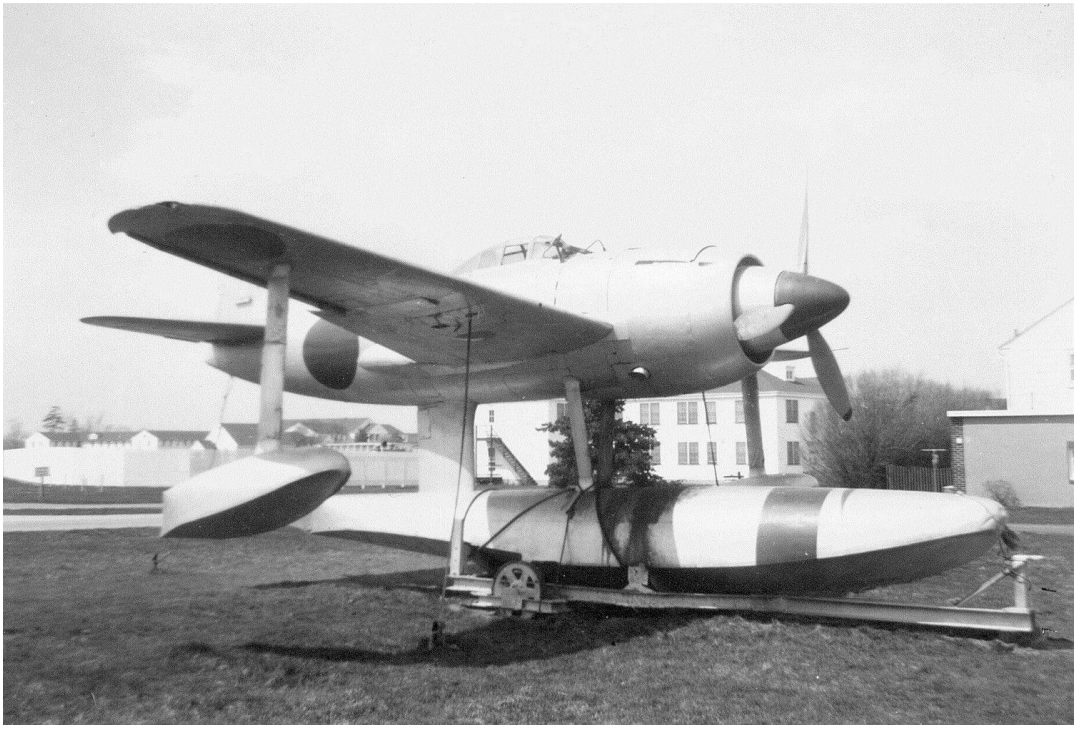
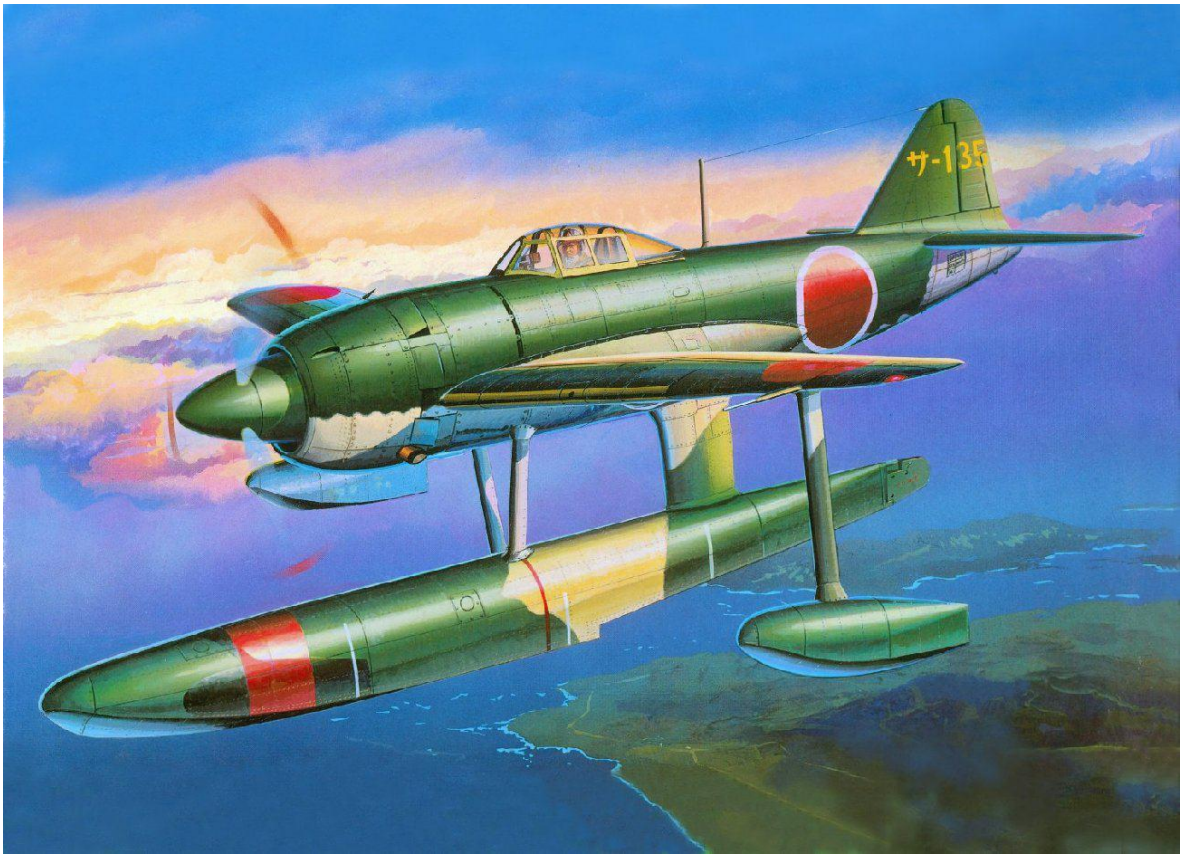
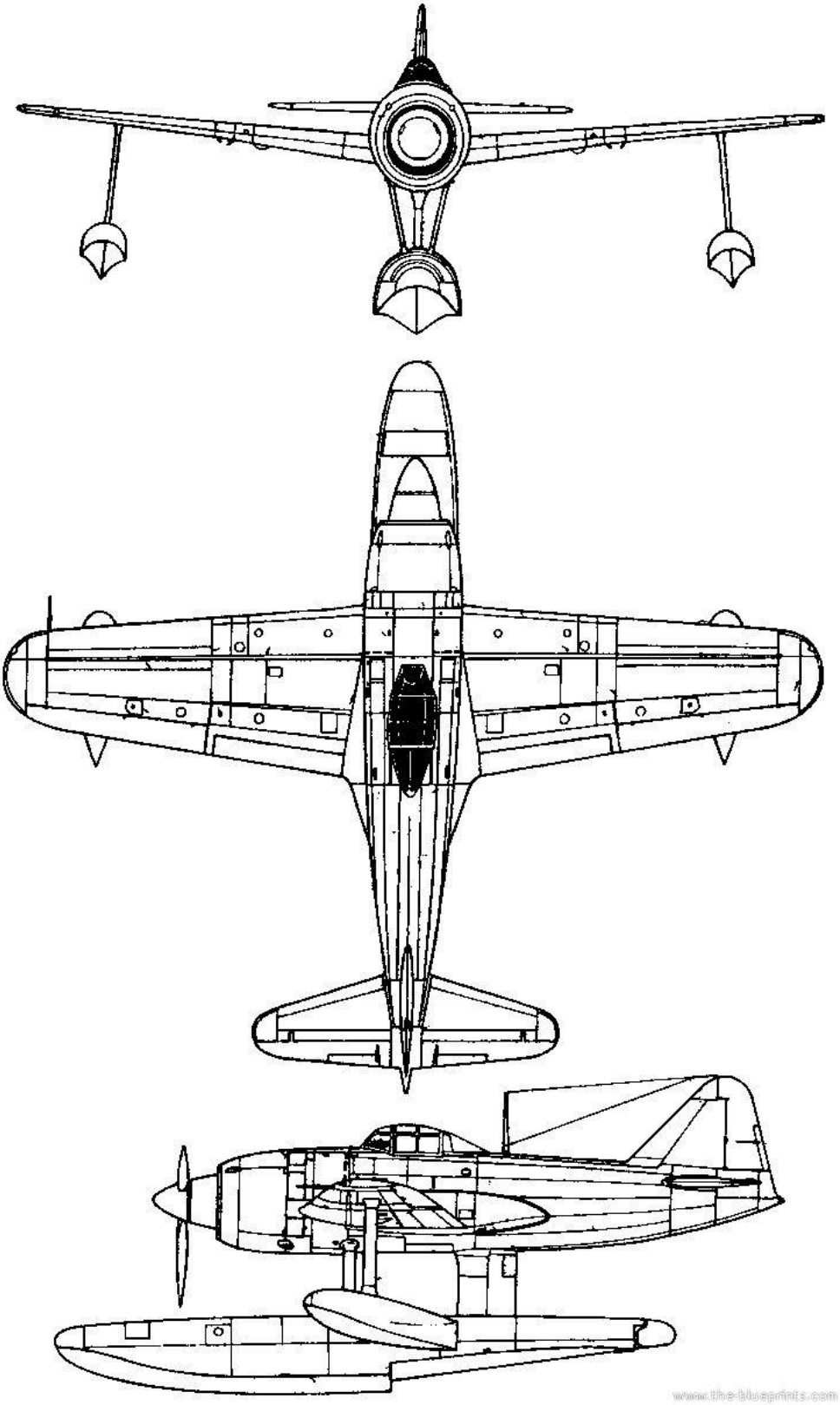
KAWANISHI N1K KYOFU ‘REX’



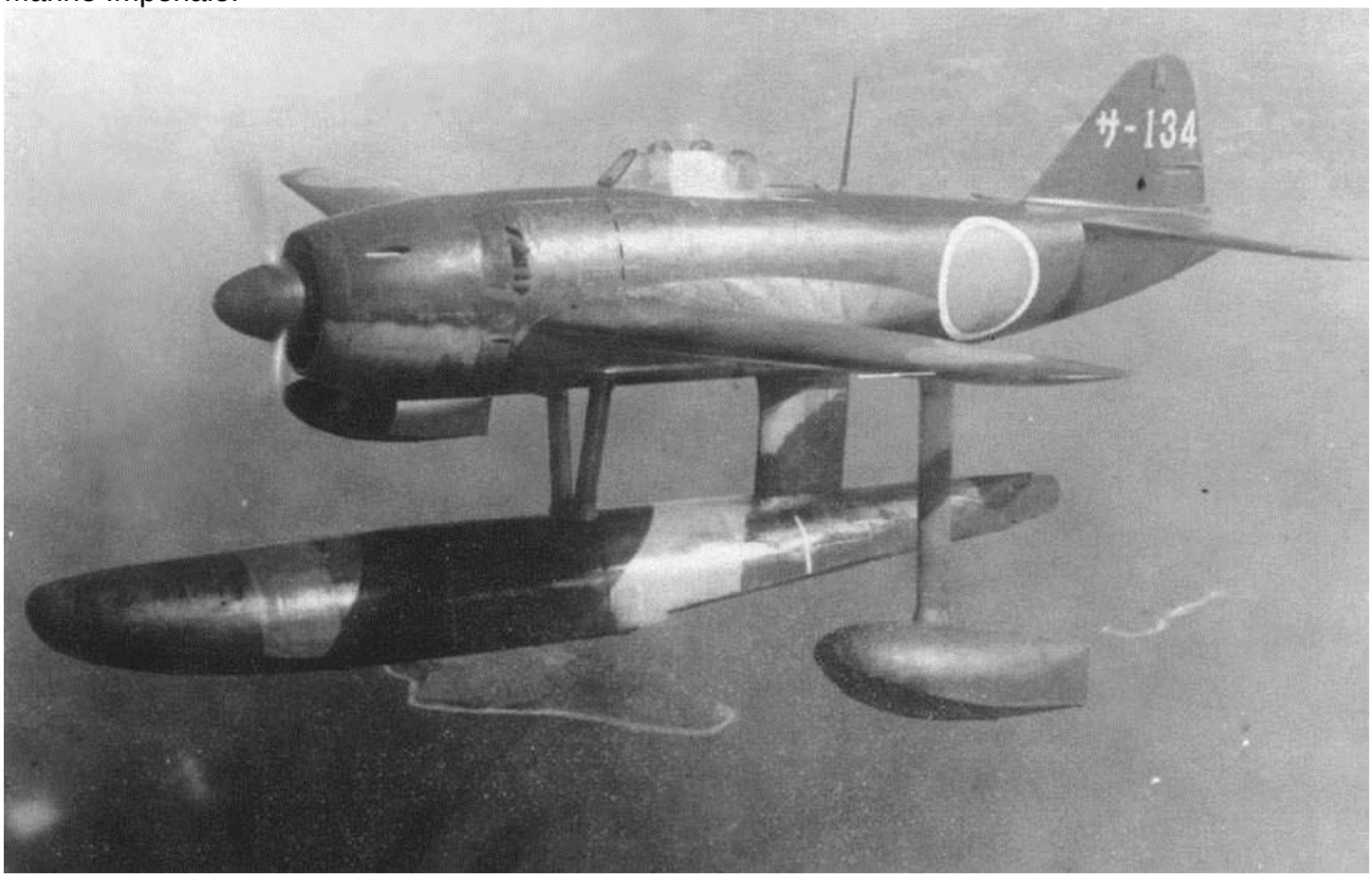
Pour répondre à un programme de la Marine Impériale relatif à l’obtention d’un hydravion chasseur, la firme Nakajima avait étudié et produit en 1942 l’A6M2-N « Rufe », une adaptation sur flotteur du célèbre Mitsubishi Rei Sen (*Zéro, « Zeke »*). Dans une optique similaire mais plus ambitieuse, le constructeur Kawanishi étudia un appareil original, tout en conservant les caractéristiques de base requises, dont le premier prototype vola le 6 mai 1942. C’était un monoplan à aile médiane, entièrement métallique, reposant sur un flotteur axial avec des ballonnets de complément sous voilure. La mise au point fut longue et laborieuse et plusieurs dispositions innovantes furent abandonnées sur les prototypes suivants : les flotteurs d’ailes, à l’origine escamotables pour diminuer la traînée et gagner en vitesse, furent finalement fixés et le moteur Mitsubishi MK4D Kasei 14 entraînant deux hélices bipales contrarotatives fut remplacé par un MK4E Kasei 15 avec une hélice tripale classique. L’appareil n’avait aucun blindage mais ses réservoirs étaient protégés et il disposait d’un armement standard de deux canons de 20mm et de deux mitrailleuses de 7.7mm.

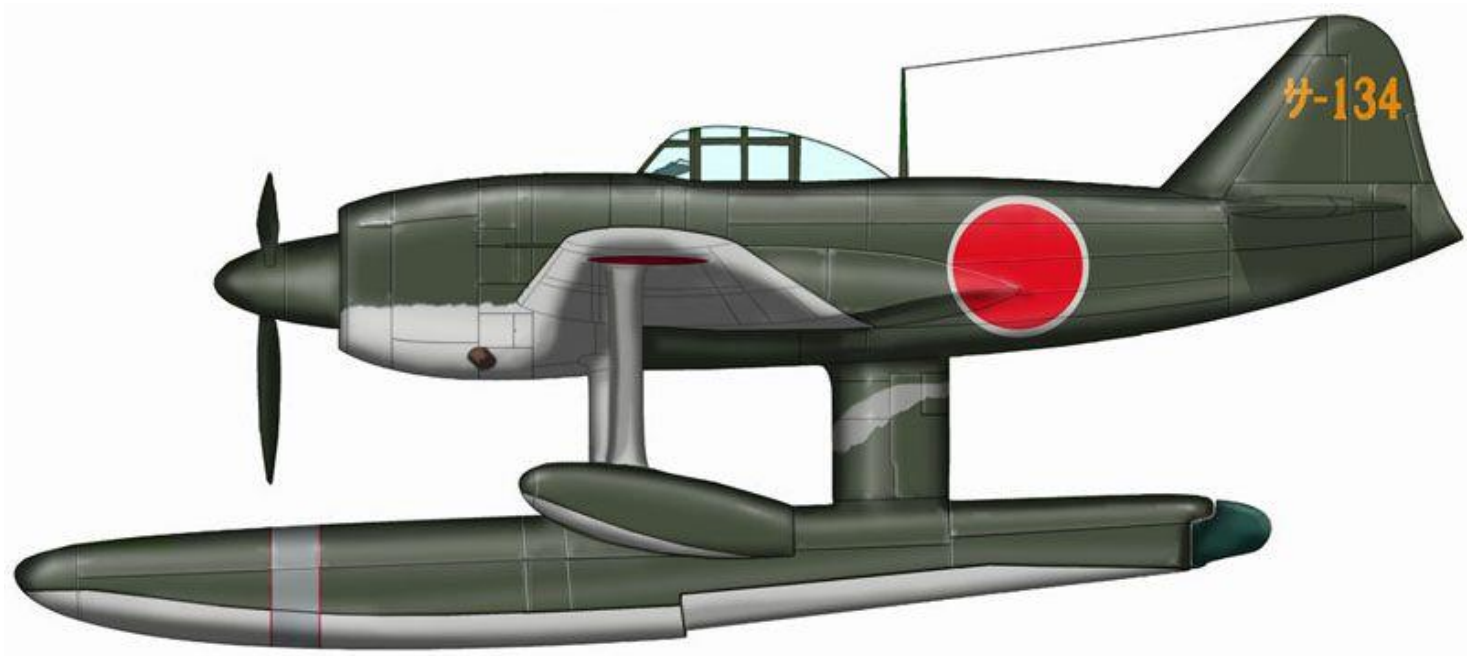


L'hydravion entra en service au début de sa production de série, en juillet 1943, sous la désignation de **N1K** type 11 **Kyofu** (*« Vent puissant » en japonais*) et devint « **Rex** » dans le code allié. Ses performances, très moyennes, égalaient à peine celles de l'A6M2-N « Rufe » mais sa maniabilité et sa vitesse ascensionnelle étaient cependant remarquables. Relativement efficace contre les B-24 Liberator, il était en revanche incapable de tenir tête aux chasseurs adverses. La production totale de **Kawanishi N1K1**, très lente, fut de 97 exemplaires : 8 prototypes (*De mai 1942 à juillet 1943*) et 89 appareils de série (*De juillet 1943 à mars 1944*). Aucun bâtiment de la marine n'ayant eu besoin de l'embarquer, l'hydravion fut affecté à la défense des raffineries de Bornéo et des Indes néerlandaises. Au printemps 1945, les Kyofu furent regroupés au sein du *Kokutai Otsu* (*Groupe aérien B*) sur le lac Biwa, dans le centre de Honshu. Mais, peu performants et sans pilotes confirmés, ils ne prirent aucune part significative à la défense du Japon.



Entre temps, à la fin de 1941, Kawanishi avait pris l'initiative de décliner son appareil dans une version terrestre, mais les marins, fascinés par les succès de l'A6M Rei Sen, en avait ralenti le développement. Achevé en décembre 1942, le prototype devint un an plus tard l'excellent N1K1-J Shiden « George ». Le très moyen et presque inutile hydravion **Kyofu** avait donné naissance au meilleur chasseur de la Marine Impériale.



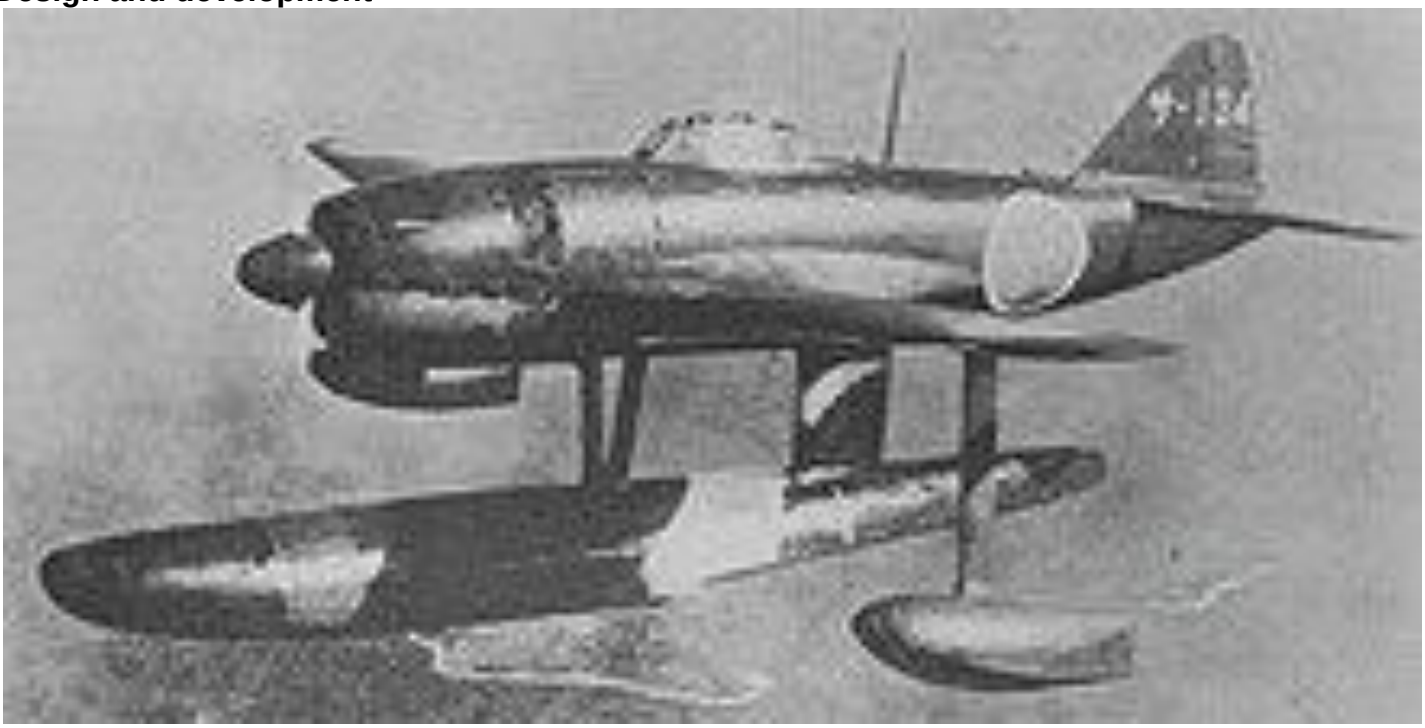


Source : https://www.avionslegendaires.net/avion-militaire/kawanishi-n1k-kyofu-rex/

Version anglaise wikipédia

The **Kawanishi N1K** was an Imperial Japanese Navy fighter aircraft, developed in two forms: the **N1K *Kyōfū*** (強風, "Strong Wind", Allied reporting name "**Rex**"), a floatplane designed to support forward offensive operations where no airstrips were available, and the **N1K-J *Shiden*** (紫電, "Violet Lightning", reporting name "**George**"), a land-based version of the N1K. The N1K-J was considered by both its pilots and opponents to be one of the finest land-based fighters flown by the Japanese during World War II.[5][6] An improved variant, the **N1K2-J** "**Shiden-Kai**" (紫電改) first flew on 1 January 1944. The *Shiden Kai* possessed heavy armament, as well as surprisingly good maneuverability, due to a mercury switch that automatically extended the flaps during turns. These "combat" flaps created more lift, thereby allowing tighter turns. Unlike the Mitsubishi A6M Zero, the *Shiden Kai* could compete against the best late-war Allied fighters, such as the F6F Hellcat, F4U Corsair, and P-51 Mustang.[7]

Design and development



Kawanishi N1K1 "Rex" floatplane fighter photographed by the Japanese Navy prior to 1945

Kawanishi's **N1K** was originally built as a single pontoon floatplane fighter to support forward offensive operations where no airstrips were available, but by 1943 when the aircraft entered service, Japan was firmly on the defensive, and there was no longer a need for a fighter to fulfill this role. The Navy's requirements for this fighter were nearly impossible to achieve for a float plane, and the expected protracted development period led Nakajima to develop an interim float plane fighter based on the Zero, the Nakajima A6M2-N. In the end, the *Kyofu* only saw limited service, mostly in Southeast Asia. A number were flown out of Ambon and the Aru Islands in the Moluccas, while some were stationed at Penang Island, off the Malayan peninsula. They were also used in the Battle of Okinawa. Towards the end of the war, *Kyofu*s were also used in the homeland defense role, operating from Lake Biwa by the Sasebo Air Corps and the Ōtsu Air Corps. The N1K was powered by the Mitsubishi MK4C *Kasei* 13 14-cylinder radial engine. Top speed was 489 km/h (304 mph); considerably less than the unrealistic Navy 310 kn (574 km/h; 357 mph) requirement.

Land-based version[edit]

The requirement to carry a bulky, heavy float essentially crippled the N1K against contemporary American fighters. However, Kawanishi engineers had proposed in late 1941 that the N1K would also be the basis of a formidable land-based fighter, and a land-based version was produced as a private venture by the company. This version flew on 27 December 1942, powered by a Nakajima NK9A *Homare* 11 18-cylinder radial engine, replacing the less powerful MK4C *Kasei* 13 of the N1K-1.

The aircraft retained the mid-mounted wing of the floatplane; combined with the large propeller, this necessitated a long, stalky main landing gear. A unique feature was the aircraft's combat flaps that automatically adjusted in response to acceleration, freeing up the pilot's concentration and reducing the chance of stalling in combat. The N1K did have temperamental flight characteristics, however, that required an experienced touch at the controls.[8] The Nakajima *Homare* was powerful, but had been rushed into production before it was sufficiently developed, and proved troublesome. Another problem was landing gear failure due to poor heat treatment of the wheels. Apart from engine problems and the landing gear, the flight test program showed that the aircraft was promising. Prototypes were evaluated by the Navy, and since the aircraft was faster than the Zero and had a much longer range than the Mitsubishi J2M *Raiden*, it was ordered into production as the **N1K1-J**, the -J indicating a land-based fighter modification of the original floatplane fighter. Only four days after the *Shiden*'s first test flight, a complete redesign began. The **N1K2-J** addressed the N1K1-J's major defects, primarily the mid-mounted wing and long landing gear. The wings were moved to a low position, which permitted the use of a shorter, conventional undercarriage. The fuselage was lengthened and the tail redesigned. The production of the entire aircraft was simplified: over a third of the parts used in the previous *Shiden* could still be used in its successor, while construction used fewer critical materials.[9] The N1K1 redesign was approximately 250 kg (550 lb) lighter, while faster and more reliable than its predecessor. The *Homare* engine was retained, even though reliability problems persisted, as no alternative was available. A prototype of the new version flew on 1 January 1944. After completing Navy trials in April, the N1K2-J was rushed into production. This variant was named the "**Shiden-Kai**" (紫電改), with *Kai* meaning *modified*.

Operational history



Kawanishi N1K2-J, probably N1K4-J Shiden Kai Model 32. Only two prototypes were built.

The N1K1-J Shiden entered service in early 1944. The N1K1-J, and the N1K2 Shiden-Kai released later that year were among the rare Japanese aircraft that offered pilots an even chance against late-war American designs, such as the F6F Hellcat and the F4U Corsair,[10] and could be a formidable weapon in the hands of an ace. In February 1945 Lieutenant Kaneyoshi Muto, flying a N1K2-J as part of a formation of at least 10 expert Japanese pilots, faced seven US Navy Hellcat pilots, from squadron VF-82, in the sky over Japan; the formation shot down four Hellcats with no loss to themselves.[11] After the action, Japanese propagandists fabricated a story in which Muto was the sole airman facing 12 enemy aircraft.[12] (A leading Japanese ace, Saburō Sakai, later mentioned in his autobiography that Muto had actually done this feat at an earlier stage of the war – albeit at the controls of a Zero fighter.[13]) The N1K1-J aircraft were used very effectively over Formosa (Taiwan), the Philippines, and, later, Okinawa. Before production was switched to the improved N1K2-J, 1,007 aircraft were produced, including prototypes. Because of production difficulties and damage done by B-29 raids on factories, only 415 of the superior N1K2-J fighters were produced. The N1K2-J *Shiden-Kai* proved to be one of the best dogfighting aircraft produced by either side. Along with high speed, the Shiden-Kai offered pilots an agile aircraft with a roll rate of 82°/sec at 386 km/h (240 mph), backing four powerful 20 mm cannons in the wings. As a bomber interceptor, the N1K2-J fared less well, hampered by a poor rate of climb and a reduced engine performance at high altitude.[14][3]

343 Kōkūtai



Captured Kawanishi N1K2-Js having their *Homare* engines run up by former IJNAS groundcrew.

The N1K2-J *Shiden-Kai* offered a formidable, if demanding aircraft in limited quantities. As a result, the planes were distributed to elite naval fighter units such as *343 Kōkūtai* ("343rd Naval Air Group") constituted on 25 December 1944 and commanded by Minoru Genda. The new *Kōkūtai* included some of Japan's most experienced fighter pilots, such as Naoshi Kanno and Saburo Sakai. The unit received the best available naval equipment, such as the Nakajima C6N *Saiun*, codenamed "Myrt" long-range reconnaissance aircraft.

On 18 March 1945 one of the "Myrts" spotted U.S. carriers en route to Japan. The following morning, *Shiden* aircraft flown by *343 Kōkūtai* intercepted 300 American aircraft. Many of the *Shiden* force were N1K2s. When the *Shidens* encountered Grumman F6F Hellcats from USN Fighter Bomber Squadron 17 (VBF-17), three aircraft were lost on both sides in the initial attack: one Hellcat and two *Shiden*s were shot down by enemy ground fire, two fighters collided in mid-air, and one Hellcat crashed while trying to land. Another *Shiden* dived on a Hellcat group, and downed another one. In the end, the *Hikōtai* lost six fighters versus eight VBF-17 fighters on the other side.



The Shiden's bulletproof glass.

Another noted encounter pitted the N1K against the Vought F4U Corsair; two Corsairs from VBF-10, accidentally separated from their main formations, were attacked by *Shidens* from the 343rd. Four N1K2s were shot down. The Corsairs managed to return to their carrier, USS *Bunker Hill*. A second encounter took place, when pilots flying Shidens initially mistook Corsairs from Marine Fighter Squadron 123 (VMF-123) for Hellcats and attacked. A 30-minute aerial duel ensued, in which three Corsairs were shot down, and another five were damaged. Three other F4Us returned to their carriers, but were so heavily damaged that the planes were scrapped. No Shidens were lost to Corsairs in that aerial battle. Losses for the Japanese N1K pilots did occur in related action, however; two *Shidens* were shot down upon return for landing by Hellcats of Fighting Squadron 9 (VF-9), while many more *Shidens* were destroyed by American fighters over another airfield where, low on fuel, their pilots tried to land. At the end of the day the 343rd, claimed 52 kills and the U.S. squadrons 63. The actual losses were 15 *Shidens* and 13 pilots, a "Myrt", with its three-man crew, and nine other Japanese fighters. The U.S. also took heavy losses: 14 fighters and seven pilots, plus 11 attack aircraft. Five days later an unofficial award was sent to 343rd *Kōkūtai* for the valour shown on 19 March.

On 12 April 1945 another fierce battle involved 343rd, during the mass kamikaze attack Kikusui N.2. The Japanese recorded several kills, but suffered 12 losses out of 34 aircraft. On 4 May, another 24 *Shidens* were sent in Kikusui N.5. In every encounter with enemy fighters, the *Shiden*, especially the *Kai* version, proved to be a capable dogfighter with a potent combination of firepower, agility, and rugged structure. The premier unit flying the *Shiden*, 343rd *Kōkūtai*, remained operational, until overwhelming unit losses obliged the group to stand down. The 343rd was disbanded on 14 August 1945, when the Emperor ordered surrender.

Surviving aircraft



N1K2-J on display at the National Naval Aviation Museum



The 343 Kōkūtai's Shiden-Kai, discovered on November 18, 1978, in Jyoen Hisayoshi Bay. The aircraft is displayed at Nanreku Misho Koen, Ehime Prefecture, Japan.[17] It is possible that it is the one was flown by ace-pilot Kaneyoshi Muto.

All four surviving *Shiden Kai* aircraft are now displayed in American and Japanese museums, while all three surviving *Kyofu* aircraft are displayed/stored in American museums.[18] One N1K2-J (s/n 5128, tail code A343-19)[19] is at the National Naval Aviation Museum at Naval Air Station Pensacola, Florida.[20] The second N1K2-Ja (s/n 5312[19]), a fighter-bomber variant equipped with wing mounts to carry bombs, is on display in the Air Power gallery at the National Museum of the United States Air Force, at Wright-Patterson Air Force Base near Dayton, Ohio. This aircraft was displayed outside for many years in a children's playground in San Diego, suffering considerable corrosion, and had become seriously deteriorated. In 1959 it was donated to the Museum through the cooperation of the San Diego Squadron of the Air Force Association.[21] In October 2008 the aircraft was returned to display following an extensive eight year restoration. Many parts had to be reverse engineered by the Museum's restoration staff. Four different aircraft serial numbers were found on parts throughout the airframe, indicating reassembly from three different wrecks brought back to the U.S. for examination, or wartime assembly or repair from parts obtained from three different aircraft. Serial number 5312 was found in the most locations, and is the number now cited. This N1K2-Ja is painted as an aircraft in the Yokosuka Kōkūtai, an evaluation and test unit.[22] This is indicated by the tail code (Yo)∃-105. The third example (s/n 5341, tail code A343-35)[19] is owned by the National Air and Space Museum but was restored by the Champlin Fighter Museum at Falcon Field, Mesa, Arizona,[23] in return for the right to display the aircraft at Falcon Field for 10 years after restoration. It currently is on display at the National Air and Space Museum's Steven F. Udvar-Hazy Center[24] The fourth authentic *Shiden-Kai* is displayed in a local museum at Nanreku Misho Koen in Ehime Prefecture, Shikoku, Japan.[25] This aircraft is known to be from the 343rd Kōkūtai, as the unit flew sorties in the area, but the tail code is unknown as it was partially restored from a corroded wreck recovered from the sea. After an aerial battle on July 24, 1945, its pilot ditched the aircraft in the waters of the Bungo Channel, but he was never found; by the time of the aircraft's recovery from the seabed on July 14, 1979, he could be identified only as one of six pilots from the 343rd squadron who disappeared that day. Photographs of the six—including Takashi Oshibuchi, commander of the 701 *Hikōtai*, and Kaneyoshi Muto—are displayed under the aircraft engine. In 2019, the aircraft was restored to non-flying condition. [26]



N1K1 Kyōfū (s/n 562) at the National Museum of the Pacific War.

Specifications (N1K1-J)

General characteristics

- **Crew:** One
- **Length:** 8.885 m (29 ft 2 in)
- **Wingspan:** 12 m (39 ft 4 in)
- **Height:** 4.06 m (13 ft 4 in)
- **Wing area:** 23.5 m^2 (253 sq ft)
- **Airfoil:** LB620515-6075[29]
- **Empty weight:** 2,897 kg (6,387 lb)
- **Gross weight:** 3,900 kg (8,598 lb)
- **Max takeoff weight:** 4,321 kg (9,526 lb)
- **Fuel capacity:** 477 L (126 US gal; 105 imp gal) internal + 323 L (85 US gal; 71 imp gal) drop tank; maximum 800 L (210 US gal; 180 imp gal)
- **Powerplant:** 1 × Nakajima NK9H Homare 21 18-cylinder air-cooled radial piston engine, 1,473 kW (1,975 hp) at sea level
- **Propellers:** 4-bladed, 2.987 m (9 ft 9.6 in) diameter constant-speed propeller

Performance

- **Maximum speed:** 571 km/h (355 mph, 308 kn) at 3,500 kg (7,717 lb) at sea level
- 656 km/h (408 mph) at 6,100 m (20,000 ft)
- **Range:** 1,078 km (670 mi, 582 nmi) at 272 km/h (169 mph) at 460 m (1,500 ft)
- 813 km (505 mi) at 75% V_{max}at 391 km/h (243 mph) at 460 m (1,500 ft)
- **Ferry range:** 1,746 km (1,085 mi, 943 nmi) maximum with drop tank at 269 km/h (167 mph) at 460 m (1,500 ft)
- 1,078 km (670 mi) at 75% V_{max} at 381.5 km/h (237.1 mph) at 460 m (1,500 ft)
- **Service ceiling:** 12,009 m (39,400 ft)
- **Rate of climb:** 19.7 m/s (3,880 ft/min) at 3,500 kg (7,717 lb) at sea level
- 4,065 ft/min at 3,500 kg (7,717 lb) at 1,798 m (5,900 ft)
- **Time to altitude:** 3,000 m (10,000 ft) in 2 minutes 36 seconds
- 6,100 m (20,000 ft) in 5 minutes 36 seconds
- **Wing loading:** 166 kg/m^2 (34 lb/sq ft)
- **Power/mass:** 0.38 kW/kg (0.23 hp/lb)

Armament

- **Guns:**
- 4 × 20 mm (0.79 in) Type 99 Mark 2 machine guns in the wings.
- **Bombs:**
- 2 × 250 kg (550 lb) bombs

or

- 1 × 323 L (85 US gal; 71 imp gal) drop tank

Source : https://en.wikipedia.org/wiki/Kawanishi_N1K