A46—

BOOMERANG

The Diggers' Delight

DARTING through the valleys of some of the most appalling terrain in the world, its wingtips and airscrew scything as often as not through the top of the foliage, the Boomerang fighter and its pilot established a legend in the skies above New Guinea, the Solomon Islands and Borneo that was to become a part of Royal Australian Air Force tradition. The "Boomer Boys", as the Boomerang pilots were affectionately known to the Australian ground forces struggling with the tenacious Japanese in the rugged, humid jungle-covered islands, flew what were undoubtedly some of the most hazardous missions of World War II; literally foliage-hopping through narrow, winding valleys to seek out the superbly-camouflaged enemy gun positions. Once discovered, the enemy position would be tickled with bursts of cannon and machine gun fire, the Boomer pilot derisively swooping within feet of the Japanese, tempting and irritating them until, stung into retaliation, they revealed themselves to waiting Allied batteries.

The Australian fighters employing these daring clay-pigeon tactics frequently returned to their bases riddled with small arms fire and trailing small branches and creeper, to pause only for refuelling and for a few rudimentary repairs before taking-off once more to guide a fighter-bomber strike against the targets that they had ferreted out.

The official appellation of Boomerang, a highly-effective Aboriginal hunting weapon, was appropriate enough for this sturdy little warplane, but so too was the *unofficial* name of "Boomer" used fondly by the Australian troops, for, while a contraction of the name applied to this fighter at birth, it was also the Australian name for the male of the largest species of kangaroo, and there was no doubt that this Australian aeroplane, with its quite remarkable agility, appeared to bound through gaps in mountains and trees in the hands of its spirited and seemingly reckless but actually highly-skilled pilots. The hair-raising exploits of the Boomer pilots created an enviable reputation for daring; they also established for the Boomerang itself a reputation second to none for sturdiness, for this Australian fighter proved itself capable of absorbing tremendous punishment and yet staying in the air. Little wonder that this warplane, unique in being the *only* fighter designed and built in Australia ever to have attained production status, had a special place in the hearts of Australian troops. It was truly the diggers' delight!

Trainer ancestry

The Boomerang was to be referred to as a "panic fighter"; a warplane pushed through from rough draft to prototype trials within four months as a result of belated realisation that the Australian continent possessed no fighter defence and that the RAAF could expect little immediate assistance in the shape of modern fighters from either Britain or the USA. As a matter of vital urgency, the Australian aircraft industry was called upon to improvise, and the result, the Boomerang, if an improvisation, was to be a remarkably successful one.

Examples of two-seat trainers derived from single-seat fighters are legion, but the reverse of this process is almost unheard of in the annals of military aviation. The exigencies of the time, however, left Australia little choice. Even had the necessary design expertise been immediately available, time, limited in the form of the rapidly advancing forces of Japan, did not allow the luxury of designing and building a fighter from scratch, and there was no recourse but to adapt an existing airframe for the fighter rôle. This had to mean adaptation of the North American NA-33 tandem

(Above) A CA-13 (A46-195) of No 4 Sqdn in New Guinea. No 4 Sqdn was the first RAAF unit to employ the Boomerang in the army co-operation rôle.

virtually unchanged, and the cockpit was based broadly on that of the Wirraway.

The forward fuselage was re-stressed to cater for the 100 per cent increase in power resulting from the installation of the R-1830-S3C4-G engine, and to accommodate the greater thirst of this power plant, the wing root fuel tanks, which were now of self-sealing 45 Imp gal (204,6 l) type, were supplemented by a 70 Imp gal (318 l) self-sealing tank immediately aft of the pilot, provision being made for a flush-fitting jettisonable plywood ventral overload tank also of 70 Imp gal (318 l) capacity. The new fuselage was built in one piece, and, aft of the cockpit, had plywood skinning for the sides and upper decking over wooden formers and stringers, the bottom portion being of stressed skin aluminium alloy construction.

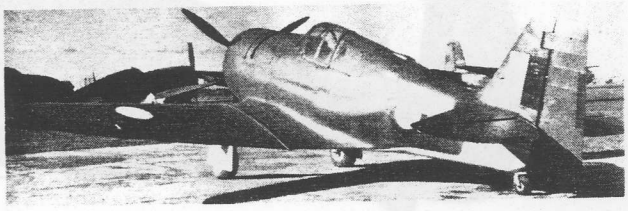
An armour backplate and an armourglass windscreen were provided, and specified armament comprised four 0·303-in (7,7-mm) Browning machine guns with 1,000 rpg, and two 20-mm Hispano cannon with 80 rpg. Provision of the cannon posed an immediate problem. It was planned that this weapon should be manufactured locally, but Commonwealth Aircraft possessed no pattern gun, only handbooks describing the cannon being immediately available. Quite by chance, a 20-mm Hispano, probably the only example in Australia at that time, *was* located. This had been brought to Australia from North Africa by a RAAF sergeant who had had the cannon mounted on the back of his truck in the Western Desert. Using this and the handbooks, the Commonwealth Aircraft team prepared production drawings to enable a local sub-contractor, Harland Engineering, to manufacture the weapon, simultaneously designing a spring-feed magazine and recoil-driven belt-feed booster.

On 29 May 1942, a mere 16 weeks and three days after the Commonwealth Aircraft management had given its approval for detail design to commence, the first example of the Commonwealth CA-12 Boomerang (A46-1) completed taxying trials and flew for the first time with CAC test pilot Ken Fruin at the controls. Fruin was elated by the handling characteristics displayed by the Boomerang, and although level speed was modest, manœuvrability and climb rate exceeded the most sanguine expectations. It revealed no serious vices and called for no major modifications, and during tests at a loaded weight of 7,368 lb (3 342 kg) proved capable of an initial climb rate of 2,940 ft/min (14,93 m/sec) which was substantially better than the contemporary Curtiss P-40E, the Hurricane I or the Spitfire I. Level speeds were marginally higher than predicted, being 302 mph (486 km/h) in low blower at 7,400 ft (2 255 m) and 305 mph (491 km/h) in high blower at 15,500 ft (4 724 m). An altitude of 10,000 ft (3 048 m) was reached in four minutes and 20,000 ft (6 096 m) in 9·2 minutes, and service ceiling was 34,000 ft (10 363 m).

A report of a series of mock combats arranged by the Department of Air between the first Boomerang, a P-40E and a P-39 Airacobra commented that the Australian

(Above) CA-13 Boomerangs of No 5 Sqdn photographed in 1944 during a training flight in the vicinity of Mareeba, Queensland.

fighter was more manœuvrable than the P-40E at 10,000 ft (3 048 m) and could turn inside the American fighter, the speed advantage of which was insufficient to allow its pilot to dictate the type of combat. Although the P-40E proved capable of out-diving the Boomerang, the better pull-out and superior climb of the latter resulted in the two aircraft being level at the apex of the ensuing zoom. Once combat was joined the P-40E proved incapable of evading the Boomerang and breaking off the conflict other than by means of a sustained dive. The P-39 was found to enjoy a greater speed advantage over the Boomerang, and its markedly better climb-and-dive capability initially enabled the pilot of the American fighter to dictate the terms of combat, but the Boomerang could always outmanœuvre its opponent at the same height in concentric attack.



(Above) The turbo-supercharged CA-14 Boomerang, and (below) the same aircraft in its definitive CA-14A form with revised tail and faired-in turbo-supercharger intake.

two-seat basic trainer as, apart from the Bristol Beaufort twin-engined torpedo-bomber, this was the *only* modern airframe being manufactured by the Australian aircraft industry. The NA-33, or NA-16-2K, was being licence-manufactured at Fishermen's Bend by the fledgeling Commonwealth Aircraft Corporation as the Wirraway (an Aboriginal word meaning "Challenge"), and within three days of the commencement of the Pacific War, the tiny Commonwealth Aircraft design staff submitted its preliminary proposals for a single-seat fighter employing what was essentially the Wirraway airframe.

Fortuitously, the Australian team had precedents. Several years earlier North American Aviation had evolved two single-seat fighter variants from the basic NA-16 trainer design, the NA-50A and the NA-68 powered by the 870 hp Wright R-1820-77 Cyclone nine-cylinder air-cooled radial, but these precedents did little more than demonstrate the feasibility of the scheme. Even had the necessary design data been available in Australia, these aircraft, which had been developed for Peru and Thailand respectively, offered totally inadequate performance. The Australian team was on its own and it had no options. The RAAF wanted a robust, manœuvrable fighter with a respectable performance providing a stable gun platform and an adequate weight of fire. It had to be simple to maintain in the field and suitable for rapid manufacture in existing production facilities, and, most important of all, it had to be available quickly. The time element imposed drastic limitations on the design and left no room for originality.

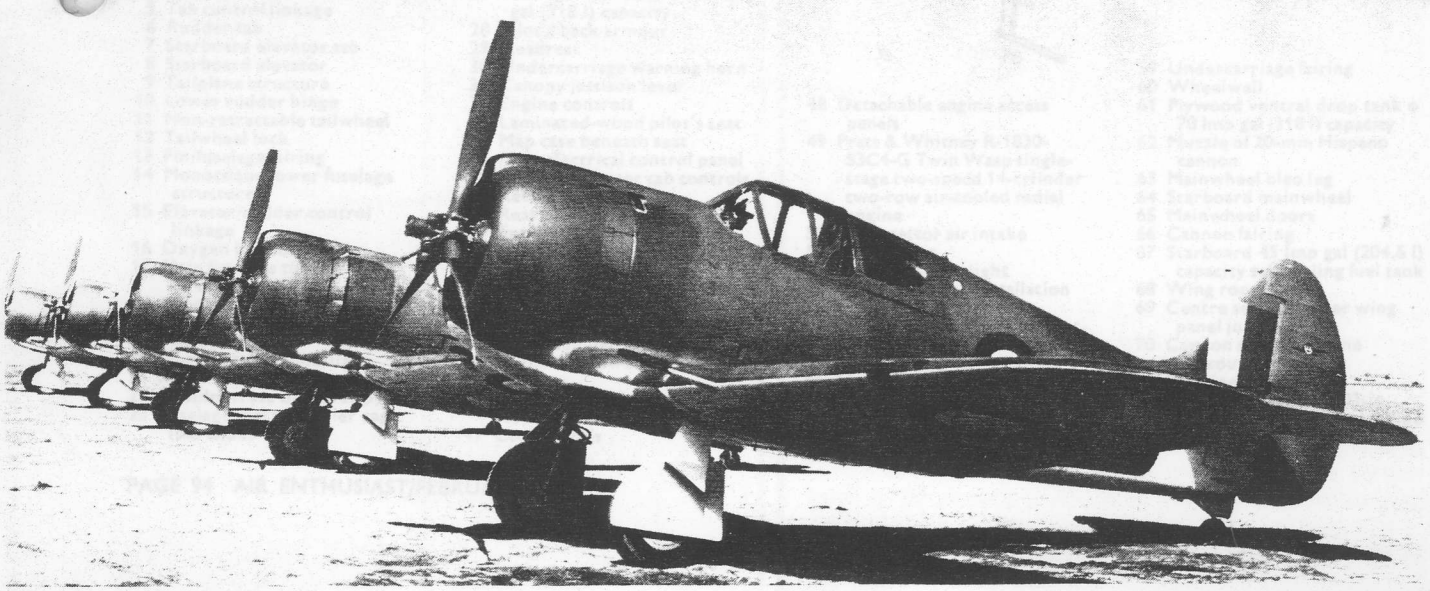
The most powerful aero engine available in Australia was the Pratt & Whitney R-1830-S3C4-G Twin Wasp 14-cylinder radial, a single-stage two-speed engine rated at 1,200 hp at 2,700 rpm for take-off, and having military ratings of 1,200 hp in low blower at 4,900 ft (1 494 m) and 1,050 hp in high blower at 13,100 ft (3 993 m) for five minutes, normal rated power being 1,100 hp at 2,550 rpm in low blower at 6,200 ft (1 890 m) and 1,000 hp in high blower at 12,500 ft (3 810 m). This engine had been adopted by the Australian government in October 1939 for the Beaufort torpedo-bombers that were to be built by the newly-created Beaufort Division of the Department of Aircraft Production, and the Commonwealth Aircraft Corporation had established a new plant at Lidcombe, New South Wales, for its production.

From the outset, therefore, it was obvious that the new fighter would, of necessity, be a marriage between the R-1830-S3C4-G engine and the Wirraway airframe, the nuptials being proposed in the preliminary sketches submitted to the Commonwealth Aircraft management by the design staff on 11 December 1941. On that day, the Allied Chiefs of Staff announced their belief that, as a prelude to invading Australia, the Japanese would attempt to occupy Rabaul, Port Moresby and New Caledonia, simultaneously attacking Darwin and other mainland targets. Time was obviously at a premium, and 10 days later, on 21 December, the Commonwealth Aircraft management gave its approval for detail design. Within six weeks, on 2 February 1942, the Australian War Cabinet awarded the Fishermen's Bend factory a contract for the supply of 105 examples of the proposed fighter which had already been dubbed the Boomerang. No time was available for the luxury of building prototypes!

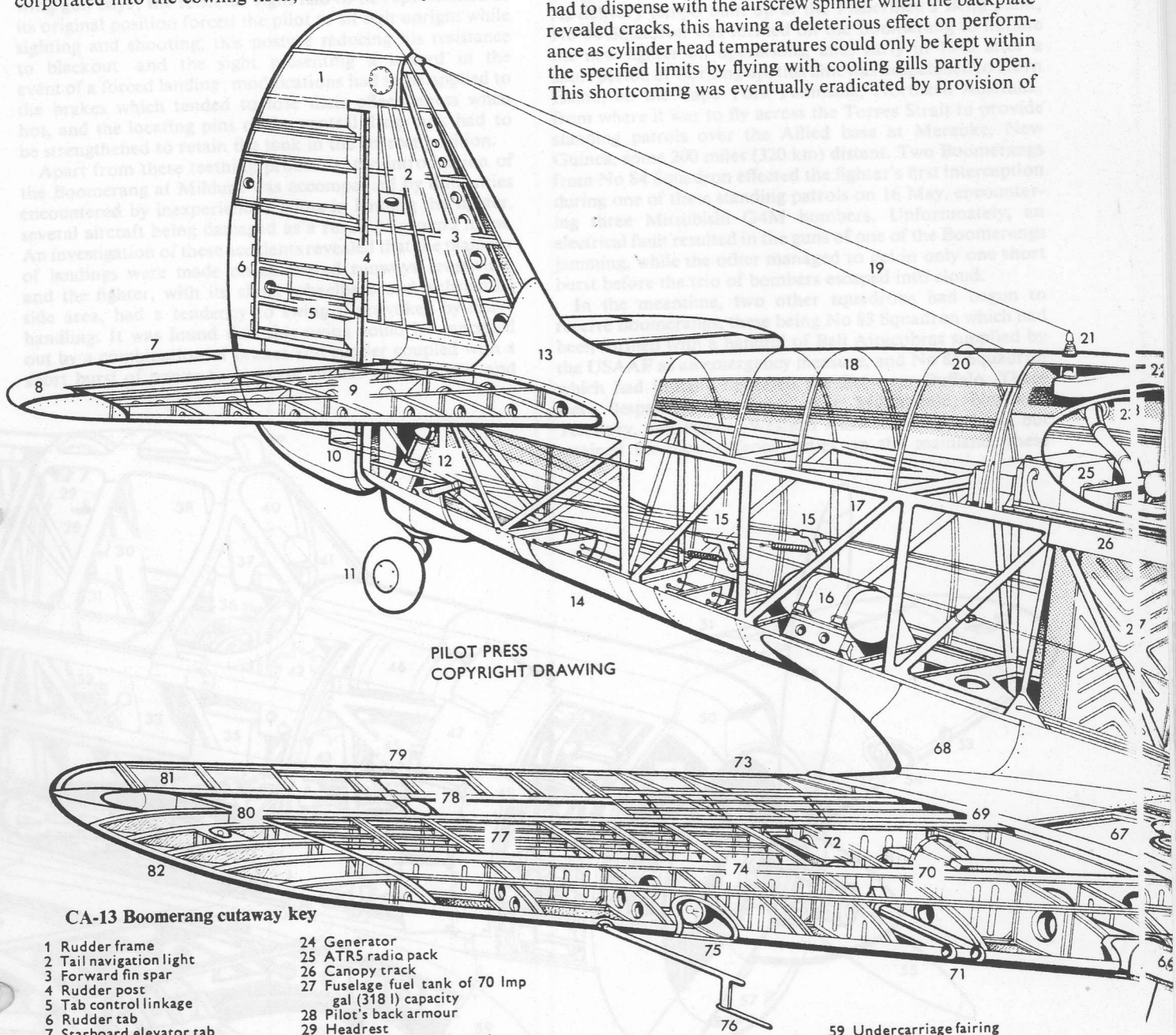
Four months for a fighter

The Wirraway comprised a welded chrome molybdenum steel fuselage frame with integrally welded fittings built up in four sections and bolted together; a stressed-skin single-spar wing varying in section from NACA 2215 to 2209, and built in five sections consisting of a parallel-chord centre-section, two outer sections with marked leading-edge taper, and rounded wingtips; metal stressed-skin tailplane and fin, and metal-framed, fabric-covered control surfaces. All fuel was housed in two 46 Imp gal (209 l) tanks in the wing centre-section, and the main undercarriage members were hydraulically operated, retracting into wells forming extensions of the leading-edge roots. In so far as was possible, the Wirraway structure was retained unchanged for the Boomerang, and was actually manufactured from Wirraway drawings and tooling. This included the parallel-chord centre-section which was suitably reinforced, the tapered (12 deg 45 min at the leading edge) outer wing sections which were cut down marginally to reduce gross area by 30·75 sq ft (2,86 m²), the continuous flaps between the ailerons, and the complete undercarriage. The tail assembly remained

(Above) The fifth production CA-19 at Fishermen's Bend on 15 June 1944, prior to delivery to the RAAF. A CA-19 (A46-212) is also illustrated on the previous page in formation with a CA-13 (A46-200) of No 5 Sqdn. (Below) The initial production batch of CA-12s at Fishermen's Bend in 1942.



Every effort was made by Commonwealth Aircraft to complete the first five Boomerangs as quickly as possible to permit thorough RAAF evaluation at the earliest date. The first two Boomerangs featured an external oil cooler duct beneath the engine cowling, but this was later incorporated into the cowling itself, and at an early stage an airscrew spinner was introduced as a means of improving engine cooling during the climb. During the late summer of 1942, the first Boomerangs arrived at Mildura for use by No 2 Operational Training Unit, but teething troubles stemming from the rapidity with which the fighter had been evolved now began to manifest themselves. Some aircraft had to dispense with the airscrew spinner when the backplate revealed cracks, this having a deleterious effect on performance as cylinder head temperatures could only be kept within the specified limits by flying with cooling gills partly open. This shortcoming was eventually eradicated by provision of



CA-13 Boomerang cutaway key

1 Rudder frame
2 Tail navigation light
3 Forward fin spar
4 Rudder post
5 Tab control linkage
6 Rudder tab
7 Starboard elevator tab
8 Starboard elevator
9 Tailplane structure
10 Lower rudder hinge
11 Non-retractable tailwheel
12 Tailwheel lock
13 Fin/fuselage fairing
14 Monocoque lower fuselage structure
15 Elevator/rudder control linkage
16 Oxygen bottles
17 Main fuselage tubular structure
18 Wooden upper fuselage fairing
19 Aerials
20 Dorsal navigational light
21 Aerial lead-in
22 Tubular truss turnover pylon
23 Fuselage fuel tank filler cap (portside)
24 Generator
25 ATR5 radio pack
26 Canopy track
27 Fuselage fuel tank of 70 Imp gal (318 l) capacity
28 Pilot's back armour
29 Headrest
30 Undercarriage warning horn
31 Canopy jettison lever
32 Engine controls
33 Laminated-wood pilot's seat
34 Map case beneath seat
35 Main electrical control panel
36 Rudder/elevator tab controls
37 Reflector sight
38 Rearward-sliding canopy
39 External rear-view mirror
40 Optically-flat armourglass windscreen
41 Circular gunsight sun visor
42 Instrument panel
43 Engine firewall
44 Flame damper exhaust
45 Upper and lower engine bearers
46 Oil tank of 14 Imp gal (63,6 l) capacity
47 Cooling gills
48 Detachable engine access panels
49 Pratt & Whitney R-1830-S3C4-G Twin Wasp single-stage two-speed 14-cylinder two-row air-cooled radial engine
50 Carburettor air intake
51 Port aileron
52 Port navigation light
53 G45 camera gun installation
54 Port landing light
55 Hamilton Standard constant-speed airscrew of 11 ft 0 in (3,35 m) diameter
56 Airscrew boss
57 Oil cooler intake
58 Port mainwheel with 27-in (68,58-cm) diameter tyre
59 Undercarriage fairing
60 Wheelwell
61 Plywood ventral drop tank o 70 Imp gal (318 l) capacity
62 Muzzle of 20-mm Hispano cannon
63 Mainwheel oleo leg
64 Starboard mainwheel
65 Mainwheel doors
66 Cannon fairing
67 Starboard 45 Imp gal (204,6 l) capacity self-sealing fuel tank
68 Wing root fairing
69 Centre section/outer wing panel joint
70 Cannon shell magazine (60 rounds)
71 Machine gun ports
72 Starboard pair of 0·303-in (7,7-mm) Browning machine guns

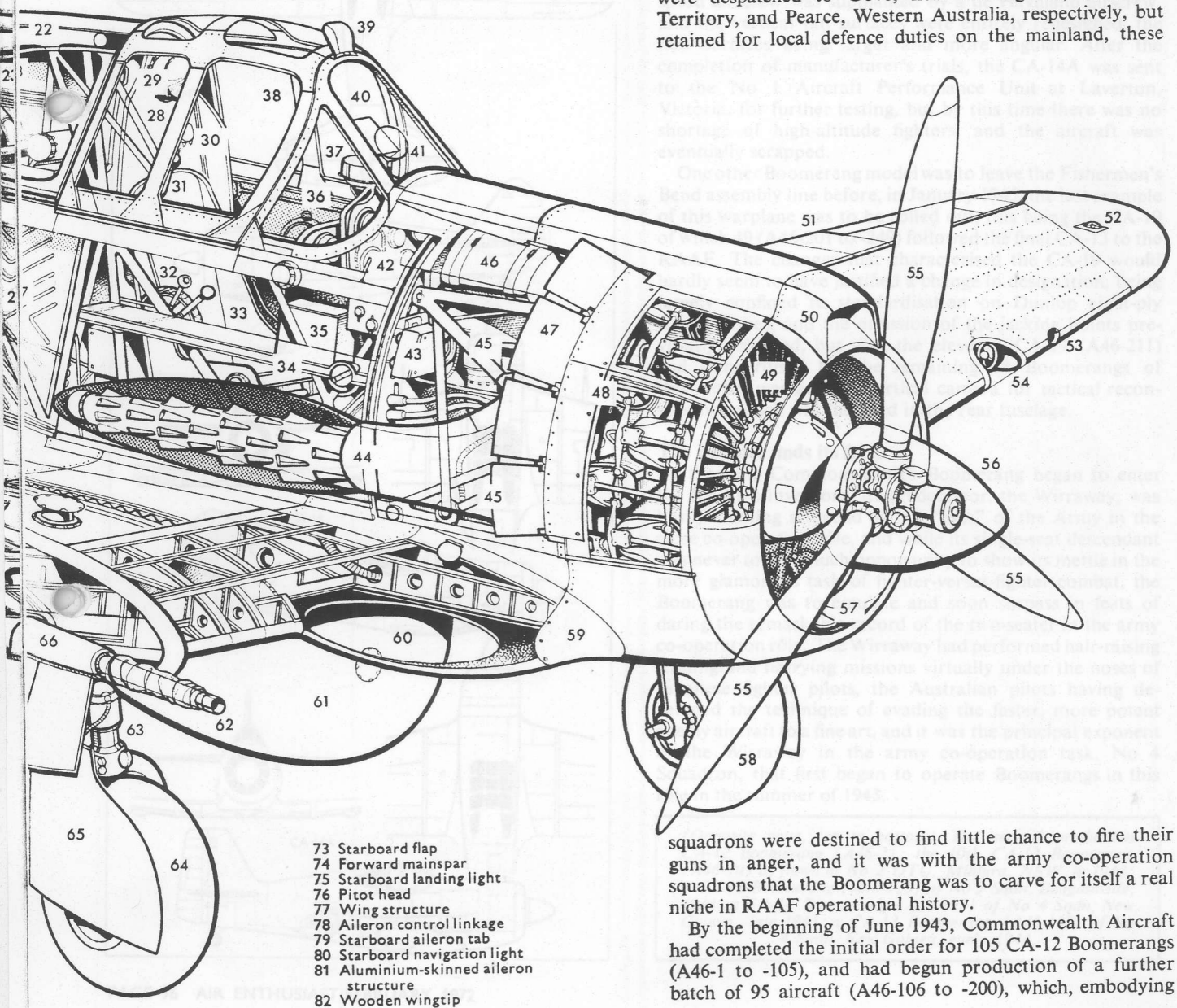
a heavier gauge spinner backplate. The guns displayed a tendency to freeze solid at altitude, a problem eventually overcome by leading hot air from the exhaust system to the wing gun bays; the reflector sight had to be repositioned as its original position forced the pilot to sit bolt upright while sighting and shooting, this posture reducing his resistance to blackout and the sight presenting a hazard in the event of a forced landing; modifications had to be applied to the brakes which tended to lose their effectiveness when hot, and the locating pins of the ventral drop tank had to be strengthened to retain the tank in the correct position.

Apart from these teething problems, the introduction of the Boomerang at Mildura was accompanied by difficulties encountered by inexperienced pilots in landing the fighter, several aircraft being damaged as a result of ground loops. An investigation of these accidents revealed that the majority of landings were made on cambered runways crosswind, and the fighter, with its short wheelbase and substantial side area, had a tendency to swing if provoked by heavy handling. It was found that this swing could be cancelled out by a combination of brakes and rudder coupled with a short burst of power to increase rudder effectiveness, and once this method was adopted, the landing accident rate was reduced to normal proportions.

Progressive refinement

As delivery tempo built up at the Fishermen's Bend plant, No 84 Squadron was formed on the Boomerang to initiate the new fighter on operations, and, early in 1943 after a short period of working up, this unit was despatched to Horn Island, off the Cape York Peninsula, Northern Australia, from where it was to fly across the Torres Strait to provide standing patrols over the Allied base at Merauke, New Guinea, some 200 miles (320 km) distant. Two Boomerangs from No 84 Squadron effected the fighter's first interception during one of these standing patrols on 16 May, encountering three Mitsubishi G4M bombers. Unfortunately, an electrical fault resulted in the guns of one of the Boomerangs jamming, while the other managed to get in only one short burst before the trio of bombers escaped into cloud.

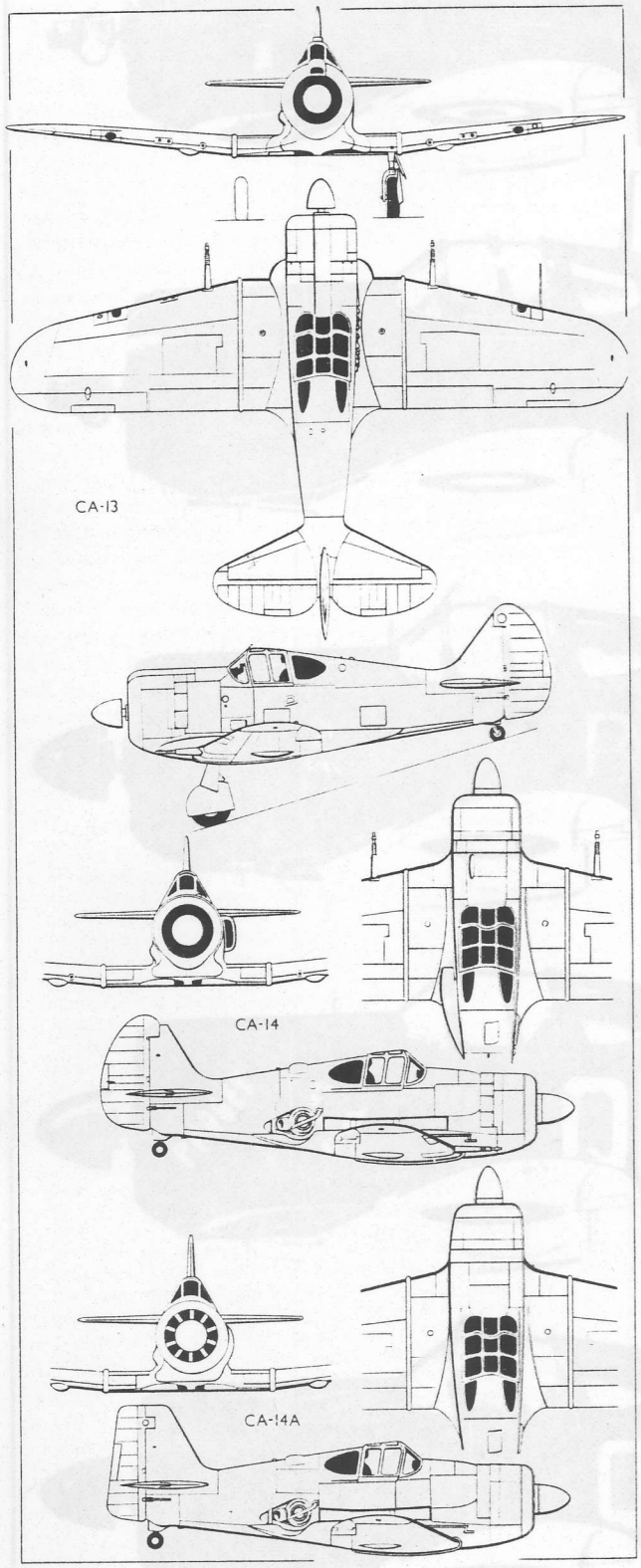
In the meantime, two other squadrons had begun to receive Boomerangs, these being No 83 Squadron which had been formed with a handful of Bell Airacobras supplied by the USAAF as an emergency measure, and No 85 Squadron which had initially operated the Brewster Buffalo. These were despatched to Gove, near Millingimbi, Northern Territory, and Pearce, Western Australia, respectively, but retained for local defence duties on the mainland, these squadrons were destined to find little chance to fire their guns in anger, and it was with the army co-operation squadrons that the Boomerang was to carve for itself a real niche in RAAF operational history.



73 Starboard flap
74 Forward mainspar
75 Starboard landing light
76 Pitot head
77 Wing structure
78 Aileron control linkage
79 Starboard aileron tab
80 Starboard navigation light
81 Aluminium-skinned aileron structure
82 Wooden wingtip

By the beginning of June 1943, Commonwealth Aircraft had completed the initial order for 105 CA-12 Boomerangs (A46-1 to -105), and had begun production of a further batch of 95 aircraft (A46-106 to -200), which, embodying

various minor modifications made in the light of initial service experience, received the designation CA-13. The modifications consisted of the replacement of the light alloy seat by one of laminated wood, the introduction of wooden wingtips, the replacement of fabric by light alloy for the skinning of the ailerons, the fitting of Beaufort-type flame-damper exhaust tubes, the provision of an external rearview mirror, and the replacement of the hydraulic cocking system for the guns by a system in which the guns were cocked mechanically before take-off.



While production of the CA-13 was proceeding, Commonwealth Aircraft initiated a development programme aimed at improving altitude performance, and an experimental aircraft was built as the CA-14 (A46-1001) which utilised modified production components. The S3C4-G Twin Wasp offered its best performance with high-speed blower at 12,500 ft (3 810 m), and therefore a General Electric turbo-supercharger was installed in the rear fuselage, this installation being accompanied by various aerodynamic improvements to reduce drag, including a more streamlined cowling for the engine and some changes to the wing root contours. The location of the turbo-supercharger intake on the port side of the rear fuselage resulted in trim problems and some tailplane buffeting, although a speed gain of some 20 per cent was recorded at altitude. In an attempt to rectify the buffet situation and also eradicate some blanketing of the tailplane by the turbo-supercharger intake at certain angles of attack, further modifications were applied to the experimental aeroplane which then became the CA-14A.

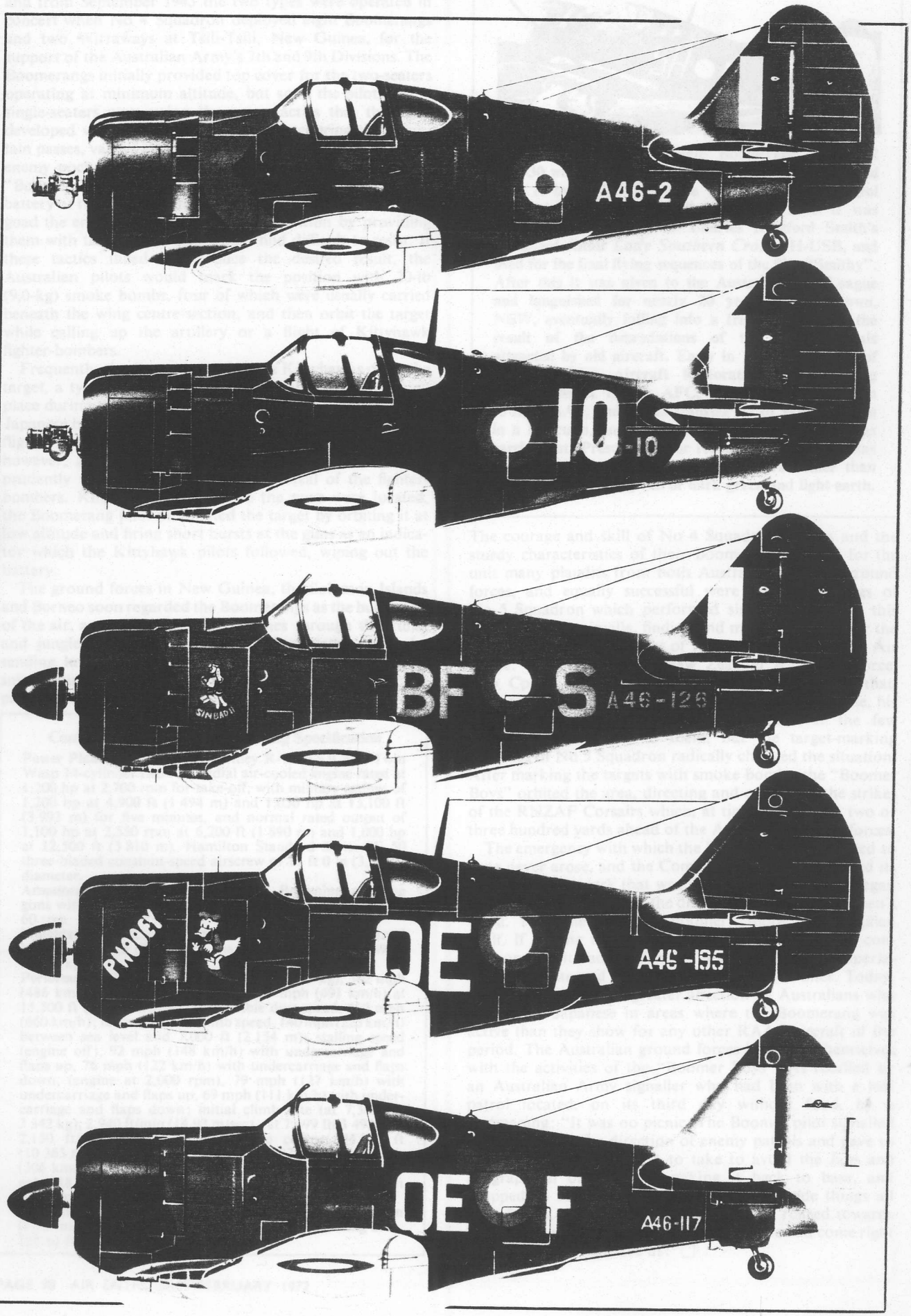
The engine cowling was again revised and a cooling fan introduced inside the cowling, the turbo-supercharger intake on the port fuselage side being supplanted by an intake within the engine cowling itself, air then being ducted along the fuselage side to result in somewhat odd asymmetric fuselage contours in plan. The Hamilton Standard constant-speed airscrew was supplanted by a de Havilland airscrew, and the vertical tail surfaces were entirely redesigned, the new surfaces being larger and more angular. After the completion of manufacturer's trials, the CA-14A was sent to the No 1 Aircraft Performance Unit at Laverton, Victoria, for further testing, but by this time there was no shortage of high-altitude fighters, and the aircraft was eventually scrapped.

One other Boomerang model was to leave the Fishermen's Bend assembly line before, in January 1945, the last example of this warplane was to be rolled out, this being the CA-19 of which 49 (A46-201 to -249) followed the final CA-13 to the RAAF. The changes that characterised the CA-19 would hardly seem to have justified a change in designation, being largely confined to standardisation on Dunlop eight-ply treaded tyres, and the omission of the jacking points previously provided, but with the eleventh CA-19 (A46-211) and standardised for the remaining 38 Boomerangs of this model was an F24 vertical camera for tactical reconnaisance which was installed in the rear fuselage.

The Boomer finds its forte

By the time Commonwealth's Boomerang began to enter the RAAF's inventory, its predecessor, the Wirraway, was busily creating a legend as the "eyes" of the Army in the close co-operation rôle, and while its single-seat descendant was never to find much opportunity to show its mettle in the more glamorous task of fighter-versus-fighter combat, the Boomerang was to emulate and soon surpass in feats of daring the remarkable record of the two-seater in the army co-operation rôle. The Wirraway had performed hair-raising strafing and harrying missions virtually under the noses of Japanese fighter pilots, the Australian pilots having developed the technique of evading the faster, more potent enemy aircraft to a fine art, and it was the principal exponent of the Wirraway in the army co-operation task, No 4 Squadron, that first began to operate Boomerangs in this rôle in the summer of 1943.

(Opposite page, top to bottom) The second production CA-12 Boomerang (A46-2); the 10th CA-12 Boomerang (A46-10) as flown at No 2 OTU, Mildura, NSW, in 1943; a CA-13 Boomerang (A46-126) of No 5 Sqdn, Bougainville, 1944; a CA-13 Boomerang (A46-195) of No 4 Sqdn, New Guinea, late 1943; a CA-13 Boomerang (A46-117) of No 4 Sqdn, New Guinea, early 1944.


A46-2
10
A46-10
BF S
A46-126
SINBAD II
PNOOEY
QE A
A46-195
QE F
A46-117

The Boomerang never actually *replaced* the Wirraway, and from September 1943 the two types were operated in concert when No 4 Squadron deployed eight Boomerangs and two Wirraways at Tsili-Tsili, New Guinea, for the support of the Australian Army's 7th and 9th Divisions. The Boomerangs initially provided top cover for the two-seaters operating at minimum altitude, but soon the pilots of the single-seaters were using the same tactics that they had developed when flying the Wirraways, scouring the mountain passes, valleys and jungle at minimum altitude to locate enemy pockets and gun positions. As target markers, the "Boomer Boys" were soon supreme. Once a Japanese battery or troop concentration had been located, they would goad the enemy into revealing their position by providing them with targets that they would find difficult to resist. If these tactics failed to produce the desired result, the Australian pilots would mark the position with 20-lb (9,0-kg) smoke bombs, four of which were usually carried beneath the wing centre-section, and then orbit the target while calling up the artillery or a flight of Kittyhawk fighter-bombers.

Frequently the Boomerangs led the Kittyhawks on to the target, a typical example of this type of operation taking place during the Ramu fighting when a Boomerang stung a Japanese battery into action and then called up a Kittyhawk flight. The Kittyhawk pilots could not find the target, however, as the Japanese guns were well concealed and prudently remained silent with the arrival of the fighter-bombers. Knowing exactly where the guns were located, the Boomerang pilot pinpointed the target by orbiting it at low altitude and firing short bursts at the guns as an indicator which the Kittyhawk pilots followed, wiping out the battery.

The ground forces in New Guinea, the Solomon Islands and Borneo soon regarded the Boomerangs as the bulldozers of the air, as their strafing cut swathes through the kunai and jungle, reducing the hazards of mountain trails by sending lurking Japanese scurrying for shelter, knocking snipers out of trees and off rocky ledges, and grading the path ahead of the troops by eliminating ambushes and traps.

Commonwealth CA-12 Boomerang Specification

Power Plant: One Pratt & Whitney R-1830-S3C4-G Twin Wasp 14-cylinder two-row radial air-cooled engine rated at 1,200 hp at 2,700 rpm for take-off, with military ratings of 1,200 hp at 4,900 ft (1 494 m) and 1,050 hp at 13,100 ft (3 993 m) for five minutes, and normal rated output of 1,100 hp at 2,550 rpm at 6,200 ft (1 890 m) and 1,000 hp at 12,500 ft (3 810 m). Hamilton Standard Series 3E 50 three-bladed constant-speed airscrew of 11 ft 0 in (3,35 m) diameter.

Armament: Four 0·303-in (7,7-mm) Browning machine guns with 1,000 rpg and two 20-mm Hispano cannon with 60 rpg.

Weights: Manufacturer's empty, 5,373 lb (2 437 kg); normal loaded, 7,699 lb (3 492 kg); maximum overload, 8,249 lb (3 742 kg).

Performance: Max speed (at 7,368 lb/3 342 kg), 302 mph (486 km/h) at 7,400 ft (2 255 m), 305 mph (491 km/h) at 15,500 ft (4 724 m); max permissible dive speed, 410 mph (660 km/h); recommended climb speed, 140 mph (225 km/h) between sea level and 7,000 ft (2 134 m); stalling speed (engine off), 92 mph (148 km/h) with undercarriage and flaps up, 76 mph (122 km/h) with undercarriage and flaps down, (engine at 2,000 rpm), 79 mph (127 km/h) with undercarriage and flaps up, 69 mph (111 km/h) with undercarriage and flaps down; initial climb rate (at 7,368 lb/3 342 kg), 2,940 ft/min (14,93 m/sec), (at 7,699 lb/3 492 kg), 2,150 ft/min (10,92 m/sec); service ceiling, 34,000 ft (10 363 m); normal range, 930 mls (1 497 km) at 190 mph (306 km/h) at 15,000 ft (4 572 m); max range with 70 Imp gal (318 l) drop tank, 1,600 mls (2 575 km) at 175 mph (282 km/h) at 10,000 ft (3 048 m).

Dimensions: Span, 36 ft 0 in (10,97 m); length, 25 ft 6 in (7,77 m); height (tail down), 9 ft 7 in (2,92 m); wing area, 225 sq ft (20,90 m).

The sole surviving complete Boomerang is CA-12 A46-30 which was operated throughout most of World War II by No 85 Squadron on intercept and patrol duties in Western Australia. Late in 1945 it was repainted to simulate Sir Charles Kingford Smith's Lockheed Altair *Lady Southern Cross* VH-USB, and used for the final flying sequences of the film "Smithy". After this it was given to the Australian Air League and languished for nearly 20 years at Blacktown, NSW, eventually falling into a frightful state as the result of the depredations of the usual vandals attracted by old aircraft. Early in 1966, a member of the Australian Aircraft Restoration Group, Wing Commander K Isaacs, AFC, arranged for its return to the RAAF, and it was transported to Williamstown in a Hercules, and there its complete restoration was carried out. Presumably for reasons of supply, it was repainted in modern camouflage colours rather than the original foliage green or dark green and light earth.

The courage and skill of No 4 Squadron's pilots and the sturdy characteristics of their Boomerangs earned for the unit many plaudits from both Australian and US ground forces, and equally successful were the Boomerangs of No 5 Squadron which performed similar tasks with this fighter on Bougainville, finding and marking targets for the Army and for the Corsairs of the Royal New Zealand Air Force. The AOC of the New Zealand Air Task Force, Grp Cpt G N Roberts, subsequently commented that, prior to the arrival of the Boomerangs on Bougainville, his Corsair pilots were becoming depressed over the few targets that remained to them, but the target-marking activities of No 5 Squadron radically changed the situation. After marking the targets with smoke bombs, the "Boomer Boys" orbited the area, directing and correcting the strikes of the RNZAF Corsairs which, at times, were only two or three hundred yards ahead of the Australian ground forces.

The emergency with which the Boomerang was created to cope never arose, and the Commonwealth fighter found its forte fulfilling a task that was not envisaged when it began its hurried journey across the drawing boards at Fishermen's Bend. Nevertheless, the "Boomer" more than justified itself. If lacking the speed capabilities of most of its contemporaries, it had outstanding manœuvrability, a superlative climb rate and exceptional sturdiness to offer. Today, it is remembered with greater affection by Australians who fought the Japanese in areas where the Boomerang was active than they show for any other RAAF aircraft of the period. The Australian ground forces identified themselves with the activities of the "Boomer Boys". As recalled by an Australian Army signaller who had been with a lost patrol located, on its third day without food, by a Boomerang: "It was no picnic. The Boomer pilot signalled information on the direction of enemy patrols and gave us bearings and the direction to take to avoid the Japs and geographical obstacles in making it back to base, and dropped us some supplies. That Boomer made things all right for us, and then put its nose up and roared towards heaven — we couldn't help believing that he had come right down from there to save us!" □