

# List of ships of the Imperial Japanese Navy I

## Battleships

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# Chapter 1

## Kongō class

### 1.1 Japanese battleship Kongō

For the earlier ironclad corvette, see Japanese ironclad Kongō. For the current JMSDF Kongō class destroyer, see JDS Kongō (DDG-173).

*Kongō* (金剛, “indestructible”, named for Mount Kongō) was a warship of the Imperial Japanese Navy during World War I and World War II. She was the first battlecruiser of the *Kongō* class, among the most heavily armed ships in any navy when built. Her designer was the British naval engineer George Thurston, and she was laid down in 1911 at Barrow-in-Furness in Britain by Vickers Shipbuilding Company. *Kongō* was the last Japanese capital ship constructed outside Japan. She was formally commissioned in 1913, and patrolled off the Chinese coast during World War I.

*Kongō* underwent two major reconstructions. Beginning in 1929, the Imperial Japanese Navy rebuilt her as a battleship, strengthening her armor and improving her speed and power capabilities. In 1935, her superstructure was completely rebuilt, her speed was increased, and she was equipped with launch catapults for floatplanes. Now fast enough to accompany Japan's growing carrier fleet, *Kongō* was reclassified as a fast battleship. During the Second Sino-Japanese War, *Kongō* operated off the coast of mainland China before being redeployed to the Third Battleship Division in 1941. On the eve of World War II, she sailed as part of the Southern Force in preparation for the Battle of Singapore.

The *Kongō* fought in a large number of major naval actions of the Pacific War during World War II. She covered the Japanese Army's amphibious landings in British Malaya (part of present-day Malaysia) and the Dutch East Indies (now Indonesia) in 1942, before engaging American forces at the Battle of Midway and during the Guadalcanal Campaign. Throughout 1943, *Kongō* primarily remained at Truk Lagoon in the Caroline Islands, Kure Naval Base (near Hiroshima), Sasebo Naval Base (near Nagasaki), and Lingga Roads, and deployed several times in response to American aircraft carrier air raids on Japanese island bases scattered across the Pacific. The *Kongō* participated in the Battle of the Philippine Sea and

the Battle of Leyte Gulf in 1944 (October 22–23), engaging and sinking American vessels in the latter. The *Kongō* was torpedoed and sunk by the submarine USS *Sealion* while transiting the Formosa Strait on 21 November 1944. She was the only Japanese battleship sunk by submarine in the Second World War, and the last battleship sunk by submarine in history.\*[5]

#### 1.1.1 Design and construction

See also: Kongō-class battlecruiser

The *Kongō* was the first of the Imperial Japanese Navy's *Kongō*-class battlecruisers, which were almost as large, costly and well-armed as battleships, but which traded off armored protection for higher speeds. These were designed by the British naval engineer George Thurston\*[6] and were ordered in 1910 in the Japanese Emergency Naval Expansion Bill after the commissioning of HMS *Invincible* in 1908.\*[7] These four battlecruisers of the *Kongō* class were designed to match the naval capabilities of the battlecruisers of the other major naval powers at the time, and they have been called the battlecruiser versions of the British (formerly Turkish) battleship HMS *Erin*.\*[1]\*[8] Their heavy armament of 14-inch naval guns and their armor protection (which took up about 23.3% of their approximately 30,000-ton displacements in 1913) were greatly superior to those of any other Japanese capital ship afloat at the time.\*[1]\*[8]

The keel of the *Kongō* was laid down at Barrow-in-Furness by Vickers Shipbuilding and Engineering on 17 January 1911. Under Japan's contract with Vickers, the first vessel of the class was constructed in the United Kingdom, with the remainder built in Japan.\*[1] The *Kongō* was launched on 18 May 1912, and then transferred to the dockyards of Portsmouth, England, where her fitting-out began in mid-1912.\*[8] All parts used in her construction were manufactured in the U.K.\*[1] The *Kongo* was completed on 16 April 1913.\*[1]

## Armament

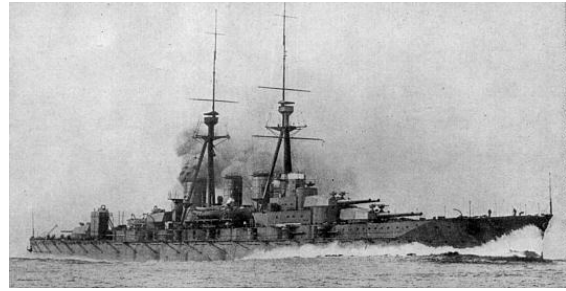
The *Kongō*'s main battery consisted of eight 14-inch (36 cm) heavy-caliber main naval guns in four twin turrets (two forward and two aft).<sup>[6]</sup> The turrets were noted by the U.S. Office of Naval Intelligence to be “similar to the British 15-inch turrets”,<sup>[9]</sup> with improvements made in flash-tightness. Each of her main guns could fire high explosive or armor-piercing shells 38,770 yards (19.14 nmi; 35.45 km) at a firing rate of about two shells per minute.<sup>[10]</sup> In keeping with the Japanese doctrine of deploying more powerful vessels before their opponents, the *Kongō* and her sister ships were the first vessels in the world equipped with 14-inch (36 cm) guns.<sup>[11]</sup> Her main guns carried ammunition for 90 shots, and they had an approximate barrel lifetime of 250 to 280 shots.<sup>[9]</sup> In 1941, separate dyes were introduced for the armor-piercing shells of the four *Kongō*-class battleships to assist with targeting, with the *Kongō*'s armor-piercing shells using red dye.<sup>[9]</sup>

The secondary battery of the *Kongō* originally consisted of sixteen 6-inch (15 cm) 50 caliber guns in single casemates (all located amidships),<sup>[8]</sup> eight 3-inch (7.6 cm) guns, and eight submerged 21-inch (53 cm) torpedo tubes.<sup>[6]</sup> (“50 calibre” means that the lengths of the guns were 50 times their bore, or 700 inches.) Her six-inch naval guns could fire five to six rounds per minute, with a barrel lifetime of about 500 rounds.<sup>[2]</sup> The 6-inch/50 calibre gun was capable of firing both antiaircraft and antiship shells, though the positioning of these guns on the *Kongō* made antiaircraft firing mostly impractical.<sup>[8]</sup> During her second reconstruction, the older three-inch guns were removed and then replaced with eight 5-inch (13 cm) 5-inch/40 calibre dual-purpose guns. These guns could fire from eight to 14 rounds per minute, with a barrel lifetime of about 800 to 1,500 rounds.<sup>[12]</sup> Of *Kongō*'s guns, the 5-inch guns had the widest variety of shell types: antiaircraft, antiship, and illumination shells.<sup>[12]</sup> The *Kongō* was also armed with a large number of 1-inch (2.5 cm) antiaircraft machine guns. By October 1944, the *Kongō*'s secondary armament was reconfigured to eight 6-inch (15 cm) guns, eight 5-inch (13 cm) guns, and 122 Type 96 antiaircraft rapid-fire cannons.<sup>[13]</sup>

### 1.1.2 Her Service in the I.J.N.

#### 1913–1929: Battlecruiser

On 16 August 1913, the *Kongō* was completed and commissioned into the Imperial Japanese Navy (I.J.N.). Twelve days later, she departed from Portsmouth headed for Japan.<sup>[14]</sup> She was docked at Singapore from 20 October to the 27th, before arriving at Yokosuka Naval Arsenal on 5 November, where she was placed in First Reserve.<sup>[7]</sup> In January 1914, she docked at Kure Naval Base for armament checks. On 3 August 1914, the German Empire declared war on France and then in-



*Kongō in her battlecruiser configuration, pre-1927.*

vaded via Belgium, sparking the beginning of World War I in the West. Twelve days later, Japan issued a warning to Kaiser Wilhelm II of the German Empire, ordering him to withdraw the German troops from their base at Tsingtao, China. When the German Empire did not respond, Japan declared war on the Germany on 23 August, occupying the former German possessions in the Caroline Islands, Palau Islands, Marshall Islands, and Marianas Islands.<sup>[7]</sup> The *Kongō* was quickly deployed towards the Central Pacific to patrol the sea lines of communication of the German Empire. The *Kongō* returned to the port of Yokosuka, Japan, on 12 September, and one month later, she was assigned to the First Battleship Division. In October, the *Kongō* and her new sister ship *Hiei* sortied off the Chinese coast in support of Japanese army units during the Siege of Tsingtao. Then the *Kongō* returned to Sasebo Naval Base for upgrades to her searchlights. On 3 October 1915, the *Kongō* and the *Hiei* participated in the sinking of the old *Imperator Nikolai I* as a practice target. She was a Russian pre-dreadnought that had been captured in 1905 during the Russo-Japanese War that had next served as an I.J.N. warship.<sup>[15]</sup> With the defeat of the German East Asia Squadron by the Royal Navy at the Battle of the Falkland Islands in December 1914, there was little or no need for I.J.N. operations in the Pacific Ocean. The *Kongō* spent the rest of World War I either based at Sasebo, or on patrol off the coast of China.<sup>[7]</sup> In December 1918, following the end of the hostilities of World War I, the *Kongō* was placed in “Second Reserve”. In April 1919, she was fitted with a new seawater flooding system for her ammunition magazines.<sup>[7]</sup>

With the conclusion of World War I, and the signing of the Washington Naval Treaty on 6 February 1922, the size of the I.J.N. was significantly limited, with a ratio of 5:5:3 required between the capital ships of the United Kingdom, the United States, and the Japanese Empire, since the latter was only responsible for one ocean, rather than the two of the other country, and fewer warships for France and Italy.<sup>[16]</sup> This Treaty also banned the signatories from building any new capital ships until 1931, with no capital ship permitted to exceed 35,000 long tons (36,000 t) in displacement.<sup>[17]</sup> Provided that new additions did not exceed 3,000 tons of displacement, the existing capital ships were allowed to be upgraded with improved anti-torpedo bulges and armored main

decks.\*[17] By the time that the Washington Naval Treaty had been fully implemented in Japan, only three classes of World War I type capital ships remained active: the *Ise*-class battleships, the *Kongō*-class battlecruisers, and the *Fusō*-class battleships.\*[18]

In April 1923, *Kongō* gave transportation to Emperor Hirohito during his official visit to the Japanese possession of Taiwan. In November 1924, the *Kongō* docked at Yokosuka, where modifications were made to her main armament, increasing the elevation of her main guns and improving her fire-control systems. In 1927, the *Kongō* underwent major modifications to her superstructure, rebuilding it into the *pagoda mast* style to accommodate the growing number of fire-control systems for her main guns.\*[19] In May 1928, her steering equipment was upgraded, before she was placed in reserve in preparation for major modifications and reconstruction in 1929–31.\*[7]

### 1929–1935: Reconstruction into battleship



*Kongō in 1931, following her first reconstruction*

Prohibited by the Washington Treaty from constructing new capital ships until 1931, Japan resorted to upgrading their World War I era battleships and battlecruisers. Beginning in September 1929, the *Kongō* underwent extensive modernization and modification in drydock at Yokosuka Naval Arsenal.\*[8] Over the next two years, the *Kongō*'s horizontal armor near her ammunition magazines was strengthened, and the machinery spaces within the hull were given increased torpedo protection.\*[13] Anti-torpedo bulges were added along the waterline, as permitted by the Washington Treaty.\*[8] She was refitted to accommodate three Type 90 Model 0 floatplanes, though no aircraft catapults were fitted.\*[13] To increase her speed and power, all 36 of her Yarrow boilers were removed, and then replaced with 16 newer boilers, and Brown-Curtis direct-drive turbines were installed.\*[13] The *Kongō*'s forward funnel was removed, and her second funnel was enlarged and lengthened. The modifications to her hull increased her armor weight from 6,502 to 10,313 long tons, directly violating the terms of the Washington Naval Treaty.\*[8] In March 1931, the *Kongō*—now capable of a speed of 29 knots (54 km/h)—was reclassified as a battleship.\*[13]

On 22 April 1930, Japan signed the London Naval Treaty, placing further restrictions on the signatories'

naval forces. Several of her older battleships were scrapped, and no new capital ships were built as replacements.\*[20] After minor fitting-out work, the *Kongō*'s reconstruction begun in September 1929 and was declared complete on 31 March 1931. On 1 December 1931, two months after the Japanese invasion of Manchuria, the *Kongō* was assigned to the First Battleship Division and also designated the flagship of the Combined Fleet. Additional rangefinders and searchlights were fitted to her superstructure in January 1932, and Captain Nobutake Kondō assumed command of the vessel in December. In 1933, aircraft catapults were fitted between the two rear turrets.\*[7]

On 25 February 1933, following a report by the Lytton Commission, the League of Nations agreed that Japan's invasion of China had violated Chinese sovereignty.\*[20] Refusing to accept the judgement of this organization, Japan withdrew from the League of Nations on the same day.\*[20] Japan also immediately withdrew from the Washington Naval Treaty and the London Naval Treaty, thus removing all restrictions on the numbers and sizes of her capital warships.\*[21] In November 1934, the *Kongō* was placed in Second Reserve in preparation for further modifications. On 10 January 1935, the *Kongō* was toured by the Nazi German naval attaché to Japan, Captain Paul Wenneker, as part of a gunnery demonstration.\*[7]

### 1935–1941: Fast battleship

On 1 June 1935, the *Kongō* was dry-docked at Yokosuka Naval Arsenal in preparation for upgrades that would enable her to escort Japan's growing fleet of aircraft carriers. Her stern was lengthened by 26 feet (7.9 m) to improve her fineness ratio and her 16 older boilers were removed and then replaced with 11 oil-fired Kampon Boilers and newer geared turbines.\*[8] In addition, her bridge was completely reconstructed according to Japan's *pagoda mast* style of forward superstructure,\*[13] and catapults were added to support three Nakajima E8N or Kawanishi E7K reconnaissance and spotter floatplanes.\*[4]

The *Kongō*'s armor was also extensively upgraded. Her main belt was strengthened to a uniform thickness of eight inches (up from varying thicknesses of six to eight inches), and also diagonal bulkheads of depths ranging from 5 to 8 inches (127 to 203 mm) were added to reinforce the main armored belt.\*[22] The turret armor was strengthened to 10 inches (254 mm), while 4 inches (102 mm) were added to portions of the deck armor.\*[22] The *Kongō*'s ammunition magazine protection was also strengthened to 4.0 inches (10 cm).\*[8] This reconstruction was finished on 8 January 1937.\*[1] Capable of greater than 30 knots (56 km/h), despite the significant increase in her hull displacement, the *Kongō* was now reclassified as a fast battleship.\*[13]

In February 1937, the *Kongō* was assigned to the Sasebo



Naval District, and in December she was placed under the command of Takeo Kurita in the Third Battleship Division. In April 1938, two float planes from the *Kongō* bombed the Chinese town of Foochow during the Second Sino-Japanese War.\*[7] Throughout 1938 and 1939, the *Kongō* steamed off the Chinese coast in support of Japanese Army operations during the war. In November 1939, Captain Raizo Tanaka assumed command of the *Kongō*. From November 1940 to April 1941, additional armor was added to the *Kongō*'s armament barbettes and ammunition tubes, while ventilation and fire-fighting equipment was also improved. In August 1941, she was assigned to the Third Battleship Division under the command of Vice Admiral Gunichi Mikawa alongside her fully modified sister warships the *Hiei*, *Kirishima* and the *Haruna*.\*[7]

### 1942: Early war service

The *Kongō* and the *Haruna* departed from the Hashirajima fleet anchorage on 29 November 1941 to begin the War in the Pacific as part of the Southern (Malay) Force's Main Body, under the overall command of Vice-Admiral Nobutake Kondō.\*[23] On 4 December 1941, the Main Body arrived off the coast of southern Thailand and northern Malaya in preparation for the invasion of Thailand and the Malayan Peninsula four days later.\*[24] When Britain's "Force Z"—consisting of the battleship *Prince of Wales* and the battlecruiser *Repulse*—was quickly defeated by Japan's land-based aircraft from southern Vietnam, the *Kongō*'s battlegroup withdrew from Malayan waters. This battlegroup subsequently sortied from Indochina for three days in mid-December to protect a reinforcement convoy traveling to Malaya, and again on 18 December to cover the Japanese Army's landing at Lingayen Gulf, Luzon, in the Philippines. The Main Body departed Cam Ranh Bay in French Indochina on 23 December bound for Taiwan, arriving two days later.\*[7] In January 1942, the *Kongō* and the heavy cruisers *Takao* and *Atago* provided distant cover for air attacks on Ambon Island.\*[7]

On 21 February, the *Kongō* was joined by the *Haruna*, four fast aircraft carriers, five heavy cruisers and numerous support ships in preparation for "Operation J", Japan's invasion of the Dutch East Indies. On 25 February, the Third Battleship Division provided cover for air attacks on the Island of Java.\*[8] The *Kongō* bombarded Christmas Island off the western coast of Australia on 7 March 1942, and then she returned to Staring-baai for 15 days of standby alert.\*[7] In April 1942, the *Kongō* joined five fleet carriers in attacks on Colombo and Trincomalee on Ceylon.\*[25] Following the destruction of the British heavy cruisers HMS *Dorsetshire* and HMS *Cornwall* on 5 April 1942, this naval task force moved southwest to locate the remainder of the British Eastern Fleet, then under the command of Admiral James Somerville.\*[26] On 9 April, one of *Haruna*'s reconnaissance seaplanes spot-

ted the HMS *Hermes* south of Trincomalee. On the same day, Japanese air attacks sank the carrier,\*[26] and the *Kongō* was attacked but missed by nine British medium bombers. Having crippled the offensive capability of Britain's Eastern Fleet, the Third Battleship Division returned to Japan. The *Kongō* reached Sasebo on 22 April. From 23 April to 2 May, the *Kongō* was drydocked for reconfiguration of her antiaircraft armament.\*[7]

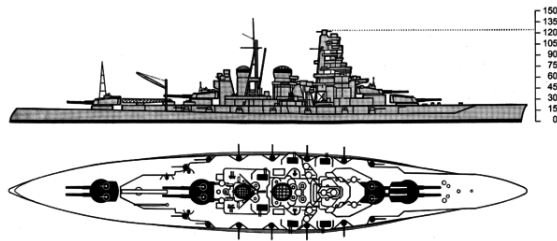
On 27 May 1942, the *Kongō* sortied with the *Hiei* and the heavy cruisers *Atago*, *Chōkai*, *Myōkō*, and *Haguro* as part of Admiral Nobutake Kondō's invasion force during the Battle of Midway.\*[7]\*[23] Following the disastrous loss of four of the Combined Fleet's fast carriers on 4 June 1942, Kondō's force withdrew to Japan.\*[27] On 14 July she was assigned as the flagship of the restructured Third Battleship Division. In August, the *Kongō* was drydocked at Kure to receive surface-detection radar and additional range finders.\*[4] In September, the *Kongō* embarked with the *Hiei*, the *Haruna*, the *Kirishima*, three carriers, and numerous smaller warships in response to the U.S. Marine Corps's amphibious landing on Guadalcanal in the Solomon Islands. On 20 September, this task force was ordered to return to the Truk Naval Base in the Central Pacific north of the equator.\*[28]

In the aftermath of the Battle of Cape Esperance, the Japanese Army opted to reinforce its troops on Guadalcanal. To protect their transport convoy from enemy air attack, Admiral Isoroku Yamamoto sent the *Haruna* and the *Kongō*, escorted by one light cruiser and nine destroyers, to bombard the American air base as Henderson Field. Because of their high speeds, these two battleships could bombard the airfield and then withdraw before being subjected to air attack from either land-based warplanes or American aircraft carriers.\*[29] On the night of 13 – 14 October, these two battleships shelled the area of Henderson Field from a distance of about 16,000 yards (15,000 m), firing 973 14-inch high-explosive shells. In the most successful Japanese battleship action of the war,\*[23] the bombardment heavily damaged both runways, destroyed almost all of the U.S. Marines' aviation fuel, destroyed or damaged 48 of the Marines' 90 warplanes, and killed 41 Marines.\*[30] A large Japanese troop and supply convoy reached Guadalcanal on the next day.\*[29]

During the Battle of the Santa Cruz Islands on 26 October 1942, the *Kongō* was attacked by four TBF Avenger torpedo bombers, but she received no hits. In mid-November, this battleship and other warships provided distant cover for the unsuccessful mission by the I.J.N. to bombard Henderson Field again and to deliver more Army reinforcements to Guadalcanal. On 15 November 1942, following the Japanese defeat and the sinking of the *Hiei* and *Kirishima* during the Naval Battle of Guadalcanal, the Third Battleship Division returned to Truk, where it remained for the rest of 1942.\*[7]



### 1943: Movement between bases



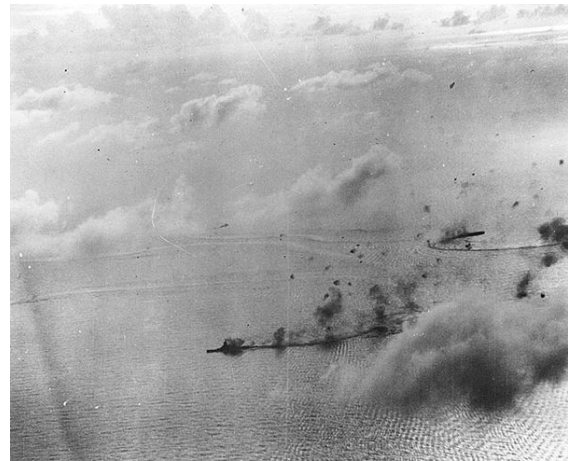
A drawing from the US Office of Naval Intelligence from 1944 or 1945 depicting the Kongō-class battleship

Throughout 1943, the *Kongō* engaged no enemy targets. In late January 1943, she participated in "Operation Ke" as part of a diversionary and distant covering force to support I.J.N. destroyers that were evacuating Army troops from Guadalcanal.\*[31] During the 15th through 20 February 1943, the Third Battleship Division was transferred from Truk to the Kure Naval Base. On 27 February, the *Kongō* was drydocked to receive upgrades to her anti-aircraft armament, with the additions of two triple 25-mm gun mounts and the removal of two of her 6-inch turrets, while additional concrete protection was added near her steering gear.\*[4] On 17 May 1943, in response to the U.S. Army's invasion of Attu Island, the *Kongō* sortied alongside *Musashi*, the Third Battleship Division, two fleet carriers, two cruisers, and nine destroyers. Three days later, the American submarine *USS Sawfish* spotted this naval task force, but she was unable to attack it. On 22 May 1943, the task force arrived in Yokosuka, where it was joined by an additional three fleet carriers and two light cruisers. This force was disbanded when Attu fell to the U.S. Army before the necessary preparations for a counterattack had been finished.\*[7]

On 17 October 1943, the *Kongō* again left Truk as part of a larger task force consisting of five battleships, three fleet carriers, eight heavy cruisers, three light cruisers, and numerous destroyers. These sortied in response to U.S. Navy air raids on Wake Island. No contact between the two forces was made, and the Japanese task force returned to Truk on 26 October 1943. She soon left Truk for home waters, and on 16 December 1943, the *Kongō* arrived at Sasebo for refits and training in the Inland Sea.\*[8]

### 1944: Combat and loss

In January 1944, *Kongō* was dry-docked for a reconfiguration of her anti-aircraft suite. Four 6-inch guns and a pair of twin 25-mm mounts were removed and replaced with four 5-inch guns and four triple 25-mm mounts.\*[4] The Third Battleship Division departed Kure on 8 March 1944. Arriving at Lingga on 14 March 1944, the division remained for training until 11 May 1944.\*[7] On 11 May 1944, *Kongō* and Admiral Ozawa's Mobile Fleet



*Kongō* under attack during the Battle of the Philippine Sea, 20 June 1944

departed Lingga for Tawitawi, where they were joined by Vice-Admiral Takeo Kurita's "Force C". On 13 June, Ozawa's Mobile Fleet departed Tawitawi for the Mariana Islands.\*[32] During the Battle of the Philippine Sea, *Kongō* escorted Japanese fast carriers, and remained undamaged in counterattacks from US carrier aircraft on 20 June.\*[5] When she returned to Japan, 13 triple and 40 single 25-mm mounts were added to her anti-aircraft armament, for a total of over 100 mounts. In August, two more 6-inch guns were removed and another eighteen single mounts installed.\*[4]

In October 1944, *Kongō* departed Lingga in preparation for "Operation Sho-1", Japan's counterattack during the Battle of Leyte Gulf, the largest naval engagement in history.\*[33] On 24 October, *Kongō* was undamaged by several near misses from American carrier aircraft in the Battle of the Sibuyan Sea. On 25 October, during the Battle off Samar, *Kongō*—as part of Admiral Kurita's Centre Force—engaged the US 7th Fleet's "Taffy 3", a battlegroup of escort carriers and destroyers. She succeeded in scoring numerous hits on the escort carrier *Gambier Bay* as well as the destroyers *Hoel* and *Heermann*. At 09:12, she sank the destroyer escort *Samuel B. Roberts*. After a fierce defensive action by the American ships, which sank three Japanese heavy cruisers, Admiral Kurita elected to withdraw, ending the battle.\*[34] While retreating, *Kongō* suffered damage from five near misses from attacking aircraft. The fleet arrived at Brunei on 28 October.\*[7]

On 16 November, following a US air raid on Brunei, *Kongō* departed Brunei alongside *Yamato*, *Nagato* and the rest of the First Fleet for Kure, in preparation for a major reorganization of the fleet and battle repairs. On 20 November, they entered the Formosa Strait. Shortly after midnight on 21 November, the submarine *USS Sealion* made radar contact with the fleet at 44,000 yards.\*[35] Maneuvering into position at 02:45, *Sealion* fired six bow torpedoes at *Kongō* followed by three stern torpedoes at *Nagato* fifteen minutes later. One minute later, two tor-

pedoes from the first salvo were seen to hit *Kongō* on the port side, while a third sank the destroyer *Urukaze* with all hands.\*[7] The torpedoes flooded two of *Kongō*'s boiler rooms, but she was still able to make 16 knots (18 mph). By 05:00, she had slowed to 11 kn (13 mph) and was given permission to break off from the fleet and head to the port of *Keelung* in *Formosa* along with the destroyers *Hamakaze* and *Isokaze* as escorts.

Within fifteen minutes of detaching from the main force, *Kongō* was listing 45 degrees and flooding uncontrollably. At 5:18 the ship lost all power and the order was given to abandon ship. At 5:24, while the evacuation was underway, the forward 14-inch magazine exploded and the broken ship sank quickly with the loss of over 1,200 of her crew including the commander of the Third Battleship Division and her captain.\*[5] The escort destroyers *Hamakaze* and *Isokaze* rescued 237 survivors.

*Kongō* is believed to have sunk in 350 feet (110 m) of water approximately 55 nautical miles northwest of Keelung. Her sinking was only one out of three British built battleship sinkings in World War II caused by a submarine attack, the two others were the British *Revenge*-class battleship *HMS Royal Oak* and the *Queen Elizabeth*-class battleship *HMS Barham*.

### 1.1.3 See also

- List by death toll of ships sunk by submarines

### 1.1.4 Notes

- [1] Gardiner and Gray (1980), p. 234
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### 1.1.6 External links

Coordinates: 26°09′N 121°23′E﻿ / ﻿26.150°N 121.383°E﻿ /

## 1.2 Japanese battleship Hiei

For the older Japanese corvette, see [Japanese corvette Hiei \(1877\)](#).

*Hiei* (比叡) was a warship of the Imperial Japanese Navy during World War I and World War II. Designed by British naval architect George Thurston, she was the second launched of four *Kongō*-class battlecruisers, among the most heavily armed ships in any navy when built. Laid down in 1911 at the Yokosuka Naval Arsenal, *Hiei* was formally commissioned in 1914. She patrolled off the Chinese coast on several occasions during World War I, and helped with rescue efforts following the 1923 Great Kantō earthquake.

Starting in 1929, *Hiei* was converted to a gunnery training ship to avoid being scrapped under the terms of the Washington Naval Treaty. She served as Emperor Hirohito's transport in the mid-1930s. Starting in 1937, she underwent a full-scale reconstruction that completely rebuilt her superstructure, upgraded her powerplant, and equipped her with launch catapults for floatplanes. Now fast enough to accompany Japan's growing fleet of aircraft

carriers, she was reclassified as a fast battleship. On the eve of the US entry into World War II, she sailed as part of Vice-Admiral Chuichi Nagumo's Combined Fleet, escorting the six carriers that attacked Pearl Harbor on 7 December 1941.

As part of the Third Battleship Division, *Hiei* participated in many of the Imperial Japanese Navy's early actions in 1942, providing support for the invasion of the Dutch East Indies as well as the Indian Ocean raid of April 1942. During the Battle of Midway, she sailed in the Invasion Force under Admiral Nobutake Kondō, before being redeployed to the Solomon Islands during the Battle of Guadalcanal. She escorted Japanese carrier forces during the battles of the Eastern Solomons and Santa Cruz Islands, before sailing as part of a bombardment force under Admiral Kondō during the Naval Battle of Guadalcanal. On the evening of 13 November 1942, *Hiei* engaged American cruisers and destroyers alongside her sister ship *Kirishima*. After inflicting heavy damage on American cruisers and destroyers, *Hiei* was crippled by enemy vessels. Subjected to continuous air attack, she sank on the evening of 14 November 1942.

### 1.2.1 Design and construction

*Hiei* was the second of the Imperial Japanese Navy's *Kongō*-class battlecruisers, a line of capital ships designed by the British naval architect George Thurston.\*[2] The class was ordered in 1910 in the Japanese Emergency Naval Expansion Bill after the commissioning of HMS *Invincible* in 1908.\*[3] The four battlecruisers of the *Kongō* class were designed to match the naval capabilities of the other major powers at the time; they have been called the battlecruiser versions of the British (formerly Turkish) battleship HMS *Erin*.\*[1]\*[4] With their heavy armament and armor protection (the latter of which made up 23.3% of their approximately 30,000 ton displacement),\*[1] *Hiei* and her sister ships were vastly superior to any other Japanese capital ship afloat at the time.\*[4]



*Hiei* 's fitting out in Yokosuka, September 1913

The keel of *Hiei* was laid down at Yokosuka Naval Arsenal on 4 November 1911, with most of the parts used in her construction manufactured in Britain.\*[1]\*[5] She was launched on 21 November 1912, and fitting-out



began in December 1913.\*[4] On 15 December 1913, Captain Takagi Shichitaro was assigned as her chief equipping officer.\*[5] She was completed on 4 August 1914.\*[1]

### Armament

*Hiei*'s main battery consisted of eight 14-inch (36 cm) heavy-caliber main guns in four twin turrets, two forward and two aft.\*[2] The turrets were noted by the US Office of Naval Intelligence to be “similar to the British 15-inch turrets” ,\*[6] with improvements made in flash-tightness in the gun chambers. Each of her main guns could fire high-explosive or armor-piercing shells 38,770 yards (19.14 nmi; 35.45 km) at a rate of two shells per minute.\*[7] In keeping with the Japanese doctrine of deploying more powerful vessels than their opponents, *Hiei* and her sister ships were the first vessels in the world equipped with 14-inch (36 cm) guns.\*[8] The main guns carried ammunition for ninety shots and had an approximate gun-life of 250–280 shots.\*[6] In 1941, dyes were introduced for the armor-piercing shells of the four *Kongo*-class battleships to assist their gunners in distinguishing the hits from a distance, with *Hiei*'s armor-piercing shells using black dye.\*[6]

Her secondary battery was originally sixteen 6-inch (15 cm) 50-caliber medium guns in single casemates (all located amidships),\*[4] eight 3-inch (7.6 cm) guns and eight submerged 21-inch (53 cm) torpedo tubes.\*[2] The sixteen 6-inch/50 caliber guns were capable of firing between 5 and 6 rounds per minute, with a barrel life of 500 rounds.\*[9] The 6-inch/50 caliber gun was capable of firing both antiaircraft and antiship shells, though the positioning of the guns on *Hiei* made antiaircraft firing impractical.\*[4] The eight 5-inch/40 caliber guns added later could fire between 8 and 14 rounds per minute, with a barrel life of 800–1500 rounds.\*[10] These guns had the widest variety of shot type of *Hiei*'s guns, being designed to fire antiaircraft, antiship, and illumination shells.\*[10] *Hiei* was also armed with a large number of 1-inch (2.5 cm) Type 96 antiaircraft autocannons.\*[1]

## 1.2.2 Service

### 1914–1929: Battlecruiser

On 4 August 1914, *Hiei* was formally commissioned and assigned to the Sasebo Naval District, before being attached to the Third Battleship Division of the First Fleet two weeks later. On 23 August 1914, Japan declared war on the German Empire, occupying the former German colonies in Palau and in the Caroline, Marshall and Mariana Islands. In October 1914, *Hiei* departed Sasebo alongside *Kongō* to support Imperial Japanese Army units in the Siege of Tsingtao, but she was recalled on the 17th.\*[5] On 3 October 1915, *Hiei* and *Kongō* partici-



*Hiei* departing Yokosuka for Kure Naval Base, 23 March 1914

pated in the sinking of *Imperator Nikolai I*, a Russian pre-dreadnought captured in 1905 during the Russo-Japanese War that had subsequently served in the Japanese Navy under the name *Iki* as a coastal defense ship.\*[11] In April 1916, she patrolled the Chinese coast with her newly launched sisters *Kirishima* and *Haruna*. From 1917 to the end of World War I, *Hiei* remained primarily at Sasebo, patrolling the Chinese and Korean coasts with her sister ships on several occasions.\*[5]

Following the end of World War I, the Japanese Empire gained control of former German possessions in the central Pacific per the terms of the Treaty of Versailles.\*[12] Due to Japan's warm relations with the British Empire and the United States at the time, *Hiei* and other Japanese warships became significantly less active after the war. Other than a patrol alongside *Haruna* and *Kirishima* off the Chinese coast in March 1919, *Hiei* remained in the Japanese home ports.\*[5] On 13 October 1920, she was placed in reserve. Following the Great Kanto Earthquake of September 1923, the capital ships of the Japanese Navy assisted in rescue work until the end of the month. *Hiei* arrived at Kure Naval Base on 1 December 1923 for a refit which increased the elevation of her main guns from 20 to 33 degrees and rebuilt her foremast.\*[5]

With the conclusion of World War I, the world powers attempted to stem any militarization that might re-escalate into war. Under the terms of Washington Naval Treaty of 1922, the Imperial Japanese Navy was significantly reduced, with a ratio of 5:5:3 required between the capital ships of the United Kingdom, the United States, and Japan.\*[13] The treaty also banned Japan from building any new capital ships until 1931, with no capital ship permitted to exceed 35,000 tons.\*[14] Provided that further additions did not exceed 3,000 tons, existing capital ships were allowed to be upgraded with improved torpedo bulges and deck armor.\*[14] By the time the Washington Treaty had been fully implemented in Japan, only three classes of World War I-era capital ships—the *Fusō* class (i.e. *Yamashiro*) and *Ise*-class battleships, and the *Kongō*-class battlecruisers—remained active.\*[15]

In July 1927, Crown Prince Takamatsu —Emperor Hirohito's younger brother—was assigned to *Hiei*. From

October to November 1927, the ship underwent a minor refit at Sasebo to accommodate two **Yokosuka E1Y floatplanes**, though no launch catapults were added.\*[5] On 29 March 1928, *Hiei* departed Sasebo alongside *Kongō* and the battleships *Nagato* and *Fusō* to patrol off the **Chusan Archipelago**, before arriving in the company of *Kongō* in **Port Arthur** in April 1928. In October 1929, she returned to Kure in preparation for her demilitarization and reconstruction.\*[5]



*Hiei* in August 1933, following her conversion to a training ship

### 1929–1937: Demilitarization and training ship

To avoid having to scrap *Hiei* under the terms of the Washington Treaty, the Imperial Japanese Navy decided to convert her into a demilitarized training ship.\*[16] On 15 October 1929, she went into drydock at **Kure Naval Arsenal**. Her aft 14-inch gun turrets were removed, and she was stripped of all eight of her submerged torpedo tubes,\*[5] as well as her 6-inch guns and armor belt. All but nine of her boilers were taken out, reducing her speed to 18 knots (33 km/h),\*[16] and one of her three funnels was removed.\*[5] She was reclassified as a reserve ship at the end of November 1929. On 24 April 1930, reconstruction was halted due to the signing of the **London Naval Treaty**, which further restricted battleship construction and possession amongst the great naval powers, and preservation work was begun at Sasebo. Reconstruction would not resume until July 1931.\*[5]

In September 1931, Japanese army units invaded the Chinese province of **Manchuria**, transforming it into the puppet state of **Manchukuo**.\*[17] In December 1932, *Hiei* was reassigned to the Imperial Japanese Navy's training squadron. On 25 February, the **League of Nations** ruled that Japan had violated Chinese sovereignty and international law in her invasion of Manchuria.\*[17] Refusing to accept the League's judgment, the Empire of Japan withdrew from the League the same day. This also signaled its exit from the Washington and London Naval Treaties, which removed all restrictions on the Imperial Japanese Navy's construction of capital ships. From the end of May 1933 to 13 August, *Hiei* received upgrades that allowed her to perform regular duties for the Emperor, and she served as the Emperor's observation ship for the Imperial Naval Review three days later. From January to March 1934, her No. 4 turret and ammunition magazine were refitted. In November 1935, *Hiei* served as the

Emperor's ship for his official visit to the **Kagoshima** and **Miyazaki Prefectures**.\*[5]

### 1937–1941: Reconstruction and fast battleship



*Hiei* undergoing full power trials off **Tokugewan** following her second reconstruction, December 1939

No longer bound by the restrictions of the Washington and London Treaties, the Imperial Japanese Navy proceeded to reconstruct *Hiei* along the same lines as her sisters. She received eight new oil-fired Kampon boilers and geared turbines, while her stern was lengthened by 26 feet (7.9 m) to increase speed.\*[5] Her aft 14 inch turret was refitted and fire control systems installed for all four main turrets.\*[18] The elevation of her main and secondary guns was increased, and she was equipped with two **Nakajima E8N "Dave"** and **Kawanishi E7K "Alf"** reconnaissance floatplanes. To this end, catapults and launch-rails were also fitted aft of turret #3.\*[18] Fourteen of her 6 inch guns were refitted, and an anti-aircraft suite of eight 5 inch dual-purpose guns and ten twin mounts of Type 96 25 mm autocannons were mounted.\*[18] Her superstructure was rebuilt as a prototype of the tower-mast that would eventually be used on the **Yamato class**, then still in the design phase.\*[19]

*Hiei*'s armor was also extensively upgraded. Her main belt was reapplied and strengthened to a uniform thickness of 8 inches (as opposed to varying thicknesses of 6–8 inches before the upgrades), while diagonal bulkheads of a depth ranging from 5 to 8 inches (127 to 203 mm) reinforced the main armored belt.\*[20] The turret armor was strengthened to 10 inches (254 mm), while 4 inches (102 mm) were added to portions of the deck armor.\*[20] The armor around her ammunition magazines was also strengthened over the course of the refit. Though still less heavily armored than other Japanese battleships, *Hiei* was significantly faster. The reconstruction was declared complete on 31 January 1940. Capable of speeds of up to 30.5 knots (56.5 km/h; 35.1 mph), *Hiei* was reclassified as a fast battleship.\*[21] She participated in the Imperial Fleet Review in October 1940, where she was inspected by Emperor Hirohito, members of the royal family, Navy Minister **Koshirō Oikawa**, and Admiral **Isoroku**

*Yamamoto*. In November, she was assigned to the Third Battleship Division of the First Fleet.\*[5]

On 26 November 1941, *Hiei* departed Hitokappu Bay, Kurile Islands, in the company of *Kirishima* and six Japanese fast carriers of the First Air Fleet Striking Force (*Akagi*, *Kaga*, *Sōryū*, *Hiryū*, *Shōkaku*, and *Zuikaku*) under the command of Vice-Admiral Chuichi Nagumo. On 7 December 1941, aircraft from these six carriers attacked the United States Pacific Fleet at their home base of Pearl Harbor, sinking four US Navy battleships and numerous other vessels. Following the attack and the declaration of war by the United States, *Hiei* returned to Japan.\*[5]



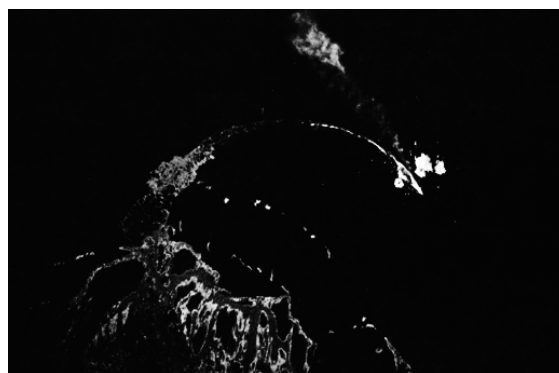
*Hiei* in Tokyo Bay, 11 July 1942

## 1942: Combat and loss

On 17 January 1942, *Hiei* departed Truk Lagoon Naval Base with the Third Battleship Division to support carrier operations against Rabaul and Kavieng. In February, she deployed alongside a force of carriers and destroyers in response to American raids on Japanese bases in the Gilbert and Marshall Islands.\*[5] On 1 March, following carrier operations against Darwin and Java (in the Dutch East Indies), *Hiei*, *Kirishima* and *Chikuma*—which were acting as escorts for the carrier task force—engaged the destroyer USS *Edsall* (DD-219), with *Hiei* firing 210 14-inch and seventy 6-inch shells. When the ships failed to score any hits, dive-bombers from three of Admiral Nagumo's carriers immobilized the destroyer, which was then sunk by gunfire from the three ships.\*[5]

In April 1942, *Hiei* and the Third Battleship Division joined five fleet carriers and two cruisers in a massive raid against British naval forces in the Indian Ocean.\*[19] On 5 April—Easter Sunday—the Japanese fleet attacked the harbor at Colombo, Ceylon while seaplanes from the *Tone* spotted two fleeing British cruisers, both of which were later sunk by aerial attack.\*[22] On 8 April, Japanese carrier aircraft attacked the Royal Navy base at Trincomalee, only to find that all of Admiral James Somerville's remaining warships in the British Eastern Fleet had withdrawn the previous night. Returning from the attack, a floatplane from *Hiei*'s sister ship *Haruna* spotted the aircraft carrier HMS *Hermes*, which was quickly sunk by massive aerial attack.\*[23] The fleet then returned to Japan, arriving at the home bases on 23 April.\*[5]

On 27 May 1942, *Hiei* sortied with *Kongō* and the heavy cruisers *Atago*, *Chōkai*, *Myōkō*, and *Haguro* as part of Admiral Nobutake Kondō's Invasion Force during the Battle of Midway.\*[5]\*[19] Following the disastrous loss of four of the Combined Fleet's fast carriers on 4 June, Kondō's force withdrew to Japan.\*[24] In July, *Hiei* was drydocked for refits to her aircraft complement and the addition of single and twin 25-mm gun mounts.\*[5] In August, she escorted the Japanese carrier *Shōkaku* during the Battle of the Eastern Solomons.\*[25] In October, *Hiei* sortied as part of Rear Admiral Abe's Vanguard Force, and maintained distant cover as *Kongō* and *Haruna* nearly destroyed Henderson Field on Guadalcanal on the night of 13 October.\*[26] From 26–30 October, *Hiei* and her sisters participated in the Battle of the Santa Cruz Islands.\*[19]



A damaged *Hiei*, trailing oil, is attacked by US Army B-17s, 13 November 1942

On 10 November 1942, *Hiei* departed Truk alongside *Kirishima* and eleven destroyers in preparation to shell American positions near Henderson Field in advance of a major convoy of Japanese troops. Under the command of Rear Admiral Hiroaki Abe, the force was spotted by US Navy reconnaissance aircraft several days in advance. A force of two heavy cruisers, three light cruisers and eight destroyers was deployed under the command of Rear Admiral Daniel J. Callaghan in Ironbottom Sound to meet them.\*[27] At 01:24 on 13 November, the Japanese force was detected 28,000 yards (26 km) out by the light cruiser USS *Helena*. Because Abe had not anticipated resistance, his battleships' main guns were loaded with high-explosive shells for bombarding Henderson Field, and thus they were unable to open fire immediately while the switch was made to armor-piercing shells.\*[5] At 01:50, *Hiei* activated her searchlights and opened fire on the light cruiser USS *Atlanta*, commencing the First Naval Battle of Guadalcanal. Though *Atlanta*'s guns succeeded in disabling the searchlight, *Hiei* was able to concentrate her main batteries on the bridge, crippling the light cruiser and killing Rear Admiral Norman Scott.\*[28] *Hiei* and *Kirishima* then disabled two American destroyers (one of which later sank). In turn, *Hiei* became the target of the majority of the American fire-power, with the American 5-inch guns inflicting severe



damage on *Hiei*'s superstructure at close range; Admiral Abe himself was later injured after *USS Laffey* (DD-459) shelled the bridge with her own guns, killing his chief of staff, Captain Suzuki Masakane. [29] This concentration enabled *Kirishima* to evade the American barrage and cripple *USS San Francisco*, killing Admiral Callaghan. [19] [29] However, shells from *San Francisco* disabled *Hiei*'s steering machinery. [30]

With one of his battleships crippled, Abe ordered the remainder of the Japanese fleet to withdraw at 02:00. [5] *Kirishima* attempted to tow *Hiei* to safety, but water flooded her steering compartments, jamming her rudder to starboard. Throughout the morning of 14 November, *Hiei* was subjected to attack from American Army B-17 Flying Fortress bombers. She continued circling starboard at 5 knots (5.8 mph). [30] At 11:30, two torpedoes launched from Grumman TBF Avenger torpedo-bombers struck *Hiei*. [5] After suffering several more torpedo and dive-bomber attacks throughout the day, the order was given for her crew to abandon ship before her escorting destroyers scuttled her. [31] *Hiei* sank sometime in the evening on 14 November with the loss of 188 of her crew, the first battleship ever lost in action by Japan. She was removed from the Navy List on 20 December 1942. [5]

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- [25] Frank (1990), pp. 167–172
- [26] Schom (2004), p. 382
- [27] Hammel (1988), pp. 99–107
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Coordinates: 9°00′00″S 158°59′59″E﻿ / ﻿9.00000°S 158.99972°E﻿ / -9.00000; 158.99972

## 1.3 Japanese battleship Haruna

For the destroyer class, see Haruna-class destroyer.

*Haruna* (榛名), named after Mount Haruna, was a warship of the Imperial Japanese Navy during World War I and World War II. Designed by the British naval engineer George Thurston, she was the fourth and last battlecruiser of the *Kongō* class, amongst the most heavily armed ships in any navy when built. Laid down in 1912 at the Kawasaki Shipyards in Kobe, *Haruna* was formally commissioned in 1915 on the same day as her sister ship, *Kirishima*. *Haruna* patrolled off the Chinese coast during World War I. During gunnery drills in 1920, an explosion destroyed one of her guns, damaged the gun turret, and killed seven men. During her life, *Haruna* underwent two major reconstructions. Beginning in 1926, the Imperial Japanese Navy rebuilt her as a battleship, strengthening her armor and improving her speed and power capabilities. In 1933, her superstructure was completely rebuilt, her speed was increased, and she was equipped with launch catapults for floatplanes. Now fast enough to accompany Japan's growing carrier fleet,

*Haruna* was reclassified as a fast battleship. During the Second Sino-Japanese War, *Haruna* transported Imperial Japanese Army troops to mainland China before being redeployed to the Third Battleship Division in 1941. On the eve of the Japanese attack on Pearl Harbor, she sailed as part of the Southern Force in preparation for the Battle of Singapore.

*Haruna* fought in almost every major naval action of the Pacific Theater during World War II. She covered landings of Japanese forces in Malaya (in present-day Malaysia) and the Dutch East Indies (now Indonesia) in 1942 before engaging American forces at the Battle of Midway and during the Guadalcanal Campaign. Throughout 1943, *Haruna* primarily remained at Truk Lagoon (Micronesia), Kure Naval Base (near Hiroshima), Sasebo Naval Base (near Nagasaki), and the Lingga Islands (in present-day Malaysia), and deployed on several occasions in response to American carrier airstrikes on Japanese island bases. *Haruna* participated in the Battle of the Philippine Sea and the Battle of Leyte Gulf in 1944, engaging American vessels in the latter. In 1945, *Haruna* was transferred to Kure Naval Base, where she was sunk by aircraft of Task Force 38 on 28 July 1945.

### 1.3.1 Design and construction

See also: Kongō-class battlecruiser

*Haruna* was the fourth and last of the Imperial Japanese Navy's *Kongō*-class battlecruisers, a line of capital ships designed by the British naval engineer George Thurston.\*[3] The class was ordered in 1910 in the Japanese Emergency Naval Expansion Bill after the commissioning of *HMS Invincible* in 1908.\*[5] The four battlecruisers of the *Kongo*-class were designed to match the naval capabilities of the other major powers at the time; they have been called the battlecruiser versions of the British (formerly Turkish) battleship *HMS Erin*.\*[1]\*[2] Their heavy armament and armor protection (which contributed 23.3 percent of their displacement) were greatly superior to those of any other Japanese capital ship afloat at the time.\*[1]\*[2]



*Haruna 's fitting-out at Kōbe in October 1914*

The keel of *Haruna* was laid down at Kobe by Kawasaki on 16 March 1912, with most of the parts used in her construction manufactured in Japan.\* [2] Due to a shortage of available slipways, *Haruna* and her sister ship *Kirishima* were the first two capital ships of the Imperial Japanese Navy to be built in private shipyards.\* [2] Launched on 14 December 1913, *Haruna*'s fitting-out began in early 1914.\* [1] She was completed on 19 April 1915.\* [2]

### Armament

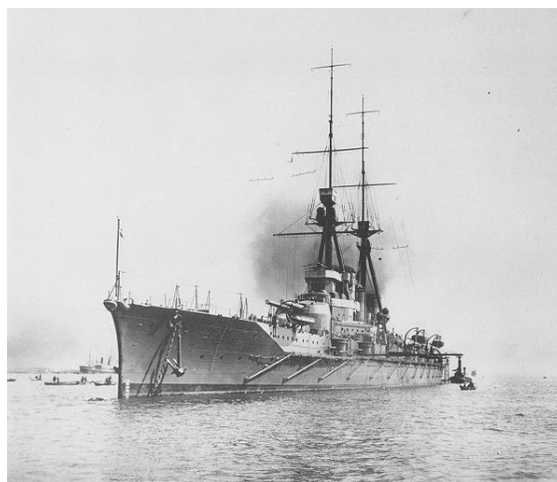
*Haruna*'s main battery consisted of eight 14 in (36 cm) heavy-caliber main guns in four twin turrets (two forward, two aft).\* [3] The turrets were noted by the U.S. Office of Naval Intelligence to be “similar to the British 15-inch turrets”,\* [6] with improvements made in flash-tightness. Each of her main guns could fire high-explosive or armor-piercing shells a maximum of 38,770 yd (19.14 nmi; 35.45 km) at a firing rate of two shells per minute.\* [7] In keeping with the Japanese doctrine of deploying more powerful vessels before their opponents, *Haruna* and her sister ships were the first vessels in the world equipped with 14 in (36 cm) guns.\* [8] The main guns carried ammunition for 90 salvoes, and had an approximate barrel life of 250 to 280 rounds.\* [6] In 1941, separate dyes (used to distinguish between shells fired from multiple ships) were introduced for the armor-piercing shells of the four *Kongo*-class battleships, with *Haruna*'s armor-piercing shells using black dye.\* [6]

Her secondary battery was originally sixteen 6 in (15 cm) 50-caliber medium guns in single casemates (all located amidships),\* [1] eight 3 in (7.6 cm) guns and eight submerged 21 in (53 cm) torpedo tubes.\* [3] The six-inch guns could fire five to six rounds per minute, with a barrel life of 500 rounds.\* [9] The 6"/50 caliber gun was capable of firing both anti-aircraft and anti-ship shells, though the positioning of the guns on *Haruna* made antiaircraft firing impractical.\* [1] During her second reconstruction, the older 3-inch guns were removed and replaced with eight 5 in (13 cm) dual-purpose guns. These 5"/40 caliber guns could fire between 8 and 14 rounds per minute, with a barrel life of 800 to 1,500 rounds.\* [10] The 5"/40 had the widest variety of shot types of *Haruna*'s guns, being designed to fire antiaircraft, antiship, and illumination shells.\* [10] She was also armed with a large number of 1 in (2.5 cm) antiaircraft machine guns. In 1943, her secondary armament was reconfigured to eight 6 in (15 cm) guns, twelve 5 in (13 cm) guns, and finally by the end of 1944 one hundred and eight Type 96 antiaircraft autocannon in 30 triples and 18 single mounts.\* [4]

### 1.3.2 Operational history

#### 1915–1926: Battlecruiser

On 19 April 1915, *Haruna* was formally commissioned at Kobe. On 13 December 1915, after eight months of trials, she was assigned to the Third Battleship Division of the Second Fleet. On 9 April 1916, she departed Sasebo Naval Base for operations in the East China Sea, returning to Japan 10 days later. On 1 December 1916, Captain Saburo Hyakutake assumed command of *Haruna* until 15 September 1917, when Captain Naomi Taniguchi replaced him. On 1 December 1917, she was placed in reserve, as hostilities in the Pacific theatre of World War I concluded.\* [5]



*Haruna* at Kōbe on 24 April 1915

On 12 September 1920, *Haruna* was involved in gunnery drills off Hokkaidō when a breech explosion destroyed the starboard gun of the No. 1 turret, killing seven men and badly damaging the armored roof of the turret. A later investigation by the Imperial Japanese Navy concluded that a faulty fuse ignited the gunpowder bags in the breech, detonating the shell while still in the barrel. The turret was repaired at Yokosuka Naval Arsenal, where the elevation of her 14-inch guns was also increased by seven degrees. Three months later, she was once again placed in reserve.\* [5]

With the conclusion of World War I and the signing of the Washington Naval Treaty, the size of the Imperial Japanese Navy was significantly lessened, with a ratio of 5:5:3 required between the capital ships of the United Kingdom, the United States, and Japan.\* [11] The treaty also banned Japan from building any new capital ships until 1931, with no capital ship permitted to exceed 35,000 long tons (36,000 t).\* [12] Provided that new additions did not exceed 3,000 long tons (3,000 t), existing capital ships were allowed to be upgraded with improved anti-torpedo bulges and deck armor.\* [12] By the time the Washington Treaty had been fully implemented in Japan, only three classes of World War I-era capital ships remained active: the *Ise*-class battleships, the *Kongō*-class battlecruisers, and one of the *Fusō*-class battleships (*Yamashiro*).\* [13]



### 1926–1933: Reconstruction into battleship



*Haruna at sea.*

Unable to construct new capital ships until 1931, Japan resorted to upgrading battleships and battlecruisers. In July 1926, *Haruna* became the first of Japan's vessels to undergo extensive modernization and modification, in drydock at Yokosuka Naval Arsenal.\*[1] Over the next two years, her horizontal armor near her ammunition magazines was strengthened, and the machinery spaces within the hull were increased.\*[5] Anti-torpedo bulges were added along the waterline, as permitted by the Washington Treaty.\*[1] She was refitted to accommodate three Type 90 Model 0 floatplanes.\*[5] To increase her speed and power capacities, all 36 Yarrow boilers were removed and replaced with 16 newer boilers, and Brown-Curtis direct-drive turbines were installed.\*[1] *Haruna*'s forward funnel was removed, and her second funnel was enlarged and lengthened. The modifications to her hull increased her armor weight from 6,502 to 10,313 long tons, directly violating the terms of the Washington Treaty.\*[1] In July 1928, *Haruna*—now capable of speeds of 29 kn (54 km/h; 33 mph)—was reclassified as a battleship.\*[4]

Following new sea trials, *Haruna* was assigned on 10 December 1928 to the Fourth Battleship Division of the Second Fleet as the Emperor's special ship.\*[note 1] For the next 12 months, she operated between Sasebo, *Port Arthur*, and the East China Sea. On 1 February 1929, *Prince Takamatsu*, the younger brother of *Emperor Hirohito*, was assigned to the crew. On 20 November 1929, she was reassigned to the First Battleship Division. She was placed in reserve on 1 December 1930.\*[5]

On 22 April 1930, Japan signed the *London Naval Treaty*, placing further restrictions on her maritime forces. In addition to the scrapping of several older battleships, Japan would not be permitted to construct new capital ships until 1937.\*[14] After minor fitting-out work, her reconstruction begun in 1926 was declared complete on 1 October 1931.\*[5] On 8 November 1931, she served as the Emperor's ship during his official visit to *Kumamoto prefecture*.\*[5]

In September 1931, Japan invaded *Manchuria*. On 25



*Haruna undergoing trials after her reconstruction in 1928*

February 1933, based on the report by the *Lytton Commission*, the *League of Nations* agreed that Japan's invasion had violated Chinese sovereignty.\*[14] Refusing to accept the organization's judgment, Japan withdrew from the *League of Nations* the same day.\*[14] Immediately following, Japan also withdrew from the *Washington and London Naval Treaties*, thus removing all restrictions on the number and size of her capital ships.\*[15] *Haruna* was reactivated and assigned to the First Battleship Division on 20 May 1933.\*[5]

### 1933–1941: Fast battleship

On 1 August 1933, *Haruna* was drydocked at *Kure Naval Arsenal* in preparation for upgrades that would enable her to escort Japan's growing fleet of aircraft carriers.\*[5] Her stern was lengthened by 26 ft (7.9 m), and her bridge was completely reconstructed according to Japan's *pagoda mast* style of forward superstructure.\*[4] Her 16 older boilers were removed and replaced with 11 oil-fired *Kampon Boilers* and newer geared turbines.\*[1] *Catapults* and rails were added to support three *Nakajima E8N* or *Kawanishi E7K* reconnaissance and *spotter floatplanes*.\*[16]

*Haruna*'s armor was also extensively upgraded. Her main belt was strengthened to a uniform thickness of 8 inches (up from varying thicknesses of 6 to 8 inches), while diagonal bulkheads of depths ranging from 5 to 8 in (127 to 203 mm) now reinforced the main armored belt.\*[17] The turret armor was strengthened to 10 inches (254 mm), while 4 in (102 mm) were added to portions of the deck armor.\*[17] Her ammunition magazine protection was also strengthened to 4.0 inches (10 cm).\*[1] The reconstruction was finished on 30 September 1934.\*[2] Capable of more than 30 kn (56 km/h; 35 mph) despite the significant increase in hull displacement, *Haruna* was now reclassified as a fast battleship.\*[4]

On 28 October 1935, Captain *Jisaburō Ozawa* assumed command of *Haruna*. On 1 June 1936, she was assigned to the Third Battleship Division of the First Fleet.\*[5] Throughout 1937, *Haruna* conducted extensive gunnery



Haruna at Yokosuka in 1935

drills and patrols off the coast of China, primarily in the vicinity of Tsingtao. On 7 July 1937, Japan officially declared war on China, thus beginning the Sino-Japanese War.\*[18] One month later, *Haruna* transported Japanese Army forces to mainland China in preparation for campaigns into Chinese Nationalist territory. On 1 December 1937, she was again placed in reserve.\*[5] On 2 April 1940, she was transferred from Sasebo to Taiwan. She was redesignated as a “special service ship” on 15 November 1940, and five months later was attached to the Third Battleship Division of the First Fleet, based in Hashirajima.\*[5]

### 1941–1942: Early war service

*Haruna* and *Kongō* departed the Hashirajima fleet anchorage on 29 November 1941, to participate in the opening stage of the Pacific War as part of the Southern (Malay) Force's Main Body, under the overall command of Vice-Admiral Nobutake Kondō.\*[19] On 4 December 1941, the Main Body arrived off the coast of Southern Siam and Northern Malaya, in preparation for the invasion of Siam and the Malayan Peninsula four days later.\*[20] When Britain's “Force Z” – consisting of the battleship *HMS Prince of Wales* and the battlecruiser *HMS Repulse* – was quickly defeated by Japan's land-based and carrier aircraft, *Haruna*'s battlegroup withdrew from Malayan waters. The battlegroup subsequently sortied from Indochina for three days in mid-December to protect a reinforcement convoy traveling to Malaya and again on 18 December to cover the Army's landing at Lingayen Gulf in the Philippines. The Main Body departed Cam Ranh Bay in French Indochina on 23 December bound for Taiwan, arriving two days later.\*[5]

On 13 December 1941, an erroneous report was published in the U.S. media that an American B-17 heavy bomber had bombed and mortally damaged *Haruna* during battle off Lingayen Gulf off the Philippines. No Japanese battleships were present, and *Haruna* was 1,500 nmi (2,800 km; 1,700 mi) away in the Gulf of Siam at the time.\*[21]

On 18 January 1942, Kondō's Main Force arrived in Palau alongside two fast carriers, with the intention of covering Japan's invasion of Borneo and the Dutch East Indies.\*[19] *Haruna*, *Maya*, and the fleet carriers *Hiryū* and *Sōryū* operated to the east of Mindanao until 18 February 1942, when the Main Body departed Palau in preparation for “Operation J”, Japan's invasion of the Dutch East Indies. On 25 February, the Third Battleship Division provided cover for air attacks on Java.\*[1] *Haruna* bombarded Christmas Island on 7 March 1942, then returned to Staring-baai for 15 days of maintenance and rest.\*[5] In April 1942, *Haruna* joined five fleet carriers in attacks on Colombo in Ceylon.\*[22] Following the destruction of *HMS Dorsetshire* on 5 April 1942, *Haruna* was sent southwest to locate the remainder of the British Eastern Fleet, under the command of Admiral James Somerville.\*[23] On 9 April, one of her floatplanes spotted the carrier *HMS Hermes* south of Trincomalee; Japanese airstrikes sank the carrier the same day.\*[23] Having crippled the offensive capability of Britain's Eastern Fleet, the Third Battleship Division returned to Japan on 23 April. *Haruna* was drydocked throughout May 1942 for general repairs and refits.\*[5]

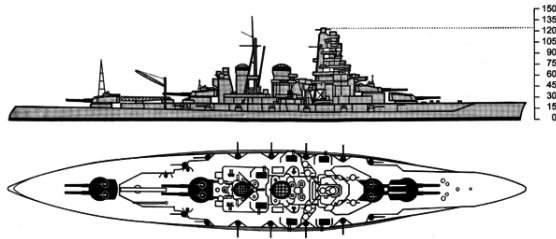
On 29 May 1942, *Haruna* joined her sister ship *Kirishima* as part of Vice-Admiral Chūichi Nagumo's carrier strike force during the Battle of Midway.\*[24] On 4 June, she was attacked in multiple airstrikes by American torpedo bombers, but she took no hits and succeeded in shooting down five American aircraft.\*[5] On 5 June, she took on survivors from the four destroyed Japanese aircraft carriers before returning to Japan.\*[19] She remained in Japan until September 1942, undergoing minor refits in August of that year.\*[1] On 6 September, *Haruna* transferred to Truk Lagoon alongside the rest of the Third Battleship Division, and on 10 September the ship sortied as part of Admiral Kondō's Second Fleet into the Solomon Islands.\*[25] On 20 September, the fleet was ordered to return to Truk.

In the aftermath of the Battle of Cape Esperance, the Japanese Army opted to reinforce their positions on Guadalcanal. To protect their transport convoy from enemy air attack, Admiral Yamamoto sent *Haruna* and *Kongō*, escorted by one light cruiser and nine destroyers, to bombard Henderson Field. Because of their high speed, the two battleships could bombard the field and withdraw before being subjected to air attack from aircraft carriers.\*[26] On the night of 13–14 October, the two battleships shelled Henderson Field from a distance of 16,000 yards (15,000 m), firing 973 14-inch shells. In the most successful Japanese battleship action of the war,\*[19] the bombardment heavily damaged both runways, destroyed almost all available aviation fuel, incapacitated 48 of the airfield's 90 aircraft, and killed 41 men.\*[27] The Japanese troop convoy reached the island the next day.\*[26]

During the Battle of the Santa Cruz Islands on 26 October 1942, *Haruna* was attacked by a PBY Catalina flying

boat but received no damage. In mid-November, the battleship and other warships provided distant cover for the ultimately unsuccessful efforts to bombard Henderson Field again and land reinforcements on Guadalcanal. On 15 November 1942, following the Japanese defeat and loss of *Hiei* and *Kirishima* during the **Naval Battle of Guadalcanal**, the Third Battleship Division returned to Truk, where it remained for the rest of 1942.\*[5]

### 1943: Movement between bases



A drawing from the U.S. Office of Naval Intelligence depicting the Kongō-class in 1944–1945

*Haruna* engaged no enemy targets during 1943.\*[1] In late January 1943, she participated in "Operation Ke", as part of a diversionary force and distant cover supporting Japanese destroyers that were evacuating personnel from Guadalcanal.\*[28] During 15–20 February 1943, the Third Battleship Division transferred from Truk to Kure Naval Base. From 23 February to 31 March 1943, *Haruna* was drydocked in **Kure Naval Arsenal** for upgrades, receiving additional Type 96 25 mm (0.98 in) antiaircraft guns and armor. On 17 May 1943, in response to the American invasion of **Attu Island**, *Haruna* sortied alongside *Musashi*, the Third Battleship Division, two fleet carriers, two cruisers and nine destroyers. Three days later, the submarine *USS Sawfish* discovered the task group, but was unable to attack. On 22 May 1943, the task force arrived in Yokosuka, where it was joined by an additional three fleet carriers and two light cruisers; the force was disbanded when Attu fell before the necessary preparations were finished. Throughout June 1943, *Haruna* was refitted at Yokosuka. On 18 September 1943, *Haruna* left Truk as part of a counterattack force in response to American raids on the Brown Islands in Micronesia, but no contact was made and the ship returned to the base.\*[5]

On 17 October 1943, *Haruna* again left Truk as part of an even larger force—five battleships, three fleet carriers, eight heavy cruisers, three light cruisers and numerous destroyers—in response to American raids on **Wake Island**. When no contact was made the force returned to Truk on 26 October 1943. On 16 December 1943, she arrived at Sasebo for refits and inland-sea training.\*[1]

### 1944: Final combat actions

On 25 January 1944, Captain Kazu Shigenaga assumed command of *Haruna* while the ship was stationed at Kure. The Third Battleship Division departed Kure on 8 March 1944. Arriving at Lingga on 14 March 1944, the division remained for training until 11 May 1944.\*[5] On 11 May 1944, *Haruna* and Admiral Ozawa's Mobile Fleet departed Lingga for **Tawitawi**, where they were joined by Vice-Admiral **Takeo Kurita's** "Force C". On 13 June, Ozawa's Mobile Fleet departed Tawitawi for the **Mariana Islands**.\*[29] During the **Battle of the Philippine Sea**, *Haruna* escorted Japanese fast carriers, and was hit by two 500 lb (230 kg) armor-piercing bombs on 20 June 1944 from U.S. carrier aircraft.\*[30] On 24 June, she was drydocked in Kure for repairs and refitting. In August 1944 she transferred to Lingga.\*[5]



*Haruna* at her moorings near Kure, Japan, under attack by U.S. Navy carrier aircraft, 28 July 1945

In October 1944, *Haruna* departed Lingga in preparation for "Operation Sho-1", Japan's counterattack during the **Battle of Leyte Gulf**, the largest naval engagement in history.\*[31] On 24 October, *Haruna* was lightly damaged by fragments from near misses by American carrier aircraft in the **Battle of the Sibuyan Sea**. On 25 October, during the **Battle off Samar**, *Haruna*—as part of Admiral Kurita's Centre Force—engaged escort carriers and destroyers of the U.S. 7th Fleet's "Taffy 3". Her 14 in (36 cm) shells straddled (but did not hit) two American escort carriers, before she dodged torpedoes launched by American destroyers. After a fierce defensive action by the American ships, Admiral Kurita elected to withdraw, ending the battle.\*[32]

Following the Japanese Navy's defeat at Leyte Gulf, *Haruna* returned to Brunei and Lingga for repairs. On 22 November 1944, she ran aground on a coral reef near Lingga, suffering serious damage to her watertight compartments and forcing her to return to Sasebo, where the hull was patched and repaired.\*[5] On 2 December 1944, while returning to Japan from Southeast Asia as part of a task group, she evaded torpedoes fired by an Ameri-



can submarine. On 9 December, three more American submarines intercepted the task group; *USS Sea Devil*, *Plaice*, and *Redfish* damaged the carrier *Junyō* and multiple destroyers with torpedoes. Unharmed, *Haruna* arrived at Sasebo the following day. At the end of 1944, she transferred to Kure for full repairs and upgrading, having survived a year in which four other Japanese battleships had been lost.\*[33]

### 1945: Loss



*Haruna, sunken at her moorings after the attack of 28 July 1945*

On 1 January 1945, *Haruna* was removed from the deactivated Third Battleship Division and transferred to the First Battleship Division of the Second Fleet. On 10 February, *Haruna* was assigned to the *Kure Naval District*. On 19 March 1945, American carrier aircraft attacked the remainder of the Japanese Navy at Kure. The base was defended by veteran Japanese fighter instructors flying *Kawanishi N1K-J* “Shiden” or “George” fighters, led by the man who planned the *attack on Pearl Harbor*, *Minoru Genda*.\*[34] These fighter planes were superior in some respects to America's main fighter, the *F6F Hellcat*.\*[34] They surprised the attackers, destroyed several American aircraft, and defended the base from the brunt of the attack.\*[35] *Haruna* sustained light damage from a single bomb on the starboard side,\*[5] and remained at Kure.\*[36]

On 24 July 1945, the U.S. Navy's *Task Force 38* began a series of aerial attacks on *Kure Naval Base* to destroy the last remnants of Japan's navy. The same day, the battleship *Hyūga* was sunk,\*[37] and *Haruna* was hit by a single bomb which caused light damage.\*[38] Four days later,

she sustained eight bomb hits from *Task Force 38*'s aircraft and sank at her moorings at 16:15.\*[37] In two days of attacks, 65 officers and men of *Haruna* were killed. Her remnants were raised from the sea floor in 1946 and *broken up* over the course of two months.\*[38]

### 1.3.3 Notes

- [1] The Emperor's Special Ship was designated as his official means of naval transport throughout the Japanese Empire.

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- [2] Gardiner and Gray (1980), p. 234.
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- [11] Jackson (2000), p. 67.
- [12] Jackson (2000), p. 68.
- [13] Jackson (2000), p. 69.
- [14] Jackson (2000), p. 72.
- [15] Willmott (2002), p. 35.
- [16] Stille, p. 18.
- [17] McCurtie, p. 185.
- [18] Willmott (2002), p. 23–24.
- [19] Stille, p. 19.
- [20] Willmott (2002), p. 56.
- [21] John Toland, *The Rising Sun: The Decline and Fall of the Japanese Empire, 1936–1945*, Random House NY, 1970. p.307-308

- [22] Boyle (1998), p. 368.
- [23] Boyle (1998), p. 370.
- [24] Willmott (2002), p. 93.
- [25] Willmott (2002), p. 100.
- [26] Schom, p. 382.
- [27] Swanston, p. 220.
- [28] Swanston, p. 223.
- [29] Willmott (2002), p. 141.
- [30] Swanston, p. 352.
- [31] Steinberg (1980), p. 49.
- [32] Boyle (1998), p. 508.
- [33] Jackson (2000), p. 127.
- [34] Reynolds (1982), p. 160.
- [35] Reynolds (1968), p. 338.
- [36] Jackson (2000), p. 128.
- [37] Jackson (2000), p. 129.
- [38] Stille, p. 20.

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### 1.3.6 External links

- Media related to **Haruna** at Wikimedia Commons
- **Wrecked at Kure**
- **Aerial photography after war**

## 1.4 Japanese battleship *Kirishima*

For the JMSDF Kongō-class destroyer, see JDS *Kirishima* (DDG-174).

***Kirishima*** (霧島) was a warship of the Imperial Japanese Navy during World War I and World War II. Designed by British naval engineer George Thurston, she was the third launched of the four *Kongō*-class battlecruisers, among the most heavily armed ships in any navy when built. Laid down in 1912 at the Mitsubishi Shipyards in Nagasaki, *Kirishima* was formally commissioned in 1915 on the same day as her sister ship, *Haruna*. Her name is derived from Mount *Kirishima* (霧島山 *Kirishimayama*), an active volcano group in Kagoshima Prefecture.

*Kirishima* patrolled on occasion off the Chinese coast during World War I, and helped with rescue efforts following the 1923 Great Kantō earthquake.

Starting in 1927, *Kirishima* 's first reconstruction rebuilt her as a battleship, strengthening her armor and improving her speed. From 1934, a second reconstruction completely rebuilt her superstructure, upgraded her engine plant, and equipped her with launch catapults for floatplanes. Now fast enough to accompany Japan's growing carrier fleet, she was reclassified as a fast battleship. During the Second Sino-Japanese War, *Kirishima* acted primarily as a support vessel and troop transport, moving army troops to mainland China. On the eve of World War II, she sailed as part of Vice-Admiral Chuichi Nagumo's

Combined Fleet as a heavy escort for the six carriers that attacked Pearl Harbor on 7 December 1941.

As part of the Third Battleship Division, *Kirishima* participated in many of the Imperial Japanese Navy's early actions in 1942, providing support for the invasion of the Dutch East Indies and in the Indian Ocean raid of April 1942. During the Battle of Midway, she provided escort to Nagumo's four carriers, before redeploying to the Solomon Islands during the Battle of Guadalcanal. She escorted Japanese carrier fleets during the battles of the Eastern Solomons and Santa Cruz Islands, before sailing as part of a bombardment force under Admiral Nobutake Kondō during the Naval Battle of Guadalcanal. On the evening of 13 November 1942, *Kirishima* engaged American cruisers and destroyers alongside her sister ship *Hiei*. On the night of 14/15 November, in one of only two battleship duels of the Pacific War, *Kirishima* damaged USS *South Dakota* (BB-57) before being fatally crippled in turn by the battleship USS *Washington* (BB-56). *Kirishima* capsized and sank in the early morning on 15 November 1942 in Ironbottom Sound.

### 1.4.1 Design and construction

*Kirishima* was the third of the Imperial Japanese Navy's *Kongō*-class battlecruisers, a group of capital ships designed by the British naval engineer George Thurston.\*[2] The class was ordered in 1910 in the Japanese Emergency Naval Expansion Bill after the commissioning of HMS *Invincible* in 1908.\*[3] The four battlecruisers of the *Kongō* class were designed to match the naval capabilities of the other major powers at the time; they have been called the battlecruiser version of the British (formerly Turkish) battleship HMS *Erin*.\*[1]\*[4] With their heavy armament and armor protection (which took up 23.3% of their approximately 30,000 ton displacement),\*[1] *Kirishima* and her sister ships were vastly superior to any other Japanese capital ship afloat at the time.\*[4]

The keel of *Kirishima* was laid down at the Nagasaki shipyards of Mitsubishi Heavy Industries on 17 March 1912, with most of the parts used in her construction manufactured in Japan.\*[1]\*[3] Due to a shortage of available slipways, *Kirishima* and her sister ship *Haruna* were the first two capital ships of the Imperial Japanese Navy to be built in private Japanese shipyards.\*[1] After her launch on 1 December 1913, *Kirishima*'s fitting-out began later that month.\*[4] On 15 December 1914, Captain Kamaya Rokuro was assigned as her chief equipping officer,\*[3] and she was completed on 19 April 1915.\*[1]

### Armament

*Kirishima*'s main battery consisted of eight 14-inch (36 cm) heavy-caliber main guns in four twin turrets (two forward, two aft).\*[2] The turrets were noted by the US Of-

fice of Naval Intelligence to be “similar to the British 15-inch turrets”,\*[5] with improvements made in flash-tightness. Each of her main guns could fire high-explosive or armor-piercing shells a maximum distance of 38,770 yards (19.14 nmi; 35.45 km) at a firing rate of two shells per minute.\*[6] In keeping with the Japanese doctrine of deploying more powerful vessels before their opponents, *Kirishima* and her sister ships were the first vessels in the world equipped with 14-inch (36 cm) guns.\*[7] The ship's magazines could accommodate ninety rounds of ammunition for each of the main guns, which had an approximate barrel life of 250–280 shots.\*[5] In 1941, dyes were introduced for the armor-piercing shells of the four *Kongō*-class battleships, with *Kirishima*'s shells using blue dye.\*[5]

Her secondary battery was originally sixteen 6-inch (15 cm) 50-caliber medium guns in single casemates (all located amidships),\*[4] eight 3-inch (7.6 cm) anti-aircraft guns, and eight submerged 21-inch (53 cm) torpedo tubes.\*[2]\*[8] The sixteen 6"/50 caliber guns were capable of firing 5–6 rounds per minute, with a barrel life of 500 rounds.\*[9] The 6"/50 caliber gun was capable of firing both antiaircraft and antiship shells, though the positioning of the guns on *Kirishima* made antiaircraft firing impractical.\*[4] During her second reconstruction, the 3" guns were removed and replaced with eight 5-inch (13 cm) guns. These guns could fire between 8 and 14 rounds per minute, with a barrel life of 800–1500 rounds.\*[10] Designed to fire antiaircraft, antiship, and illumination shells, the 5"/40 caliber had the widest variety of shot type of *Kirishima*'s guns.\*[10] During her second reconstruction, *Kirishima* was also fitted with a small number of 1-inch (2.5 cm) Type 96 antiaircraft autocannons.

### 1.4.2 Service

#### 1914–1927: Battlecruiser



*Kirishima* docked at Sasebo in December 1915

*Kirishima* was formally commissioned on 19 April 1915, and along with *Haruna* was assigned to the 1st Battleship Division of the First Fleet.\*[3] After seven months of trials, she was reassigned to the 3rd Battleship Division of the Second Fleet, with Captain Shima Takeshi in over-

all command of the ship. In April 1916, *Kirishima* and *Haruna* departed Sasebo Naval Base to patrol the East China Sea for ten days. She remained in Sasebo until April 1917, when she again deployed to the Chinese coast with her sister ships *Haruna* and *Kongō*. Her last patrol operation of World War I was off the Chinese and Korean coast in April 1918. In July 1918, *Kirishima* acted as the transport of Prince Arthur of Connaught for his extended cruise to Canada, before returning to Japan.\*[3]

Following the end of World War I, the Japanese Empire gained control of former German possessions in the central Pacific per the terms of the Treaty of Versailles.\*[11] Due to Japan's warm relations with the British Empire and the United States at the time, *Kirishima* and other Japanese warships became significantly less active than during the war. On 1 December 1920, she was reassigned to the Third Division of the Second Fleet. Other than a patrol alongside *Kongō* and *Nagato* off the Chinese coast in August 1921, *Kirishima* remained in Sasebo.\*[3] On 10 September 1922, she collided with the destroyer *Fuji* during fleet maneuvers, with both ships sustaining minor damage. Following the Great Kantō Earthquake of September 1923, the capital ships of the Imperial Japanese Navy assisted in rescue work until the end of the month. She was placed in reserve in December 1923.\*[3]

With the conclusion of World War I and the signing of the Washington Naval Treaty, the size of the Imperial Japanese Navy was significantly lessened, with a ratio of 5:5:3 required between the capital ships of the United Kingdom, the United States, and Japan.\*[12] The treaty also banned Japan from building any new capital ships until 1931, with no capital ship permitted to exceed 35,000 tons.\*[13] Provided that new additions did not exceed 3,000 tons, existing capital ships were allowed to be upgraded with improved torpedo bulges and deck armor.\*[13] By the time the Washington Treaty had been fully implemented in Japan, only three classes of World War I-era capital ships—the *Yamashiro* and *Ise*-class battleships, and the *Kongō*-class battlecruisers—remained active.\*[14]

### 1927–1934: Battleship



*Kirishima* in 1932, following her first reconstruction

Stripped of the ability to construct new capital ships, the Imperial Japanese Navy instead opted to significantly upgrade and reconfigure their existing battleships and bat-

tlecruisers.\*[15] *Kirishima* was placed in Third Reserve in December 1926, before beginning her first reconstruction in early 1927. Horizontal armor over the ammunition magazines was strengthened, and she was also fitted with anti-torpedo bulges, as permitted by the Washington Treaty.\*[3] To upgrade *Kirishima*'s speed, the 36 coal-fired Yarrow boilers were removed and replaced with ten new mixed-firing Kampon boilers.\*[16] To allow for more equipment to be installed on board, her forward superstructure was reconstructed in the Pagoda mast style, facilitating the removal of one of her three funnels.\*[3] The reconstruction of the *Kongō*-class battlecruisers added an additional 4,000 tons of armor to the ships, directly violating the terms of the Washington Treaty.\*[4] On 16 April 1930, the reconstruction was declared complete.\*[N 1]

Six days after *Kirishima*'s reconstruction was completed, Japan pledged to scrap several battleships and signed the London Naval Treaty, which placed further bans on capital ship construction until 1937.\*[17] From August to October 1930, she was outfitted with the equipment necessary to equip reconnaissance seaplanes. *Kirishima* patrolled the coast of China near Shanghai in April 1932, before she was again placed in the Third Reserve.\*[3]

In September 1931, Japan invaded Manchuria. On 25 February 1933, based on a report by the Lytton Commission, the League of Nations agreed that Japan had violated Chinese sovereignty in its invasion of Manchuria.\*[17] Refusing to accept the organization's judgment, Japan withdrew from the League of Nations the same day.\*[17] Immediately following, Japan also withdrew from the Washington and London Naval Treaties, thus removing all restrictions on the number and size of her capital ships.\*[18]

### 1934–1941: Fast Battleship



*Kirishima* and the fast carrier *Akagi* off Tsukumo Bay, 27 April 1939.

On 18 November 1934, *Kirishima* was drydocked in Sasebo Naval Arsenal in preparation for her second reconstruction, which would enable her to function alongside Japan's growing fleet of fast carriers. Her stern was

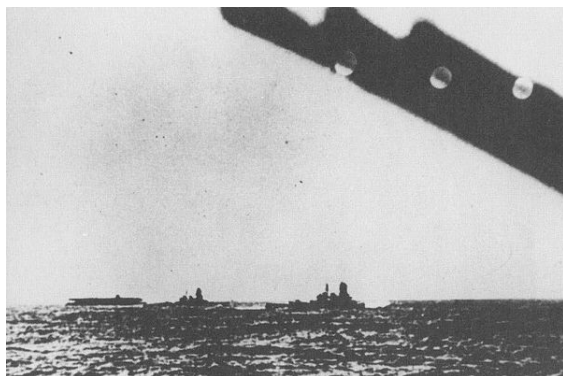


lengthened by 26 feet (7.9 m), while her superstructure was rebuilt to allow for new fire-control mechanisms.\*[3] Her boilers were removed and replaced with eight new oil-fired Kampon Boilers, and she received newer geared turbines.\*[4] The elevation of her main and secondary battery was increased, and she was equipped with two Nakajima E8N “Dave” and Kawanishi E7K “Alf” reconnaissance floatplanes. To this end, aircraft catapults and launch-rails were also refitted.\*[3] Her older 3-inch guns were removed and replaced with eight 5-inch dual-purpose guns. She was also outfitted with twenty Type 96 25 mm anti-aircraft guns in twin turrets, while two of her 6 inch guns and her remaining torpedo tubes were removed.\*[8]

*Kirishima*’s armor was also extensively upgraded. Her main belt was strengthened to a uniform thickness of 8 inches (as opposed to varying thicknesses of 6–8 inches before the upgrades), while diagonal bulkheads of a depth ranging from 5 to 8 inches (127 to 203 mm) reinforced the main armored belt.\*[19] The turret armor was strengthened to 10 inches (254 mm), while 4 inches (102 mm) were added to portions of the deck armor.\*[19] The armor around her ammunition magazines was also strengthened over the course of the refit. The reconstruction was declared complete on 8 June 1936. Capable of speeds of up to 30.5 knots (56.5 km/h; 35.1 mph), *Kirishima* was reclassified as a fast battleship.\*[18]

In August 1936, *Kirishima* departed Sasebo alongside *Fusō* to patrol the Chinese coast off Amoy. From March 1937 to April 1939, she was frequently deployed as a support vessel and troop transport during the Second Sino-Japanese War. In November 1938, *Kirishima* was designated the command vessel of the Third Battleship Division, and was under the command of Rear Admiral Chuichi Nagumo. In November 1939, she was placed in reserve and fitted with additional armor on the front faces of her turrets and barbettes.\*[3]

#### 1941-1942: Carrier Escort



*Kirishima* (right), with *Hiei* (center) and aircraft carrier *Akagi* (left) approaching Pearl Harbor, Hawaii on 6 December 1941

On 11 November 1941, after a series of transfers be-

tween Japanese naval bases, *Kirishima* was outfitted in preparation for coming hostilities and assigned—alongside her sister ships—to the Third Battleship Division. On 26 November, *Kirishima* departed Hitokappu Bay, Kurile Islands in the company of *Hiei* and six Japanese fast carriers of the First Air Fleet Striking Force (*Akagi*, *Kaga*, *Sōryū*, *Hiryū*, *Shōkaku*, and *Zuikaku*).\*[20] On 7 December 1941, aircraft from these six carriers attacked the United States Pacific Fleet at their home base of Pearl Harbor, sinking four U.S. Navy battleships and numerous other vessels. Following the attack and the declaration of war by the United States, *Kirishima* returned to Japan.\*[21]

On 8 January 1942, *Kirishima* departed Japan for Truk Naval Base in the Caroline Islands alongside the Carrier Strike Force. She provided escort during the invasion of New Britain on 17 January before returning to Truk. She sortied again in response to American carrier raids in the Marshall and Gilbert Islands.\*[3] In March 1942, while supporting fleet operations off of Java in the Dutch East Indies, one of *Kirishima*’s floatplanes bombed an enemy merchant vessel. South of Java, the Japanese fleet was surprised by the appearance of the destroyer *USS Edsall* (DD-219). *Hiei* and *Chikuma* initially opened fire on the ship but failed to score any hits. After dive-bombers from three of Admiral Nagumo’s carriers immobilized the destroyer, *Kirishima* and the other two ships resumed firing on the *Edsall* until she sank.\*[3]

In April 1942, *Kirishima* and the Third Battleship division joined five fleet carriers and two cruisers in an attack against British naval bases in the Indian Ocean. On 5 April—Easter Sunday—the Japanese fleet attacked the harbor at Colombo in Ceylon, while seaplanes from the *Tone* spotted two fleeing British cruisers, both of which were later sunk by aerial attack.\*[22] A floatplane from *Kirishima* also strafed a withdrawing oil tanker.\*[3] On 8 April, Japanese carrier aircraft attacked the Royal Navy base at Trincomalee in Ceylon, only to find that all of Admiral James Somerville’s remaining warships had withdrawn the previous night. Returning from the attack, a floatplane from *Kirishima*’s sister ship *Haruna* spotted the aircraft carrier *HMS Hermes*, which was quickly sunk by a massive aerial attack.\*[23] Upon returning to Japan, *Kirishima* was drydocked and her secondary armament configuration modified with the addition of 25 mm anti-aircraft guns in twin mounts.\*[3]\*[24]

#### 1942: Guadalcanal

In June 1942, *Kirishima* sailed as part of the Carrier Strike Force during the Battle of Midway, providing escort for Admiral Nagumo’s four fast carriers alongside *Haruna*.\*[25] Following the disastrous battle, during which all four Japanese carriers were sunk or scuttled, she took on survivors from the four flattops before returning to Japan.\*[3] In August 1942, she departed Japan for the Solomon Islands in the company of *Hiei*,



Takao (center) and the Kirishima steaming for Guadalcanal, 14 November 1942



Washington fires on Kirishima during the Second Naval Battle of Guadalcanal on 15 November 1942

three carriers, three cruisers and eleven destroyers, in response to the American invasion of Guadalcanal. She escorted Japanese carriers during the Battle of the Eastern Solomons, during which the light carrier *Ryūjō* was sunk. <sup>[25]</sup> Following the battle, the fleet returned to Truk Naval Base. During the Battle of the Santa Cruz Islands, *Kirishima* was part of Rear Admiral Hiroaki Abe's Vanguard Force, which provided distant cover to Nagumo's carrier groups. <sup>[25]</sup> She was attacked by American dive-bombers on 26 October, yet remained undamaged.

On 10 November 1942, *Kirishima* departed Truk alongside *Hiei* and eleven destroyers in preparation to shell American positions on Guadalcanal in advance of a major transport convoy of Japanese troops. U.S. Navy reconnaissance aircraft spotted the Japanese fleet several days in advance, and deployed a force of two heavy cruisers, three light cruisers and eight destroyers under the command of Rear Admiral Daniel J. Callaghan in Ironbottom Sound to meet them. <sup>[26]</sup> At 01:24 on 13 November, the Japanese force was detected 28,000 yards (26 km) out by the light cruiser *USS Helena* (CL-50). In the ensuing First Naval Battle of Guadalcanal, the American task force concentrated the majority of their firepower on the battleship *Hiei*. <sup>[25]</sup> This enabled *Kirishima* to score multiple hits on the heavy cruiser *USS San Francisco* (CA-38). Both *Hiei* and *Kirishima* raked the *San Francisco* with shellfire, killing Rear Admiral Callaghan. <sup>[27]</sup> However, *Hiei* was in turn crippled by *San Francisco* and several American destroyers. With *Hiei* effectively out of the battle, *Kirishima* and the surviving destroyers withdrew to the north. On the morning of 13 November, she was ordered to tow *Hiei* to safety. <sup>[3]</sup> However, the heavily damaged battleship came under air attack, and was eventually abandoned and scuttled. <sup>[28]</sup> <sup>[29]</sup>

**Loss** On the evening of 13 November, *Kirishima* and her escorting destroyers were joined by the Fourth Cruiser Division, of *Atago* and *Takao*, and prepared to reenter Ironbottom Sound under the command of Admiral Nobutake Kondō. <sup>[30]</sup> In the early morning of 14 November, the Japanese bombarded Guadalcanal before

withdrawing. Aware of the damage suffered by his ships the previous night, Admiral William Halsey reinforced the American naval units with the battleships *USS South Dakota* (BB-57) and *USS Washington* (BB-56), under the command of Rear Admiral Willis Lee. <sup>[28]</sup>

The two fleets made contact on 14 November at 23:01. They exchanged gunfire and torpedoes, with four American destroyers disabled (three would later sink), while the *Ayanami* was crippled by *Washington* and *South Dakota*. <sup>[31]</sup> At 23:40, *South Dakota* suffered a series of electrical failures, crippling her radar, radios and gun batteries. <sup>[32]</sup> *Kirishima* and the heavy cruiser *Atago* illuminated the battleship with searchlights, and almost all of Kondō's force opened fire. <sup>[32]</sup> *Kirishima* managed to hit *South Dakota* with one salvo of 14-inch shells and numerous salvos from her secondary battery, which knocked out the battleship's fire control systems and communications. Lee's flagship *Washington*, undetected, managed to evade the Japanese fleet, and at midnight fired on *Kirishima* from 5,800 yards (5,300 m). <sup>[32]</sup> <sup>[33]</sup>

*Kirishima* was hit by nine primary and forty secondary battery salvos, jamming her rear 14-inch turrets and steering, and causing the battleship to list 18 degrees to starboard. When it became clear she could not be salvaged, the surviving Japanese destroyers evacuated CO Captain Iwabuchi Sanji and 1,098 survivors. <sup>[3]</sup> *Kirishima* capsized at 03:25 on the morning of 15 November 1942, with 212 crewmen lost. <sup>[28]</sup> <sup>[34]</sup>

The official U.S. Navy history of the engagement, based on an interview with a single surviving crewmember, states that the *Kirishima* was scuttled. <sup>[35]</sup>

However, more recent analysis based on an underwater survey of the wreck and the accounts of other survivors including *Kirishima*'s damage control officer has led at least one author to conclude that *Kirishima* was struck by up to 22 heavy shells, and capsized as a result of progressive flooding exacerbated by poor damage control. The analysis stated that *Kirishima*'s protective scheme was designed in mind with 1914-era AP shells with a non-delay fuse that would have detonated on her exterior ar-



mor. This would have been inadequate against the deep penetration AP shells that went through her armor (considered “incredibly thin by World War II standards”) before exploding, compromising her watertight integrity, as well as sending shell fragments to the boilers, and causing further damage by detonating the ready ammunition lockers for the casemate batteries. The author opined that the damage control team followed a “script” to counter flood every time that the ship listed, however this was rendered ineffective as it made the ship lower in the water, and allowing the progressive flooding of the middle deck and causing her to list again. \* [36]

In August 1992, Robert Ballard found and photographed the wreck of a *Kongō*-class battleship that is almost certainly the *Kirishima* in about 4000 feet of water lying completely upside down with her bow blown off ahead of the approximate location of her superstructure, suggesting an explosion of her forward 14-inch magazines. \* [37]

### 1.4.3 Notes

#### Footnotes

- [1] Sources disagree on the exact dates of the reconstruction. While *Conway's All the World's Fighting Ships* gives a beginning date of March 1927 and an end date of 31 March 1930, *Kirishima's Combined Fleet* Tabular Record of Movement states that it was from May 1927 to 16 April 1930. \* [1] \* [3]

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- [3] “Combined Fleet – tabular history of *Kirishima*”. Parshall, Jon; Bob Hackett, Sander Kingsepp, & Allyn Nevitt. Retrieved 23 May 2010.
- [4] Jackson (2008), p. 27
- [5] DiGiulian, Tony. “Japanese 14"/45 (35.6 cm) 41st Year Type”. Navweaps.com. Retrieved 26 February 2009.
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- [11] Willmott, p. 22

- [12] Jackson (2000), p. 67
- [13] Jackson (2000), p. 68
- [14] Jackson (2000), p. 69
- [15] Willmott, p. 45
- [16] Whitley, pp. 178, 180
- [17] Jackson (2000), p. 72
- [18] Willmott, p. 35
- [19] McCurtie, p. 185
- [20] Willmott, p. 50
- [21] Willmott, p. 51
- [22] Jackson (2000), p. 119
- [23] Jackson (2000), p. 120
- [24] Stille, p. 18
- [25] Stille, p. 19
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- [31] Frank, p. 478
- [32] Schom, p. 424
- [33] Garzke and Dulin, p. 44
- [34]
- [35]
- [36] [http://www.navweaps.com/index\\_lundgren/Kirishima\\_Damage\\_Analysis.pdf](http://www.navweaps.com/index_lundgren/Kirishima_Damage_Analysis.pdf)
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### 1.4.5 External links

- Construction of *Kirishima*

Coordinates: 9°05′S 159°42′E﻿ / ﻿9.083°S 159.700°E﻿ /

## Chapter 2

# Fusō class

### 2.1 Japanese battleship Fusō

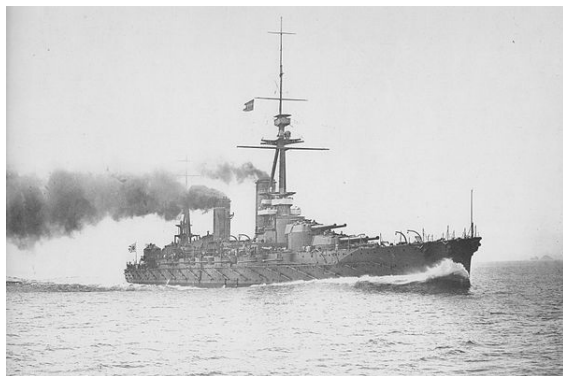
For the ironclad of the same name, see [Japanese ironclad Fusō](#).

*Fusō* (扶桑, a classical name for Japan) was the lead ship of the two *Fusō*-class dreadnought battleships built for the Imperial Japanese Navy. Launched in 1914 and commissioned in 1915, she initially patrolled off the coast of China, playing no part in [World War I](#). In 1923, she assisted survivors of the [Great Kanto Earthquake](#).

*Fusō* was modernized in 1930–35 and again in 1937–41, with improvements to her armor and machinery and a rebuilt superstructure in the [pagoda mast](#) style. With only [14-inch guns](#), she was outclassed by other Japanese battleships at the beginning of [World War II](#), and played auxiliary roles for most of the war.

*Fusō* was part of Vice-Admiral Shōji Nishimura's Southern Force at the [Battle of Leyte Gulf](#). She was sunk in the early hours of 25 October 1944 by [torpedoes](#) and naval gunfire during the [Battle of Surigao Strait](#). Some reports claimed that *Fusō* broke in half, and that both halves remained afloat and burning for an hour, but according to survivors' accounts, the ship sank after 40 minutes of flooding. Of the few dozen crewmen who escaped, only 10 survived to return to Japan.

#### 2.1.1 Description



*Fusō* on her sea trials, 24 August 1915

The ship had a length of 192.024 meters (630 ft) [between perpendiculars](#) and 202.7 meters (665 ft) [overall](#). She had a [beam](#) of 28.7 meters (94 ft 2 in) and a [draft](#) of 8.7 meters (29 ft).\* [1] *Fusō* [displaced](#) 29,326 long tons (29,797 t) at [standard load](#) and 35,900 long tons (36,500 t) at [full load](#).\* [2] Her crew consisted of 1,198 officers and enlisted men in 1915 and 1,396 in 1935. During [World War II](#), the crew probably totalled around 1,800–1,900 men.\* [3]

During the ship's first modernization during 1930–33, her forward superstructure was enlarged with multiple platforms added to her tripod foremast. Her rear superstructure was rebuilt to accommodate mounts for 127-millimeter (5.0 in) [anti-aircraft \(AA\)](#) guns and additional [fire-control directors](#). *Fusō* was also given [torpedo bulges](#) to improve her underwater protection and to compensate for the weight of the additional armor and equipment. During the second phase of her first reconstruction in 1934–35, *Fusō*'s torpedo bulge was enlarged and her stern was lengthened by 7.62 meters (25.0 ft). These changes increased her overall length to 212.75 m (698.0 ft), her beam to 33.1 m (108 ft 7 in) and her draft to 9.69 meters (31 ft 9 in). Her displacement increased by nearly 4,000 long tons (4,100 t) to 39,154 long tons (39,782 t) at deep load.\* [4]

#### Propulsion

The ship had two sets of [Brown-Curtis](#) direct-drive [steam turbines](#), each of which drove two propeller shafts. The turbines were designed to produce a total of 40,000 [shaft horsepower](#) (30,000 kW), using steam provided by 24 [Miyahara-type water-tube boilers](#), each of which consumed a mixture of coal and oil. *Fusō* had a stowage capacity of 4,000 long tons (4,100 t) of coal and 1,000 long tons (1,000 t) of [fuel oil](#),\* [5] giving her a range of 8,000 [nautical miles](#) (15,000 km; 9,200 mi) at a speed of 14 [knots](#) (26 km/h; 16 mph). The ship exceeded her design speed of 22.5 knots (41.7 km/h; 25.9 mph) during her [sea trials](#), reaching 23 knots (43 km/h; 26 mph) at 46,500 shp (34,700 kW).\* [6]

During her first modernization, the Miyahara boilers were replaced by six new [Kanpon](#) oil-fired boilers fitted in the former aft boiler room, and the forward [funnel](#) was re-

moved. The Brown-Curtis turbines were replaced by four geared Kanpon turbines with a designed output of 75,000 shp (56,000 kW).<sup>[5]</sup> During her 1933 trials, *Fusō* reached a top speed of 24.7 knots (45.7 km/h; 28.4 mph) from 76,889 shp (57,336 kW).<sup>[1]</sup> The fuel storage of the ship was increased to a total of 5,100 long tons (5,200 t) of fuel oil that gave her a range of 11,800 nautical miles (21,900 km; 13,600 mi) at a speed of 16 knots (30 km/h; 18 mph).<sup>[5]</sup>

### Armament

The twelve 45-caliber 14-inch guns of *Fusō* were mounted in six twin-gun turrets, numbered one through six from front to rear, each with an elevation range of −5 to +30 degrees.<sup>[7]</sup> The turrets were arranged in an uncommon 2-1-1-2 style with superfiring pairs of turrets fore and aft; the middle turrets were not superfiring, and had a funnel between them. The main guns and their turrets were modernized during the ship's 1930 reconstruction; the elevation of the main guns was increased to +43 degrees, increasing their maximum range from 27,800 to 35,450 yards (25,420 to 32,420 m). Initially, the guns could fire at a rate of 1.5 rounds per minute, and this was also improved during her first modernization.<sup>[7]</sup> The orientation of Turret No. 3 was reversed during the modernization; it now faced forward.<sup>[8]</sup>

Originally, *Fusō* was fitted with a secondary armament of sixteen 50-caliber six-inch guns mounted in casemates on the upper sides of the hull. The gun had a maximum range of 22,970 yards (21,000 m)<sup>[9]</sup> and fired at a rate of up to six shots per minute.<sup>[10]</sup> She was fitted with five 40-caliber three-inch AA guns in 1918. The high-angle guns were in single mounts on both sides of the forward superstructure and both sides of the second funnel, as well as on the port side of the aft superstructure.<sup>[9]</sup> These guns had a maximum elevation of +75 degrees, and could fire a 5.99-kilogram (13.2 lb) shell at a rate of 13 to 20 rounds per minute to a maximum height of 7,200 meters (23,600 ft).<sup>[11]</sup> The ship was also fitted with six submerged 533-millimeter (21.0 in) torpedo tubes, three on each broadside.<sup>[3]</sup>

During the first phase of *Fusō*'s modernization of the early 1930s, all five three-inch guns were removed and replaced with eight 40-caliber 127-millimeter dual-purpose guns, fitted on both sides of the fore and aft superstructures in four twin-gun mounts.<sup>[12]</sup> When firing at surface targets, the guns had a range of 14,700 meters (16,100 yd); they had a maximum ceiling of 9,440 meters (30,970 ft) at their maximum elevation of +90 degrees. Their maximum rate of fire was 14 rounds a minute, but their sustained rate of fire was around eight rounds per minute.<sup>[13]</sup> At this time, the ship was also provided with four quadruple mounts for the license-built Type 93 13.2 mm machine guns, two on the pagoda mast and one on each side of the funnel. The maximum range of these guns was 6,500 meters (7,100 yd), but the effective range

against aircraft was only 1,000 meters (1,100 yd). The cyclic rate was adjustable between 425 and 475 rounds per minute, but the need to change 30-round magazines reduced the effective rate to 250 rounds per minute.<sup>[14]</sup>

The improvements made during the first reconstruction increased *Fusō*'s draft by 1 meter (3 ft 3 in), soaking the two foremost six-inch guns, so they were removed during the first phase of the ship's second modernization in 1937 and 1938.<sup>[15]</sup> During this same phase, the Type 93 13.2-millimeter (0.52 in) machine guns were replaced by eight 25 mm Type 96 light AA guns in twin-gun mounts. Four of these mounts were fitted on the forward superstructure, one on each side of the funnel and two on the rear superstructure.<sup>[3]</sup> This was the standard Japanese light AA gun during World War II, but it suffered from severe design shortcomings that rendered it a largely ineffective weapon. According to historian Mark Stille, the twin and triple mounts "lacked sufficient speed in train or elevation; the gun sights were unable to handle fast targets; the gun exhibited excessive vibration; the magazine was too small, and, finally, the gun produced excessive muzzle blast".<sup>[16]</sup> The configuration of the AA guns varied significantly; in July 1943, 17 single and two twin-mounts were added for a total of 37.<sup>[17]</sup> In July 1944, the ship was fitted with additional AA guns: 23 single, six twin and eight triple-mounts, for a total of 95 in her final configuration.<sup>[18]</sup> These 25-millimeter (0.98 in) guns had an effective range of 1,500–3,000 meters (1,600–3,300 yd), and an effective ceiling of 5,500 meters (18,000 ft) at an elevation of +85 degrees. The maximum effective rate of fire was only between 110 and 120 rounds per minute because of the frequent need to change the fifteen-round magazines.<sup>[19]</sup>

### Armor

The ship's waterline armor belt was 305 to 229 millimeters (12 to 9 in) thick; below it was a strake of 102 mm (4 in) armor. The deck armor ranged in thickness from 32 to 51 mm (1.3 to 2.0 in). The turrets were protected with an armor thickness of 279.4 mm (11.0 in) on the face, 228.6 mm (9.0 in) on the sides, and 114.5 mm (4.51 in) on the roof. The barbettes of the turrets were protected by armor 305 mm thick, while the casemates of the 152 mm guns were protected by 152 mm armor plates. The sides of the conning tower were 351 millimeters (13.8 in) thick. The vessel contained 737 watertight compartments (574 underneath the armor deck, 163 above) to preserve buoyancy in the event of battle damage.<sup>[20]</sup>

During her first reconstruction *Fusō*'s armor was substantially upgraded. The deck armor was increased to a maximum thickness of 114 mm (4.5 in). A longitudinal bulkhead of 76 mm (3.0 in) of high-tensile steel was added to improve underwater protection.<sup>[21]</sup>



### Aircraft

*Fusō* was briefly fitted with an aircraft flying-off platform on Turret No. 2 in 1924. During the first phase of her first modernization, a catapult was fitted on the roof of Turret No. 3 and the ship was equipped to operate three floatplanes, although no hangar was provided. The initial Nakajima E4N2 biplanes were replaced by Nakajima E8N2 biplanes in 1938. *Fusō*'s ability to operate her aircraft was greatly improved during the second phase of her second modernization in 1940–41 when the aircraft handling equipment was moved to the stern and a new catapult was installed. Mitsubishi F1M biplanes replaced the E8Ns from 1942 on.\*[22]

### Fire control and sensors

When completed in 1915, *Fusō* had two 3.5-meter (11 ft 6 in) and two 1.5-meter (4 ft 11 in) rangefinders in her forward superstructure, a 4.5-meter (14 ft 9 in) rangefinder on the roof of Turret No. 2, and 4.5-meter rangefinders in Turrets 3, 4, and 5. In late 1917 a fire-control director was installed on a platform on the foremast. The 4.5-meter rangefinders were replaced by 8-meter (26 ft 3 in) instruments in 1923. During the ship's first modernization, four directors for the 12.7 mm AA guns were added, one each on each side of the fore and aft superstructures, and an eight-meter rangefinder was installed at the top of the pagoda mast. This was replaced by a 10-meter (32 ft 10 in) rangefinder during 1938. At this same time, the two 3.5-meter rangefinders on the forward superstructure were replaced by directors for the 25 mm AA guns. Additional 25 mm directors were installed on platforms on each side of the funnel.\*[23]

While in drydock in July 1943, Type 21 air search radar was installed on the roof of the 10-meter rangefinder at the top of the pagoda mast. In August 1944, two Type 22 surface search radar units were installed on the pagoda mast and two Type 13 early warning radar units were fitted on the funnel. *Fusō* was the only Japanese battleship to mount radar on her funnel.\*[24]

## 2.1.2 Construction and service



*Fusō* at anchor in Yokohama, 3 February 1928

Given a classical name for Japan,\*[25] *Fusō* was laid

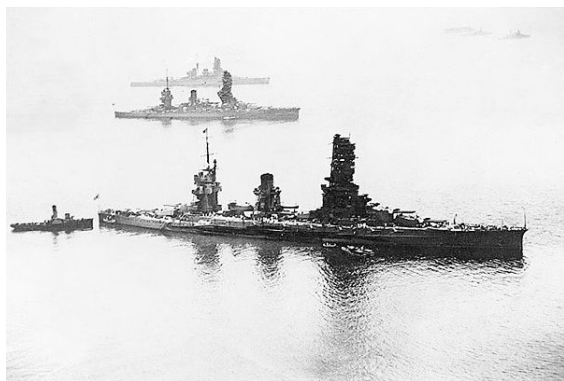
down at the Kure Naval Arsenal on 11 March 1912 and launched on 28 March 1914. She was commissioned on 8 November 1915 and assigned to the 1st Division,\*[Note 1] of the 1st Fleet on 13 December.\*[26] under the command of Captain Kōzō Satō.\*[27]\*[28] The ship did not take part in any combat during World War I, as there were no longer any forces of the Central Powers in Asia by the time she was completed; she patrolled off the coast of China during that time. The ship served as the flagship of the 1st Division during 1917 and 1918.\*[29] During the ship's period in reserve in 1918, five 76.2 mm anti-aircraft guns were installed. She aided survivors of the Great Kanto Earthquake between 9 and 22 September 1923. Captain Mitsumasa Yonai assumed command on 1 July 1924 and was relieved on 1 November by Captain Sankichi Takahashi\*[30]\*[31] In the 1920s, *Fusō* conducted training off the coast of China and was often placed in reserve.\*[32]

The first phase of the ship's first modernization began on 12 April 1930 at the Yokosuka Naval Arsenal; machinery was replaced, armor was reinforced, and torpedo bulges were fitted. *Fusō* arrived on 26 September 1932 at Kure Naval Arsenal, where her armament was upgraded and her torpedo tubes were removed. Her sea trials began on 12 May 1933, and the second phase of her modernization began less than a year later. The ship's stern was lengthened and work was completed in March 1935. Captain Jinichi Kusaka\*[33]\*[34] was assigned command from November 1935 to December 1936. After sporadic use for training for the next two years, *Fusō* was assigned as a training ship in 1936 and 1937.\*[35]

*Fusō* began the first phase of her second modernization on 26 February 1937, and Captain Hiroaki Abe assumed command on 1 December. He was relieved by Captain Ruitaro Fujita on 1 April 1938, the day after this phase of her modernization was completed. The ship was again assigned to the 1st Division of the 1st Fleet on 15 November. She briefly operated in Chinese waters in early 1939 before the second phase of her second modernization began on 12 December 1940. This was completed on 10 April 1941, and *Fusō* was assigned to the 2nd Division of the 1st Fleet.\*[36] Captain Mitsuo Kinoshita assumed command on 15 September, when the division consisted of the two *Fusō*-class and the two *Ise*-class battleships.\*[37]

### World War II

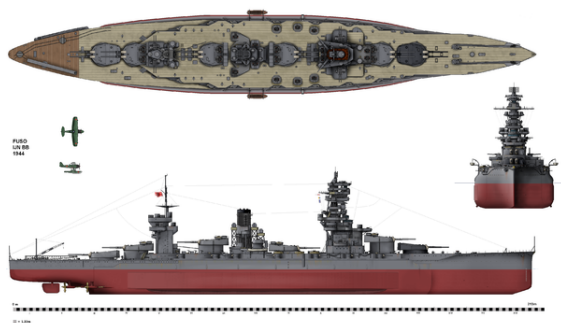
On 10 April 1941, *Fusō* was attached to the 2nd Division of the 1st Fleet.\*[38] When the war started for Japan on 8 December,\*[Note 2] the division, reinforced by the battleships *Nagato* and *Mutsu* and the light carrier *Hōshō*, sortied from Hashirajima to the Bonin Islands as distant support for the 1st Air Fleet attacking Pearl Harbor, and returned six days later. On 21 February 1942, the ship returned to the shipyard at Kure to replace her gun barrels, departing on 25 February. Together with the rest



*Fusō (middle), with Yamashiro (foreground) and Haruna (more distant), Tokyo Bay, 1930s*

of the 2nd Battleship Division, she pursued but did not catch the American carrier force that had launched the **Doolittle Raid** on 18 April 1942.\* [37]

*Fusō* and the rest of the 2nd Battleship Division set sail on 28 May 1942 with the Aleutian Support Group at the same time that most of the Imperial Fleet began an attack on **Midway Island** (Operation MI).\* [39]\* [40] Commanded by Vice-Admiral **Shirō Takasu**, the division was composed of Japan's four oldest battleships, including *Fusō*, accompanied by two light cruisers, 12 destroyers, and two oilers. Official records do not show the division as part of the larger Midway operation, known as Operation AL; they were to accompany the fleet under Admiral **Isoroku Yamamoto**, but were only to provide support to the Aleutian task force if needed.\* [41]



*Line drawing of Fusō as she appeared in 1944*

On 14 June, *Fusō* returned to Yokosuka and arrived back at Hashirajima on 24 June. In an effort to replace the aircraft carriers lost at the Battle of Midway, the navy made plans to convert the two *Fusō*-class ships to hybrid battleship-carriers, but the two *Ise*-class battleships were chosen instead. The ship was assigned to the **Imperial Japanese Naval Academy** at Etajima, Hiroshima, for use as a training ship between 15 November 1942 and 15 January 1943. Captain **Keizō Komura** assumed command on 5 December, and was relieved by Captain **Nobumichi Tsuruoka**\* [34]\* [42] on 1 June the next year. Seven days later, *Fusō* rescued 353 survivors from *Mutsu* when that ship exploded at Hashirajima.\* [37]

Between 18 and 24 July 1943, the ship was at the Kure drydock for fitting of radar and additional 25 mm AA guns. *Fusō* sailed from the **Inland Sea** on 18 August for **Truk** Naval Base, carrying supplies, and arrived five days later. The Japanese had intercepted American radio traffic that suggested an attack on **Wake Island**, and on 17 October, *Fusō* and the bulk of the 1st Fleet sailed for **Eniwetok** to be in a position to intercept any such attack. The fleet arrived on the 19th, departed four days later, and arrived back at Truk on 26 October.\* [37]

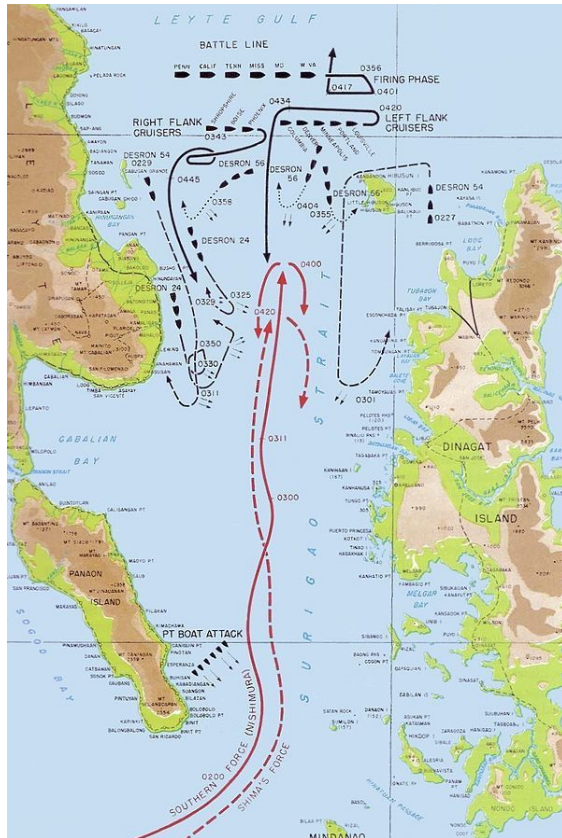
On 1 February 1944, *Fusō* departed Truk with *Nagato* to avoid an American air raid, and arrived at Palau on 4 February. They left on 16 February to escape another air raid. The ships arrived on 21 February at **Lingga Island**, and *Fusō* was employed there as a training ship.\* [43] A week later, Captain **Masami Ban** relieved Tsuruoka. The ship was refitted at Singapore between 13 and 27 April, and returned to Lingga. She was transferred to **Tawi-Tawi** on 11 May\* [37] and provided cover for the convoy that failed to reinforce **Biak Island** at the end of the month.\* [17]\* [44] *Fusō* transferred to **Tarakan Island** off **Borneo** to refuel in early July before returning to Japan and escaping an attack by the submarine *Pomfret*. In early August at Kure, she was refitted with additional radars and light AA guns. *Fusō* and her sister ship were transferred to Battleship Division 2 of the 2nd Fleet on 10 September, and *Fusō* became the flagship of the division under the command of Vice-Admiral **Shōji Nishimura** on 23 September. They departed Kure on 23 September for Lingga, escaping an attack by the submarine *Plaice* the next day, and arrived on 4 October, where Nishimura transferred his flag to *Yamashiro*. The ships then transferred to Brunei to refuel in preparation for Operation **Shō-Gō**, the attempt to destroy the American fleet conducting the invasion of **Luzon**.\* [37]



*Fusō and Mogami under air attack during the Battle of Surigao Strait*

**Battle of Surigao Strait** Commanded by Rear Admiral Masami Ban, *Fusō* left Brunei at 15:30 on 22 October 1944 as part of Nishimura's Southern Force, heading east into the **Sulu Sea** and then to the northeast into the **Mindanao Sea**. Intending to join Vice-Admiral





*The Battle of Surigao Strait*

Takeo Kurita's force in Leyte Gulf, they passed west of Mindanao Island into Surigao Strait, where they met a large force of battleships and cruisers lying in wait. The Battle of Surigao Strait became the southernmost action in the Battle of Leyte Gulf. \* [45]

At 09:08 on 24 October, *Fusō*, *Yamashiro* and the heavy cruiser *Mogami* spotted a group of 27 planes, including TBF Avenger torpedo bombers and SB2C Helldiver dive bombers escorted by F6F Hellcat fighters, coming from the carrier *Enterprise*. A bomb from one of them destroyed the catapult and both floatplanes. Another bomb hit the ship near Turret No. 2 and penetrated the decks, killing everyone in No. 1 secondary battery; the ship began to list 2 degrees to starboard. Early the next morning, *Fusō* opened fire around 01:05 after a shape was spotted off the port bow; it turned out to be *Mogami*, and *Fusō*'s fire killed three sailors in that ship's sick bay. \* [46]

One or two torpedoes, possibly fired by the destroyer *Melvin*, hit *Fusō* amidships on the starboard side at 03:09 on the 25th; she listed to starboard, slowed down, and fell out of formation. \* [47] Some Japanese and American eyewitnesses later claimed that *Fusō* broke in half, and that both halves remained afloat and burning for an hour, but they specifically mentioned only the size of the fire on the water, and not any details of the ship. \* [48] Historian John Toland agreed in 1970 that *Fusō* had broken in two, \* [49] but according to historian Anthony Tully in

2009: \* [50]

[Survivors' accounts] and the USS *Hutchins* report are describing a sinking and event at odds with the conventional record—one that seems far removed from the spectacle of the invariably alleged huge magazine explosion and blossom of light at 0338 that supposedly blew the battleship in half! ... *Fusō* was torpedoed, and as a result of progressive flooding, upended and capsized within forty minutes.

*Fusō* sank between 03:38 and 03:50; only a few dozen men survived the rapid foundering and oil fire. There is evidence that some of these were rescued by the destroyer *Asagumo*, which was itself sunk a short time later; it is also possible that some who escaped the sinking reached Leyte only to be killed by Filipinos, as is known to have happened to survivors from other Japanese warships sunk in the Battle of Surigao Strait. Ten crew members are known to have survived, all of whom returned to Japan. \* [51] *Fusō* was removed from the navy list on 31 August 1945. \* [37]

### 2.1.3 Notes

- [1] Skulski and Preston use Squadron while Hackett uses Bat-  
Div, presumably Battleship Division.
- [2] Japan Standard Time is 19 hours ahead of Hawaiian Stan-  
dard Time, so in Japan, the attack on Pearl Harbor hap-  
pened on 8 December.

### 2.1.4 Footnotes

- [1] Gardiner & Gray, p. 229
- [2] Jentschura, Jung and Mickel, p. 25
- [3] Skulski, p. 30
- [4] Skulski, pp. 11, 29
- [5] Skulski, p. 17
- [6] Jentschura, Jung and Mickel, pp. 25–26
- [7] Skulski, p. 18
- [8] Chesneau, p. 171
- [9] Skulski, p. 20
- [10] Campbell, p. 189
- [11] Campbell, p. 198
- [12] Skulski, p. 21
- [13] Campbell, pp. 192–93
- [14] Skulski, pp. 21–22

- [15] Skulski, pp. 20, 30
- [16] Stille, p. 11
- [17] Stille, p. 23
- [18] Skulski, p. 22
- [19] Campbell, p. 200
- [20] Skulski, pp. 16, 101, 163
- [21] Skulski, pp. 16, 101
- [22] Skulski, pp. 25–26
- [23] Skulski, pp. 28–29, 82, 84
- [24] Skulski, p. 26
- [25] Silverstone, p. 328
- [26] Skulski, p. 12
- [27] Nishida, Hiroshi. “Sato, Kozo, Vice admiral (Naval Academy 18th)”. *Imperial Japanese Navy*.
- [28] Parshall, Jon; Bob Hackett; Sander Kingsepp; Allyn Nevitt. CombinedFleet.com: *Fuso* Tabular record of movements “Imperial Japanese Navy Page (Combinedfleet.com)”.  
 [29] Preston, p. 199
- [30] Nishida, Hiroshi. “Takahashi, Sankichi, Admiral (Naval Academy 29th)”. *Imperial Japanese Navy*.
- [31] Skulski, pp. 12
- [32] Skulski, pp. 12, 28
- [33] Nishida, Hiroshi. “Kusaka Jinchi, Vice admiral (Naval Academy 37th)”. *Imperial Japanese Navy*.
- [34] Skulski, pp. 13
- [35] Skulski, pp. 12–13, 29
- [36] Skulski, pp. 13, 29
- [37] Hackett
- [38] Skulski, p. 13
- [39] Rohwer, pp. 168–69
- [40] Parshall & Tully, p. 454
- [41] Parshall & Tully, p. 46
- [42] Nishida, Hiroshi. “Tsuruoka, Nobukichi, Rear admiral (Naval Academy 43rd)”. *Imperial Japanese Navy*.
- [43] Skulski, p. 14
- [44] Rohwer, p. 325
- [45] Tully, pp. xi, 43, 56
- [46] Tully, pp. 66, 120
- [47] Tully, p. 152
- [48] Tully, pp. 275–77
- [49] Toland, pp. 697–98
- [50] Tully, p. 179
- [51] Tully, pp. 178, 179, 261

## 2.1.5 References

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### 2.1.6 External links

- Media related to *Fusō* at Wikimedia Commons
- Anthony Tully, “Shell Game at Surigao: The entangled fates of battleships Fuso and Yamashiro”, 1999

## 2.2 Japanese battleship Yamashiro

*Yamashiro* (山城 Mountain castle) was the second of two *Fusō*-class dreadnought battleships built for the Imperial Japanese Navy. Launched in 1915 and commissioned in 1917, she initially patrolled off the coast of China, playing no part in World War I. In 1923, she assisted survivors of the Great Kanto Earthquake.

*Yamashiro* was modernized between 1930 and 1935, with improvements to her armor and machinery and a rebuilt superstructure in the pagoda mast style. Nevertheless, with only 14-inch guns, she was outclassed by other Japanese battleships at the beginning of World War II, and played auxiliary roles for most of the war.

By 1944, though, she was forced into front-line duty, serving as the flagship of Vice-Admiral Shōji Nishimura's Southern Force at the Battle of Surigao Strait, the southernmost action of the Battle of Leyte Gulf. During fierce night fighting in the early hours of 25 October against a superior American force, *Yamashiro* was sunk by torpedoes and naval gunfire. Nishimura went down with his ship, and only 10 crewmembers survived.

### 2.2.1 Description

The ship had a length of 192.024 meters (630.00 ft) between perpendiculars and 202.7 meters (665 ft) overall. She had a beam of 28.7 meters (94 ft 2 in) and a draft of 8.7 meters (29 ft).<sup>[1]</sup> *Yamashiro* displaced 29,326 long tons (29,797 t) at standard load and 35,900 long tons (36,500 t) at full load. Her crew consisted of 1,198 officers and enlisted men in 1915 and about 1,400 in 1935.<sup>[2]</sup>

During the ship's modernization during 1930–35, her forward superstructure was enlarged with multiple platforms added to her tripod foremast. Her rear superstructure was rebuilt to accommodate mounts for 127-millimeter (5.0 in) anti-aircraft (AA) guns and additional fire-control directors. *Yamashiro* was also given torpedo bulges to improve her underwater protection and to compensate for the weight of the additional armor. In addition, her stern was lengthened by 7.62 meters (25.0 ft). These changes increased her overall length to 212.75 m (698.0 ft), her beam to 33.1 m (108 ft 7 in) and her draft to 9.69 meters (31 ft 9 in). Her displacement increased nearly 4,000 long tons (4,100 t) to 39,154 long tons (39,782 t) at deep load.<sup>[2]</sup>

### Propulsion

The ship had two sets of Brown-Curtis direct-drive steam turbines, each of which drove two propeller shafts. The turbines were designed to produce a total of 40,000 shaft horsepower (30,000 kW), using steam provided by 24 Miyahara-type water-tube boilers, each of which consumed a mixture of coal and oil. *Yamashiro* had a stowage capacity of 4,000 long tons (4,100 t) of coal and 1,000 long tons (1,000 t) of fuel oil,<sup>[3]</sup> giving her a range of 8,000 nautical miles (15,000 km; 9,200 mi) at a speed of 14 knots (26 km/h; 16 mph). The ship exceeded her designed speed of 22.5 knots (41.7 km/h; 25.9 mph) during her sea trials, reaching 23.3 knots (43.2 km/h; 26.8 mph) at 47,730 shp (35,590 kW).<sup>[4]</sup>

During her modernization, the Miyahara boilers were replaced by six new Kanpon oil-fired boilers fitted in the former aft boiler room, and the forward funnel was removed. The Brown-Curtis turbines were replaced by four geared Kanpon turbines with a designed output of 75,000 shp (56,000 kW). On her trials, *Yamashiro*'s sister ship *Fusō* reached a top speed of 24.7 knots (45.7 km/h; 28.4 mph) from 76,889 shp (57,336 kW).<sup>[1]</sup> The fuel storage of the ship was increased to a total of 5,100 long tons (5,200 t) of fuel oil that gave her a range of 11,800 nautical miles (21,900 km; 13,600 mi) at a speed of 16 knots (30 km/h; 18 mph).<sup>[3]</sup>

### Armament

The twelve 45-calibre 14-inch guns of *Yamashiro* were mounted in six twin-gun turrets, numbered one through six from front to rear, each with an elevation range of −5 to +30 degrees.<sup>[5]</sup> The turrets were arranged in an unorthodox 2-1-1-2 style with superfiring pairs of turrets fore and aft; the middle turrets were not superfiring, and had a funnel between them. The main guns and their turrets were modernized during the ship's 1930 reconstruction; the maximum elevation of the main guns was increased to +43 degrees, increasing their maximum range from 25,420 to 32,420 metres (27,800 to 35,450 yd). Initially, the guns could fire at a rate of 1.5 rounds per minute, and this was also improved during her first modernization.<sup>[5]</sup>

Originally, *Yamashiro* was fitted with a secondary armament of sixteen 50-caliber 6-inch guns mounted in casemates on the upper sides of the hull. Each gun could fire a high-explosive projectile to a maximum range of 22,970 yards (21,000 m)<sup>[6]</sup> at up to six shots per minute.<sup>[7]</sup> She was later fitted with six high-angle 40-caliber three-inch AA guns, in single mounts on both sides of the forward superstructure and both sides of the second funnel, as well as on both sides of the aft superstructure.<sup>[1]</sup> These guns had a maximum elevation of +75 degrees, and could fire a 5.99-kilogram (13.2 lb) shell at a rate of 13 to 20 rounds per minute to a maximum height of 7,200 meters (23,600 ft).<sup>[8]</sup> The ship



was also fitted with six submerged 533-millimeter (21.0 in) **torpedo tubes**, three on each **broadside**.\*[9]



*Yamashiro and the aircraft carrier Kaga in Kobe Bay, October 1930*

During *Yamashiro*'s modernization in the early 1930s, all six three-inch guns were removed and replaced with eight 40-caliber **127-millimeter dual-purpose guns**, fitted on both sides of the fore and aft superstructures in four twin-gun mounts.\*[10] When firing at surface targets, the guns had a range of 14,700 meters (16,100 yd); they had a maximum ceiling of 9,440 meters (30,970 ft) at their maximum elevation of +90 degrees. Their maximum rate of fire was 14 rounds a minute, but their sustained rate of fire was around eight rounds per minute.\*[11]

The improvements made during the reconstruction increased *Yamashiro*'s draft by 1 meter (3 ft 3 in); the two foremost six-inch guns were removed, as the same guns on her sister ship *Fusō* had gotten soaked in high seas after that ship's reconstruction. The ship's light-AA armament was augmented by eight **25 mm Type 96 light AA guns** in twin-gun mounts. Four of these mounts were fitted on the forward superstructure, one on each side of the funnel and two on the rear superstructure.\*[9] This was the standard Japanese light-AA gun during World War II, but it suffered from severe design shortcomings that rendered it a largely ineffective weapon. According to historian Mark Stille, the twin and triple mounts "lacked sufficient speed in train or elevation; the gun sights were unable to handle fast targets; the gun exhibited excessive vibration; the magazine was too small, and, finally, the gun produced excessive muzzle blast".\*[12] The configuration of the AA guns varied significantly over time; in 1943, 17 single and two twin-mounts were added for a total of 37.\*[13] In July 1944, the ship was fitted with another 24 single, nine twin and eight triple-mounts, for a total of 92 anti-aircraft guns in her final configuration.\*[14] The 25-millimeter (0.98 in) gun had an effective range of 1,500–3,000 meters (1,600–3,300 yd), and an effective ceiling of 5,500 meters (18,000 ft) at an elevation of 85 degrees. The maximum effective rate of fire was only between 110 and 120 rounds per minute because of the frequent need to change the fifteen-round magazines.\*[15]

Also in July 1944, the ship was provided with three twin-gun and 10 single mounts for the license-built **13.2 mm**

**Hotchkiss machine gun**.\*[14] The maximum range of these guns was 6,500 meters (7,100 yd), but the effective range against aircraft was only 1,000 meters (1,100 yd). The cyclic rate was adjustable between 425 and 475 rounds per minute, but the need to change 30-round **magazines** reduced the effective rate to 250 rounds per minute.\*[16]

## Armor

The ship's **waterline armor belt** was 229 to 305 millimeters (9 to 12 in) thick; below it was a **strake** of 102 mm (4 in) armor. The **deck armor** ranged in thickness from 32 to 51 mm (1.3 to 2.0 in). The turrets were protected with an armor thickness of 279.4 mm (11.0 in) on the face, 228.6 mm (9.0 in) on the sides, and 114.5 mm (4.51 in) on the roof. The **barbettes** of the turrets were protected by armor 305 mm thick, while the casemates of the 152 mm guns were protected by 152 mm armor plates. The sides of the **conning tower** were 351 millimeters (13.8 in) thick. Additionally, the vessel contained 737 watertight compartments (574 underneath the armor deck, 163 above) to preserve buoyancy in the event of battle damage.\*[17]

During her first reconstruction *Yamashiro*'s armor was substantially upgraded. The deck armor was increased to a maximum thickness of 114 mm (4.5 in). A longitudinal **bulkhead** of 76 mm (3.0 in) of high-tensile steel was added to improve the underwater protection.\*[18]

## Aircraft

*Yamashiro* was briefly fitted with an aircraft **flying-off platform** on Turret No. 2 in 1922. She successfully launched **Gloster Sparrowhawk** and **Sopwith Camel fighters** from it, the first Japanese ship to do so. During her modernization in the 1930s, a **catapult** and a collapsible **crane** were fitted on the stern, and the ship was equipped to operate three **floatplanes**, although no **hangar** was provided. The initial **Nakajima E4N2 biplanes** were replaced by **Nakajima E8N2 biplanes** in 1938 and then by **Mitsubishi F1M biplanes**, from 1942 on.\*[19]

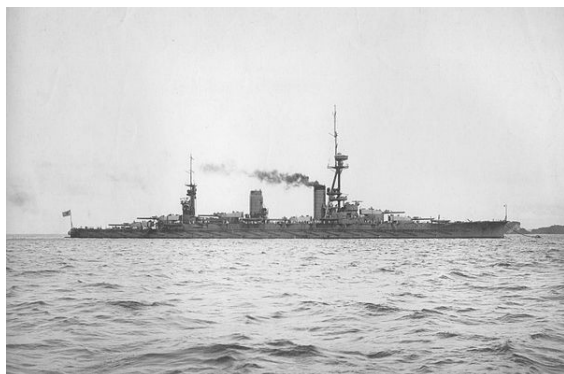
## Fire control and sensors

The ship was originally fitted with two 3.5-meter (11 ft 6 in) and two 1.5-meter (4 ft 11 in) **rangefinders** in her forward superstructure, a 4.5-meter (14 ft 9 in) rangefinder on the roof of Turret No. 2, and 4.5-meter rangefinders in Turrets 3, 4, and 5.\*[20]

While in drydock in July 1943, a **Type 21 air search radar** was installed on the roof of the 10-meter rangefinder at the top of the pagoda mast. In August 1944, two **Type 22 surface search radar** units were installed on the pagoda mast and two **Type 13 early warning radar** units were fitted on her mainmast.\*[14]



## 2.2.2 Construction and service



Yamashiro at Yokosuka, Japan, 1917

*Yamashiro*, named for Yamashiro Province, the former province of Kyoto, [21] was laid down at the Yokosuka Naval Arsenal on 20 November 1913 and launched on 3 November 1915. She was completed on 31 March 1917 with Captain Suketomo Nakajima in command, [14] and was assigned to the 1st Division of the 1st Fleet in 1917–18. She did not take part in any combat during World War I, as there were no longer any forces of the Central Powers in East Asia by the time she was completed, [22] but she did patrol off the coast of China briefly during the war. On 29 March 1922, a Gloster Sparrowhawk fighter successfully took off from the ship. She aided survivors of the 1923 Great Kantō earthquake, in September 1923. Little detailed information is available about *Yamashiro*'s activities during the 1920s, although she did make a port visit to Ryojun Guard District, in Manchuria, on 5 April 1925 and also conducted training off the coast of China. [14]

The ship's reconstruction began on 18 December 1930 at the Yokosuka Naval Arsenal where her machinery was replaced, her armor was reinforced, and torpedo bulges were fitted. *Yamashiro*'s armament was also upgraded and her torpedo tubes were removed. Captain Chuichi Nagumo assumed command of the ship on 15 November 1934, her modernization was completed on 30 March 1935, and she became flagship of the Combined Fleet. Captain Masakichi Okuma relieved Nagumo on 15 November and he, in turn, was replaced by Captain Masami Kobayashi on 1 December 1936. *Yamashiro* began a lengthy refit on 27 June 1937 and Captain Kasuke Abe assumed command on 20 October. Her refit was completed on 31 March 1938 and Captain Kakuji Kakuta relieved Abe on 15 November. In early 1941, the ship experimentally launched radio-controlled Kawanishi E7K2 floatplanes. Captain Chozaemon Obata assumed command on 24 May 1941 and *Yamashiro* was assigned to the 1st Fleet's 2nd Division, [Note 1] consisting of the two *Fusō*-class and the two *Ise*-class battleships. [14]

## World War II

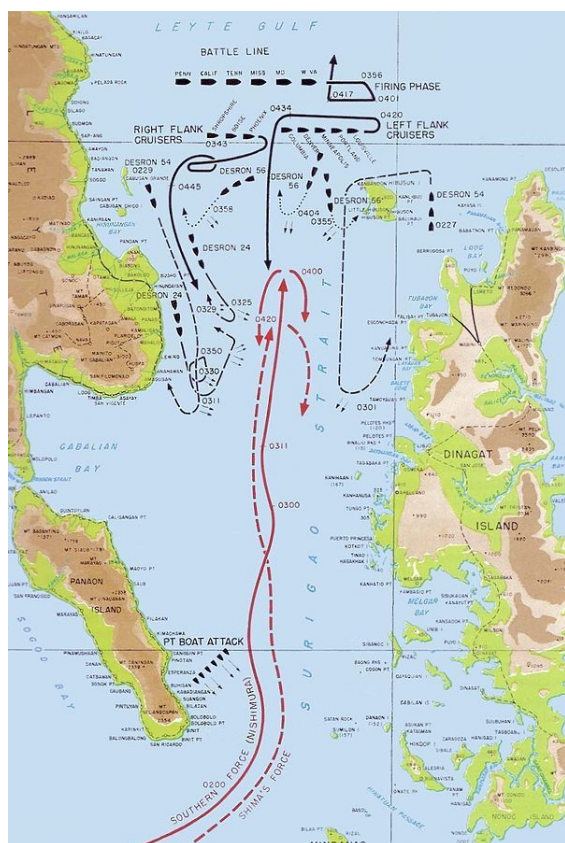
*Yamashiro* and her sister ship *Fusō* spent most of the war around Japan, mostly at the anchorage at Hashirajima in Hiroshima Bay. [13] When the war started for Japan on 8 December, [Note 2] the division, reinforced by the battleships *Nagato* and *Mutsu* and the light carrier *Hōshō*, sortied from Hashirajima to the Bonin Islands as distant support for the 1st Air Fleet attacking Pearl Harbor, and returned six days later. [14] On 18 April 1942, *Yamashiro* chased the Doolittle Raider force that had just launched an air raid on Tokyo, but returned four days later without having made contact. [23] On 28 May, she set sail, commanded by Captain Gunji Kogure, with the rest of the 2nd Battleship Division and the Aleutian Support Group at the same time that most of the Imperial Fleet began an attack on Midway Island (Operation MI). [24] [25] Commanded by Vice-Admiral Shirō Takasu, the division was composed of Japan's four oldest battleships, including *Yamashiro*, accompanied by two light cruisers, 12 destroyers, and two oilers. Official records do not show the squadron as part of the larger Midway operation, known as Operation AL; they were to accompany the fleet under Admiral Isoroku Yamamoto, but were only to provide support to the Aleutian task force if needed. [26] They were not needed, and *Yamashiro* returned to home waters where she was employed mostly for training duties, in the Inland Sea till 1 February 1943 and at Yokosuka until September, when she became a training ship for midshipmen. [13] [23]

In an effort to replace the aircraft carriers lost at the Battle of Midway, the Navy made plans to convert the two *Fusō*-class ships to hybrid battleship/carriers, but the two *Ise*-class battleships were chosen instead. In July 1943, *Yamashiro* was at the Yokosuka drydock for fitting of a radar and additional 25 mm AA guns. The ship was briefly assigned as a training ship on 15 September before loading troops on 13 October bound for Truk Naval Base, arriving with the battleship *Ise* on the 20th. The two battleships sailed for Japan, accompanied by the carriers *Junyō* and *Unyo*, on 31 October. [14] On 8 November, the submarine *USS Halibut* fired torpedoes at *Junyo* that missed, but hit *Yamashiro* with a torpedo that failed to detonate. [27] *Yamashiro* resumed her training duties in Japan, and Captain Yoshioki Tawara assumed command. He was promoted to Rear Admiral on 1 May, but died of natural causes four days later, [14] and Captain Katsukiyo Shinoda was appointed to replace him. [28]

During the US invasion of Saipan in June 1944, Japanese troop ships attempting to reinforce the defenses were sunk by submarines. Shigenori Kami, chief of operations of the Navy Staff, volunteered to command *Yamashiro* to carry troops and equipment to Saipan. If the ship actually reached the island, he intended to deliberately beach the ship before it could be sunk and to use its artillery to defend the island. After Ryūnosuke Kusaka, Chief of Staff of the Combined Fleet, also volunteered to go,

Prime Minister Hideki Tōjō approved the plan, known as Operation *Y-GO*, but the operation was cancelled after the decisive defeat in the **Battle of the Philippine Sea** on 19 and 20 June. \* [29]

The ship was refitted in July at Yokosuka, where additional radar systems and light AA guns were fitted. *Yamashiro* and her sister ship were transferred to Battleship Division 2 of the **2nd Fleet** on 10 September. The ship briefly became the division's **flagship** under Vice Admiral Shōji Nishimura until 23 September when he transferred his flag to *Fusō*. They departed Kure on 23 September for **Lingga Island**, carrying the Army's **25th Independent Mixed Regiment**, and escaped an attack by the submarine *Plaice* the next day. They arrived on 4 October, where Nishimura transferred his flag back to *Yamashiro*. The ships then transferred to Brunei to offload their troops and refuel in preparation for Operation *Shō-Gō*, the attempt to destroy the American fleet conducting the invasion of Luzon. \* [14]



*The Battle of Surigao Strait*

**Battle of Surigao Strait** As flagship of Nishimura's Southern Force, *Yamashiro* left Brunei at 15:30 on 22 October 1944, heading east into the Sulu Sea and then to the northeast into the **Mindanao Sea**. Intending to join Vice-Admiral Takeo Kurita's force in **Leyte Gulf**, they passed west of **Mindanao Island** into Surigao Strait, where they met a large force of battleships and cruisers lying in wait.

The **Battle of Surigao Strait** would become the southernmost action in the **Battle of Leyte Gulf**. \* [30]

At 09:08 on 24 October, *Yamashiro*, *Fusō* and the heavy cruiser *Mogami* spotted a group of 27 planes, including TBF Avenger torpedo bombers and SB2C Helldiver dive bombers escorted by F6F Hellcat fighters, coming from the carrier *Enterprise*. \* [31] Around 20 sailors on *Yamashiro* were killed by strafing and rocket attacks, and the ship listed by almost 15 degrees after a bomb's near miss damaged the hull and flooded the starboard bilge, until counter-flooding in the port bilge righted the ship. \* [32]

Nishimura issued a telegram to Admiral Soemu Toyoda at 20:13: "It is my plan to charge into Leyte Gulf to [reach] a point off Dulag at 04:00 hours on the 25th." \* [33] At 22:52, his force opened fire, damaging *PT 130* and *PT 152* and forcing them to retreat before they could launch their torpedoes. \* [34] Three American destroyers launched torpedoes at 03:00 that morning, hitting *Fusō* at 03:08 and forcing her to fall out of formation. *Yamashiro* opened fire with her secondary battery seven minutes later. \* [35] Around 03:11, the destroyers *Monssen* and *Killen* fired their torpedoes, one or two of which hit *Yamashiro* amidships. The resulting damage temporarily slowed the ship down, gave her a list to port and forced the flooding of the magazines for the two aft turrets. *Yamashiro* may have been hit a third time near the bow at 03:40. \* [36]

At 03:52, the battleship was attacked by a large formation to the north commanded by Rear Admiral Jesse Oldendorf. First came 6- and 8-inch (200 mm) shells from three heavy cruisers, *Louisville*, *Portland*, and *Minneapolis*, and four light cruisers, *Denver*, *Columbia*, *Phoenix* and *Boise*. \* [37] Six battleships formed a battle line; the Pearl Harbor veteran *West Virginia* was the first to open fire a minute later, scoring at least one hit with 16-inch (410 mm) shells in the first 20,800-meter (22,700 yd) salvo, \* [38] followed by *Tennessee* and *California*. Hampered by older radar equipment, *Maryland* joined the fight late, *Pennsylvania* never fired, \* [39] and *Mississippi* managed to fire exactly one salvo—the last of the engagement. The Australian heavy cruiser *HMAS Shropshire* also had radar problems and did not begin firing until 03:56. \* [40]

The main bombardment lasted 18 minutes, and *Yamashiro* was the only target for seven of them. \* [41] The first rounds hit the foremast and pagoda mast, and soon the entire battleship appeared to be ablaze. *Yamashiro*'s two forward turrets targeted her assailants, and the secondary armament targeted the American destroyers plaguing *Mogami* and the destroyer *Asagumo*. \* [42] The ship continued firing in all directions, but was not able to target the battleships with the other four operable 14-inch guns of her amidships turrets until almost 04:00, after turning west. \* [43] There was a big explosion at 04:04, possibly from one of the middle turrets. *Yamashiro* in-

creased her firing rate between 04:03 and 04:09, despite the widespread fires and damage, and was hit during this time near the starboard engine room by a torpedo. By 04:09, her speed was back up to 12 knots, and Nishimura wired to Kurita: “We proceed till totally annihilated. I have definitely accomplished my mission as pre-arranged. Please rest assured.” \*<sup>[44]</sup> At the same time, Oldendorf issued a brief cease-fire order to the entire formation after hearing that the destroyer *Albert W. Grant* was taking friendly fire, and the Japanese ships also ceased fire. \*<sup>[45]</sup>

*Yamashiro* increased speed to 15 knots in an attempt to escape the trap, \*<sup>[45]</sup> but she had already been hit by two to four torpedoes, and after two more torpedo hits near the starboard engine room, she was listing 45 degrees to port. Shinoda gave the command to abandon ship, but neither he nor Nishimura made any attempt to leave the conning tower as the ship capsized within five minutes and quickly sank, stern first, vanishing from radar between 04:19 and 04:21. \*<sup>[46]</sup> Only 10 crewmembers of the estimated 1,636 officers and crew on board survived. \*<sup>[47]</sup>

John Bennett claimed to have discovered *Yamashiro* 's wreck in April 2001, but confirmation of the wreck's identity has not been made as of 2013. \*<sup>[48]</sup>

### 2.2.3 Notes

- [1] Skulski and Preston use Squadron while Hackett uses Bat-Div, presumably Battleship Division.
- [2] Japan Standard Time is 19 hours ahead of Hawaiian Standard Time, so in Japan, the attack on Pearl Harbor happened on 8 December.

### 2.2.4 Footnotes

- [1] Gardiner & Gray, p. 229
- [2] Jentschura, Jung and Mickel, p. 25
- [3] Skulski, p. 17
- [4] Jentschura, Jung and Mickel, pp. 25–26
- [5] Skulski, p. 18
- [6] Skulski, p. 20
- [7] Campbell, p. 189
- [8] Campbell, p. 198
- [9] Skulski, p. 30
- [10] Skulski, p. 21
- [11] Campbell, pp. 192–93
- [12] Stille, p. 11
- [13] Stille, p. 23
- [14] Hackett
- [15] Campbell, p. 200
- [16] Skulski, pp. 21–22
- [17] Skulski, pp. 16, 101, 163
- [18] Skulski, pp. 16, 101
- [19] Skulski, pp. 25–26
- [20] Skulski, pp. 28–29
- [21] Silverstone, p. 339
- [22] Preston, p. 199
- [23] Whitley, p. 193
- [24] Rohwer, pp. 168–69
- [25] Parshall & Tully, p. 454
- [26] Parshall & Tully, p. 46
- [27] Tully, p. 30
- [28] Tully, p. 37
- [29] Tully, pp. 34–35
- [30] Tully, pp. xi, 43, 56
- [31] Tully, p. 66
- [32] Tully, pp. 68, 73
- [33] Tully, p. 100
- [34] Tully, pp. 110–12
- [35] Tully, pp. 149, 152–53
- [36] Tully, pp. 160, 171–72
- [37] Tully, pp. 184, 190
- [38] Tully, p. 191
- [39] Tully, pp. 195, 196, 206
- [40] Tully, pp. 195, 215
- [41] Tully, p. 197
- [42] Tully, pp. 198, 199
- [43] Tully, p. 206
- [44] Tully, p. 212
- [45] Tully, pp. 214–15
- [46] Tully, pp. 216–17
- [47] Tully, p. 218
- [48] Tully, Anthony P. (9 May 2001). “Important Announcement: Dives at Surigao Strait”. *A.P. Tully Message Board*. Combinedfleet.com. Retrieved 5 May 2013.

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### 2.2.6 External links

Media related to **Yamashiro** at Wikimedia Commons



# Chapter 3

## Ise class

### 3.1 Japanese battleship Ise

*Ise* (伊勢 (戦艦) *Ise* (*senkan*)), was the lead ship of the two-vessel *Ise*-class battleship of the Imperial Japanese Navy, which saw combat service during the Pacific War. *Ise* was named after Ise Province, one of the traditional provinces of Japan, now part of Mie Prefecture.

#### 3.1.1 Operational history

##### Early history

Originally planned to be the third *Fusō*-class battleship, experience gained in the construction of the *Fusō*-class revealed a number of design issues, including weak armament and protection, which forced a redesign and new classification.

*Ise* was laid down at the Kawasaki Heavy Industries shipyard in Kobe on 5 May 1915, launched on 12 November 1916, and completed on 15 December 1917 and assigned to the Kure Naval District.

Completed too late for service in World War I, in the early 1920s, *Ise* participated in numerous patrols off the Siberia coast and in northern waters in support of Japan's Siberian Intervention against the Bolshevik Red Army.

On 12 April 1922, while at Yokohama, *Ise* hosted a delegation which included the Prince of Wales (the future Edward VIII), who was accompanied by his second cousin, the future Lord Mountbatten of Burma. From the mid-1920s through the late 1930s, *Ise* patrolled mostly off of the China coast.

In 1928-1929, *Ise* was rebuilt at the Kure Naval Arsenal, with its foremast increased in height in the distinctive "pagoda" style similar to *Haruna*. The fore funnel was fitted with a curved smoke cap, and a flying off platform for Yokosuka E1Y2 Type 14 floatplanes was fitted atop No. 5 main turret. Later, from 1930-1931, additional searchlights and a derrick was installed at the stern for handling floatplanes.

However, a more complete upgrade occurred from 20 November 1931 – 10 February 1932 at Kure Naval Arsenal, which involved shortening the mainmast top section,

replacing all the 76 mm (3.0 in)/40 cal AA guns with eight Type 89 127 mm (5.0 in)/40 cal AA guns (4x2), and adding four Vickers Type 40 mm (1.6 in) AT/AA guns (2x2). The shielded 140 mm (5.5 in)/40 cal guns from the forecastle deck were removed and a catapult and aircraft handling crane were fitted to the fantail. On 14 May 1933, a second catapult and three Type 90 seaplanes were added.

From 1 August 1935, *Ise* was drydocked at Kure Naval Arsenal and underwent an extensive reconstruction and modernization. The 24 mixed-fired boilers were replaced by eight new Kampon oil-fired boilers and new Kampon geared turbines were fitted. Maximum speed increased to 25.4 kn (47.0 km/h; 29.2 mph) (25.21 kn (46.69 km/h; 29.01 mph) was reached during trials). The fore funnel was removed and stern lengthened by 7.62 m (25 ft). Anti-torpedo bulges were added and her six submerged torpedo tubes were removed. The elevation of *Ise*'s main battery (with the exception of the aftermost turret No. 6) was increased to 43°. Two forward 140 mm (5.5 in) casemate guns were removed. The elevation of secondary guns was increased from 20° to 30° and range increased from 15,800 m (51,800 ft) to 19,100 m (62,700 ft). Four 40 mm (1.6 in) Vickers AA guns were replaced by 10 Type 96 twin 25 mm (0.98 in)/60 cal AA guns. The original catapult was replaced by a Kure Type No. 2 Mod. 5 catapult and the aircraft handling deck was extended. Reconstruction was completed by 27 March 1937.

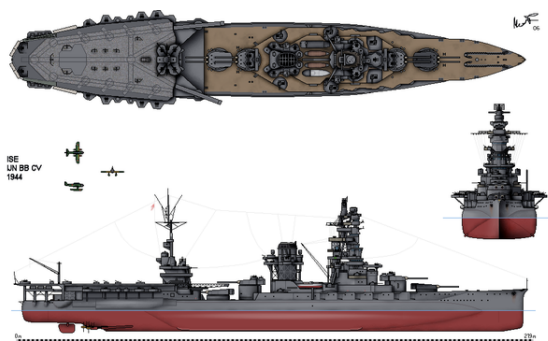
#### Start of the Pacific War

Despite these efforts at modernization and upgrading, *Ise* was still considered obsolete by the start of the Pacific War due to her relatively slow speed, large crew, and short range, and never saw combat as a battleship. *Ise* participated in the attack on Pearl Harbor (albeit on a sortie from Hashirajima as far as the Bonin Islands) and pursued but did not catch the American carrier force that had launched the Doolittle Raid on 18 April 1942.

In May, *Ise* had an accident which flooded her No. 2 engine room. During repair work, *Ise* was fitted with one of the first experimental model Type 21 radar sets in the Japanese navy.

## Reconstruction

To partially compensate for the loss of carrier strength at the **Battle of Midway**, Navy Aircraft Department began plans to convert the *Ise*-class battleships to full-sized aircraft carriers each carrying 54 planes. This concept was abandoned due to lack of time and resources and a hybrid battleship/carrier concept was adopted. *Ise* was dry-docked, and her aft No. 5 and No. 6 main turrets were removed and replaced by a hangar surmounted by a 70 m (230 ft) long flight deck and a "T"-shaped aircraft elevator. This was long enough to permit the launch of aircraft, but not their recovery. Plans called for the new hangar to carry nine planes inside, with 11 on deck and two on each catapult; however, it was later realized that a single faulty aircraft engine could ruin the whole concept. To prevent jams, the deck was fitted with two rails, 12 turntables, trolleys and tie-downs. Two 25 m (82 ft) Model 11 catapults were installed on tall supports on the port and starboard sides forward of the flight deck. A collapsible derrick crane was fitted port abaft. The new deck was covered with 200 mm (7.9 in) of concrete to compensate for the unbalanced condition created after removal of the aft armament. A 1 m (3 ft) thick layer of concrete was also poured around the main and reserve steering rooms and a 150 mm (5.9 in) horizontal armor cover was added.



*Ise* after 1944 reconstruction

Additional anti-aircraft weapons were installed to better fight off aerial attack. The eight single 127 mm (5.0 in) DP guns were replaced with eight twin-mounts, and the Type 96 25 mm (0.98 in) AA guns were increased from 20 to 57 (including 19 triple-mounts). Type 21 air-search radar and two Type 22 surface-search radars were also installed. As modified, *Ise* could carry 22 aircraft. The operational concept envisioned *Ise* accompanying the *Kido Butai* (Carrier Strike Force), and launching its 11 Yokosuka D4Y2 *Suisei* ( "Judy" ) dive bombers and 11 Aichi E16A *Zuiun* ( "Paul" ) seaplanes that are capable of diving attacks to add another 44 bombers to the Strike Force. The *Suisei* had to land either on a conventional carrier or on land bases, whereas the E16A could be hoisted back aboard after landing near the ship by using a crane. *Ise* 's final aircraft allowance called for 14 E16As and eight D4Y2s.



The rebuild was officially completed on 8 October 1943; however, as training with the new pilots was not completed by autumn 1944, *Ise* was never used in its new configuration in an operational mission. Its aircraft were offloaded to land bases, and *Ise* continued to be used as a pure battleship in the cover force.

*Ise* made a sortie to **Truk** in October 1943, conveying a detachment of the IJA 52 Division and supplies.

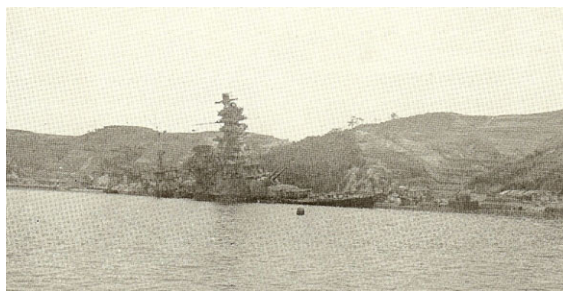
In a refit in Kure in May 1944, 47 additional Type 96 25 mm (0.98 in) AA guns (12 triple, 11 single mount) were added, bringing the total to 104 guns. Two Type 2 IFF units were also installed. In July, two Type 13 air-search radar and an E27 Radar detector were installed. From the end of September 1944, six racks of 30-tube, 127 mm (5.0 in) anti-aircraft rocket launchers were added. The rockets had multiple incendiary shrapnel charges and a timed fuse.

## Battle of Leyte Gulf and afterwards

*Ise* was slightly damaged in October 1944 in the **Battle off Cape Engaño**, during which *Ise* 's gunners shot down five of the 10 attacking dive bombers, suffering from one small hit on the No. 2 turret. *Ise* 's anti-aircraft cover was ineffective, and by the end of the battle, USN aircraft had sunk the Japanese aircraft carriers *Zuikaku*, *Zuihō*, and *Chitose* and the destroyer *Akizuki*. Towards the end of the battle, in the fourth attack, *Ise* was attacked by 85 dive bombers. After 34 near misses, *Ise* 's hull plates near the waterline ruptured and port boiler rooms were damaged; a bomb damaged the port catapult, and five crewmen were killed, with 71 wounded.

After returning to Japan, from 29 October, the aft catapults were removed to improve the firing arcs of the No. 3 and No. 4 turrets.

*Ise* was dispatched south to **Lingga** and **Singapore** in early 1945 for Operation Kita. On the approach to Singapore, *Ise* was slightly damaged by a naval mine. In Operation *Kita*, *Ise*, her sister ship *Hyuga*, and cruiser *Ōyodo* were loaded with critically needed strategic war supplies (oil, rubber, tin, zinc, and mercury) and evacuate 1,150 oil field personnel back to Japan. *Ise* arrived back safely in **Moji** on 19 February 1945, having evaded or escaped pursuit by twenty three Allied submarines along the way.



*Battleship Ise after sinking*

### Final role

From 25 February 1945 until the [surrender of Japan](#), *Ise* remained docked at Kure, without fuel or aircraft, and repainted in a [camouflage](#) olive green with splotches. The camouflage was not effective against USN Task Force 58 carrier-based aircraft on 19 March 1945, when more than 240 aircraft attacked Kure and *Ise* was hit by two bombs. Re-designated as a fourth-class reserve ship on 20 April, *Ise* was towed to Ondo Seto (between Kure and Kurashijima) to serve as a floating anti-aircraft battery. She was [attacked again](#) on 24 July by 60 carrier-based aircraft, whose bombs hit the starboard bow, flight deck, main deck, No. 3 turret and bridge, killing Captain Mutaguchi, other bridge officers and around 50 crewmen. On 28 July, in another attack on *Ise*, she was struck by five 450 kg (1,000 lb) bombs dropped by F4U Corsairs from USS *Hancock*, and eleven more bombs dropped by other aircraft from TF 58. *Ise* listed starboard and sank in shallow water at [34°15′N 132°31′E](#) / [34.250°N 132.517°E](#). She was removed from the [Navy list](#) on 20 November 1945.

*Ise* 's underwater hulk section was for some time left where it was and she was scrapped without being raised by the Kure Dockyard of the Harima Zosen Yard from 9 October 1946 – 4 July 1947.

### 3.1.2 Notes

### 3.1.3 References

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### 3.1.4 External links

- [Maritimequest.com](http://Maritimequest.com): *Ise* photo gallery
- [Tabular record of movement](#)

Coordinates: [34°15′20″N 132°30′58″E](#) / [34.25556°N 132.51611°E](#)

## 3.2 Japanese battleship Hyūga

*Hyūga* (日向), named for Hyūga Province in Kyūshū, was an *Ise*-class battleship of the Imperial Japanese Navy laid down by Mitsubishi on 6 May 1915, launched on 27 January 1917 and completed on 30 April 1918. She was initially designed as the fourth ship of the *Fusō*-class, but was heavily redesigned to fix shortcomings. *Hyūga* was extensively updated and reconstructed from 1926–28 and 1934–36.

### 3.2.1 World War II

At the outbreak of the Pacific war, *Hyūga* was part of the battleship force at the Combined Fleet's anchorage at Hashirajima. On 7 December she sortied for the Bonin Islands, (known in Japan as the Ogasawara Group), along with her sister ship *Ise* of Battle Division 3 and with the *Nagato* and *Mutsu* of Battle Division 1 as part of the reserve battle fleet for Operation Z (the attack on Pearl Harbor). The force returned to the Combined Fleet's anchorage at Hashirajima on 12 December 1941 and remained there until a 4 March raid against the Japanese base on Marcus Island (Minami Tori Shima), 1,200 miles off the coast of Japan, by Halsey and his Task Force 16 caused the IJN to sortie out in search of the American raiders. Halsey had steamed away at high speed once he recovered his aircraft and the Japanese were unable to make contact. April saw Halsey return, this time steaming within 650 miles of the Japanese home islands along with the *Hornet* of Task Force 18 to launch the Doolittle Raid. Once again *Hyūga* and the elements of the Combined Fleet sortied in chase, but Halsey and his group slipped away before the IJN could engage him.

In May 1942 while conducting gunnery practice along with *Nagato*, *Mutsu*, and *Yamashiro*, the *Hyūga*'s left gun breach in her No. 5 turret exploded, threatening the explosion of the magazine and the loss of the ship. Fifty-one crew members died in the explosion. The two aft magazines were rapidly flooded to save the ship. She returned to Kure for repairs. The number 5 turret was not replaced. Instead a circular sheet of steel plating was welded over the barbette and four 25mm triple mount anti-aircraft guns were fitted in its place. She sortied with the rest of BatDiv2 on May 29, 1942 as a screening force for the Aleutians task force, along with CruDiv9: two light cruisers, twelve destroyers and the fleet oilers.

After the disastrous Battle of Midway, the Japanese Navy considered plans to convert all battleships besides *Yamato* and *Musashi* into aircraft carriers. Ultimately, the Navy decided that only the *Hyūga* and *Ise* would be converted into hybrid battleship/carriers. *Hyūga* was reconstructed at the Sasebo Navy Yard from 1 May to 1 October 1943. *Hyūga* and her sister ship *Ise* had their two aft 356 mm (14 in) turrets (784 t (864 short tons) each) and barbettes (730 t (800 short tons) each) removed. They were replaced by

a small flight deck and hangar to launch a squadron of aircraft. To compensate for the weight loss and to preserve metacentric height, the flight deck was covered with 203 mm (8 in) of concrete. A single elevator was fitted.

Anti-aircraft weapons were also added to better fight off aerial attack. Her complement of 14 Yokosuka D4Y dive bombers and eight Aichi E16A seaplanes were catapult-launched, but landed either on conventional carriers or land bases. They could also be hoisted back on board with cranes. Because production of aircraft was severely depleted by then, *Hyūga* never carried the full complement.

*Hyūga* participated in the Battle off Cape Engaño in October 1944, commanded by Rear Admiral Kusagawa Kiyoshi. She and *Ise* departed Japan for Singapore in November and returned in February 1945 during Operation Kita. She was later attacked during the bombing of Kure by American aircraft from the aircraft carriers USS *Essex*, *Ticonderoga*, *Randolph*, *Hancock*, *Bennington*, *Monterey*, and *Bataan* from 24–28 July 1945, and her crew ran the ship aground in shallow waters.\*[1]

### 3.2.2 Fate

She was removed from the Navy List on 20 November 1945. From 2 July 1946 to 4 July 1947, she was raised and broken up by the Kure Dry-dock of Harima Zosen Yard.

### 3.2.3 Gallery

- *Hyūga* in the 1920s
- *Hyūga* sunk in shallow waters, 1945
- “This was Hyuga” by Standish Backus (watercolour, 1946) depicts her on the bottom at Niro Bay

### 3.2.4 Notes

- [1] Brehm, H. Paul. “The Hyuga Strike Mission: An Eyewitness Account,” *War Times Journal*.

### 3.2.5 References

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  - Slade, Stuart. “The Japanese Ise and Hyuga Hybrid Battleship-Carriers.” January 27, 1999.
  - *Ise et Hyūga Cuirassé porte-avions 2iemeGuerre*. (French)
- Coordinates: 34°10′0″N 132°32′59″E / 34.16667°N 132.54972°E

### 3.2.6 External links

- Media related to *Hyūga* at Wikimedia Commons
- Maritimequest.com: *Ise* photo gallery

## Chapter 4

# Nagato class

### 4.1 Japanese battleship Nagato

*Nagato* (長門), named for Nagato Province, was a dreadnought battleship built for the Imperial Japanese Navy (IJN) during the 1910s. The lead ship of her class, she carried supplies for the survivors of the Great Kantō earthquake in 1923. The ship was modernized in 1934–36 with improvements to her armor and machinery and a rebuilt superstructure in the pagoda mast style. *Nagato* briefly participated in the Second Sino-Japanese War in 1937 and was the flagship of Admiral Isoroku Yamamoto during the attack on Pearl Harbor. She covered the withdrawal of the attacking ships and did not participate in the attack itself.

Other than participating in the Battle of Midway in June 1942, where she did not see combat, the ship spent most of the first two years of the Pacific War training in home waters. She was transferred to Truk in mid-1943, but did not see any combat until the Battle of the Philippine Sea in mid-1944 when she was attacked by American aircraft. *Nagato* did not fire her main armament against enemy vessels until the Battle of Leyte Gulf in October 1944. She was lightly damaged during the battle and returned to Japan the following month. The IJN was running out of fuel by this time and decided not to fully repair her. *Nagato* was converted into a floating anti-aircraft platform and assigned to coastal defense duties. She was attacked in July 1945 as part of the American campaign to destroy the IJN's last remaining capital ships, but was only slightly damaged. In mid-1946, the ship was a target for nuclear weapon tests during Operation Crossroads. She survived the first test with little damage, but was sunk by the second.

#### 4.1.1 Description

*Nagato* had a length of 201.17 meters (660 ft 0 in) between perpendiculars and 215.8 meters (708 ft 0 in) overall. She had a beam of 29.02 meters (95 ft 3 in) and a draft of 9.08 meters (29 ft 9 in).<sup>[1]</sup> The ship displaced 32,720 metric tons (32,200 long tons) at standard load and 39,116 metric tons (38,498 long tons) at full load.<sup>[2]</sup> Her crew consisted of 1,333 officers and enlisted men

as built and 1,368 in 1935.<sup>[3]</sup> The crew totaled around 1,734 men in 1944.<sup>[4]</sup>



*Nagato and her crew in 1937 on the recently installed pagoda mast*

In 1930,<sup>[5]</sup> *Nagato*'s bow was remodeled to reduce the amount of spray produced when steaming into a head sea. This increased her overall length by 1.59 meters (5 ft 3 in) to 217.39 meters (713 ft 3 in). During her 1934–36 reconstruction, the ship's stern was lengthened by 7.55 meters (24.8 ft) to improve her speed and her forward superstructure was rebuilt into a pagoda mast. She was given torpedo bulges to improve her underwater protection and to compensate for the weight of the additional armor and equipment. These changes increased her overall length to 224.94 m (738.0 ft), her beam to 34.6 m (113 ft 6 in) and her draft to 9.49 meters (31 ft 2 in). Her displacement increased over 7,000 metric tons (6,900 long tons) to 46,690 metric tons (45,950 long tons) at deep load. The ship's metacentric height at deep load was 2.35 meters (7 ft 9 in).<sup>[6]</sup> In November 1944, the tops of *Nagato*'s mainmast and funnel were removed to improve the arcs of fire for her anti-aircraft guns.<sup>[7]</sup>

#### Propulsion

*Nagato* was equipped with four Gihon geared steam turbines, each of which drove one propeller shaft. The turbines were designed to produce a total of 80,000 shaft horsepower (60,000 kW), using steam provided by 21



*Nagato at anchor in Yokosuka, October 1927*

Kampon water-tube boilers; 15 of these were oil-fired while the remaining half-dozen consumed a mixture of coal and oil. The ship could carry 1,600 long tons (1,600 t) of coal and 3,400 long tons (3,500 t) of fuel oil,\* [2] giving her a range of 5,500 nautical miles (10,200 km; 6,300 mi) at a speed of 16 knots (30 km/h; 18 mph). The ship exceeded her designed speed of 26.5 knots (49.1 km/h; 30.5 mph) during her sea trials, reaching 26.7 knots (49.4 km/h; 30.7 mph) at 85,500 shp (63,800 kW).\* [3]

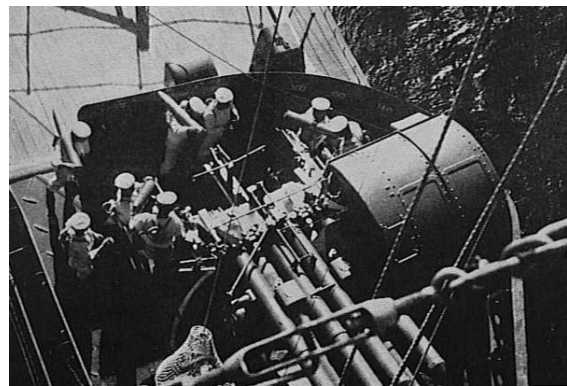
Funnel smoke would often choke and blind crewmen on the bridge and in the fire-control systems so a “finger-nail”-shaped deflector was installed on the fore funnel in 1922 to direct the exhaust away from them. It was less than effective and the fore funnel was rebuilt in a serpentine shape in an unsuccessful effort during a refit in 1924.\* [3] That funnel was eliminated during the ship's 1930s reconstruction when all of her boilers were replaced by ten oil-fired Kampon boilers, which had a working pressure of 22 kg/cm<sup>2</sup> (2,157 kPa; 313 psi) and temperature of 300 °C (572 °F).\* [8] In addition her turbines were replaced by lighter, more modern, units.\* [9] When *Nagato* conducted her post-reconstruction trials, she reached a speed of 24.98 knots (46.26 km/h; 28.75 mph) with 82,300 shp (61,400 kW).\* [10] Additional fuel oil was stored in the bottoms of the newly added torpedo bulges, which increased her capacity to 5,560 long tons (5,650 t) and thus her range to 8,560 nmi (15,850 km; 9,850 mi) at 16 knots.\* [2]

### Armament

*Nagato* 's eight 45-caliber 41-centimeter guns were mounted in two pairs of twin-gun, superfiring turrets fore and aft. Numbered one through four from front to rear, the hydraulically powered turrets gave the guns an elevation range of −2 to +35 degrees. The rate of fire for the guns was around two rounds per minute. The turrets aboard the *Nagato*-class ships were replaced in the mid-1930s with the turrets stored from the unfinished *Tosa*-class battleships. While in storage the turrets had been modified to increase their range of elevation to −3

to +43 degrees,\* [11] which increased the gun's maximum range from 30,200 to 37,900 meters (33,000 to 41,400 yd).\* [12]

The ship's secondary armament of twenty 50-caliber 14-centimeter guns was mounted in casemates on the upper sides of the hull and in the superstructure. The manually operated guns had a maximum range of 20,500 metres (22,400 yd) and fired at a rate of six to 10 rounds per minute.\* [13] Anti-aircraft defense was provided by four 40-caliber 3rd Year Type three-inch\* [Note 1] AA guns in single mounts. The 3-inch (76 mm) high-angle guns had a maximum elevation of +75 degrees, and had a rate of fire of 13 to 20 rounds per minute.\* [14] The ship was also fitted with eight 53.3-centimeter (21.0 in) torpedo tubes, four on each broadside, two above water and two submerged.\* [15]



*A twin 127 mm gun mount aboard Nagato*

Around 1926, the four above-water torpedo tubes were removed and the ship received three additional 76 mm AA guns that were situated around the base of the foremast.\* [16] They were replaced by eight 40-caliber 12.7-centimeter Type 89 dual-purpose guns in 1932,\* [7] fitted on both sides of the fore and aft superstructures in four twin-gun mounts.\* [17] When firing at surface targets, the guns had a range of 14,700 meters (16,100 yd); they had a maximum ceiling of 9,440 meters (30,970 ft) at their maximum elevation of +90 degrees. Their maximum rate of fire was 14 rounds a minute, but their sustained rate of fire was around eight rounds per minute.\* [18] Two twin-gun mounts for license-built Vickers two-pounder light AA guns were also added to the ship that same year.\* [7]\* [Note 2] These guns had a maximum elevation of +80 degrees which gave them a ceiling of 4,000 meters (13,000 ft).\* [20] They had a maximum rate of fire of 200 rounds per minute.\* [21]

When the ship was reconstructed in 1934–36, the remaining torpedo tubes and the two forward 14 cm guns were removed from the hull. The remaining 14 cm guns had their elevation increased to +35 degrees which increased their range to 20,000 meters (22,000 yd). An unknown number of license-built 13.2 mm Hotchkiss machine guns in twin mounts were added. The maximum range of these guns was 6,500 meters (7,100 yd),\* [22]

but the effective range against aircraft was 700–1,500 meters (770–1,640 yd). The cyclic rate was adjustable between 425 and 475 rounds per minute, but the need to change 30-round magazines reduced the effective rate to 250 rounds per minute.\*[23]

The unsatisfactory two-pounders were replaced in 1939 by twenty license-built Hotchkiss 25 mm Type 96 light AA guns in a mixture of twin-gun and single mounts.\*[7] This was the standard Japanese light AA gun during World War II, but it suffered from severe design shortcomings that rendered it a largely ineffective weapon. According to historian Mark Stille, the twin and triple mounts “lacked sufficient speed in train or elevation; the gun sights were unable to handle fast targets; the gun exhibited excessive vibration; the magazine was too small, and, finally, the gun produced excessive muzzle blast”.\*[24] These 25-millimeter (0.98 in) guns had an effective range of 1,500–3,000 meters (1,600–3,300 yd), and an effective ceiling of 5,500 meters (18,000 ft) at an elevation of 85 degrees. The maximum effective rate of fire was only between 110 and 120 rounds per minute because of the frequent need to change the fifteen-round magazines.\*[21] Additional 25 mm guns were installed during the war; on 10 July 1944, the ship was reported to have 98 guns on board. An additional 30 guns were added during a refit in Yokosuka in November. Two more twin 127 mm gun mounts were added at the same time abreast the funnel\*[25] and her 14 cm guns were removed as she was by then a floating anti-aircraft battery.\*[7]

## Armor

The ship's waterline armor belt was 305 mm (12 in) thick and tapered to a thickness of 100 mm (3.9 in) at its bottom edge; above it was a strake of 229 mm (9.0 in) armor. The main deck armor was 69 mm (2.7 in) while the lower deck was 75 mm (3 in) thick.\*[26] The turrets were protected with an armor thickness of 305 mm on the face, 230–190 mm (9.1–7.5 in) on the sides, and 152–127 mm (6.0–5.0 in) on the roof.\*[12] The barbettes of the turrets were protected by armor 305 mm thick, while the casemates of the 140 mm guns were protected by 25 mm armor plates. The sides of the conning tower were 369 mm (14.5 in) thick.\*[2]

The new 41 cm turrets installed during *Nagato*'s reconstruction were more heavily armored than the original ones. Face armor was increased to 460 mm (18.1 in), the sides to 280 mm (11.0 in), and the roof to 250–230 mm (9.8–9.1 in).\*[27] The armor over the machinery and magazines was increased by 38 mm on the upper deck and 25 mm on the upper armored deck.\*[9] These additions increased the weight of the ship's armor to 13,032 metric tons (12,826 long tons),\*[10] 32.6 percent of her displacement.\*[9] In early 1941, as a preparation for war,\*[7] *Nagato*'s barbette armor was reinforced with 100 mm (3.9 in) armor plates above the main deck and 215 mm (8.5 in) plates below it.\*[28]

## Fire control and sensors

When completed in 1920, the ship was fitted with a 10-meter (32 ft 10 in) rangefinder in the forward superstructure; six-meter (19 ft 8 in) and three-meter (9 ft 10 in) anti-aircraft rangefinders were added in May 1921 and 1923, respectively. The rangefinders in the second and third turrets were replaced by 10-meter units in 1932–33.\*[29]

*Nagato* was initially fitted with a Type 13 fire-control system derived from Vickers equipment received during World War I, but this was replaced by an improved Type 14 system around 1925. It controlled the main and secondary guns; no provision was made for anti-aircraft fire until the Type 31 fire-control director was introduced in 1932. A modified Type 14 fire-control system was tested aboard the ship in 1935 and later approved for service as the Type 34. A new anti-aircraft director called the Type 94 that was used to control the 127 mm AA guns was introduced in 1937, although when *Nagato* received hers is unknown. The 25 mm AA guns were controlled by a Type 95 director that was also introduced in 1937.\*[30]

While in drydock in May 1943, a Type 21 air search radar was installed on the roof of the 10-meter rangefinder at the top of the pagoda mast. On 27 June 1944, two Type 22 surface search radars were installed on the pagoda mast and two Type 13 early warning radars were fitted on her mainmast.\*[7]

## Aircraft

*Nagato* was fitted with an 18-meter (59 ft 1 in)\*[31] aircraft flying-off platform on Turret No. 2 in August 1925. Yokosuka Ro-go Ko-gata and Heinkel HD 25 floatplanes were tested from it before it was removed early the following year.\*[7] An additional boom was added to the mainmast in 1926 to handle the Yokosuka E1Y now assigned to the ship.\*[16] A Hansa-Brandenburg W.33 floatplane was tested aboard *Nagato* that same year.\*[7] A catapult was fitted between the mainmast and Turret No. 3\*[32] in mid-1933,\*[7] a collapsible crane was installed in a portside sponson, and the ship was equipped to operate two or three floatplanes, although no hangar was provided. The ship now operated Nakajima E4N2 biplanes until they were replaced by Nakajima E8N2 biplanes in 1938. A more powerful catapult was installed in November 1938 to handle heavier aircraft, such as the one Kawanishi E7K that was added in 1939–40. Mitsubishi F1M biplanes replaced the E8Ns on 11 February 1943.\*[33]

### 4.1.2 Construction and service

*Nagato*, named for Nagato Province,\*[34] was ordered on 12 May 1916\*[35] and laid down at the Kure Naval Arsenal on 28 August 1917 as the lead ship of her





*Nagato at sea just before the outbreak of the war.*

class. She was launched on 9 November 1919 by Admiral Katō Tomosaburō, completed on 15 November 1920 and commissioned 10 days later with Captain Nobutaro Iida in command. *Nagato* was assigned to the 1st Battleship Division and became the flagship of Rear Admiral Sōjirō Tochinai. On 13 February 1921, the ship was inspected by the Crown Prince, Hirohito. Captain Kanari Kabayama relieved Iida on 1 December 1921. The ship hosted Marshal Joseph Joffre on 18 February 1922 and Edward, Prince of Wales, and his aide-de-camp Lieutenant Louis Mountbatten on 12 April during the prince's visit to Japan. \* [7]



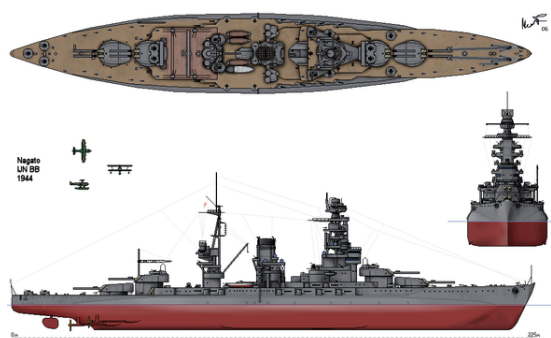
*Rear oblique view of Nagato at anchor in Kure, August 1942*

After the 1923 Great Kantō earthquake, *Nagato* loaded supplies from Kyushu for the victims on 4 September. Together with her sister ship *Mutsu*, she sank the hulk of the obsolete battleship *Satsuma* on 7 September 1924 during gunnery practice in Tokyo Bay in accordance with the Washington Naval Treaty. The ship was transferred to the reserve of the 1st Division on 1 December \* [36] and became a gunnery training ship. In August 1925, aircraft handling and take-off tests were conducted aboard *Nagato*. She was reassigned as the flagship of the Combined Fleet on 1 December, flying the flag of Admiral Keisuke

Okada. Captain Kiyoshi Hasegawa assumed command of the ship on 1 December 1926.

*Nagato* was again placed in reserve on 1 December 1931 and her anti-aircraft armament was upgraded the following year. In August 1933 the ship participated in fleet maneuvers north of the Marshall Islands and she began her first modernization on 1 April 1934. This was completed on 31 January 1936 and *Nagato* was assigned to the 1st Battleship Division of the 1st Fleet. During the attempted coup d'état on 26 February by disgruntled Army officers, the ship was deployed in Tokyo Bay and some of her sailors were landed in support of the government. In August, she transported 1,749 men of the 43rd Infantry Regiment of the 11th Infantry Division from Shikoku to Shanghai during the Second Sino-Japanese War. \* [7] Her floatplanes bombed targets in Shanghai on 24 August before she returned to Sasebo the following day. \* [37] *Nagato* became a training ship on 1 December until she again became the flagship of the Combined Fleet on 15 December 1938. The ship participated in an Imperial Fleet Review on 11 October 1940. She was refitted in early 1941 in preparation for war. \* [7]

## World War II



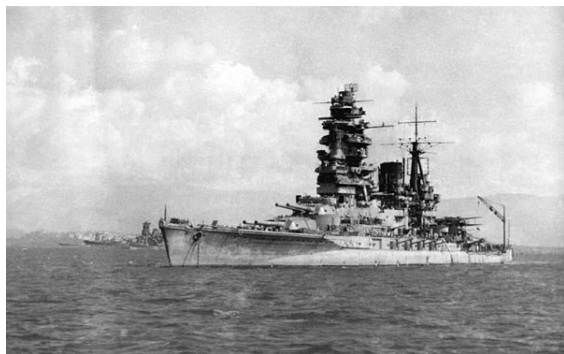
*Drawing of Nagato as she appeared in 1944*

Admiral Isoroku Yamamoto issued the code phrase "*Nitaka yama nobore*" (Climb Mount Niitaka) on 2 December 1941 from *Nagato* at anchor at Hashirajima to signal the 1st Air Fleet (*Kido Butai*) in the North Pacific to proceed with its attack on Pearl Harbor. When the war started for Japan on 8 December, \* [Note 3] she sortied for the Bonin Islands, along with *Mutsu*, the battleships *Hyūga*, *Yamashiro*, *Fusō*, *Ise* of Battleship Division 2, and the light carrier *Hōshō* as distant cover for the withdrawal of the fleet attacking Pearl Harbor, and returned six days later. Yamamoto transferred his flag to the new battleship *Yamato* on 12 February 1942. *Nagato* was briefly refitted 15 March – 9 April at Kure Naval Arsenal. \* [7]

In June 1942 *Nagato*, commanded by Captain Hideo Yano, was assigned to the Main Body of the 1st Fleet during the Battle of Midway, together with *Yamato*, *Mutsu*, *Hoshō*, the light cruiser *Sendai*, nine destroyers and four auxiliary ships. \* [38] \* [39] Following the loss of all four

carriers of the 1st Air Fleet on 4 June, Yamamoto attempted to lure the American forces west to within range of the Japanese air groups at **Wake Island**, and into a night engagement with his surface forces, but the American forces withdrew and *Nagato* saw no action. After rendezvousing with the remnants of the 1st Air Fleet on 6 June, survivors from the aircraft carrier *Kaga* were transferred to *Nagato*.\*[40] On 14 July, the ship was transferred to Battleship Division 2 and she became the flagship of the 1st Fleet. Yano was promoted to Rear Admiral on 1 November and he was replaced by Captain Yonejiro Hisamune nine days later. *Nagato* remained in Japanese waters training until August 1943. On 2 August Captain **Mikio Hayakawa** assumed command of the ship.\*[7]

That month, *Nagato*, *Yamato*, *Fusō* and the escort carrier *Taiyō*, escorted by two heavy cruisers and five destroyers transferred to Truk in the **Caroline Islands**. In response to the carrier raid on **Tarawa** on 18 September, *Nagato* and much of the fleet sortied for **Eniwetok** to search for the American forces before they returned to Truk on 23 September, having failed to locate them. The Japanese had intercepted some American radio traffic that suggested an attack on Wake Island, and on 17 October, *Nagato* and the bulk of the 1st Fleet sailed for Eniwetok to be in a position to intercept any such attack. The fleet arrived on 19 October, departed four days later, and arrived back at Truk on 26 October. Hayakawa was promoted to Rear Admiral on 1 November and he was relieved on 25 December by Captain Yuji Kobe.\*[7]



*Nagato* lies at anchor in Brunei Bay, October 1944, shortly before the **Battle of Leyte Gulf**

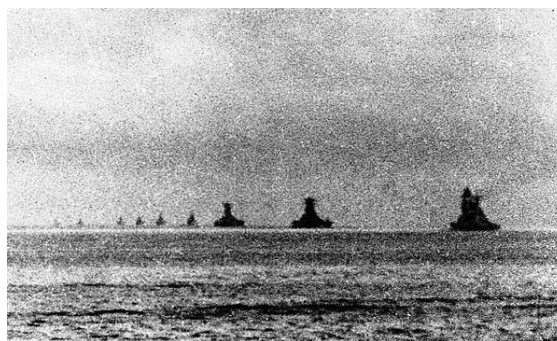
On 1 February 1944, *Nagato* departed Truk with *Fusō* to avoid an American air raid, and arrived at **Palau** on 4 February. They left on 16 February to escape another air raid. The ships arrived on 21 February at **Lingga Island**, near **Singapore**, and the ship became the flagship of Vice Admiral **Matome Ugaki**, commander of Battleship Division 1, on 25 February until he transferred his flag to *Yamato* on 5 May. Aside from a brief refit at Singapore, the ship remained at Lingga training until 11 May when she was transferred to **Tawitawi** on 12 May. The division was now assigned to the **1st Mobile Fleet**, under the command of Vice Admiral **Jisaburō Ozawa**.\*[7]

On 10 June, Battleship Division 1 departed Tawitawi for

**Batjan** in preparation for **Operation Kon**, a planned counterattack against the American invasion of **Biak**. Three days later, when Admiral **Soemu Toyoda**, commander-in-chief of the Combined Fleet, was notified of American attacks on **Saipan**, Operation Kon was canceled and Ugaki's force was diverted to the **Mariana Islands**. The battleships rendezvoused with Ozawa's main force on 16 June. During the **Battle of the Philippine Sea**, *Nagato* escorted the aircraft carriers *Jun'yō*, *Hiyō* and the light carrier *Ryūhō*. She fired 41 cm Type 3 *Sankaidan* incendiary anti-aircraft **shrapnel shells** at aircraft from the light carrier *Belleau Wood* that were attacking *Jun'yō* and claimed to have shot down two **Grumman TBF Avenger torpedo bombers**. The ship was strafed by American aircraft during the battle, but was not damaged and suffered no casualties.\*[7] During the battle *Nagato* rescued survivors from *Hiyō* that were transferred to the carrier *Zuikaku* once the ship reached Okinawa on 22 June. She continued on to Kure where she was refitted with additional radars and light AA guns. Undocked on 8 July, *Nagato* loaded a **regiment** of the **28th Infantry Division** the following day and delivered them to Okinawa on 11 July. She arrived at Lingga via **Manila** on 20 July.\*[41]

#### **Battle of Leyte Gulf** Main article: **Battle of Leyte Gulf**

Kobe was promoted to Rear Admiral on 15 October.



*Center Force* sorties from Brunei Bay, Borneo: six heavy cruisers head to sea, followed by *Yamato*, *Musashi* and *Nagato*

Three days later, *Nagato* sailed for **Brunei Bay, Borneo**, to join the main Japanese fleet in preparation for "Operation *Sho-1*", the counterattack planned against the American landings at Leyte. The Japanese plan called for Ozawa's carrier forces to lure the American carrier fleets north of Leyte so that Vice Admiral **Takeo Kurita's** 1st Diversion Force (also known as the Center Force) could enter **Leyte Gulf** and destroy American forces landing on the island. *Nagato*, together with the rest of Kurita's force, departed Brunei for the Philippines on 22 October.\*[42]

In the **Battle of the Sibuyan Sea** on 24 October, *Nagato* was attacked by multiple waves of American dive bombers and fighters. At 14:16\*[Note 4] she was hit by two bombs dropped by planes from the fleet carrier *Franklin* and the light carrier *Cabot*. The first bomb dis-



abled five of her casemate guns, jammed one of her Type 89 gun mounts, and damaged the air intake to No. 1 boiler room, immobilizing one propeller shaft for 24 minutes until the boiler was put back on line.\*[7] Damage from the second bomb is unknown. The two bombs killed 52 men between them; the number of wounded is not known.\*[43]

On the morning of 25 October, the 1st Diversion Force passed through the San Bernardino Strait and headed for Leyte Gulf to attack the American forces supporting the invasion. In the Battle off Samar, *Nagato* engaged the escort carriers and destroyers of Task Group 77.4.3, codenamed "Taffy 3". At 06:01 she opened fire on three escort carriers, the first time she had ever fired her guns at an enemy ship, but missed. At 06:54 the destroyer USS *Heermann* fired a spread of torpedoes at the fast battleship *Haruna*; the torpedoes missed *Haruna* and headed for *Yamato* and *Nagato* which were on a parallel course. The two battleships were forced 10 miles (16 km) away from the engagement before the torpedoes ran out of fuel. Turning back, *Nagato* engaged the American escort carriers and their screening ships, claiming to have damaged one cruiser\*[Note 5] with forty-five 410 mm and ninety-two 140 mm shells. The ineffectiveness of her shooting was the result of the poor visibility caused by numerous rain squalls and by smoke screens laid by the defending escorts. At 09:10 Kurita ordered his ships to break off the engagement and head north. At 10:20 he ordered the fleet south once more, but as they came under increasingly severe air attack he ordered a retreat again at 12:36. At 12:43 *Nagato* was hit in the bow by two bombs, but the damage was not severe. Four gunners were washed overboard at 16:56 as the ship made a sharp turn to avoid dive-bomber attacks; a destroyer was detached to rescue them, but they could not be found. As it retreated back to Brunei on 26 October, the Japanese fleet came under repeated air attacks. *Nagato* and *Yamato* used *Sankaidan* shells against them and claimed to have shot down several bombers. Over the course of the last two days she fired ninety-nine 410 mm and six hundred fifty-three 140 mm shells, suffering 38 crewmen killed and 105 wounded during the same time.\*[7]

On 15 November the ship was assigned to Battleship Division 3 of the 2nd Fleet. After an aerial attack at Brunei on 16 November, *Nagato*, *Yamato*, and the fast battleship *Kongō* left the following day, bound for Kure. En route, *Kongō* and one of the escorting destroyers was sunk by USS *Sealion* on 21 November. On 25 November, she arrived at Yokosuka, Japan for repairs. Lack of fuel and materials meant that she could not be brought back into service and she was turned into a floating anti-aircraft battery. Her funnel and mainmast were removed to improve the arcs of fire of her AA guns, which were increased by two Type 89 mounts and nine triple 25 mm gun mounts. Her forward secondary guns were removed in compensation. Captain Kiyomi Shibuya relieved Kobe in command of *Nagato* on 25 November. Battleship Division 3

was disbanded on 1 January 1945 and the ship was re-assigned to Battleship Division 1. That formation was disbanded on 10 February and she was assigned to the Yokosuka Naval District as a coastal defence ship.\*[7] Moored alongside a pier, a coal-burning donkey boiler was installed on the pier for heating and cooking purposes and a converted submarine chaser was positioned alongside to provide steam and electricity;\*[44] her anti-aircraft guns lacked full power and were only partially operational. On 20 April, *Nagato* was reduced to reserve and retired Rear Admiral Miki Otsuka assumed command a week later.\*[7]



*An Avenger flies past Nagato as she lies at anchor in Yokosuka*

In June 1945, all of her secondary guns and about half of her anti-aircraft armament was moved ashore, together with her rangefinders and searchlights. Her crew was accordingly reduced to less than 1,000 officers and enlisted men. On 18 July 1945, the heavily camouflaged ship was attacked by fighter bombers and torpedo bombers from five American carriers as part of Admiral William Halsey, Jr.'s campaign to destroy the IJN's last surviving capital ships. *Nagato* was hit by two bombs, the first 500-pound (230 kg) bomb struck the bridge and killed Otsuka, the executive officer, and twelve sailors when it detonated upon hitting the roof of the conning tower. The second 500-pound bomb struck the deck aft of the mainmast and detonated when it hit No. 3 barrette. It failed to damage the barrette or the turret above it, but blew a hole nearly 12 feet (3.7 m) in diameter in the deck above the officer's lounge, killing 21 men and damaging four 25 mm guns on the deck above. A dud rocket of uncertain size hit the ship's fantail, but failed to do any significant damage. To convince the Americans that *Nagato* had been badly damaged by the attack, her damage was left unrepaired and some of her ballast tanks were pumped full of seawater to make her sit deeper in the water as if she had sunk to the harbor bottom.\*[7]\*[44]

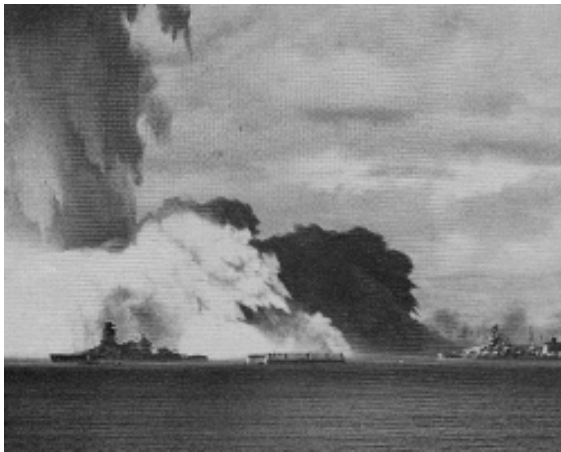
Captain Shuichi Sugino was appointed as *Nagato*'s new captain on 24 July, but he was unable to take up his appointment until 20 August. Retired Rear Admiral Masamichi Ikeguchi was assigned as the ship's interim

captain until Sugino arrived. The Yokosuka Naval District received an alarm on the night of 1/2 August that a large convoy was approaching Sagami Bay and *Nagato* was ordered to attack immediately. The ship was totally unprepared for any attack, but Ikeguchi began the necessary preparations. The water in the ballast compartments was pumped out and her crew began reloading the propellant charges for her 16-inch guns. The ship received more fuel from a barge later that morning, but no order to attack ever came because it had been a false alarm. Sailors from the battleship *USS Iowa*, Underwater Demolition Team 18,\* [44] and the high-speed transport *USS Horace A. Bass*\* [45] secured the battleship on 30 August after the occupation began and Captain Cornelius Flynn, executive officer of the *Iowa*, assumed command. *Nagato* was stricken from the Navy List on 15 September.\* [44]



*Painting of Nagato at Bikini Atoll after the Test ABLE explosion. USS Nevada, painted bright red-orange, can be seen in the background*

### 4.1.3 After the war



*Nagato in foreground at the beginning of the blast surge during the second atomic bomb test at Bikini Atoll*

The ship was selected to participate as a target ship in Operation Crossroads, a series of nuclear weapon tests held at Bikini Atoll in mid-1946. In mid-March, *Nagato* departed Yokosuka for Eniwetok under the command of Captain W. J. Whipple with an American crew of about 180 men supplementing her Japanese crew.\* [46] The ship was only capable of a speed of 10 knots (19 km/h; 12 mph) from her two operating propeller shafts. Her hull had not been repaired from the underwater damage sustained during the attack on 18 July and she leaked enough that her pumps could not keep up. Her consort, the light cruiser *Sakawa* broke down on 28 March and *Nagato* attempted to take her in tow, but one of her boilers malfunctioned and the ship ran out of fuel in bad weather. The ship had a list of seven degrees to port by the time tugboats from Eniwetok arrived on 30 March. Towed at a speed of 1 knot (1.9 km/h; 1.2 mph), the ship reached Eniwetok on 4 April where she received temporary repairs. On her trip to Bikini in May, *Nagato* reached 13 knots (24 km/h; 15 mph).\* [7]

Operation Crossroads began with the first blast (Test Able), an air burst on 1 July 1946; she was 1,500 meters (1,640 yd) from ground zero and was only lightly damaged. A skeleton crew boarded *Nagato* to assess the damage and prepare her for the next test on 25 July. As a test, they operated one of her boilers for 36 hours without any problems. For Test Baker, an underwater explosion, the ship was positioned 870 meters (950 yd) from ground zero. *Nagato* rode out the tsunami of water from the explosion with little apparent damage; she had a slight starboard list of two degrees after the tsunami dissipated. A more thorough assessment could not be made because she was dangerously radioactive. Her list gradually increased over the next five days and she capsized and sank during the night of 29/30 July.\* [44]

The wreck is upside down and her most prominent features are her four propellers, at a depth of 33.5 meters (110 ft) below the surface.\* [47] She has become a scuba diving destination in recent years and *The Times* named *Nagato* as one of the top ten wreck diving sites in the world in 2007.\* [47]\* [48]

### 4.1.4 Notes

- [1] These guns were license-built British quick-firing (QF) 12-pounder guns. While the Japanese designated them as 8 cm, their actual caliber was 76.2 mm.\* [14]
- [2] Skwiot says two single mounts in 1932–34 and another pair, mounted near the aft funnel, were added in 1934.\* [19]
- [3] Japan Standard Time is 19 hours ahead of Hawaiian Standard Time, so in Japan, the attack on Pearl Harbor happened on 8 December.
- [4] All times in this article are Japan Standard Time, one hour behind the times quoted in most American books on the Battle of Leyte Gulf.



- [5] No cruisers were present, only destroyers and **destroyer escorts**.<sup>\*[7]</sup>

#### 4.1.5 Footnotes

- [1] Skwiot 2008, p. 4  
 [2] Whitley, p. 200  
 [3] Jentschura, Jung & Mickel, p. 28  
 [4] Stille, p. 34  
 [5] Skwiot 2007, p. 34  
 [6] Skwiot 2008, pp. 6, 9–10, 71  
 [7] Hackett, Kingsepp, & Ahlberg  
 [8] Skwiot 2008, pp. 73, 76–77  
 [9] Stille, p. 32  
 [10] Skwiot 2008, p. 78  
 [11] Skwiot 2008, p. 19  
 [12] Friedman, p. 269  
 [13] Skwiot 2008, p. 24  
 [14] Campbell, p. 198  
 [15] Skwiot 2008, p. 31  
 [16] Skwiot 2008, p. 70  
 [17] Whitley, p. 202  
 [18] Campbell, pp. 192–93  
 [19] Skwiot 2008, pp. 26, 72  
 [20] Skwiot 2008, pp. 26, 30  
 [21] Campbell, p. 200  
 [22] Skwiot 2008, pp. 33, 72–73  
 [23] Campbell, p. 202  
 [24] Stille, p. 11  
 [25] Skwiot 2008, p. 80  
 [26] Skwiot 2008, pp. 10–11  
 [27] Campbell, p. 182  
 [28] Chesneau, p. 172  
 [29] Skwiot 2008, pp. 34, 72  
 [30] Skwiot 2008, pp. 33–37, 72  
 [31] Skwiot 2008, p. 47  
 [32] Skwiot 2008, p. 57  
 [33] Skwiot 2008, pp. 54, 57  
 [34] Silverstone, p. 335

- [35] Lengerer, footnote 3  
 [36] Skwiot 2007, pp. 33–34  
 [37] Skwiot 2007, p. 36  
 [38] Rohwer, pp. 168–69  
 [39] Parshall & Tully, p. 453  
 [40] Parshall & Tully, pp. 382–83  
 [41] Skwiot 2007, p. 46  
 [42] Polmar & Genda, pp. 420–22  
 [43] Skwiot 2007, p. 51  
 [44] Tully  
 [45] "*Horace A. Bass*". *Dictionary of American Naval Fighting Ships*. Naval History & Heritage Command (NH&HC). Retrieved 25 May 2013.  
 [46] Skwiot 2007, p. 63  
 [47] "*Bikini Atoll Dive Tourism Information*". Bikini Atoll Divers. Retrieved 8 January 2014.  
 [48] Ecott, Tim (3 March 2007). "*World's best wreck diving*". *The Times* (London). Retrieved 11 September 2009.(subscription required)

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#### 4.1.7 External links

- [Maritimequest.com](http://Maritimequest.com): *Nagato* photo gallery

## 4.2 Japanese battleship Mutsu

*Mutsu* (陸奥), named after Mutsu Province, was a dreadnought battleship built for the Imperial Japanese Navy (IJN) at the end of World War I. She was the second ship of the *Nagato* class. In 1923, a year after commissioning, she carried supplies for the survivors of the Great Kantō earthquake. The ship was modernized in 1934–36 with improvements to her armor and machinery, and a rebuilt superstructure in the pagoda mast style.

Other than participating in the Battle of Midway and the Battle of the Eastern Solomons in 1942, where she did not see any significant combat, *Mutsu* spent most of the first year of the Pacific War in training. She returned to Japan in early 1943. That June, one of her aft magazines detonated while she was at anchor, sinking the ship with

the loss of 1,121 of the 1,474 crew and visitors. The majority of the casualties died not from drowning, but from the explosion.\*[1]

The IJN conducted a perfunctory investigation into the cause of her loss and concluded that it was not of natural causes. Due to the deaths of most of the people on the ship, however, while many possible causes were raised, to this day the real cause of the explosion is not yet known.\*[2]\*[3]

The navy dispersed the survivors in an attempt to conceal the sinking in the interest of morale in Japan, continuing even to pay the salaries of the dead men.\*[4] Much of the wreck was salvaged after the war and many artifacts and relics are on display in Japan.

### 4.2.1 Description

*Mutsu* had a length of 201.17 meters (660 ft 0 in) between perpendiculars and 215.8 meters (708 ft 0 in) overall. She had a beam of 28.96 meters (95 ft 0 in) and a draft of 9 meters (29 ft 6 in).\*[5] The ship displaced 32,720 metric tons (32,200 long tons) at standard load and 39,116 metric tons (38,498 long tons) at full load.\*[6] Her crew consisted of 1,333 officers and enlisted men as built and 1,368 in 1935.\*[7] The crew totaled around 1,475 men in 1942.\*[8]

In 1927, *Mutsu* 's bow was remodeled to reduce the amount of spray produced when steaming into a head sea. This increased her overall length by 1.59 meters (5 ft 3 in) to 217.39 meters (713 ft 3 in). During her 1934–36 reconstruction, the ship's stern was lengthened by 7.55 meters (24 ft 9 in) to improve her speed, and her forward superstructure was rebuilt into a pagoda mast. She was given torpedo bulges to improve her underwater protection and to compensate for the weight of the additional armor and equipment. These changes increased her overall length to 224.94 m (738 ft 0 in), her beam to 34.6 m (113 ft 6 in) and her draft to 9.49 meters (31 ft 2 in). Her displacement increased over 7,000 metric tons (6,900 long tons) to 46,690 metric tons (45,950 long tons) at deep load.\*[9]

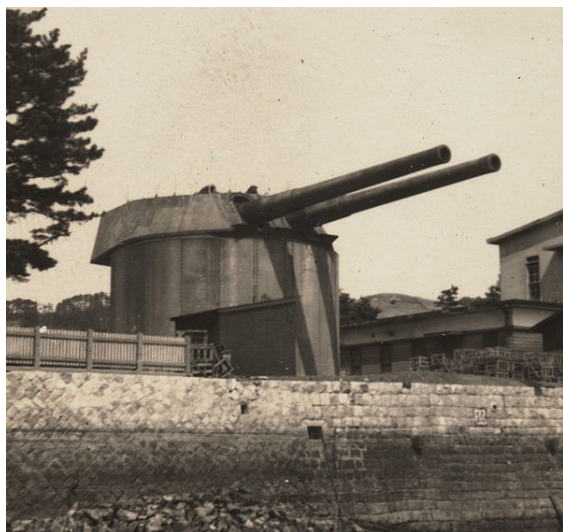
### Propulsion

*Mutsu* was equipped with four Gihon geared steam turbines, each of which drove one propeller shaft. The turbines were designed to produce a total of 80,000 shaft horsepower (60,000 kW), using steam provided by 21 Kampon water-tube boilers; 15 of these were oil-fired while the remaining half-dozen consumed a mixture of coal and oil. The ship had a stowage capacity of 1,600 t (1,600 long tons) of coal and 3,400 t (3,300 long tons) of fuel oil,\*[6] giving her a range of 5,500 nautical miles (10,200 km; 6,300 mi) at a speed of 16 knots (30 km/h; 18 mph). The ship exceeded her designed speed of 26.5

knots (49.1 km/h; 30.5 mph) during her sea trials, reaching 26.7 knots (49.4 km/h; 30.7 mph) at 85,500 shp (63,800 kW).<sup>[7]</sup>

During a refit in 1924 the fore funnel was rebuilt in a serpentine shape in an unsuccessful effort to prevent smoke interference with the bridge and fire-control systems.<sup>[7]</sup> That funnel was eliminated during the ship's 1930s reconstruction when all of her existing boilers were replaced by ten lighter and more powerful oil-fired Kampon boilers, which had a working pressure of 22 kg/cm<sup>2</sup> (2,157 kPa; 313 psi) and temperature of 300 °C (572 °F).<sup>[10]</sup> In addition her turbines were replaced by lighter, more modern, units.<sup>[11]</sup> When *Mutsu* conducted her post-reconstruction trials, she reached a speed of 24.98 knots (46.26 km/h; 28.75 mph) with 82,300 shp (61,400 kW).<sup>[12]</sup> Additional fuel oil was stored in the bottoms of the newly added torpedo bulges, which increased her capacity to 5,560 t (5,470 long tons) and thus her range to 8,560 nmi (15,850 km; 9,850 mi) at 16 knots.<sup>[6]</sup>

### Armament

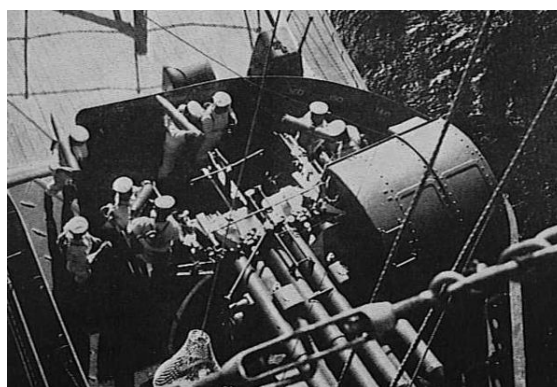


*Mutsu's original 41 cm No. 4 turret at the Imperial Japanese Naval Academy, Eta Jima in 1947*

*Mutsu's* eight 45-caliber 41-centimeter guns were mounted in two pairs of twin-gun, superfiring turrets fore and aft. Numbered one through four from front to rear, the hydraulically powered turrets gave the guns an elevation range of −2 to +35 degrees. The rate of fire for the guns was around two rounds per minute.<sup>[13]</sup> A special Type 3 *Sankaidan* incendiary shrapnel shell was developed in the 1930s for anti-aircraft use.<sup>[14]</sup> The turrets aboard the *Nagato*-class ships were replaced in the mid-1930s using those stored from the unfinished *Tosa*-class battleships. While in storage the turrets were modified to increase their range of elevation to −3 degrees to +43 degrees,<sup>[13]</sup> which increased the guns' maximum

range from 30,200 to 37,900 meters (33,000 to 41,400 yd).<sup>[15]</sup>

The ship's secondary armament of twenty 50-caliber 14-centimeter guns was mounted in casemates on the upper sides of the hull and in the superstructure. The manually operated guns had a maximum range of 20,500 metres (22,400 yd) and fired at a rate of six to ten rounds per minute.<sup>[16]</sup> Anti-aircraft defense was provided by four 40-caliber 8-centimeter 3rd Year Type<sup>[Note 1]</sup> AA guns in single mounts. The 3-inch (76 mm) high-angle guns had a maximum elevation of +75 degrees, and had a rate of 13 to 20 rounds per minute.<sup>[17]</sup> The ship was also fitted with eight 533-millimeter (21.0 in) torpedo tubes, four on each broadside, two above water and two submerged.<sup>[18]</sup>



*A twin 127 mm gun mount aboard Nagato*

Around 1926, the four above-water torpedo tubes were removed and the ship received three additional 76 mm AA guns that were situated around the base of the foremast.<sup>[19]</sup> The 76 mm AA guns were replaced by eight 40-caliber 127-millimeter dual-purpose guns in 1932,<sup>[20]</sup> fitted on both sides of the fore and aft superstructures in four twin-gun mounts.<sup>[21]</sup> When firing at surface targets, the guns had a range of 14,700 meters (16,100 yd); they had a maximum ceiling of 9,440 meters (30,970 ft) at their maximum elevation of +90 degrees. Their maximum rate of fire was 14 rounds a minute, but their sustained rate of fire was around eight rounds per minute.<sup>[22]</sup> Two twin-gun mounts for license-built Vickers two-pounder light AA guns were also added to the ship in 1932.<sup>[20]</sup><sup>[Note 2]</sup> These guns had a maximum elevation of +80 degrees, which gave them a ceiling of 4,000 meters (13,000 ft).<sup>[24]</sup> They had a maximum rate of fire of 200 rounds per minute.<sup>[25]</sup>

The two-pounders were replaced by 1941 by 20 license-built Hotchkiss 25 mm Type 96 light AA guns in five twin-gun mounts.<sup>[26]</sup> This was the standard Japanese light AA gun during World War II, but it suffered from severe design shortcomings that rendered it a largely ineffective weapon. According to historian Mark Stille, the twin and triple mounts “lacked sufficient speed in train or elevation; the gun sights were unable to handle fast targets; the gun exhibited excessive vibration; the mag-



azine was too small, and, finally, the gun produced excessive muzzle blast” . \* [27] These 25-millimeter (0.98 in) guns had an effective range of 1,500–3,000 meters (1,600–3,300 yd), and an effective ceiling of 5,500 meters (18,000 ft) at an elevation of 85 degrees. The maximum effective rate of fire was only between 110 and 120 rounds per minute because of the frequent need to change the 15-round magazines. \* [25]

## Armor

The ship's **waterline armor belt** was 305 mm (12 in) thick and tapered to a thickness of 100 mm (3.9 in) at its bottom edge; above it was a **strake** of 229 mm (9 in) armor. The main **deck** armor was 69 mm (2.7 in) while the lower deck was 75 mm (3 in) thick. \* [28] The turrets were protected with an armor thickness of 305 mm on the face, 230–190 mm (9.1–7.5 in) on the sides, and 152–127 mm (6.0–5.0 in) on the roof. \* [15] The **barbettes** of the turrets were protected by armor 305 mm thick, while the casemates of the 140 mm guns were protected by 25 mm armor plates. The sides of the **conning tower** were 369 mm (14.5 in) thick. \* [6]

The new 41 cm turrets installed during *Mutsu* 's reconstruction were more heavily armored than the original ones. Face armor was increased to 460 mm (18 in), the sides to 280 mm (11 in), and the roof to 250–230 mm (10–9 in). \* [29] The armor over the machinery and magazines was increased by 38 mm on the upper deck and 25 mm on the upper armored deck. \* [11] These additions increased the weight of the ship's armor to 13,032 metric tons (12,826 long tons), \* [12] 32.6 percent of her displacement. \* [11] In early 1941, in preparation for war, \* [20] *Mutsu* 's barrette armor was reinforced with 100 mm (3.9 in) armor plates above the main deck and 215 mm (8.5 in) plates below it. \* [30]

## Aircraft

*Mutsu* had an additional **boom** added to the **mainmast** in 1926 to handle the Yokosuka **E1Y** floatplane recently assigned to the ship. \* [19] In 1933 a **catapult** was fitted between the mainmast and Turret No. 3, \* [31] and a collapsible **crane** was installed in a portside **sponson** the following year; the ship was equipped to operate two or three floatplanes, although no **hangar** was provided. The ship was operating Nakajima **E4N2** biplanes until they were replaced by Nakajima **E8N2** biplanes in 1938. A more powerful catapult was installed in November 1938 to handle heavier aircraft like the single Kawanishi **E7K**, added in 1939–40. Mitsubishi **F1M** biplanes replaced the E8Ns on 11 February 1943. \* [32]

## Fire control and sensors

The ship was fitted with a 10-meter (32 ft 10 in) rangefinder in the forward superstructure. Additional six-meter (19 ft 8 in) and three-meter (9 ft 10 in) anti-aircraft rangefinders were also fitted, although the date is unknown. The rangefinders in No. 2 and 3 Turrets were replaced by 10-meter units in 1932–33. \* [33]

*Mutsu* was initially fitted with a Type 13 fire-control system derived from Vickers equipment received during World War I, but this was replaced by an improved Type 14 system around 1925. It controlled the main and secondary guns; no provision was made for anti-aircraft fire until the Type 31 **fire-control director** was introduced in 1932. A modified Type 14 fire-control system was tested aboard her **sister ship** *Nagato* in 1935 and later approved for service as the Type 94. A new anti-aircraft director, also called the Type 94, used to control the 127 mm AA guns, was introduced in 1937, although when *Mutsu* received hers is unknown. The 25 mm AA guns were controlled by a Type 95 director that was also introduced in 1937. \* [34]

## 4.2.2 Construction and service



*Mutsu at anchor, shortly after completion*

*Mutsu*, named for **Mutsu Province**, \* [35] and for the Meiji Emperor's personal name, Mutsuhito, \* [36] was laid down at the Yokosuka Naval Arsenal on 1 June 1918 and launched on 31 May 1920. \* [20] Funding for the ship had partly come from donations from schoolchildren. \* [36] While *Mutsu* was still **fitting out**, the American government called a conference in Washington, D.C. late in 1921 to forestall the massively expensive naval arms race that was developing between the United States, the United Kingdom and the Empire of Japan. The **Washington Naval Conference** convened on 12 November and the Americans proposed to **scrap** virtually every **capital ship** under construction or being fitting out by the participating nations. *Mutsu* was specifically listed among those to be scrapped even though she had been commissioned a few weeks earlier. This was unacceptable to the Japanese delegates; they agreed to a compromise that allowed them to keep *Mutsu* in exchange for scrapping the obsolete **semi-dreadnought** *Settsu*, with a similar arrangement for several American **Colorado-class** dreadnoughts that were fit-



ting out.\*[37] *Mutsu* was commissioned on 24 October 1921 with Captain Shizen Komaki in command. Captain Seiichi Kurose assumed command on 18 November and the ship was assigned to the 1st Battleship Division on 1 December. *Mutsu* hosted Edward, Prince of Wales, and his aide-de-camp, Lieutenant Louis Mountbatten, on 12 April 1922 during the prince's visit to Japan.\*[20]

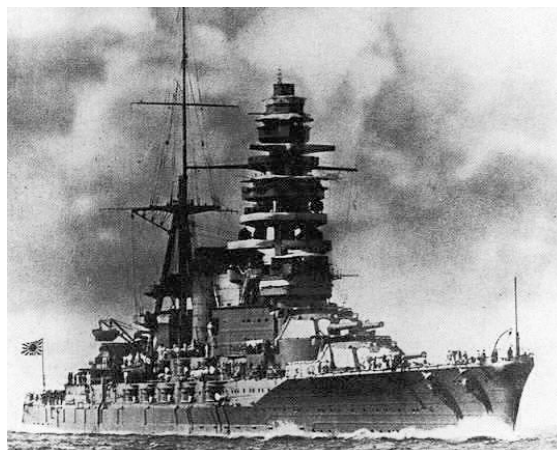
On 4 September 1923, *Mutsu* loaded supplies at Uchinoura Bay, Kyushu, for the victims of the Great Kantō earthquake. With her sister *Nagato*, she sank the hulk of the obsolete battleship *Satsuma* on 7 September 1924 during gunnery practice in Tokyo Bay, in accordance with the Washington Naval Treaty.\*[38] Captain Mitumasa Yonai, later Prime Minister of Japan, assumed command on 10 November. The ship was transferred to the reserve on 1 December 1925. *Mutsu* served as flagship of Emperor Hirohito during the 1927 naval maneuvers and fleet review. Captain Zengo Yoshida relieved Captain Teikichi Hori on 10 December 1928. On 29 March 1929, the ship was assigned to Battleship Division 3, together with three light cruisers.\*[20]

*Mutsu*'s anti-aircraft armament was upgraded during 1932. Upon completion, she was assigned to Battleship Division 1 of the 1st Fleet, and again served as the Emperor's flagship during the annual maneuvers and fleet review in 1933. The ship was placed in reserve on 15 November and began her lengthy reconstruction. This was completed on 30 September 1936 and *Mutsu* rejoined the 1st Battleship Division on 1 December 1936. In August 1937, she transported 2,000 men of the 11th Infantry Division to Shanghai during the Second Sino-Japanese War.\*[20] Her floatplanes bombed targets in Shanghai on 24 August before she returned to Sasebo the following day.\*[39] On 15 November 1938, Captain Aritomo Gotō assumed command of the ship. *Mutsu* was placed in reserve from 15 December 1938 to 15 November 1939. She was refitted in early 1941 in preparation for war; as part of this work, she was fitted with external degaussing coils and additional armor for her barbettes.\*[20]

## World War II

During the war *Mutsu* saw limited action, spending much of her time in home waters. On 8 December 1941,\*[Note 3] she sortied for the Bonin Islands, along with *Nagato*, the battleships *Hyūga*, *Yamashiro*, *Fusō*, *Ise* of Battleship Division 2, and the light carrier *Hōshō* as distant support for the fleet attacking Pearl Harbor, and returned six days later. On 18 January 1942, *Mutsu* towed the obsolete armored cruiser *Nisshin* as a target for the new battleship *Yamato*, which promptly sank her.\*[20]

In June 1942 *Mutsu*, commanded by Rear Admiral Gunji Kogure, was assigned to the Main Body of the 1st Fleet during the Battle of Midway, together with *Yamato*, *Nagato*, *Hosho*, the light cruiser *Sendai*, nine destroyers and



*Mutsu at sea after her reconstruction*

four auxiliary ships.\*[40]\*[41] Following the loss of all four carriers on 4 June, Yamamoto attempted to lure the American forces west to within range of the Japanese air groups at Wake Island, and into a night engagement with his surface forces, but the American forces withdrew and *Mutsu* saw no action. After rendezvousing with the remnants of the Striking Force on 6 June, about half of the survivors from the sunken aircraft carriers of the 1st Air Fleet were transferred to *Mutsu*.\*[42] She arrived at Hashirajima on 14 June.\*[20]

On 14 July, *Mutsu* was transferred to Battleship Division 2 and then to the Advance Force of the 2nd Fleet on 9 August. Two days later, the ship departed Yokosuka accompanied by the cruisers *Atago*, *Takao*, *Maya*, *Haguro*, *Yura*, *Myōkō*, the seaplane tender *Chitose* and escorting destroyers to support operations during the Guadalcanal Campaign. They arrived at Truk on 17 August. On 20 August, while sailing from Truk to rendezvous with the main body of Vice Admiral Chūichi Nagumo's 3rd Fleet, *Mutsu*, the heavy cruiser *Atago*, and escorting destroyers unsuccessfully attempted to locate the escort carrier USS *Long Island* in response to a flying boat detecting the American ship.\*[20]

During the Battle of the Eastern Solomons on 27 August, *Mutsu*, assigned to the Support Force,\*[43] fired four shells at enemy reconnaissance aircraft during what was her first and only action of the war.\*[44] Following her return to Truk on 2 September, a group of skilled AA gunnery officers and men were detached to serve as instructors to ground-based naval anti-aircraft gunners stationed in Rabaul. During October *Mutsu* off-loaded surplus fuel oil to the fleet oil tanker *Kenyo Maru*, allowing the tanker to refuel other ships involved in Guadalcanal operations. On 7 January 1943, *Mutsu* steamed from Truk via Saipan to return to Japan together with the carrier *Zuikaku*, the heavy cruiser *Suzuya* and four destroyers. *Mutsu* left Hashirajima for Kure on 13 April, where she prepared to sortie to reinforce the Japanese garrisons in the Aleutian Islands in response to the Battle of the Komandorski Islands. The operation was cancelled the next

day and the ship resumed training.\* [20]

## Loss

On 8 June 1943, *Mutsu* was moored in the Hashirajima fleet anchorage, with 113 flying cadets and 40 instructors from the Tsuchiura Naval Air Group aboard for familiarization. At 12:13 the magazine of her No. 3 turret exploded, destroying the adjacent structure of the ship and cutting her in half. A massive influx of water into the machinery spaces caused the 150-meter (490 ft) forward section of the ship to capsize to starboard and sink almost immediately. The 45-meter (148 ft) stern section upended and remained floating until about 02:00 hours on 9 June before sinking, coming to rest a few hundred feet south of the main wreck at coordinates 33°58'N 132°24'E / 33.967°N 132.400°E. Coordinates: 33°58'N 132°24'E / 33.967°N 132.400°E.\* [45]

The nearby *Fusō* immediately launched two boats which, together with the destroyers *Tamanami* and *Wakatsuki* and the cruisers *Tatsuta* and *Mogami*, were able to rescue 353 survivors from the 1,474 crew members and visitors aboard *Mutsu*; 1,121 men were killed in the explosion. Only 13 of the visiting aviators were among the survivors.\* [46]

After the explosion, as the rescue operations commenced, the fleet was alerted and the area was searched for Allied submarines, but no traces were found.\* [20] To avert the potential damage to morale from the loss of a battleship coming so soon after the string of recent setbacks in the war effort, *Mutsu*'s destruction was declared a state secret. Mass cremations of recovered bodies began almost immediately after the sinking. Captain Teruhiko Miyoshi's body was recovered by divers on 17 June, but his wife was not officially notified until 6 January 1944. Both he and his second in command, Captain Ono Koro, were posthumously promoted to Rear Admiral, as was normal practice. To further prevent rumors from spreading, healthy and recovered survivors were reassigned to various garrisons in the Pacific Ocean.\* [47] Some of the survivors were sent to Truk in the Caroline Islands and assigned to the 41st Guard Force. Another 150 were sent to Saipan in the Mariana Islands, where most were killed in 1944 during the battle for the island.\* [20]

At the time of the explosion, *Mutsu*'s magazine contained a number of 16-inch Type 3 “Sanshikidan” incendiary shrapnel shells, which had caused a fire at the Sagami arsenal several years earlier due to improper storage. Because they might have been the cause of the explosion, the Minister of the Navy, Admiral Shimada Shigetaro, immediately ordered the removal of Type 3 shells from all IJN ships carrying them, until the conclusion of the investigation into the loss.\* [20]

## 4.2.3 Investigation into the loss

A commission led by Admiral Kōichi Shiozawa was convened three days after the sinking to investigate the loss. The commission considered a number of possible causes:

- Sabotage by enemy secret agents. Given the heavy security at the anchorage and lack of claims of responsibility by the Allies, this could be discounted.\* [48]
- Sabotage by a disgruntled crewman. While no individual was named in the commission's final report, its conclusion was that the cause of the explosion was most likely a crewman in No. 3 turret who had recently been accused of theft and was believed to be suicidal.\* [49]
- A midget or fleet submarine attack. Extensive searches immediately following the sinking had failed to detect any enemy submarine and the Allies had made no attempt at claiming the enormous propaganda value of sinking a capital ship in her home anchorage; consequently, this possibility was quickly discounted. Eyewitnesses also spoke of a reddish-brown fireball, which indicated a magazine explosion; this was confirmed during exploration of the wreck by divers.\* [48]
- Accidental explosion within a magazine. While the *Mutsu* carried many projectiles, immediate suspicion focused on the Type 3 anti-aircraft shell as it was believed to have caused a fire before the war at the Sagami arsenal. Known as a “sanshiki-dan” or “sankaidan”, these were fired by the main armament and contained 900 to 1,200 25 mm diameter steel tubes (depending upon sources), each containing an incendiary charge. Tests were conducted at Kamegakubi Naval Proving Ground on several shells salvaged from No. 3 turret and on shells from the previous and succeeding manufacturing batches. Using a specially built model of the *Mutsu*'s No. 3 turret, the experiments were unable to induce the shells to explode under normal conditions.\* [50]

The commission issued its preliminary conclusions on 25 June, well before the divers had completed their investigation of the wreck, and concluded that the explosion was the result of a disgruntled seaman.\* [51] Historian Mike Williams put forward an alternative theory of fire:

“A number of observers noted smoke coming from the vicinity of No. 3 turret and the aircraft area just forward of it, just before the explosion. Compared with other nations' warships in wartime service, Japanese battleships contained a large amount of flammable materials including wooden decking, furniture, and insulation, as well as

cotton and wool bedding. Although she had been modernized in the 1930s, some of the *Mutsu*'s original electrical wiring may have remained in use. While fire in the secure magazines was a very remote possibility, a fire in an area adjacent to the No. 3 magazine could have raised the temperature to a level sufficient to ignite the highly sensitive **black-powder primers** stored in the magazine and thus cause the explosion.” \* [52]

#### 4.2.4 Salvage operations



*A 14-cm 3rd Year Type naval gun from Mutsu on display at the Yasukuni Museum*

Divers were brought into the area to retrieve bodies and to assess the damage to the ship. Prior to diving on the wreck they were allowed to familiarize themselves on board *Mutsu*'s sister ship, *Nagato*. The Navy leadership initially gave serious consideration to raising the wreck and rebuilding her, although these plans were dropped after the divers completed their survey of the ship on 22 July. Thus *Mutsu* was struck from the **Navy List** on 1 September. As part of the investigation, Dive-boat No. 3746, a small *Nishimura*-class search and rescue submarine, explored the wreck on 17 June with a crew of seven officers. While crawling on the harbor bottom, it became snagged on the wreckage and its crew nearly suffocated before they managed to free themselves and surface. \* [20] \* [53] In July 1944, the oil-starved IJN recovered 580 metric tons (570 long tons; 640 short tons) of fuel from the wreck. \* [20]

The 1.2-meter (3 ft 11 in) diameter **chrysanthemum** crest, symbol of the **Imperial Throne**, was raised in 1953, and one of the 140 mm casemate guns was raised in 1963 and donated to the **Yasukuni Shrine**. In 1970, the Fukada Salvage Company began recovery operations that lasted until 1978 and recovered about 75% of the ship. The two aft turrets were raised in 1970 and 1971. The salvagers retrieved 849 bodies of crewmen lost during the explosion. In 1995, the Mutsu Memorial Museum declared that no further salvage operations were planned. \* [54]

The only significant portion of the ship that remains is a 35-meter (114 ft 10 in) long section running from the bridge structure forward to the vicinity of No. 1 turret. The highest portion of the ship is 12 meters (39 ft 4 in)

below the surface. \* [55]

#### Surviving artifacts



*A gun from the Mutsu on display outside of the Yamato Museum in Kure, Japan*

In addition to the 140 mm gun donated to the Yasukuni Shrine, now on display at the **Yasukuni Museum**, \* [56] the following items recovered over the years can be viewed at various museums and memorials in Japan:

- Many artifacts are displayed at the Mutsu Memorial Museum in **Tōwa-Chō**. This is a successor to a local museum funded by the town of **Suō-Ōshima** which opened in July 1970. To make room for a new road, this museum was moved in April 1994 to a new building. Since 1963, a memorial service has been held here every year on 8 June in honor of the crew. \* [54]
- The fully restored No. 4 turret is on display on the grounds of the former **Imperial Japanese Naval Academy** at **Etajima**. \* [56] This is the ship's original turret, removed during her refit in the 1930s. \* [57]
- The left-side 410 mm gun from No. 3 turret is displayed outside the **Yamato Museum** in Daiwa Park, **Kure**. This park also contains one of *Mutsu*'s 3.5-meter (11 ft 6 in) diameter propellers, a **rudder** and an **anchor**. \* [54]
- One 410 mm gun from No. 3 turret is on display at the **Museum of Maritime Science**, Shinagawa, in Tokyo. \* [56]
- A rudder and a section of propeller shaft were on display at the **Arashiyama Art Museum** until it closed circa 1991. Their current whereabouts are now unknown. \* [58]

#### 4.2.5 Notes

- [1] These guns were license-built British **quick-firing (QF) QF 12-pounder** guns. While the Japanese designated them as 8 cm, their actual caliber was 76.2 mm. \* [17]



- [2] According to Skwiot, two single mounts were added in 1932–34 and another pair, mounted near the aft funnel, were added in 1934.\* [23]
- [3] Japan Standard Time is 19 hours ahead of Hawaiian Standard Time, so in Japan, the attack on Pearl Harbor happened on 8 December.
- [29] Campbell, p. 182
- [30] Chesneau, p. 172
- [31] Skwiot 2008, p. 57
- [32] Skwiot 2008, pp. 54, 57, 70

#### 4.2.6 Footnotes

- [1] 福地周夫『続・海軍くろしお物語』光人社、1982年。ISBN 4-7698-0179-3 p.91
- [2] 大西新蔵『海軍生活放談日記と共に六十五年』原書房、1979年6月。ISBN 031-40870-6945。pp.259-260
- [3] 福地周夫『続・海軍くろしお物語』光人社、1982年。ISBN 4-7698-0179-3 p.94
- [4] 歴史群像太平洋戦史シリーズ 15 『長門型戦艦帝国海軍のシンボル「長門」「陸奥」の激動の軌跡を詳解』学習研究社、1997年。ISBN 4-05-601684-4。p.189
- [5] Skwiot 2008, p. 4
- [6] Whitley, p. 200
- [7] Jentschura, Jung & Mickel, p. 28
- [8] Stille, p. 34
- [9] Skwiot 2008, pp. 6, 9–10, 71–72
- [10] Skwiot 2008, pp. 73, 76–77
- [11] Stille, p. 32
- [12] Skwiot 2008, p. 78
- [13] Skwiot 2008, p. 19
- [14] Campbell, p. 175
- [15] Friedman, p. 269
- [16] Skwiot 2008, p. 24
- [17] Campbell, p. 198
- [18] Skwiot 2008, p. 31
- [19] Skwiot 2008, p. 70
- [20] Hackett, Kingsepp, & Ahlberg
- [21] Whitley, p. 202
- [22] Campbell, pp. 192–93
- [23] Skwiot 2008, pp. 26, 72
- [24] Skwiot 2008, pp. 26, 30
- [25] Campbell, p. 200
- [26] Skwiot 2008, Sheet 8
- [27] Stille, p. 11
- [28] Skwiot 2008, pp. 10–11
- [33] Skwiot 2008, pp. 34, 72
- [34] Skwiot 2008, pp. 33–37
- [35] Silverstone, p. 334
- [36] Hyde, p. 78
- [37] Skwiot 2008, pp. 17–19, 21
- [38] Skwiot 2007, pp. 34, 71
- [39] Skwiot 2007, p. 81
- [40] Rohwer, pp. 168–69
- [41] Parshall & Tully, p. 453
- [42] Parshall & Tully, p. 383
- [43] Rohwer, p. 190
- [44] Williams, p. 125
- [45] Williams, pp. 129–32
- [46] Williams, p. 132
- [47] Williams, p. 133
- [48] Williams, p. 137
- [49] Williams, pp. 135–36
- [50] Williams, pp. 137–38
- [51] Williams, p. 135
- [52] Williams, p. 142
- [53] Williams, pp. 134–35
- [54] Williams, pp. 138–39
- [55] Williams, pp. 140–41
- [56] Williams, p. 139
- [57] “Sightseeing in Japan” . State Library of Victoria. Retrieved 4 June 2013.
- [58] Williams, p. 138



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### 4.2.8 External links

- [Maritimequest.com](http://Maritimequest.com): *Mutsu* photo gallery

## Chapter 5

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