

# BELL P-39 AIRACOBRA



Hated by the British and Americans, this unorthodox fighter was loved by the Soviet Red Air Force

WORDS STUART HADAWAY

#### COMPLEX GEARS

The long drive shaft and the position of the cannon meant that a complex set of gears was needed to connect the shaft to the propeller.

#### PACKING A PUNCH

The otherwise empty nose-section left space for a cannon and two machine guns to be carried, where they were easy to aim and gave the aircraft formidable firepower.

#### SHORT-RANGE TANKS

With no room in the fuselage for fuel tanks, the main fuel tanks ran along the leading edge of each wing. Although self-sealing, they were still vulnerable.



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## BELL P-39 AIRACOBRA

COMMISSIONED:	1939
ORIGIN:	UNITED STATES
LENGTH:	9.2M (30FT 2IN)
WINGSPAN:	10.3M (34FT)
ENGINE:	857KW (1150HP) ALLISON V-1710
CREW:	1
PRIMARY WEAPON:	1 X 37MM CANNON, 2 X 12.7MM AND 4 X 7.62MM MACHINE GUNS
SECONDARY WEAPON:	1 X 227KG (500LB) BOMB

Left: A formation of USAAF Bell Airacobras

Illustration: Nicholas Forder

### CENTRE-MOUNTED ENGINE

The defining characteristic of the Airacobra was the engine position: it was mounted behind the pilot in the central fuselage.



Below: A USAAF Airacobra in California, 1943

The Bell P-39 Airacobra began life as a private venture in 1939, for potential sale to the United States Army Air Force (USAAF). Its unorthodox design, with the engine behind the pilot, meant a huge amount of armament could be packed into the nose and also allowed for a well-armoured fuselage. Unfortunately, this added a lot of weight to the airframe, and the engine failed to deliver sufficient power.

At the time, the Western world was desperate for fighters, and the type was bought by several air forces. France fell before theirs could be delivered, and the RAF rapidly disposed of their Airacobras. The USAAF used the type for longer, especially in the Pacific, where it was a useful stopgap over New Guinea and the South West Pacific until higher-performance types entered service. It was the Soviets who were most impressed with the Airacobra. Its rugged construction and tricycle undercarriage was ideal for use on rough airfields, while the lack of high-altitude performance was not a problem for the Soviets because their main operational area was low over the battlefield, where the Airacobra proved a formidable fighter and ground-attack aircraft.



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## ARMAMENT

The space in the nose section allowed for an awesome concentration of firepower to be carried. A 37mm cannon, with 15 rounds, was positioned to fire through the propeller hub. In RAF service, this was replaced by a 20mm cannon, which allowed for a larger magazine of 30 rounds to be carried. Two 12.7mm machine guns were positioned on the upper cowling, while two further 7.62mm machine guns were carried in each wing. The 12.7mm and 7.62mm machine guns were replaced by 7.7mm machine guns in RAF service.



An Airacobra of the 72nd Tactical Recon Group loaded with a single bomb under the centre section



Left: A 37mm cannon shell recovered from an Airacobra wreck in Russia

Below: RAF armourers fill the magazines of the three guns in the nose of an Airacobra



## DESIGN

The Airacobra was an all-metal low-wing monoplane that was unusual in several ways. The primary distinction was the engine, which sat behind the cockpit over the centre section, with the oil tank and radio equipment

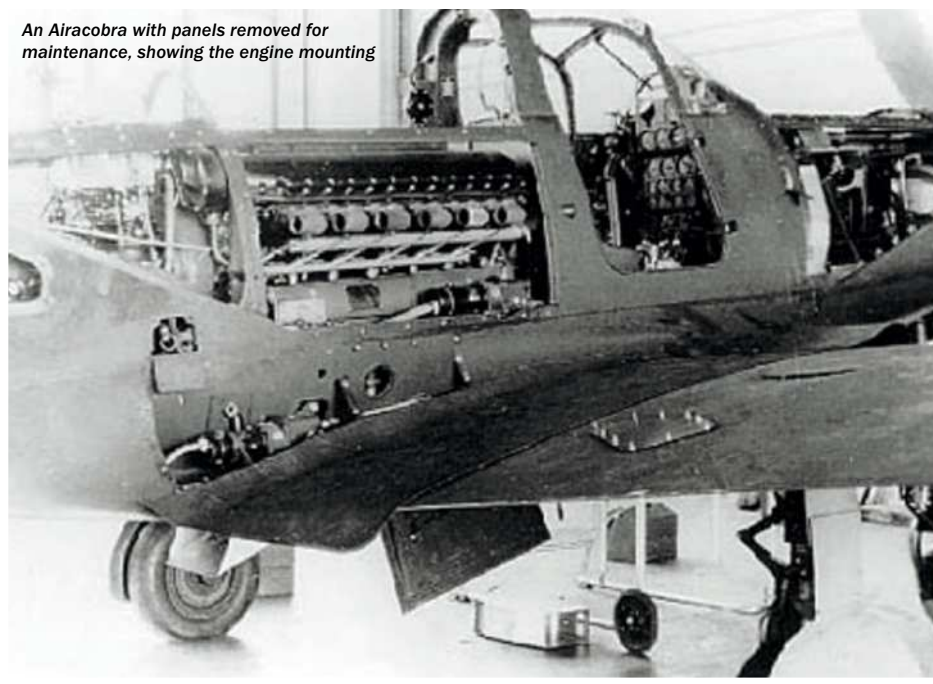
behind it. This, along with heavy armour in the nose, meant the weight and balance of the aircraft required tricycle undercarriage, which added more weight but made it easier to control on the ground. The pilot sat quite high up in a cab-style cockpit, and the nose was packed with weaponry.

**“THE SPACE IN THE NOSE SECTION ALLOWED AN AWESOME CONCENTRATION OF FIREPOWER TO BE CARRIED”**

*Below: The engine placement on the Airacobra gives it strange lines, with a streamlined nose and bulbous centre section*



*An Airacobra with panels removed for maintenance, showing the engine mounting*



## ENGINE

The P-39 had a single 857kW (1,150hp) Allison V-1710 liquid-cooled inline engine. It had a single-speed supercharger, which gave the aircraft good low and medium altitude performance. However, the turbo-charger fitted in the prototype, which would have improved high-altitude performance, was not installed in the production models. The engine sat in the fuselage behind the pilot, with the supercharger air intake above and behind the cockpit. The drive shaft was connected to the propeller via a lengthy and complicated series of gears in the nose.



*The position of the engine led to unorthodox placement for the supercharger air intake and the exhausts*

## COCKPIT

The Airacobra's cockpit was fully enclosed, with car-style doors on either side. Entering and exiting was the same as in a car, by swinging open a door, which made bailing out difficult. The drive shaft for the engine ran through the floor between the pilot's feet – this was noisy and caused vibrations that affected both the pilot and the instruments. The pilot had good forward and downward views, and his control column had a trigger for his machine guns and a button on top to fire the cannon.

*The unusual cabin-style cockpit of the Airacobra, with car-style doors*



USAAF Airacobra on New Guinea



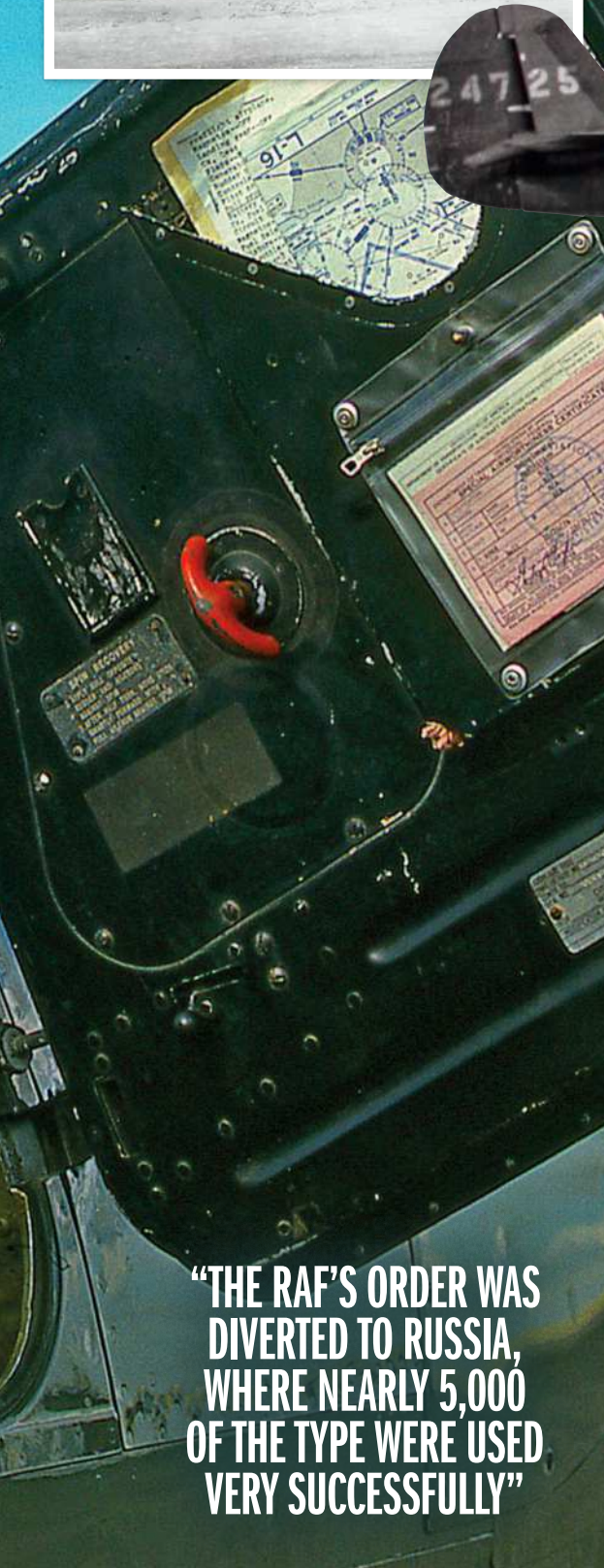
## SERVICE HISTORY

After being unveiled in early 1939, the P-39 first flew in September 1940, by which time orders had already been placed by Britain, France and the US. The RAF absorbed the French order, and the first Airacobras were delivered to the UK in July 1941. The type went operational in October 1941 but was withdrawn from service after less than a week when it proved underpowered and to have numerous

instrument problems. However, visiting Soviet pilots liked the aircraft. The RAF's order was diverted to Russia, where nearly 5,000 of the type were used very successfully in air-to-air and air-to-ground combat.

The USAAF used the type over the South West Pacific, including New Guinea, through 1942-3, and in Europe as late as 1944, but the P-39's short range and poor high-altitude performance made it unsuitable for use in the later Pacific campaigns.

Bell Airacobra in Soviet service



### DUEL 87 P-39/P-40 AIRACOBRA VS A6M2/3 ZERO-SEN: NEW GUINEA 1942

BY MICHAEL JOHN CLARINGBOULD

It was over remote New Guinea where the advance of the Imperial Japanese Naval Air Force A6M Zero-sen fighter was first halted in a series of aerial battles with USAAF P-39 Airacobras. With detailed maps and contemporary photographs, this fully illustrated study describes how American Airacobra pilots battled against both their veteran foes in Zero-sens and often deadly weather in the tropics just months after the attack on Pearl Harbor.

### AIRCRAFT OF THE ACES 74 SOVIET LEND-LEASE FIGHTER ACES OF WORLD WAR 2

BY GEORGE MELLINGER

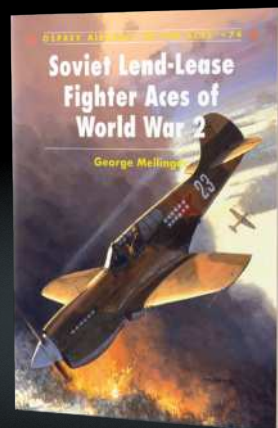
By the end of 1941 the Soviet Union was near collapsed and its air force almost annihilated. After the United States entered the war, the Lend-lease agreement it had with Britain was extended to the USSR, and amongst the almost 10,000 fighters supplied to the Red Air Force were thousands of P-39 Airacobras. As this volume reveals, the aircraft was flown by a number of leading Soviet aces.

### AIRCRAFT OF THE ACES 36 P-39 AIRACOBRA ACES OF WORLD WAR 2

BY JOHN STANAWAY  
& GEORGE MELLINGER

The P-39 Airacobra was the first mid-engined American fighter to see frontline service. Fitted with a tricycle undercarriage, the P-39 served alongside the P-38 Lightning and P-40 Warhawk in the bitter struggle to capture Guadalcanal in 1942-43, as well as seeing action over the jungles of New Guinea. This book recounts the exploits of the elite USAAF pilots who achieved ace status while flying the much-maligned Bell fighter.

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