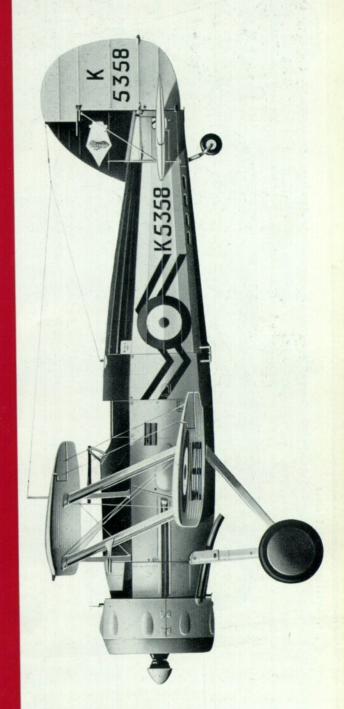
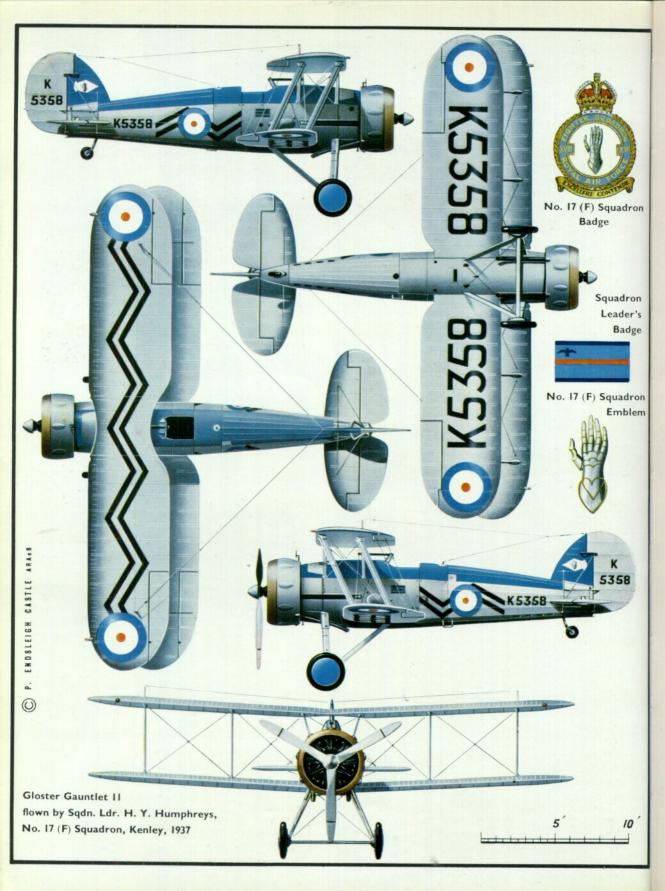
PROFILE PUBLICATIONS

The Gloster Gauntlet



NUMBER

10



The Gloster Gauntlet



First production Gauntlet I fitted with wheel spats. Serialled K4081, it flew for the first time during December 1934.

(Air Ministry photo)

The Gloster Gauntlet is perhaps often overshadowed by its more illustrious successor, the Gladiator, yet apart from its greater popularity as a "pilot's aeroplane" in its own right, it should be remembered that had war been declared at the time of the Munich Crisis, Britain's first-line fighter strength at that time depended more upon the Gauntlet than any other type of aircraft.

Developed from a long line of fighter biplanes (which, designed by H. P. Folland, had included the well-known Grebe and Gamecock of the mid 'twenties), the Gauntlet's true origin lay in the Gloster S.S.18. Specification F.9/26, initially issued in 1926, was intended to produce a successor to the Gamecock, in service with the Royal Air Force, to be constructed primarily in steel or duralumin. While this Specification undoubtedly spurred British aircraft designers to great efforts and spawned numerous advanced designs, it did not in fact bring forth a service fighter directly. Instead, experience gained from examination of the prototypes submitted (which included the Gloster Goldfinch and Bristol Bulldog*) was formulated into a new Specification, F.20/27, issued in 1927. Again numerous prototypes were submitted, including the revised Bulldog, Hawker Hawfinch, Boulton Paul Partridge and Armstrong Whitworth A.W.XVI. Folland's entry was the Gloster S.S.18 (J9125) and, although it was beaten during competitive trials by the Bulldog and Hawfinch (the former being judged the winner), the small margin by which it was beaten encouraged Gloster to persevere with its design.

Originally powered by the recalcitrant Bristol Mercury IIA, the S.S.18 was first flown by Howard Saint in 1928 and achieved 183 m.p.h. at 10,000 feet—no mean speed with two-bay wings and uncowled radial engine. The success of the Bulldog, however,

prompted Folland to adopt the well-tried Bristol Jupiter, and, with the Jupiter VIIF installed, *J9125* became the S.S.18A in 1929. The following year further power demands led to the adoption of the Armstrong-Siddeley Panther III (and later the IIIA), the designation changing to S.S.18B. These engines (together with their Townend ring "cowlings") however, severely penalised the design owing to their much-increased weight and once again Folland reverted to the Jupiter.

By 1931 the arrival of the in-line Rolls-Royce Kestrel in British fighters and light bombers was, by bestowing much increased speeds, bringing about new thoughts on interceptor armament; already Specification F.7/30 had foreshadowed the end of the traditional twin synchronised Vickers guns which had been retained since World War I. Unfortunately the old Vickers gun, prone as it was to frequent stoppages, had to be placed in the fuselage so that the pilot could reach the breeches to clear jams. Folland, realising that short lethal bursts from large batteries of guns could achieve much the same results as fewer, fasterfiring guns, decided to mount drum-fed Lewis guns on the wings of his old J9125 prototype, placing them clear of the airscrew arc-thus allowing them to fire without interruption.

Thus in 1931 J9125 re-emerged at the Gloster works at Brockworth with Townend ring over a Jupiter VIIFP, two synchronised Vickers guns on the sides of the fuselage, and no fewer than four Lewis guns, two under the upper and two under the lower wings. Such was the load now carried that J9125 (now termed S.S.19) grossed 3,900 lb., compared with 3,200 lb. in its early form, but with the fully-rated Jupiter the speed had also risen to 188 m.p.h.

By now Glosters had reached the basis of a first-rate



The G oster S.S.19, J9125, fitted with the six-gun armament of four Lewis guns on wings and two Vickers guns in fuselage.

(Air Ministry photo)

interceptor, but the Air Staff remained sceptical of the very heavy armament and recommended replacement of the Lewis guns by night flying equipment. With wheel spats added as refinements, increased fin area to improve lateral control and night flying equipment added, the S.S.19A embarked on full Service evaluation trials at Martlesham Heath in November 1931. In this form, *J9125* achieved 204 m.p.h. at 10,000 ft.—a full 30 m.p.h. margin over the Bulldog, and almost exactly the same as the in-line engined Hawker Fury.

THE ARRIVAL OF THE MERCURY

This undoubtedly represented the limit of J9125s performance with the old Jupiter engine. It had for

more than four years been realised that if the reliability of the Bristol Mercury could be improved this engine would allow substantial performance improvement. The Mercury IIA had been discarded long since, but in 1932 the first flight example of the Mercury VIS, giving 536 b.h.p. for take-off, was delivered and fitted in *J9125*.

This version, the S.S.19B, can be said to have been the Gauntlet prototype and, when test-flown by Martlesham pilots during the spring of 1933, returned a maximum speed of 212 m.p.h. at 14,500 feet, and attained 20,000 feet in 12 minutes 15 seconds. *J9125* still retained the large wheel fairings as well as a "spatted" tailwheel, but it soon became evident that these were more trouble than they were worth, especi-

The Gloster S.S.19B (J9125) under test as the Gauntlet prototype.





Two further views of the first production Gauntlet I. Note Vickers gun troughs in fuselage and sight ahead of windscreen.

(Air Ministry photos)

ally when operating from soft ground. Service recommendations (made in June 1933) for their removal were agreed by Glosters, but it is an unexplained fact that the first production machines were produced many months later equipped with wheel fairings.

As experience with the Mercury continued, a new version, the Mercury VIS2 of 570 b.h.p., was fitted in *J9125* with a Boulton Paul Townend ring and, with full military load on board, the old prototype was officially tested at 215.5 m.p.h. at 16.500 feet.

This 40 m.p.h. margin that existed over the Bulldog now prompted the draft issue of Specification 24/33 to Gloster in September 1933. This called for the production of twenty-four aircraft by March 1935, based upon the S.S.19B. By the time the final Specification and Contract were issued in February 1934 a narrow-chord NACA cowling, R.A.E. Mark IIA air starter (in place of the Hucks starter claw), Vickers Mark V guns and production 640 h.p. Mercury VIS2 were specified.

The first production Gauntlet I, *K4081*, was flown in December 1934 by P. E. G. ("Gerry") Sayer, who had come to Glosters from Brooklands when Hawker Aircraft Limited took over the Brockworth company that year. Once more the performance had increased, the increased power available from the Mercury VIS2 raising the speed to 230 m.p.h. at 15,800 feet. The climb to 20,000 feet from unstick now occupied only 9 minutes 28 seconds.

By the end of April 1935, twenty Gauntlet Is had been completed and on 25th May the first true



deliveries were made to No. 19 (Fighter) Squadron, commanded by Squadron Leader J. R. Cassidy. (One aircraft, *K4086*, had in fact been taken on charge by the Squadron for trials on 18th February.) This Squadron was to fly Gauntlets until after the Munich Crisis, and throughout the three-and-a-half year period gained an outstanding reputation through the brilliance of its pilots. One of its Flight Commanders, Flight Lieutenant (later Air Chief Marshal Sir) Harry Broadhurst won the Fighter Air Firing Challenge Trophy at Sutton Bridge in 1935 and 1936. No. 19 Squadron, first to receive Gauntlets in 1935, were also the first to fly the Spitfire in August 1938, although the last of the biplanes were not disposed of until January 1939.

The first five production Gauntlet Is (K4081-K4085). Note differences in undercarriage wheel fairings. (Gloster Aircraft photo)





No. 19 Squadron was the first to fly Gauntlets. The first nine aircraft are seen here at Duxford.

THE GAUNTLET II

Following Glosters' take-over by Hawker Aircraft in 1934, studies were conducted to integrate production techniques, and it was decided that Glosters should adopt the Hawker system of construction. As the national military expansion programme slowly got under way in 1935, the Air Ministry placed a second production order for 104 Gauntlets in April that year, and a further contract for 100 the following September. Designated Gauntlet IIs, these follow-on aircraft

employed the Hawker structure in the rear fuselage which consisted basically of two Warren trusses built-up with lengths of steel and aluminium tube swaged to square section and bolted together with fish plates. Ball-ended steel tubes, butting into cupped bolts passing through the fish plates separated, the trusses and the whole structure was braced by crosswires with turnbuckles. Also included in the Gauntlet II were Hawker wing spars which employed pairs of steel strip rolled to form flanged octagonal

After serving with No. 111 (Fighter) Squadron, this Gauntlet II was seconded to the R.A.E. for experiments as a radar 'target'.



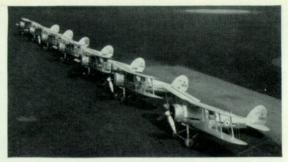
tubes and connected together with a steel strip web.

May 1936 saw the first Gauntlet II deliveries, twenty-four aircraft being delivered to Northolt for equal distribution between Nos. 56 and 111 (Fighter) Squadrons, in both cases replacing Bulldogs. For some months these two units remained below established strength owing to a number of accidents resulting from engine failures and fires. The faults were traced to a breakdown of the valve gear lubrication, a weakness that was to re-occur several times both on the Gauntlet and Gladiator during the period 1936-40. (It should be explained here that during the latter half of the nineteen-thirties Fighter Command squadron strength was officially fourteen aircraft at first-line state, these usually being ex-factory deliveries. In reserve were a further five aircraft, these probably possessing the highest number of flying hours, having been "rotated" from another unit.)

The two Northolt Gauntlet squadrons participated in a review fly-past over the unveiling ceremony at the Vimy Ridge memorial performed by King Edward VIII on 26th July 1936.

It was during July that the next Gauntlet squadron was formed, this time No. 66 (Fighter) Squadron coming into being at Duxford from a nucleus provided by "C" Flight of No. 19 Squadron, commanded by Sqdn. Ldr. Victor Croome. Working up on this unit continued smoothly throughout the remainder of 1936, but the following year was marred by a number of accidents, no fewer than five of the Squadron's aircraft being destroyed in mid-air collisions.

No. 151 Squadron was another unit re-formed—on 4th August 1936—with a nucleus from an established squadron, this time from No. 56. Provisionally classified as a reserve squadron, No. 151 flew an odd assortment of replacement Gauntlets and seldom possessed a strength of more than half a dozen, and did not receive its full quota until March 1938.



Gauntlet IIs of No. 151 (Fighter) Squadron. Note-upper wing markings. A number of aircraft have the older Watts wooden propeller, whilst others have the three-blade Fairey metal type.

(Air Ministry photo)



Gauntlet Is of No. 111 (Fighter) Squadron at Northolt in 1936.

The famous zig-zag markings of No. 17 Squadron at Kenley, so familiar on Woodcocks and Bulldogs since the mid-1920s, now appeared in August 1936 on Gauntlets, as sixteen new aircraft, K5343–K5350 and K5356–K5363, were delivered. These aircraft were to become unique in the newly constituted Fighter Command in being painted with Flight colours, extending over the entire upper decking of the fuselage, as well as on wheel discs. Within a month another famous squadron was to reform with Gaunt-

No. 46 (Fighter) Squadron based at Kenley carried these distinctive markings on fuselage and upper wing. Upper fin portion of the Flight Commanders' aircraft carried Flight colours. See page 11 for full colour scheme.





Another view of a Gauntlet of No. 56 Squadron showing the markings on upper wing surfaces.

(The "Aeroplane" photo)

Air Ministry photo)

lets from No. 17; this was No. 46 Squadron, formed from "B" Flight under Flt. Lt. M. F. Calder.

Nos. 32 and 54 Squadrons also received Gauntlets in 1936 and, of these, No. 32 must lay claim to the greater place in history. It was in November 1936 that, participating in trials accorded the utmost secrecy at the time, a Section of the Squadron's Gauntlets K7797, K7799, K7800 was directed by the experimental radar at Bawdsey Manor to intercept an inbound airliner—the first successful radar-controlled fighter interception.

Neither No. 54 at Hornchurch nor No. 80 at Kenley (the latter formed early in 1937) retained their Gauntlets for more than a few months, their place being taken by Gladiators. No. 213 (Fighter) Squadron, re-formed on 8th March 1937 under Flt. Lt. J. R. MacLachlan at Northolt, moved almost immediately to Church Fenton in Yorkshire as part of

the new No. 12 Group in the re-organised Fighter Command, and went on to win the Air Firing Challenge Trophy from No. 19 in the 1937 competition.

Engine failures in Service Gauntlets during 1937 again caused numerous accidents, one of the hardesthit units being the newly-formed No. 79 (Fighter) Squadron at Biggin Hill—formed from "B" Flight, No. 32 Squadron. The cause of the engine failures was found to be the exhaust valve stems seizing—remedied by reaming out all Mercury exhaust valve guides.

Last R.A.F. squadron to receive Gauntlets during 1937 was No. 74, "Tiger" Squadron. Always tending towards the flamboyant, 74's Gauntlets were conspicuous in contravening current Air Staff instructions by extending their famous black and yellow "tiger's teeth" markings to the tailplane leading edge, thereby excluding the fuselage serial number. Based at

Gauntlet I, K4101, was fitted with low pressure tyres for service in the Middle East.



Hornchurch, 74 received its Gauntlets after having discarded Gladiators in June 1937; this anomally has never been explained authoritatively, but it is thought that owing to the previous equipment with two-seat Demon fighters and the subsequent replacement by specialist single-seat pilots from a Gauntlet squadron (No. 80), a preference for the Gauntlet was universally expressed—a preference officially acknowledged in order to avoid the necessity to re-convert on the Gladiator. (It should be remarked here that Gladiator conversion occupied, on average, almost twice the flying time of that required for the Gauntlet. The essence was *speed* in the R.A.F.'s expansion during 1937).

No. 74 Squadron justified its flamboyance with the Gauntlet, many of its pilots during those last years of peace achieving undying fame in Spitfires and Hurricanes in 1940. Among its pilots who won the Air Firing Challenge Trophy in Gauntlets in 1938 was a certain Fg. Off. A. G. ("Sailor") Malan.

The Gauntlet reached the climax of its first-line R.A.F. career in May 1937, fourteen squadrons being thus equipped. By the end of the year, Gladiators were beginning to replace the older aircraft, while the first monoplane fighters—Hurricanes—started to arrive on No. 111 Squadron at Northolt before Christmas 1937.

During 1938 almost all the old Gauntlet Is disappeared from front-line squadrons at home, and three-blade metal Fairy propellers were introduced on most Mark IIs (necessitating modifications to the gun interrupter gear and slowing the rate of fire). Just how unprepared for war Britain was at the time of Munich is shown by the fact that not one Gauntlet or Gladiator squadron was available at combat readiness, all R.A.F. Gauntlet squadrons being on leave. Within four days all had been recalled, some moving

to war stations and most of the aircraft being hurriedly and inconsistently daubed with various camouflage "schemes". While some aircraft were painted the dark brown and green, others (in particular, on Flight of No. 79 Squadron's Gauntlets) were doped black overall for their rôle as night fighters.

Not only did the R.A.F. Gauntlets assume the anonymity of drab camouflage in the autumn of 1938, but the gaudily painted aircraft of the Auxiliary Air Force No. 615 (County of Surrey) Squadron, for some



K7804, a Gauntlet II, of the Met. Flight, Duxford. Upper photo was taken during 1936; the same aircraft (below) photographed during 1938, showing modifications. (Air Ministry photos)



months an auxiliary army co-operation squadron flying Audaxes and Hectors, received its first Gauntlets just before Munich and, with its change of rôle to interception, became, at Kenley, merged into the London defences. Another auxiliary army co-operation squadron to receive Gauntlets was No. 601 (County of London) at Hendon on 31st October 1938, though Blenheims replaced the biplanes early in 1939.

No. 616 (South Yorkshire) Squadron received Gauntlets at Doncaster on 30th January 1938, and, under the command of the Earl of Lincoln, were the





No. 17 Squadron's Gauntlets at Kenley during the Munich crisis of 1938. Camouflage was crudely applied.



Gauntlet IIs being refuelled in pairs.

("Flight' photo)

only home-based squadron to retain the biplanes until after the outbreak of war in September.

GAUNTLETS OVERSEAS

No. 616 Squadron's Gauntlets never fired their guns in anger, and though they were not listed in the firstline Order of Battle on 4th September 1939, there were others that were.

Gladiators had been shipped to the Middle East early in 1938, Nos. 33 and 80 Squadrons being thus equipped for the defence of the Suez Canal zone. Later in the year a number of Gauntlets were despatched to No.102 Maintenance Unit at Abu Sueir as back-up equipment and for training purposes.

Another squadron, based in Palestine since the mid-1930s, was No. 6, equipped with Hawker Hardys, and on 23rd August 1939 the first of several Gauntlets was delivered to the Squadron whose "A" Flight was then based at Ramleh. The Squadron was engaged in co-operation with the Army and the Palestine Police in their efforts to curb the activities of renegade nomadic Arab gangs in their illicit trading, slaving and looting in remote Palestine villages. Having forced a gang of suspected Arabs to take refuge in a particular village, the ground forces and police would conduct a thorough search while patrolling aircraft kept watch for any would-be "cordon breakers", and, if necessary, use guns and light bombs to discourage such sorties. Within three days of delivery, the first Gauntlets of No. 6 Squadron were in action at Yatta, one of the

Close-up of engine of Gauntlet I.

('Flight' photo)



GAUNTLETS IN SERVICE

Representative aircraft with R.A.F. units:

No. 3 (F) Squadron, Kenley: (Mk.IIs only), K3315, K7845. No. 6 (F) Squadron, Ramleh, Palestine: (Mk.I), K4104; (Mk.II), K5290, K7792

No. 17 (F) Squadron, Kenley: (Mk.IIs only), K5267, K7798. No. 19 (F) Squadron, Duxford: (Mk.I), K4087 (crashed 26/1/37); (Mk.II), K5270, K7808.

No. 32 (F) Squadron: (Mk.II), K5273, K7797

No. 33 (F) Squadron, Mersa Matruh, 1940: (Mk.II), K5286. 46 (F) Squadron, Kenley: (Mk.II), K5315, K7795 (crashed 14/12/36.)

No. 54 (F) Squadron, Hornchurch: (Mk.II), K5301, K7815 No. 56 (F) Squadron, North Weald: (Mk.II), K5298 (caught fire and crashed 7/7/36; Sgt. Davis safe), K7812. No. 65 (F) Squadron, Hornchurch: (Mk.II), K5331, K7857. No. 66 (F) Squadron, Duxford: (Mk.II), K5300, K7809. No 74 (F) Squadron, Hornchurch: (Mk.II), K5308, K7875. No. 79 (F) Squadron, Biggin Hill: (Mk.II), K5310, K7799.

No. 80 (F) Squadron, Kenley: (Mk.II), K5339, K7863. No. 111 (F) Squadron, Northolt: (Mk.II), K5264 (crashed 3/9/36), K7811.

No. 112 (F) Squadron, Helwan, Egypt, 1940: (Mk.II), K5292.

No. 151 (F) Squadron, North Weald: (Mk.II), K5288, K7873.

No. 213 (F) Squadron, Northolt and Church Fenton: (Mk.II), K5301, K7857

No. 601 (County of London) Squadron, Northolt: (Mk. II), K5336, K7881.

No. 602 (City of Glasgow) Squadron: (Mk.II), K5319, K7858. No. 605 (County of Warwick) Squadron, Castle Brom-

wich: (Mk.II), K5269. No. 615 (County of Surrey) Squadron, Kenley: (Mk.II),

K5294, K7826. No. 616 (South Yorkshire) Squadron, Doncaster: (Mk. II), K5357, K5364.

Other R.A.F. units-No. 8 F.T.S. K5281; No. 9 F.T.S.

K4090; No. 10 F.T.S. K5278; No. 1 Anti-Aircraft School K4098; Aldergrove Met. Flight K5282; No. 3 Bombing & Gunnery School K5283; No. 24 (Communications) Sqdn. K5357; Eastchurch Station Flight K5291; No. 325 Sqdn., 1940 K5301; Aldergrove Met. Flight K5280, K5282, K5283.

Representative Gauntlets sold abroad:

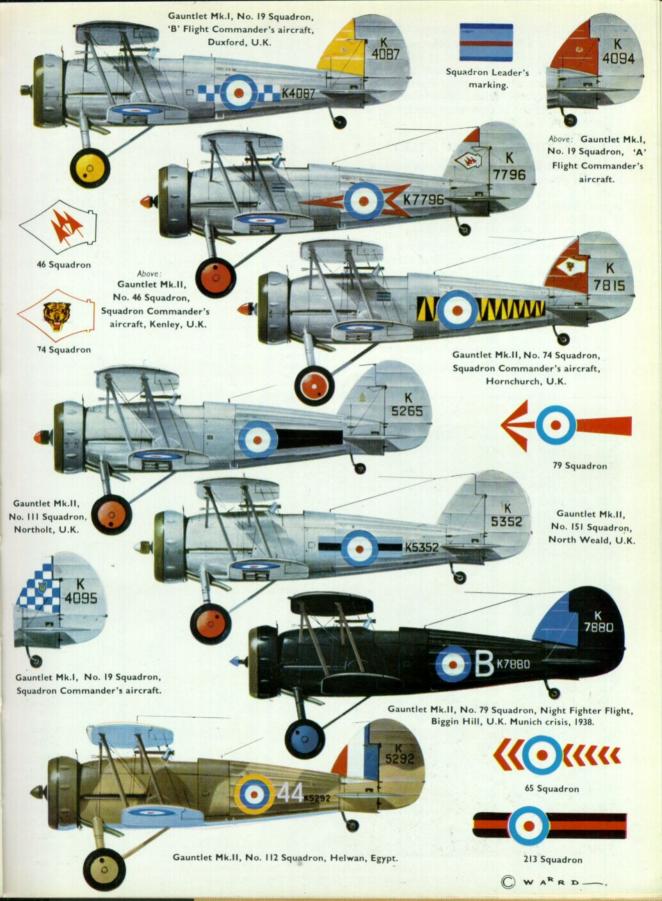
Sold to Rhodesia, 1936: K5277; 1939: K7825. Sold to Finland, 1940: K5352, K7813 Sold to South Africa, July 1940: K5276, K7833. Aircraft also sold to Denmark, identities unknown.

pilots being Plt. Off. Sir R. A. MacRobert-one of three brothers all of whom served with the R.A.F. and later lost their lives in action.

By the beginning of 1940, No. 6 Squadron, commanded by Sqdn. Ldr. N. C. Singer, D.S.O., possessed ten Gauntlets (K4085, K4101, K5292, K5331 K7792, K7863, K7870, K7871 and K7881) and, together with two Lysanders and eighteen Hardys, launched a determined "Airpin" operation in conjunction with the Army to put an end to these diverting troubles, Eventually the Squadron took on a full strength of Lysanders, the last Gauntlet, K5292, being flown to Helwan on 7th June 1940 and handed over to No. 112 Squadron.

Nos. 33 and 112 Squadrons took over most of the available Gauntlets during 1940 as useful means to pursue training techniques while conserving Gladiator flying hours. No. 33 took on charge six Gauntlets (K5273, K5286, K5299, K5316, K7793 and K7884) at Mersa Matruh during February 1940, and these machines were still listed at reserve strength when Italy declared war on 10/11 June that year. No. 112 also possessed five Gauntlets at Helwan on this date.

The last known instance of Gauntlets on active strength in the Royal Air Force was in 1943 when, due



to a temporary shortage of replacement Gladiators in East Africa, four Gauntlets were delivered for training purposes to No. 1414 Met. Flight at Eastleigh on 1st May that year. There is no record of the aircraft involved, yet it seems quite possible that they may have served on one of the operational squadrons in Palestine and the Western Desert three years previously, and in Fighter Command before that!

FLYING THE GAUNTLET

It has been said that the Gauntlet was the last truly aerobatic biplane fighter in the R.A.F., the Gladiator displaying distinctly "tricky" tendencies, especially at low airspeeds. The closed cockpit and landing flaps of the later aircraft undoubtedly contributed to the sense of flying a "monoplane with a top wing".

Grossing more than 1,200 lb. heavier than the Gauntlet, the Gladiator never acquired the popularity of the earlier aeroplane. The Gauntlet would become

PRODUCTION

All aircraft built by the Gloster Aircraft Co. Ltd., Brockworth, Gloucester.

One prototype, 19125, progressively developed from Specification F.9/26, through S.S.18 to S.S.19B.

Gauntlet 1. One production batch, K4081–K4104, 24

aircraft.

Gauntlet II. First production batch, K5264-K5367, 104
aircraft: second production batch, K7792-K7891, 100

aircraft.

airborne in under 100 yards at full load with a light (5 knot) headwind, climbing to 20,000 feet in under ten minutes. In the dive prior to a loop, there was always the tendency to overspeed the engine but the airspeed quickly built up and only light pressure on the stick brought the aeroplane round and "over the top" without tendency to stall. Slow rolls were relatively difficult to perform without losing height, and were forbidden below 3,000 feet. Approaching to land, the airspeed was maintained at about 55 m.p.h. up to the boundary hedge, easing back to touch down at slightly over 50. Using wheelbrakes the ground run was about 150 yards. Visibility in the air was good, but it was necessary to weave on the ground to see ahead.

SPECIFICATION

Powerplant: Mk.I and II. One 640 h.p. Bristol Mercury VIS2 nine-cylinder air-cooled radial engine, driving 2-blade wooden Watts (on early aircraft) or 3-blade Fairey metal propeller (on late production aircraft). Dimensions: Span 32ft. $9\frac{1}{2}$ in., length (Mk.I) 26 ft. 2 in., (Mk.II) 26 ft. 5 in., height (with Fairey prop.) 10 ft. 3 in., wing area 315 sq. ft.

Weights: (Mk.II)—empty 2,775 lb., loaded 3,970 lb. Performance: (Mk.I and II similar)—maximum speed 230 m.p.h. at 15,800 feet. Initial climb 2,300 ft./min. Time 9 minutes to 20,000 feet. Range 455 miles. Service ceiling 33,500 feet.

Armament: Two Vickers Mk.V synchronised machine guns with 600 rounds per gun.

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Gauntlet Is of No. 19 (Fighter) Squadron in formation. Note variations of fin markings.

(Flight" photo)



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