



Battle for Midway

Abacus 

Credits

Recognized as one of the top scenery designers for Microsoft's flight simulators, **Tim Dickens** was a natural choice to work on *Battle of Midway*.

David Durst has been designing instrument panels since FS95. His experience comes from 500+hours piloting single- and multi-engine aircraft.

Veteran aircraft designer **Terry Hill** has created innovative techniques to make *Battle of Midway's* aircraft as true to life as the simulator permits.

Peter Jacobson's flight sim innovations helped create the elevated mesh terrain and position the exploding mission objects.

Acknowledged as one of the most knowledgeable experts on the inner working of MS FS and CFS, **Konstantin Kukushkin** is responsible for *Battle of Midway's* moving aircraft parts and 3-D exploding mission objects.

Jim Rhoads is the Project Manager for *Battle of Midway* and one heck of a nice guy.

Battle of Midway's 16 original, high-performance missions come from **Christopher Steele**.

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Printed in the U.S.A.

ISBN 1-55755-445-5

10 9 8 7 6 5 4 3 2 1

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Battle for Midway

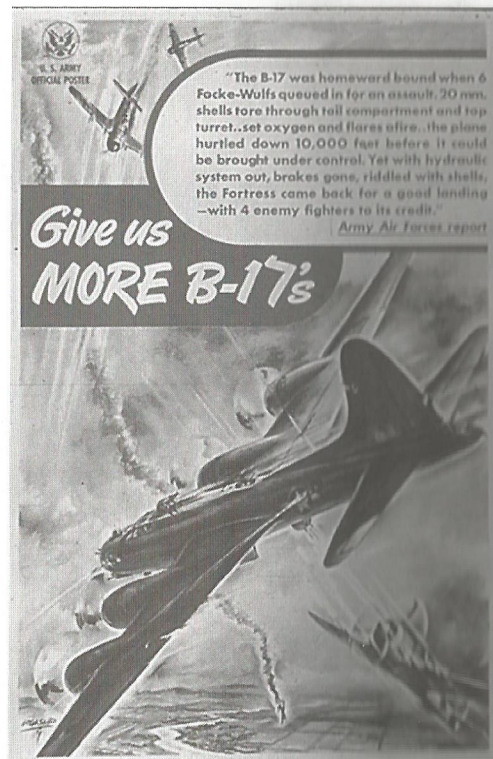
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Battle for Midway



Introduction

After Japanese naval forces devastated Pearl Harbor, America hurried to enter the war that raged around her. Government, industry and citizens rallied to redefine the country's production base to heal the damage inflicted on the US Navy and to build war machines for upcoming battles. Soon, America was producing record levels of equipment, and while waging war in Europe, also began pushing against Japanese aggression in the Pacific Ocean.



(Photograph courtesy of National Archives and Records Administration)

US Army poster encouraging production of the B-17 Flying Fortress.

In the first six months of America's involvement, the US Navy's total Pacific frontline strength amounted to 138 aircrew. The navy fought the first year of the war with just 224 combat fighter pilots. Of these, 27 were killed in action or accidents through July, and another 31 lost (plus two captured) by the end of November. The sixty casualties among the frontline navy fighter pilots equate to a 27% loss rate. When the *USS Yorktown* was commissioned at Pearl Harbor in 1937, the Japanese already had ten carriers in the Pacific. Most of America's fleet was in the Atlantic. (By the end of the war, the USN boasted more than 100 carriers.)

Coral Sea

When war erupted, the two United States Navy carriers in the Pacific, *Enterprise* and *Yorktown*, quickly steamed west, securing Marshall, Wake and Gilbert Islands in their wake. They entered the Coral Sea with two objectives: expunge the Japanese bases in the Solomon Islands and intercept Japanese troop convoys bound for Port Moresby, New Guinea. Japan planned to build a sea plane base here, which would give Japan control of the Coral Sea and easy access to northern Australia.



(Photograph courtesy of National Archives and Records Administration)

Amidst the destruction on Ford Island, servicemen watch the destroyer *Shaw* erupt in fire during the attack on Pearl Harbor.

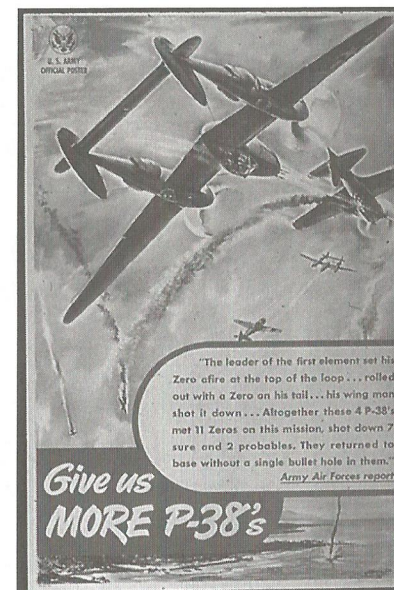
Japan's naval strike force included two heavy cruisers, six destroyers and two big carriers. The Japanese knew the Americans were in the area, and hoped to catch the US ships in a pincer movement. But they underestimated the American's strength, not realizing that the *Lexington* had joined the *Yorktown*. Knowing the Japanese were coming, the small garrison of Australians withdrew from New Guinea on May first. The Japanese



(Photograph courtesy of National Archives and Records Administration)

When USS Yorktown arrived at Pearl Harbor in May 1942, after the Coral Sea battle, engineers expected her repairs to require six months to complete. However, she departed for Midway in under a week.

With *Shoho* destroyed and *Shokaku* limping home, the Japanese indefinitely postponed the Port Moresby invasion. Admiral Fletcher estimated 17 of 22 Japanese ships had been sunk, including the *Shoho*, plus damage to several others, including the carriers *Zuikaku* and *Shokaku*. The Japanese lost 94 of 106 Zeros, 81 of the 93 Kates, and all 72 of the Vals. American losses included the *Lexington*, one destroyer and one tanker, and *Yorktown* had been badly damaged. Fifteen of the *Lexington*'s and 16 *Yorktown* airplanes were lost in combat, plus the aircraft that went down with *Lexington*. In all, US forces lost 64 aircraft and 543 men. Although ship losses were relatively equal, the Battle of the Coral Sea was an American victory. Never again would Japan attempt to expand southward to New Zealand and Australia. The loss of aircraft was another bad blow for Japan, which couldn't replace the aircraft or pilots as well as the US.



(Photograph courtesy of National Archives and Records Administration)

US Army poster encouraging production of P-38s.

Midway

As *Yorktown* limped toward Pearl Harbor trailing a wake of oil, American code crackers intercepted and deciphered a Japanese message. Admiral Yamamoto planned to capture Midway Atoll, 1,100 miles northwest of Oahu and halfway between Japan and the continental US. *Yorktown* was needed to counter this threat, but she was badly injured. Engineers at Pearl Harbor estimated she needed six months of work. Admiral Nimitz, commander of the Pacific navy, gave them three days to make *Yorktown* battle ready. After prioritizing repairs and assigning around-the-clock work crews, the *Yorktown* headed back to combat just four days after arriving at Pearl Harbor.



(Photograph courtesy of National Archives and Records Administration)

Contemporary cartoon showing US metal production being "delivered" during Battle of Midway.

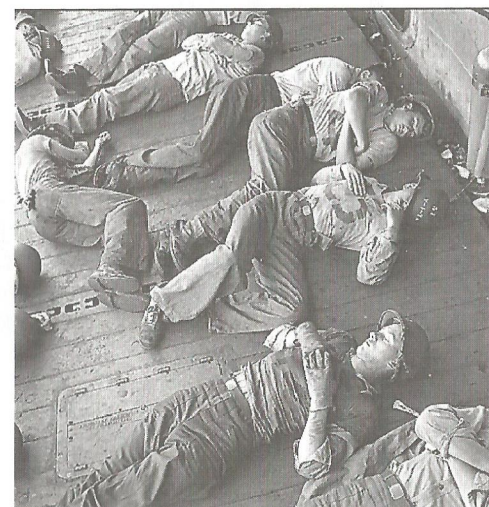
In late May 1942, Japanese forces headed for Midway with a diversionary force moving north toward the Aleutian Islands. The Japanese hoped for such a decisive victory at Midway that the US would negotiate a peace agreement. Admiral Spruance leading Task Force 16 (with the carriers *Enterprise* and *Hornet*) and Rear Admiral Fletcher aboard the *Yorktown* faced Vice Admiral Nagumo to battle for the tiny Midway atoll. US Army, Navy and Marine aircraft already occupied Midway. Most of the pilots on Midway were combat virgins. Soon this would change.



(Photograph courtesy of National Archives and Records Administration)

This patrol plane crew identified the Japanese fleet approaching the Midway battleground.

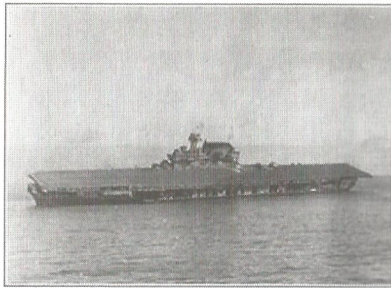
The Japanese attacked at dawn on June 4th. Alerted by radar, the Americans had plenty of time to scramble 25 fighters to intercept the 107 enemy bombers and fighters. Fifteen US fighters fell in the lopsided, 15-minute battle. The combination of Marine pilots and anti-aircraft guns dropped ten attackers. Fortunately, the attack caused little damage to the US base.



(Photograph courtesy of National Archives and Records Administration)

Exhausted after more than 24 hours at general quarters, enlisted men sleep wherever they can aboard the USS Lexington (CV-16).

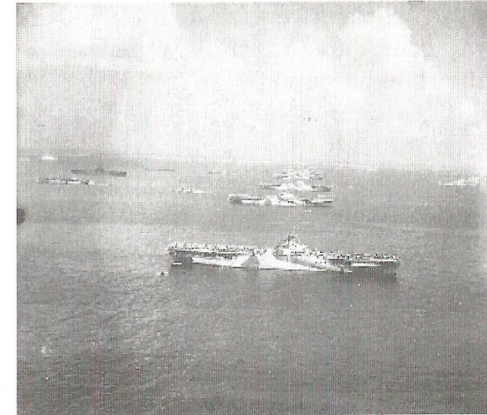
Meanwhile, the US carrier forces hunted for Nagumo's fleet. Before dawn on June 3, a PBY Catalina flying boat left Midway on patrol. The pilot found the Japanese fleet 700 miles southwest of the atoll. A small complement of B-17 bombers launched to dispatch the fleet, but they failed to locate the Japanese. Later, *Yorktown's* aircraft found Nagumo's ships. The US carrier-based aircraft had a range of 175 miles. Desiring to attack early and hard, they launched when the Japanese fleet was 200 miles away. Many flyers were forced to ditch their planes as they exhausted their fuel but the *Yorktown's* Wildcats claimed five aerial victories plus two probables, with only one loss. Most of the attacking TBD Devastators, the entire Torpedo 8 squadron, were destroyed.



(Photograph courtesy of National Archives and Records Administration)

The Yorktown crew evacuates the listing ship after a crippling attack by Hinyu's dive-bombers.

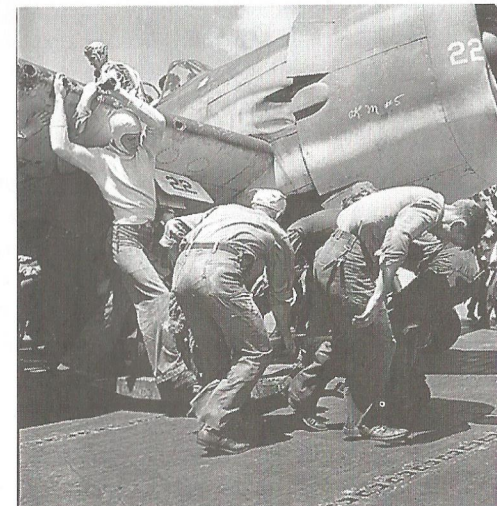
Racing against Zeros and AA fire from the Japanese ships, just four of the 41 Devastators survived the attack, and none of their torpedoes hit the Japanese. However, they drew attention and anti-aircraft fire away from the Dauntless dive bombers high above. More successful, three squadrons of SBD Dauntlesses found their targets, destroying *Akagi*, *Kaga* and *Soryu* (all veterans of the attack on Pearl Harbor).



(Photograph courtesy of National Archives and Records Administration)

Ships of the fighting fleet in Ulithi Atoll. Foreground to background: USS Wasp, USS Hornet, USS Hancock, USS Ticonderoga, USS Lexington.

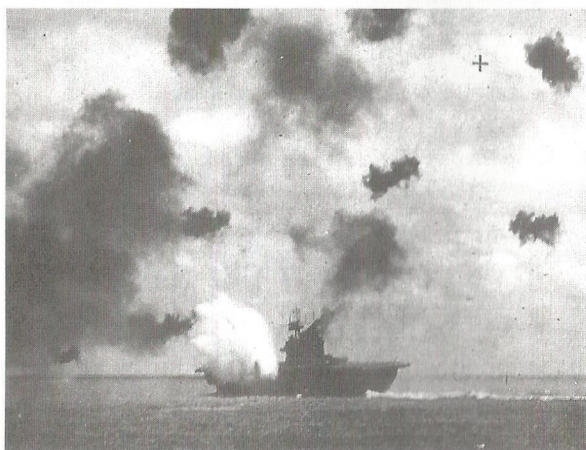
One of the bombs hit the *Akagi's* midship elevator, crumpling it into the hangar deck, where fires and explosions devoured the fueled and armed aircraft filling the hangars and flight decks. Four bombs turned *Kaga* into an inferno, and three bombs from *Yorktown's* divebombers killed the *Soryu*, which exploded when flames reached the aviation fuel tanks.



(Photograph courtesy of National Archives and Records Administration)

Crewmen quickly move a plane with a flat tire from the flight deck of USS Lexington (CV-16) so the next plane can land.

In six minutes, the three carriers were fatally ablaze and listing. The *Hiryu*, several miles away from the other ships, remained unscathed. *Hiryu* launched 18 Val dive bombers and five escorting Zeros to follow the US aircraft back to the American fleet. A dozen Wildcats intercepted the attackers (scoring ten kills, plus two more that fell to AA fire), but six of the bombers fought through to the *Yorktown*, scoring three direct hits. *Yorktown* was now dead in the water and listing. Lt. E.S. McCuskey, the top Midway ace, claimed three Vals and two zeros while defending *Yorktown*.



(Photograph courtesy of National Archives and Records Administration)

A white plume of water announces a Japanese torpedo's impact against the USS Yorktown's flank.

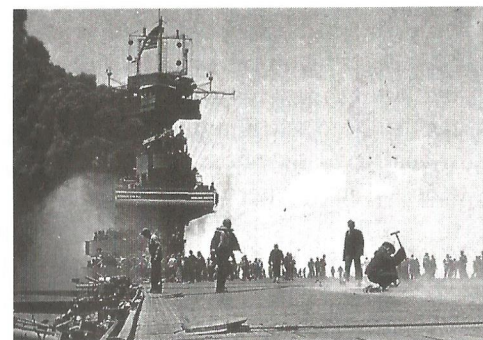
Realizing the fatal blow had not yet been struck to the *Yorktown*, *Hiryu* prepared another wave of ten Kates and six fighters. Meanwhile, damage control had *Yorktown* back to 19 knots in less than three hours, allowing her to resume air operations. The *Hiryu*'s second wave arrived minutes later. Zeros killed two F4Fs, but the Wildcats dropped two Zeros and five of the torpedo bombers. Unfortunately, *Yorktown* took two more torpedoes in the second attack and was now crippled.



(Photograph courtesy of National Archives and Records Administration)

After being pummeled by Dauntless dive bombers, the Japanese cruiser Mikuma lists and smokes before going down.

Rescuers saved 2,270 men from the *Yorktown* as Admiral Fletcher turned over command to Rear Admiral Spruance. Late that afternoon, Dauntlesses from *Enterprise* and *Yorktown* found and sank the *Hiryu*, shattering her decks and hangars with four bombs. June sixth, three days after the battle started, American dive bombers sent the Japanese cruiser *Mikuma* to the bottom. Dawn of June seventh, a Japanese submarine targeted the abandoned *Yorktown*, sending her to Davy Jones' locker.



(Photograph courtesy of National Archives and Records Administration)

Crewmen aboard the USS Yorktown hurry to extinguish a fire so they can keep her in the fight.

The US forces had lost 362 men in battle at Midway; Japan lost an estimated 3,057. Breaking down the numbers, the US lost five of six TBFs, 26 of the 88 Wildcats, 13 of 21 Buffaloes, 48 of 128 SBDs and 40 of the 44 TBDs. After being turned back at Midway, the Japanese navy

never again launched an offensive. From Midway on, the US pushed toward the Japanese homeland. Although Nimitz remembered Midway as a "Glorious page in our history," many others remembered it differently. One USN officer wrote to his wife, "Let no one tell you or let you believe that this war is other than a grim, terrible business."

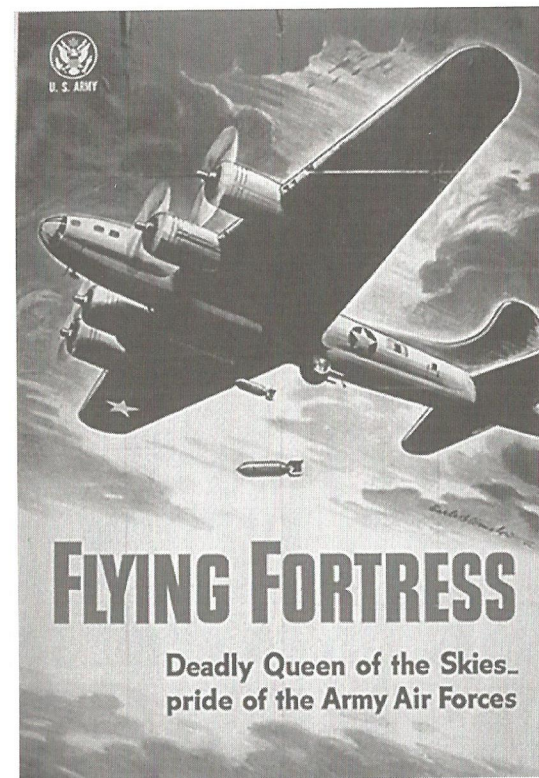


(Photograph courtesy of National Archives and Records Administration)

Burning oil tanks at Midway are grim evidence of a Japanese bombing raid.

Guadalcanal

Operation Watchtower commenced several months later. Most people recognize it better by the location of the battle: Guadalcanal Island. From August seventh 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*. All tallied, they offered 98 fighters to support the operation. *Enterprise* and *Saratoga* had already encountered the enemy. The newcomer *USS Wasp* had no combat experience. The confrontation at Guadalcanal showed a different character than the first six months of conflict. It was a grinding, sustained encounter that occurred at a furious pace, contrasting the sporadic and tentative nature of the earlier battles.

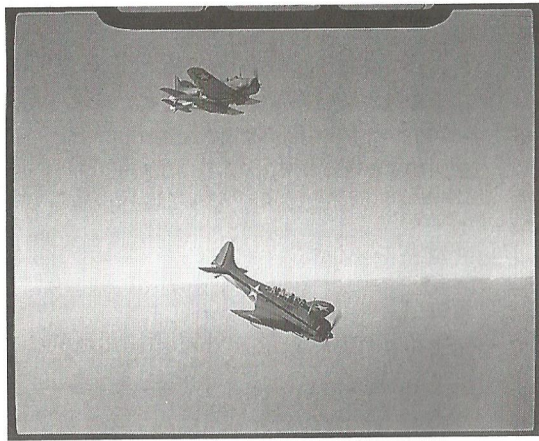


(Photograph courtesy of National Archives and Records Administration)

US Army poster: Flying Fortress, deadly queen of the skies.

The combat began with an air skirmish. From a Japanese base at Rabaul, New Britain, 27 Betty bombers, nine Val dive bombers and 17 Zero fighters flew toward Guadalcanal. The US met them with 18 F4F Wildcats. Half of those F4Fs were destroyed in the ensuing firefight. For their sacrifices, only five G4M1s, two A6Ms and all the Vals were destroyed. (The Aichi dive bombers had been sent beyond their tactical radius; those that survived the combat used up their fuel well before they returned home.) Beyond the Wildcats, the US lost seven other planes, and a total of six pilots. This was the worst single-day loss of F4F Wildcats, for several reasons. Besides being outnumbered, the Wildcats were poorly positioned. That day they also faced the Tainan Air Group, which boasted most of Japan's aces, including Saburo Sakai and Horiyoshi Nishizawa.

The heavy losses forced Fletcher to withdraw the three carriers, leaving the Marines on Guadalcanal without air cover. To remedy this, the escort carrier *Long Island* launched 19 Wildcats and a dozen Dauntless dive bombers, which took up residence at Henderson Field on Guadalcanal, becoming the "Cactus Air Force." Though these pilots lacked combat experience, they soon made their presence felt over the Solomon Islands.



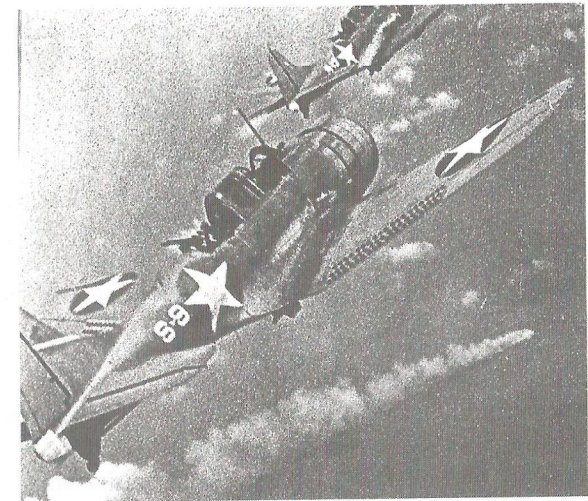
(Photograph courtesy of National Archives and Records Administration)

Douglas SBD Dauntlesses in Flight.

On August 24th, with *Wasp* refueling away from the carrier group, *Enterprise* and *Saratoga* met a Japanese attempt to reinforce their troops on the island. Poor radios and atmospheric conditions allowed pilots from the *Saratoga* to strike and sink the *Ryujo*, but caused *Saratoga*'s aircraft to miss the other ships. However, the Japanese found their target: 27 Vals and 10 Zeros attacked the *Enterprise*, defended by more than 50 Wildcats. Radar picked up the attacking Japanese about 90 miles away from the ships, so the Wildcats had plenty of time to get airborne and charge their guns. Regardless of their advanced warning and superior numbers, the *Enterprise* was hit three times, forcing many pilots to land on *Saratoga* or at Henderson Field. The Wildcats splashed twenty-five Japanese planes, two-thirds of those launched, including the *Zuikaku*'s entire nine-plane bomber squadron.

In the three weeks beginning August 21st, Japan attacked the US beach head ten times, averaging more than 30 aircraft per raid. 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 of 1942, the Japanese Navy sought to cover a major troop reinforcement of Guadalcanal. The *Enterprise* and *Hornet*, comprising Task Force 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. Both forces knew the other's location, and they launched simultaneous strikes. The *Enterprise* strike achieved little, though three SBDs managed to bomb the *Zuiho*, rendering it useless. The *Hornet* lost three F4Fs that had been protecting the Dauntless dive bombers. Dauntless bombs killed *Shokaku* and damaged a cruiser. Five Zeros also fell during the battle.



(Photograph courtesy of National Archives and Records Administration)

Dauntlesses like these were responsible for sinking a greater tonnage of Japanese war ships than any other US Aircraft.

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 wheeling Wildcats dropped half of the 39 Kates, but two more torpedoes found their way into the *Hornet's* flank, stopping her in her wake. Facing so many targets, many of the US pilots turned off two or even four of their six guns in order to conserve ammunition. While forcing them to be more deliberate in firing, this also allowed them to remain airborne longer before having to land to reload. Only six of *Junyo's* seventeen bombers returned that day. Meanwhile, pilots returning to *Hornet* had to fight their way home only to find they couldn't land. That night a Japanese destroyer sank the abandoned *Hornet*. Overall, 23 F4Fs and 14 pilots were lost in combat, and another ten Wildcats went down with the *Hornet*. The total loss of American aircraft: 80. 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. Though nominal victors on this day, Japan did little to increase its hold on Guadalcanal.

Fighting for Guadalcanal continued into November on a small scale. Japan again attempted a major reinforcement of Guadalcanal on November 12th. They began by attacking US ships that were unloading supplies at the American beach head. Fifteen Wildcats responded, killing 17 (of the 19) Betty bombers and five Zero escorts; only three F4Fs fell. The battle continued in Ironbottom Sound, where US carriers and destroyers prevented Japanese ships from bombarding Henderson Field. In the exchange of fire, five USN vessels sank. For that price, US defenders sank two Japanese destroyers and crippled a battleship. Dawn illuminated the crippled *Hiei*, which was finished by SBDs from Henderson.

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 night-time shelling. *Enterprise* Dauntlesses sank the cruiser *Kinugasa*. In the heaviest day of aerial activity so far, 86 Navy, Marine and Army bomber sorties, plus 42 Wildcats, cost Japan 12 Zeros and three floatplanes. Only two F4Fs and five SBDs were lost. Wildcats and Dauntlesses 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 the 15th, and aerial combat quickly abated. That day, only two combats occurred, with the US claiming eight kills. There would be no more until January. One of every three pilots was killed at Guadalcanal. It was a terrible price, but Japan was on its heels for the remainder of the war.

Conclusion

The pivotal Pacific battles in 1942 revealed a new type of warfare, fought almost wholly by naval aircraft. When Japan forced the US into the Second World War, the Imperial Japanese Navy ruled the Pacific Ocean and skies. The first half of 1942 was marked by Japanese victories. As America's homefront production gained momentum, however, more capable US men and machines appeared in the Pacific. These brave pilots and sailors eventually halted the Japanese advance and began pushing them back toward the Japanese home islands. As Japanese losses mounted, they suffered severely from depleted supplies and personnel. American victories should have begun coming easier, but Japanese determination and fierceness increased as their defeat became obvious.

In the end, many good people lost their lives on both sides of the battle line. Recognizing their sacrifices, the victory and tragedy of the war belong to all of us.

Battle for Midway



U.S. Aircraft

U.S. Aircraft Introduction

Battle for Midway brings you twelve of the most famous U.S. and Japanese planes from the Midway and Coral Sea era. These authentic planes were created especially for CFS by noted designer Terry Hill. Using newly discovered techniques, Terry is able to use paint schemes that add even more authenticity. These aircraft all include "moving parts" technology that animate the control surfaces.

In this section we'll talk about the six U.S. aircraft that were used in the Battle for Midway:

- ➔ Douglas SBD-3 Dauntless
- ➔ Grumman F4F Wildcat
- ➔ Douglas TBD-1 Devastator
- ➔ Brewster F2A-3 Buffalo
- ➔ Boeing B-17 Flying Fortress
- ➔ Lockheed P-38 Lightning (bonus aircraft)

Important Note

The following aircraft specifications are based on the factory stock or most common configuration of each aircraft. These specifications varied, sometimes widely, due to on-site modifications, special-purpose retooling, custom repairs, availability of materials and many other factors.

Douglas SBD-3 Dauntless

The Douglas Dauntless dive bomber entered production in 1940. For two years it was virtually the only dive bomber available to the US Navy. The Dauntless was large enough to carry a big bomb load and deliver it with accuracy (ideally, on the flight deck of an enemy carrier). Instead of using a bombsight, the Dauntless' steep dive angle allowed pilots to visually place bombs on target before pulling out of their dives. The SBD's slow speed made it vulnerable to enemy interceptors, and it depended heavily on fighter escorts. Still, the Dauntless was responsible for sinking a greater tonnage of Japanese war ships than any other US aircraft. At Midway, for example, one squadron of SBD's changed the battle into a decisive US victory, helping turn the tide of war against Japan.

Douglas SBD-3 Dauntless	
Engine	1,000hp Wright R-1820-52
Wing span	41ft, 6in
Length	33ft, 1in
Maximum take-off weight	9,519lb
Maximum level speed	255mph
Range	1,115 miles
Armament	Two forward-firing .5-inch machine guns, two .3-inch rearward machine guns, plus one 1,000lb and two 100lb bombs (some were equipped with anti-submarine depth charges)

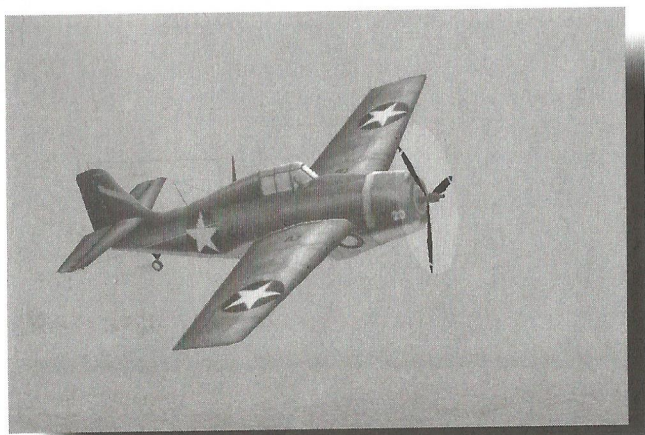


Grumman F4F Wildcat

Ordered by the 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 of 1945.

The F4F was the first folding-wing fighter purchased by the 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.

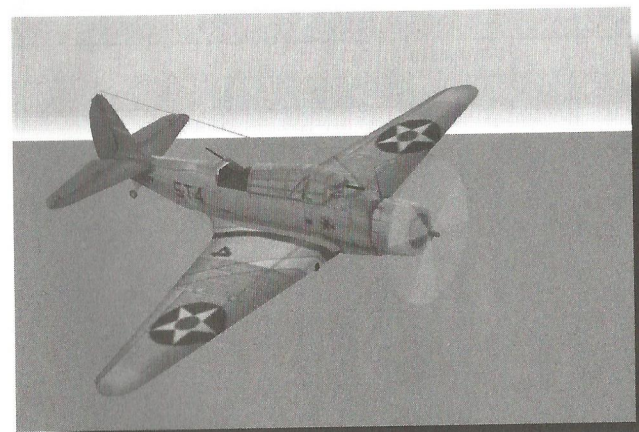
Grumman F4F Wildcat	
Engine	1,200hp Pratt & Whitney R-1830-86 radial
Wing span	38ft
Length	28ft, 10in
Maximum take-off weight	7,952lb
Maximum level speed	318mph
Range	770 miles
Armament	Six forward-firing .5-inch machine guns and two bombs



Douglas TBD-1 Devastator

Douglas' Devastator torpedo bomber, which entered service in 1937, was the first monoplane selected for carrier operations. Although the Devastator often lived up to its name, it was also vulnerable, having only two machine guns to fend off attackers. Consequently, it suffered heavy losses, especially during the battle of the Coral Sea, where it operated from the *Lexington* and *Yorktown*. In that battle, Devastators sank the carrier *Shoho* and severely damaged *Shokaku*. After suffering heavy losses at Midway, the Devastator would not see major action again.

Douglas TBD-1 Devastator	
Engine	900hp Pratt & Whitney R-1830-64 Twin Wasp radial
Wing span	50ft
Length	35ft
Maximum take-off weight	10,194lb
Maximum level speed	206mph
Range	716 miles
Armament	One fore .5-inch and one aft .3-inch machine guns, plus a 21-inch torpedo or 1,000lb bomb



Brewster F2A-3 Buffalo

More than 500 single-seat, all-metal Brewster Buffaloes were built. First delivered in 1939, early Buffaloes were popular with pilots for their cockpit design, power, stability and ahead-of-their-time hydraulics. Many of these early F2As were exported to Finland, where they were very successful against the Soviets, who were German allies in '39. By the end of the war, they had claimed 500 Russians, compared to 28 Brewsters lost. However, modifications required by the USN and RAF added almost 1,000 pounds, making it slower and increasing landing gear failures. The navy solved this problem by giving the Buffalo to the Marines, where it earned the nickname "Flying Coffin." In fairness, the blame for its poor performance should be shared with faulty tactics, inexperienced pilots and poor command decisions. It continued to fare poorly in the Pacific until newer aircraft replaced it.

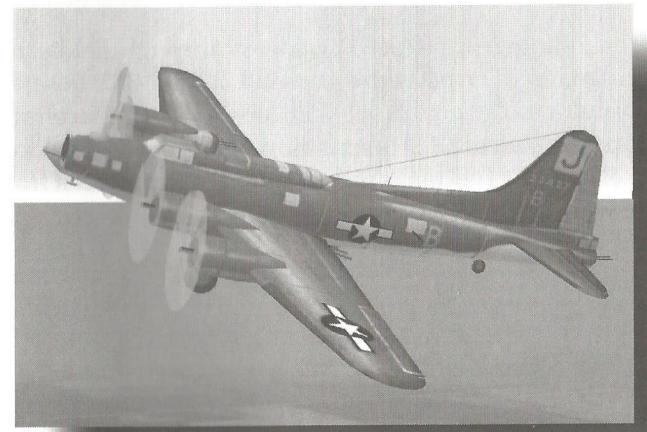
Brewster F2A-3 Buffalo	
Engine	1,200hp Wright R-1820-40 radial
Wing span	35ft
Length	26ft, 4in
Maximum take-off weight	7,158lb
Maximum level speed	321mph
Range	1,000 miles
Armament	Four .5-inch machine guns, plus two 100lb bombs



Boeing B-17 Flying Fortress

Boeing's Flying Fortress long-range bomber made an impact in every World War II theater. Entering service in 1940, the Flying Fortress was America's first aerial combat loss of the war: a B-17 enroute to Pearl Harbor met the attacking Japanese force. Despite this inauspicious beginning, the B-17 could take much damage and dispense even more. Its thirteen guns protected every side of the aircraft (even the vulnerable underside featured a ball turret gun), and it could drop 17,600 pounds of bombs on enemy targets. Turbocharging the engines allowed the B-17 to reach higher altitudes. Boeing built 12,731 Flying Fortresses.

Boeing B-17 Flying Fortress	
Engine	Four 1,200hp Pratt & Whitney R-1820-97 radials
Wing span	103ft, 9in
Length	74ft, 4in
Maximum take-off weight	65,500lb
Maximum level speed	287mph
Range	2,000 miles
Armament	One .3-inch and twelve .5-inch machine guns, plus 17,600 bombs
Ceiling	35,600ft



Lockheed P-38 Lightning

Lockheed's single-seat P-38 Lightning fighter was revolutionary. It was the first aircraft designed for the military by Lockheed. It was the only American fighter built before World War II and still in production on VJ Day. It flew in all US combat zones as a high- and low-altitude fighter, fighter escort, bomber, photo-reconnaissance, low-level attacker, rocket fighter and layer of smoke screens.

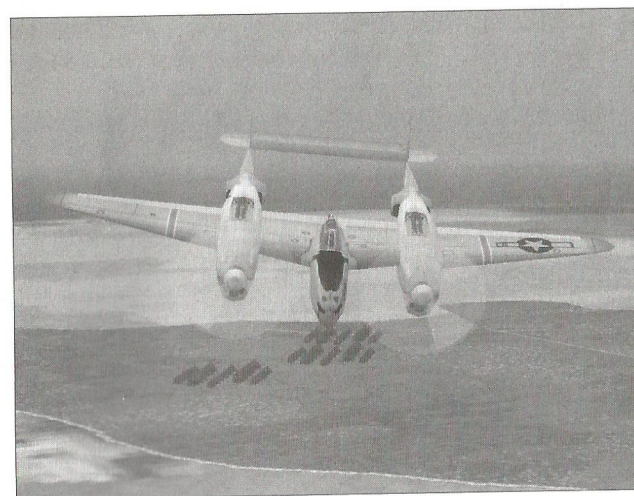
The P-38 was also the first US fighter to shoot down an enemy aircraft in WWII (its victim was a German over Iceland, minutes after the US declared war). Two P-38s escorting a Boeing Fortress were the first Allied fighters to land in Japan after their surrender. A P-38 destroyed the G4M1 Betty transporting Admiral Isoroku Yamamoto, the architect of the Pearl Harbor attack. America's top aces of the war, Majors R. Bong (40 kills) and T. McGuire (38 kills), flew P-38 Lightnings. It was the first American Army Air Force fighter capable of exceeding 400 miles per hour.

Fast and heavily armed, the twin-fuselage P-38 was one of the few fighters available when America entered World War II. Produced throughout the conflict, nearly 10,000 P-38s were delivered to USAAF in the last year of the war. The low-drag aerodynamics provided great acceleration and faster speeds than the Japanese Zero.

The tricycle landing gear reduced accidents at rough fields and eased engine maintenance. The powerful guns (all in the P-38's nose) let pilots literally saw vulnerable Zeros in half with long bursts of concentrated fire. Pilots also appreciated the P-38's sensational high-altitude performance. However, self-sealing fuel tanks weren't enough to protect it from Zeros early in the war.

Lockheed P-38 Lightning

Engine	Two 1,475hp Allison V-1710-111/113
Wing span	52ft
Length	37ft, 10in
Maximum take-off weight	21,600lb
Maximum level speed	414mph
Cruise speed	290mph
Range	450 miles
Armament	One 20mm cannon and four .5-inch machine guns in fuselage, and up to 1,600 bombs and/or rockets
Ceiling	44,000ft



Battle for Midway



Japanese Aircraft

Japanese Aircraft Introduction

Battle for Midway brings you twelve of the most famous U.S. and Japanese planes from the Midway and Coral Sea era. These authentic planes were created especially for CFS by noted designer Terry Hill. Using newly discovered techniques, Terry is able to use paint schemes that add even more authenticity. These aircraft all include "moving parts" technology that animate the control surfaces.

In this section we'll talk about the six Japanese aircraft that were used in the Battle for Midway:

- ➔ Aichi D3A-1 "Val"
- ➔ Mitsubishi A6M2 "Zero"
- ➔ Kawanishi N1K1-J "George"
- ➔ Nakajima KI43-I "Oscar"
- ➔ Mitsubishi G4M1 "Betty"
- ➔ Kyushu J7W Shinden (bonus aircraft)

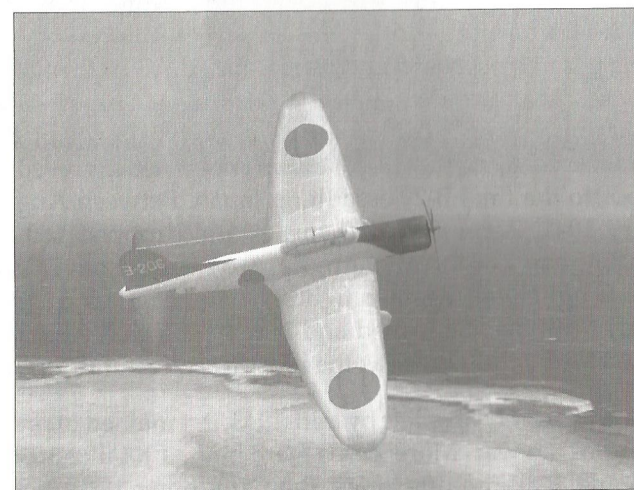
Important Note

The following aircraft specifications are based on the factory stock or most common configuration of each aircraft. These specifications varied, sometimes widely, due to on-site modifications, special-purpose retooling, custom repairs, availability of materials and many other factors.

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



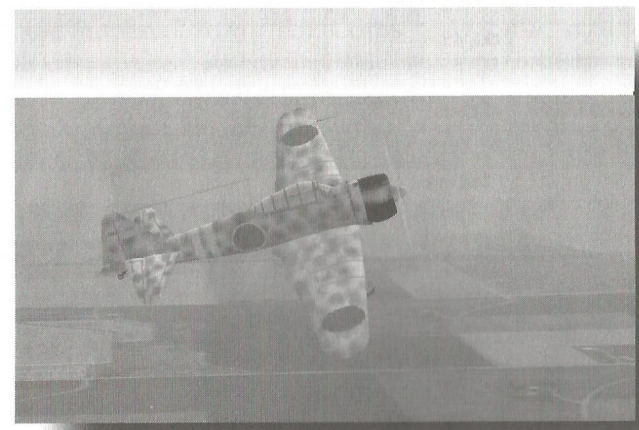
Mitsubishi A6M2 "Zero"

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 world-wide 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 light-weight 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.

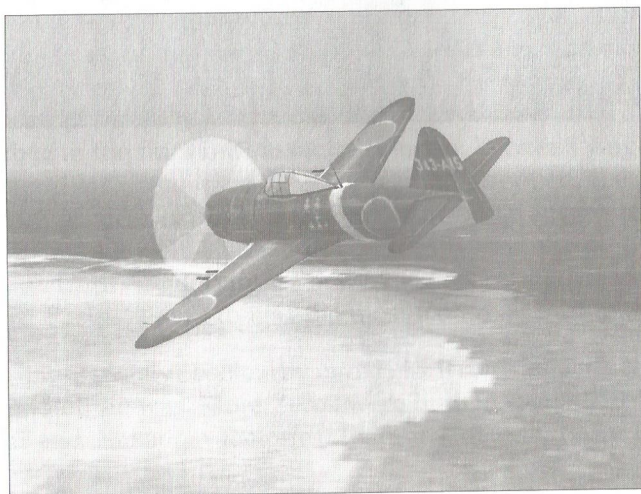
Mitsubishi A6M2 "Zero"	
Engine	1,130hp Nakajima Sakae 21
Wing span	36ft, 1in
Length	29ft, 8.5in
Maximum take-off weight	6,050lb
Maximum level speed	354mph
Range	976 miles
Armament	Two 20mm cannon and two 13.2mm machine guns in wings, plus bombs
Ceiling	38,500ft



Kawanishi N1K1-J Shiden "George"

The single-seat Shiden, which means *Violet Lightning*, was very maneuverable with deadly firepower. It is considered one of the best land-based fighters created by Japan. Although troublesome engine and undercarriage were characteristic, experienced pilots performed well against all its opponents. In confirmed dogfights, one Shiden conquered eight, nine and even 12 Allied opponents. The N1K1 appeared in 1942.

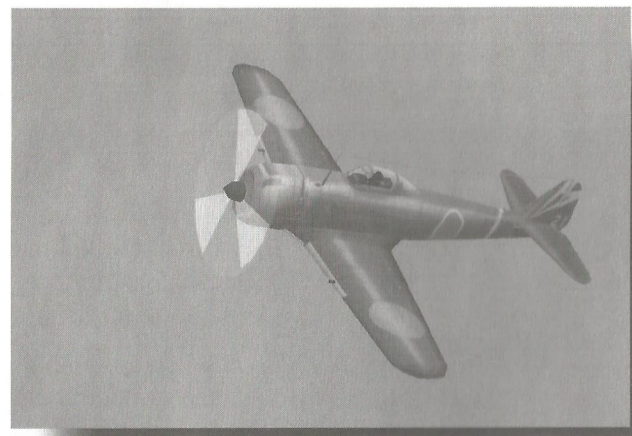
Kawanishi N1K1-J Shiden "George"	
Engine	1,990hp Nakajima Homare 21-cylinder radial
Wing span	39ft, 4.5in
Length	30ft, 8in
Maximum take-off weight	10,714lb
Maximum level speed	369.5mph
Range	1,056 miles
Armament	Two 7.7mm machine guns in fuselage, two 20mm cannon in wings and two 20mm cannon in underwing gondolas
Ceiling	41,000ft



Nakajima KI43-I Hayabusa "Oscar"

Nakajima KI43-I Hayabusa "Oscar"	
Engine	950hp Nakajima Ha-25 radial
Wing span	35ft, 7in
Length	29ft, 3in
Maximum take-off weight	5,820lb
Maximum level speed	331mph
Range	1,094 miles with underwing auxiliary tanks
Armament	Two 12.7mm machine guns, plus two 250kg bombs

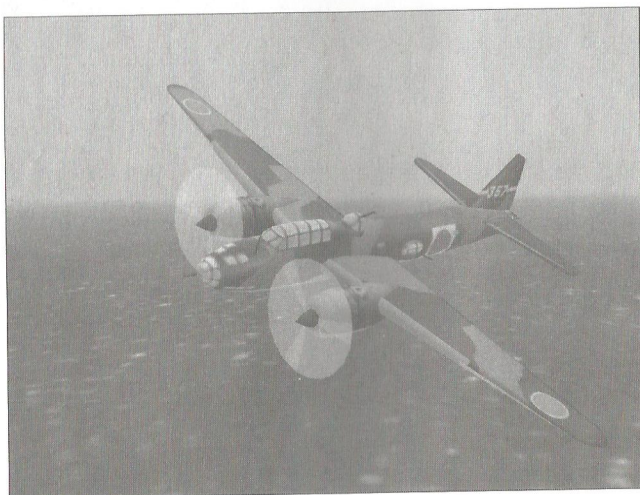
The Japanese Imperial Army Air Corps' Hayabusa, translating as *Peregrine Falcon*, entered service in 1941. Japanese industry produced 5,800 of the single-seat Oscar, as it was known to the Allies. Like many other Japanese aircraft, the Hayabusa was very maneuverable, at the cost of strength, guns, climb and dive speeds.



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.

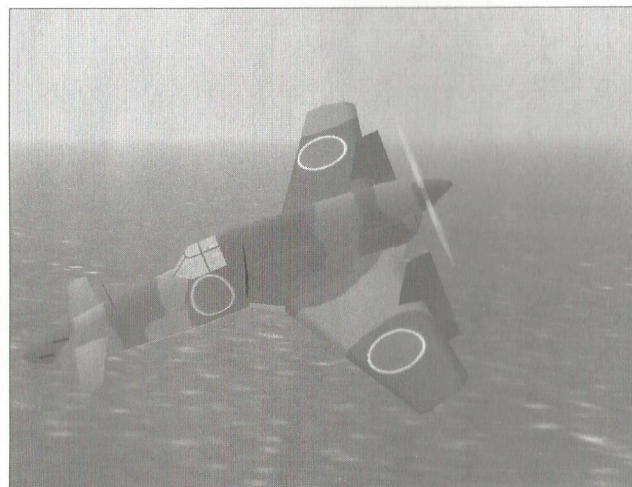
Mitsubishi G4M1 "Betty"	
Engine	Two 1,530hp Mitsubishi Kasei
Wing span	82ft, 0.25in
Length	64ft, 4.75in
Maximum take-off weight	27,558lb
Maximum level speed	273mph
Range	3,728 miles (with auxiliary fuel tanks)
Armament	One 7.7mm machine guns and four 20mm cannons, plus 2,205lb bombs or an 800kg torpedo



Kyushu J7W Shinden

The Shinden, translating to *Magnificent Lightning*, never reached production. This experimental pusher craft was intended as an interceptor, with emphasis on firepower, climb rate and speed. The Shinden evolved from detailed Japanese studies of canard (small wings near the aircraft's nose) aerodynamics. Prototypes displayed impressive performance, but it was too little, too late—Japan capitulated before Shinden reached production.

Kyushu J7W Shinden	
Engine	2,130hp Mitsubishi MK9D 18-cylinder air-cooled radial
Wing span	36ft, 5.5in
Length	31ft, 8.25in
Height	12ft, 10.32in
Weight	11,526lb
Maximum speed	466mph
Ceiling	39,370ft
Range	528 miles
Armament	Four 30mm cannons, plus 265lb bombs



Battle for Midway



Missions

Battle for Midway's 16 aerial combat missions place you in the role of an American or Japanese navy pilot in the South Pacific. After installing *Battle of Midway* as illustrated above, you may load these just as any other single mission in *Combat Flight Simulator*.

Battle of the Coral Sea May 5-9, 1942

Until the Battle of the Coral Sea, all naval battles were fought at close range, with the opposing ships able to sight each other and fire at each other directly. The Battle of the Coral was the first naval engagement in which the opposing forces never came within sight of each other, proving the power of the aircraft carrier. You may fly six missions over the Coral Sea, three as an American pilot and three as a Japanese pilot.

Mission One: US Navy

Attack Japanese outposts on Lae and Salamaua (8:00, March 10, 1942)

Japanese forces have taken residence in New Guinea, and will soon head into Australia. This will disrupt Allied communication and trade and provide a staging base for future operations. You must head them off before they reach Australia. Launch your Dauntless from the USS *Yorktown* and destroy shipping and targets in the harbor. Look out for ground fire. Don't return home until at least half of the ships at Lae are destroyed.

Mission Two: US Navy

Sink the *Shoho* (11:35, May 7, 1942)

Intelligence believes two Japanese carrier forces with three carriers, six cruisers and six destroyers are in the area preparing to take control of Papua New Guinea. Yesterday reconnaissance located the Japanese invasion force, lead by the light carrier *Shoho*. An earlier raid damaged *Shoho*, which is circling to avoid further damage. Your duty is to find her and finish the job.

Mission Three: US Navy

Protect the *Lexington* (May 8, 1942)

Most of the air group is attacking the Japanese fleet, leaving only fifteen Wildcats to protect the USS *Lexington* from 70 Japanese attackers. Save the *Lexington*, or you won't have a home to return to.

Mission Four: Imperial Japanese Navy

Launch from *Zuikaku* to attack American carrier (08:00, May 6, 1942)

Reconnaissance has located two American ships in the Coral Sea. At least one is likely a carrier, so air cover will be formidable. Regardless, we must stop them before they can reinforce the British and Australian forces. Destroy the American ships!

Mission Five: Imperial Japanese Navy

Defend the *Shoho* (09:42, May 7, 1942)

American bombers are attacking the *Shoho*! Most of our planes are searching for the American fleet, so only your small squadron is on hand to defend against the Americans. Get airborne and save our ship!

Mission Six: Imperial Japanese Navy

Destroy the American aircraft carriers (May 8, 1942)

The "carriers" we attacked two days ago turned out to be tanker and a destroyer. Now we have the location of the real carrier fleet. Avenge the *Shoho* and oust the Americans by sinking the *Lexington* and *Yorktown*.

Battle of Midway (June 4-5, 1942)

The Battle of Midway was a pivotal engagement in the Pacific, halting Japan's eastward expansion. Now you can participate in this historical battle with *Battle of Midway's* ten CFS mission over Midway.

Mission One: US Navy**Scramble to defend Midway (07:10, June 4 1942)**

Intelligence reports indicate the Japanese will attack Midway Atoll. *Yorktown* has been rushed through repairs and has joined *Enterprise* and *Hornet* to defend the new air strip on Midway. Now radar has revealed unidentified aircraft heading toward Midway—probably Vals or Bettys. Get aloft and identify these intruders. If they're Japanese, knock 'em out of the sky!

Mission Two: US Navy**Sink the *Kaga* (08:06, June 4 1942)**

A patrolling P-38 has found the Japanese fleet 150 miles to the southwest. Adm. Spruance isn't happy about the distance, but he refuses to let this opportunity to hit the Jap fleet slip away. Torpedo bombers are already enroute. Bring your dive bomber in from above and sink the *Kaga*.

Mission Three: US Navy**Escort dive bombers to attack the *Hiryu* (10:00, June 4 1942)**

Most of the torpedo bombers were lost in this morning's attack, but the dive bombers forced the Japanese to abandon *Kaga*, and *Akagi* and *Soryu* have been heavily damaged. The *Hiryu*, however, is largely unscathed. Climb into your fighter and escort the SBDs to sink *Hiryu* before she launches against us. Make sure at least half of the SBDs reach their objective.

Mission Four: US Navy**Save the *Yorktown* (14:40, June 4 1942)**

Already weakened from the Battle of the Coral Sea, the *Yorktown* has taken another three bomb hits today, and is now dead in the water. Radar reveals another wave of attackers arriving from the north-northwest, intent on finishing her. Intercept the Japanese aircraft and protect the *Yorktown* from further damage.

Mission Five: US Navy**Escort bombers to sink *Hiryu* (17:00, June 4 1942)**

Navy fliers sank *Kaga*, *Akagi* and *Soryu* earlier today, and damaged *Hiryu*. Now it's our turn. Escort the B-17s that will finish the *Hiryu*. Be aware that the Japanese escort carriers are still operational and will attack the bombers. Protect the bombers so they can destroy *Hiryu*.

Mission Six: Imperial Japanese Navy**Escort bombers to Midway (06:10, June 4 1942)**

Admiral Yamamoto plans to use Midway as a forward airbase for an invasion of Hawaii, but first we must evict the Americans. Bombers have been departing for Midway since 04:00. Catch up to them and protect them against American fighters so we can destroy the American base on Midway.

Mission Seven: Imperial Japanese Navy**Intercept American torpedo bombers (08:06, June 4 1942)**

While most of our aircraft are busy over Midway, *Akagi* has spotted American torpedo bombers flying low toward *Hiryu*. Launch from *Hiryu* and intercept the torpedo bombers. Flying low and slow, they shouldn't present much difficulty, but be sure to get them before they can launch any torpedoes. Destroy the American torpedo bombers.

Mission Eight: Imperial Japanese Navy**Reconnaissance flight from *Akagi* (10:20, June 4 1942)**

An advance scout has spotted approximately ten enemy ships 240 miles away from Midway at 10 degrees. We don't know what type(s) of ships these are. If they are carriers, we must engage. If not, we can stage a second bombing raid against Midway. They are traveling above 20 knots, about 150 degrees from the *Akagi*'s location. Determine the makeup of the American ships and return alive.

Mission Nine: Imperial Japanese Navy**Sink the *Yorktown* (12:00, June 4 1942)**

We thought the *Yorktown* had been destroyed in the Coral Sea and the Americans now had only two carriers in the area. However, reconnaissance indicates that the American task force contains three carriers. *Yorktown* must have been hastily patched after the Battle of the Coral Sea, and may still be vulnerable. Your mission is to lead a wing of Aichi D3A-1 Vals to attack and sink the *Yorktown*.

Mission Ten: Imperial Japanese Navy***Soryu* needs help (17:00, June 4 1942)**

Akagi and *Kaga* have taken serious damage from the Americans and now afire. It will be difficult for the brave men aboard these ships to save them. Now *Soryu* is under attack, and has already received a direct hit from an American dive bomber. *Soryu's* fighters are busy with the American fighters. You must launch from *Hiryu* and engage the *Soryu's* immediate threat: the bombers. Protect *Soryu*!

You can select from these individual missions

Coral Sea Mission 1	US	Attack Japanese outposts
Coral Sea Mission 2	US	Sink the Shoho
Coral Sea Mission 3	US	Protect the Lexington
Coral Sea Mission 4	Japan	Launch from Zuikaku
Coral Sea Mission 5	Japan	Defend the Shoho
Coral Sea Mission 6	Japan	Destroy the American aircraft
Midway Mission 1	US	Scramble to defend Midway
Midway Mission 2	US	Sink the Kaga
Midway Mission 3	US	Escort dive bombers
Midway Mission 4	US	Save the Yorktown
Midway Mission 5	US	Escort bombers to sink Hiryu
Midway Mission 6	Japan	Escort bombers to Midway
Midway Mission 7	Japan	Intercept American torpedo bombers
Midway Mission 8	Japan	Reconnaissance Flight
Midway Mission 9	Japan	Sink the Yorktown
Midway Mission 10	Japan	Soryu needs help

Check the Abacus website for the latest information, help files, FAQs and more on Battle for Midway.

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