

INTRODUCTION

Operation Watchtower started several months after the US Navy turned back the Japanese Navy at Midway Island. You'll probably recognize this operation more by the location of the battles: Guadalcanal Island.

From August 7th, 1942, through mid-November, 1942, US Navy and Marines fought to expel Japanese forces from a small rock and sand island about 500 miles east of New Guinea. The Navy committed three carriers to Guadalcanal: *Saratoga*, *Enterprise* and *Wasp*. *Enterprise* and *Saratoga* had faced the enemy in earlier battles but the USS *Wasp* had no combat experience. The three carriers offered a combined 98 fighter planes to support Operation Watchtower. The confrontation at Guadalcanal had a different character than all earlier battles. This grinding, sustained fight occurred at a furious pace. It was very much unlike the sporadic and tentative character of earlier battles.

The combat began with an air skirmish. A force of 27 Betty bombers, 9 Val dive bombers and 17 Zero fighters flew from a Japanese base at Rabaul, New Britain, toward Guadalcanal Island. They were met by 18 F4F Wildcats, half of which were shot down in resulting dogfights. Five G4M1s, two A6Ms and all the Vals were shot down. (The Aichi dive bombers had been sent beyond their normal range — those that survived the combat ran out of fuel before they returned home.) Besides the Wildcats, the US lost seven other aircraft and six pilots. There were many reasons why this was the worst single-day loss of F4F Wildcats. Besides being outnumbered, the Wildcats were poorly positioned. They also faced the Tainan Air Group, which boasted most of Japan's aces, including Saburo Sakai and Horiyoshi Nishizawa.

The heavy losses forced Admiral Fletcher to withdraw the three carriers. This left the Marines on Guadalcanal without supporting air cover. To provide air cover, the escort carrier *Long Island* sent 19 Wildcats and 12 Dauntless dive bombers to be stationed at Henderson Field on Guadalcanal Island. These aircraft became the "Cactus Air Force." Although these pilots lacked combat experience, they soon made their presence known over the Solomon Islands.

On August 24th, *Enterprise* and *Saratoga* met a Japanese attempt to reinforce their troops on the island (the *Wasp* was refueling away from the carrier group). Poor radios and atmospheric conditions helped *Saratoga* pilots to strike and sink the *Ryujo*, but the same conditions caused them to miss the other ships. A force of 27 Vals and 10 Zeros attacked the *Enterprise*, defended by more than 50 Wildcats. The Wildcats had plenty of time to get airborne and charge their guns because radar

detected the attacking Japanese about 90 miles away from the ships. Despite the US pilots' advanced warning and superior numbers, the *Enterprise* was hit three times, forcing many pilots to land on *Saratoga* or at Henderson Field. The Wildcats shot down twenty-five Japanese planes, well over half of those launched — including the *Zuikaku's* entire nine-plane bomber squadron.

In the three weeks beginning August 21st, Japan attacked the US beachhead on Guadalcanal ten times in raids averaging more than 30 aircraft each. On August 31st, a Japanese submarine torpedoed *Saratoga*, forcing its air group ashore to join the Cactus Air Force. To aid its defense, Henderson Field received radar installations in September.

In late October 1942, the Japanese Navy tried to cover a major troop reinforcement of Guadalcanal. The *Enterprise* and *Hornet*, part of Task Force 61 (TF-61) commanded by Rear Admiral Kinkaid, faced four carriers commanded by Nagumo: *Shokaku*, *Zuikaku*, *Zuiho* and *Junyo*. Two US carriers with 72 Wildcat fighters faced four Imperial Japanese carriers with 82 Zero fighters. Because both forces knew the other's location, they launched simultaneous strikes. The *Enterprise* strike had some success with three of its SBDs managing to bomb the *Zuiho* and make it useless. The *Hornet* lost three F4Fs that were protecting the Dauntless dive bombers that killed *Shokaku* and damaged a cruiser. Five Zeros were shot down during the battle.

This was just the start of the day, however. Soon, the longest sustained air attack in the first two years of the war would begin. Nagumo launched 138 attackers—dive bombers, torpedo bombers and fighters—against TF-61. The attack lasted three hours. Since most of TF-61's aircraft hadn't yet returned from the earlier strike, only 38 Wildcats faced the attackers. *Hornet* quickly received three hits. Anti-aircraft fire and the Wildcats shot down half of the 39 Kates. Unfortunately, two more torpedoes hit the *Hornet's* flank and stopped her in her wake.

Because they faced several "bogeys," many of the US pilots turned off two or sometimes four of their six guns to save ammunition. This not only make them to be more deliberate in firing, it also let them remain airborne longer before having to land to reload. Only six of *Junyo's* seventeen bombers returned that day. Meanwhile, US pilots returning to *Hornet* had to fight their way home only to find they couldn't land. A Japanese destroyer sank the abandoned *Hornet* that night. Overall, 23 F4Fs and 14 pilots were lost in combat. Another ten Wildcats went down with the *Hornet*. The total loss of American aircraft was 80 and the Japanese lost 99. The *Hornet* was a hard loss for the Americans, but it was to be the last US carrier sunk by an air attack for two years. Although Japan was arguably the victor that day, it did little to increase its hold on Guadalcanal.

Small scale fighting for Guadalcanal continued into November. Japan again attempted a major troop reinforcement of Guadalcanal on November 12th. They began by attacking US ships that were unloading supplies at the American beachhead. Fifteen Wildcats responded and shot down 17 of the 19 Betty bombers and five Zero escorts. Only three F4Fs were lost. The battle continued in Ironbottom Sound, where US carriers and destroyers prevented Japanese ships from bombarding Henderson Field. In the exchange of fire, five US Navy vessels were sunk and two Japanese destroyers were sunk and a battleship was disabled. SBDs from Henderson easily located the crippled *Hiei* the following morning and sank her.

Small sorties continued over the next few days. Fifteen Wildcats and A-6 Avengers intercepted Japanese troop transports and a bombardment group. Several planes were damaged on the ground at Henderson during nighttime shelling. Dauntless aircraft from the *Enterprise* sank the cruiser *Kinugasa*. In the heaviest day of aerial activity so far, 86 Navy, Marine and Army bomber sorties, escorted by 42 Wildcats, destroyed 12 Zeros and three floatplanes. Only two F4Fs and five SBDs were lost. Wildcats and Dauntless dive bombers soon attacked Zeros protecting eleven troop-transport

ships. Seven of the eleven troop transports were destroyed or forced to turn back before they reached the beach. The four surviving transports beached on the morning of November 15th and aerial combat quickly decreased. Only two dogfights occurred that day and the US claimed eight kills. There would be no more until January.

The battle for Guadalcanal Island was a long, bloody and grinding conflict for a small piece of land in the south Pacific. One of every three pilots at Guadalcanal died. It was a terrible price, but Japan was on its heels for the remainder of the war.

AIRCRAFT

Grumman F4F Wildcat

Ordered by the US Navy in 1939, nearly 8,000 Wildcats were built. Though slightly inferior to the Japanese Zero, the F4F made invaluable contributions over the Coral Sea, Midway and Guadalcanal. Although more effective planes had largely replaced the Wildcat by 1943, the Wildcat remained in production until August , 1945.

The F4F was the first folding-wing fighter purchased by the US Navy. The space created by folding the wings allowed aircraft carriers to carry more aircraft. The largest advantages the Wildcat enjoyed over its main adversary, the A6M2, were armor for the pilot and engine and self-sealing fuel tanks. These allowed F4F pilots to survive enemy attacks and return home, even after receiving considerable damage. Wildcats had an inauspicious Pacific premiere: four were shot down by friendly anti-aircraft fire during the confusion surrounding the Japanese attack on Pearl Harbor.

Grumman F4F Wildcat	
Engine	1,200hp Pratt & Whitney R-1830-86 radial
Wing span	38ft
Length	28ft, 10in
Maximum take-off weight	7,952lb
Maximum level speed	318mph
Range	770 miles
Armament	Six forward-firing .5-inch machine guns and two bombs

Grumman TBF-1 Avenger

The Pacific's chief torpedo-bomber from 1942 to the end of the war was born of the war more literally than any other plane. During the public unveiling of the TBF prototype, Grumman vice-president Clint Towl was told of the Japanese attack on Pearl Harbor. Towl prohibited any announcement. After the thousands of visitors left, the gates were locked and the plant searched for saboteurs. It remained a secure installation for the next four years, and the TBF-1 became an Avenger. It entered combat the following June.

Grumman TBF-1 Avenger	
Engine	1x 1,700-hp Wright R-2600-8 Cyclone 14-cylinder
Maximum speed	271 mph
Ceiling	22,400 ft.
Range	1,105 miles
Weight	10,555 - 17,364 lb.
Length	40 ft.
Height	16 ft., 5 in.
Wing Span	54 ft., 2 in.
Wing Area	490 sq. ft.
Armament	1x 0.3-in. forward gun, 1x 0.5-in. gun in turret, 1x 0.3-in. gun in lower rear, an internal bay for 1x 22.7-in. torpedo or up to 2,000 lb. other stores

The robust Avenger served well throughout the war. It could turn almost as well as a fighter. Its torpedoes also damaged many enemy surface ships and submarines. Avengers later in the war also made many bombing raids on Japan.

It proved so popular that Grumman could not keep pace with orders and they eventually subcontracted General Motors to produce TBM Avengers. These TBMs eventually accounted for 77% of Avenger production.

Each Avenger carried a three-man crew. The pilot was positioned in a roomy cockpit. The radio operator, who also handled the turret gun, was behind the pilot. The bombardier as below the radio operator. His seat moved so he could face backwards to man the lower gun or face forward to control bombing from medium altitudes. The pilot was in charge of releasing torpedoes.

The early MK-13 torpedoes required deployment under 100 feet and less than 100 knots. Later torpedo modifications made attacking ships much easier. The MK-13-1A could be effectively dropped from 800 feet at speeds up to 280 knots. In bombing configuration, the normal war load was four 500-lb. bombs.

The Avenger’s wings folded back along the fuselage. This was a new design for carrier aircraft. Prior to the Avenger, wings normally folded up to save space on the carrier. The TBF was also one of the first aircraft to mechanically fold the wings. The designers realized early that the huge wings would prove a challenge to fold manually on pitching carrier decks.

SDB Dauntless

The Douglas SBD-3 Dauntless served as the main U.S. Navy carrier based dive bomber in early World War II. It was also used as a reconnaissance and patrol plane. It was one of the few aircraft available at the beginning of World War II and continued to serve well into the war. However, technology had changed so much that its performance levels were considered nearly obsolete near the end of the war.

The Dauntless was large enough to carry a big bomb load and deliver it with accuracy (ideally in the middle of the flight deck of an enemy carrier). Instead of using a bombsight, it relied on its capability to maintain a very steep dive angle so the pilot could place the bombs directly on target.

Douglas SBD-5 Dauntless	
Engine	1x 1,200 hp Wright R-1829-60
Maximum speed	245 mph
Weight	6,675 lbs / 10,855 lbs empty-max
Length	33 feet
Height	12 feet 11 inches
Wing Span	41 feet 6 inches
Wing Area	490 sq. ft.
Armament	2x 50 cal 2 x 30 cal; 2,200 bombs

The SBD was a slow aircraft (top speed barely reached 250 m.p.h.) and its defensive firepower of a tailgunner taking potshots at pursuing fighters was more of an annoyance to determined enemy fighters. Like most tactical bombers in the war, the SBD depended on fighter escort. So a large degree of air superiority had to be established for these planes to be effective.

Also, since the Dauntless flew relatively low, it lacked many of the defensive benefits of the heavier bombers. For example, heavy bombers could fly at high altitude, which made them difficult to intercept. Also, a large formation of heavy bombers could defend themselves fairly well from fighter attack.

Nevertheless, the Dauntless was responsible for sinking a larger tonnage of Japanese shipping than any other U.S. warplane. It was also the key in one of the most decisive battles in naval history. The appearance of a single squadron of SBD's turned the Battle of Midway into a decisive U.S. victory and turned the tide of war against Japan.

Aichi D3A-1 "Val"

The two-seat Aichi D3A-1, code-named "Val," was the first all-metal, low-wing monoplane dive bomber of the Japanese Imperial Navy. Premiering in 1937, the carrier-based Val was one of the main aircraft types that attacked Pearl Harbor. It sank more Allied warships than any other Axis aircraft. It was also the last Japanese carrier plane that had spatted (fixed) landing gear.

Aichi D3A-1 "Val"	
Engine	1,075hp Mitsubishi Kinsei 43/44
Wing span	47ft, 1.5in
Length	33ft, 5.5in
Maximum take-off weight	8,378lb
Maximum level speed	266mph
Range	970 miles
Armament	Three 7.7mm machine guns and up to 816lb bombs
Ceiling	34,500ft

Mitsubishi G4M1 “Betty”

This medium torpedo-bomber first flew in 1939. Though it packed a powerful punch, its lack of armor and defensive weapons made it very vulnerable. Many fell during the Marianas Turkey Shoot in mid-1944. It was nicknamed the “Flying Lighter” because it easily became a fireball after receiving combat damage. Regardless, Mitsubishi built 2,400 G4Ms. The Japanese Navy Commander in Chief and architect of the Pearl Harbor attack, Admiral Yamamoto, was killed when the Betty he was traveling in was found and dropped by US fighters.

Mitsubishi G4M1 “Betty”	
Engine	Two 1,530hp Mitsubishi Kasei
Wing span	82ft, 0.25in
Length	64ft, 4.75in
Maximum take-off weight	27,558lb
Maximum level speed	273mph
Range	3,728 miles (with auxiliary fuel tanks)
Armament	One 7.7mm machine guns and four 20mm cannons, plus 2,205lb bombs or an 800kg torpedo

Mitsubishi A6M2 “Zero”

The Zero, code-named “Zeke,” appeared in 1940. The definitive Imperial Japanese fighter plane, the Zero was designed for speed, range and maneuverability. At the start of the war, it had no match. With a drop tank attached, a Zero could cruise eight hours. Its two cannons and two machine guns packed a decent punch, though later US planes’ armor and self-sealing fuel tanks reduced their effectiveness. Early battles were overwhelming Japanese successes. After Midway however, Allied planes gained the upper hand. Larger powerplants and heavier firepower took their toll on the fragile Zeros. Near the end of the war, many Zeros were converted for kamikaze operations.

Reports of an agile and deadly fighter had reached America before the US entered the war, but Intelligence officers considered the reports to be exaggerations. They reconsidered when many US pilots were falling in early ‘42. The Zero’s abilities derive from the engineers’ focus on weight reduction. It was one of the first aircraft constructed of lightweight aluminum alloy. It weighed only one quarter of a Wildcat. Weight-reduction also contributed to the lack of armor to protect the pilot or the fuel tanks. It gained worldwide fame in several impressive victories against all types of land-based and carrier-based Allied aircraft during the first six months after Pearl Harbor. But the lack of armor and the lightweight guns meant it could be outmuscled by later US aircraft. It took part in every major action the Japanese navy was involved in, from Pearl Harbor to the final B-29 assault on Japan. Between August 1940 and January 1941, Zeros flew 153 sorties and dropped 160 enemies without losing one Zero. Although the A6M engine never exceeded 1,200hp, it fought well against fighters with engines of twice the horsepower. Until heavier armed and better protected Allied fighters reached the Pacific, the Zero was the most feared aircraft in the sky.

Although it was largely obsolete by mid-1943, it remained in production until the end of the war. More Zeros were built, a total of 10,499 from Mitsubishi and Nakajima factories, than any other type of Japanese aircraft.

Mitsubishi A6M2 "Zero"	
Engine	1,130hp Nakajima Sakae 21
Wing span	36ft, 1in
Length	29ft, 8.5in
Maximum take-off weight	6,050lb
Maximum level speed	354mph
Range	976 miles
Armament	Two 20mm cannon and two 13.2mm machine guns in wings, plus bombs
Ceiling	38,500ft

Nakajima B5N2

The Imperial Japanese Navy's B5N2, nicknamed "Kate" by the Allies, was one of the first planes the Allies met. A total of 144 Kates participated in the Pearl Harbor attack.

Nakajima B5N2	
Engine	1,000-hp Nakajima NK1B Sakae 11 Radial
Maximum speed	225 mph
Ceiling	27,100 ft
Range	1,075 miles
Weight	5,024 - 9,039 lb.
Length	33 ft., 10 in.
Height	12 ft.
Wing span	50 ft., 11 in.
Wing area	406 ft.
Armament	1x 7.9-mm tail gun, 1x torpedo or 1,100 lb. of bombs

The Kate was the best torpedo bomber available before the war and through the first several months of the war. It carried Japan's Long Lance torpedo and was responsible for sinking the U.S. carriers *Hornet*, *Lexington* and *Yorktown*. Its outstanding range and handling let the Japanese patrol the wide areas. Its low stall speed of 50 mph made carrier landings and torpedo deployment very easy. (The torpedoes had to be dropped below 100 feet at speeds less than 100 mph.)

The Kate did require a fighter escort, however. Its slow speed meant outrunning another plane was virtually impossible. Also, its backward facing gun meant the pilot had to be either very skilled or very lucky to get into a firing position. The lack of armor and self-sealing fuel tanks left the Kate's three-man crew very vulnerable. The only advantage the B5N2 had when one-to-one was its fast and tight turning ability. The Kate could turn with a Zero.

The Kate was so seriously underpowered and underarmed in the second half of the Pacific war they were pulled from active combat service in 1944. Afterwards they became subhunters that could operate beyond the range of Allied aircraft. Many were also later converted for kamikaze missions. Of the more than 2,000 produced, not one Kate is known to have survived the war.

MISSIONS

US Navy/Marines

MISSION 1 - 8/7/42

Allies surprise the enemy by bringing a 76 ship invading force to take Tulagi, Tanambogo, Gavutu, and Guadalcanal. Three of the US's remaining four aircraft carriers (*Saratoga*, *Enterprise*, and *Wasp*) are included in the task force. Missions provide air cover for the landing (F4F's)

MISSION 2 - 8/7/42

Coastwatchers notify Admiral Fletcher of incoming Bettys, Vals, and Zeros. SBD's and F4F's are in the air and engage.

8/7/42 (not a mission) – Aircraft from the *Wasp* attack the seaplane base at Tulagi destroying planes on the ground (water). This significantly reduces IJN airpower in the immediate vicinity and gives the Americans time to dig in. (F4F escort of SBD's)

8/8/42 (not a mission) – Another attack of Bettys and Zeros convinces Admiral Fletcher that the ships are at significant risk. He moves the task force to the southeast (this action will later be characterized as desertion of the Marine forces already landed at what will become known as Henderson Field). (F4F intercept mission)

8/20/42 (not a mission) – “Cactus,” the code name for Guadalcanal island, lends it's name to VMF-223 and VSMB-232, the Cactus Air Force, which lands at the newly completed (kind of) Henderson Field today.

MISSION 3 - 8/10-25/42 – “The Tokyo Express”

Colonel Ichiki Kiyano attempts to land a 1,000 troop force on Guadalcanal. The ensuing bloodbath (900 Japanese dead to 35 Marines) is the first evidence that the IJA is not the elite jungle fighting force that the Americans have envisioned them to be. (F4F, SBD ground support mission)

MISSION 4 - 8/25/42 to 9/42

Admiral Tanaka Raizo starts to run reinforcements down “the Slot” (the narrow corridor between the Solomons which is, by the way, littered with wrecked ships) from Bougainville to Guadalcanal. (F4F, TBF/TBM, SBD anti-shipping)

MISSION 5 – 8/23-25/42 — “The Battle of the Eastern Solomons”

Yamamoto launches several coordinated small forces (which include the *Shokaku* and *Zuikaku*). A USN seaplane sees one of the forces and Admiral Fletcher attacks. Avengers and Dauntlesses are sent on a raid, destroying the light carrier *Ryujo*. (F4F escort duty)

MISSION 5A (Ace level)

On returning to the task force, the escort finds IJN aircraft (Kates and Vals) orbiting the Enterprise’s location (hidden under a small storm). (In reality, the USN forces here were a combat patrol held in reserve by Fletcher)

MISSION 6 (Date — several)

Scramble from Henderson to intercept incoming Bettys down the Slot. (F4F – Cactus AF)

IJN and IJA sent a landing force of 5,000 men (against a combined American force now at 17,000). Repel the landing! (SBD, F4F ground attack)

Imperial Japanese Navy**MISSION 1 - 8/7/42**

Even though surprised by the invasion, the IJN reacts quickly, sending a massive attack from Rabaul and Bougainville: 27 Bettys, 18 Zeros, and 9 Vals. The Vals will not have the range to make it back home after the mission. (A6M escort mission)

MISSION 2 - 8/25/42 to 9/42

Admiral Tanaka Raiszo starts to run reinforcements down “the Slot” (the narrow corridor between the Solomons which is, by the way, littered with wrecked ships) from Bougainville to Guadalcanal. (A6M shipping escort mission)

MISSION 3 – 8/23-25/42 — “The Battle of the Eastern Solomons”

Yamamoto launches several coordinated small forces (which include the *Shokaku* and *Zuikaku*). IJN aircraft (Kates and Vals) find the carrier group hidden under a small storm and begin to orbit, then run into a significant number of American fighters on combat patrol. (A6M bomber escort)

MISSION 4 – 10/13/42

IJN unleashes two attacks on the American forces at Guadalcanal: 27 Bettys and 18 Zekes followed by 18 Bettys and 18 Zekes. These put Henderson Field out of commission, as well as provide suppression allowing IJN forces offshore to shell the island. (A6M bomber escort and ground attack). (In this and the ensuing naval bombardment, all of the Avengers, and 32 out of 39 SBD’s on the island will be destroyed).