= South Dakota @-@ class battleship (1939) =

The South Dakota class was a group of four fast battleships built by the United States Navy . They were the second class of battleships to be named after the 40th State ; the first designed in the 1920s and canceled under the terms of the Washington Naval Treaty .

The class comprised four ships : South Dakota , Indiana , Massachusetts , and Alabama . They were more compact and better protected than the preceding North Carolina class , but had the same main battery , nine 16 " / 45 caliber Mark 6 guns in three @-@ gun turrets . The ships can be visually distinguished from the earlier vessels by their single funnel , compared to twin funnels in the North Carolinas . According to authors William Garzke and Robert Dulin , the South Dakota design was the best " treaty battleship " ever built .

Construction began shortly before World War II , with Fiscal Year (FY) 1939 appropriations . Commissioning through the summer of 1942 , the four ships served in both the Atlantic , ready to intercept possible German capital ship sorties , and the Pacific , in carrier groups and shore bombardments . All four ships were retired post @-@ war ; South Dakota and Indiana were scrapped , Massachusetts and Alabama retained as museum ships .

= = Development = =

= = = Background = = =

The preceding two North Carolina @-@ class battleships had been assigned to the FY1937 building program , and in 1936 , the General Board met to discuss the two battleships to be allocated to FY1938 . The General Board argued for two more North Carolinas , but Admiral William H. Standley , the Chief of Naval Operations , wanted the ships to be of a new design . That meant construction could not begin by 1938 , so the ships were assigned to FY1939 . Design work started in March 1937 and the draft for two battleships was formally approved by the Secretary of the Navy on 23 June . More specific characteristics for the two ships were ironed out , and those were approved on 4 January 1938 . The ships were formally ordered on 4 April 1938 .

Due to the deteriorating international situations in Europe and Asia , Congress authorized a further two battleships of the new design , for a total of four , under the Deficiency Authorization of 25 June 1938 . The " Escalator Clause " of the Second London Naval Treaty had been activated in the U.S. Navy so it could begin work on the follow @-@ on Iowa @-@ class battleships , but Congress was willing to approve only the 35 @,@ 000 @-@ ton battleships . A number of deficiencies in the preceding North Carolinas were to be fixed in the South Dakotas ; these included insufficient underwater protection and turbine engines not of the most recent technology .

The North Carolinas also did not have sufficient space to act as fleet flagships , so the lead ship of the new class was designed with an extra deck on the conning tower specifically for this purpose , although the increase in space and weight from this necessitated removal of two twin 5 @-@ in DP mounts .

= = = Design = = =

There was a great deal of debate on the requirements for the new battleships . The design board drew up a number of proposals ; one called for a ship with nine 16 @-@ inch (406 mm) guns in three triple turrets , 5 @.@ 9 in @-@ thick deck armor that would have made the ship immune to plunging fire out to 30 @,@ 000 yards , and a top speed of at least 23 knots . The belt armor was a much more intractable problem ; the 16 @-@ inch gun could penetrate 13 @.@ 5 inches of plate , the thickest in an American battleship at the time , even at 25 @,@ 000 yards . To proof the ship against her own armament ? a characteristic known as " balanced armor " ? the main belt would have to be increased to 15 @.@ 5 inches , which would have increased the weight of the vessel to prohibitive levels . To mitigate this problem , sloped armor was proposed ; it was infeasible to use

inclined armor in an external belt , because it would compromise stability to a dangerous degree . This had serious drawbacks , however ; it complicated the construction process , and if the armored belt was damaged , the external plating would have to be cut away first before the belt could be repaired .

To minimize the drawbacks of the inclined belt , it sloped outward from the keel , then back in towards the armored deck . This meant that shells fired at relatively close range would hit the upper portion of the belt at an angle , which maximized armor protection . However , the effectiveness of the upper portion of the belt was degraded at longer ranges , because plunging shells would strike it at an angle closer to the perpendicular , increasing their ability to penetrate the armor . It did reduce the area that needed to be covered by the armored deck , which saved additional weight . This enabled the upper belt to be thicker , which to an extent ameliorated the vulnerability to plunging fire . Because the belt was internal , it provided the opportunity to extend it to the inner portion of the double bottom , which gave the ship better underwater protection than the North Carolinas . Ultimately , the complex double incline belt armor was abandoned when it became apparent that a single slanted belt could provide similar protection , and save several hundred tons of weight .

The size of the hull was also a problem : a longer hull generally equates to a higher top speed , but requires more armor to protect it . In order to keep a higher top speed on a shorter hull , higher @-@ performance machinery is required . Since the South Dakota design was much shorter than the preceding North Carolinas ? 680 ft (210 m) compared to 729 ft (222 m) , respectively ? the new ships would need improved machinery than would otherwise have been used in shorter hulls in order to retain the same speed as the longer ships . The design initially called for a top speed of at least 22 @.@ 5 knots , which was deemed sufficient to keep up with opposing battleships and outrun surfaced submarines . However , in 1936 , decrypted reports from the Japanese navy revealed the battleship Nagato was capable of speeds in excess of 26 knots .

To counter this , it was determined a top speed of between 25 @.@ 8 ? 26 @.@ 2 kn (29 @.@ 7 ? 30 @.@ 2 mph ; 47 @.@ 8 ? 48 @.@ 5 km / h) was possible if the power plant from North Carolina could be reduced in size enough to fit in the tighter hull of South Dakota . In order to do so the boilers were positioned directly above the turbines in the same arrangement to have been used in the 1916 Lexington @-@ class battlecruisers . The boilers were then rearranged several times so they were staggered with the turbines , eventually ending directly alongside the turbines . The propulsion system was arranged as close together as possible , and the evaporators and distilling equipment were placed in the machinery rooms . This provided enough additional space behind the armored belt to add a second plotting room .

By this time , the design process had established that the hull was to be 666 ft long (203 m) and incorporate the single internal sloped armor belt . However , in case of rejection by the General Board , naval architects produced a series of alternatives . Among these were longer , faster ships armed with 14 @-@ inch guns in triple turrets , slower ships with 14 @-@ inch guns in quadruple turrets , improved versions of the North Carolina class , and a ship of 27 knots armed with nine 16 @-@ in guns in a similar configuration to the North Carolinas .

Arguments arose , frequently over the issue of speed ; the Commander in Chief refused to allow the new ship to drop below 25 kn (29 mph ; 46 km / h) , the Battle Force argued at least 27 kn (31 mph ; 50 km / h) was necessary to maintain homogeneity in the line of battle , and the president of the War College maintained a fast ship was optimal , but the navy would continue to operate the older 21 kn (24 mph ; 39 km / h) battleships until the 1950s and so a higher speed was not strictly necessary ? though it would mean the class would be too slow to act as escorts for fast carrier task forces . The primary 666 @-@ ft design was the only plan that could meet the specified requirements for speed , protection , and the nine 16 @-@ inch gun . By late 1937 a proposed design was agreed on , requiring only small modifications to save weight and increase the fields of fire . Berths for the crew , even the staterooms for senior officers , along with mess halls were reduced in size , and ventilation ports were completely removed ; the ship would have to use artificial air circulation .

= = Specifications = =

= = = Armament = = =

= = = = Main battery = = = =

The South Dakota class battleships carried a main battery of nine 16 @-@ in (406 mm) / 45 caliber Mark 6 guns in three three @-@ gun turrets . Two of these turrets were placed in a superfiring pair forward ; the third turret was mounted aft of the main superstructure . These guns fired a 2 @,@ 700 lb (1 @,@ 200 kg) Mark 8 armor @-@ piercing (AP) shell at a rate of two per minute per gun . The guns could either use a full propellant charge of 535 lb (243 kg) , a reduced charge of 295 lb (134 kg) , or a reduced flashless charge of 315 lb (143 kg) . This provided a muzzle velocity of 2 @,@ 300 feet per second (700 meters per second) for the AP shell with the full propellant charge , while the reduced version provided a correspondingly lower muzzle velocity of 1 @,@ 800 ft / s (549 m / s) . 130 shells were stowed for each gun , which came to a total of 1 @,@ 170 . The guns in all three turrets could elevate to 45 degrees , but only I and III turrets could depress to ? 2 degrees ; the superfiring II turret was not able to depress . This enabled a maximum range of 36 @,@ 900 yards or 18 @.@ 2 nmi (20 @.@ 9 mi ; 33 @.@ 7 km) with the Mark 8 projectile . The turrets were able to train 150 degrees in both directions from the centerline , which enabled a wide arc of fire . The guns could be elevated or depressed at a rate of 12 degrees per second , and the turrets could train at 4 degrees per second .

= = = = Secondary battery = = = =

South Dakota was built as a fleet flagship , with an extra deck on her conning tower for extra command space , so her secondary battery had sixteen 5 @-@ in (127 mm) / 38 caliber Mark 12 guns in eight Mark 28 Mod 0 twin DP mounts , four on either side of the superstructure . This was two turrets fewer than her sister ships who had ten twin DP mounts of twenty guns , five on either side of the ship . These turrets weighed 156 @,@ 295 lb (70 @,@ 894 kg) and could depress their guns to ? 15 degrees and elevate them to 85 degrees . The guns fired a variety of different projectiles , including anti @-@ aircraft (AA) , illumination , and white phosphorus (WP) shells , at a rate of fire of 15 to 22 rounds per minute . The AA shells were 20 @.@ 75 in long (52 @.@ 7 cm) and weighed between 54 and 55 lb (24 ? 25 kg) , depending on the variant . The illumination and white phosphorus shells were slightly smaller , at 20 in (50 @.@ 8 cm) long ; the illumination rounds weighed 54 @.@ 4 lb (24 @.@ 7 kg) and the WP shells were 53 lb (24 kg) .

The guns used three different charges , depending on the situation : a full charge , a full flashless charge , and a reduced charge . The standard full charge weighed 15 @.@ 2 ? 15 @.@ 5 lb (6 @.@ 9 ? 7 @.@ 0 kg) , the flashless charge was slightly heavier at 16 lb (7 @.@ 3 kg) , and the reduced charge was significantly smaller , at 3 @.@ 6 lb (1 @.@ 6 kg) . Both full charges provided a muzzle velocity of 2 @,@ 600 ft / s (790 m / s) in new guns , but as continued fire wore down the barrels , muzzle velocity degraded slightly , to 2 @,@ 500 ft / s (760 m / s) . The reduced charge 's muzzle velocity was correspondingly lower , at 1 @,@ 200 ft / s (370 m / s) . Each gun was supplied with 450 rounds , and was expected to fire 4 @,@ 600 shells before it was worn enough to warrant replacement . At the maximum effective elevation to engage surface targets , 45 degrees , the guns could hit targets up to 17 @,@ 392 yards (15 @,@ 903 m) away . The maximum height at which aircraft could be engaged was 37 @,@ 200 feet (11 @,@ 900 m) .

= = = = Anti @-@ aircraft battery = = = =

The ships had a variety of anti @-@ aircraft weapons , and the weapons mounted changed over time . Initially , the ships were designed to mount twelve .50 in (12 @.@ 7 mm) and twelve 1 @.@ 1 in (27 @.@ 9 mm) machine guns . By March 1942 , when South Dakota was completed , the anti

@-@ aircraft battery was modified to eight .50 in (12 @.@ 7 mm) and twenty @-@ eight 1 @.@ 1 in (27 @.@ 9 mm) machine guns and sixteen 20mm Oerlikon autocannon . In September of that year , the .50 in (12 @.@ 7 mm) guns were removed and the number of 1 @.@ 1 in (27 @.@ 9 mm) guns reduced to 20 . In their place , the 20mm guns were increased to 16 weapons , and 16 Bofors 40mm guns were added , in four quadruple mounts .

In February 1943 , the 1 @.@ 1 in (27 @.@ 9 mm) guns and one 20mm gun were replaced with an additional 52 40mm guns , for a total of 68 . In December 1944 , the battery was again upgraded , with 72 20mm and 72 Bofors . In March 1945 , the battery was modified for the last time : five 20mm were added and four 40mm removed . This provided the maximum number of anti @-@ aircraft guns , at 145 guns . The other three ships followed a similar pattern of upgrades to the anti @-@ aircraft armament .

= = = Armor = = =

The South Dakota 's internal armor belt was inclined 19 ° from the vertical , and was 12 @.@ 2 inches (310 mm) thick , with 7 / 8 inch (22 mm) thick STS plates behind the belt . This was equal to 17 @.@ 3 inches (440 mm) of vertical belt armor , and was proof against the 2 @,@ 240 lb projectile fired by the 16 @-@ inch 45 cal. guns of the Colorado @-@ class from a distance of 17 @,@ 700 to 30 @,@ 900 yd (16 @.@ 2 to 28 @.@ 3 km) . The immune zone against the super @-@ heavy 16 @-@ inch shells fired by the South Dakotas themselves was smaller ; the armor was effective only at ranges between 20 @,@ 500 and 26 @,@ 400 yd (18 @.@ 7 and 24 @.@ 1 km) .

The side armor extended to the bottom of the ship , and tapered from its maximum thickness of 12 @.@ 2 inches down to 1 inch at the lowest portion . This feature was chosen to protect against penetration of heavy @-@ caliber gun projectiles that managed to hit the ship below the waterline . The underwater armor included four torpedo bulkheads , a multi @-@ layered system designed to absorb the energy from an underwater explosion equivalent to 700 pounds of TNT (1 @.@ 3 GJ) .

= = Service = =

= = = South Dakota = = =

South Dakota 's keel was laid on 5 July 1939 by the New York Shipbuilding Corporation of Camden , New Jersey . She was launched on 7 June 1941 and commissioned on 20 March 1942 . She went on a shakedown cruise in June after her fitting out was complete . In August ? September , the battleship voyaged from the Atlantic to the Pacific through the Panama Canal ; she struck a coral reef soon after arriving in the Tonga Islands and had to sail to the Pearl Harbor Navy Yard for repairs , which took about a month . South Dakota was then assigned to escort the aircraft carrier Enterprise as part of Task Force (TF) 16 ; joined by TF 17 soon after , the combined fleet ? now known as TF 61 ? was ordered to " make a sweep of the Santa Cruz Islands and then move southwest to block any Japanese forces approaching Guadalcanal . " This led to the Battle of Santa Cruz , where in escorting Enterprise , South Dakota was credited with shooting down 26 Japanese planes . The battleship was hit once by a 500 lb (230 kg) -bomb on Turret I during the action .

On 30 October , South Dakota and the destroyer Mahan collided while the latter was investigating a sonar contact with a submarine . Both ships were able to continue to Noumea , where Vestal repaired them . The battleship joined the North Carolina @-@ class battleship Washington and four destroyers to form TF 64 . The ships intercepted a Japanese bombardment force on the night of 14 ? 15 November , and , in a battle now known as the Second Naval Battle of Guadalcanal , they damaged the cruisers Takao and Atago in addition to forcing the battleship Kirishima and destroyer Ayanami to be scuttled . During the battle , a power failure incapacitated South Dakota and she received considerable topside damage ? 42 shells hit the ship , knocking out radio communications and three fire control radars along with destroying the main radar set .

Partial repairs courtesy of Prometheus ' crew allowed South Dakota to sail for New York ; after the ship 's arrival on 18 December 1942 , she was given an overhaul and the battle damage was completely fixed . Departing the yard on 25 February 1943 , South Dakota underwent sea trials before escorting Ranger in North Atlantic operations until mid @-@ April , when she joined the British Home Fleet . This deployment lasted until 1 August ; the ship then traveled to Norfolk and then the Pacific , arriving at Efate on 14 September . Moving to Fiji on 7 November , she joined Battleship Divisions 8 and 9 , which supported Allied forces in the Battle of Tarawa , among other battles .

Along with five other battleships , she fired upon Nauru Island on 6 December . 29 January 1944 saw the ship bombard Roi @-@ Namur before she moved away to protect the carriers assigned to provide air support for multiple amphibious assaults on islands within Kwajalein Atoll . South Dakota provided anti @-@ aircraft support for various fast carrier task forces until June , when she bombarded Saipan and Tinian . The battleship took part in the so @-@ called " Marianas Turkey Shoot " , where more than 300 attacking Japanese aircraft were shot down , though she was hit by a 500 @-@ pound bomb on the main deck that killed 24 and wounded 27 .

For the rest of World War II , South Dakota operated in the Pacific mostly as a carrier escort ; the only times she did not was when she received an overhaul at the Puget Sound Navy Yard from July ? August 1944 , when five tanks of gunpowder for the 16 @-@ inch guns exploded on 6 May (putting the ship out of action until 1 June) , and when she bombarded Okinawa (24 March 19 April) , the Kamaishi Steel Works on Honshu (14 July and 9 August) , and Hamamatsu on Honsh? (29 ? 30 July) . South Dakota was present at the Surrender of Japan aboard Missouri on 2 September 1945 ; she left Tokyo Bay on 20 September for the west coast of the United States . The battleship set sail for Philadelphia on 3 January 1946 to be overhauled ; she was designated as part of the Atlantic Reserve Fleet there in June . Decommissioned on 31 January 1947 , South Dakota remained idle until she was stricken from the Naval Register on 1 June 1962 and sold for scrap to the Lipsett Division of Luria Brothers and Company , Inc. on 25 October .

The ship is memorialized at Sioux Falls , South Dakota , where memorabilia and parts of the battleship are displayed within an outline of the main deck . A screw from South Dakota is on display outside the U.S. Navy Museum in Washington , D.C.

= = = Indiana = = =

Indiana 's keel was laid on 20 September 1939 at the Newport News Shipbuilding and Drydock Company in Newport News , Virginia . She was launched on 21 November 1941 ; during the fitting out process , the former battleship Kearsarge , which had been rebuilt as a crane ship , lowered the 16 @-@ inch guns into their turret mountings . Indiana was commissioned into the fleet on 30 April 1942 . After shakedown operations , she was sent directly to the Solomon Islands ; Indiana arrived off Guadalcanal on 9 November 1942 and replaced her sister South Dakota , which was in need of repairs . Indiana 's operations off Guadalcanal consisted primarily of shore bombardment in support of the Marines fighting on the island .

In November 1943 , Indiana took part in the invasion of Tarawa , alongside her sister South Dakota . During this operation , Indiana shot down her first aircraft . The ship also participated in the invasion of the Marshall Islands ; on 1 February 1944 , the battleship Washington collided with Indiana on her starboard side . 13 of the voids between the torpedo protection system and 13 fuel tanks were flooded , and the longitudinal bulkheads were severely damaged . The starboard outboard propeller was damaged , along with the shaft upon which it was mounted . Two quad @-@ mount 40 mm guns and 9 20 mm guns were destroyed , along with two of the mounts for the 20 mm guns . Indiana 's starboard catapult was torn from the ship , along with the Kingfisher float plane that had been sitting on it . The ship suffered a list to starboard , which was corrected by flooding compartments on the port side . Indiana sailed to Majuro Lagoon to be repaired enough to make the voyage back to Pearl Harbor ; the resulting work was the largest single repair handled at Pearl Harbor other than the battleships damaged during the attack that started the war .

After Indiana returned to active duty , she participated in the invasion of Hollandia in western New

Guinea . The ship then returned to the central Pacific and bombarded Truk , and subsequently took part in operations off the Marianas Islands . On 19 June 1944 a Japanese torpedo bomber attempted to attack the ship , but Indiana 's anti @-@ aircraft gunners managed to destroy both the aircraft and the torpedo it had dropped , with no damage to the ship . Shortly thereafter , a second Japanese plane was shot down , but a third managed to crash into the ship . The aircraft disintegrated upon striking the side armor plates and scattered pieces of the plane across the stern . Five men were injured , but the ship suffered only very slight damage .

Indiana returned to Puget Sound naval yard for a needed overhaul . The work lasted until January 1945 ; the ship returned to active duty on the 24th of that month . Indiana took part in the bombardment of Iwo Jima , as well as in attacks on the Japanese home islands . Following the shore bombardments , Indiana joined the task force that had assembled to invade Okinawa ; the ship provided ground support fire as well as anti @-@ aircraft defense against the increasing number of Kamikazes that were attacking the invasion fleet . Indiana continued in these duties until the end of the war in August 1945 .

In 1947 , Indiana was put into the reserve fleet at Puget Sound . She was finally struck from the Navy List on 1 June 1962 , and sold for scrapping on 6 September 1963 for $ 418 @,@ 387 . The ship breaking was finished in 1964 . The battleship 's mast was given to Indiana University at Bloomington , and her anchor is on display in Fort Wayne .

= = = Massachusetts = = =

Massachusetts , the third ship of the class , was laid down on 20 July 1939 at the Fore River Shipyard of the Bethlehem Steel Corporation in Quincy , Massachusetts . She was launched on 23 September 1941 and commissioned on 12 May 1942 . After a shakedown cruise , the battleship departed Casco Bay , Maine on 24 October 1942 to support the Allied invasion of Africa , Operation Torch , as flagship of the Western Naval Task Force . Along with the heavy cruisers Tuscaloosa and Wichita and four destroyers , Massachusetts sailed to Casablanca on the evening of 7 November . The incomplete French battleship Jean Bart , missing one of her quadruple 380 mm / 45 caliber gun turrets , was in the harbor , having traveled there in 1940 to escape the German invasion of France . American planes were fired upon and two French submarines were spotted leaving the harbor ; at 07 : 03 the coastal battery at El Hank opened fire on Massachusetts . It was mistakenly assumed that the gunfire had come from Jean Bart , so the order to neutralize the battleship was given . Massachusetts hit Jean Bart five times , and in the process disabled the one active main battery turret . Massachusetts also severely damaged the destroyer Milan , which subsequently had to be beached . Four merchant ships and a floating crane were also destroyed .

During this engagement , seven French destroyers managed to escape the harbor and attempted to make their way to the invasion beaches . At 08 : 55 , Massachusetts increased speed in order to attack the destroyers . The battery at El Hank continued to fire on the ship , and at 10 : 00 , one of the 7 @.@ 6 @-@ inch shells from the coastal battery struck her on the port side between the two forward main gun turrets . The shell penetrated the deck armor and started a small fire that was quickly extinguished . At this time , the French cruiser Primauguet and another two destroyers left the port . Massachusetts and Tuscaloosa sank the destroyer Fougueux , and at 10 : 05 a 16 @-@ inch shell from Massachusetts struck the destroyer Milan , and put her out of action . Primaguet was forced to retire after she was hit by a 16 @-@ inch shell from Massachusetts and a number of smaller caliber shells from the American cruisers Brooklyn and Augusta . During the operations off the North African coast on 8 November , Massachusetts fired 786 main battery shells and 221 rounds from her 5 @-@ inch guns .

Following her successful operations off North Africa , Massachusetts was taken in for an overhaul in the Boston Navy Yard . After the refitting , the ship sailed for the Pacific theater , and arrived in Nouméa on 4 March . The battleship supported operations in the South Pacific over the next months , including guarding convoy lanes , escorting aircraft carriers , and bombarding Japanese positions on various islands , including Nauru (8 December 1943) and Kwajalein (30 January 1944) . Returning to carrier protection after the latter bombardment , Massachusetts provided anti @-@

aircraft defense while Allied air attacks were sent against Saipan , Tinian and Guam ; she also supported later invasions of the Caroline Islands and Hollandia . After bombarding Ponape Island on 1 May , the ship set course for the Puget Sound Navy Yard for an overhaul and to have her gun barrels relined , as they had worn out .

Back on active duty , Massachusetts departed Pearl Harbor on 1 August . Joining Task Force 38 , she supported forces landing around Leyte Gulf , and provided cover for task groups attacking Japanese warships in the Battle for Leyte Gulf , Okinawa , and Formosa . Moving to the Philippines , the battleship protected Allied ships and troops during the Battle of Mindoro and was part of a force that struck Manila . Massachusetts , along with the rest of TF 38 , ran into Typhoon Cobra , which had winds of around 120 kn (140 mph ; 220 km / h) . She continued to operate with TF 38 from 30 December and 23 January 1945 ; the ships struck Formosa and Okinawa , provided cover for an amphibious assault on Lingayen , and made forays into the South China Sea to attack Japanese shipping .

In February ? early March 1945 , Massachusetts provided anti @-@ aircraft cover for airborne raids on Honsh? , Iwo Jima and Kyushu . On 24 March , the ship bombarded Okinawa ; for the remainder of that month and a majority of April , Massachusetts once again provided anti @-@ aircraft defense , this time for Allied ships massed near Okinawa . On 5 June , she suffered through another typhoon , Louise , this one with 100 kn (120 mph ; 190 km / h) winds . Five days later , she bombarded Minamidait? . 1 July saw the Third Fleet and Massachusetts set course for Japan ; the battleship protected carriers while they launched raids on Tokyo , then moved closer to land to hit targets with gunfire . Massachusetts attacked Japan 's second largest iron and steel center , Kamaishi on Honsh? , on 14 July ; Hamamatsu on 28 July ; and Kamaishi on 9 August . The latter bombardment was probably the last 16 @-@ inch shell fired during World War II .

With the war over , Massachusetts voyaged to the Puget Sound Navy Yard once more for an overhaul ; once completed , she left on 28 January 1946 and operated off the California coast before setting course for Hampton Roads via the Panama Canal . After she arrived on 22 April , Massachusetts was decommissioned on 27 March 1947 and entered the Atlantic Reserve Fleet ; she was struck from the Naval Register on 1 June 1962 , but not scrapped . Instead , the battleship was given to the Massachusetts Memorial Committee on 8 June 1965 to become a museum ship in Fall River , Massachusetts ; she has been located in " Battleship Cove " ever since .

= = = Alabama = = =

Construction work on Alabama , the fourth and final member of the South Dakota class , began on 1 February 1940 in the Norfolk Navy Yard with the keel laying . She was launched on 16 February 1942 and commissioned into service six months later , on 16 August . Alabama sailed on her shakedown cruise from the Chesapeake Bay on 11 November , which culminated in Casco Bay , Maine . Minor repairs were carried out in Norfolk , after which the big ship returned to Casco Bay to conduct training maneuvers with her sister , South Dakota . Beginning in March 1943 , Alabama was assigned to the British Home Fleet , and tasked with convoy escort duties on the route to the Soviet Union . She was relieved of these duties in July so that she could return to Norfolk for a brief overhaul in August .

Later in August , Alabama departed for the Pacific theater ; the ship was assigned to the US Third Fleet during the amphibious operations in the Gilbert islands , particularly Kwajalein in early 1944 . During the night of 21 February 1944 , Alabama 's 5 @-@ inch guns were firing upon Japanese aircraft in the area . The ship turned in the direction of the Japanese aircraft in order to better engage them , but the rearmost turret was masked behind the amidships mount . The gunner in the rearmost turret accidentally overrode the safety mechanism that prevented the gun from firing in that circumstance , and when the gun was fired , it hit the 5 @-@ inch turret in front of it . Five men were killed and 11 wounded in the incident ; an investigation revealed that the override switch was faulty and prone to accidental operation .

Alabama shot down her first Japanese aircraft the following month , in March 1944 . The ship conducted anti @-@ aircraft defense operations during the Battle of the Philippine Sea in June 1944

. After that , she joined other battleships that were providing gunfire support to the ground troops in the Marianas islands . She was assigned to Task Force 34 during the Battle of Leyte Gulf in October 1944 . In early 1945 , Alabama returned for repair and refit work at the Puget Sound naval yard ; the work consisted primarily of improvements to her guns and radar equipment . By early May the ship returned to fleet operations . She was tasked with providing anti @-@ aircraft support to the fast carrier groups that were launching air strikes on the Japanese main island of Kyushu . In July 1945 , she shelled a number of areas in Japan , including Kamaishi on the 14th , Hitachi on the 18th , and Hamamatsu on the 29th and 30th . These turned out to be her last offensive operations of the war . Her last duty in the Far East was to assist in the landing of occupation forces in Japan , after which she departed for the United States .

On 9 January 1947 , Alabama was placed into the reserve fleet in Bremerton , Washington , where she remained until 1 June 1962 , when she was removed from the Navy List . Alabama was transferred to the USS Alabama Battleship Commission , which had acquired the ship in order to turn her into a memorial . She was towed out of Bremerton on 2 July 1964 , to Mobile , Alabama , where she currently resides as a museum ship , the main attraction of Battleship Memorial Park .

= = = Conversion proposal = = =

On 26 July 1954 , a conversion proposal for the South Dakota class ships was ordered by the Chairman of the Ship Characteristics Board . The request was made for the ships ' speed to be increased to at least 31 knots . To do so , the design staff decided to remove the after turret and use the weight and space gained to install either a set of improved steam turbines or a set of gas turbines . Either system would have to produce at least 256 @,@ 000 shaft horsepower (190 MW) ? the minimum requirement to achieve 31 knots on the South Dakota hull . Unfortunately , this would have necessitated alterations to the hull form , particularly in the rear of the ship . Larger propellers were also required , and all four shafts would have had to have been completely rebuilt to accommodate the changes . Estimates for the project ran as high as $ 40 @,@ 000 @,@ 000 per ship , and this did not include the cost of reactivating the ship and upgrades to its electrical and combat systems . As a result , the conversion program was halted .