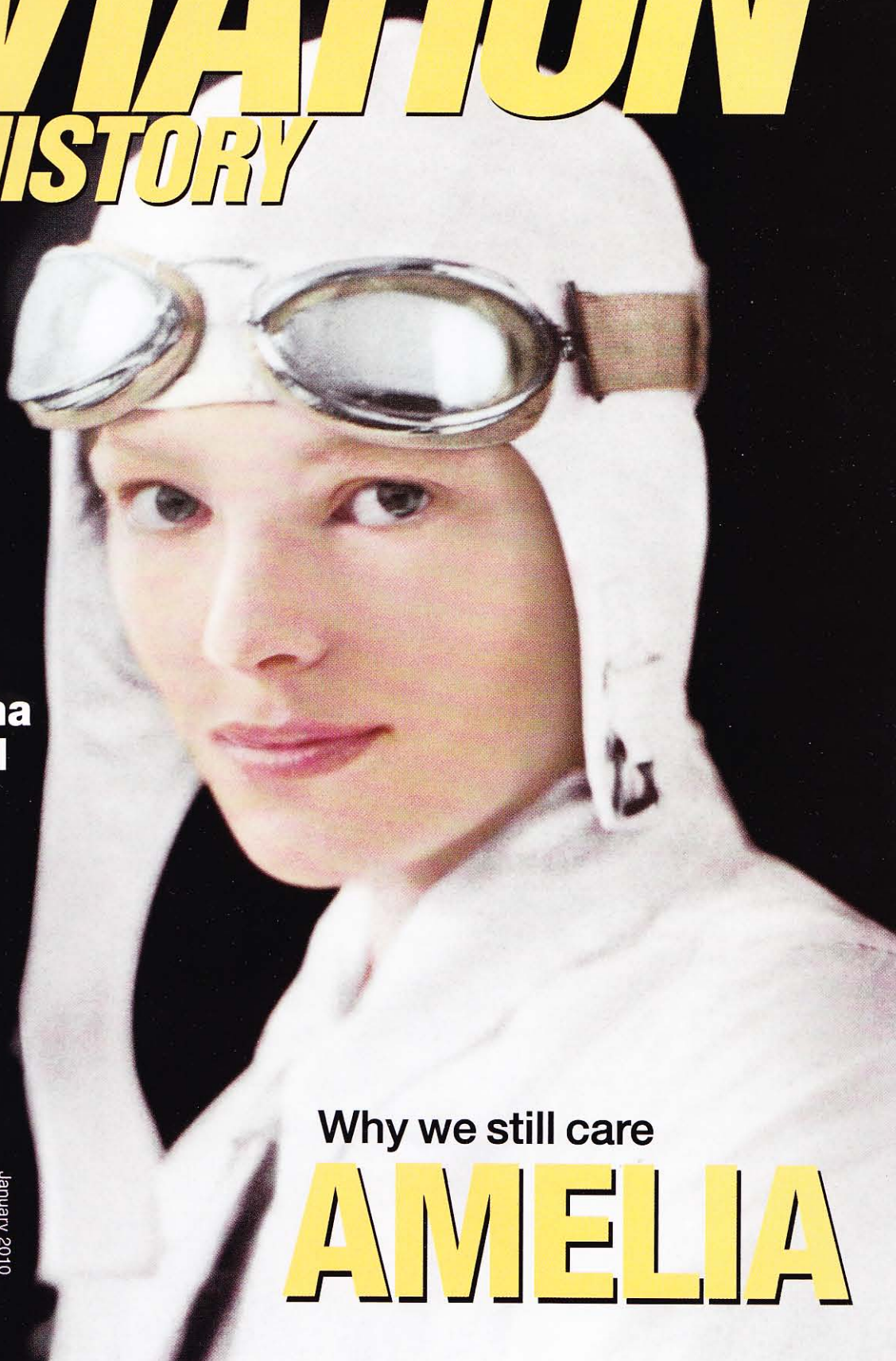


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KAMIKAZE KILLER



The naval version of the Spitfire had its share of teething troubles, but by the end of World War II it had found its sea legs in the Pacific

By Donald Nijboer

The ready room deep inside HMS *Indefatigable* offered little relief from the constant tropical heat in late March of 1945. The British carrier was a technical marvel for its day, but to the Royal Navy crew the overcrowded, unventilated flattop was more akin to a floating oven. The briefing had been quick and to the point: The Japanese had introduced a deadly new weapon that could alter the tactical situation in the Pacific, and it had to be defeated at all costs. With parachutes in hand, the pilots began the long climb to the flight deck, where six Supermarine Seafire L.IIIs had been readied for takeoff. Picket ships were tracking incoming bogies: The kamikazes had arrived. With throttles wide open, the Seafires rapidly rose to meet the threat.

The sleek interceptor's excellent takeoff characteristics, speed and rate of climb made it uniquely qualified to deal with the Japanese suicide planes. No longer a second cousin to American carrier fighters, the Seafire would

prove to be one of the best pure carrier interceptors of the war.

The Seafire took the reputation of its land-based forebear, the Supermarine Spitfire, to sea as an interceptor par excellence. Such a specialized role was unique to the Royal Navy; the United States and Japanese navies expected more range and versatility from their carrier fighters. After a resurgent British fleet returned to the Pacific in 1945, however, and kamikazes began hurling themselves at its carriers, the Seafire truly came into its own.

When Reginald Mitchell first designed the Spitfire, he never expected it to be used as a Fleet Air Arm fighter. Even a cursory look at the Spitfire reveals why: Its narrow-track landing gear was short and weak in comparison to most purpose-built shipboard fighters, the view forward from the cockpit was extremely poor, and its small size did not allow for an increase in internal fuel to extend range.

The Spitfire had been designed as a fast, maneuverable short-range interceptor, in-

tended for operating from established airfields and supported by an abundance of spares and maintenance personnel. Revamped as the Seafire, it was adapted to fulfill a role for which it was never intended, flying from carrier decks and ill-equipped landing strips. Consequently, much of what the new Seafire was expected to do was beyond its capabilities, especially at the outset. But later, in the hands of a cadre of well-trained pilots, it outshone other carrier fighters in an interceptor role more suited to its design.

At the start of World War II, Britain's Fleet Air Arm was in a sorry state. Of its 232 operational aircraft, the majority (140) were archaic Fairey Swordfish biplane torpedo bombers (though ironically they would chalk up an impressive combat record). The only modern aircraft the Fleet Air Arm possessed were 30 Blackburn Skuas. Designed as a fighter/dive bomber, the monoplane Skua fulfilled neither role well. With a top speed of about 225 mph, it was no match for more



Supermarine Seafire Mk. IIIs line up for takeoff from the aircraft carrier HMS *Implacable* in early August 1945.

AUSTRALIAN WAR MEMORIAL, OPPOSITE: STEPHEN FOX

advanced fighters such as the Mitsubishi A6M2 Zero and Messerschmitt Me-109E, and it was a poor dive bomber to boot. Early Royal Navy operations during the invasion of Norway and subsequent actions in the Mediterranean against the Italians drove home the fact that the Fleet Air Arm was not capable of engaging existing Luftwaffe fighters—or bombers, for that matter.

After the Spitfire proved itself during the Battle of Britain, the Admiralty demanded a navalized version. Actually, as early as November 1939, a Royal Navy pilot had test-flown a Spitfire to investigate its suitability for naval operations, and the previous month Supermarine had tested a Spitfire equipped with an “A-frame” arrestor hook. That relatively casual experimentation turned serious in the autumn of 1941 when the Admiralty received the go-ahead to procure “Sea Spitfires.” It requested 400 aircraft, but

the Air Ministry offered only 250.

During Christmas week of 1941, Lt. Cmdr. H.P. Bramwell piloted a Spitfire Mk. VB equipped with an arrestor hook and slinging lugs, conducting initial deck suitability trials aboard HMS *Illustrious*. In the course of his tests, he made 12 deck landings, took off seven times and was launched by catapult four times. Further successful carrier trials took place in March and April 1942, all flown by experienced carrier pilots aboard a specially prepared ship. As such, the tests gave little insight into the problems that would dog the Seafire under less favorable conditions.

Flying from and landing on a ship is an extremely difficult exercise, and carrier operations are notoriously tough on airplanes. Taking off and landing a docile aircraft on an aircraft carrier in ideal conditions is relatively straightforward. It's when you add a pitching deck, gusting winds, poor visibility, pilot fatigue and inexperience, and high landing speeds that the real trouble begins. During

World War II more carrier aircraft were lost due to accidents, poor navigation and fuel starvation than to enemy action. Add the high-performance Seafire to the mix and the results were predictable.

The first Seafires to be delivered were actually 48 existing Spitfire Mk. VBs that had been modified for shipboard use. Most of them were assigned to the Air Service Training program. The conversion of the Spitfire VB into the Seafire IB and the VC into the Seafire IIC was fairly simple. A 6-foot-long hydraulically damped arrestor hook, catapult spools and reinforced slinging lugs on each side of the fuselage were installed, and naval avionics added. The plane's empty weight rose just 5 percent, and the drag caused by the new hook and slinging lugs reduced maximum speed by only 5 to 6 mph.

But while the Seafire Mk. IB had been a straight conversion of the VB airframe, the Seafire Mk. IIC and L.IIC that followed were built as naval fighters from the ground up.

'PURE EXHILARATION'



IMPERIAL WAR MUSEUM

Returning from a raid on oil refineries in Sumatra, a Seafire equipped with a slipper tank hits the barrier aboard the carrier *Indefatigable* in January 1945.

Gerry Murphy, a member of No. 887 Squadron assigned to HMS *Indefatigable* during the Pacific War, was involved in the conflict's very last carrier strike and scored the last two air-to-air victories by a Seafire Mk. III. Looking back, he recalls that the often-maligned naval variant of the Spitfire never let him down.

When I first flew the Seafire it was pure exhilaration. Having flown the standard training aircraft, which didn't have anything approaching the speed and response, it was great in a climb and when turning, and you felt really in control. It was extremely responsive. I also flew the Hellcat, which was a very robust aircraft, but it was like flying a steamroller compared to the Seafire. It was big and heavy, but a great warhorse, and it could take an awful lot of punishment. Compared to the Hellcat, the Seafire was rather delicate. The Hellcat didn't have the response of the Seafire. It was the difference between a racehorse and a carthorse.

For landing, the Hellcat had the advantage over the Seafire: The forward view over the nose was much better when com-

ing in to land, but once on deck the Spitfire brake controls were much better. The brake control on the Seafire was located on the spade grip, so you controlled it with your hand, whereas on the Hellcat the brakes were controlled using your feet on the rudder pedals. I'm not very tall, so I had to hunch down on the pedals, which meant my forward view was restricted. Our Seafires were equipped with slipper tanks. We had about 2½ hours' flying time with the slipper tank, but it made the aircraft more unwieldy.

We also did some dive bombing using the old Stuka technique of aiming the aircraft itself. We had no bombsights, so we would roll over on our backs into a steep dive. But pulling out of the dive, the G force would cause you to black out for a moment. We were wearing G suits, new at the time, which helped to keep you from blacking out completely when recovering from a dive.

I found the Seafire not too hard to land. Sometimes you had to go around again, but that was very rare. Of course, the Seafire was a rather delicate aircraft for landing, and it caused a lot of casualties.

D.N.

The Mk. III was the first Seafire with manually folding wings and a Merlin 55 engine. Built in three versions—fighter (F.III), low-altitude fighter (L.III) and low-altitude reconnaissance variant (LR.III)—it was destined to be produced in the greatest numbers.

The Seafire made its combat debut during Operation Torch, the invasion of North Africa, beginning on November 8, 1942. Five squadrons of Seafires participated, destroying five Vichy French aircraft, damaging three others and destroying another four on the ground. Twenty-one Seafires were lost, although only three to enemy action. These operational losses were due to the extremely poor visibility in thick haze on the first day of the invasion. Seafires were not the only ones to suffer; five out of six Sea Hurricanes were lost in one mission due to the poor atmospheric conditions. It was an inauspicious start, but what followed sealed the Seafire's fate.

The carrier operations surrounding the amphibious assault on Salerno, Italy, served to define the Seafire's reputation. After the invasion and capture of Sicily in August 1943, the Allies had quickly established a beachhead at Calabria on the "toe" of Italy on September 3. In hopes of avoiding a prolonged fight up the narrow peninsula, the U.S. Fifth Army launched Operation Avalanche, an amphibious assault in the Bay of Salerno, on September 9. Seven carriers (five of which were escort carriers) with 121 Seafires were tasked with low and medium air defense of the northern beachhead until, it was hoped, the airfield at Montecorvino could be put into operation on the second day.

On D-day the Luftwaffe reacted swiftly and vigorously. At first light a half dozen Junkers Ju-88s were intercepted and forced to drop their bombs and turn away. This was followed by mostly low-level, high-speed hit-and-run raids by Focke Wulf Fw-190 and Messerschmitt Me-109 fighter-bombers.

D-plus-1 was the Seafires' most successful day of operations. More than 40 enemy aircraft were forced to turn back, but deck landing accidents began to take a heavy toll. At dawn on D-plus-2 only 39 Seafires were available for operations. Still, they managed to fly 160 sorties, an amazing utilization of aircraft.

While the landings at Salerno were ultimately successful, they saddled the Seafire with an unenviable reputation. Statistically

speaking, the numbers painted a grim picture. Although only two Seafires were lost in combat, just two enemy aircraft had been shot down. Worse, 42 Seafires had been lost or had to be written off due to accidents. For every ninth sortie flown, a Seafire was lost or seriously damaged—most often when propellers struck the deck.

The major reasons for the Seafire's high attrition rate were poor operating conditions and pilot inexperience. Many of the fliers had transferred from the fleet carrier *Indomitable* to an escort carrier, and they now had to deal with a flight deck that was 30 percent smaller and a ship that was 10 knots slower. Add the lack of wind (which increased approach speeds by 10 or 15 knots, causing undue strain on hook, undercarriage, pilots and batsman), and you had a recipe for disaster. Furthermore, planners forced the carriers to operate in a restrictive "box" that was far too small and too close to shore for comfortable operations, even in good wind conditions.

Under these conditions it's easy to see why the Seafire's attrition rate was so high, but in terms of the sortie rate per serviceable air-

craft, it did exceptionally well. At a time when most naval airplanes flew no more than two sorties in a day, the Seafire force went from 2.5 to 4.1 sorties per serviceable aircraft. Although they shot down few enemy planes, the Seafires did achieve their ultimate objective: They protected the fleet. Enemy raiders were forced to turn back, many jettisoned their bombs early and those that got close bombed wildly and raced for home. It was an admirable performance for an airplane never designed for such a grueling task.

Once bloodied in battle, the Seafire proved to be a competent fighter. Its major deficiencies, revealed during Operations Torch and Avalanche, were its low-level speed and pitiful endurance. But these would be rectified with the L.III model and the addition of 45- and 90-gallon slipper tanks. Training problems were also addressed.

By the time Seafires were operating in the Pacific, late in 1944, their reputation had begun to improve. With increased fuel capacity, they were able to fly offensive strikes as far

as 195 miles from their ships. In the last operations of the war, the success of the two Seafire wings (88 aircraft) aboard *Indefatigable* and *Implacable* came as a surprise to all but the pilots themselves. Striking targets on the Japanese Home Islands between July 17 and August 15, 1945, Seafires of Nos. 801, 880, 887 and 894 squadrons amassed an impressive record: 1,186 sorties flown, comprising 705 combat air patrol, 324 fighter sweep and 157 antishipping missions. In all, those operations expended 43,600 rounds of 20mm and 169,270 rounds of .303-inch ammunition. A total of 87 enemy aircraft were damaged or destroyed on the ground, and 11 in the air. The toll on enemy shipping was extensive: 3,700 tons sunk, 1,615 tons probably sunk and 24,700 tons damaged.

Seafire losses were slight, with only eight downed by flak and one by fighters, and six pilots killed. Deck landing accidents accounted for a further 20 aircraft, with seven damaged beyond local repair. Surprisingly, losses from all causes were lower than those experienced by the two Vought F4U Corsair wings flying similar missions.



Powered by a Rolls-Royce Griffon VI, the Seafire Mk. XVII featured a strengthened wing spar and undercarriage. Most also had cut-down rear fuselages and bubble canopies.

STEPHEN FOX



AUSTRALIAN WAR MEMORIAL

A Seafire III of No. 38 Naval Fighter Wing warms up onboard *Implacable* in mid-1945. Note the Curtiss P-40 drop tank, which proved more reliable than the 90-gallon slipper tank.

It took a while, but in the closing weeks of the war the Seafire proved itself a capable carrier plane. From any perspective, it was not an ideal naval aircraft, but properly equipped and operated by well-trained pilots and maintenance personnel, it gained respectability undreamed of when it first appeared on a carrier deck.

landing characteristics and safe deck handling under all conditions. These requirements were more an ideal than an attainable goal. Trade-offs were often necessary in order for an aircraft to enter service. Only two WWII naval fighters possessed all three virtues at the time of their introduction: the A6M2 Zero and Grumman F6F-3 Hellcat.

From October 1942 until August 1943, the Seafire held the crown as the fastest carrier fighter afloat, eclipsed only by the introduction of the A6M5 and F6F-3. While its low- to medium-level performance was respectable, its rate of climb and acceleration were remarkable. The L.IIC climbed at nearly 3,500 feet per minute up to 10,000 feet—some 1,500 feet per minute better than the Hellcat or Corsair, and 1,000 feet per minute better than the Me-109G, Fw-190A or A6M5. For sheer acceleration the Seafire had no peer. In 1945 it was still the fastest and steepest climbing Allied naval interceptor. That turned out to be of great tactical value because once targets had been identified on radar, the Seafire required less distance and time to reach any given altitude.

The Seafire's armament of two 20mm Hispano cannons and four .303-inch Browning machine guns remained unchanged throughout the war. That configuration proved adequate, but there is reason to believe the Seafire/Spitfire was not a particularly good weapons platform. The Seafire was a light fighter, which meant that engine vibration and propeller torque interacted with structural flexing to make precise sighting of the guns difficult, especially at ranges beyond 200 yards. The Seafire L.IIC and L.III were cleared to carry a 500-pound bomb, though

How did the Seafire stack up against its carrier-borne contemporaries?

WWII naval fighters had to perform a variety of tasks. Interception was their primary role, but other jobs included long-range escort, ground attack, reconnaissance, fighter sweeps, dive-bombing and spotting for bombardment by surface ships.

To fulfill these many roles, the carrier-borne fighter must possess three attributes: 1. power, performance and armament equal to or better than land-based interceptors and other naval fighters; 2. the ability to escort strike aircraft or remain on patrol for extended periods of time; 3. rugged structure, good deck

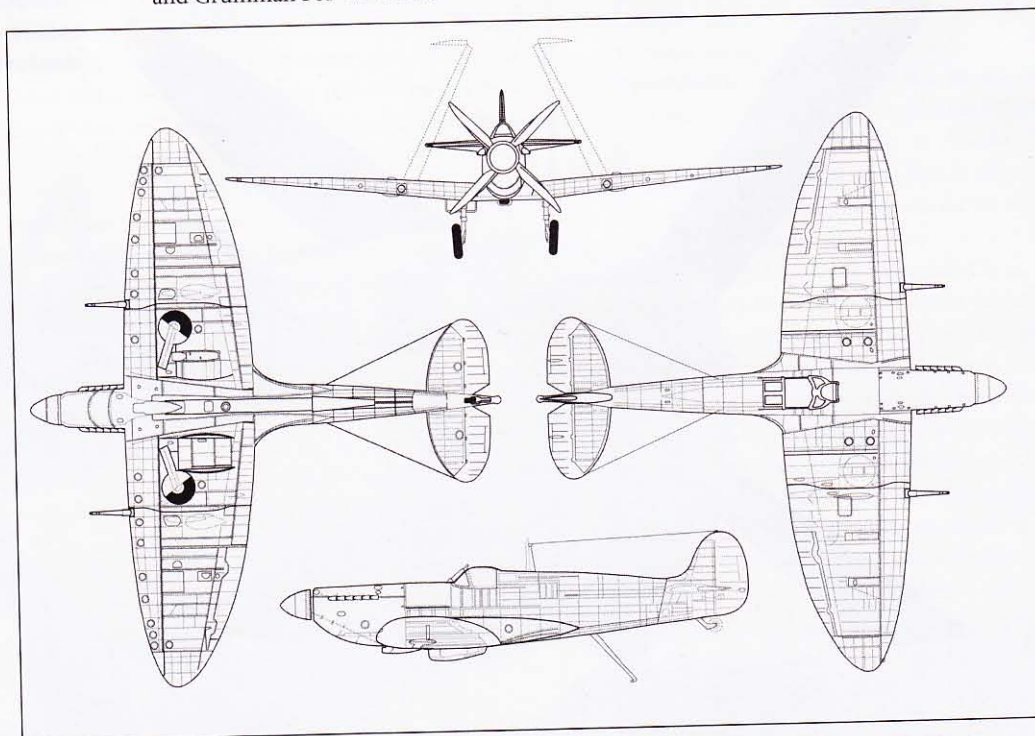


ILLUSTRATION BY STEVE KARP

The first Seafire equipped with manually folding wings and a Merlin 55 engine, the Mk. III had a top speed of 352 mph at 11,500 feet. The L.III low-altitude variant could climb to 15,000 feet in 5½ minutes.



The restored Seafire Mk. XVII SX336 made its first public flight in April 2008.

only two Seafire wings actually undertook bombing operations during the war.

Designed as a short-range point defense interceptor, the Spitfire was a poor candidate for the role of general-purpose naval fighter. Its internal fuel amounted to just 85 imperial gallons. Slipper tanks of 30 and 45 gallons were quickly introduced, with the 45-gallon version ready for the Seafire's first combat operation. The 45-gallon tank gave it two-hour endurance with a radius of action of 140 miles. It wasn't until the summer of 1945 that the Seafire's short sea legs were significantly extended. Fitted with a 90-gallon slipper tank, Seafires could carry out offensive sweeps of up to 195 miles or stay on patrol for three hours or more.

The deck landing and handling qualities of the Seafire were, to put it kindly, not good. As a land-based interceptor, its landing technique called for long runways and a fairly fast approach speed down a 2-degree glide path, followed by a last-second flare. Carrier deck landings required a totally different technique, one that was foreign to the finely balanced Seafire. A constant-speed and constant-attitude approach was required in order to engage the arrestor wire in a safe, correct manner. The Seafire's approach speed of

'The kamikaze was a weird form of terrorism which seemed to us to deserve nothing but a painful death and eternal damnation. With their clever, decoyed, low-level approach below the radar of the carrier air defense, it was worrying to think that 100-percent kills would be necessary before a sure defense could be provided.... However, we felt that the Seafire, of all aircraft, would be the best possible defense in such circumstances....'

**—Lt. Cmdr. Mike Crosely,
No. 808 Squadron**

between 74 and 80 mph (74 mph was just 7 mph above the "brochure stall") left little room for error. Add the Seafire's narrow-track undercarriage, and accidents should not have been unexpected.

Despite its many shortcomings, the Seafire achieved a modest degree of success. At war's end 12 Seafire squadrons were in frontline carrier service. During air combat operations, they destroyed 37 enemy aircraft (including 15 Zeros), probably destroyed another two and damaged 25, for the loss of eight Seafires in air-to-air engagements.

Though it was adapted from a land-based interceptor and therefore was never particularly well suited to carrier use, the Seafire served admirably, and any criticism of its performance should be viewed through that prism. In many ways what the Seafire accomplished was quite remarkable. Credit for its success should go to those who operated this fine fighter under arduous conditions. †

*Among several other aviation history books, Toronto-based writer Donald Nijboer is the author of *Seafire vs. A6M Zero*, which he recommends for further reading. Also try *Supermarine Seafire*, by Kev Darling, and *Royal Navy Aces of World War 2*, by Andrew Thomas.*