

AICHI M6A SEIRAN

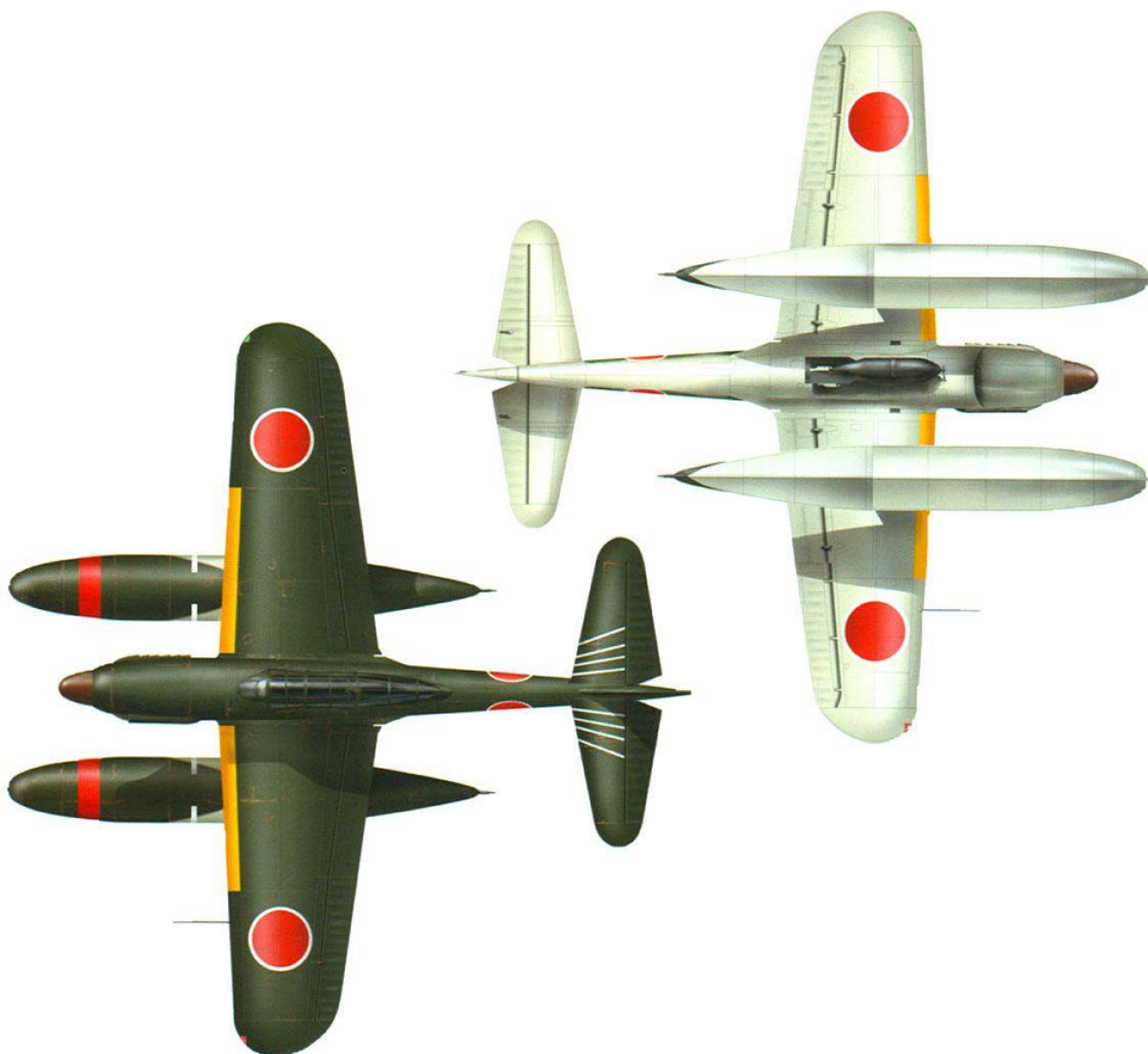


Peu après l'apparition des avions de combat et des sous-marins au cours de la première guerre mondiale, l'utilisation combinée de ces deux armes récentes fut envisagée –et parfois réalisée– par de nombreux pays. Cependant, seul le Japon mit véritablement ce concept en pratique. Durant le second conflit mondial, au début de la guerre dans le Pacifique, la Marine Impériale disposait de gros sous-marins munis de catapultes et emportant des petits appareils d'observation pouvant éventuellement attaquer les ports et bombardier le territoire américain, continental comme outre-mer. Suite à quelques succès enregistrés, la Marine Impériale décida au début de 1942 de voir plus grand dans ses attaques des côtes américaines, et particulièrement sur le canal de Panama. La firme Aichi, sollicitée, mit au point un hydravion de combat pouvant être embarqué sur les sous-marins géants intercontinentaux de la classe I-400. L'appareil, biplace entièrement métallique, était motorisé par un Atsuta 32 en V12 inversé, fait relativement rare sur les avions nippons, qui dérivait du DB 603 allemand. Il avait des éléments repliables pour pouvoir s'insérer dans le hangar étanche du sous-marin, d'un diamètre de 4,20 m. Les ailes se plaçaient à plat le long du fuselage, les empennages se rabattaient vers le bas, le haut de la dérive se rabattait sur la droite et les flotteurs étaient démontés. Entre le moment où le bateau porteur faisait surface de nuit et le catapultage de l'hydravion, les deux hommes d'équipage bien entraînés avaient procédé au remontage dans l'obscurité en 8 mn.

Aichi M6A1 Seiran découvert par les Américains à Nagoya



L'appareil vola pour la première fois en novembre 1943 et, après quelques modifications, la marine passa commande en mai 1944 pour une petite série sous la désignation de **M6A1 Seiran** (*Brume de montagne*) dont la production et la mise en service simultanées eurent lieu en octobre de la même année. Au total, 28 hydravions furent construits par Aichi : 6 prototypes (*d'octobre 1943 à octobre 1944*), 20 M6A1 Seiran (*d'octobre 1944 à juillet 1945*) et 2 **M6A1-K Nanzan**, version à roues pour l'entraînement à terre des équipages (*courant 1945*). A cette époque, l'objectif prioritaire n'était plus à l'offensive sur le canal de Panama, mais au contraire de tenter de neutraliser l'avance américaine, en l'occurrence les porte-avions US basés dans l'atoll d'Ulithi. Une flottille de sous-marins et leurs **Seiran** partirent du Japon le 23 juillet 1945. Le 15 août, le bateau amiral I-401 reçut un message radio du quartier général l'informant de la capitulation du Japon, accompagné de l'ordre de rallier le port nippon le plus proche. L'opportunité de démontrer l'efficacité du M6A1 Seiran venait de passer à jamais.



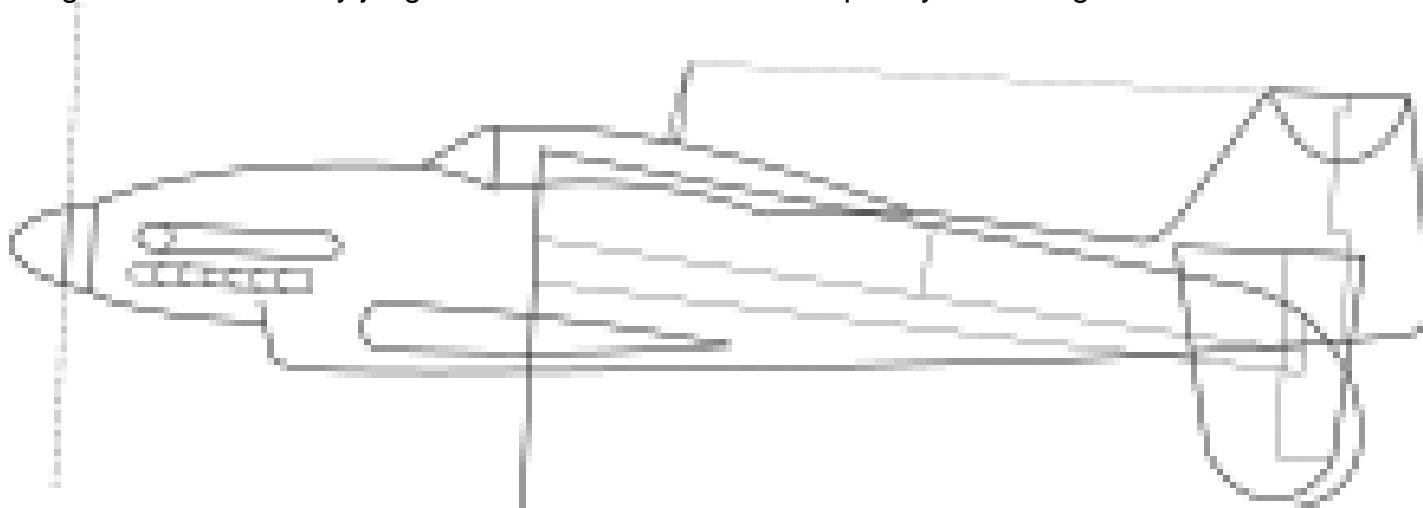
Source : <https://www.avionslegendaires.net/avion-militaire/aichi-m6a-seiran/>

Version anglaise wikipédia

The **Aichi M6A Seiran** (晴嵐, "Clear Sky Storm"^[1]) is a [submarine-launched attack floatplane](#) designed for the [Imperial Japanese Navy](#) during World War II. It was intended to operate from [I-400 class](#) submarines whose original mission was to conduct aerial attacks against the United States.

Design and development

From the late 1920s, the Imperial Japanese Navy had developed a doctrine of operating floatplanes from submarines to search for targets.^[2] In December 1941, Commander-in-Chief of the Japanese Combined Fleet, Admiral [Isoroku Yamamoto](#), proposed constructing a large fleet of [submarine aircraft carriers](#) (also designated STo or *sen-toku* — special submarine) whose purpose was to mount aerial attacks against American coastal cities. The submarines would surface to launch their aircraft by [catapult](#), submerge to avoid detection, then surface again to retrieve the aircrews who would ditch their planes nearby. By June 1942, the plan was to build a fleet of eighteen such submarines. This was later cut to nine, then five and finally just three as Japan's wartime fortunes declined.^{[3][4]} To equip the submarine aircraft carriers, the [Imperial Japanese Navy Air Service](#) requested that [Aichi](#) design a folding attack aircraft with a range of 1,500 km (810 nmi) and a speed of 555 km/h (300 kn). Aichi was already manufacturing under license, the [D4Y1 Suisei](#) (Judy), a relatively small single-engined carrier dive bomber with exceptionally clean lines and high performance. Detailed engineering studies commenced in an effort to modify the Suisei for use aboard the I-400 submarines but the difficulties in doing so were eventually judged insurmountable and a completely new design was initiated.^[5]



Simplified line drawing of an M6A1 folded for transport.

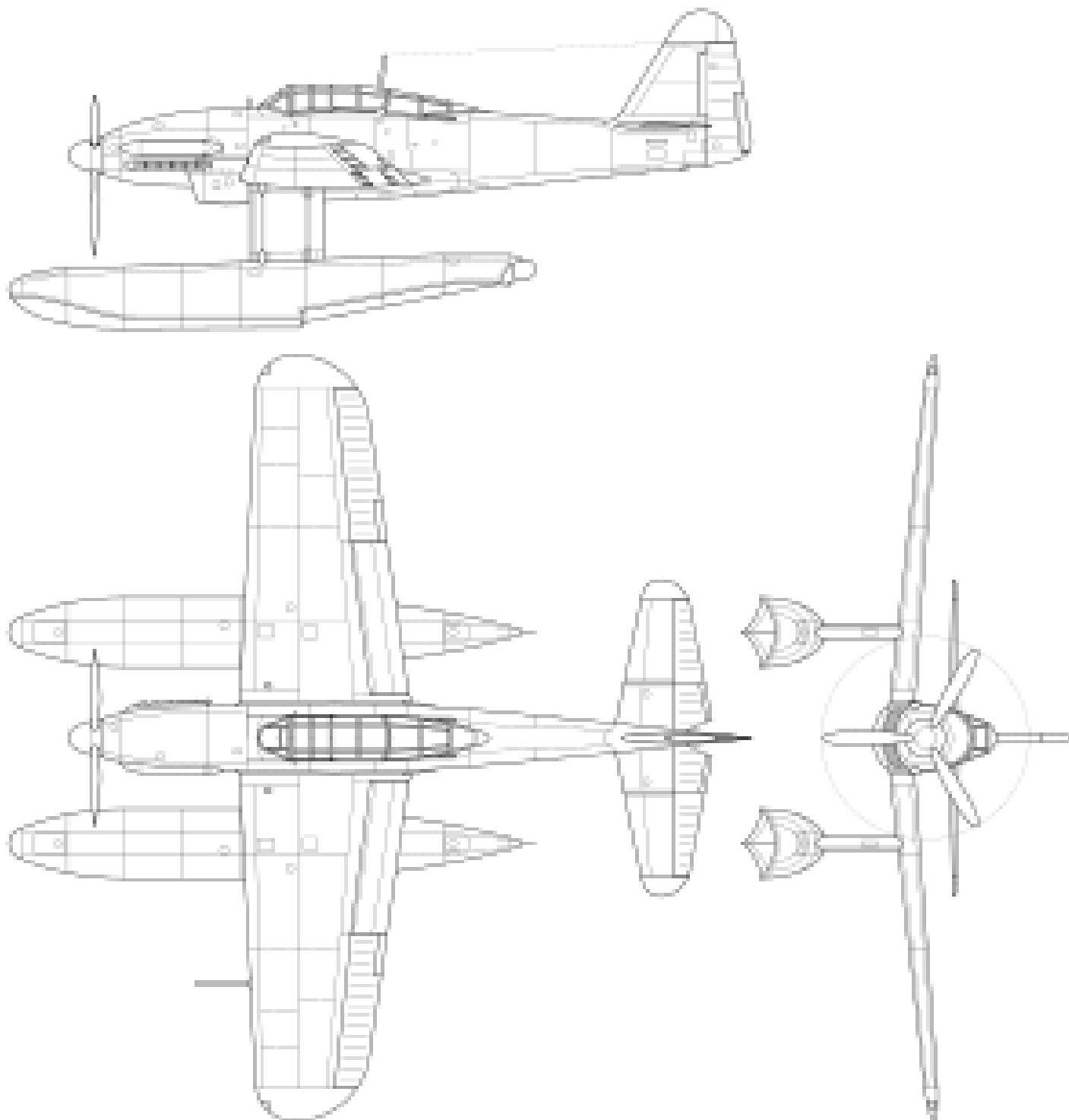
Aichi's final design, designated AM-24 by Aichi and given the [military designation](#) M6A1, was a two-seat, low-winged [monoplane](#) powered by a 1,050 kW (1,410 hp) [Aichi AE1P Atsuta 30](#) engine (a licence-built copy of the [Daimler-Benz DB 601](#) liquid-cooled [V12 engine](#)). The original specification dispensed with a traditional undercarriage but it was later decided to fit the aircraft with detachable twin floats to increase its versatility. If conditions permitted, these would allow the aircraft to land next to the submarine, be recovered by crane and then re-used. The floats could be jettisoned in flight to increase performance or left off altogether for one-way missions.^[6] The *Seiran's* wings rotated 90 degrees and folded hydraulically against the aircraft's fuselage (with the tail also folding down) to allow for storage within the submarine's 3.5 m (11 ft) diameter cylindrical hangar. Armament was a single 850 kg (1,870 lb) torpedo or an equivalent weight in bombs. One 13 mm (0.51 in) [Type 2 machine gun](#) was mounted on a flexible mounting for use by the observer.^{[7][8][9]} As finalized, each I-400 class submarine had an enlarged watertight hangar capable of accommodating up to three M6A1s. The *Seirans* were to be launched from a 26 m (85 ft) compressed-air catapult mounted on the forward deck. A well-trained crew of four men could roll a *Seiran* out of its hangar on a collapsible catapult carriage, attach the plane's pontoons and have it readied for flight in approximately 7 minutes.^[1] In order to shorten the launching process and eliminate the need for time-consuming engine warm-ups, the *Seirans* were to be catapulted from a cold start. This necessitated heating the engine oil for each plane to approximately 60 °C (140 °F) in a separate chamber and pumping it, as well as hot water, through the engine just prior to launch while the planes were still in the hangar.

In this way, the aircraft's engine would be at or near normal [operating temperature](#) immediately upon getting airborne. The idea was borrowed from the Germans who planned on using a similar launch method for the aircraft of their unfinished carrier [Graf Zeppelin](#).^{[10][11]} The first of eight prototype *Seirans* was completed in October 1943, commencing flight testing in November that year. A problem with overbalance of the auxiliary wings was eventually solved by raising the height of the tail fin. Further testing was sufficiently successful for production to start in early 1944. In order to aid pilot conversion to the *Seiran*, two examples of a land based [trainer](#) version fitted with a retractable [undercarriage](#) were built. These were given the designation M6A1-K *Nanzan* ("Southern Mountain"). Besides the difference in landing gear, the [vertical stabilizer](#)'s top portion, which was foldable on the *Seiran*, was removed.^{[12][13]}

Operational history

The first production examples of the *Seiran* were completed in October 1944. Deliveries were slowed by [an earthquake](#) near Nagoya on 7 December 1944, and by an American air-raid on 12 March 1945.^[12] Construction of the STo submarines was stopped in March 1945, after two submarine aircraft carriers had been completed and a third finished as a fuel tanker. These were supplemented by two smaller [Type AM submarines](#), originally designed as command submarines carrying reconnaissance floatplanes, but capable of carrying two *Seirans*.^{[14][15]} Owing to the reduced carrier submarine force, production of the *Seiran* was halted, with a total of 28 completed (including the prototypes and the M6A1-Ks).^{[13][16]} The new submarines and aircraft were assigned to the [1st Submarine Flotilla](#), comprising the two STo submarines, the *I-400* and the flagship *I-401*, each carrying three *Seirans* together with two type AMs, the *I-13* and *I-14*. The 1st Submarine Flotilla commenced training with the *Seirans* in January 1945, the crews gradually learning how to handle the submarines and aircraft. Launching all three *Seirans* took longer than expected: 30 minutes if floats were fitted, although this could be reduced to 14.5 minutes if the floats were not used.^[16] The first mission of the *Seiran* squadron, which was named the *Shinryuu Tokubetsukougeki-tai* (神龍特別攻撃隊, meaning "God-Dragon Special Attack Squad")^[17] was to be a surprise air strike on the [Gatun locks](#) of the [Panama Canal](#), to cut the main supply line for US forces in the Pacific. When the force was finally ready to set off on their mission against Panama, Japan's increasingly desperate situation led to a change in plan, with the target for the attack, called Operation *Hikari* (Splendour), being switched to the American base at [Ulithi Atoll](#) where forces, including aircraft carriers, were massing in preparation for attacks on the Japanese Home Islands. The flotilla departed Japan on 23 July 1945 and proceeded towards Ulithi. On 16 August, the flagship *I-401* received a radio message from headquarters, informing them of [Japan's surrender](#) and ordering them to return to Japan.^{[18][19][20]} All six *Seirans* on board the two submarines, having been disguised for the operation as American planes in violation of the laws of war,^[10] were catapulted into the sea with their wings and stabilizers folded (for the *I-401*) or pushed overboard (for the *I-400*) to prevent capture.^[21] A single M6A1 has been preserved and resides in the [Udvar-Hazy Center](#) of the Smithsonian's [National Air and Space Museum](#). It is located in the [Washington, DC](#) suburb of [Chantilly, Virginia](#) near [Dulles International Airport](#). The *Seiran* was surrendered to an American occupation contingent by Lt Kazuo Akatsuka of the Imperial Japanese Navy, who ferried it from [Fukuyama](#) to [Yokosuka](#). The US Navy donated it to the [Smithsonian Institution](#) in November 1962. Restoration work on the *Seiran* began in June 1989 and was completed in February 2000.

Specifications (M6A1)



General characteristics

- **Crew:** 2
- **Length:** 11.64 m (38 ft 2 in)
- **Wingspan:** 12.262 m (40 ft 3 in)
- **Height:** 4.58 m (15 ft 0 in)
- **Wing area:** 27 m² (290 sq ft)
- **Empty weight:** 3,301 kg (7,277 lb)
- **Gross weight:** 4,040 kg (8,907 lb)
- **Max takeoff weight:** 4,445 kg (9,800 lb)
- **Powerplant:** 1 × [Aichi AE1P Atsuta 30](#) or Atsuta 31 V-12 inverted liquid-cooled piston engine, 1,000 kW (1,400 hp) for take-off
999 kW (1,340 hp) at 1,700 m (5,577 ft)
962 kW (1,290 hp) at 5,000 m (16,404 ft)
- **Propellers:** 3-bladed constant-speed propeller

Performance

- **Maximum speed:** 474 km/h (295 mph, 256 kn) at 5,200 m (17,060 ft)
- **Cruise speed:** 296 km/h (184 mph, 160 kn) at 3,000 m (9,843 ft)
- **Range:** 1,188 km (738 mi, 641 nmi)
- **Service ceiling:** 9,900 m (32,500 ft)
- **Time to altitude:** 3,000 m (9,843 ft) in 5 minutes 48 seconds
- **Wing loading:** 149.6 kg/m² (30.6 lb/sq ft)
- **Power/mass:** 0.3574 kW/kg (0.2174 hp/lb)

Armament

- **Guns:** 1× 13 mm cabin-mounted [Type 2 machine gun](#)
- **Bombs:**
 - 1× [Type 91 torpedo](#) or
 - 2× 250 kg (551 lb) or 1× 850 kg (1,874 lb) bombs

