PROFILE
PUBLICATIONS

The Hawker Hurricane IIC

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NUMBER 24

HAWKER HURRICANE IIC

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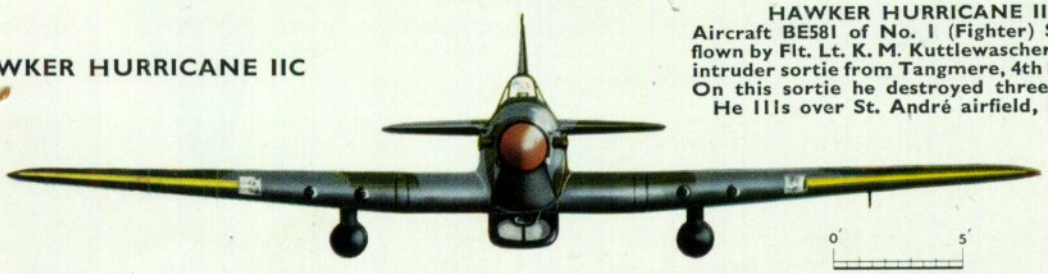
Aircraft BE581 of No. 1 (Fighter) Squadron flown by Flt. Lt. K. M. Kuttlewascher on night intruder sortie from Tangmere, 4th May 1942. On this sortie he destroyed three Heinkel He 111s over St. André airfield, France.



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Upper surfaces were finished in standard dark green and grey. Lower surfaces were black. Black rudder and wing panel were replacement components from Turnhouse flight Hurricane BD770. Aircraft displayed red doped patches over previous battle damage on port aileron, rear fuselage and tail unit.

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The Hawker Hurricane IIC

by FRANCIS K. MASON

Bearing the presentation inscription "United Provinces—Cawnpore I", this night intruder Hurricane IIC (LK-A) of No. 87(F) Squadron was flown by Sqdn. Ldr. D. C. Smallwood, D.F.C. (Photo: Imperial War Museum)

As the summer of 1940 drew to a close, the sadly depleted ranks of the R.A.F.'s victorious Fighter Command started the laborious but vital task of building up and re-equipping its interceptor squadrons; the lessons learned had been hard-won, and peacetime fighter tactics had long since gone by the board. The Spitfires and Hurricanes had earned their keep and been found little wanting, while the surviving pilots—now sadly bereft of their professional hard-core—had assumed the responsibilities of seasoned veterans.

As the tactical advances came to be written into the Service training, so the characteristics of the British fighters acquired an essential scrutiny. Under wartime conditions—and especially those prevailing in Britain in 1940—there could be no question of replacing the Hurricane or Spitfire on account of obsolescence and it was no less than a foregone conclusion that many years' service lay before these magnificent designs. Indeed, any major advance in British fighter design that could be expected was already being anticipated in the Hawker Typhoon.

So far as the Hurricane was concerned, there can be no denying that although it had represented the numerically superior element of Fighter Command's defence, it *was* regarded as "half-a-generation older" than the Spitfire, and only the tremendous demands being made upon the aircraft factories for standard fighters had delayed the introduction of the more advanced Hurricane II.

Fundamentally the airframe of the Hurricane was entirely satisfactory; its performance, on the other hand, had been something of a handicap, and it was in this direction that design attention was turning during the summer of 1940. On the 11th June that year a Hurricane I, *P3269*, was flown at Langley powered by the new Rolls-Royce Merlin XX with a Rotol R.X.5/2 constant-speed propeller. Armed with eight Browning guns, this aircraft achieved a level speed of 348 m.p.h. at a weight of 6,689 lb. in the hands of Philip Lucas—and was thus the fastest armed Hurricane ever flown. This Merlin, delivering 1,185 b.h.p. in its early form, was a two-stage supercharged engine and had been developed with mass production and widespread subcontracting uppermost in mind.

As already mentioned, preoccupation with replacements occasioned by the vital battle raging delayed introduction of the new Merlin and also any serious attempts to increase the Hurricane's gun armament. No marked shortage in Browning guns was felt during the battle, yet allocations to various new aircraft were being drawn up many months ahead of production, so that the first Hurricane IIs to reach the Royal Air Force—on 4th September 1940—were Mark IIAs with standard 8-gun wings. Twelve-gun wings started moving down the Langley lines shortly afterwards and were delivered to home squadrons as Hurricane IIBs at the end of the year.

HEAVY GUNS

As if any proof had been necessary, the Battle of Britain well illustrated the lack of penetrative power of the rifle-calibre Browning. German aircraft shot down displayed much evidence of damage to soft-skinned components—control surfaces and cockpit transparencies—whilst even relatively thinly armoured fuel tanks, engines and crew positions had resisted penetration. Such shortcomings had been foreseen as far back as 1935 and the various compact 20 mm. gun

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An early series Hurricane IIC of No. 3(F) Squadron in North Europe day camouflage of 1941. The exhaust shield was an "optional fit".

designs were assessed and were incorporated in a number of Air Ministry Specifications—resulting in the Westland Whirlwind and Britsol Beaufighter twin-engine fighters. It did not occur to the Air Staff that such guns could reasonably be accommodated in single-engine aircraft—despite a design tender by Hawker to Spec. F. 37/35 for a Hurricane to be armed with four 20 mm. guns! Preoccupation with the Whirlwind and delays in negotiating licences to manufacture the Oerlikon and Hispano guns thus forestalled an early advance in the Hurricane's armament.

In 1939 a Hurricane I (*L1750*) was "lashed-up" with a pair of Oerlikons *under* the wings as part of the armament flight trials for the Whirlwind, but this aeroplane remained impotently on Air Ministry experimental charge and safely locked-up in a hangar at Martlesham Heath through the Battle of Britain! More serious 4-cannon proposals were made by Hawker in May 1940, but in view of the massive losses being suffered by Hurricane squadrons in France that month, official support was—probably justifiably—absent. Hawker did, however, gain permission to adapt a pair of battle-damaged wings to mount four drum-fed Oerlikons, and these were flown by Dick Reynell on *P2640* on 7th June. Top speed of this aircraft was probably as low as 290 m.p.h., yet it was delivered for trials with No. 151 Squadron at North Weald on 19th August (atlhough no record of combat by the aircraft can be found).

Service evaluation of the cannon installation encouraged Hawker to persevere, and as more sets of guns became available, semi-tooling methods were used to fit these in Mark I airframes (e.g. *V7260*, *V7360* and *W9324*). Due to the lack of power in the Merlin III, the 4-cannon Hurricane I did not enter service with the R.A.F., but did so in large numbers with the Royal Navy as the Sea Hurricane IC.

Towards the end of the semi-tooled conversions, numerous Merlin XX-powered airframes became available and four of these—V2461, Z2588, Z2885 and Z2891—represented prototypes of the Hurricane IIC. The first was flown by Seth-Smith on 6th February 1941.

Of all Hurricane versions, the Hurricane IIC was built in greatest numbers, 4,711 being constructed in the U.K.—the majority at Langley. Others were built by Gloster and Austin and some by the Canadian Car & Foundry at Fort William. Many Hurricanes, starting life as Mark IIAs and IIBs, acquired 4-cannon wings according to the availability of repaired battle-weary components. Both Hispano and Oerlikon guns were used and although early installations used the

Close-up of 20 mm. gun installation of Hurricane IIC.

Re-arming and servicing a Hurricane IIC.

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A formation of tropical Hurricane IICs. The three aircraft farthest from the camera are presentation machines commemorating the three MacRobert brothers, and outboard cannons of the nearest aircraft have been deleted in the interests of performance.

Chattelerault belt feed (due to delays in satisfactory de-icing protection for the drum-feed), the drum-feed became standard.

Hurricane IICs entered operational service with the R.A.F. at the end of May 1941, but already the Hurricane had been superseded as a metropolitan day interceptor on account of performance shortcomings. Instead, with the benefit of its heavy weight of fire, the aircraft joined in the growing tide of offensive sweeps over the French Channel ports, attacking the many targets of opportunity that were presented—the light coastal craft, invasion barges, railway and road vehicles that disintegrated under the storms of cannon shells.

Bombs came to be added to the Hurricane (as did 44-gallon underwing fuel tanks) but such was the reduction in performance—top speed of 220 m.p.h. with four cannon and two 250-lb bombs—that the daylight sweeps fast became regarded by Hurricane pilots as suicidal, especially with regard to the presence of Fw 190s and extensive *flak* defences in Northern Europe.

Close-up of tail-armed 250-lb. bomb on Hurricane II.

By the autumn of 1941, therefore, Hurricanes were operating for the most part by night or in half-light conditions. By October no fewer than fifty-seven home-based squadrons flew Hurricane IIs, usually a mixed complement of IIBs and IICs. Perhaps the most famous of all R.A.F. Squadrons was No. 1, operating from its traditional base at Tangmere, and this Squadron led the van of night intruder operations, carrying the battle back to the *Luftwaffe's* night bomber bases in France. The cloak of darkness concealed the Hurricane's performance deficiencies and enabled many a pilot to lurk in the path of returning raiders and to shoot down the weary and unwary.

Taking off from Tangmere on 4th May 1942, Flt. Lt. K. M. Kuttlewascher, star of No. 1, set course for Fécamp on the French coast in Hurricane IIC *JX-E* (*BE581*) with two 44-gallon drop tanks. Flying on south he came upon St. André airfield, lit with a flarepath for bombers returning from raids over England. Several aircraft were already in the circuit when the intruder arrived, and, having made these out as He 111s, Kuttlewascher slipped in behind one and destroyed it with a two-second burst from his 20 mm. guns. Twice more the Czech fired his guns and, on circling the airfield, noted three enemy aircraft blazing furiously on the ground.*

Hurricane IICs went into action over the ill-starred Dieppe landings of 19th August 1942. No 43 Squadron, also of the Tangmere sector, were the first into the attack having come to readiness at four that morning. In the first raid twelve pilots, led by Sqdn. Ldr. de Vivier, carried out a beach-level sweep, attacking with guns and bombs the coastal gun positions, machine gun nests and radio buildings. They flew through a storm of *flak* and one pilot was lost; another baled out to be picked up at sea and a third crash-landed at Tangmere. Four other aircraft sustained damage from ground fire. 43 Squadron flew three further raids over Dieppe that day . . .

These were typical offensive sorties performed by Hurricane IIs in those frustrating years of 1941 and 1942. Frustrating was the description of another task

**Kuttlewascher's aircraft on this occasion is the subject of the 5-view drawing on page 2.*

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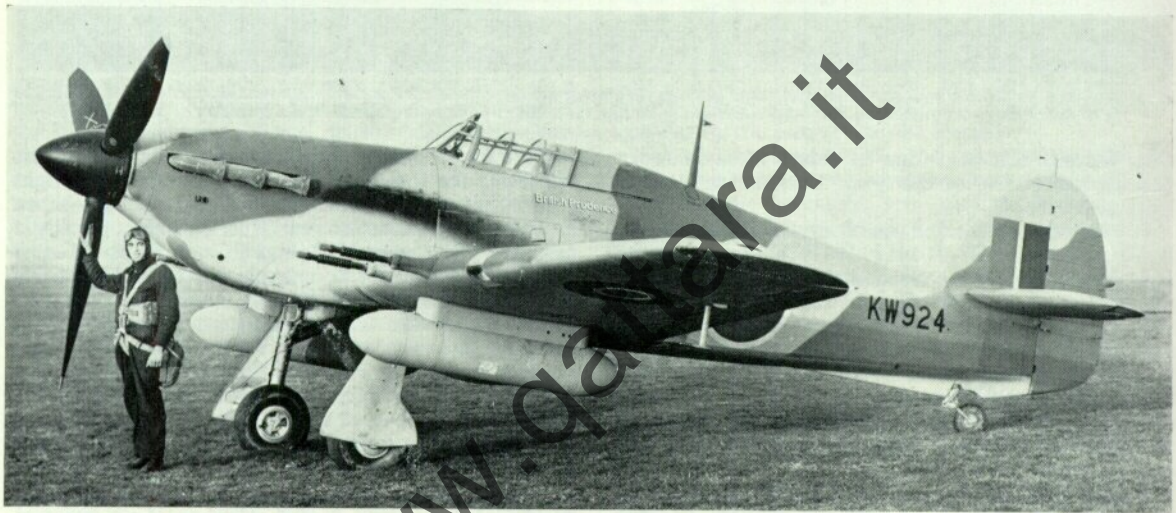
Hurricane IIC carrying two 90-gallon fixed ferry tanks.



Late-series presentation Hurricane IIC "British Prudence" with two 44-gallon drop tanks. (Photos: Hawker Siddeley Aviation)

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performed by Hurricane IICs of Nos. 1 and 43 Squadron—that of Turbinlite collaboration. Powerful miniature searchlights mounted in twin-engine aircraft (notably Havocs of No. 1460 Flight) were intended to illuminate enemy raiders so that accompanying Hurricanes could close in for the kill. Hundreds of flying hours were spent in fruitless patrols and exercises before the scheme was abandoned.

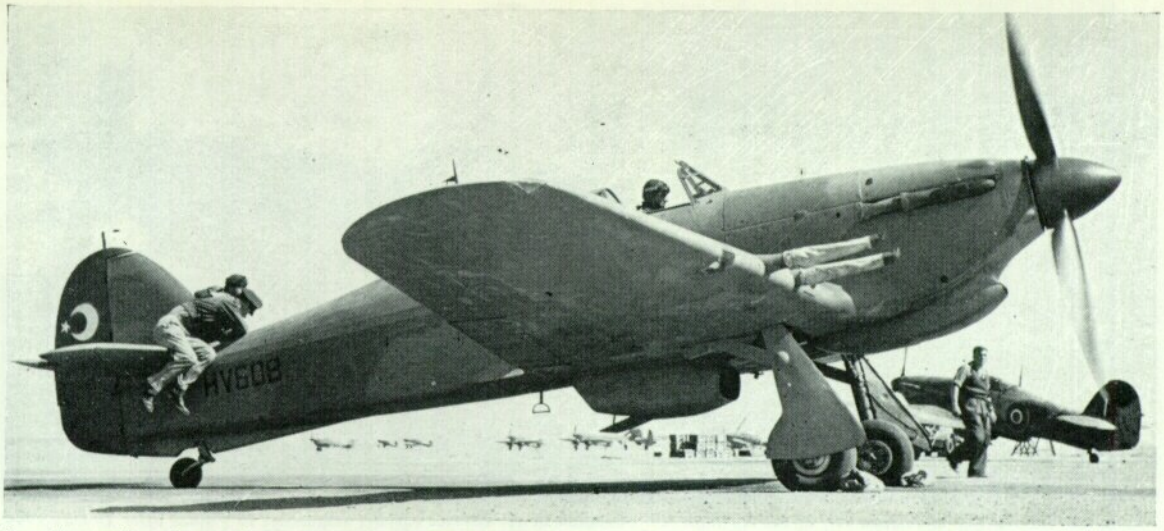
During 1942–3 Hurricane IICs added a long list of external stores to their combat inventory. Small (anti-personnel) Bomb Carriers were used against road vehicles in France and the Low Countries; smoke screen dispensers were used to cover the various isolated amphibious attacks on the continent, and a few IICs acquired rocket projectiles—though operational rocket-equipped Hurricanes were of the Mk IIB and IV variety. 500-lb. bombs were occasionally used at night but seldom in the presence of *flak* or defending night fighters as the Hurricane IIC thus loaded scarcely achieved 180 m.p.h.!

By D-Day the Hurricane IIC had disappeared from the R.A.F.'s front line strength in Northern Europe, the aircraft still being built by Hawker (until September 1944) equipping the numerous training and communication units supporting the fighting echelons.

AT WAR OVERSEAS

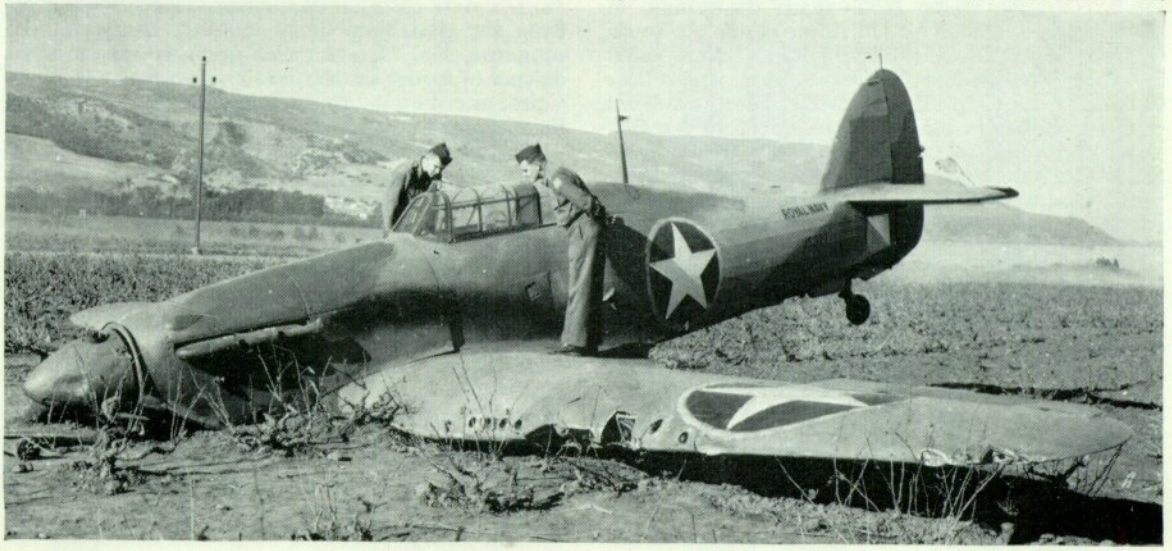
First Hurricane IICs to be shipped overseas were those that joined the stream of aircraft allocated to the Middle East in mid-1941. IIAs and IIBs had been arriving at Canal Zone Maintenance Units since the spring that year and experience showed the absolute necessity to equip the Merlin XX engines with sand filters over the carburettor intakes. These filters effectively prolonged engine life but severely reduced performance; and although the IIC still retained an adequate speed margin over the radial-engined Italian fighters, the appearance of modern German fighters over the Mediterranean in 1941 prompted some Hurricane IIC squadrons to reduce the armament by removal of two guns. By mid-November 1941, out of forty British fighter squadrons in the Middle East, twenty-five flew Hurricanes and, of these, eighteen flew IICs.

Seldom documented among the many Hurricane variants were the Mark IIs converted in the Middle East to carry reconnaissance cameras both in the wings and in a ventral fairing. Often aircraft which were returned for repair at Egyptian M.U.s were thus converted and among them were several Mark IICs, though with the removal of their gun armament they



One of a number of tropical Hurricane IICs supplied to Turkey from R.A.F. Maintenance Units in the Middle East in 1942.
(Photo: Imperial War Museum)

(Above and below): *The story behind these two rare pictures of Hurricanes in U.S. markings is obscure. They were taken on a beach at St. Leu, Algeria, on 8th November 1942 shortly after the Torch landings. The aircraft above is a four-cannon Canadian Sea Hurricane X still bearing the serial AM277; that below is a twelve-gun Canadian Sea Hurricane XII, JS327. Being deck-equipped, it seems possible that they had been brought from Canada aboard a U.S. Carrier and on flying-off ran out of fuel, force landing on the beaches of Algeria. Examination of rutting and the position of broken propeller blades suggest conventional wheels-up "dead stick" landings.*
(Photos: via R. Ward)



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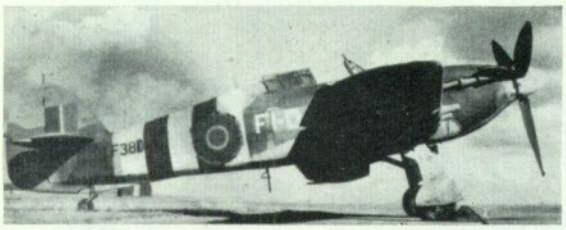
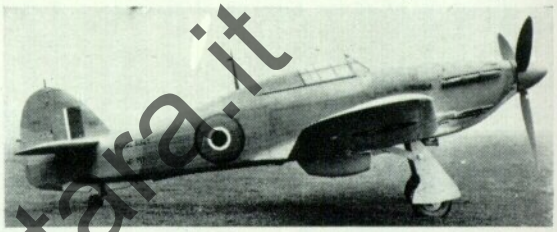
With guns removed this Hurricane IIC of the Northolt Air Despatch Letter Service carried despatches to France after D-Day 1944.



This Hurricane IIC of 83 O.T.U. is the subject of a drawing on page 11.



A four-cannon Sea Hurricane IIC conversion, NF717.

were simply termed P.R.IIs. Such aircraft served with a number of units, including 451 Squadron of the R.A.A.F., and No. 208 Squadron, R.A.F.

Despite their suspected performance handicaps, IICs achieved many notable air victories in the desert war. For example, No. 274 Squadron, flying a composite formation of twelve Hurricane IIAs and IICs on a patrol near Gazala early in December 1941, joined combat with twenty Bf 109Es and Fiat G.50s. Three Messerschmitts were shot down for the loss of one Hurricane. The latter aircraft collected a bullet in the glycol coolant tank and caught fire, forcing the pilot, Lt. Hoffe of the S.A.A.F., to bale out. Another pilot, Flt. Lt. Tracey, seeing Hoffe reach the ground in no-man's-land, landed his Hurricane beside the South African, picked him up and brought him home, seated in his lap! A week later 274 was again in action near El Adem when eight Hurricane IICs met a formation of fifteen Ju 87s escorted by eighteen Bf 109Fs, Fiat G.50s and Macchi C.202s. Three Ju 87s, two Macchis and a Fiat were destroyed for the loss of three Hurricanes. One of the Hurricane pilots, Sgt. Parburvry, spotted a Ju 87 landing to pick up the pilot of another which had force landed, and proceeded to destroy both aircraft. Two evidently couldn't play that game!

Malta was a happy hunting ground for Hurricane IICs during 1941, these aircraft being taken on strength by the three Squadrons, Nos. 126, 185 and 251, based on the Island in June that year. Initially vested with purely defensive duties, No. 126 Squadron achieved its first victories on 30th June, destroying two Macchi C.200s without loss. No. 185 shot down two and damaged three more, again without loss, four days later.

About a fortnight later Italy carred out an E-Boat attack on Valetta's Grand Harbour. Nos. 126 and 185 took off to attack the enemy ships and were set upon by escorting Macchi C.200s. Flt. Lt. Lefebre, by singling out one ship and carrying our repeated attacks, so unnerved the crew that it ran up the white flag. Plt. Off. Winton of No. 185 Squadron had to bale out of his Hurricane and, landing in the water, swam to the nearest E-Boat only to find the entire crew dead. "No. 185 Squadron thus captured the E-Boat and kept the Italian marine flag as a souvenir." Between them the Squadrons destroyed or captured all the E-Boats and shot down one of the escorting Macchis.

During those critical weeks when Rommel's *Panzers* were halted at El Alamein scarcely forty miles from the vital Suez Canal, another Hurricane IIC squadron, No. 73, was called upon to provide night defence of British installations around Alexandria and Cairo, and during July 1942 alone destroyed twenty-three enemy raiders for the loss of six Hurricanes.

The "Torch" landings on the French Algerian and Moroccan coasts opened up further fields of operations for the Hurricane. One of the initial objectives of the landings was the capture of Maison Blanche airfield near the port of Algiers. This was quickly captured by an American combat team and it was No. 43 Squadron with Hurricane IICs that were the first Allied fighters to land, having flown from Gibraltar non-stop.

By the eve of the Sicilian landings the number of Hurricane squadrons had dropped to twenty, of which the thirteen IIC squadrons were deployed over the entire Middle East theatre, ranging from No. 74 in Northern Persia to No. 32 performing defensive patrols over Algeria and Tunisia. It is not generally known that at about this time U.S. Navy detachments, newly-arrived from America aboard U.S.

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A late-series Hurricane IIC of the Yugoslav Partisan Forces.

Carriers, were also flying Hurricanes. These aircraft—Canadian-built Sea Hurricanes and 4-cannon Mark XIIs—were later left on French North African territory as the tide of battle ebbed away, and it is believed that a few were restored and taken over by the French Navy towards the end of the War in Europe. Though most of these American-flown Hurricanes appear to have retained their drab "British" camouflage throughout their life, at least one is believed to have been flown from South Italy in 1944 on communications duties, repainted silver overall and displaying the American "star and bar" insignia.

RUSSIA AND THE FAR EAST

Bearing in mind that the Hurricane IIC was introduced into R.A.F. service in mid-1941, it is ironic to reflect that Britain was supplying these aircraft in relatively large numbers to Russia some months before British and Commonwealth forces were crying out for modern fighters with which to combat the Japanese attacks in the Far East. While home-supplied Hurricane IICs continued to occupy deck space on convoys to North Russia, it was not until May 1942 that the first IICs arrived on squadrons in India and Ceylon. By then they were too late to participate in the defence of Burma.

Throughout the remainder of 1942, a steady flow of Hurricane IICs continued to equip squadrons sadly depleted during early Japanese onslaughts, and by June 1943 Hurricane IIBs and IICs were being flown by sixteen Squadrons in India, Northern Burma and Ceylon. No. 11 Squadron, having been moved from the Middle East the previous October, was now stationed with No. 261 at Baigachi in East Bengal. Nos. 30, 258 and 273 constituted the defence of Ceylon, based at Colombo, China Bay and Ratmalana. In all, 670 Hurricanes were on charge in India, available for the forthcoming campaign in Burma, and 200 were turned over to the slowly-expanding Indian Air Force.

By 1944 twenty-nine Hurricane squadrons had been equipped, of which seven were Indian, It would be wrong, however, to imply that the Hurricane bore the sole responsibility for tactical support and defence in Eastern India and Burma; yet it was the Hurricane that performed the lion's share of the close support duties throughout the critical Kohima and Imphal operations and accompanied the army on its advance southwards through Burma, while the Spitfires provided the principal cover for these and many other bombing operations.

One of the more specialised duties performed during the campaign was that of tactical reconnaissance,

(Above): *Bomb-carrying tropical Hurricane IICs on a Burmese airstrip in 1943.* (Photo: Imperial War Museum)

(Below): *Hurricane IICs served with various training units in the I.A.F. and R.A.F. in India towards the end of W.W.2. The unarmed aircraft seen here over Bengal served with the G.A.T.U. until 1947 when it was struck off charge.*

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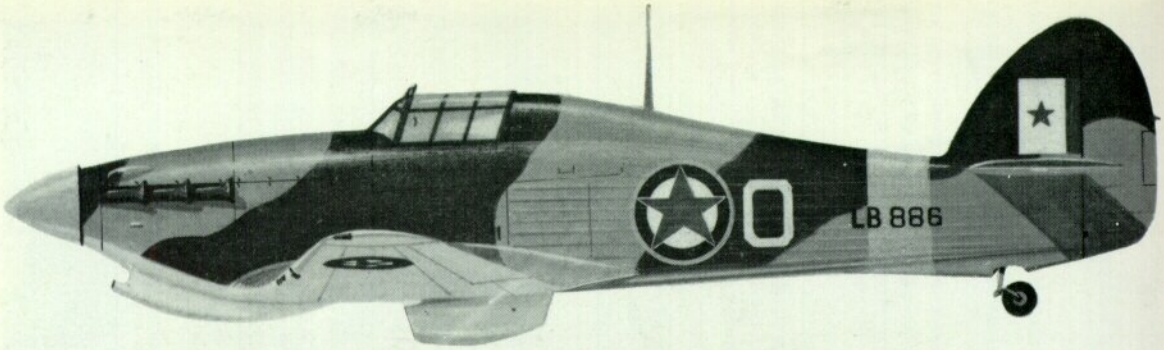

Camouflage and marking schemes of the Yugoslav and American Hurricanes (see pages 7 and 9).

carried out by the Hurricane IICs of No. 1 Squadron, I.A.F. Fitted with a forward-facing camera inboard of the starboard cannon, this version was used for low altitude photography, gunnery spotting and message dropping. An example of this good work was afforded by Sqdn. Ldr. Arjan Singh who, on a late evening patrol, reported the approach of a Japanese battalion moving on Imphal. Forthwith thirty-three cannon and bomb-armed Hurricanes took-off in the gathering dusk and presently arrived over the area of the reported enemy forces. Turning on their landing lights, the leading Hurricane pilots could discern the Japanese column and straightaway went into the attack. There was no immediate result visible in this foray, but no attack materialised on Imphal—later it was learnt from captured papers that fourteen Japanese officers and over two hundred other ranks perished that evening.

Relatively little is known of the thousands of Hurricanes shipped and flown to Russia's aid. In August 1941 the first Hurricanes (actually IIAs and IIBs) were sent to North Russia as the equipment of an R.A.F. Wing, consisting, of Nos. 81 and 134 Squadrons. Withdrawn before the onset of the Russian winter, the R.A.F. pilots left their aircraft behind, these already being joined by the cannon-armed IIC. IICs reached Russia by several routes, the majority sailing in the North Cape convoys. Others

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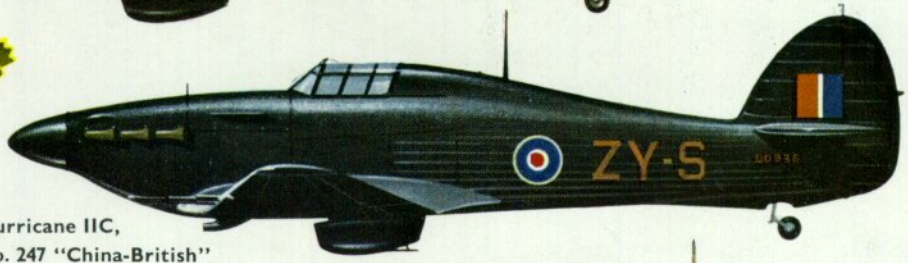
Hurricane IIC "The Last of Many" in the royal blue and gold racing colours of H.R.H. Princess Margaret, c. 1950. Civil lettering and trim were gold, the aircraft blue and race numbers white.

Hurricane IIC, No. 87 (Fighter) Squadron,
Night Ops., Warmwell,
U.K. 1941.

R.A.F. Wing
upper surface.

U.S.A.A.F.

"Nightingale."



Yugoslavia.

French Navy.

Hurricane IIC,
No. 247 "China-British"
Squadron, Night Intruder Ops., U.K. 1942. ▲

▲

Hurricane IIC, No. 213 (Fighter) Squadron,
El Alamein, Western Desert 1942.

Eire.

Turkey.

Hurricane IIC, No. 1 (Fighter) Squadron,
Indian Air Force, Imphal,
Assam 1944.

Portugal.

Hurricane IIC, Gunnery Flight,
No. 83 O.T.U., Peplow, Shropshire,
U.K. 1944. ▲

"Fiji Civil Service."

Hurricane PR.IIC,
No. 208 Squadron,
El Bassa,
Palestine 1943. ▶

Hurricane IIC, 72nd Regiment,
Red Naval Air Fleet, Vaenga,
Russia 1942

© WARD

Iran.

Egypt.

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Portuguese Hurricane N.F.IIC of the Lisbon Defence Flight, 1948. (Photo: Comando Geral da Aeronautica Militar)

were flown direct from Middle East M.U.s and some were even transferred from spare stocks in North West India.

SEA HURRICANES AND OTHERS

At first glance, designation of 4-cannon Hurricanes was straightforward—and within the spheres of R.A.F. operations all such aircraft *were* Mark IICs. As already remarked, however, the Royal Navy used cannon-armed Sea Hurricane ICs with Merlin III engines. These were superseded in March 1942 by Hurricane IIBs and IICs converted for naval use by the addition of deck equipment; though not strictly Sea Hurricanes, they were nevertheless adorned with ROYAL NAVY on their rear fuselage sides. Later, true standard Sea Hurricane IICs entered service with the Royal Navy, but the vast majority of these served at shore stations.

As the Hurricane came to be withdrawn from R.A.F. service at the end of the war, numbers were sold abroad and Mark IICs found their way in many guises into the air forces of Eire, Portugal, and Persia. The last Hurricane ever built—a Mark IIC—has been preserved in flying condition by Hawker Aircraft Ltd., and, as if to emphasise the reluctance of a great aircraft to vacate its place in history, this aircraft was used as observation "chase plane" during the transition trials of Hawker's Kestrel vertical take-off fighter prototype in 1960!

© *Francis K. Mason, 1965*

(Above): *Persian Hurricane T.IIC with rear cockpit enclosed.*
(Below): *The same aircraft in flight with both cockpits "unhooded".* (Photos: Hawker Siddeley Aviation)

HURRICANE IICs IN SERVICE

Representative Aircraft with R.A.F. Units

No. 1 (F) Sqdn., Hawkinge, convoy patrols, and Tangmere, 1941: *Z3778* ('Y'); Intruder Ops., 1942, *HL603* ('I').
No. 3 (F) Sqdn., *BD867* ('W'), *BN188* ('A')
No. 17 (F) Sqdn., Burma, *BN462*, *HV798*.
No. 43 (F) Sqdn., Acklington, Turbinlite patrols, *BD715*; Intruders, *HL460* (damaged in Dieppe attacks, 19/8/42).
No. 73 (F) Sqnd., Heliopolis, 6/42, *BN538* (shot down over Cairo 29/8/42); *BP518* (destroyed Ju 88, El Alamein, 31/8/42).
No. 174 (F) Sqdn., *BN795* (presentation aircraft in memory of Sqdn. Ldr. John Gillan).
No. 208 (AC) Sqdn., Tac. R Mk.IIC, *BN156* (missing, 24/8/42).
No. 1413 (Met.) Flt. Met. Mk.IIC, Ryak, Damascus, Aqir and Lydda, 1943–45, *BN974*.
Aircraft supplied to Turkey from Middle East stocks, *HV551*.
Aircraft supplied to Russia, *KX113*, *KZ234*.

HURRICANE IIC SPECIFICATION

Powerplant: Rolls-Royce Merlin XX developing 1,260 b.h.p. at 3,000 r.p.m. at 11,750 ft. in MS gear, and 1,160 b.h.p. at 3,000 r.p.m. at 20,750 ft. in S gear. Sea level take-off power: 1,300 b.h.p. at 3,000 r.p.m. *Propeller:* Either 3-blade Rotol R.S.5/2 with Schwarz blades or Rotol R.S.5/3 with Jablo blades. Gear ratio: 0·42. Airscrew diameter: 11 ft. 3 in.
Dimensions: Wing span, 40 ft. 0 in. Overall length, 32 ft. 2¼ in. Maximum height (one airscrew blade vertical, tailwheel on ground), 13 ft. 1 in. Gross wing area, 257·6 sq. ft. Aspect ratio, 6·2 Wing incidence, +2°. Dihedral 3·5° on datum. Undercarriage track, 7 ft. 10 in.
Weights: (Temperate version) Tare weight, 5,658 lb. Normal loaded weight, 7,544-lb. Overload combat weight, 8,044 lb. (Tropical version) Tare weight, 5,785 lb. Normal loaded weight 7,707 lb. Overloaded combat weight, 8,207 lb.
Performance: Temperate version. 329 m.p.h. at 18,000 ft. Rate of climb 2,750 ft./min. at sea level. Time to height, 12½ min. to 30,000 ft. Range (clean aircraft), 460 statute miles at 178 m.p.h., or 920 miles with two 44-gallon auxiliary tanks.
Armament: Four 20 mm. Hispano or Oerlikon guns with total of 364 rounds of ammunition.

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