



FlyPast Spotlight

Bell P-39 Airacobra P-63 Kingcobra

16 Pages in detail

64 Iron Dog -
the Bell P-39

70 In profile -
P-400

72 Sting of the
Kingcobra

76 The Airabonita
Experiment

80 In Miniature



With its mid-mounted engine, lengthy drive shaft, tricycle undercarriage and huge 37mm cannon positioned in the centre of the propeller hub, Bell's P-39 Airacobra was radical in almost every element of its design. It was considered way ahead of its time and yet, when it was ready to enter combat in the early days of World War Two, it appeared to be practically obsolete – until used to devastating effect by the Soviets. The design was bettered by the subsequent P-63 Kingcobra, a more powerful fighter that found favour in Russian hands, and later with the French.



Main picture
A rare colour image of Bell P-39
Airacobras in service with the USAAF. KEY



Spotlight

Bell P-39 Airacobra

The

Iron

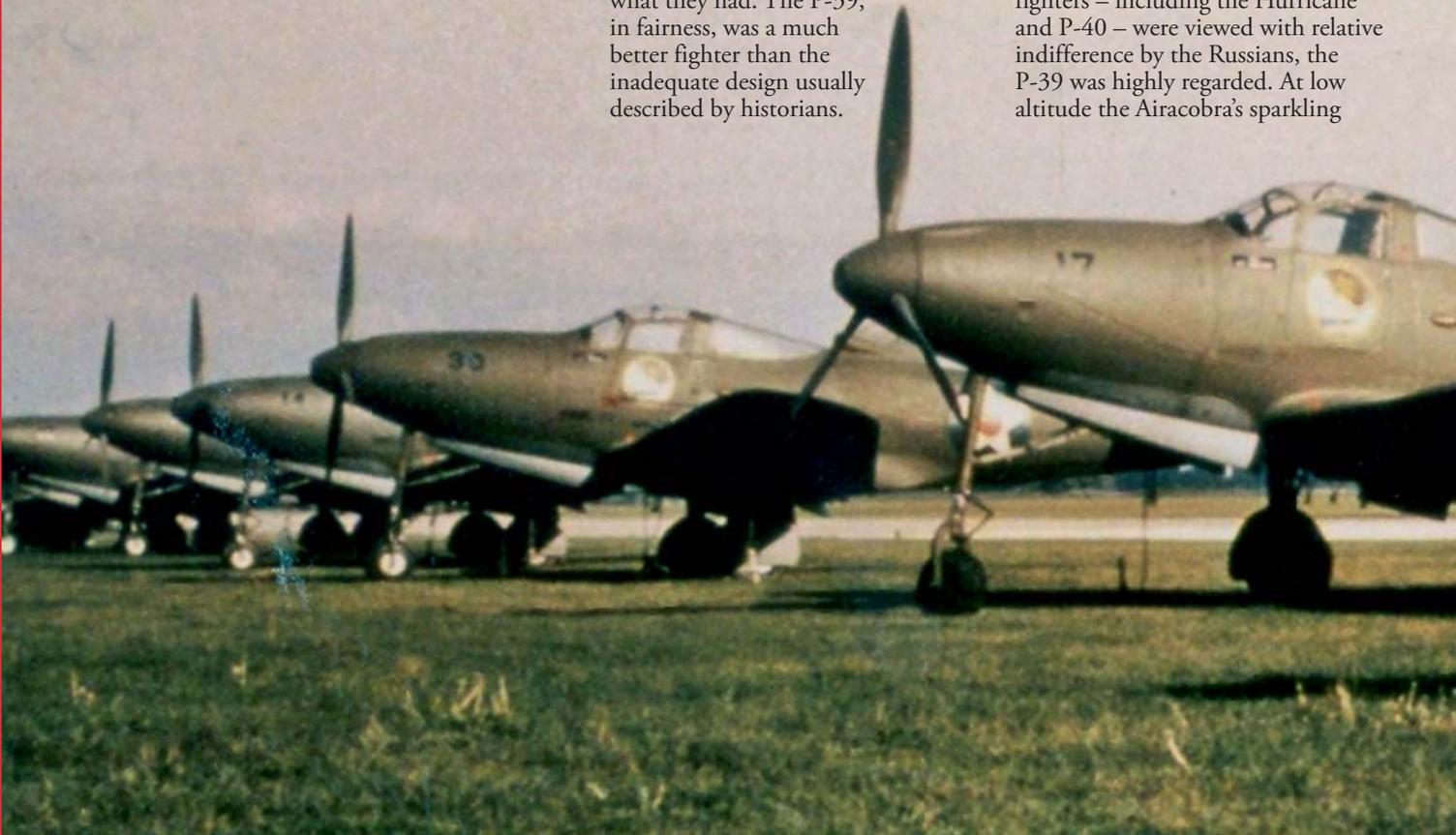
This gaggle of P-39s of the 31st Pursuit Group was photographed at Selfridge Field in 1941.
WARREN THOMPSON COLLECTION

Much has been written about the Spitfire, Mustang, Hellcat, Corsair, Thunderbolt, and Lightning, the truly remarkable fighters of World War Two. One might even conclude these types won the war by themselves. In terms of performance these aircraft were certainly thoroughbreds, but other, less famous, machines also played a hugely significant part.

After aircraft such as the Hawker Hurricane and Supermarine Spitfire were 'blooded' in combat during the early stages of the conflict, US manufacturers were able to take advantage of the lessons learned. But for those flying earlier American designs such as the Grumman Wildcat, Curtiss P-40 and the much-maligned Bell P-39 Airacobra – the so-called 'Iron Dog' – pilots were forced into combat with what they had. The P-39, in fairness, was a much better fighter than the inadequate design usually described by historians.

Its contribution to the war in the Pacific and Mediterranean was insignificant in terms of enemy aircraft shot down (around 300 victories), but it still managed to hold its own. More importantly, the P-39 along with the P-40 gave the Allies what they needed most – time. While inexperienced airmen flew against the formidable Mitsubishi 'Zero' in the Pacific, they managed, in the end, to achieve a kill ratio of one-to-one. This is a remarkable figure given Japanese pilots enjoyed a considerable advantage in terms of combat experience and equipment in the early months of the war.

The time gained allowed the Allies to build their forces and introduce newer and faster fighters such as the Grumman Hellcat, Vought Corsair and Lockheed P-38 Lightning. The Russians, however, couldn't wait. While several types of Allied fighters – including the Hurricane and P-40 – were viewed with relative indifference by the Russians, the P-39 was highly regarded. At low altitude the Airacobra's sparkling



Dog

Donald Nijboer reflects on the history of Bell's innovative but often overlooked P-39 Airacobra

performance caused problems for the Luftwaffe's top pilots.

Many leading Russian aces scored most, if not all of their victories while flying the P-39. An informal count has more than 30 Russian 'Kobra' pilots with at least 20 kills. The Airacobra's contribution to success on the Eastern Front was significant, and the capability of the type at low level played a major role in the defeat of the German army.

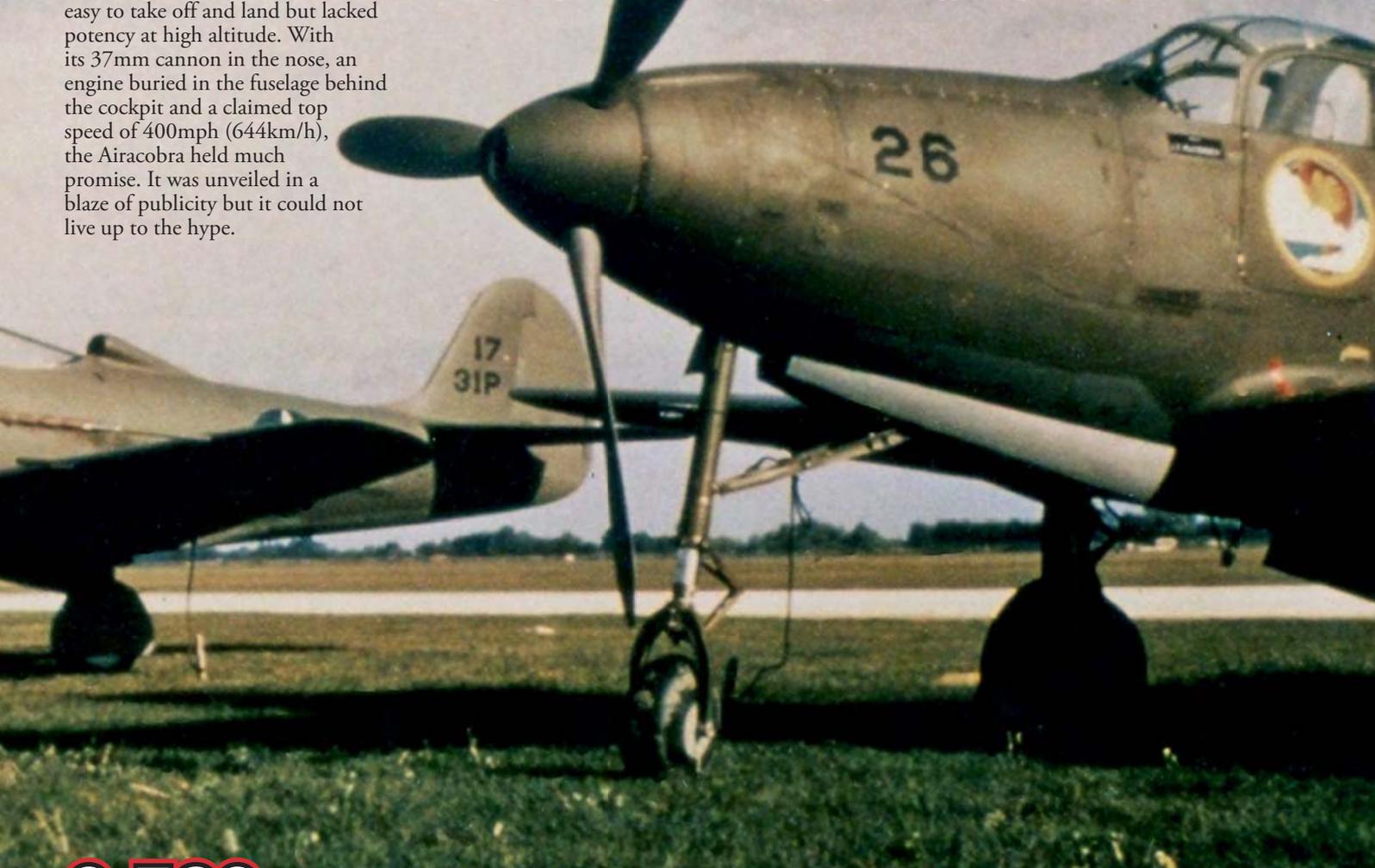
RAF disaster

The Bell fighter was designed by a team of engineers whose ideas, some ingenious, never reached their full potential. The result was an aircraft that was pleasant to fly and very easy to take off and land but lacked potency at high altitude. With its 37mm cannon in the nose, an engine buried in the fuselage behind the cockpit and a claimed top speed of 400mph (644km/h), the Airacobra held much promise. It was unveiled in a blaze of publicity but it could not live up to the hype.

There was a huge gulf in the performance of the lightly loaded prototype and that of the fully equipped operational version. By the time the P-39 reached the production stage, its weight had increased by 30%, but its performance had been weakened by the removal of the all-important engine turbo-supercharger. It was a case of 'buyer beware'. What Bell had promised could not be delivered and the British Purchasing Commission made a terrible mistake in ordering the type.

There were few voices raised against the Bell company's claims for its new fighter in 1940. The British had high hopes for the machine. At the time Britain was fighting for its life and the prevailing need was for more fighters. America had what 'Blighty' needed and in retrospect it's not surprising large-scale contracts were placed for almost anything with wings.

The RAF was the first to use the Airacobra in combat, but of the original 675 machines ordered, just four flew sorties across the Channel in October 1941. Dogged by armament problems, poor serviceability, an unreliable compass and disappointing



9,529 Airacobras were built in total

SPOT FACT The XP-39 prototype was almost 2,000lb (900kg) lighter than production versions



Above
A training flight by P-39s of an unknown unit over the American mid-west in 1942. WARREN THOMPSON COLLECTION

Right
The cockpit of the P-39 was accessed via side-opening car-style doors. WARREN THOMPSON COLLECTION

Right centre
P-400 'WAHL-EYE' hailed from the 39th FS, 35th FG, and in 1942 flew from 12 Mile Aerodrome, New Guinea. WARREN THOMPSON COLLECTION



high-altitude performance, the P-39 proved unsuitable for combat in the European theatre. But the RAF experience with the type was quite different to that of the Soviet Air Force. Following the start of the German invasion of the Soviet Union on June 22, 1941, the decision was made to divert the bulk of the British contract for Airacobras to the Red Air Force. On the face of it, the decision seemed sound. What the Soviets needed was a fighter with good low-level capabilities and enough firepower to deal with ground targets – and it might also have been seen as a good opportunity for the RAF to rid itself of an unwanted, unsuitable import.

In American hands

It wasn't just the Soviets that urgently required aircraft; the US also found itself in desperate need of fighters. After the Japanese attack on Pearl Harbor on December 7, 1941, getting more fighters to the USAAF was a priority. Aircraft ordered for export were quickly requisitioned; among them were nearly 200 British-ordered P-39s. These would find their way to the Pacific and were designated as P-400s, a version armed with a 20mm cannon in place of the original 37mm.

War for the US-flown P-39s began in Port Moresby, New Guinea. Arriving in Australia in March 1942, the 35th and 36th Pursuit Squadrons of the 8th Pursuit Group

(re-designated as fighter squadrons and groups in May) began flying operations. The following month, the first detachments were deployed north to the front line at Port Moresby. Early losses were incurred, but the two squadrons had achieved operational status under extreme conditions by the end of April.

Keen to engage the enemy, the 8th Pursuit Group sent out 13 P-39s on an offensive sweep. The Japanese at Lae and Salamaua were caught by surprise. In a single strafing run, the American fighters were able to employ their guns on a fuel dump, a radio station, other supply depots and three seaplanes found at anchor. Lae-based Zeros scrambled in time to intercept the withdrawal of the P-39s



“The Russians will always remember the P-39 for its success over their homeland”

and in the dogfight that followed, four Zeros were shot down for the loss of four Airacobras. Three of the Zeros destroyed were credited to Lt Col Boyd D ‘Buzz’ Wagner, one of the first US aces of the Pacific war. Wagner regarded the P-39 as an excellent overall fighter at altitudes up to around 18,000ft (5,490m) and believed its performance to be “about 10% better in every respect than the P-40”.

This set the pattern for much of the Airacobra’s involvement in the Pacific campaign. While never able to gain a decisive upper hand on the Japanese, P-39 pilots did manage to give as good as they got. Considering the experience of the more seasoned

Japanese airmen and the technical advantages they had, it’s remarkable just how much the often-disregarded P-39 was able to accomplish.

Obvious deficiency

The 67th Fighter Squadron (FS) of the 347th Fighter Group (FG) was the next unit in action in the South Pacific. While the P-39s and P-40s of the 8th and 35th FGs battled with the Japanese over eastern New Guinea, pilots and ground personnel of the 67th were arriving at an airfield at Tontouta in New Caledonia. They settled in on March 15, 1942, followed a week later by 47 crated Airacobras.

The difficulties experienced by the men of the 67th made

the British experience look like a walk in the park. The aircraft they received came with no instruction manuals, no assembly tools or spare parts. Furthermore, they had just two pilots with previous P-39 experience. The first Airacobras took to the air six days after the unit arrived, and 41 aircraft were assembled over the following 29 days.

A short period of training followed and in August 1942 the FS moved to Guadalcanal, to begin ground-attack operations with 500lb (227kg) bombs. Its first kill was registered within 48 hours. During the remainder of August and September the Japanese threw everything they had at the Americans on Guadalcanal. US Navy and Marine fighters rose to the defence of the island and claimed the majority of victories.

Time after time, P-39 pilots would take off to intercept an incoming raid, only to find the Japanese bombers flying too high (above 20,000ft). As had already been proven, the Airacobra’s high-pressure oxygen system and Allison engine were not suited for high-altitude combat. The other major disadvantage was the P-39’s small size. With the engine located behind the pilot there was little room for fuel. Even when fitted with drop tanks, the aircraft could not be flown safely for much longer than two hours.

The Wau factor

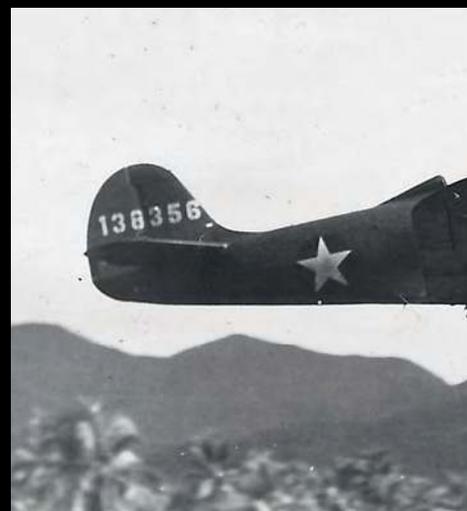
By the beginning of 1943 there was just a handful of units still flying the P-39. By the

Left
Two Soviet Airacobra pilots pose with an American airman from the 99th BG. Two weeks after the P-39 entered combat over New Guinea, it began what was to be an impressive career with the Soviet Air Force. USAF

Below
The single TP-39F trainer conversion seen in 1942 during early production of the P-39. All original armament was removed. WARREN THOMPSON COLLECTION



SPOT FACT The P-39D was the first variant to be used in action



Below
With guns blazing,
this iconic photo of
the P-39 graphically
shows its impressive
armament of four
.30-cal and two
.50-cal machine
guns, and one 37mm
cannon. USAF

end of that year the type's tenure in the Pacific had finished. There was nevertheless still some hard fighting ahead and the Airacobra would continue to make an impression.

Between February and August 1943, P-39s of V Fighter Command claimed more than 40 of the 50 kills credited to USAAF units. Much of the action took place over the advanced airstrip at Wau, New Guinea. Despite losing the ground battle for Wau, the Japanese continued to bomb and strafe the base well into the middle of 1943. It was up to the pilots of the 40th and 41st FSs to oppose these raids. They also had the additional task of protecting Douglas C-47 transports, used to deliver men and supplies.

On February 6, both units intercepted a large formation of seven Mitsubishi Ki-21s, escorted by 21 Japanese Army Air Force Nakajima Ki-43 'Oscars'. As the enemy

approached, eight 40th FS P-39s were escorting C-47s over the Wau area. Finding themselves in a sound tactical position, the American fighter pilots dove to attack.

Guns blazing, they tore through the Japanese formation – 11 fighters and one Ki-21 fell to their accurate fire. The year 1943 would prove to be the most productive for P-39 units in V Fighter Command, but as the tide of war shifted in the Allies' favour, US fighters with longer range were needed, taking the fight deep into enemy-held territory. The relatively short-legged P-39 could not follow and was often left to perform less 'glamorous' missions, such as local patrols or transport escort.

The P-39 Airacobra is not best remembered for fighter-versus-fighter combat over Guadalcanal and New Guinea during 1942-43, but while many pilots had harsh words for the type, it nevertheless contributed to the eventual victory over Japan. While inferior to the

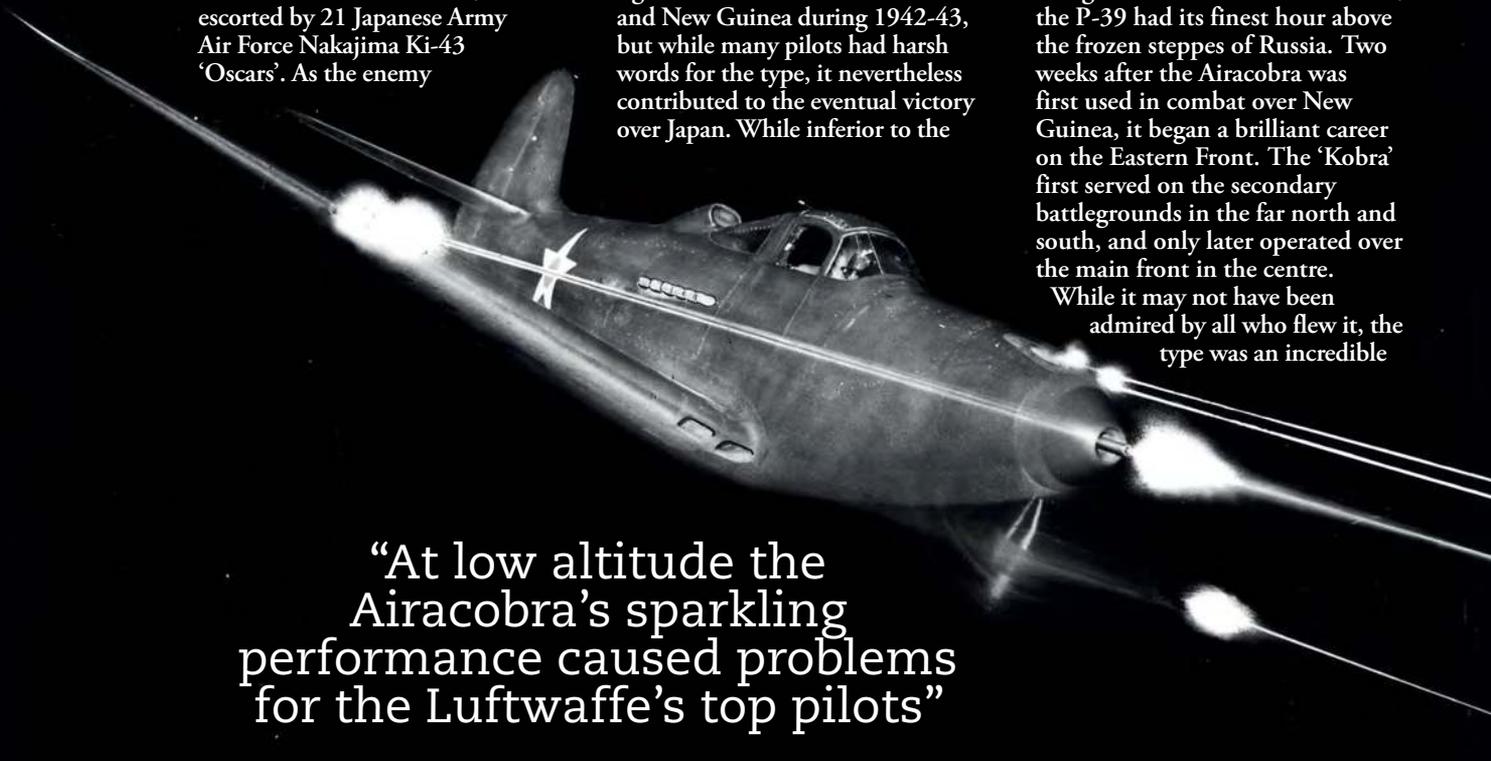
Zero and Oscar fighters, the P-39 managed to battle the Japanese to a draw. Considering the minimal amount of training most young American pilots had before they went into combat and the aircraft they were forced to fly, it's a wonder they achieved so much against a formidable and determined enemy. If the P-39 had been equipped with a turbo-supercharger, the Japanese would surely have suffered even more losses.

In the end, the Americans had to go to war with what they had. Bell's machine was able to chip away at the Japanese, and helped to inflict a body blow from which the enemy's air force would never recover.

Red star

While Japanese expansion was being checked in the South Pacific, the P-39 had its finest hour above the frozen steppes of Russia. Two weeks after the Airacobra was first used in combat over New Guinea, it began a brilliant career on the Eastern Front. The 'Kobra' first served on the secondary battlegrounds in the far north and south, and only later operated over the main front in the centre.

While it may not have been admired by all who flew it, the type was an incredible



“At low altitude the Airacobra's sparkling performance caused problems for the Luftwaffe's top pilots”



success in the Soviet Union. At the end of the war some leading Soviet aces were reluctant to make the transition to more modern types.

The first P-39s to enter Soviet service came from the UK. The British sent 212 Airacobra Mk.IIs via Murmansk. Initially, Soviet pilots expressed reservations about the aircraft's unfamiliar tricycle landing gear. They were soon won over when they found it gave them better control on the ground and greatly improved forward vision when taxiing. It was also far superior to any other fighter when it came to manoeuvring across snow-covered airstrips.

The P-39 was faster and had a better rate of climb than the Soviet I-16, MiG-3 and LaGG-3 single-seat fighters, and its all-round vision canopy proved superior to anything the Soviets were producing. Pilots also found the Kobra cockpit roomy, warm and comfortable and appreciated the fact that it was equipped with an excellent radio. At the time, most older Soviet fighters had no radio at all, while the newer models were inadequate. Most devices fitted to MiGs, LaGGs and Yaks could only receive.

The new, two-way units enabled pilots to develop and adapt more complex and open formations. It also meant junior pilots could warn of approaching enemy aircraft and allowed their leaders to make quick decisions. It is probably no coincidence that some of the highest scoring Soviet aces – and most innovative tactics – came from the pool of airmen assigned to Airacobra units.

Like many new fighters, the P-39 had its share of faults. While the Soviets made the best possible use of the type, there was no escaping the fact that it had a temperamental engine.

The Allison unit's distaste for Russian aviation fuel did not help either, and oil tended to pool within the engine, then froze in the harsh winters. Pilots were also told to bale out only as a last resort; as the Americans discovered, jumping out from the unorthodox side 'car door' was at best risky.

At low and medium altitude the Kobra was more than a match for the Luftwaffe's much-vaunted Messerschmitt Bf 109. According to the British Air Fighting Development Unit, which compared an Airacobra Mk.I to a captured Bf 109E: "the Messerschmitt cannot compete with the Airacobra in a turn and even if the Bf 109 is behind the Airacobra at the start, the latter should be able to shake him off and get in a burst before two complete turns have been carried out. The Bf 109 then tried diving on the Airacobra from above and continuing the dive down to ground level after a very short burst of fire. It was found, however, that the Airacobra could follow and catch up on the Bf 109 in a dive of over 4,000ft."

The P-39 provided an almost perfect solution to the Soviet Air Force's problems, as it required a tactical machine that could support ground forces. The vast majority of their operations were at low and medium altitudes, exactly where the Bell machine performed best.

Mount of aces

Of the 9,585 production P-39s built, 4,773 went directly to the Soviet Union. In the spring and summer of 1943 the very best Soviet units were Airacobra regiments, mainly assigned to 216 Air Division, which became the famous 9 Guards Air Division. Just as the Hurricane and Spitfire will forever be remembered as symbols of victory in the Battle of Britain,

and the American Wildcat for the extraordinary triumph at Midway, the Russians will always remember the P-39 for its triumphs over their homeland.

The strength of the type in Soviet hands is exemplified by the success of 298 IAP (Istrebitelnyi Aviatsionnyi Polk – Fighter Aviation Regiment). Over a five-month period, between March 17 and August 20, flying against the Luftwaffe's VIII Fliegerkorps, the regiment flew 1,625 sorties, shooting down 167 enemy aircraft. Losses amounted to just 30 aircraft shot down, with 11 heavily damaged.

The third highest scoring Soviet ace of the war flew a Kobra. Grigoriy Rechkalov began his operational career during the Battle over the Kuban in the early summer of 1943. He proved an excellent shot and scored an impressive tally of 56 kills and five shared, with 44 achieved while at the controls of a P-39. A remarkable 179 Russian aces scored most or some of their victories while flying the Airacobra.

In contrast, just one American pilot, Lt William F Fiedler Jr, made ace status on the type. The last US unit to be equipped with P-39s was the 350th FG in Italy, which flew them until April 1944. The Soviets continued operating the type until the final victory over Berlin and were reluctant to give them up even after that.

In the hands of the Americans and the British, the Airacobra is usually recorded in history books as having been 'especially disappointing', or words to that effect. It's tempting to think that if the same historians had asked their Soviet allies what they thought of the type, the final verdict might have read 'especially destructive'. ●

Above, left to right
Although one of the smallest single-seat fighters of World War Two, the P-39 had the heaviest armament.

A single hit from its centreline-mounted 37mm M4 cannon was more than enough to down any Japanese fighter or bomber. NIAGARA AEROSPACE MUSEUM

P-39D-1 'Sun Setter' from the 35th FS taking off from Milne Bay, New Guinea in late 1942. The maximum speed of the P-39D was 368mph at 13,500ft. DONALD NIJBOER

This 67th FS P-400, armed with a 20mm cannon in the nose, was named 'Fancy Nancy' and based at Henderson Field, on Guadalcanal, August 1942. 1000AIRCRAFTPHOTOS.COM



Spotlight

Bell P-400 Airacobra



Pacific Pugilist

Artist **Andy Hay** renders a modified version of the P-39 Airacobra

Artwork

The shark-mouthed example shown here, coded 'White 13' and with the dual nose art of "WAHL-EYE II" and "PAT", was the personal mount of Lt Eugene Wahl, a pilot with the 39th Fighter Squadron, 35th Fighter Group, based at 12 Mile Drome, New Guinea, in 1942. ANDY HAY-2018

A non-standard designation, P-400, was eventually given to Model 14 Airacobras built initially for France, but the order was then absorbed by the RAF. These airframes were almost identical to the P-39C/D but had a higher-performing 20mm cannon firing through the propeller spinner rather than the standard, heavier

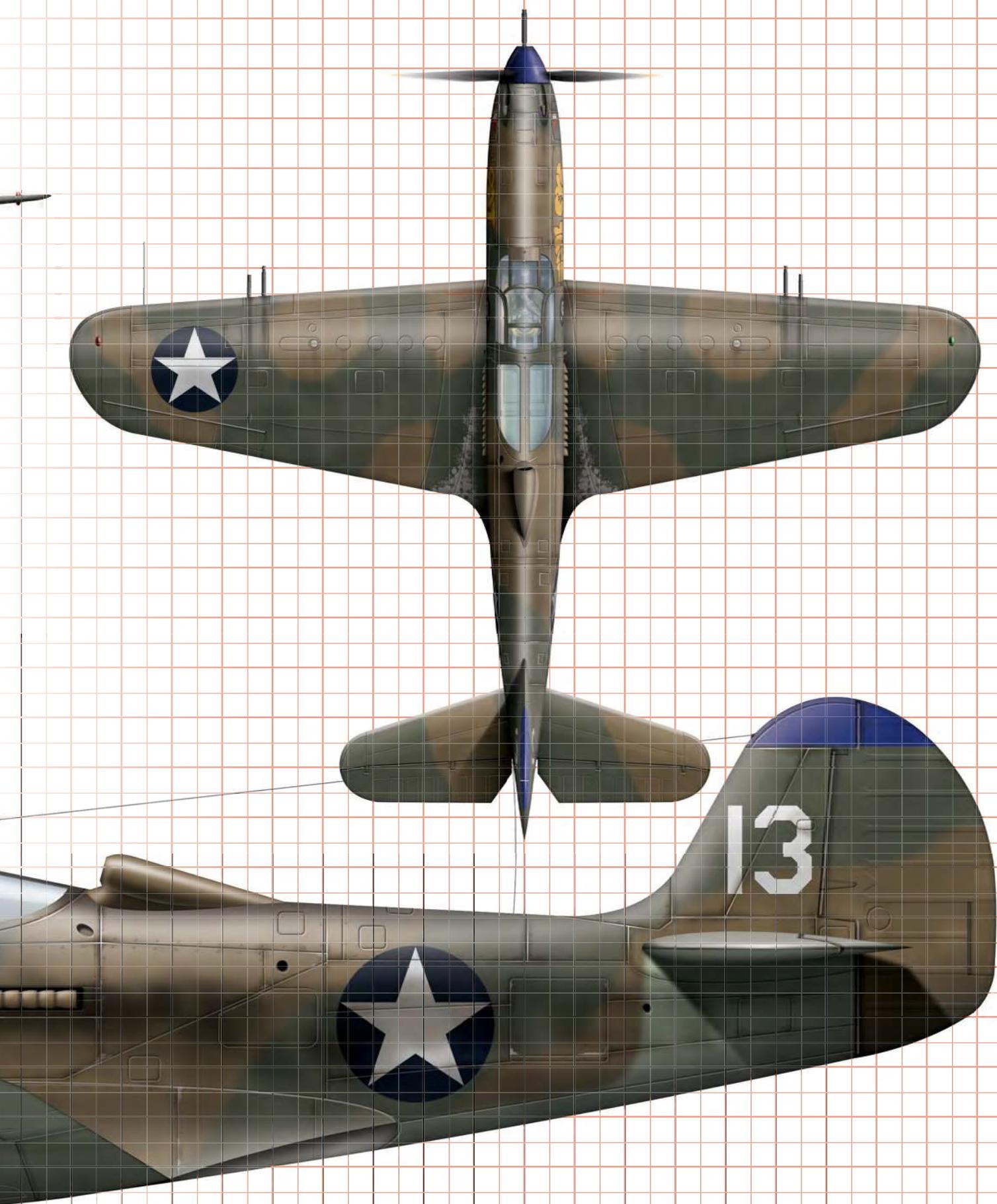
37mm weapon, the former being considered more appropriate for the role of low-altitude fighter by the British. One other difference was the fitting of 12-stack exhausts, but eventually, six-stub fishtail versions adorned the RAF's operational aircraft. Ultimately, Britain never accepted its full allocation of Airacobra Mk.IIs, as they were known, and surplus airframes were rerouted back to the United

States Army Air Corps and sent to the Soviets. With the return to US use, the aircraft were renamed P-400 and fielded in the Pacific and Mediterranean theatres. Its 20mm cannon, two .50-cal and four .303 machine guns, in the spinner, fuselage and wings respectively, packed a real punch. The P-400s also retained their British camouflage but had US markings applied for USAAF employment.



SPOT FACT The first RAF Airacobras equipped 601 Squadron from August 1941

**Bell P-400
in profile**



59

kills were recorded by Soviet ace Aleksandr Pokryshkin, mostly in the P-39



Spotlight

Bell P-63 Kingcobra

Venomous Royalty

Although bearing a strong resemblance to the P-39 Airacobra, the P-63 Kingcobra was very much a separate design.

Malcolm V Lowe tells the story of this late-war fighter

Right Two Kingcobras (FR408 and FZ440) were supplied to Britain, but the type was never used operationally by the RAF. Both were P-63A airframes, and the latter aircraft features here. British trials included examination of the laminar flow properties of the Kingcobra's wing design. ALL MALCOLM V LOWE COLLECTION

The P-63 Kingcobra was the last large-scale production aircraft type designed and built by the Bell Aircraft Corporation. It has often been claimed in many published sources that it was simply a development of the P-39 Airacobra, being little more than a larger, more advanced version with less rounded lines and potentially better performance.

However, the Kingcobra's story is much more than just that, because the type was, to a considerable extent, a standalone project. While having layout characteristics echoing the P-39, it was created to meet different design criteria and mission needs.

Bell originally intended the new type to be powered by the Continental V-1430 inline engine, but development problems resulted in the company reverting to the tried and trusted Allison V-1710 for the P-63 Kingcobra.

This involved the engine being

mounted roughly amidships behind the cockpit, driving the propeller unit via a long extension shaft and forward-mounted gearbox.

Major contracts

The P-63 became a part of the massive expansion in the USAAF's fighter/fighter-bomber force following the Japanese attack on Pearl Harbor in December 1941. It drew on experience gained from the opening stages of World War Two, where well armed high-performance fighters had proven their effectiveness.

Bell wished to become a part of the increasingly lucrative fighter procurement possibilities in the US, and approached the new project with a view to creating a potent, well-armed fighter able to perform at all levels.

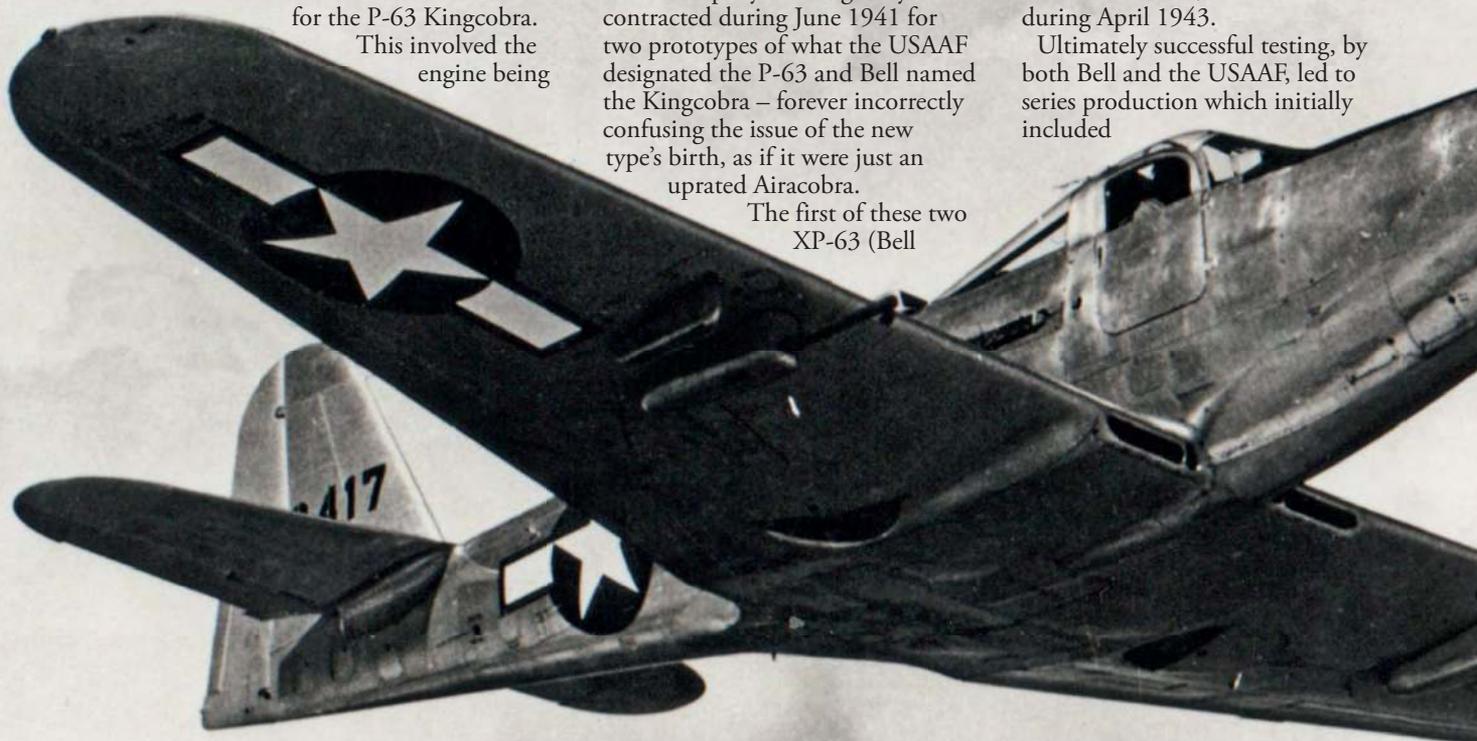
The company was originally contracted during June 1941 for two prototypes of what the USAAF designated the P-63 and Bell named the Kingcobra – forever incorrectly confusing the issue of the new type's birth, as if it were just an updated Airacobra.

The first of these two XP-63 (Bell

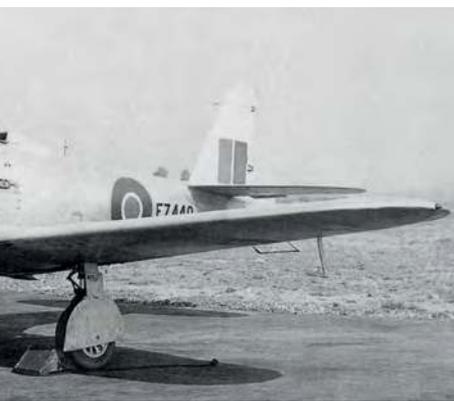


Model 24) airframes initially flew on December 7, 1942 – the long delay illustrative of development problems. These difficulties continued when both were lost in accidents. A third aircraft, the XP-63A, therefore effectively had to become the programme's prototype and trials aircraft, and first flew during April 1943.

Ultimately successful testing, by both Bell and the USAAF, led to series production which initially included



ity



several sub-types of P-63A (Bell Model 33). Altogether, 1,725 A-series aircraft were built, but Bell tinkered considerably with these different marks and received input from the Soviet Union, which eventually received Kingcobras in large numbers. A planned



Above
Looking very futuristic, one of the two swept-wing L-39 Kingcobra research aircraft displays its unusual wing configuration. The trials programme was carried out post-war on behalf of the US Navy.



Left
This P-63A-6-BE, serial number 42-68931, displays a distinctive feature of the Kingcobra family: a four-bladed propeller as opposed to the three-bladed version fitted to the P-39 Airacobra.

“Bell wished to become a part of the increasingly lucrative fighter procurement possibilities in the US, and approached the new project with a view to creating a potent, well-armed fighter.”

Bottom left
The P-63 Kingcobra was an entirely new aircraft, despite bearing more than a passing resemblance to the earlier Airacobra. This P-63A-9-BE, 42-69417, displays the generally clean lines of the type as well as armament including a 0.50-cal machine gun in a gondola beneath each wing.

Packard V-1650 Merlin-powered version, the P-63B, was not built.

Following the P-63A was the P-63C – the last major production of the Kingcobra line, which again represented more upgrading of the basic layout and included changes to the wing and rear fuselage, where a ventral fin was added.

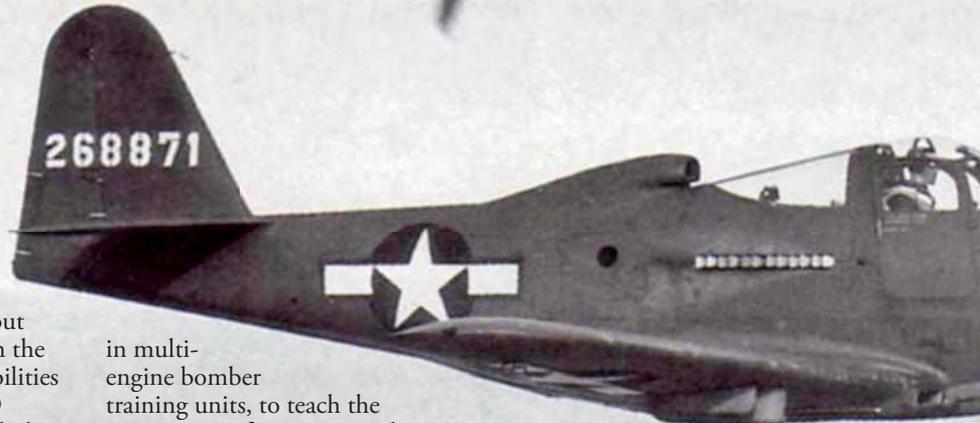
The P-63C had the V-1710-117 supercharged powerplant, with a war emergency rating of 1,500hp at sea level and 1,800hp with water injection. At the time it was claimed this gave an excellent maximum speed of 410mph (660km/h) at 25,000ft (7,620m).

Wing span was 38ft 4in and length 32ft 8in. Armament comprised a 37mm cannon centrally located in the hollow propeller shaft, firing through the propeller hub, and four 0.50-cal machine guns – two mounted in the upper forward fuselage firing through the propeller arc and two in underwing gondolas.

Up to 1,500lb (680kg) of bombs could be carried on one lower fuselage centreline point, and one weapons pylon under each wing.

An attempt to achieve better all-round vision for the pilot led to the one-off P-63D, an attractively streamlined derivative with a

SPOT FACT Post-war Soviet Kingcobras were allotted the NATO reporting name Fred



Right
This image allows for a comparison between the Kingcobra (lower) and the Airacobra. The former (represented here by P-63A-1-BE, 42-68871) was larger and a better performer, especially at higher altitudes. The Airacobra is a P-390, the last major production version of the type.

rearwards-sliding 'bubble' canopy. However, it did not enter production.

Two further Kingcobra models were built, albeit in small numbers: the P-63E and the final mark, the P-63F. They represented further tweaking of the basic design, but were good enough to approach the superb performance and capabilities of the highly successful P-51D Mustang and P-47D Thunderbolt.

A total of 3,303 Kingcobra airframes is usually cited for overall production, although some batches were eventually cancelled.

Limited operations

The Kingcobra proved to be a perfectly good warplane with useful performance, despite the protracted development and production changes. Nevertheless, only one operator, France, put the type to full combat use.

Deliveries of production P-63As were to begin during the final quarter of 1943. But the USAAF's trials of the P-63A at Eglin Field, Florida, concluded it was unsuitable for US frontline service, even though some test pilots reported favourably on its general characteristics. Therefore, the Army Air Forces took a comparatively small number of Kingcobras on charge, and the type never entered frontline operational service with them.

It appears that, at one time, there was a proposal for the tactical US Ninth Air Force in Britain to operate Kingcobras on fighter-bomber duties alongside Thunderbolts and Mustangs for the D-Day period and subsequent operations in continental Europe. But the plan never materialised and the P-63 only operated in a training capacity with US forces.

This included transition schooling for future fighter pilots, and the separate but equally important use of Kingcobras as 'jump ships'

in multi-engine bomber training units, to teach the importance of constant vigilance to bomber crew members in watching for enemy fighter attacks.

The Kingcobras were often painted in bright colours to aid the trainee gunners to spot them, and were based at Laredo Army Air Field in Texas and Buckingham Army Air Field in Florida.

The best known of the Kingcobra's roles in USAAF training colours was the aerial gunnery programme often referred to as Operation Pinball. This very specific type of schooling became the unique preserve of the Kingcobra in its role as a trainer.

Stripped of much equipment and fitted with armour plating, Pinball Kingcobras of several different versions (with the designation RP-63) were flown as manned target aircraft for trainee bomber gunners in 'live' airborne firing practice.

Frangible bullets made of lead and plastic, which disintegrated on impact without inflicting fatal damage, were fired at the Kingcobras – which were fitted with sensors to illuminate lights on their airframes to show when hits were scored.

Foreign colours

Two Kingcobras were supplied to Britain, but the type did not fly operationally with the RAF. Instead they were used in various trials, including investigation into the characteristics and performance of the type's wing aerofoil shape.

Numerically, the largest user was the Soviet Union. Kingcobras

intended for Soviet service were flown in stages from Bell's Buffalo, New York, plant across the continental US to Alaska and then Siberia.

This became known as the Alaska-Siberia route, with US ferry pilots handing over to their Soviet counterparts en route. Some of the Russian pilots were women, who greatly impressed US personnel with their flying skills.

Deliveries to the Soviet Union began in the second half of 1944. The exact number of Kingcobras supplied under the specific agreements between the US and the USSR has been open to wide interpretation, but the most recent figure available from Russian historians is around 2,456.

There's also much confusion as to Soviet use of the type. Many extravagant claims have been made in misinformed publications in the West that Kingcobras flew extensively in combat against the Luftwaffe in Europe. Similarly, the aircraft is said to have been prominent in the Far East during the brief war between the Soviet Union and Japan during 1945.

In reality, by the final months of World War Two, sufficient indigenous Soviet fighters were available – such as the Lavochkin La-5 and La-7 series and the excellent Yakovlev Yak-3 – to render the P-63 of most use to the Soviet Union as a trainer, in similar fashion to the USAAF employment.

Genuine combat

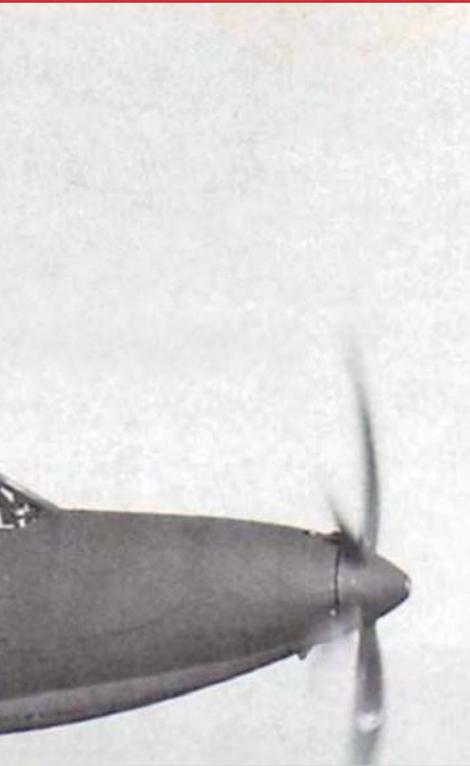
The country that employed the Kingcobra in combat was France. More than 100 (most French sources quote 114) P-63Cs were supplied to the newly reconstituted French Air Force (Armée de l'Air) from mid-1945 for post-World War Two operation – not to the 'Free French' as often incorrectly claimed.

The type was flown by at least seven French squadrons, and

Prominent among the ground-attack units was the famous French unit GC 2/6 Normandie-Niemen, whose P-63Cs were based at Tan Son Nhut.

Another Kingcobra operator was Honduras, which obtained five P-63E-1-BE airframes after World War Two, supplied by the US.

A number of P-63s were also used for experimental and trials programmes. Distinctive among



Left

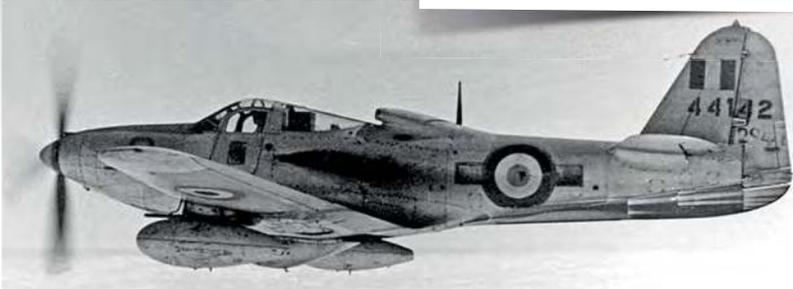
Flying target: Operation Pinball involved Kingcobras being flown for gunnery training as the recipients of 'live' firing with frangible bullets. Shown here is 43-11724, an RP-63G-1-BE, which was the final version intended for the Pinball programme.

Left centre

A French Air Force (Armée de l'Air) P-63C-5-BE Kingcobra, 44-4142, of GC 2/6 'Normandie-Niemen' circa 1950. At the time, the unit was based in French Indochina with its Kingcobras at Tan Son Nhut Air Base, nowadays one of the main transport hubs for Ho Chi Minh City (formerly Saigon).

Below

Two Kingcobras were converted into Vee-tail configuration for trials and experimental work. This, the first of the two airframes, was originally a P-63A.



“The type was flown by at least seven French squadrons, and played an important role during the war in French Indochina up to 1951.”

Nonetheless, some Kingcobras did reach Soviet operational units, especially post-war, but certainly not in the numbers often claimed.

played an important role during the war in French Indochina (sometimes confusingly called the First Indochina War) up to 1951.

these were two so-called 'Vee-tailed' Kingcobras. Even more radical were two swept-wing airframes, which were modified P-63As, under a US Navy programme with the designation L-39 ('L' being the US Navy's manufacturer prefix for Bell).

Like the P-39 Airacobra, the Kingcobra featured in civilian air racing following the end of World War Two. However, despite several colourfully painted entries in a variety of races, P-63s were generally unsuccessful as racing machines. One of the few notable triumphs was the victory in the 1948 SOHIO Handicap Trophy Race by a specially modified Kingcobra flown by Robert Eucker. ●



The Attractive Failure

Bell's Airabonita was a proposed US Navy carrier-borne fighter derivative of the P-39 Airacobra. **Malcolm V Lowe** examines its unsuccessful development

Below
The XFL-1 Airabonita first flew in May 1940, but a series of problems meant it was never a serious contender for the US Navy's requirement for a modern, high-performance carrier-based fighter. This colour image is of the only example, BuNo 1588, during 1940.
ALL MALCOLM LOWE COLLECTION

The US Navy's search for modern, high-performance pursuit (fighter) types for aircraft carriers was an important American procurement project during the late 1930s. A 1935 requirement initially led to the creation of the ponderous Brewster F2A Buffalo, and eventually the excellent Grumman F4F Wildcat, the purpose being to modernise the fleet's increasingly antiquated fighter force of colourful, but seriously outdated, biplanes with modern single-engined monoplane fighters. During early 1938, the US Navy's Bureau of Aeronautics (BoA) requested further proposals, including a challenging demand for a well-armed and (for its time) high-performance carrier-borne naval fighter. Several companies responded to these 1938 parameters, notably Vought, with what eventually became the famous F4U Corsair.

Bell Aircraft Corporation of Buffalo, New York, had no tradition of providing aircraft for naval requirements, unlike Vought. Nevertheless, Bell also responded to the 1938 'contest', with a project that received the in-house designation, Bell Model 5. The firm's novel approach was to adapt an existing proprietary design, the P-39 Airacobra, to compete for the potentially lucrative US Navy contract. The P-39 was a land-based fighter with a tricycle undercarriage that Bell was developing for the then US Army Air Corps. The tricycle configuration in particular would not work well for aircraft carrier landings, so Bell's designers reworked the P-39 layout to make the Model 5 more suitable for naval operations. In theory this appeared to be a good idea. However, redesigning an established and carefully formulated blueprint that met the specification of one

customer, in order to meet a totally different set of parameters for a different client, proved to be very difficult.

Bell was awarded a contract go-ahead from the US Navy for the construction of a single prototype in November 1938, after Vought received its own go-ahead during June 1938. Bell's project was officially designated XFL-1, in the US Navy's laborious nomenclature of the time (X = prototype, F = Fighter, L = Bell). The cost of this one-off aircraft has been quoted as \$125,000, although some historians cite a much higher figure.

The single XFL-1 was allocated the designating or serial number of 1588 by the US Navy's BoA (usually abbreviated as BuNo). The new type was christened Airabonita in Bell's rather quaint naming process (this name is written as 'Airbonita' in some published sources). Bell's designers worked hard to adapt



SPOT FACT The XFL-1's wing chord was broader than that of its P-39 progenitor

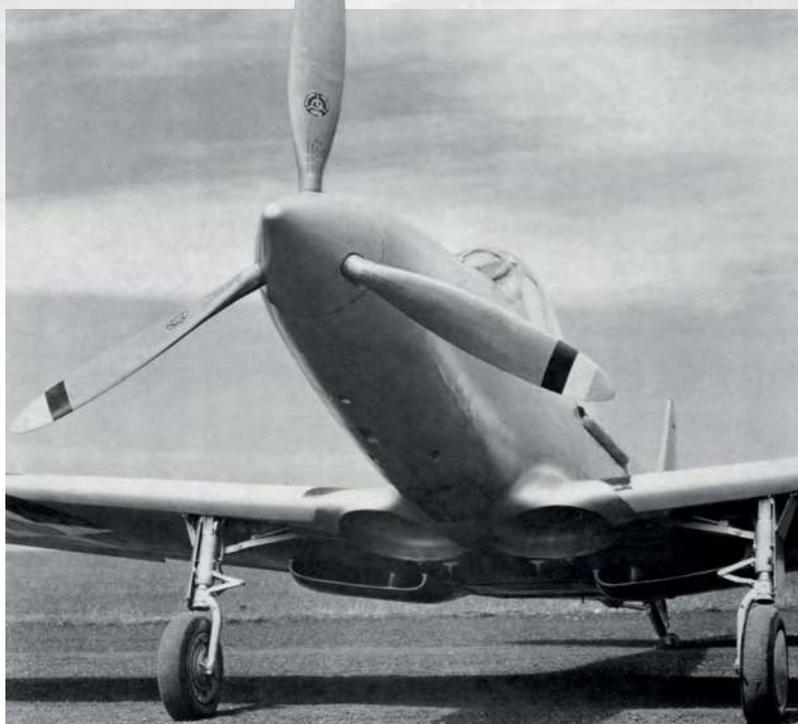
Spotlight on a P-39 Naval derivative



the P-39 layout for naval use, and eventually numerous changes were made to the Airacobra format.

Similar but different

Bell planned to use the same powerplant type for the Airabonita as in the P-39, namely the Allison V-1710 liquid-cooled inline engine. Since the late 1920s the US Navy had tended to employ aircraft with air-cooled radial engines, and the more complicated logistics of maintaining an aircraft powered by a liquid-cooled unit aboard aircraft carriers was obvious. Nonetheless, it was somewhat appropriate that the Allison engine should be the first choice for the Airabonita. Despite the US Navy's apparent reluctance to employ inline liquid-cooled engines, early in its development the V-1710 had been projected as a power source for US Navy airships. Fitted to the Airabonita was an XV-1710-6, quoted at the time as producing



Above
Dated July 16, 1940, this image displays what one branch of US fighter design looked like when the Battle of Britain was just starting. Appearing very streamlined, the XFL-1 Airabonita was undoubtedly attractive but did not enter production.

Left
The Curtiss Electric three-bladed propeller of the XFL-1 Airabonita. Main undercarriage details and the underwing engine coolant installations are also evident.

Below left
Fake news. Bell employed several talented artists and photo manipulators who created interesting, if sometimes misleading, artwork. This 'photograph' purported to show Airabonitas (or perhaps even Airacobras) in frontline US Navy service... which never happened.

1,150hp at 9,000ft (2,743m). This was a supercharged, but not turbo-supercharged powerplant. The actual installation was similar to that of the P-39, with the engine mounted roughly amidships behind the cockpit, driving the propeller unit via a long extension shaft and forward-mounted gearbox, allowing for a hollow propeller shaft.

Revised design

The most visible 'new' feature for the Airabonita was the deletion of the P-39's tricycle undercarriage layout and its substitution with a conventional tailwheel. Its main undercarriage was moved forward due to this change, but it therefore encroached on the wing root



was the Airabonita's quoted top speed without frontline military equipment being fitted

SPOT FACT The Vought F4U Corsair was chosen by the US Navy in preference to the Airabonita



Top
The XFL-1 Airabonita was an elegant if small naval fighter, with only one constructed. This fine in-flight view shows some of the type's features, including the depression in the wing upper surface beside the cockpit, which was an outlet for the engine's radiators.

Above
The XFL-1 featured five small bomb compartments with retractable doors in both wing lower surfaces, intended to contain two anti-aircraft bombs each. A transparent window was built into the lower fuselage, for the potential sighting of these archaic weapons.

Above right
The XFL-1 Airabonita was fitted with flotation bags in the event of a ditching. This photograph shows them being tested in a hangar, with a Bell Airacuda twin-engined fighter in the background.

leading edge radiator intakes of the P-39. Consequently, the Airabonita's engine liquid cooling system was redesigned, with prominent radiator fairings added beneath the wings.

Basically an all-metal structure with fabric covering for control surfaces, the Airabonita featured extensive split flaps beneath the wings and lower fuselage to aid the slow-speed handling and manoeuvrability needed for safe carrier deck landings. An arrestor hook was fitted to the lower rear fuselage, and catapult hooks were added to the underside just behind the mainwheel bays. The airframe was re-stressed to withstand the loads associated with catapult take-offs and arrested landings. Unusually, the fin leading edge was made from transparent Plexiglas. Cockpit contours were also changed, with the cabin roof raised and the pilot seated higher than in the P-39 to give greater visibility for carrier landings and generally better vision while on deck.

Compared to the Airacobra, the Airabonita's wing was broader in chord, especially outboard, with a slightly greater span. The wing span was 35ft, and the intended production length 29ft 9 1/8in, but it has been claimed by several writers that the XFL-1's pointed spinner made it marginally longer. Armament envisaged for the XFL-1 comprised two synchronised .30-

cal machine guns mounted in the upper forward fuselage, firing through the propeller arc, and a .50-cal gun mounted centrally, firing through the hollow propeller shaft and prop' spinner. There was apparently a plan to up-gun the type

whole programme was dogged with problems, leading to many modifications and changes. Trials with the US Navy, including testing at Naval Air Station Anacostia, were protracted and eventually unsuccessful.



in service with a 37mm cannon in this central position, similar to the arrangement in many operational P-39s, or possibly a 20mm cannon, but trials never reached that stage. Ultimately, the aircraft did not carry armament at all and used the pointed spinner with no central hole for all of its flying trials. Unusually, both wing lower surfaces included five small bomb compartments with retractable doors for up to ten aerial anti-aircraft bombs on each side. A transparent sighting window was built into the lower fuselage.

Testing problems

Piloted by Bryan Sparks, the XFL-1 made its first foray into the air on May 13, 1940, just before the Vought XF4U-1 on May 29. Flight testing did not go well. Centre of gravity issues surfaced very rapidly, demanding ballast in the forward fuselage. Larger tail surfaces also needed to be fitted later that year. The carburettor air intake behind the cockpit went through its own development phase, too, but the

A creditable maximum speed of 333mph (536km/h) has been quoted in some sources for the XFL-1, but this was achieved (if indeed the figure is true) without frontline military equipment being added, which would have reduced this reading considerably. In the event, the US Navy proceeded with the Vought F4U Corsair, which was a wise decision. The initial production Corsair flew during the summer of 1942, and the type grew into an excellent naval fighter, although it was the British Royal Navy's Fleet Air Arm (rather than the US Navy) that proved the Corsair in combat from aircraft carriers.

Eventually retired, the XFL-1 was surplus to requirements and ended its life at Naval Air Station Patuxent River, Maryland. Its wreck was later used as some form of landfill in a local watery grave, although part of it re-surfaced during the 1970s. What eventually happened to those rare pieces of wreckage remains unknown, but the scrap man was the likely beneficiary. ●