, AA306, AA308, AA310, AA311, AA313-14, AA316-17, AA320-24, AA326-30, AA354, AA358, AA361.

Modifications for air-sea rescue were made to the following: N1541, N1561, N1613, N1623, N1673, N1675, N1753, N1763, N1804, N3308, N3392, N3398, N3443, N3481, N3515, N3516, T3922, T3929, T3932, T3939, T3944, T3954, V1117, V1121, V1141, AA284, AA299, AA302, AA303, AA304, AA312, AA315, AA318, AA350, AA351, AA352, AA353, AA360.

DEFIANTS TRANSFERRED TO THE ROYAL NAVY
These included: N1581, N1646, N1726, N1727, N1740, N3380, N3386, N3457, N3504, T4001, T4030, T4034, T4039, T4048, T4057, T4109, V1178, AA427, AA356, AA359, AA578, DR891, DR916, DR918, DR919, DR941, DR967, DR970, DR982.

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SPECIFICATION

Dimensions: Wing span 39 ft. 4 in. Length 35 ft. 4 in. (Mks. I, T.T.III); 35 ft. 8 in. (Mks. F.II and T.T.I). Height (to propeller tip) 12 ft. 2 in.

Fuel: 104 imp. gals. max. in F.Mk. I and T.T.III, 159 gals. in F.II and T.T.I.

Performance: Max. permis. loaded weight 8,350 lb. (F.I); 8,318 lb. (F.II); 8,250 lb. (T.T.I); 8,227 lb. (T.T.III).

Max. permis. loaded weight 8,600 lb. (N.F.I); 8,680 lb. (N.F.II). Empty weight 6,078 (F.I) and 6,282 lb. (N.F.II).

Max. speed 304 m.p.h. at 17,000 ft. (F.I); 313 m.p.h. at 19,000 ft. (F.Mk. II), 250 m.p.h. (T.T.I and III).

Cruising speed 259 m.p.h. at 15,000 ft. (F.I), 260 m.p.h. at 20,000 ft. (F.II). Initial climb 1,900 f.p.m. (F.I); 2,000 f.p.m. (Mk. II). Service ceiling 30,350 ft. (F.I) Range 465 miles (F.I); 550 miles (F.II).

N.B.—These figures relate to performance achieved by aircraft on official trials, and therefore merely give a typical indication of what the Defiant was capable of achieving.

DEFIANT NIGHT-FIGHTER SQUADRONS

Sqn. No.	Mk. used	Approx. dates of equipment	Bases	Sqn. code	Example
85	I	1-3/41	Debden	VY	N3326(I)
96	I, II	2/41—late '42	Atcham, Cranage, Speke	ZJ	N1803(I) AA350(II)
125	Mainly I	6/41—5/42	Colerne, Charmy Down, Fairwood, Colerne	VA	P:AA404(II) V1132(I)
141	I	4/40—9/41	Turnhouse, West Malling, Biggin Hill, Prestwick	TW	H:L7009(I) N3394(I)
151	I, II	2/41—5/42	Wittering	DZ	O-N3317(I) V:AA436(II)
153	I	10/41—9/42	Ballyhalbert, Limavady, Eglinton	TB	N1671(I)
255	I	11/40—6/41	Kirton-on-Lindsey, Hibaldstow	YD	U:N1581(I)
256	I, II	11/40—7/42	Catterick, Pembrey, Squire's Gate, Woodvale	JT	F:N3445(I) AA417(II)
264	I, II	12/39—5/42	Martlesham, Duxford, Kirton-on-Lindsey, Hornchurch, Rochford, West Malling, Colerne	PS	T:L6957(I) AA410(II)
307	I	9/40—10/41	Jurby, Squire's Gate, Colerne	EW	N3404(I)
409	I	7/41—9/41	Digby, Coleby Grange	KP	T3937(I)
410	I	7/41—6/42	Ayr, Drem, Acklington, Ouston	RA	N1613(I)
456	I	6/41—11/41	Valley	PZ	N3367(I)