

= Florida @-@ class battleship =

The Florida @-@ class battleships of the United States Navy comprised two ships : Florida and Utah . Launched in 1910 and 1909 respectively and commissioned in 1911 , they were slightly larger than the preceding Delaware @-@ class design but were otherwise very similar . This was the first US battleship class in which all ships received steam turbine engines . In the previous Delaware class , North Dakota received steam turbine propulsion as an experiment while Delaware retained triple @-@ expansion engines .

Both ships were involved in the 1914 Second Battle of Vera Cruz , deploying their Marine contingents as part of the operation . Following the entrance of the United States into World War I in 1917 , both ships were deployed to Europe . Florida was assigned to the British Grand Fleet and based in Scapa Flow ; in December 1918 she escorted President Woodrow Wilson to France for the peace negotiations . Utah was assigned to convoy escort duty ; she was based in Ireland and was tasked with protecting convoys as they approached the European continent .

Retained under the Washington Naval Treaty of 1922 , both ships were modernized significantly , with torpedo bulges and oil @-@ fired boilers installed and other improvements made , but were demilitarized under terms of the 1930 London Naval Treaty . Florida was scrapped , Utah converted into first a radio @-@ controlled target ship , then an anti @-@ aircraft gunnery trainer . She served in the latter role until sunk by the Japanese during the attack on Pearl Harbor on 7 December 1941 . Her hull , never raised , remains on the bottom of the harbor as a war memorial .

= = Design = =

The Floridas were the third of 10 separate classes built between 1906 and 1919 , a total of 22 battleships being commissioned . The new dreadnoughts of the American battle line were being designed from pre @-@ dreadnought experience and observation of foreign designs , as no US dreadnought had yet been commissioned at the time that the Floridas were designed ; all were either at some stage of building or in design . American capital ship design was also heavily influenced by war games conducted at the US Navy 's Naval War College . Captain William Sims led a reform movement that assigned warship design to the General Board .

These ships were an improvement over the preceding Delaware class . Their engine rooms were larger to hold four Curtis or Parsons steam turbines . Their larger beam gave them greater metacentric height , in which the Delawares were notably deficient , which improved buoyancy and reduced hull stress . The ships mounted new 5 @-@ inch (127 mm) / 51 caliber guns as secondary batteries in casemates that boasted increased armor protection . The class retained the large and fully enclosed conning towers that were adopted for the preceding Delawares , as a result of American studies of the Battle of Tsushima in 1905 . The design reduced the vulnerability of the command staff . Overall , these ships were much better protected than their British counterparts , although they were modified extensively during the interwar period .

= = General characteristics = = =

The Florida @-@ class ships were 510 ft (160 m) long at the waterline and 521 ft 6 in (158 @.@ 95 m) overall . They had a beam of 88 ft 3 in (26 @.@ 90 m) and a draft of 28 ft 6 in (8 @.@ 69 m) . They displaced 21 @,@ 825 long tons (22 @,@ 175 t) at standard displacement and 23 @,@ 033 long tons (23 @,@ 403 t) at full load . This was an increase of approximately 2 @,@ 500 long tons (2 @,@ 500 t) over the previous Delaware @-@ class . The ships also had some of their superstructure rearranged , including the lattice masts and the funnels . The Florida @-@ class ships had a crew of 1 @,@ 001 officers and men .

The engine rooms on these ships were lengthened to accommodate the larger Parsons steam turbines , which meant the after boiler room had to be eliminated . The remaining boiler rooms were widened by 4 ft (1 @.@ 2 m) ; to do this and maintain adequate underwater and coal bunker protection , the ships were made 3 ft (0 @.@ 91 m) beamier than the Delawares . Funnel spacing

was therefore closer than in the Delawares . Also , the wider beam increased the vessels ' metacentric height , a quality in which the Delawares were notably deficient . This improvement allowed the Floridas to accommodate their larger medium @-@ caliber guns without any real penalty in topweight .

Florida was fitted experimentally with a larger bridge than was then standard , to house both ship and fire control personnel under armor , while Utah received an heavily armored fire @-@ control tower atop a standard @-@ sized bridge . The former proved especially successful , to the point that when a larger armored fire @-@ control tower and standard bridge was proposed for the Nevada class , it was rejected in favor of a roomier bridge like that of Florida .

The two ships were modernized in 1925 ? 27 ; among the improvements were the addition of torpedo bulges , which were designed to increase resistance to underwater damage ? this widened the ships to 106 ft (32 m) . The ships also had their rear lattice masts removed and replaced with a pole mast . A catapult for launching aircraft was mounted on the number 3 gun turret .

= = = Propulsion = = =

The ships were propelled by four @-@ shaft Parsons steam turbines ; steam was provided by 12 Babcock & Wilcox coal @-@ fired boilers . The engines were rated at 28 @,@ 000 shp (20 @,@ 880 kW) to give a top speed of 21 kn (39 km / h) . On trials , Florida made 22 @.@ 08 kn (40 @.@ 89 km / h ; 25 @.@ 41 mph) on 40 @,@ 511 shp (30 @,@ 209 kW) ; Utah 's turbines produced only 27 @,@ 028 shp (20 @,@ 155 kW) but still propelled the ship at 21 @.@ 04 kn (38 @.@ 97 km / h ; 24 @.@ 21 mph) . However , the engine and boiler room arrangements remained the same as in the Delawares , with the engine room situated between the rear main turrets and steam lines running beneath the superfiring rear turret . The ships had a range of 5 @,@ 776 nmi (6 @,@ 650 mi ; 10 @,@ 700 km) at a cruising speed of 10 kn (19 km / h ; 12 mph) .

During Florida and Utah 's reconstruction in 1925 ? 1927 , their coal @-@ fired boilers were replaced with four White @-@ Forster oil @-@ fired boilers . The reduction in the number of boilers allowed their twin funnels to be trunked into one single larger funnel .

= = = Armament = = =

= = = = Main guns = = = =

It was intended originally to arm these ships with eight 14 @-@ inch (356 mm) / 45 caliber guns then in development in superfiring fore @-@ and @-@ aft mountings . As this gun did not go into service until 1914 , the arrangement of ten 12 @-@ inch (305 mm) / 45 caliber Mark 5 guns in five twin gun turrets was retained from the Delaware class . The gun housings were the Mark 8 type , and they allowed for depression to ? 5 degrees and elevation to 15 degrees . The guns had a rate of fire of 2 to 3 rounds per minute . They fired 870 lb (395 kg) shells , of either armor @-@ piercing (AP) or Common types , though the Common type was obsolete by 1915 and put out of production . The propellant charge was 310 lb (141 kg) in silk bags , and provided a muzzle velocity of 2 @,@ 700 ft / s (823 m / s) . The guns were expected to fire 175 rounds before the barrels would require replacement . The two ships carried 100 shells per gun , or 1 @,@ 000 rounds in total . At 15 degrees elevation , the guns could hit targets out to approximately 20 @,@ 000 yd (18 @,@ 288 m)

Unfortunately , the turret layout of the Delawares was also retained , with its respective challenges . Two turrets , Numbers 1 and 2 , were mounted fore in a superfiring pair , while the other three were mounted aft of the main superstructure , all on the centerline . The rearmost turret , number 5 , was placed on the main deck , facing rearward , the next turret , Number 4 , was placed on the main deck facing forward , but could only have fired on either broadside , it could not have fired straight forward or aft . The center turret , Number 3 , placed in a superfiring position facing rearward , could not fire astern when the turret directly under it had its guns trained forward . This left only the

rearmost turret , with its pair of 12 @-@ inch guns , to cover the rear quarter of the ship . Also , since the engine room was situated between the superfiring rear turret and the ones behind it , steam lines ran from the boiler rooms amidships around the ammunition magazine for Number 3 turret to the engine room . These lines , it was later found , had the potential to heat the powder in the magazine and degrade its ballistics . This design flaw was also prevalent in several British dreadnoughts but was considered inescapable by naval designers on structural grounds .

== Secondary guns ==

C & R proposed 6 @-@ inch (152 mm) secondary guns for these ships , protected by 6 @.@ 5 in (165 mm) casemate armor . This would have been the only change from the protective scheme carried over from the Delaware class . However , a new 5 @-@ inch / 51 caliber gun was adopted instead after concerns about inadequate splinter protection for secondary gun casemates and smoke uptakes led to an increase in armor . Sixteen of these weapons were fitted in individual casemates . These guns fired a 50 lb (23 kg) armor @-@ piercing (AP) shell at a muzzle velocity of 3 @, @ 150 ft / s (960 m / s) and a rate of 8 to 9 rounds per minute . The guns could depress to ? 10 degrees and elevate to 15 degrees . The guns were manually operated , and had a range of train of about 150 degrees in either direction .

== Anti @-@ aircraft guns ==

Florida and Utah received two 3 @-@ inch (76 mm) / 23 caliber guns in 1917 for anti @-@ aircraft (AA) defense . This was increased to eight guns between 1926 and 1928 . These guns fired a 16 @.@ 5 lb (7 kg) shell at a muzzle velocity of 1 @, @ 650 ft / s (503 m / s) to a maximum range of 8 @, @ 800 yd (8 @, @ 047 m) and ceiling of 18 @, @ 000 ft (5 @, @ 486 m) at an elevation of 75 degrees and a rate of between eight and nine rounds per minute .

== Torpedo tubes ==

The ships were also armed with two 21 @-@ inch (533 mm) submerged torpedo tubes . The tubes were mounted one on each broadside . The torpedoes were 197 in (5 m) long and carried a 200 lb (91 kg) warhead . They had a range of 4 @, @ 000 yd (3 @, @ 658 m) and traveled at a speed of 26 kn (48 km / h ; 30 mph) .

== Armor ==

The armor layout was largely the same as in the preceding Delaware @-@ class battleships . The armored belt ranged in thickness from 9 to 11 in (229 to 279 mm) in the more important areas of the ship . Casemated guns mounted in the hull had between 8 and 10 in (203 and 254 mm) of armor plate . After modernization , some of the casemated guns were moved to the superstructure ; these guns were protected with only 5 in (127 mm) of armor . The barbettes that housed the main gun turrets were armored with between 4 and 10 in (102 and 254 mm) of armor ; the side portions more vulnerable to shell fire were thicker , while the front and rear sections of the barbette , which were less likely to be hit , received thinner armor to save weight . The gun turrets themselves were armored with 12 in (305 mm) of armor . The conning tower was 11 @.@ 5 in (292 mm) thick . The armored deck was slightly reduced in thickness , from 2 to 1 @.@ 5 in (51 to 38 mm) .

== Construction ==

Florida , ordered under hull number " Battleship # 30 " , was laid down at the New York Navy Yard on 9 March 1909 . She was launched on 12 May 1910 , after which fitting out work commenced . Work was finished on 15 September 1911 , at which point she was commissioned into the United States Navy . Utah was ordered under hull number " Battleship # 31 " . She was laid down in

Camden , New Jersey , at the New York Shipbuilding Corporation , 6 days later on 15 March . Work proceeded faster on Utah than on her sister ship , and she was launched about four and a half months earlier , on 23 December 1909 . After launching , she underwent fitting out work , which lasted until 31 August 1911 , when she was commissioned into the American fleet .

= = Service history = =

= = = USS Florida = = =

Florida took part in the Second battle of Vera Cruz in 1914 . She and her sister Utah were the first two ships on the scene ; the two ships landed some 1 @, @ 000 sailors and Marines under the command of Florida 's captain on 21 April . Fighting lasted for 3 days ; the contingent from Florida and Utah suffered a total of 94 casualties .

After the United States entered World War I in April 1917 , Florida was dispatched to Europe ; she departed the United States in December 1917 . After arriving in the North Sea , she was assigned to the Grand Fleet , where she served with her British counterparts . The ship , part of the US Navy 's Battleship Division Nine , under the command of Rear Admiral Hugh Rodman , arrived on 7 December and was assigned to the 6th Battle Squadron of the Grand Fleet . Following training exercises with the British fleet , 6th Battle Squadron was tasked with convoy protection duty on the route to Scandinavia . Following the end of the war , in December 1918 , the ship escorted President Woodrow Wilson on his trip to Europe to participate in the peace negotiations at Versailles . Later in December , Florida returned to the United States to participate in the Victory Fleet Review in New York harbor .

Post @-@ war , Florida returned the US Navy 's Atlantic Fleet ; she operated along the east coast of the United States and into Central America . In July 1920 , she was assigned the hull numbers " BB @-@ 30 " . In December 1920 , she carried the US Secretary of State , Bainbridge Colby , on a diplomatic trip around the Caribbean and South America . Florida was the oldest American battleship that was retained under the terms of the Washington Naval Treaty of 1922 . She underwent extensive reconstruction and modernization during the mid @-@ 1920s . After emerging from the shipyard , she was assigned as the flagship of the Control Force , US Fleet . The ship conducted a series of training cruises for the remainder of the decade . Under the London Naval Treaty of 1930 , the ship was to be discarded . She was decommissioned in February 1931 and towed to the Philadelphia Naval Shipyard , where she was broken up for scrap .

= = = USS Utah = = =

Utah 's first assignment was with the US Navy 's Atlantic Fleet . During 1913 , she took a goodwill voyage to the Mediterranean . Utah was also involved in the Second Battle of Vera Cruz , alongside her sister Florida . The ship also saw front @-@ line duty in the First World War , although she was not attached to the British Grand Fleet . Starting in September 1918 , Utah was based in Bantry Bay , Ireland . Here she conducted convoy escort duties on the approach to Europe .

Post @-@ war service saw Utah again in the Atlantic Fleet ; during 1921 ? 22 , she was stationed in Europe . Utah was also retained under the Washington Naval Treaty . In 1924 ? 1925 , the ship sailed on a goodwill cruise to South America . Following her return to the United States , she was taken into dry dock for significant reconstruction . After she rejoined the active fleet , she was assigned to the US Scouting Fleet . Late in 1928 , she steamed to the South Atlantic , where she picked up President @-@ Elect Herbert Hoover , who was returning from an ambassadorial visit to several South American countries .

According to the London Naval Treaty , the ship was to be removed from front @-@ line service . To this end , she had her main battery guns removed and she was converted into a radio @-@ controlled target ship . She was redesignated AG @-@ 16 , and served in this capacity after 1931 . In the mid @-@ 1930s , she was rebuilt again , as an anti @-@ aircraft gunnery training ship . In

1941 , additional anti @-@ aircraft guns were installed to increase her training capacity . Later in 1941 , she was transferred to the US Pacific Fleet and based in Pearl Harbor . She was present in Pearl Harbor on 7 December 1941 ; after having been hit by two torpedoes , she capsized and sank . A few years later , the hull was partially righted and towed closer to Ford Island , where the wreck remains today .