



Left: From this Kawanashi seaplane fighter came one of the best Naval fighters of World War Two. This NIKI Kyofu (*Rex*) is housed at the Admiral Nimitz Center in Texas. (Courtesy Admiral Nimitz Center)

fighter aircraft that could once again win back air supremacy for the pilots of 'the rising sun'.

Remarkably the solution lay with an aircraft that was already in service as a seaplane fighter, the Kawanashi NIKI Kyofu (Mighty Wind), codenamed *Rex* by the Allies, although only 97 of this type were built between July 1943 and March 1944.

At the time of its conception, the Japanese Navy was still on the offensive, seaplane fighters like the Kyofu were essential for providing air cover over islands without airstrips. By 1943, however, Japan's war aims had altered significantly, her air forces had sustained heavy casualties in the Battle of Midway and the long struggle for Guadalcanal in the Solomons. Even her stronghold at Rabaul was under constant air attack.

Attrition of both pilots and aircraft was horrendous, it was clear to the Japanese that they were now fighting a defensive campaign. So Kikuhari's design team at Kawanashi looked hard at the Kyofu seaplane and planned what was to become a land-based version of the same aircraft. The engineering team at Kawanashi first came up with the idea of adapting the Kyofu into a land-based fighter in December 1941, work on the land version continued whilst the seaplane went into production first.

The NIKI-J Shiden (Violet Lightning), was the result of this unusual conversion of a seaplane into a land-based fighter.

Early impressions were favourable, although the mid-wing design, as in the Kyofu, led to an over-long undercarriage strut which was to prove a weakness in operational conditions. The NIKI-J Shiden was powered initially by a 1,820hp engine, this was soon uprated to a Nakajima Homare 21, 18-cylinder two-row radial, air-cooled engine developing 1,990hp and producing a top speed of 363mph (584km/h) at 19,000ft (5,790m). Although not a great speed advantage over the A6M5 Zero which was about to appear late in 1943, the Shiden had a superior speed in the dive, a tactic with which the Zero could not evade the latest American fighters.

Importantly, it was also a far more rugged aircraft with protection for both the pilot — and the main fuel tanks.

Armament on the initial version was 2 x 7.7mm fuselage-mounted machine-guns, 2 x 20mm wing-mounted cannons and a further pair of 20mm cannons mounted in pods beneath the wings. This version was designated NIKI-J and was the most numerous variant, although only a few early examples carried the pair of machine-guns.

The NIKI-Ja had its 4 x 20mm cannons all within the wings.

The final version of the Shiden, the NIKI-Jb carried four improved cannons and also had underwing racks for a pair of 550lb (250kg) bombs for use in the fighter bomber role.

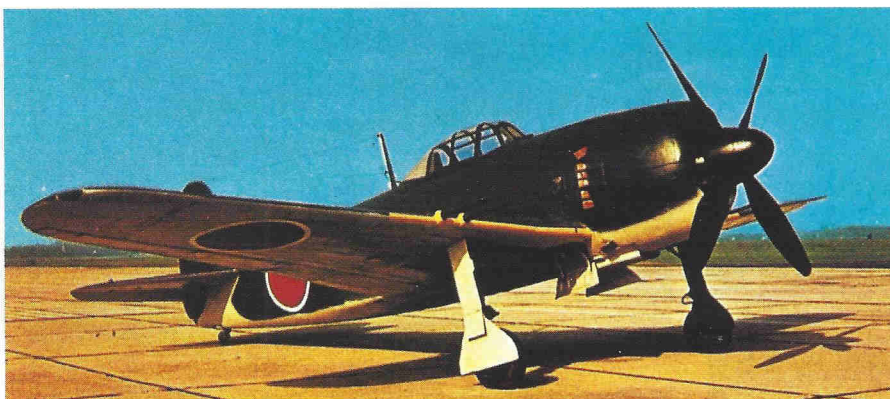
Improvements were planned to the airframe of the Shiden, but in the meantime the worsening war situation required that combat units received the new fighter at once.

The first unit to get Shidens was Naval Air Group 341 *Shishi* (Lion), which was formed in November 1943. It began immediate conversion from Zeros to the new fighter; however, supplies of Shidens from the factories were very slow — for

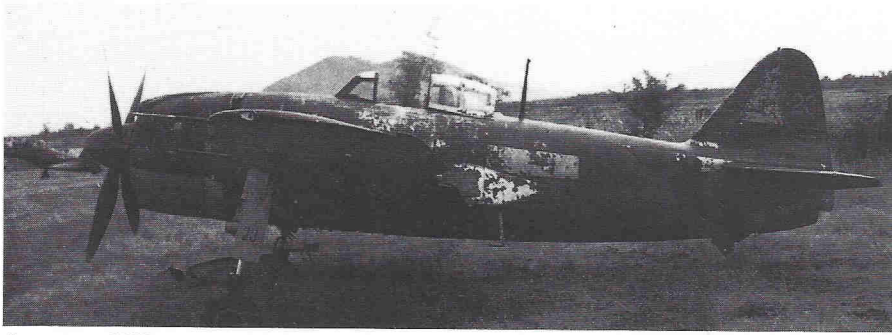
Japanese Lightning

*Kawanashi Shiden
and Shiden-kai in
combat, reviewed by
Mark Huggins.*

BY LATE 1943, in the vast skies over the Pacific, the Japanese Navy Air Force was rapidly losing air supremacy. New American fighters had arrived in theatre and the Mitsubishi A6M Zero had lost its edge. This once all-conquering machine was now outperformed by such aircraft as the F4U Corsair, F6F Hellcat and P-38 Lightning. What was needed was a



Preserved Kawanashi NIK2-J Shiden-kai (*George*) of the USAF Museum in Ohio. (Courtesy of D Menard)



A captured NIK1-J at Clark Field in the Philippines in March 1945, belonging to Naval Air Group 341. Notice the long undercarriage strut. (National Archives)

example just 37 were available by the end of August 1944 from a planned deployment of 72. That summer saw the Group divided into Fighter *Hikotais* (*Hikotai* roughly translates as a unit of the same type of aircraft), 401 and 402, whilst the elite *Hikotai* 701 performed a training role.

The first major combat for the Group was over the Philippines, (Luzon, Leyte, Mindanao and Cebu) in October 1944. In the air battles over the islands through October into December, the Shidens, (now codenamed *George* by the Allies), were not present in enough numbers to have any drastic impact.

Perhaps the only real success for the new fighter unit was on October 27, when Lt Kanno led a mixed force of Shidens and A6M5 Zeros towards the Cebu area to cover *kamikaze* and conventional attack planes that were targeting US warships in the vicinity. En route they sighted a force of 16 Hellcats that were inbound on a sweep. Kanno had with him several veteran pilots from previous air battles around Rabaul and the Solomons, he chose to attack. The Shidens and Zeros surprised the Americans by attacking through heavy cloud cover from above, in the ensuing melee 12 Hellcats were claimed as destroyed or probables. But victories were rare, the Japanese air units could do little to stem the tide against the powerful US forces in the Philippines, both carrier and land-based aircraft ranged almost at will over the Japanese bases.

By the end of October 1944, Air Group 341 was reduced to just four flyable Shidens. The furious air battles of the last few weeks, culminating in the naval battle of Leyte Gulf, and the failure of the Japanese operation *Sho-Go*, had ended in a bitter defeat for them.

In November the battle for Luzon in the Philippines continued. Fighter *Hikotai* 701 advanced from Japan to reinforce the depleted Naval Air Group 341.

Continuous operations under threat of attack was not the best way to introduce a new aircraft, and it appeared that the fledgling Kawanashi fighter had been rushed into service at the expense of solving many teething problems. A high proportion of aircraft were being grounded due to engine faults, many due to shoddy construction. The overlong undercarriage struts also suffered in heavy landings after combat.

The problem was compounded by a severe shortage of spares, as by 1944 Allied submarines were taking a heavy toll of Japanese supply convoys. By late December the reinforced Group was down to just eight flyable aircraft, and had also lost its Commanding Officer.

Naval Air Group 341 was only able to fly armed reconnaissance missions, then passing sightings of enemy ships by radio to strike units waiting on standby. Disaster struck on January

4, 1945. A surprise low-level attack by US Army P-47 Thunderbolts caught 13 Shidens, several of them replacement aircraft just arrived, parked out on the flight line in the process of being armed and fuelled. By the end of the attack eight were destroyed and four pilots had been killed. It was the final blow to the unit, from January 9 the remaining Shiden fighters on Luzon were able to do little to stem the tide.

Soon the fighting would move elsewhere, and nearer to Japan. The Shidens had achieved isolated successes, but generally it was not a good start for the new Kawanashi fighter. Naval Air Group 341 ceased to exist, surviving pilots and groundcrews were turned into Naval infantry, the majority to fight to the last man along with the Army. Only a small number of aircrew from *Hikotai* 701 escaped by transport planes back to Japan.

Meanwhile, Kawanashi sought to improve on their promising fighter aircraft. The result was the NIK2-J Shiden-kai (Violet Lightning improved), this they achieved with a complete re-design of the airframe. The wing was moved to the base of the fuselage, altering the aircraft to a low wing design. As well as shortening and so strengthening the undercarriage struts this also resulted in ease of assembly at the factories, in fact the NIK2-J could be assembled in half the man hours of its predecessor.

Performance improved, although not markedly. The Shiden-kai reportedly had positive stability and had a good rate of roll, the signs of a good fighter. Its manoeuvrability was good, partly due to automatic combat flaps, controlled by a mercury U tube which measured the angle of

attack in a combat situation, allowing the aircraft to stay with another in a slow, turning dogfight.

The NIK2-J carried the same 4 x 20mm cannons as the NIK1-Jb, but a further variant, the NIK2-Ja had wing racks for 4 x 550lb bombs. Although flown by Navy pilots, it was not a carrier-based fighter, the Zero held this position alone until the war's end.

The Shiden-kai was not considered an easy aircraft to fly, hence it would go to experienced pilots only. It was considered too precious an aircraft to be wasted on young pilots who had been trained on obsolete types. A two-seater trainer version designated NIK2-K was produced but in very small numbers. The elite Naval Air Group 343 took the new NIK2-J into action, now in defence of Japan and her southern islands in 1945.

The Group consisted of:

Fighter *Hikotai* 701 *Ishin-tai* (Imperial Restoration Unit)

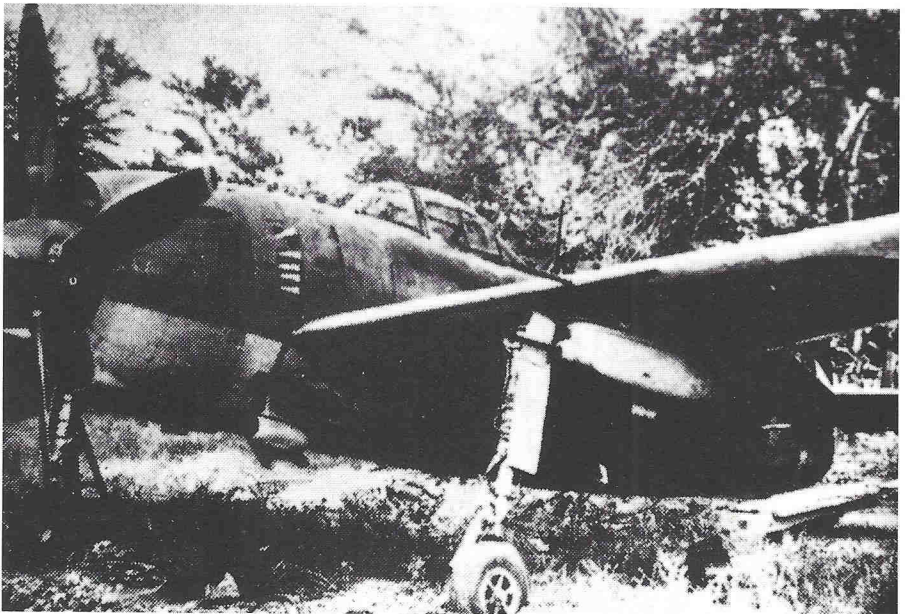
Fighter *Hikotai* 301 *Shinsen-gumi* (Elite Guard Unit)

Fighter *Hikotai* 407 *Tenchugumi* (Heavenly Punishment Unit)

There was also a fast reconnaissance unit flying Nakajima C6N1 Saiun aircraft (Allied codename *Myrt*) attached.

Naval Air Group 343 was allocated the best remaining fighter pilots in Japan, including: Shoichi Sugita (70 kills), Kaneyoshi Muto (28), Naoshi Kanno (25) and Hiroshi Okano (19).

It was Muto of *Hikotai* 301, who on his own whilst testing the new fighter, sought combat with a group of US Navy Hellcats in an air battle over Yokohama. In the ensuing action Muto shot down four of the highly-rated Grumman fighters before the remainder, possibly low on fuel and ammunition, broke off. Muto's success augured well for the new Shiden-kai. The Commander of Air Group 343, which had been formed on Christmas Day 1944, was Captain Minoru Genda, his aim was to achieve local air superiority by using this improved aircraft and the best remaining pilots. Training was to a very high level and included the use of the attached reconnaissance aircraft on a patrol line used in co-ordination with limited ground radar. This was the closest Japan came to an organised defence against bomber and fighter incursions.



An early NIK1-J Shiden showing underwing 20mm cannon pod below port wing. (Author's collection)

On March 19, 1945, the pilots of Naval Air Group 343 achieved their day of glory. The reconnaissance aircraft gave the waiting Shiden-kais of *Hikotais* 301, 407 and 701 advance warning of an incoming force of enemy aircraft, the Japanese fighters scrambled into the air from their base at Matsuyama on the home island of Shikoku, they had practised many times for a day like this.

Air Group 343 was responsible for the defence of the major Naval Base at nearby Kure. Gaining altitude rapidly, the Shiden-kais were in a perfect position to attack the American formation, which mostly comprised Hellcats and Corsairs, with a small number of Avengers, all carrier-based aircraft which were carrying bombs and the new 'Tiny Tim' rocket projectile.

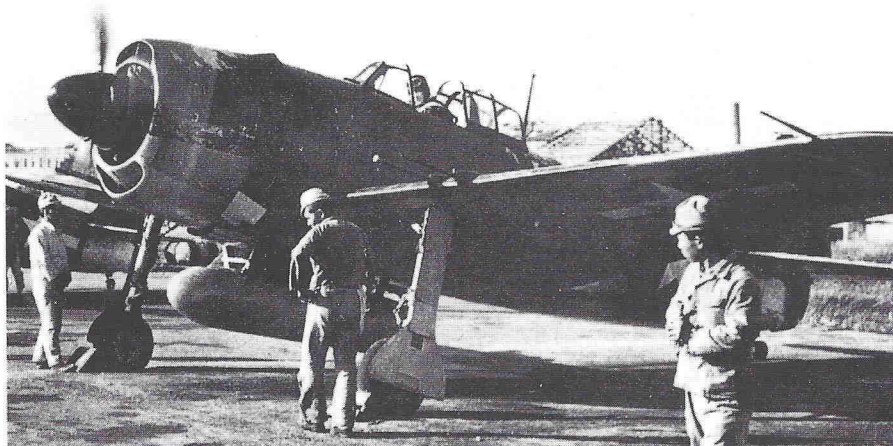
The Americans were indeed targeting the Naval Base at Kure, where remaining elements of the Japanese fleet were located. The US Navy pilots were used to meeting lesser resistance on these fighter sweeps, and the fact that there were bombers in the formation, gives the impression that they certainly were not expecting to be intercepted by 54 of the enemy's best remaining fighters.

The battle took place within sight of Matsuyama airfield, ground personnel watched as the Shiden-kais tore into the American aircraft as if they had stepped back in time to 1942.

Naval Aviation Pilot First Class Shoichi Sugita alone scored four kills over Hellcats, his comrades also scored well. The 4 x 20mm cannon armament of the NIK2-J was the answer against the heavily armoured American aircraft, very short bursts often destroying aircraft that had seemed invincible earlier in the war. Japanese records claim 52 enemy aircraft downed in that day's air battle against the loss of 16 of their own fighters in the air and five more on the ground.

Even allowing for some over-claiming, it was clear that a large number of American aircraft had been shot down, as by the end of the day 19 enemy pilots had been captured. However, it would take more than this relatively small success to stop the Allied juggernaut, the US Navy had been joined by the British Pacific Fleet at the end of March 1945.

The target for this combined fleet was the island of Okinawa. The Japanese resisted



This photo isn't what it first seems, careful scrutiny of the underside of this NIK2-J's wing shows US markings. Taken shortly after the surrender, this *George* is to be flown by a Japanese pilot to a point where it will be shipped to the USA for evaluation. (National Archives)

with massed *kamikaze* attacks using anything that flew, this was operation *Kikusai* (floating Chrysanthemum). Naval Air Group 343 and its Shiden-kais were given the task of flying fighter sweeps ahead of the one-way attack planes.

The Kawanashi fighters operated from airfields in southern Kyushu, however, combat time over Okinawa was restricted as the Shiden-kais were at the limit of their range. Despite the unconventional and almost unstoppable *kamikaze* menace, Okinawa fell.

By April 1945, B-29 Superfortresses operating from the Marianas, and by now escorted by P-51D Mustangs from Iwo Jima, were causing immense damage to Japanese cities and industry. Allied carrier-based aircraft, including elements of the Fleet Air Arm, roamed almost at will over Japan.

The Japanese were forced to resort to camouflage and dispersal to preserve their remaining air power from total destruction. Generally, during the period June to August 1945, the Japanese attempted to hoard the remainder of their aircraft for use against the Allied invasion which they knew was coming sooner or later.

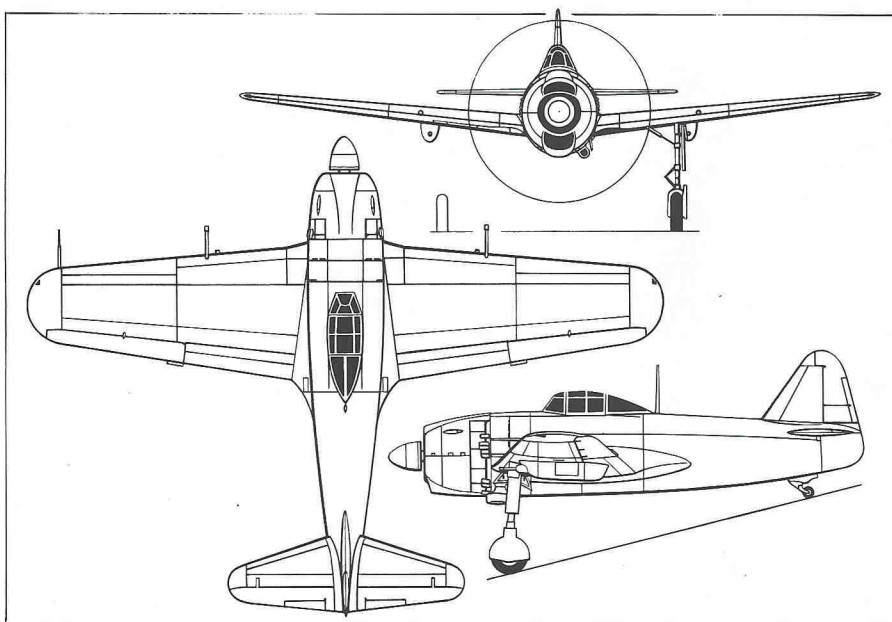
After the war estimates were that a staggering 10,000 aircraft had been preserved for this purpose, the majority would have been expended

in a massed *kamikaze* effort. But the Shiden-kais of the elite Air Group 343, along with Mitsubishi J2M Raiden (*Jack*) interceptors also of the Navy Air Force and some elements of the Army Air Force, were not part of this plan, and occasionally would still attempt to intercept Allied aircraft. They were used intelligently when the odds were in their favour.

Perhaps the last victory for the veteran pilots of Naval Air Group 343 came on July 24 in a big air battle over the Bungo Strait, the Shiden-kais joined other Japanese fighters managing to claim 18 American aircraft — Corsairs, Hellcats, Avengers and Helldivers. Once again the Allies were surprised by the effectiveness of the defending forces.

However, seven Shiden-kais also went down, including Lt Naoshi Kanno who had survived the debacle that was the Philippines, his fighter was seen to become a ball of fire before impacting on the sea. Mystery surrounds the loss of fellow ace Kaneyoshi Muto, who also failed to return that day; however, US Navy pilots claimed nine kills.

Time had already run out for *Hikotai* 301 ace Shoichi Sugita. Marauding Hellcats caught him, just after take-off from Kanoya, Lt Cmdr Robert Weatherup of VF-46 delivered the *coup de grace* that sent Sugita into the ground from just 400ft (120m). The odds against the Shiden-kai pilots surviving were narrowing by the day. With the dropping of the two Atom bombs in early August 1945, the fate of the Kawanashi Shiden-kai was a funeral pyre along with the rest of a once proud air force in a devastated land. Total production of all variants had been 1,435. Just one complete example of a Shiden-kai remains in the world today.



NIKI-J Shiden. (FP Collection)

Performance Comparisons

	Kawanashi NIKI-J	Shiden-kai	NIKI Kyofu	Mitsubishi A6M5 (Zero)
Max. speed	363mph (584km/h)	369mph (594km/h)	304mph (489km/h)	351mph (565km/h)
Cruise at	230mph (370km/h)	230mph (370km/h)	230mph (370km/h)	230mph (370km/h)
Climb to 19,685ft (6,000m)	7 min 50 sec	7 min 22 sec	16,405ft 5 min 32 sec	7 min 27 sec
Ceiling	41,000ft (12,497m)	35,300ft (10,759m)	34,645ft (10,560m)	38,520ft (11,740m)
Range	890 miles (1,432km)	1,066 miles (1,715m)	656 miles (1,055km)	not known
With tanks	1,581 miles (2,544km)	1,488 miles (2,395km)	1,036 miles (1,667km)	1,194 miles (1,921km)

