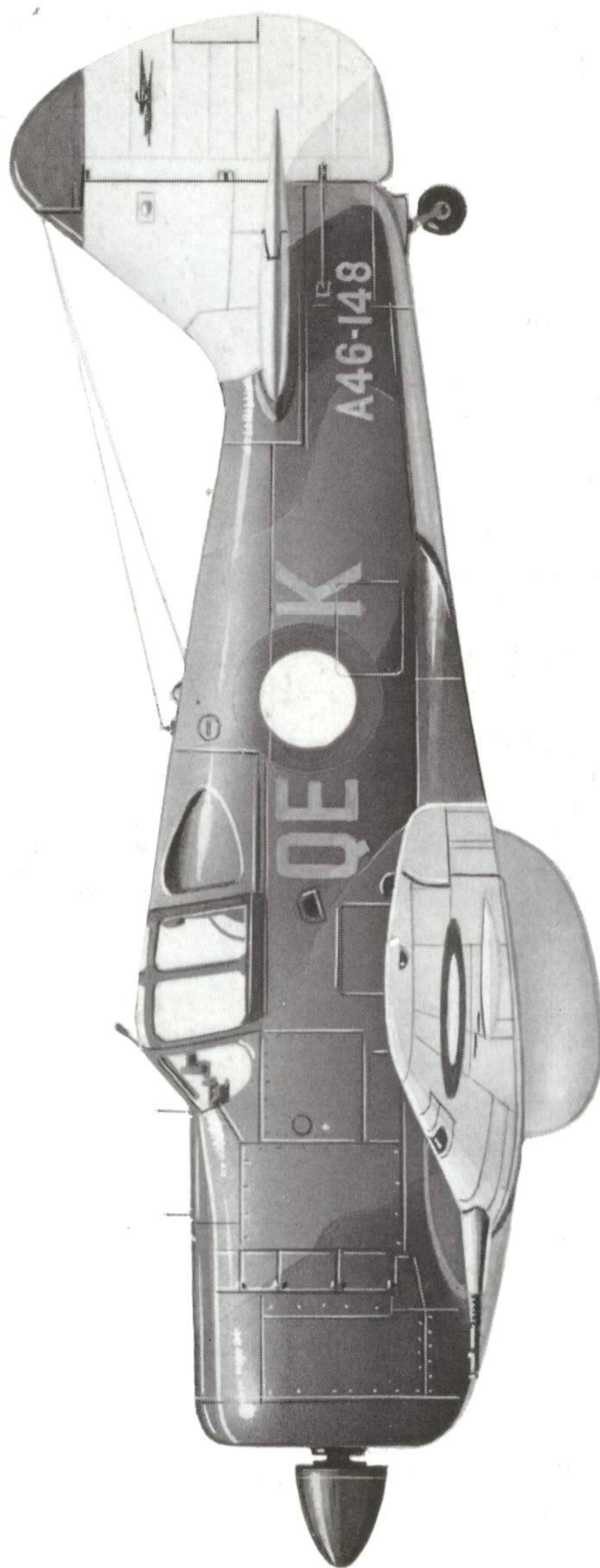


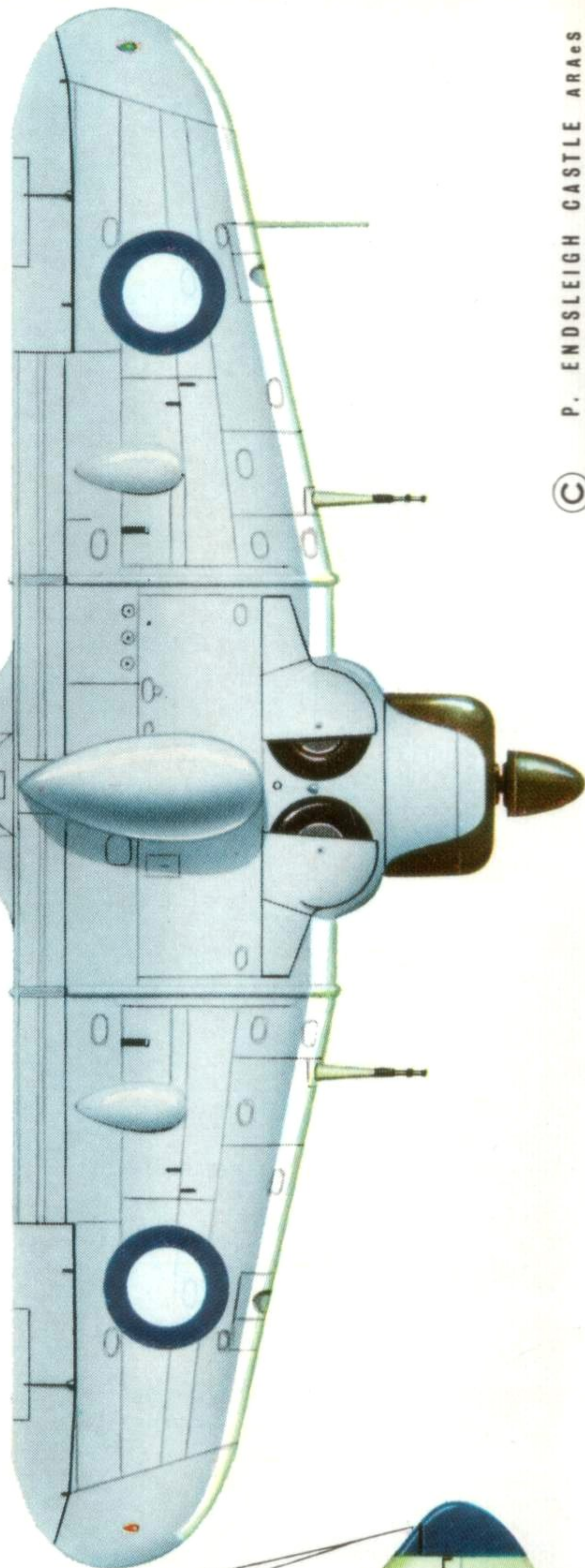
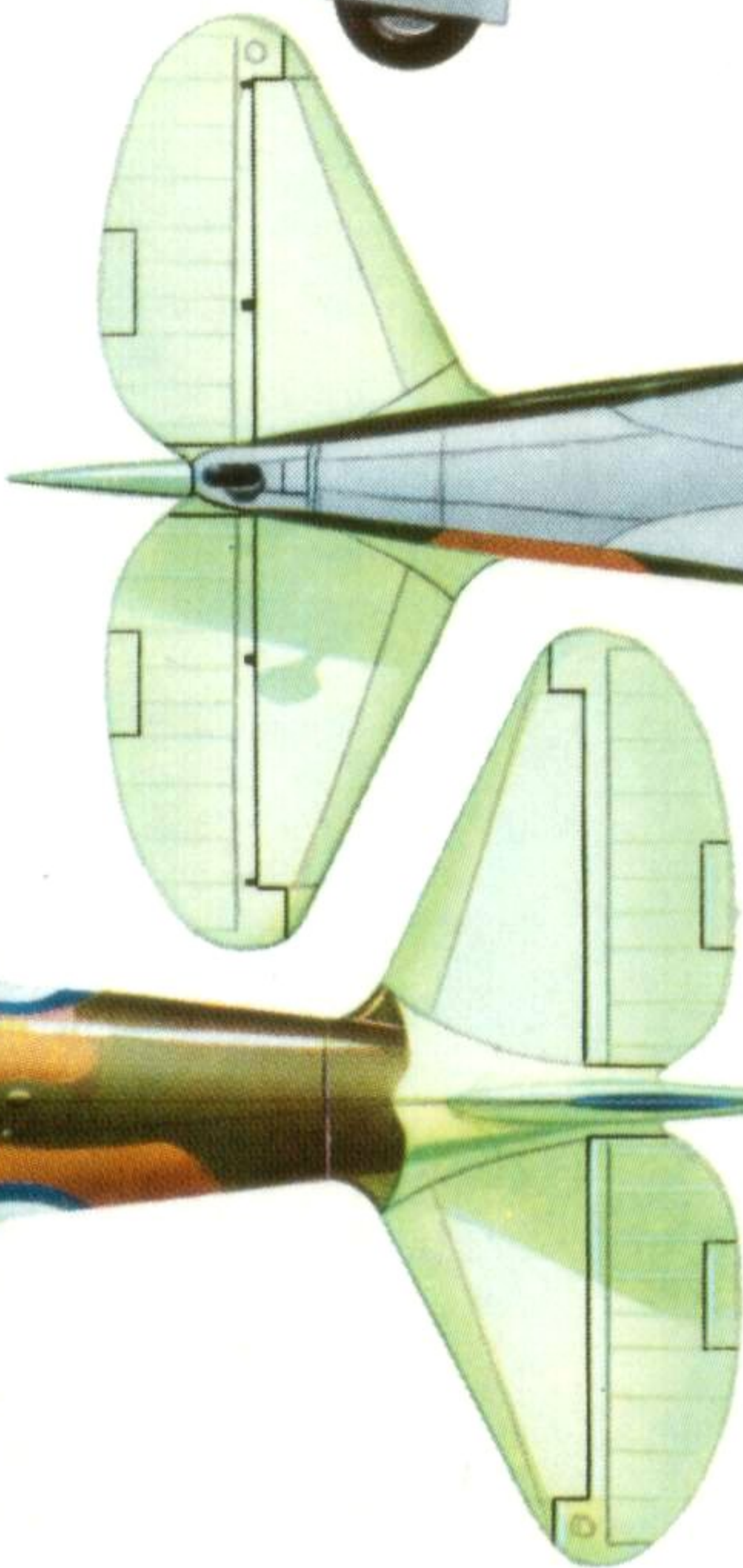
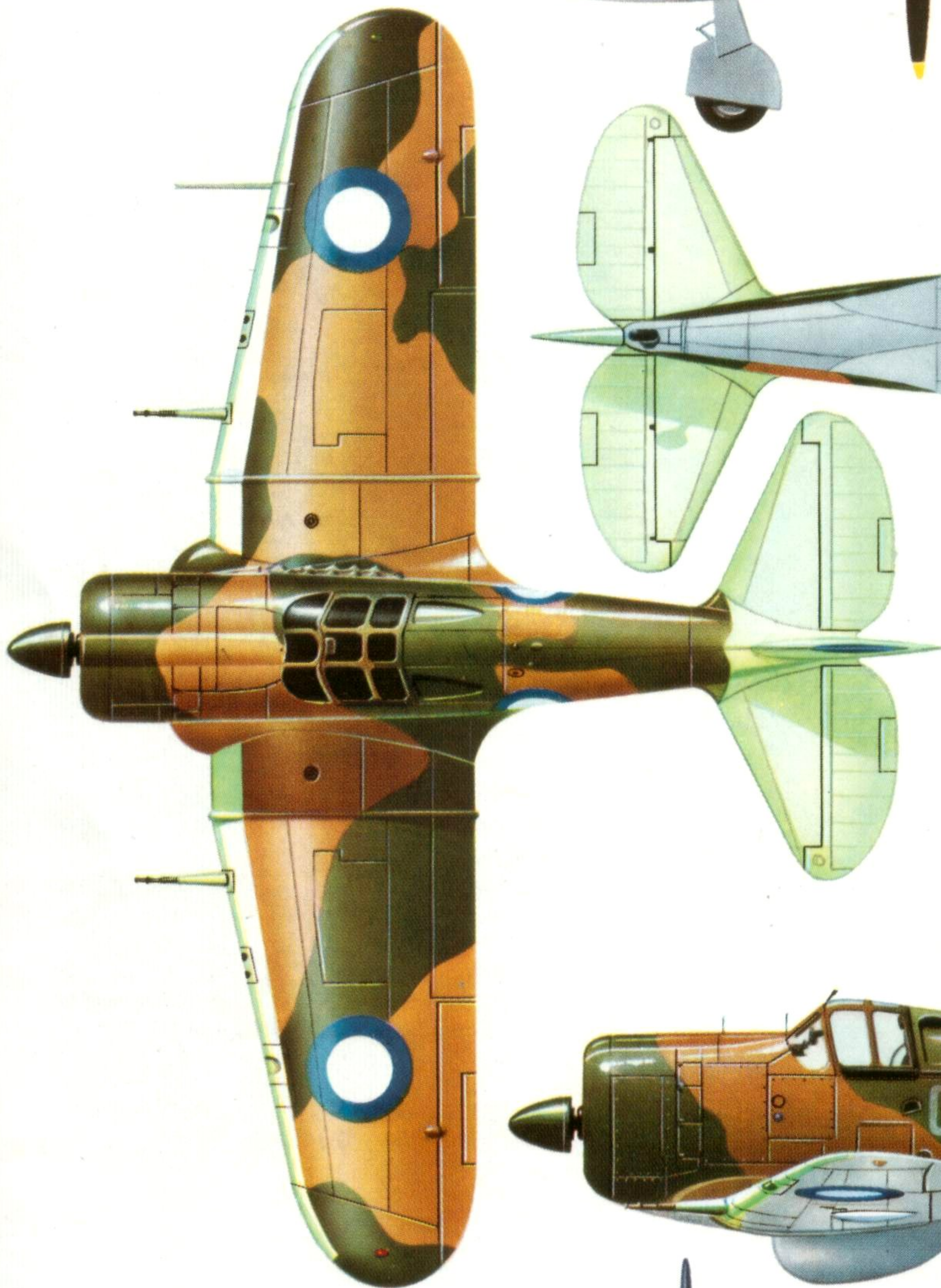
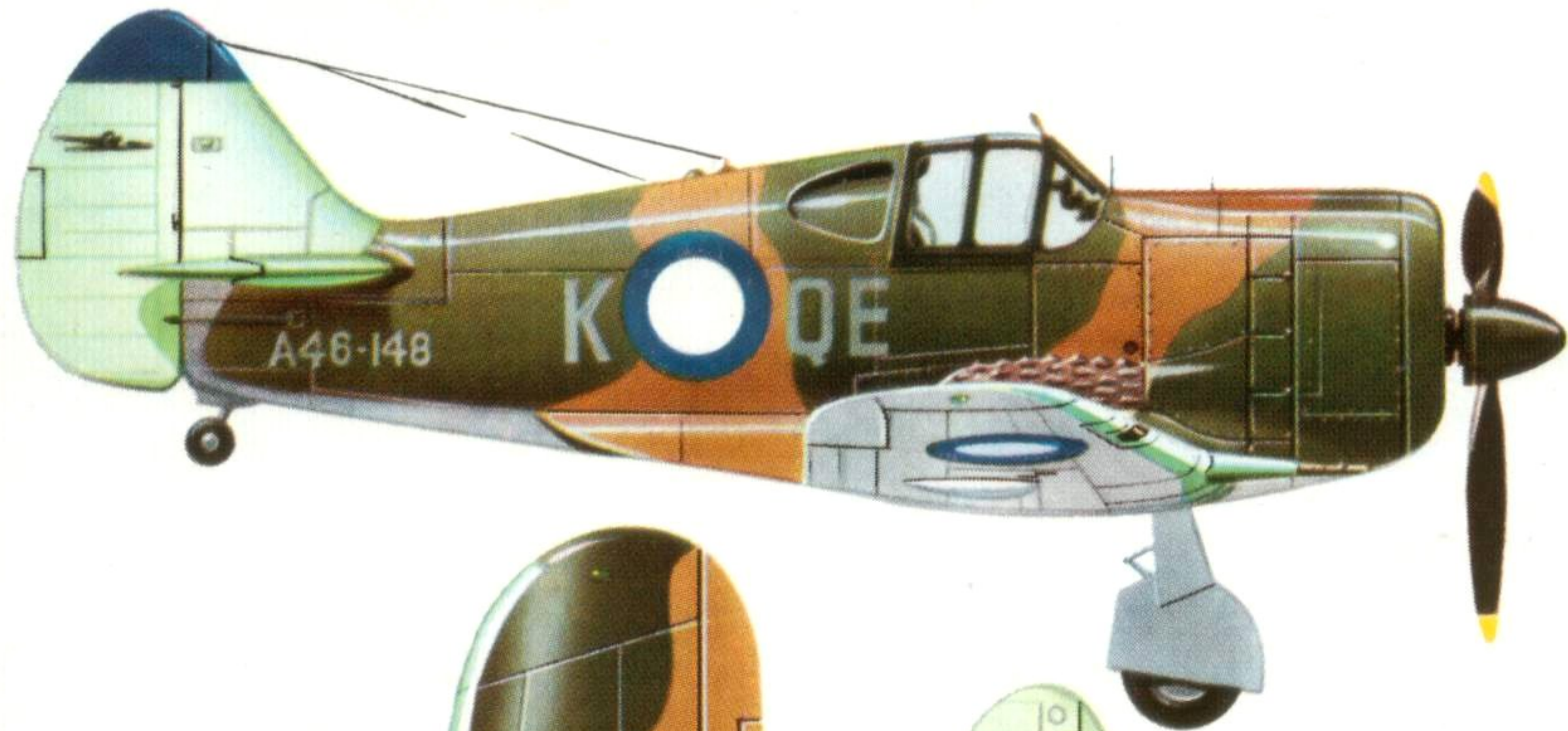
PROFILE PUBLICATIONS

The Commonwealth Boomerang

NUMBER

178

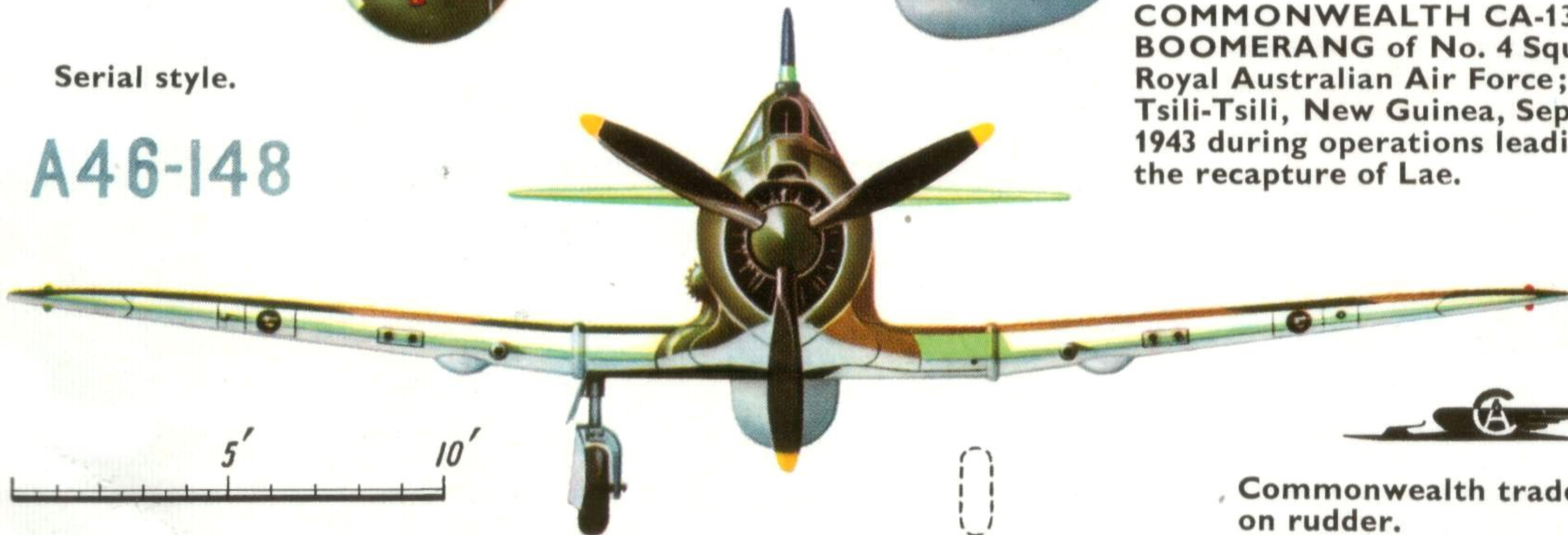




**COMMONWEALTH CA-13
BOOMERANG** of No. 4 Squadron,
Royal Australian Air Force; at
Tsili-Tsili, New Guinea, September
1943 during operations leading to
the recapture of Lae.

Serial style.

A46-148



Commonwealth trademark
on rudder.

The Commonwealth Boomerang

by Rene J. Francillon, Ph.D.

Flight Lieutenant A. W. Clarke, R.A.A.F., flying CA-13 A46-126 "Sinbad II" of No. 5 Squadron R.A.A.F. over Mareeba, Queensland on 15th March 1944. (Photo: R.A.A.F.)



"*A la guerre comme à la guerre*"; this might have been an appropriate motto for the Commonwealth Boomerang—the only aircraft of Australian design ever to fire its guns in anger—which was born from the sudden needs created by the war's impact on that young nation at a time when the Mother Country was bearing the brunt of the war effort in Europe and when the United States had not yet fully turned their gigantic industrial resources into the arsenal of the free world.

In the mid-thirties, when warlike preparations in Germany and Japan began arousing the attention of a few inspired leaders of the free world, Australia had no aircraft industry to speak of. In 1936, however, at the suggestion of the Commonwealth Government, three companies with long experience in overcoming the problems likely to be met in setting up such an industry banded together and formed a syndicate. The purpose of the syndicate was to discover to what extent it would be practical to develop a self-sufficient aircraft industry based on Australian raw materials and industrial facilities. On 17th October, 1936 the syndicate was registered in Victoria as the Commonwealth Aircraft Corporation Pty., Ltd. (C.A.C.). Whilst plans were being prepared for the erection of aircraft and engine factories and an engine test-house at Fisherman's Bend, Victoria, machine tools and equipment were purchased in the United Kingdom and the United States. As related in *Profile No. 154, "The Commonwealth Wirraway"*, a version of the North American NA-33 two-seat advanced trainer was selected for production, the first aircraft built by C.A.C. being Wirraway A20-1, which flew on 27th March, 1939.

With the entry of Japan into the war the Royal Australian Air Force found itself in a most precarious situation. Two of its squadrons and several hundred personnel were operating in England and the Mediterranean theatre whilst closer to home, in Malaya, the R.A.A.F. had two squadrons of Hudson bombers, one squadron of Wirraway general-purpose aircraft and one squadron of obsolescent Buffalo fighters. Aircraft available for operations in the Australian area and the Netherlands East Indies included 53 Hudson bombers, 101 Wirraway general-purpose aircraft, 12 Catalina flying-boats and 9 Seagull flying-boats;

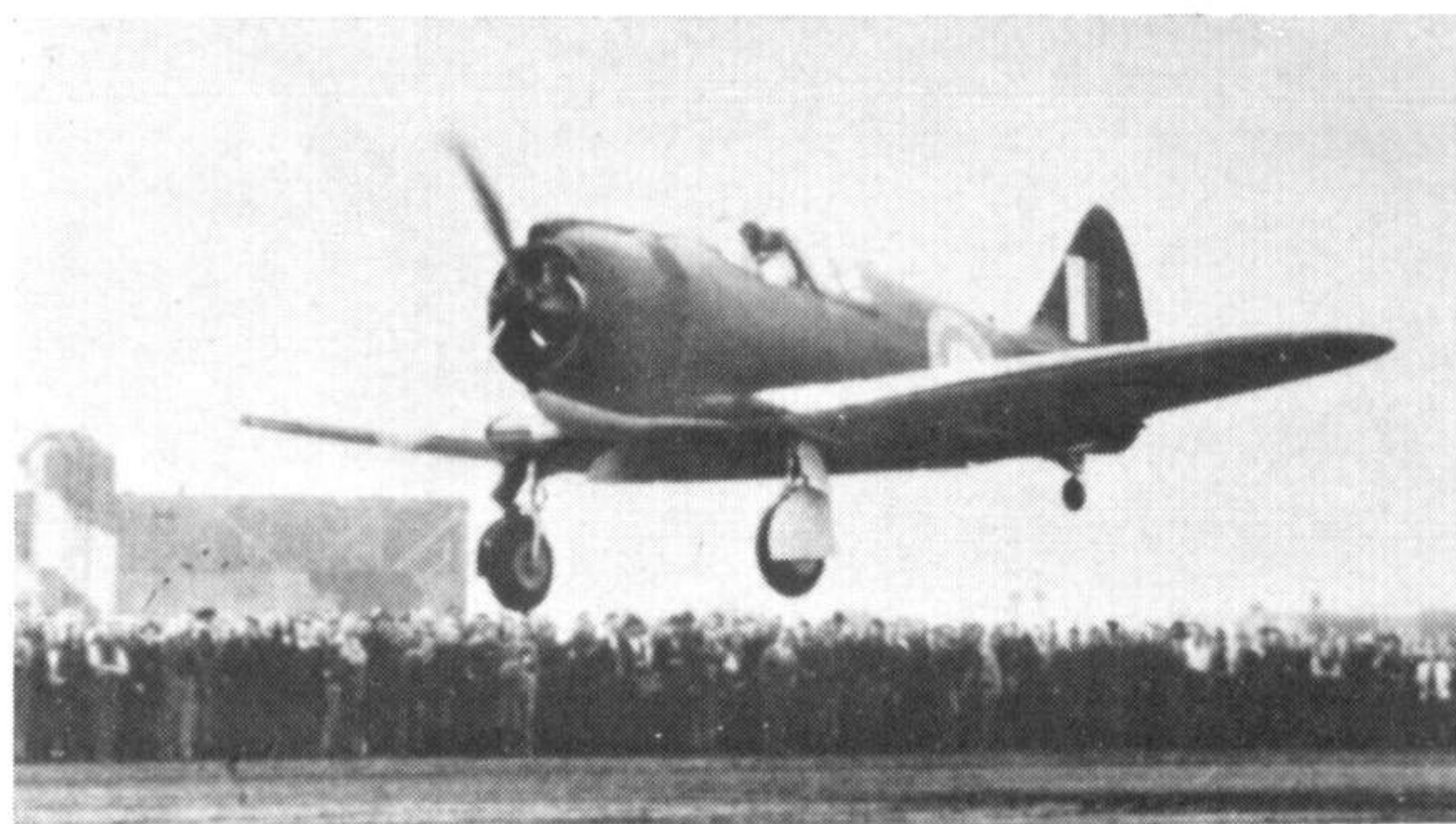
a total of 175 first-line aircraft. A further 306 training, transport and communication aircraft were in second-line units. But no fighter was on strength.

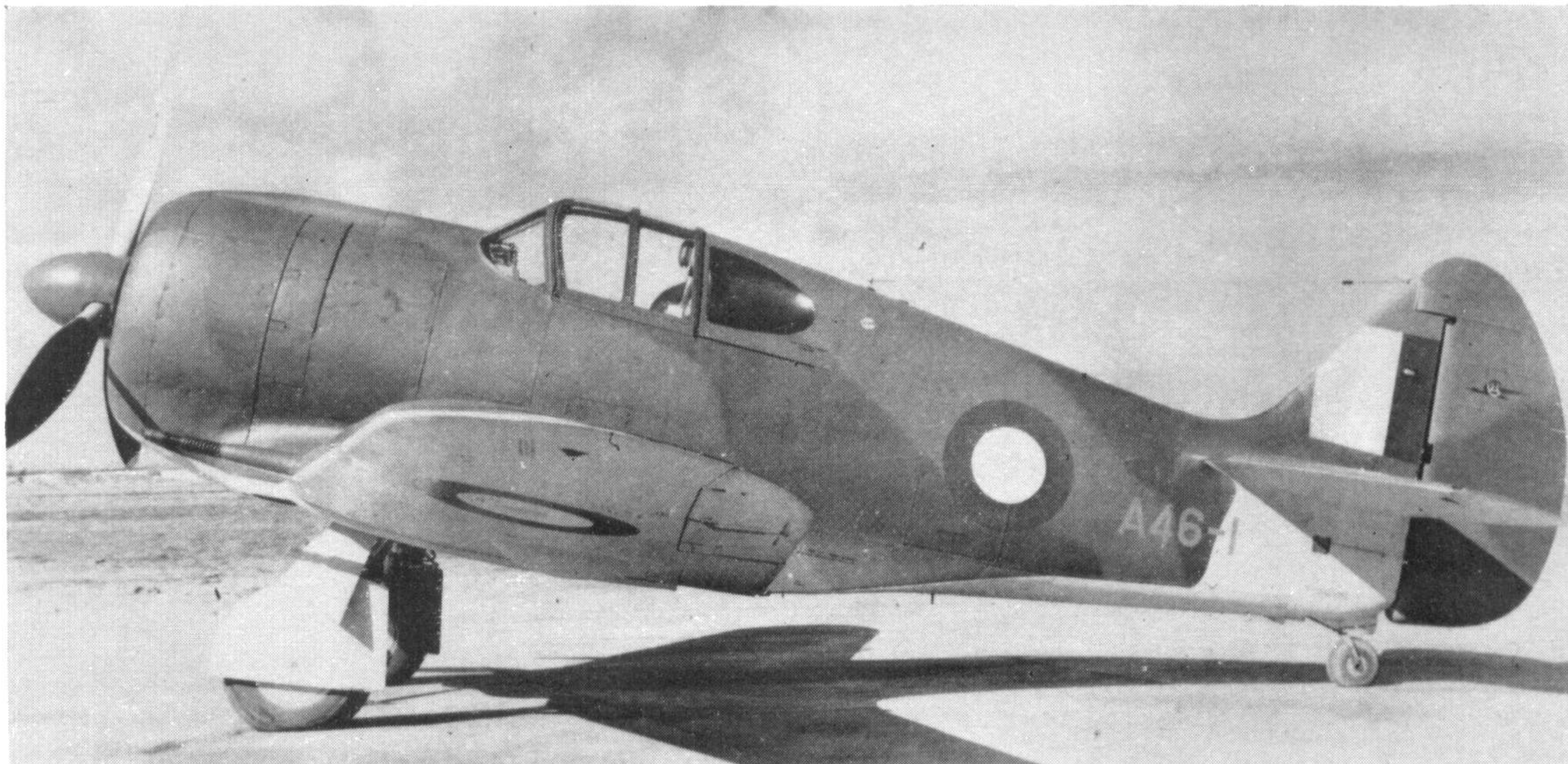
Except for the production of Bristol Beaufort torpedo-bombers and various training aircraft, Australia had relied on the U.K. and the U.S. to obtain modern aircraft to equip the R.A.A.F. The danger inherent in such a reliance on foreign supply had fortunately been foreseen by the staff of the Commonwealth Aircraft Corporation. Already in July, 1940, when Britain fought alone in Europe, the Australian Government had been advised that "from this date onwards Australia can rely on England for no further supplies of any aircraft materials or equipment of any kind". This embargo was relaxed three months later but the danger of such a situation occurring again remained.

With this in mind Wing Commander Lawrence Wackett, Manager and Chief Designer of C.A.C., began in the autumn of 1941 to study the possibility of producing in his company's plant a fighter aircraft of Australian design. Many experts were of the opinion that even the manufacturing under licence of complete aircraft was beyond the capacity of Australia but this did not deter Wg. Cdr. Wackett who merely decided to make use of what was already available in Australia. The licence under which the Commonwealth Aircraft Corporation was authorized to

The first prototype, A46-1, taking off on its maiden flight at Fisherman's Bend on 29th May 1942. Note original type of cowlings and absence of spinner or armament.

(Photo: Australian War Memorial)





A46-1 after modification to full production standard; the aircraft later served with No. 2 O.T.U. before crashing on 21st March 1946. It has been pointed out that in this photograph, the shadow of the aircraft fittingly resembles the deadly weapon from which the fighter took its name. (Photo: R.A.A.F.)

manufacture the North American NA-33 contained a clause providing that modifications could, if desired, be made in the design and consequently Wackett decided to design his fighter aircraft around the Wirraway structure. By so doing design and manufacturing time could be reduced to a minimum and little additional tooling would be required, whilst the

aircraft was assured of being easy to fly, highly manoeuvrable and sturdy like its forerunner. The projected fighter was to be powered by the 1,200 h.p. Pratt & Whitney R-1830 S3C4-G fourteen-cylinder Twin Wasp radial already in production for the Beaufort bombers in the engine factory of C.A.C. at Lidcombe, New South Wales.

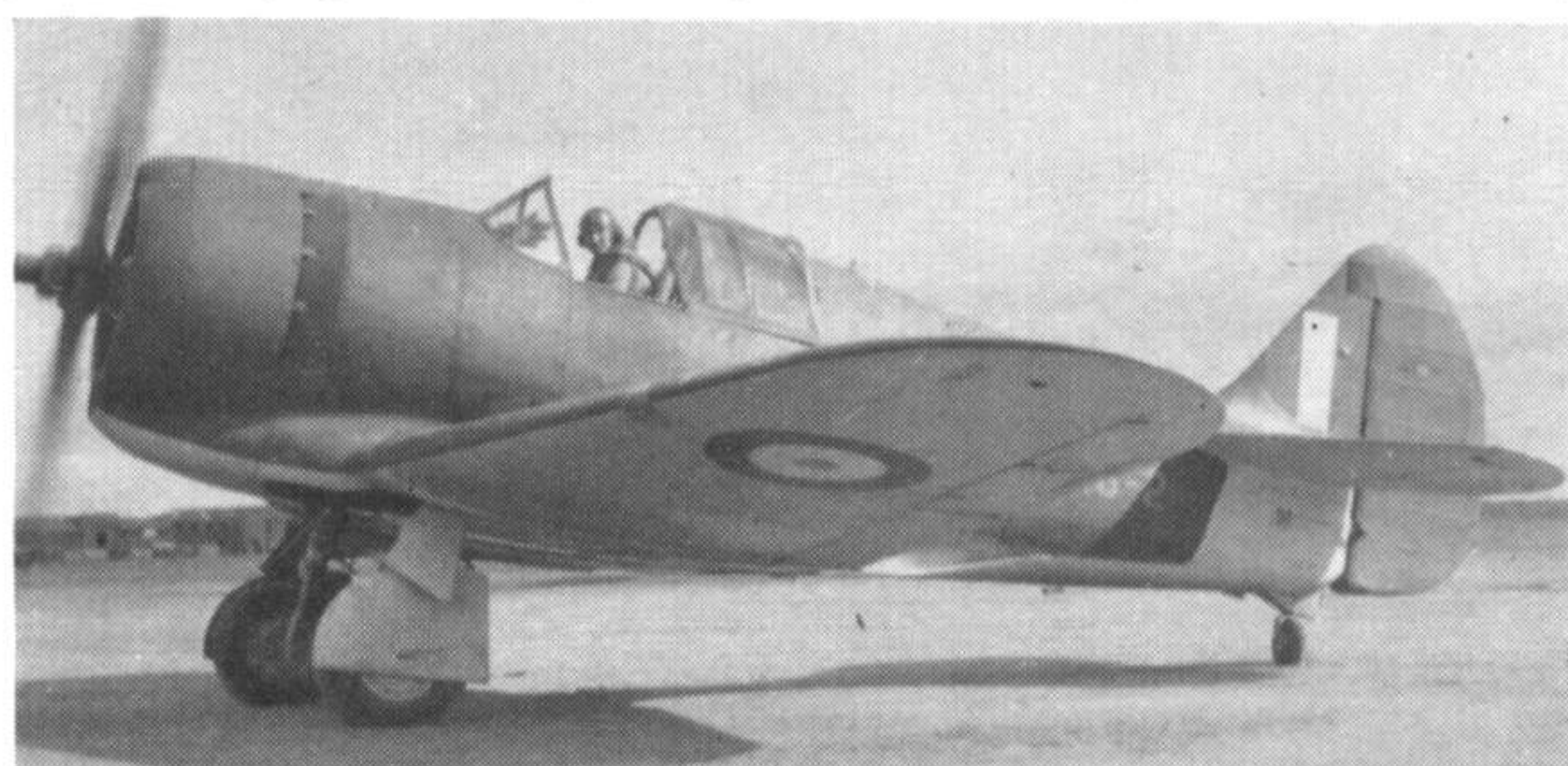
On 21st December, 1941 the C.A.C. management gave authority to proceed with the detailed design of the fighter aircraft. At this point it is interesting to note that, although Wg. Cdr. Wackett was probably aware of the development by North American Aviation Inc. of two similar fighter aircraft—the NA-50 for Peru and the NA-68 for Siam—no help was solicited from or given by the designers of the NA-33. The CA-12, as Wackett's design was designated, made use of the wing, tail assembly, undercarriage and centre section of the Wirraway matched to a new forward fuselage housing the larger engine. A new single-seat cockpit with sliding hood was fitted and armament consisted of two 20 mm. Hispano cannons and four .303 in. machine guns all mounted in the wing. The proposal was presented to the Commonwealth Government which quickly gave its approval. There were three main reasons for supporting this proposal. The first was a recognition of the need for some insurance against the possibility that deliveries of Curtiss P-40's ordered in the United States might be seriously interrupted or prevented. The second was that, with the Wirraway programme now regarded as complete, C.A.C. needed a project to occupy their 2,000 skilled workers until the CA-11 twin-engined dive bomber was ready for production. The third reason submitted in support of the new fighter proposal was the ready availability of Wirraway parts and materials. Production of this aircraft could begin almost immediately and a delivery rate of ten aircraft per month was anticipated within a year. Consequently, on 18th February, 1942, the War Cabinet authorized an order for 105 CA-12's. Soon afterwards the name Boomerang was adopted for the aircraft.

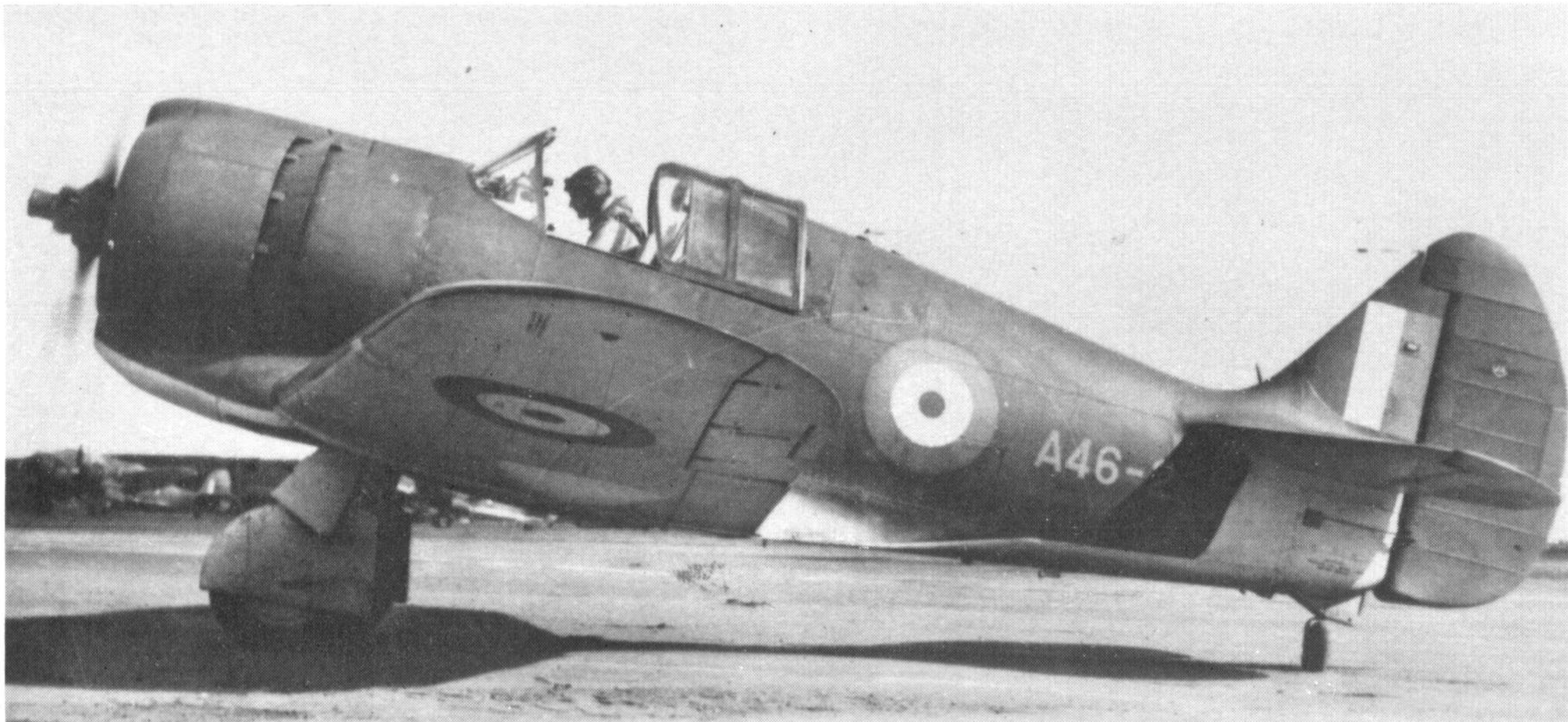


The designer of the Boomerang, Wg. Cdr. L. J. Wackett, congratulating test pilot Ken Frewin.

(Photo: Australian War Memorial)

A46-2, like the first prototype, was originally fitted with an external lower cowling air intake. It is seen here warming up for a test flight at the factory. (Photo: R.A.A.F.)





Another view of A46-2 preparing for a test flight.

(Photo: Australian War Memorial)

BOOMERANGS IN THE SKY

When completed in May 1942, the first CA-12 (identification number A46-1, see note below) was characterized by a stubby appearance resulting from the installation of a much larger engine in what was essentially a Wirraway structure. The engine was closely cowled with two air scoops, one above for the carburettor and one below for the oil cooler, and drove a de Havilland three-blade propeller without spinner. With test pilot Ken Frewin at the controls, A46-1 made its first flight at Fisherman's Bend, Victoria, on 29th May 1942. The use of many Wirraway components had made the completion of the prototype possible within a mere three months of receipt of the authorization to proceed. Indeed the achievement was quite remarkable. Despite the haste with which the aircraft had been built, test flying went on

smoothly, the CA-12 proving easy to handle and highly manoeuvrable. The only major difficulty experienced was with engine cooling and, starting with A46-3, the oil cooler intake was incorporated within the lower lip of the cowl and a propeller spinner was added. The first two aircraft were brought up to the same standard and, following completion of the flight trial programme, they were delivered to No. 2 Operational Training Unit.

NOTE: On 12th August, 1921, shortly after the Royal Australian Air Force came into being, the Air Board's agenda No. 121 provided that a distinctive system of numbering be adopted by the R.A.A.F. This agenda was followed by the R.A.A.F. Technical Orders Nos. 1 to 20, 1921, specifying that aeroplanes would receive an identification number preceded by the letter "A". The first series of digits identified the aircraft type whilst the second series of digits served as a sequence number. A first series of "A" numbers was used from 1921 to 1935 and included twelve different types of aircraft (A1- to A12-). A second

This view of A46-3 clearly shows the straight-through exhaust characteristic of the CA-12. (Photo: Australian War Memorial)





A formation of Boomerangs from No. 2 O.T.U. in flight near Mildura. The large numerals paralleled the individual aircraft serial numbers. (Photo: C.A.C. Pty. Ltd.)

series was introduced in 1935 with A1, identifying the Hawker Demon fighters, and ended with A100, identifying the D.H.C. Otter utility aircraft. A third "A" series, still in use, was introduced in 1961 and began again with A1 which this time identifies Bell Sioux helicopters. Thus A46-1 indicated that the aircraft bearing it was the first machine of the 46th type of aircraft—the Commonwealth Boomerang—in the second "A" series.

Flight tests proved that the aircraft had remarkable performances and, in particular, a rate of climb of 2,940 ft. per minute was demonstrated. However, since the maximum speed of the aircraft was only slightly superior to that of the Buffalo, an aircraft which had not achieved much success against Japanese fighter aircraft in Malaya, there was naturally some hesitation on the part of the Government and comparative trials between the first Boomerang, a Kittyhawk (Curtiss P-40E) and an Airacobra (Bell P-39D) were arranged by the Department of Air. Comparative performance figures and an excerpt of the trial report, published in "*Australia in the War of 1939-1945, The Rôle of Science and Industry*" edited by the Australian War Memorial are quoted:

Performance in level speed (m.p.h.)

Altitude(ft.)	Boomerang	Kittyhawk	Airacobra
S.L.	260	280	315
5,000	280	300	340
10,000	295	320	360
15,000	295	315	360
20,000	300	310	330
25,000	285	295	325
30,000	260	275	310

Performance in climb (ft. per minute)

S.L.	2,500	1,850	2,000
5,000	2,500	1,850	2,000
10,000	2,300	1,850	2,000
15,000	2,080	1,400	1,550
20,000	1,550	1,000	1,100
25,000	1,050	550	650
30,000	500	150	200
Service ceiling (ft.)			
	34,000	30,500	31,500

"At 10,000 feet, the Boomerang is more manoeuvrable than the Kittyhawk and can turn inside it. The Kittyhawk's speed advantage is not sufficient for it to dictate the type of combat and, although it gains more in a dive, the Boomerang's greater manoeuvrability with pull out and superior climb finds it level with the Kittyhawk at the top of the ensuing zoom. The Kittyhawk's only manoeuvre is to dive through a great height and break off the combat; the speed advantage is not sufficient for it to fly away at the same height without becoming vulnerable once combat is joined with the Boomerang.

The Airacobra has a greater speed advantage over the Boomerang than has the Kittyhawk but is outmanoeuvred at the same height in concentric attack (turning circles). When first attempted the Airacobra was able to dictate terms of combat to the Boomerang by its superiority in dive and zoom which allowed it to gain the extra height necessary

QE-F, serial A46-117, a CA-13 of No. 4 Squadron R.A.A.F. over the Ramu Valley in January 1944. The sight of the Boomerangs boring through the jungle valleys at tree-top height, strafing and marking Japanese positions for the circling fighter-bombers, brought encouragement and relief to many isolated Allied units in the savage island campaigns.

(Photo: Australian War Memorial)



to deliver an attack from above. Later this advantage was not so apparent and this was thought to be due to the pilot becoming more familiar with the Boomerang."

The performances of the CA-12 appeared even more impressive when compared to that of the NA-68, a similar—but unrelated—single-seat fighter aircraft developed by North American Aviation Inc. from their two-seat advanced trainer series. Powered by a 875 h.p. Wright R-1820-77 and armed with two 20 mm. cannons and two .303 in. machine guns, the NA-68 had a maximum speed of only 270 m.p.h. at 8,700 ft.

Production of the 105 CA-12s (A46-1 to A46-105) under the original contract was completed in June 1943. Several modifications were made to the aircraft either on the assembly line or at operational bases, including strengthening of belly tank locating pins and of the spinner back plates, and were aimed at correcting minor difficulties experienced in the field. Starting with the 36th aircraft (A46-36), night flying identification lights were installed under the wing centre section offset to starboard, and the 94th and subsequent aircraft had a revised electrical starter system. One aircraft, A46-103, was modified to flight test the revised centre section leading edge used on the experimental CA-14 and CA-14A and the square fin and rudder adapted for the CA-14A. The sole surviving Boomerang is a CA-12, identification number A46-30.

THE CA-12 BOOMERANG DESCRIBED

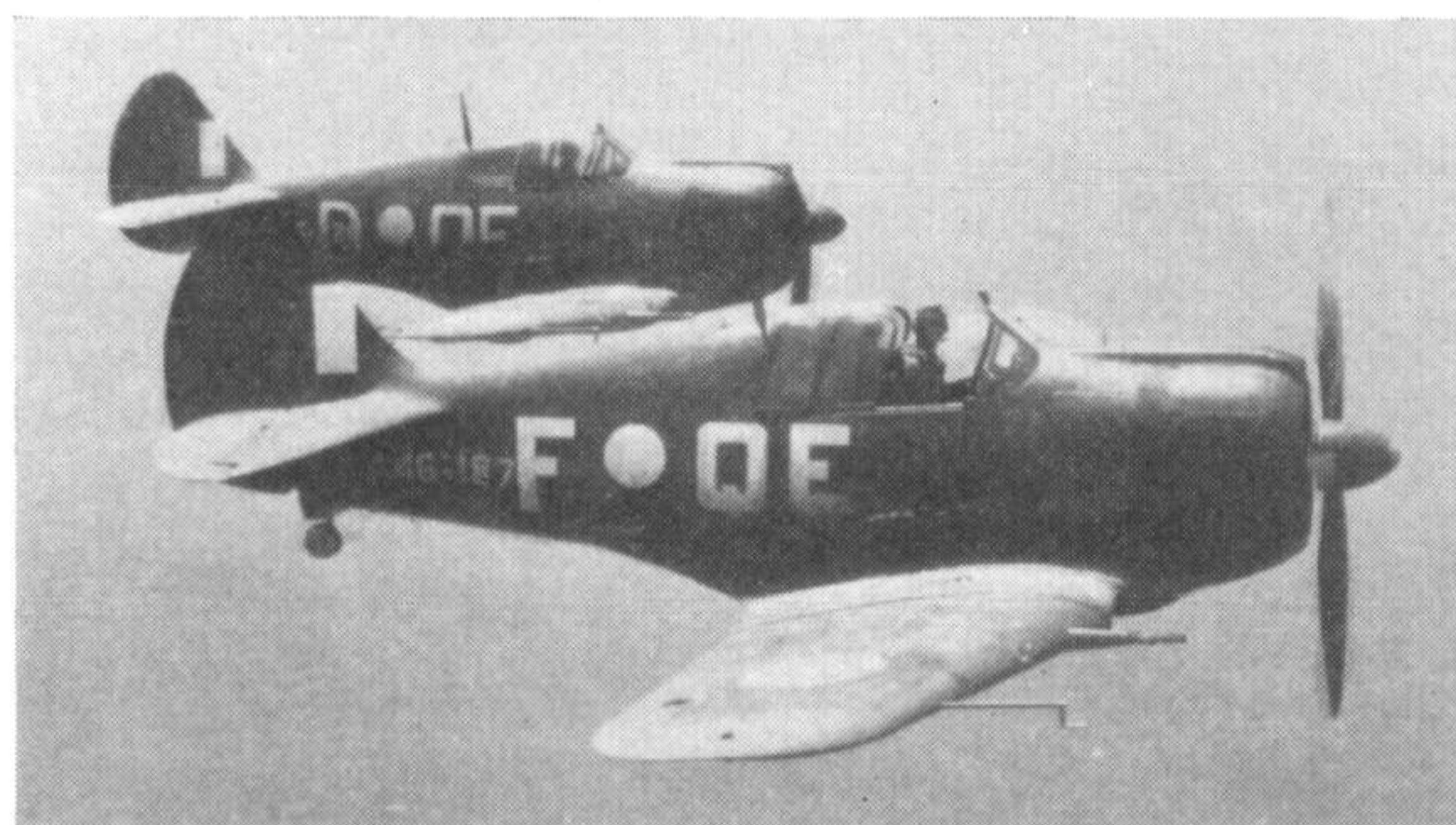
Type: Single-seat fighter monoplane.

Fuselage: Welded chrome-molybdenum steel tube framework with integrally welded fittings. Plywood rear fuselage side and top fairings fitted over wooden formers and stringers. Monocoque bottom fuselage fairing. Pilot's cockpit over centre of the wing provided with a sliding canopy, 1½ in. bullet-proof glass windscreen and armour protection. Tubular truss turnover pylon behind the pilot's seat.

Wings: Low-wing cantilever monoplane. In five sections consisting of centre-section, two outer sections and two detachable wing-tips. Constant thickness centre-section with leading edge extending forward to form the wheel wells. Outer sections with swept-back leading edge and straight trailing edge and taper in thickness. Single-spar structure with stressed-skin covering. Fabric covered ailerons with aluminium alloy trim tabs. Split trailing edge flap between ailerons and under fuselage.

Tail Unit: Cantilever monoplane type. Fixed surfaces metal-covered and movable surfaces fabric-covered. Aluminium trim tabs provided on all movable surfaces.

Undercarriage: Hydraulically operated inwardly retractable main undercarriage with the wheel wells

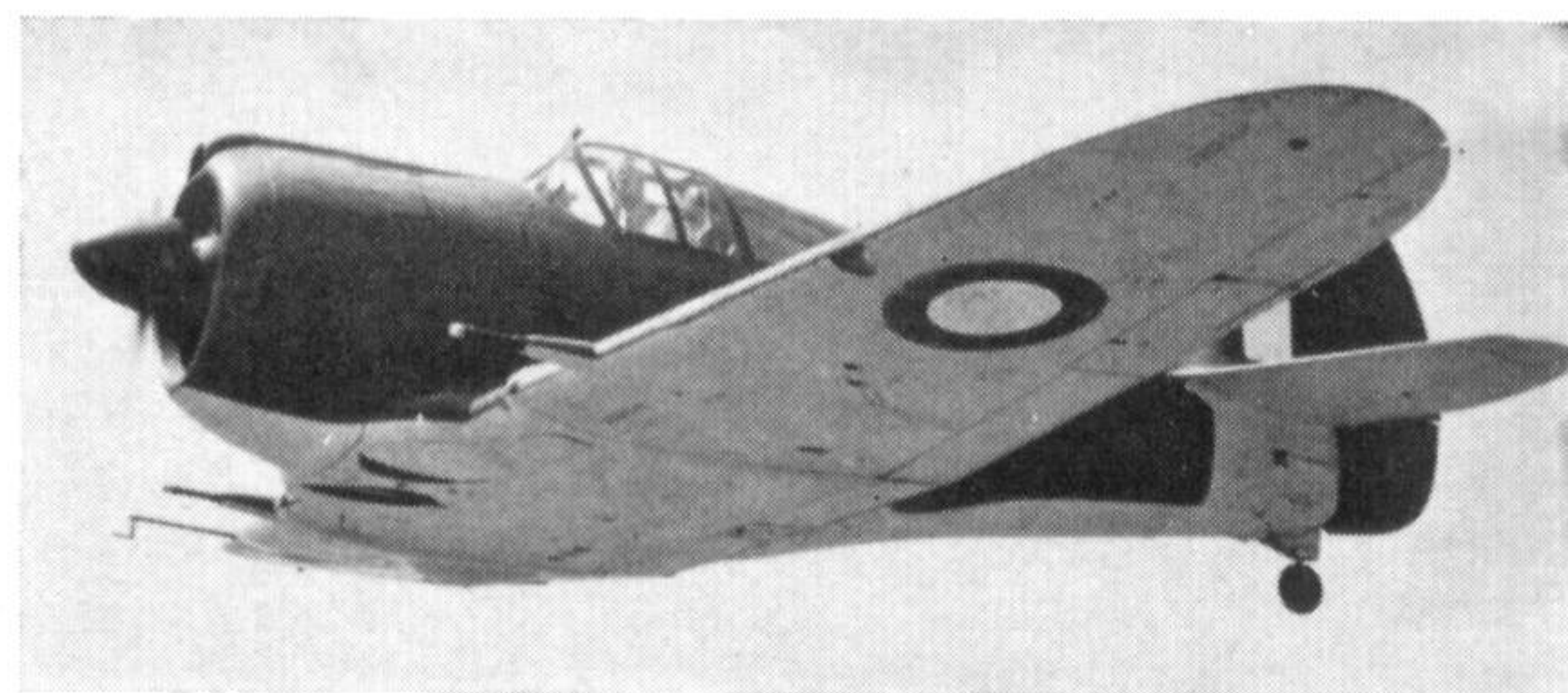


Two Boomerangs from No. 4 Sqn. R.A.A.F. photographed from a Dakota on 30th August 1945. Note that A46-187 had replaced A46-117 as QE-F by this date.

(Photo: Australian War Memorial)

The stubby lines of the Boomerang are shown to good effect in this view of a CA-19.

(Photo: Australian War Memorial)



forward of the main spar. Non-retractable free-swivelling tail wheel.

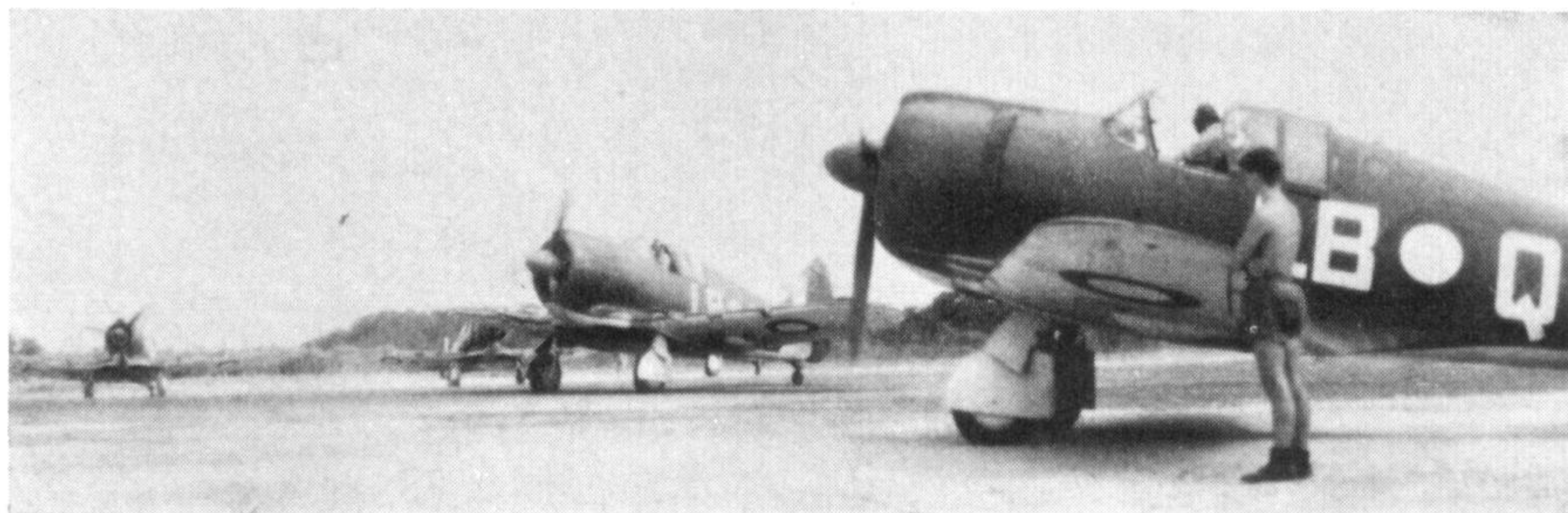
Armament: Two Hispano Mk. II or C.A.C.-built 20 mm. cannons with 60 r.p.g. and four .303 in. Browning Mk. II machine guns with 1,000 r.p.g. all mounted in the wings. One Type G45 camera gun installed in the port wing leading edge outboard of the landing light. Provision for four 20 lb. smoke bombs under the wing centre section. Reflector gun sight with alternative ring and bead sight.

Power Plant: One C.A.C.-built 1,200 h.p. Pratt & Whitney R-1830 S3C4-G Twin Wasp fourteen-cylinder radial air-cooled engine. Take-off rating: 1,200 h.p. at 2,700 r.p.m. Military rating: 1,200 h.p. at 2,700 r.p.m. and 4,900 ft. and 13,100 ft. Maximum rating: 1,100 h.p. at 2,550 r.p.m. and 6,200 ft.; 1,000 h.p. at 2,550 r.p.m. and 12,500 ft. Three-blade Hamilton 3T50 constant-speed metal propeller. Oil tank mounted in the engine compartment ahead of the firewall had an oil capacity of 14 Imp. gallons.

Fuel System: One 70 Imp. gallon fuselage self-sealing petrol tank and two 45-imp. gallon tanks in the wing centre-section. A 70-imp. gallon plywood drop tank could be carried under the fuselage if required. Total petrol tank capacity: 230 Imp. gallons.

CA-12's from No. 84 Sqn. at Horn Island in 1943.

(Photo: Australian War Memorial)



BOOMERANG VARIANTS

When difficulties were encountered in the development of the Commonwealth CA-11 Woomera twin-engined bomber and production of the type appeared doubtful (the production contract for the CA-11 was eventually cancelled in September, 1944), the production contract for the Boomerang was amended to cover 250 machines. Following the manufacturing of the 105 CA-12s covered by the original contract, C.A.C. built an additional 145 Boomerangs in four versions.

CA-13: Second production batch of 95 aircraft (A46-106 to A46-200). The Twin Wasp S3C4-G was retained but its straight-through exhaust pipe was replaced by a flame-damper exhaust similar to the one used on the Australian Beaufort bombers to reduce glare during night operations. Various minor modifications were incorporated and included the replacement of the fabric covered ailerons by aluminium covered units, the change from metal covered wing-tips to wooden wing-tips, and a revised electrical system incorporating a more powerful generator. Changes in the cockpit included the switch from a light alloy pilot's seat to one made of laminated wood and the fitting of an improved control column grip handle. Mechanical cocking of the guns on the ground replaced the in-flight hydraulic cocking system fitted on the CA-12 as the type had proven prone to gun failures. During their operational life many CA-13's were modified and A46-121 (QE-D) was fitted by ground crews of No. 4 Squadron, R.A.A.F., with a modified belly tank housing two cameras for low-altitude vertical and oblique photography. During the take-off the camera lenses were protected by a piece of cardboard which was removed in flight by means of a string leading in the cockpit. A46-157 was modified by No. 1 A.P.U. (Aircraft Performance Unit) to test the cooling fan system used on the CA-14A and 18 in. Dunlop solid tyres whilst another CA-13 was modified by this same unit to take two seats; the second position was placed inside the fuselage behind the pilot and was used by an observer to record instrument and performance data.

CA-19: Third and last production batch of 49 aircraft (A46-201 to A46-249). The CA-19 differed from earlier Boomerang versions only in minor internal details. Treaded tyres, first used on some CA-13s, were standardized. Commencing with A46-211, provision was made in the rear fuselage for a Fairchild F24 camera. The last Boomerang built, the CA-19 A46-249, was delivered in February, 1945.

THE SUPERCHARGED BOOMERANG

Even though the performances of the Boomerang had exceeded expectations and were indeed remarkable for a stop-gap fighter designed and built in such a short time, it still remained obvious that the aircraft

Four CA-12's from No. 5 Sqn., R.A.A.F.

(Photo: Australian War Memorial)



Line-up of Boomerang and Wirraway aircraft of No. 5 Sqn. at Mareeba, Queensland, on 21st July 1944.

(Photo: Australian War Memorial)



was somewhat slower than contemporary Japanese fighter aircraft and much slower than the British and American fighter aircraft which reached the Pacific theatre in late 1942 and early 1943. In particular the Boomerang lacked high altitude performances which were mandatory in its planned use as an interceptor fighter. Consequently it was decided to fit a General Electric turbo-supercharger procured in the United States on an experimental aircraft. Despite the compactness of the Boomerang's fuselage, the bulky turbo-supercharger was mounted in the rear fuselage. A large air intake was mounted on the port fuselage side behind the cockpit, the modified wing leading edge centre-section tested on A46-103 was selected to reduce drag and the area of the vertical fin was increased. The engine drove a three-blade Curtiss electric controllable pitch propeller.

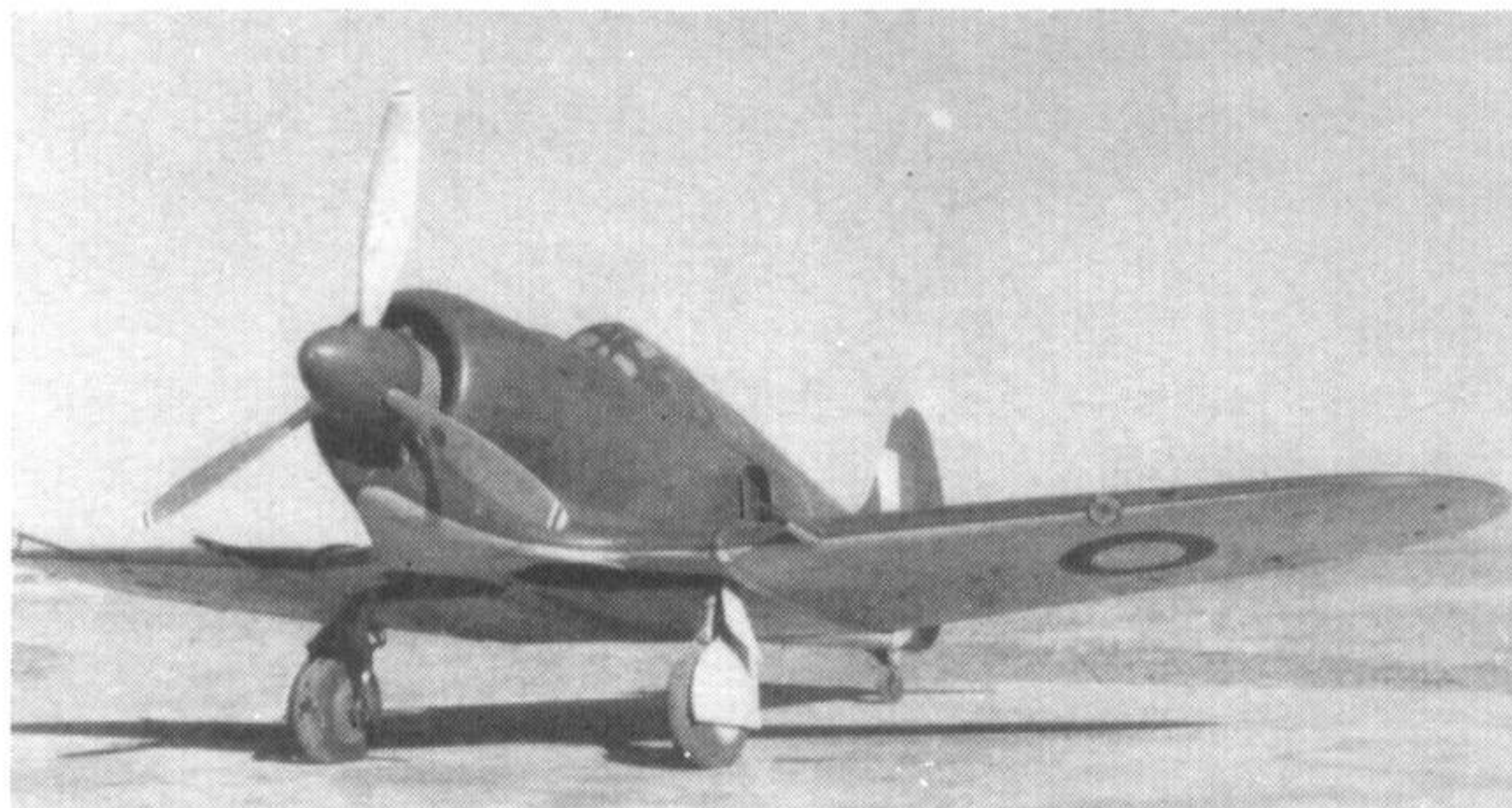
Tests with the sole prototype CA-14, identification number A46-1001, revealed a marked improvement in performance at altitude but the aircraft suffered considerable buffeting due to the large air intake. The aircraft was then returned to C.A.C. for modification. The air intake for the turbo-supercharger was replaced by a streamlined air duct on the port side between the supercharger and the cleaned-up cowling now incorporating the 18-blade cooling fan previously tested on A46-157. The propeller was changed for a three-blade variable pitch de Havilland unit and the vertical surfaces were replaced with the square fin and rudder which had been tested on A46-103. Delivered to No. 1 A.P.U. in June, 1944, the CA-14A, as the modified prototype was designated, reached a maximum speed of 348 m.p.h. at 28,000 ft. However, by that time the R.A.A.F. was receiving a substantial number of Spitfire F.VIII's with a maximum speed of 408 m.p.h. at 25,000 ft. and the Boomerang had been relegated to ground-support duty. Consequently, the turbo-supercharged CA-14 and CA-14A remained a one-off aircraft.

BOOMERANGS AT WAR

On the 10th October 1942, No. 2 Operational Training Unit at Mildura, Victoria, received its first CA-12 and immediately began training Boomerang pilots. Most of these pilots had no previous operational experience and although they had received their training on Wirraway aircraft many ran into troubles when first being acquainted with the Boomerang. The fitting of a much larger engine on what was still basically a Wirraway airframe had resulted in poor forward visibility on the ground and young pilots had difficulty in controlling propeller torque with discriminate use of brakes and rudder. Experiences acquired at No. 2 O.T.U. also dictated the re-positioning of the reflector gun sight to improve pilot vision. But by and large the Boomerang was considered a successful aircraft, except for engine overheating which necessitated flying the aircraft with gills partly open with a resultant reduction in speed. Modification of the engine mounting and fitting of heavier backplates corrected this problem.

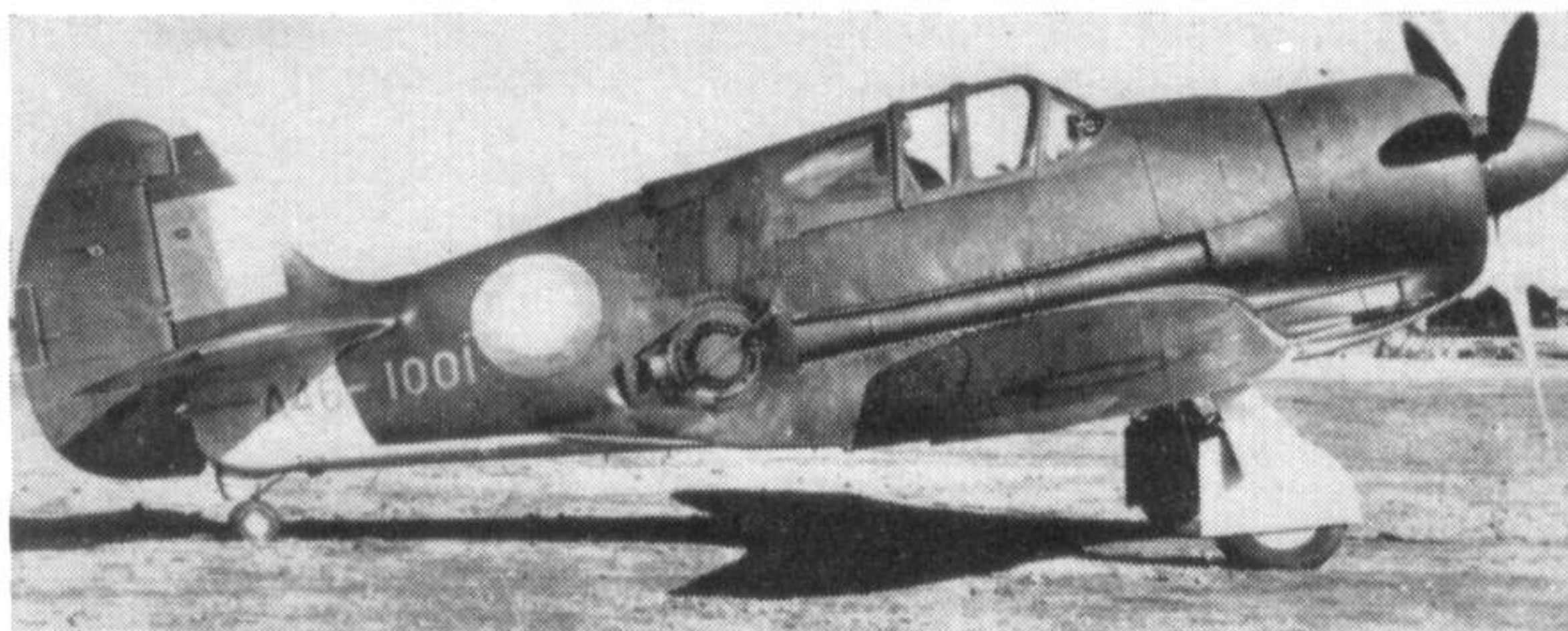
While in early 1943 the Allies prepared a limited offensive in New Guinea, conflicting intelligence reports indicated that the Japanese were strengthening their forces for an attack either on the southern coast of Dutch New Guinea or on Northern Australia. The Imperial Japanese Army had the 5th and 48th Divisions supported by the 7th *Hikoshidan* (Air Division) in the Arafura Sea-Timor area and the Imperial Japanese Navy had its 23rd *Koku Sentai*

(Air Flotilla) based in the same sector. The Allied General Headquarters estimated that the Japanese had a total of 334 aircraft available for deployment in the north-western area of Australia. Many in Australia, including the Commonwealth Government, feared that the Japanese would attempt an invasion. Such was the military situation in Australia when the Boomerang began to reach operational squadrons. No. 84 Squadron, R.A.A.F., at Richmond, New South Wales, received its first aircraft on 2nd March,



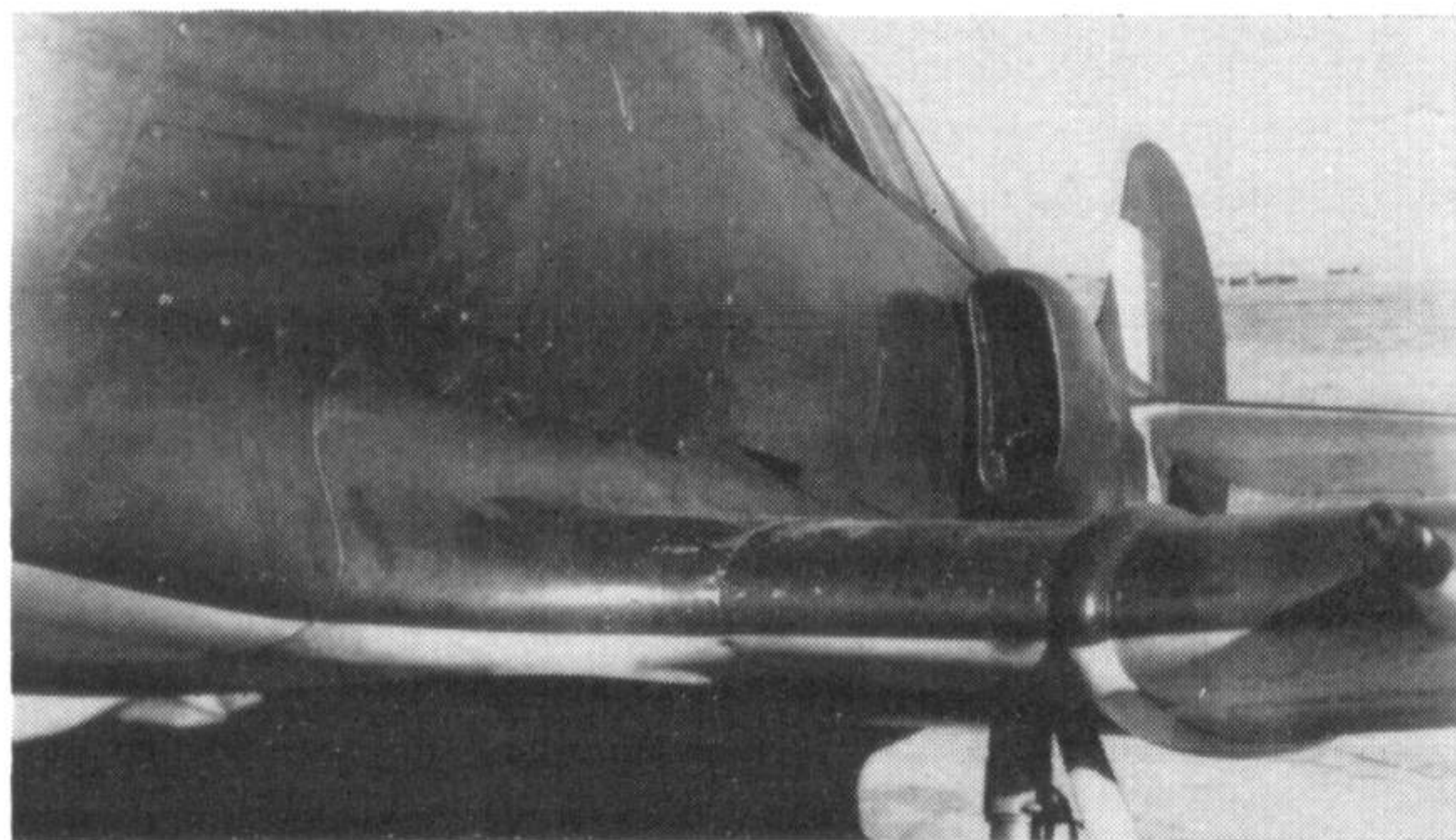
This front view of A46-1001 shows the constant-sweep wing leading edge and enlarged tail area.

(Photo: C.A.C. Pty. Ltd.)



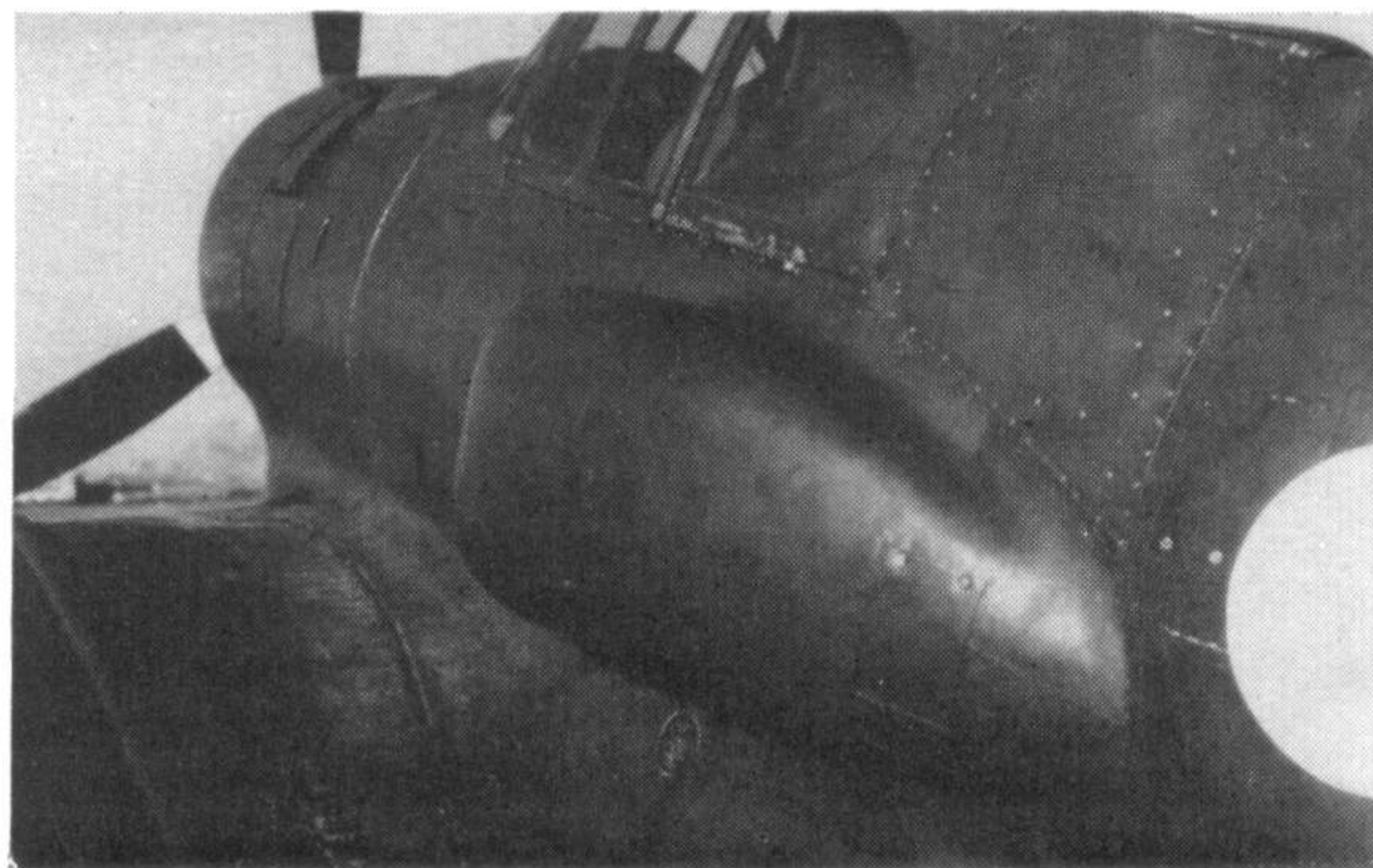
Starboard view of A46-1001, the only CA-14 built, showing installation of General Electric turbo-supercharger.

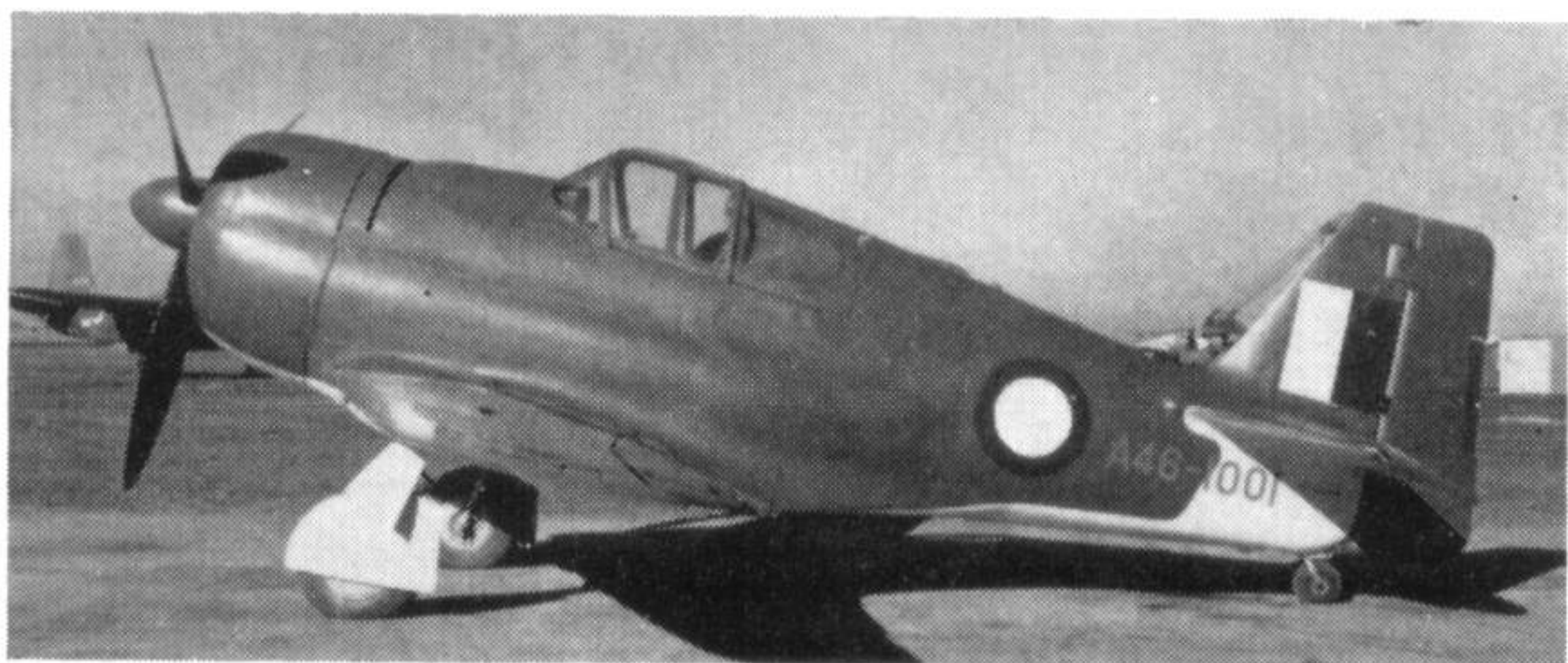
(Photo: R.A.A.F.)



(Above and below) Port-side views of A46-1001 showing the turbo-supercharger air intake.

(Photos: C.A.C. Pty. Ltd.)





The CA-14A configuration; A46-1001 with new vertical tail and intake position.
(Photo: C.A.C. Pty. Ltd.)

1943 and was declared operational on 4th April. Within ten days the squadron was ordered to proceed to Horn Island where it was to provide patrols of Boomerang aircraft over Merauke, New Guinea. Merauke was 180 nautical miles from Horn Island, and because of their limited range the Boomerangs could remain over Merauke only for an hour during each sortie. In addition No. 84 Squadron was to provide cover for all shipping within a radius of 20 miles of Merauke. The Boomerangs continued their patrols without incident until 16th May when they made their first interception of enemy aircraft. Two Boomerangs piloted by Flying Officer Johnstone and Sergeant Stammer saw three "Betty" bombers and opened fire, pressing the attack to within 250 yards. The guns of one Boomerang failed to fire, but the other fired a one-and-a-half second burst. The enemy replied with fire from the turret and tail guns without hitting the Boomerang and then withdrew into clouds. Standing air patrols continued uneventfully during the summer and in October 1943 No. 84 Squadron was re-equipped with Kittyhawks. No. 85 Squadron, R.A.A.F., was the second unit to receive Boomerangs and was declared operational at Guildford, Western Australia, on 9th May 1943; until disbanded in January, 1945, this squadron provided air defence to submarine bases in Western Australia. No. 83 Squadron, R.A.A.F., officially declared operational on 16th September, 1943 but actually ready only in December performed similar duty and provided escort to shipping convoys until the end of the war. Such was the operational career of the Boomerang in its intended rôle and, although its use made it possible to release squadrons with faster aircraft for front-line service, the Boomerang would have been forgotten if it was not for its use by Army co-operation squadrons. Royal Australian

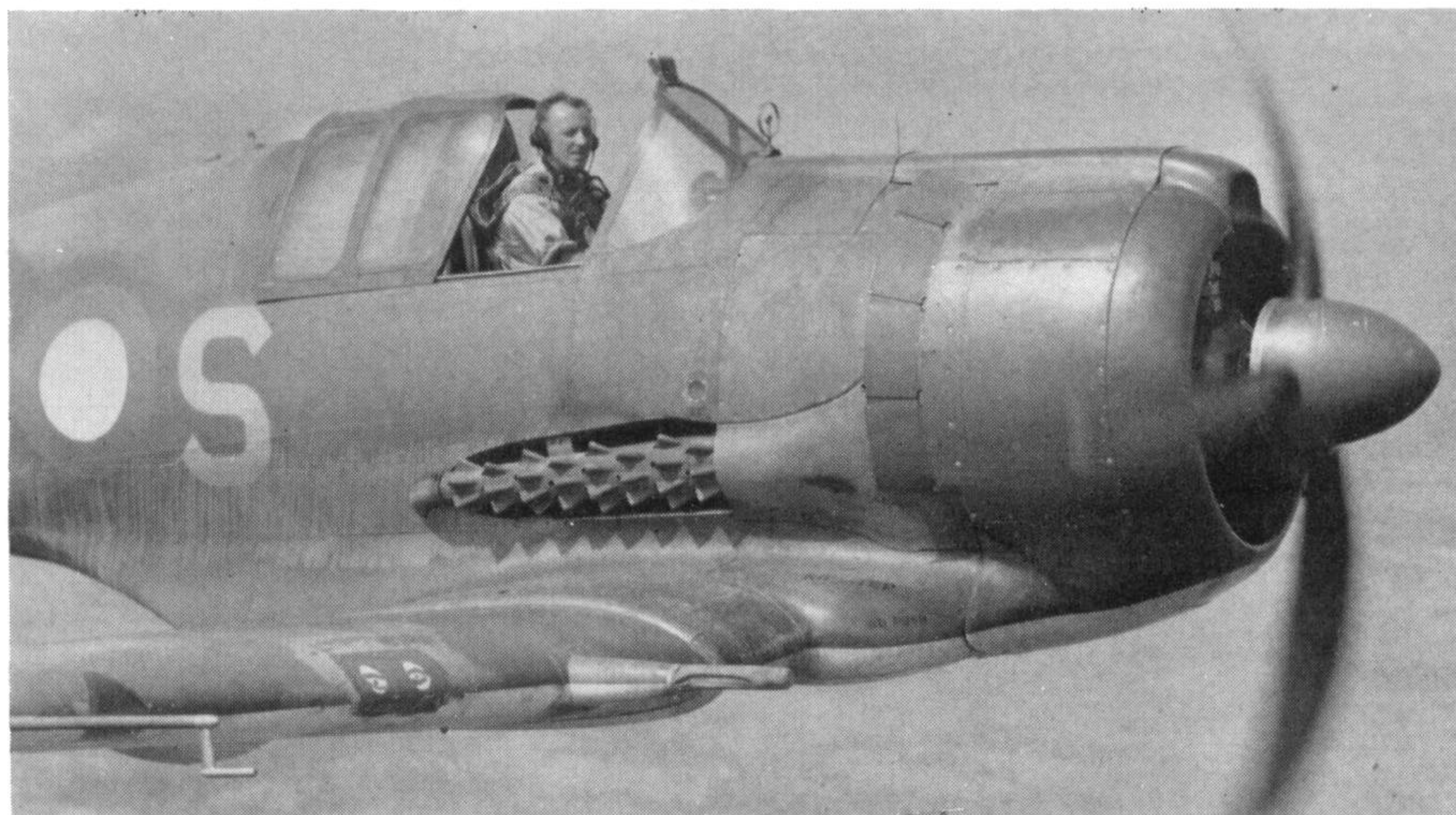
Air Force records show that no enemy aircraft was ever destroyed by Boomerangs. A strange record indeed for a fighter aircraft.

Since the early months of the war Nos. 4 and 5 Army Co-operation Squadrons, R.A.A.F., had performed valuable service with their Wirraway aircraft and it was logical, when higher performance American and British aircraft became available to equip R.A.A.F. fighter squadrons, that the Boomerang be assigned to these two units as its higher speed and heavier armament gave it a better chance to survive than the Wirraway. No. 4 Army Co-operation Squadron received its first Boomerangs on 15th June 1943 and took them into action during the assault on Nassau Bay, near Salamaua in New Guinea, on 1st July. The pilots were frequently challenged by Allied anti-aircraft gunners because the Boomerang had characteristics of speed and shape different from known Allied aircraft in the South-West Pacific. On 5th July, when returning from a reconnaissance mission, a Boomerang (A46-88) was shot down over Nassau Bay by American gunners whose nerves had been shaken earlier that day by Japanese aircraft. Taking advantage of their good manoeuvrability at low altitude the Boomerangs strafed Japanese troops and marked profitable targets with smoke bombs for attack by Allied fighters and bombers. Boomerangs were also used for artillery spotting, aerial delivery of supplies, food and ammunition, tactical reconnaissance and anti-malarial spraying. Similar duties were the lot of Boomerangs of No. 5 Army Co-operation Squadron and the aircraft of both squadrons were used to lead in R.A.A.F., R.N.Z.A.F. and U.S. Fifth Air



(Above) Armourers of No. 83 Sqn. R.A.A.F. cleaning cannons and loading ammunition into a CA-12 at Millingimbi Island, Northern Australia, on 21st November 1943.

(Photo: Australian War Memorial)



(Left) Another fine study of BF-S, A46-126, "Sinbad II" of No. 5 Sqn.; note details of rear-view mirror, ring and bead gunsight, and exhaust flame damper.

(Photo: R.A.A.F.)

CA-12 Boomerang, A46-1 (first prototype);
Fisherman's Bend, May 1942.



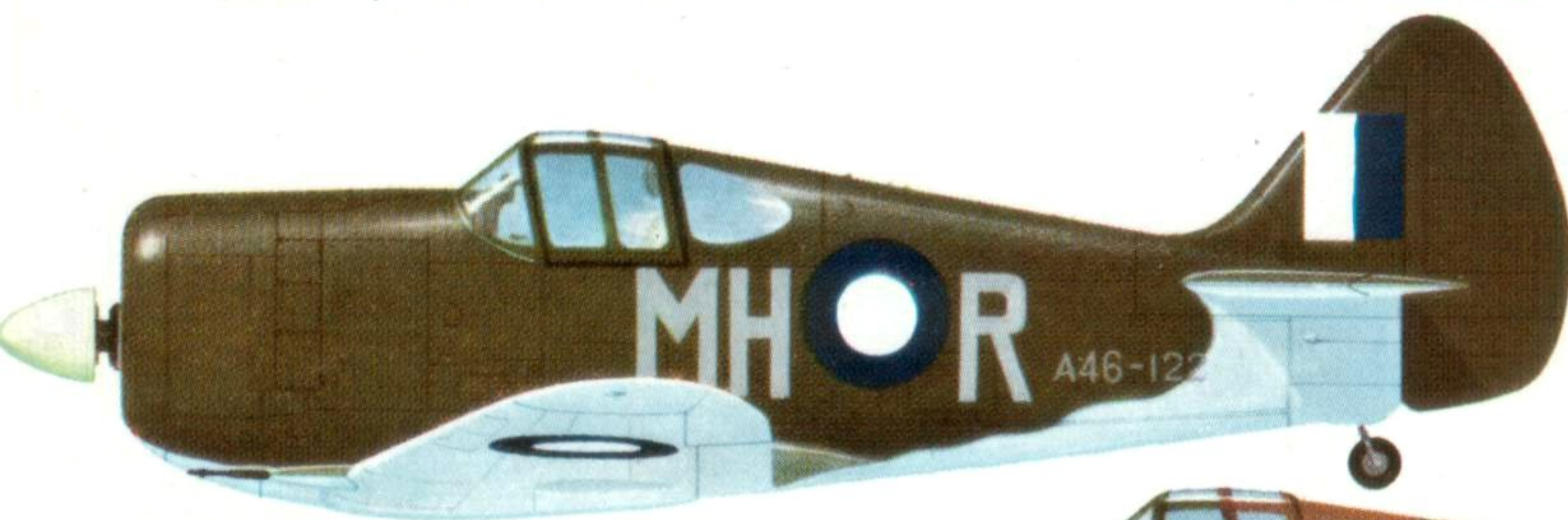
C.A.C. trademark on rudder
of A46-1 and A46-47.



CA-12 Boomerang, A46-47;
No. 2 O.T.U., Mildura,
New South Wales, 1943.



CA-12 Boomerang, A46-50; No. 84 Squadron,
R.A.A.F., Horn Island, June 1943.



CA-13 Boomerang, A46-122;
No. 83 Sqn., R.A.A.F., Millingimbi,
Northern Territory, 1943.

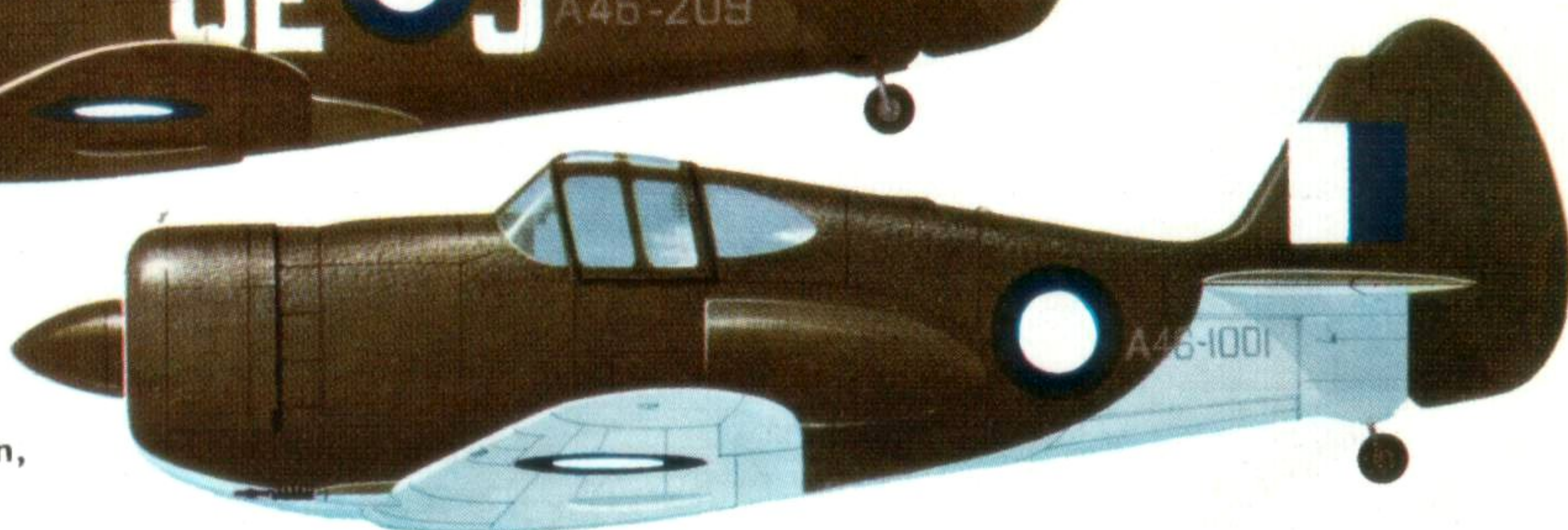
CA-13 Boomerang, A46-137;
No. 4 Sqn., R.A.A.F.,
Newton Field, Nadzab,
New Guinea, January 1944.



CA-13 Boomerang, A46-192; No. 5 Sqn.,
R.A.A.F., Kingaroy, Queensland, 1944.



CA-19 Boomerang, A46-209;
No. 4 Sqn., R.A.A.F., Labuan, Borneo,
August 1945.



CA-14 Boomerang, A46-1001;
No. 1 Aircraft Performance Unit, Laverton,
Victoria, 1943.

Force squadrons which co-operated with Allied ground forces cleaning up the by-passed Japanese strong points in New Guinea, New Britain, Bougainville and Borneo.

On 14th August 1945 No. 4 Army Co-operation Squadron, then part of the First Tactical Air Force participating in the invasion of Borneo, was instructed to suspend offensive operations against land targets except direct support for Allied ground forces in contact with the enemy. The war was over. Born from the urgency which faced Australia in the tragic hours of December 1941, the Boomerang never had

to show its might in the type of operations for which it was conceived; but in its unspectacular rôle as a ground support aircraft it earned the admiration and gratitude of the troops inching their way through the damp jungles of the South-West Pacific.

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CA-12 SPECIFICATIONS

Span: 36 ft. 0 in. Length: 26 ft. 9 in. Height: 13 ft. 0 in. (3 point attitude, one blade up). Wing Area: 225 sq. ft. Empty Weight: 5,373 lb. Normal Loaded Weight: 7,699 lb. Maximum Weight: 8,249 lb. Wing Loading: 34.2 lb./sq. ft. Power Loading: 6.4 lb./h.p. Engine: One C.A.C.-built Pratt & Whitney R-1830 S3C4-G. Take-off rating: 1,200 h.p. at 2,700 r.p.m. Military rating: 1,200 h.p. at 2,700 r.p.m. and 4,900 ft. Normal maximum rating: 1,100 h.p. at 6,200 ft. and 1,000 h.p. at 12,500 ft. Maximum Speed: 273 m.p.h. at sea level; 302 m.p.h. at 7,400 ft. and 305 m.p.h. at 15,500 ft. Cruise Speed: 190 m.p.h. at 15,000 ft. Initial climb rate: 2,940 ft. per minute. Time to altitude: 10,000 ft. in 4 minutes; 20,000 ft. in 9.2 minutes. Service ceiling: 34,000 ft. Range:—(Internal fuel only) 930 miles at 190 m.p.h. at 15,000 ft. —(with belly tank) 1,600 miles at 175 m.p.h. at 10,000 ft.

PRODUCTION

A total of 250 Boomerangs were built by Commonwealth Aircraft Corporation Pty., Ltd. at Fisherman's Bend, Victoria, between May 1942 and January 1945.

105 CA-12s (A46-1 to A46-105)
95 CA-13s (A46-106 to A46-200)
1 CA-14/CA-14A (A46-1001)
49 CA-19s (A46-201 to A46-249)

Monthly production rate was as follows:

	1942	1943	1944	1945
January ...		3	4	13
February ...		14	5	
March ...		21	6	
April ...		18	12	
May ...	1	16	5	
June ...		10	5	
July ...		4	6	
August ...	1	22	5	
September ...	3	14	2	
October ...	5	7	4	
November ...	4	9	5	
December ...	11	8	7	
Total	25	146	66	13

SERVICE DEPLOYMENT OF THE BOOMERANG

Unit	Squadron Code	Date of delivery of first Boomerang	Date Operational with Boomerang		Bases
			From	To	
No. 2 O.T.U.	Only operational units used code letters	10th Oct. 1942			Port Pirie, S.A., Mildura, Vic.
No. 4 Squadron	QE	15th June 1943	1st July 1943	15th Aug. 1945	Richmond, N.S.W.; Camden, N.S.W.; Port Moresby, N.G.; Dobodura, N.G.; Wau, N.G.; Tsilei-Tsilei, N.G.; Gusap & Nadzab, N.G.; Cape Gloucester, N.B.; Madang, N.G.; Balikpapan, Borneo.
No. 5 Squadron	BF	July 1943	2nd Nov. 1943	15th Aug. 1946	Laverton, Vic.; Toowoomba, Qld.; Toogoolawah, Qld.; Kingaroy, Qld.; Mareeba, Qld.; Bouganville; Tadjji, N.G.
No. 83 Squadron	MH	12th June 1943	16th Sept. 1943	15th Aug. 1945	Strathpine, Qld.; Millingimbi, N.T.; Gove, N.T.; Camden, N.S.W.; Menangel, N.S.W.
No. 84 Squadron	LB	2nd March 1943	4th April 1943	15th Oct. 1943	Richmond, N.S.W.; Horn Island; Townsville, Qld.
No. 85 Squadron	SH	30th April 1943	9th May 1943	27th Jan. 1945	Guildford, W.A.; Potshot (Learmonth), W.A.; Derby, W.A. (The main part of the squadron was at Guildford and detachments were at Derby and Potshot).
No. 8 Communication Unit	ZA	16th Feb. 1944	19th Feb. 1944	5th Aug. 1944	Goodenough Island; Madang, N.G.

ABBREVIATIONS

S.A. —South Australia
W.A. —Western Australia

Qld. —Queensland
Vic. —Victoria

N.S.W. —New South Wales
N.T. —Northern Territory

N.G. —New Guinea
N.B. —New Britain