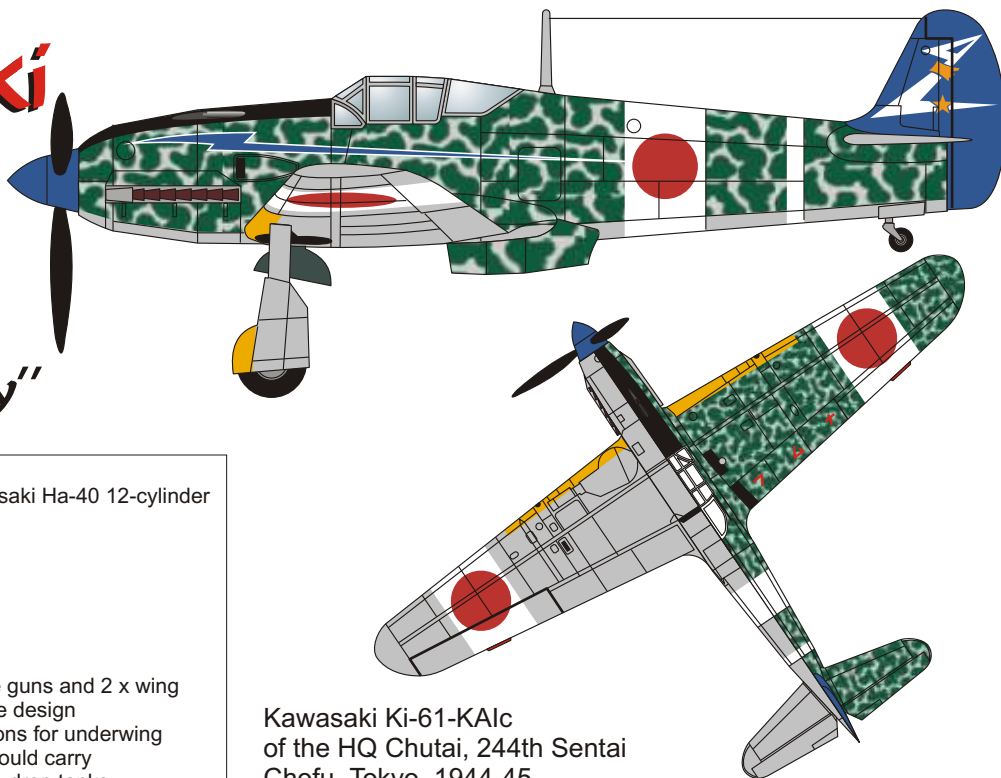


# Model cardboard

scale 1:50

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e-mail: marek-pac@wp.pl

## Kawasaki Ki-61 „Hien” „Tony”



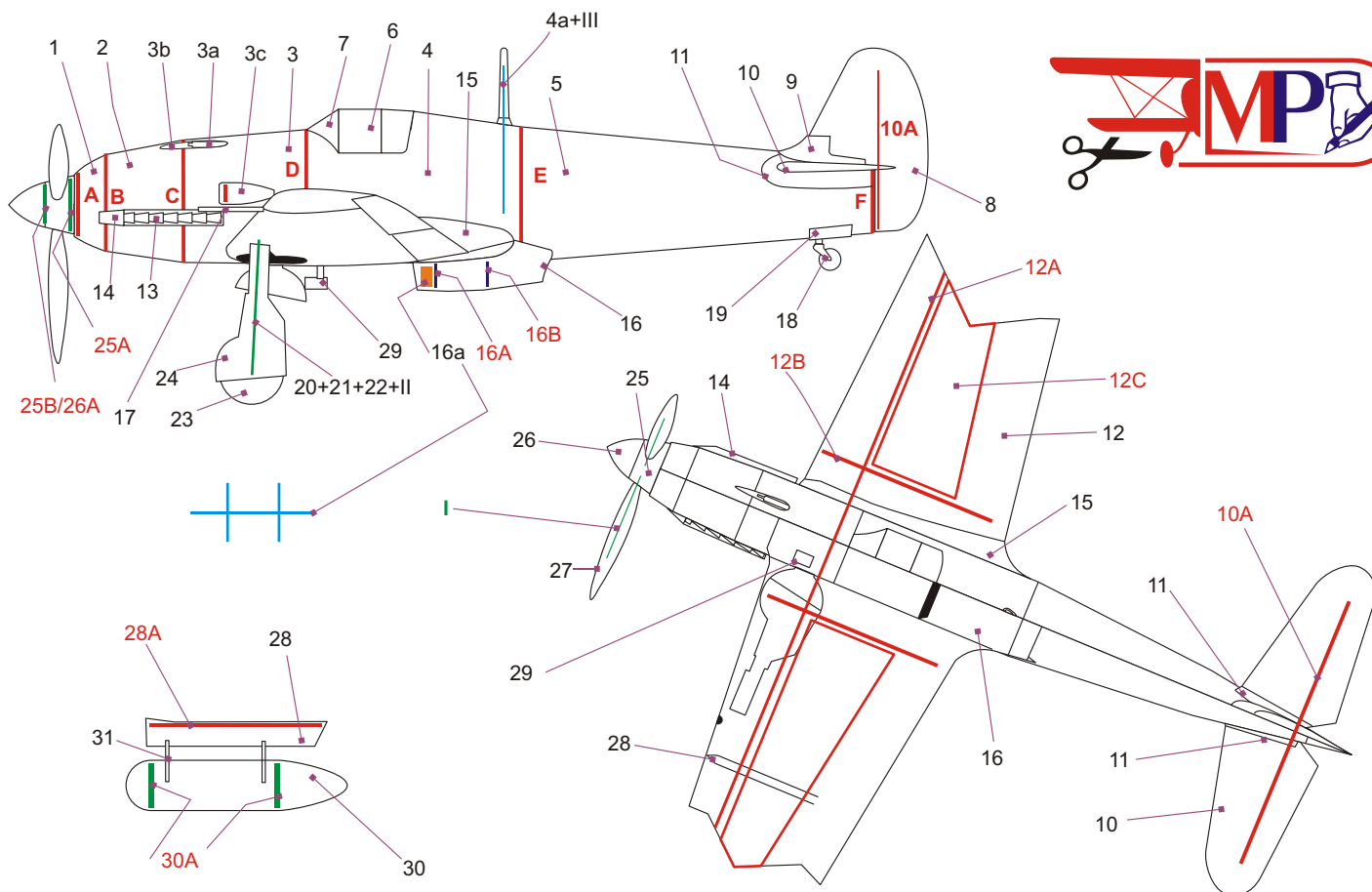
Year of production: 1941 (Japan)  
Powerplant: One 1,175 hp (876 kw) Kawasaki Ha-40 12-cylinder  
Spread: 12,0 m (39 ft 4 in)  
Length: 8,95 m (29 ft 4 in)  
Height: 3,70 m (12 ft 1 in)  
Mass max: 3470 kG (7650 lbs)  
Speed max: 560 km/h (348 mph)  
Ceiling: 10000 m (32810 ft)  
Range: 1900 km (1181 miles)  
Armament: 2 x 12.7 mm (0.50 in) machine guns and 2 x wing mounted 20 mm Ho-5 cannon of Japanese design and manufacture. All versions had provisions for underwing drop tanks, but Ki-61-Ic and all Ki-61-II's could carry two 551 lbs (250 kg) bombs in place of the drop tanks.

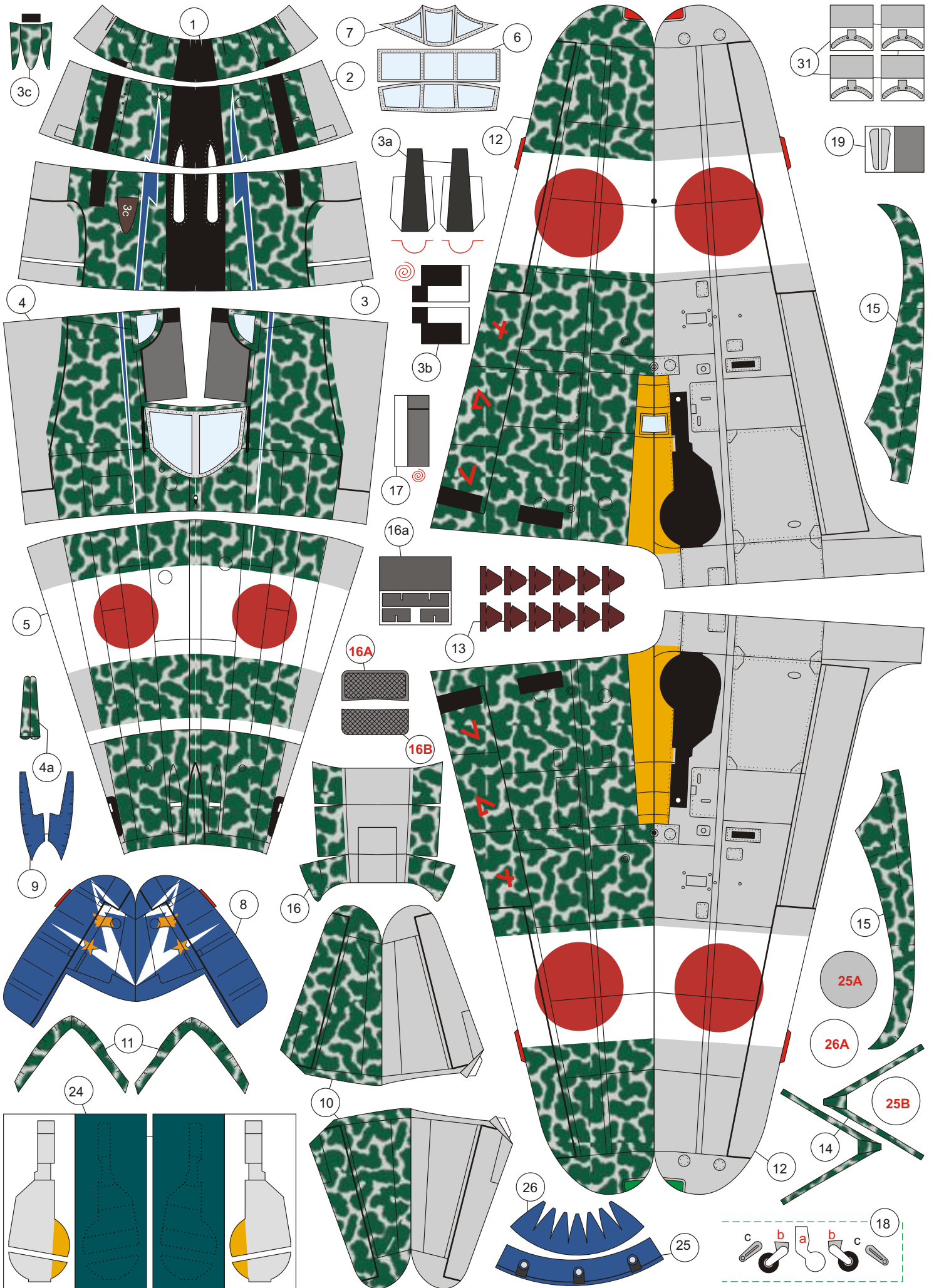
Kawasaki Ki-61-KAIc  
of the HQ Chutai, 244th Sentai  
Chofu, Tokyo, 1944-45

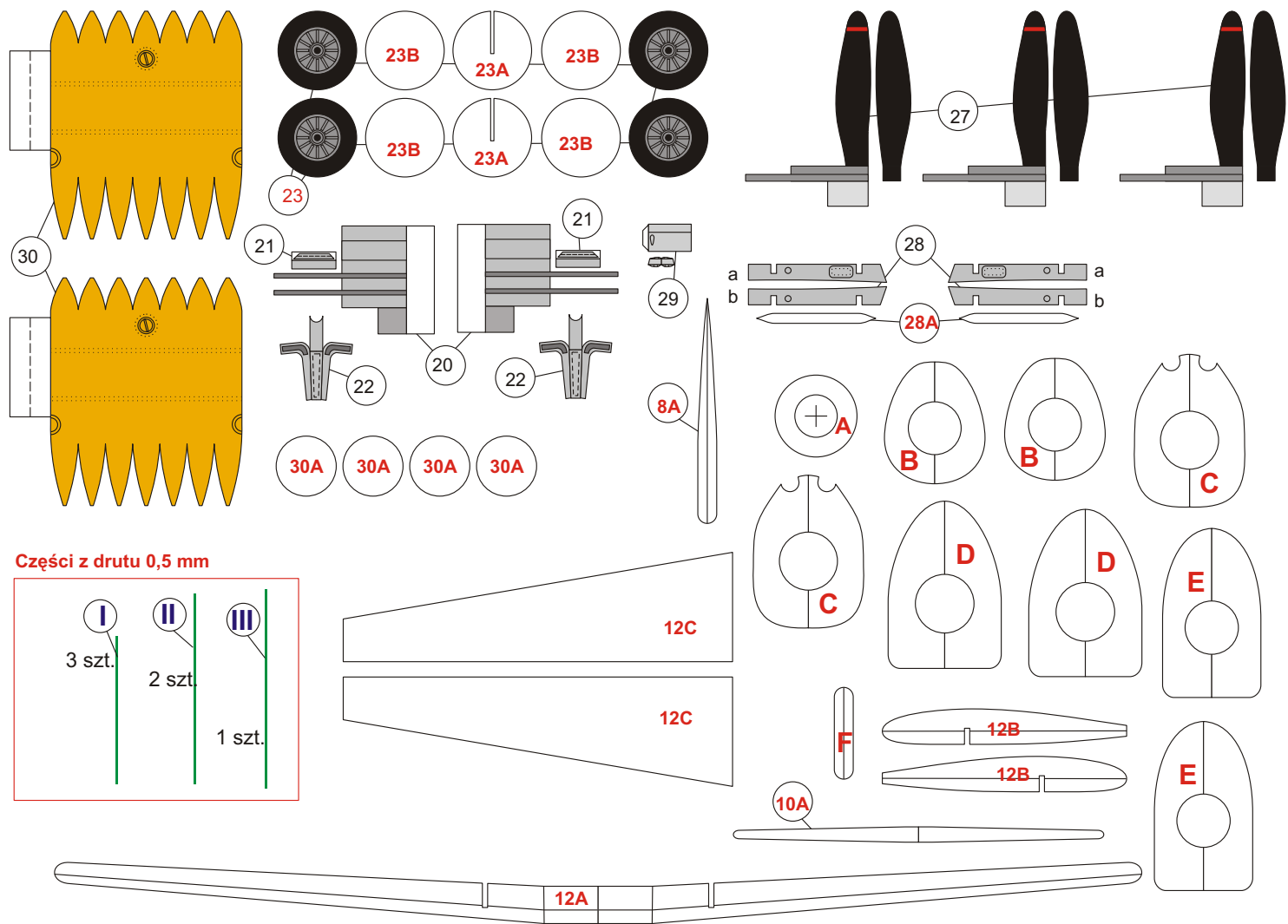
## MONTAGE

RED LETTER: cardboard 0,5 - 0,8 mm

W cut out







## Kawasaki Ki-61 Hien

The Kawasaki Ki-61 Hien ("Swallow") fighter represented a major departure for Japanese aircraft designers of World War II. While other Japanese fighters were designed with air-cooled radials and were optimized for maneuverability, the Ki-61 used a liquid-cooled in-line engine and was designed for speed and power. In fact, the Ki-61 was so different from other Japanese fighters that when the type was first encountered in combat over New Guinea in June 1943, the Allies thought it wasn't a Japanese design at all. At first they believed it was a copy of the German Messerschmidt Me-109, then suspected it was a copy of the Italian Macchi C.202 Foglore. For this reason they gave it the code-name "Antonio", or "Tony", though by the summer of 1943 the Allies realized the Ki-61 was in fact a Japanese design.

The Hien proved initially successful in combat against American fighters. As the war in the Pacific ground on, however, the Ki-61 found itself increasingly outclassed, but it soldiered on until the end of hostilities.

Flight tests began in March 1941 and showed that the Ki-60 had unpleasant handling characteristics. The aircraft didn't meet its performance specs, various tweaks to improve the aircraft failed, and the Ki-60 was abandoned.

The experience was valuable, however. Design work on the Ki-61, whose development had been proceeding in parallel with the Ki-60 since December 1940, incorporated new features

using the lessons learned by the Ki-60 program. Aerodynamic refinements were added, the wing was increased in size and length to improve maneuverability and the fuselage was slimmed down to improve speed.

Armament was reduced by replacing the two 20 mm cannon in the wings with either two 12.7 mm (0.50 in) or two 7.7 mm (0.303 in) machine guns. Fuel capacity was also increased, as required by offensive fighter operations, which dictated a longer range than that required by an interceptor.

The landing gear track was widened to allow use from primitive forward airfields. The first prototype was rolled out in early December 1941, and its performance delighted its designers. 11 more prototypes were delivered to the Army, which performed intensive trials with them. The Ki-61 was pitted against other Japanese fighters, as well as against the Messerschmidt Bf-109E-3, of which two had been bought by the Army from the Germans, and the Curtiss P-40E, several of which had been captured during the seizure of the Dutch East Indies.

While the test pilots were a little skeptical of the new aircraft at first, pilots with combat experience appreciated the Ki-61's self-sealing fuel tanks, heavier armor and armament, and fast diving speed. The air combat tests showed the Ki-61 to be faster than all its adversaries in the tests, and easily out-manoeuvred all of them except the Japanese Ki-43 ("Oscar").

The 13th Ki-61, a production prototype, was delivered in August 1942. The Army gave the production go-ahead, and the fighter began to roll off the assembly line, with 34 delivered by the end of 1942. The type was formally known as the Army Type 3 Fighter Model 1 "Hien", or Ki-61-I.

Initial production consisted of two variants: the Ki-61-Ia, with 12.7 millimeter guns in the fuselage and 7.7 millimeter guns in the wings, and the Ki-61-Ib, with 12.7 millimeter guns in both fuselage and wings. These aircraft could be fitted with two 200 liter (53 US gallon) drop tanks.

The Hien entered combat in the spring of 1943 in the New Guinea war zone, covering New Guinea, the Admiralty Islands, New Britain, and New Ireland. The new Japanese fighter caused some pain and consternation among Allied pilots, particularly when they found out the hard way that they could no longer go into a dive and escape as they had from lighter Japanese fighters. 5th Air Force Commander General George Kenney found his P-40 Warhawks completely outclassed, and begged for more P-38 Lightnings to counter the threat of the new enemy fighter.

The Ki-61 demonstrated only a few teething problems in field use, such as a tendency towards engine overheating during ground operations under tropical conditions. However, despite the heavier armament, it still didn't have the punch to easily knock rugged and well-armed Allied bombers out of the sky.

The Kawasaki designers had foreseen this problem. The Japanese Ho-5 20 millimeter cannon wasn't available at the time, but the Japanese obtained 800 Mauser MG-151 20 millimeter cannon from Germany in August 1943, and modified 388 Ki-61-I airframes to carry the German weapons in place of the two 12.7 millimeter wing guns.

simplify field maintenance. This new variant was designated the Ki-61-I KAIC (where "KAI" was for "kaizo", or "modified") was 19 centimeters (7.5 inches) longer than its predecessors, with a detachable rear section, a fixed tailwheel instead of the retractable tailwheel previously used, stronger wings, and stores pylons outboard of the main landing gear, allowing it to carry two 250 kilogram (550 pound) bombs.

Once the Ho-5 cannon became available, Kawasaki designers then reversed the arrangement of the guns, putting the 20 millimeter guns in the forward fuselage and the 12.7 millimeter guns in the wings. While they were making these modifications, they also made a few changes to streamline manufacturing and

The Ki-61-I KAIC went into production in January 1944, and ultimately replaced production of all earlier models in August 1944. The Ki-61-I KAIC would become the heavily-produced version of the Hien, accounting for over half the total number built. A few Ki-61-I KAID bomber interceptors were also built in late 1944. These variants incorporated two 12.7 millimeter guns in the fuselage and a 30 millimeter gun in each wing.

Even before the Hien saw combat, the Army had been pressing Kawasaki for an improved version of the same aircraft. To this end, Kawasaki engineers focused on an improved version of the Ha-40 engine known as the Ha-140, which was expected to have a take-off power of 1,500 HP.

The first prototype of the new variant, the Ki-61-II, flew in August 1943. Ten more prototypes were built by the end of the year, featuring a wing with 10% more area and an improved cockpit. However, the Ha-140 development program ran into troubles, and only 8 of the prototypes received engines. Even then, they suffered from engine troubles, structural failures, and handling problems. In an attempt to deal with the problems, the extended wing was replaced with the original Hien wing, the fuselage was lengthened, and the rudder area increased. The result was the Ki-61-II KAI. The first prototype was modified from the 9th Ki-61-II prototype and flew in April 1944, followed by 30 more prototypes. As long as the temperamental Ha-140 engine worked properly, the Ki-61-II KAI proved to be a promising interceptor, with a fast climb rate and good high-altitude operating characteristics.

Despite the problems with the engine, the military situation was increasingly desperate, and so the Ki-61-II KAI was put into production anyway in September 1944. Two versions were produced, one designated Ki-61-II KAIA, with 12.7 millimeter guns in the wings and 20 millimeter guns in the fuselage, and the other designated Ki-61-II KAIB, with four 20 millimeter guns.

374 Ki-61-II KAI airframes were built and 99 of them fitted with engines. Then, on 19 January 1945, US Army Air Force B-29 Superfortresses turned the plant at Akashi that was building the Ha-140 engine into cinders and rubble. That abruptly ended concerns over the reliability of the Ha-140 engine, but left 275 airframes sitting around without powerplants. The airframes could not be left to go to waste, so Kawasaki engineers performed a lightning design effort to mate them to the 1,500 HP Mitsubishi Ha-112-II 14-cylinder double-row air-cooled radial engine.