

= Bismarck @-@ class battleship =

The Bismarck class was a pair of battleships built for Nazi Germany 's Kriegsmarine shortly before the outbreak of World War II . The ships were the largest warships built for the Kriegsmarine . Bismarck was laid down in July 1936 and completed in September 1940 , while her sister Tirpitz 's keel was laid in October 1936 and work finished in February 1941 . The two ships were broadly similar to the World War I @-@ era Bayern class , in that they mounted a similar main battery .

Both ships had short service careers . Bismarck conducted only one operation , Operation Rheinübung , a sortie into the North Atlantic to raid supply convoys sent from North America to Great Britain . During the operation , she destroyed the British battlecruiser HMS Hood and damaged the new battleship Prince of Wales in the Battle of the Denmark Strait . Bismarck was defeated and sunk in a final engagement after a three @-@ day chase by the Royal Navy . Disagreements over the cause of the sinking persist with chiefly British sources claiming responsibility for the sinking of the ship . Evidence reviewed by Robert Ballard and James Cameron indicates that her loss was most likely due to scuttling as originally claimed by her surviving crew @-@ members .

Tirpitz 's career was less dramatic ; she was sent to Norwegian waters in 1942 , where she acted as a fleet in being , threatening the convoys from Britain to the Soviet Union . She was repeatedly attacked by the Royal Navy and Royal Air Force . In 1944 , Lancaster bombers hit the ship with three Tallboy bombs , which caused extensive internal damage and capsized the battleship . Tirpitz was broken up for scrap between 1948 and 1957 .

= = Design = =

A series of conceptual designs were begun in 1932 to determine the ideal characteristics of a battleship built to the 35 @, @ 000 long tons (36 @, @ 000 t) limit of the Washington Naval Treaty . These early studies determined that the ship should be armed with eight 33 cm (13 in) guns , have a top speed of 30 knots (56 km / h ; 35 mph) , and have strong armour protection . The design work for what became the Bismarck class was begun in 1933 and continued until 1936 . In June 1935 , Germany signed the Anglo @-@ German Naval Agreement , which allowed Germany to build battleships at a ratio of 35 percent to the total tonnage of the Royal Navy . It also made Germany party to the international treaty system begun at the Washington Conference . At the time , France , which had begun a program of naval expansion , was viewed as the most likely threat , not Great Britain . As a result , Bismarck and Tirpitz were intended to counter the new French battleships being built at the time .

A series of questions needed to be answered during the design process , including the calibre of the main battery , the propulsion system , and armour protection . The deciding factor for the adoption of 38 cm (15 in) guns for Bismarck and Tirpitz was the decision of the French Navy to arm its four Richelieu @-@ class ships then under construction with 38 cm pieces . It was decided that four twin turrets would provide the best solution to distribution of the main battery , as it would provide equal firepower forward and aft , as well as simplify fire control . This arrangement was similar to the last German battleships of the Imperial period , the Bayern class . The similarity led to speculation that the Bismarcks were essentially copies of the earlier ships , though the arrangement of the main battery was the only shared trait , along with a three @-@ shaft propulsion system .

The naval constructors examined diesel geared drive , steam drive , and turbo @-@ electric drive engines ; the last system was the preferred choice , as it had been extremely successful in the two American Lexington @-@ class aircraft carriers and the French passenger ship Normandie . The design staff were also required to provide sufficient range to the new battleships ; they would have to make long voyages from German ports to reach the Atlantic , and Germany had no overseas bases where the ships could refuel . Due to the numerical inferiority of the German fleet and the assumption that naval battles would take place at relatively close range in the North Sea , the design placed great emphasis on stability and armour protection . Very thick vertical belt armour was adopted , along with heavy upper @-@ citadel armour plating and extensive splinter protection in

the bow and stern of the ships .

The displacement of Bismarck and Tirpitz were limited by the capabilities of existing infrastructure in Kiel and Wilhelmshaven , and the Kaiser Wilhelm Canal . On 11 February 1937 , the Construction Office informed Generaladmiral (General Admiral) Erich Raeder that the ships could not displace more than 42 @, @ 000 long tons (43 @, @ 000 t) due to harbour constraints and canal depths . The office also expressed a preference for building a third vessel and remaining within the 35 @, @ 000 @-@ ton treaty limit . Admiral Werner Fuchs , the head of the General Command Office of the Oberkommando der Marine , advised Raeder and Adolf Hitler that modifications would be necessary to reduce the displacement to ensure the new ships met the legal requirements of the London Naval Treaty . Japan refused to sign the new treaty , and so on 1 April 1937 an escalator clause permitting treaty signatories to build ships up to a limit of 45 @, @ 000 long tons (46 @, @ 000 t) went into effect . The final design displacement of 41 @, @ 400 long tons (42 @, @ 100 t) was well within this limit , so Fuchs 's modifications were discarded .

= = = General characteristics = = =

The Bismarck @-@ class battleships were 251 m (823 ft 6 in) long overall and 241 @. @ 60 m (792 ft 8 in) long at the waterline . The ships had a beam of 36 m (118 ft 1 in) , and a designed draft of 9 @. @ 30 m (30 ft 6 in) ; the draft at standard displacement was 8 @. @ 63 m (28 ft 4 in) , and 9 @. @ 90 m (32 ft 6 in) at a full load . The ships had a designed displacement of 45 @, @ 950 metric tons ; their standard displacement was 41 @, @ 700 metric tons , and when fully laden , the ships displaced 50 @, @ 300 metric tons . The ships had a double bottom for 83 percent of the length of the hull , and twenty @-@ two watertight compartments . The ships were 90 percent welded construction . The stern was weakly constructed ; this had significant consequences on Bismarck 's only combat mission .

The ships were very stable , primarily because of their wide beam . The ships suffered from only slight pitching and rolling , even in the heavy seas of the North Atlantic . Bismarck and Tirpitz were responsive to commands from the helm ; they were capable of manoeuvring with rudder deflections as small as 5 ° . With the rudder completely over , the ships heeled only 3 ° , but lost up to 65 % of their speed . The ships handled poorly at low speeds or when travelling astern . As a result , tugs were necessary in confined areas to avoid collisions or grounding . The ships had a standard crew of 103 officers and 1 @, @ 962 enlisted sailors . The ships carried smaller boats , including three picket boats , four barges , one launch , two pinnaces , two cutters , two yawls , and two dinghies .

= = = Propulsion = = =

The Bismarck @-@ class ships both had three sets of geared turbine engines ; Bismarck was equipped with Blohm & Voss turbines , while Tirpitz used Brown , Boveri , and Co. engines . Each set of turbines drove a 3 @-@ bladed screw that was 4 @. @ 70 m (15 ft 5 in) in diameter . Robert Ballard , the discoverer of Bismarck , noted that the adoption of the three @-@ shaft arrangement caused serious problems for Bismarck . The centre shaft weakened the keel , especially where it emerges from the hull . Ballard stated that a four @-@ shaft arrangement would have allowed a greater ability to steer the ship using only propeller revolutions than the three @-@ screw system .

At a full load , the high and medium @-@ pressure turbines ran at 2 @, @ 825 rpm , while the low @-@ pressure turbines ran at 2 @, @ 390 rpm . The ships ' turbines were powered by twelve Wagner ultra high @-@ pressure oil @-@ burning boilers . The two ships had different fuel stores ; Bismarck was designed to carry 3 @, @ 200 tons of fuel oil , but could store up to 6 @, @ 400 tons of fuel in a normal configuration ; with extra fuel bunkers , the fuel carried could be increased up to 7 @, @ 400 tons . Tirpitz was designed to carry 3 @, @ 000 tons of fuel , and with additional bunkers , was able to store up to 7 @, @ 780 tons . At 19 knots , Bismarck could steam for 8 @, @ 525 nautical miles (15 @, @ 788 km) , and Tirpitz had a maximum range of 8 @, @ 870 nautical miles (16 @, @ 430 km) at that speed .

The turbines were initially intended to use electric transmission , and would have produced 46 @, @

000 hp (34 @, @ 000 kW) apiece . The geared turbines were lighter , and as a result had a slight performance advantage . The geared turbines also had a significantly more robust construction . The ships mounted eight 500 kW diesel generators arranged in four pairs , five 690 kW turbo @-@ generators , and one 460 kW , the last of which was connected to a 400 kVA AC generator . Another 550 kVA diesel generator provided additional AC power . The electrical plant provided a total 7 @, @ 910 kW at 220 volts .

= = = Armament = = =

= = = Main battery = = =

Bismarck 's and Tirpitz 's main battery consisted of eight 38 cm (15 in) SK C / 34 guns in four twin turrets , Anton and Bruno in a superfiring pair forward of the superstructure and Caesar and Dora aft . The turrets allowed elevation to 30 ° , which gave the guns a maximum range of 36 @, @ 520 m (39 @, @ 940 yd) . The guns fired 800 kg (1 @, @ 800 lb) projectiles at a muzzle velocity of 820 metres per second (2 @, @ 690 ft / s) . The main battery was supplied with between 940 ? 960 shells total , for approximately 115 ? 120 shells per gun . As with other German large @-@ calibre naval rifles , these guns were designed by Krupp and featured sliding wedge breech blocks , which required brass cartridge cases for the propellant charges . Under optimal conditions , the rate of fire was one shot every 18 seconds , or three per minute . The gun turrets were electrically trained and the guns were hydraulically elevated . Gun elevation was controlled remotely . The turrets required each gun to return to 2 @. @ 5 ° elevation for loading . Tirpitz was eventually provided with time @-@ fuzed shells to combat the repeated Allied bombing attacks .

The Bismarcks ' use of four twin turrets (the 4 × 2 configuration) was a design practice that hearkened back to the First World War . Almost all other post @-@ 1921 capital ships had triple or even quadruple turrets , which allowed for additional heavy caliber guns , while reducing the number of turrets . Fewer turrets reduced the length of the battleship 's armored citadel (particularly magazine length and the armor needed to protect it) and shortened the vessel itself . Although triple turrets were considered for the Bismarcks , there were concerns that the extra barrel would lower the overall rate of fire in each turret , along with fears that a single well @-@ aimed hit could disable a larger proportion of the ship 's firepower . It was also felt that four twin turrets allowed for a better field of fire and a more effective sequence of salvos .

Although other contemporary vessels like the American North Carolina @-@ class battleships carried 40 @. @ 6 @-@ cm main guns , the Bismarcks used 38 @-@ cm naval guns as the Germans had experience with them ; a 40 @. @ 6 @-@ cm weapon would have had to have been designed from scratch . Bismarck was also authorized prior to the breakdown of the London Naval Treaty and the invocation of the 45 @, @ 000 @-@ ton , 406 @-@ mm main gun escalator clause (which the United States did invoke with the North Carolinas) ; building 40 @. @ 6 cm battleships would doubtless have seemed provocative , especially to the United Kingdom . As it was , the 38 cm main battery of the Bismarck class compared well to their contemporaries , out @-@ ranging almost all of the 38 cm and 40 @. @ 6 cm guns of contemporary navies (with the exception of the Italian 38 @. @ 1 cm gun , which suffered exceptional bore erosion as a consequence) . The German gun was superior to the World War I era BL 15 inch / 42 naval gun (381 mm) of the Royal Navy in both range and penetration .

= = = Secondary battery = = =

The ships ' secondary battery consisted of twelve 15 cm (5 @. @ 9 in) SK C / 28 guns mounted in six twin turrets . The 15 cm gun turrets were based on the single @-@ gun turrets used aboard the Scharnhorst class . They could elevate to 40 ° and depress to ? 10 ° ; they had a rate of fire of around six shots per minute . The 15 cm guns fired a 45 @. @ 3 kg (100 lb) shell at a muzzle velocity of 875 m / s (2 @, @ 871 ft / s) . At maximum elevation , the guns could hit targets out to

23 @, @ 000 m (25 @, @ 000 yd) . As with the main battery guns , Tirpitz 's 15 cm guns were later supplied with time @-@ fused shells .

The decision to mount low @-@ angle 15 cm guns has been criticised by naval historians , including Antony Preston , who stated that they " imposed a severe weight penalty " , while American and British battleships were being armed with dual @-@ purpose guns . Naval historians William Garzke and Robert Dulin note that " the use of dual @-@ purpose armament would have possibly increased the number of anti @-@ aircraft guns , but might have weakened the defence against destroyer attack , which German naval experts deemed more important . "

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

As built , Bismarck and Tirpitz were equipped with an anti @-@ aircraft battery of sixteen 10 @. @ 5 cm (4 @. @ 1 in) C / 32 65 @-@ calibre guns in eight twin mounts , sixteen 3 @. @ 7 cm (1 @. @ 5 in) C / 30 guns in eight dual mounts , and twelve 2 cm (0 @. @ 79 in) guns in individual mounts . The 10 @. @ 5 cm guns were the same weapons as used aboard the Scharnhorst class , and were mounted on the first superstructure deck . After Bismarck was sunk in 1941 , two amidships guns on Tirpitz were moved forward so as to provide them with better fields of fire . The sixteen guns were guided by four fire @-@ control directors , two just aft of the conning tower , a third positioned aft of the main mast , and the fourth directly behind turret Caesar . Tirpitz 's directors were covered by protective domes , though Bismarck 's were not .

The ships ' 37 mm 83 @-@ calibre guns were twin mounted and placed in the superstructure . The mounts were hand @-@ operated and automatically stabilised for roll and pitch . These guns were supplied with a total of 32 @, @ 000 rounds of ammunition . Bismarck and Tirpitz were initially armed with twelve 20 mm guns in single mounts , though these were augmented over time . Bismarck received a pair of quadruple gun mountings , for a total of twenty 20 mm guns . Over the course of her career , Tirpitz 's 20 mm battery was increased to 78 guns in single and quadruple mountings .

== = Armour == = =

The Bismarck @-@ class ships had an armoured belt that ranged in thickness from 220 to 320 mm (8 @. @ 7 to 12 @. @ 6 in) ; the thickest section of armour covered the central portion , where the gun turrets , ammunition magazines , and machinery spaces were located . This portion of the belt was capped on either end by 220 mm thick transverse bulkheads . The ships had an upper deck that was 50 mm (2 @. @ 0 in) thick , and an armoured deck that was between 100 ? 120 mm (3 @. @ 9 ? 4 @. @ 7 in) thick amidships , and tapered down to 60 mm (2 @. @ 4 in) at the bow and 80 mm (3 @. @ 1 in) at the stern . The deck was mounted low in the hull , however , which reduced the volume of internal space protected by the armoured citadel . This contrasted with contemporary British and American designs that featured a single thick armoured deck mounted high in the ship .

The forward conning tower had a 200 mm (7 @. @ 9 in) thick roof and 350 mm (14 in) thick sides , while the range finder had an armoured roof 100 mm (3 @. @ 9 in) thick and 200 mm (7 @. @ 9 in) thick sides . The aft conning tower had much lighter armour : the roof was 50 mm (2 @. @ 0 in) thick and the sides were 150 mm (5 @. @ 9 in) , while the aft range finder had a 50 mm (2 @. @ 0 in) thick roof and 100 mm (3 @. @ 9 in) sides . The main battery turrets were reasonably well @-@ protected : the turret roofs were 130 mm (5 @. @ 1 in) thick , the sides were 220 mm (8 @. @ 7 in) thick , and the faces were 360 mm (14 in) thick with 220 mm (8 @. @ 7 in) thick shields . These armour thicknesses were less than those of contemporary British (King George V) and French (Richelieu) designs . Conversely , the secondary battery was better @-@ protected than most rivals . The 15 cm (5 @. @ 9 in) gun turrets had 35 mm (1 @. @ 4 in) thick roofs , 40 mm (1 @. @ 6 in) sides , and 100 mm (3 @. @ 9 in) fronts . The 10 @. @ 5 cm (4 @. @ 1 in) guns had 20 mm (0 @. @ 79 in) shields .

== Construction ==

Bismarck was laid down at the Blohm & Voss shipyard on 1 July 1936 . The ship was assigned construction number 509 , and the contract name Ersatz Hannover , as a replacement for the old battleship Hannover . The ship was launched on 14 February 1939 , with Adolf Hitler in attendance . The granddaughter of the ship 's namesake , Otto von Bismarck , christened the ship . As with other German capital ships , Bismarck was originally built with a straight bow . Experiences with other ships revealed the necessity of a clipper bow , which was installed on Bismarck during the fitting @-@ out process . The ship was commissioned into the fleet on 24 August 1940 , with Kapitän zur See Ernst Lindemann in command . Three weeks later , the ship left Hamburg for trials in the Baltic Sea , before returning in December for final fitting @-@ out work . Further trials and tests were conducted in the Baltic in March and April ; Bismarck was placed on active status the following month .

Tirpitz 's keel was laid at the Kriegsmarine dockyard in Wilhelmshaven on 20 October 1936 , under construction number 128 . She had been ordered under the contract name Ersatz Schleswig @-@ Holstein to replace the obsolete battleship Schleswig @-@ Holstein . Tirpitz was named for Grand Admiral Alfred von Tirpitz , the architect of the High Seas Fleet before World War I. His daughter , Frau von Hassel , christened the ship on 1 April 1939 . Fitting out work lasted until February 1941 ; Tirpitz was commissioned into the fleet on 25 February . A series of trials were then conducted , first in the North Sea and then in the Baltic .

= = Ships = =

= = Service history = =

= = = Bismarck = = =

After Bismarck joined the fleet , plans were drawn up for a sortie into the North Atlantic . The operation initially called for a force composed of Bismarck , Tirpitz , and the two Scharnhorst @-@ class battleships . Tirpitz was not yet ready for service by May 1941 , and Scharnhorst was being overhauled . The force was reduced to Bismarck , Gneisenau , and the heavy cruiser Prinz Eugen . Gneisenau was damaged by a British bombing raid on Brest , so it was decided that only Bismarck and Prinz Eugen would conduct the operation . Admiral Günther Lütjens was placed in command of the pair of ships .

Early on the morning of 19 May , Bismarck left Gotenhafen , bound for the North Atlantic . While on the trip through the Danish Belt , Bismarck and Prinz Eugen encountered the Swedish cruiser HSwMS Gotland ; the sighting was passed through the Swedish Navy to the British naval attaché in Stockholm . The British Royal Air Force conducted aerial reconnaissance of the Norwegian fjord in which Bismarck and Prinz Eugen had stopped , to confirm the sighting . While in Norway , Admiral Lütjens failed to replenish the approximately 1 @, @ 000 long tons (1 @, @ 000 t) of fuel Bismarck had spent on the first leg of the voyage .

By 23 May , Bismarck and Prinz Eugen had reached the Denmark Strait . That evening , the British cruisers Suffolk and Norfolk briefly engaged Bismarck before dropping back to shadow the German ships . At 06 : 00 the following morning , observers aboard Bismarck spotted the masts of the battlecruiser Hood and the new battleship Prince of Wales . The British ships steamed directly towards Bismarck and Prinz Eugen , before attempting a turn to bring the two forces on a roughly parallel course . During the turn , at least one of Bismarck 's 38 cm shells penetrated one of the aft ammunition magazines aboard Hood , which caused a catastrophic explosion and destroyed the ship . There were only three survivors from Hood 's crew of 1 @, @ 421 . The German ships then concentrated their fire on Prince of Wales , which was forced to withdraw . Bismarck did not emerge unscathed ; a direct hit on her bow from Prince of Wales caused Bismarck to take in some 2 @, @ 000 long tons (2 @, @ 000 t) of water . The ship was also leaking oil , which made it easier for the

British to track her .

After retreating , Prince of Wales joined Norfolk and Suffolk ; the ships briefly engaged Bismarck at around 18 : 00 . Neither side scored a hit . By this time , 19 warships were involved in the chase . This included six battleships and battlecruisers and two aircraft carriers , along with a number of cruisers and destroyers . After the second engagement with Prince of Wales , Lütjens detached Prinz Eugen to continue the operation while Bismarck sailed for port . Shortly before midnight on 24 May , a group of Fairey Swordfish torpedo bombers from 825 Naval Air Squadron on Victorious attacked Bismarck . One torpedo struck the ship amidships , though without doing any serious damage . The shock from the explosion , coupled with Bismarck 's manoeuvring at high speed , damaged the temporary repairs that had stopped the flooding from the earlier battle damage . Her speed was reduced to 16 knots (30 km / h ; 18 mph) to slow the flooding while repair teams fixed the reopened wounds .

Early on 25 May , Bismarck doubled back past her pursuers in a wide circle . The manoeuvre successfully shook off the British ships , which turned west in an attempt to find the ship . Despite the manoeuvre , Admiral Lütjens was unaware that he had evaded the British , and so sent a series of radio transmissions , which were intercepted by the British and used to gain a rough fix on his position . Due to the damage his ship had sustained , Lütjens decided to head for occupied France rather than continue his mission . On the morning of 26 May , a Coastal Command PBY Catalina flying boat spotted Bismarck 690 nmi (1 @,@ 280 km ; 790 mi) to the north @-@ west of Brest ; she was steaming at a speed that would put her under the protective umbrella of German aircraft and U @-@ boats within 24 hours . The only British forces close enough to slow her down were the aircraft carrier Ark Royal and her escort , the battlecruiser Renown . At approximately 20 : 30 , a flight of fifteen Ark Royal 's 820 Naval Air Squadrons Swordfish torpedo bombers launched an attack on Bismarck . Three torpedoes were believed to have struck the ship ; the first two torpedoes failed to do serious damage to the ship , but the third hit jammed Bismarck 's rudders hard to starboard . The damage could not be repaired , and the battleship began turning in a large circle , back towards her pursuers .

An hour after the Swordfish attack , Lütjens transmitted the following signal to Naval Group Command West : " Ship unable to manoeuvre . We will fight to the last shell . Long live the Führer . " At 08 : 47 the following morning , the battleship Rodney opened fire , followed directly by King George V. Bismarck replied three minutes later , though at 09 : 02 a 16 inch shell from Rodney destroyed the forward turrets . Half an hour later , Bismarck 's rear turrets were silenced as well . At around 10 : 15 , both British battleships had ceased fire , their target a burning wreck . The British were running dangerously low on fuel , but Bismarck had not yet been sunk . The cruiser Dorsetshire fired several torpedoes into the crippled ship , which then took on a severe list to port . At approximately the same time as Dorsetshire 's attack , engine room crew detonated scuttling charges in the engine rooms . There is still significant debate as to the direct cause of Bismarck 's sinking . Only 110 men were rescued by the British before reports of U @-@ boats forced them from the scene . A further five men were rescued by German vessels .

= = = Tirpitz = = =

Tirpitz 's first action following her commissioning into the Kriegsmarine on 25 February 1941 was to act as a deterrent to a possible Soviet attempt to break out their Baltic Fleet following the German invasion of the Soviet Union . The ship was joined by the heavy cruiser Admiral Scheer and the light cruisers Leipzig , Nürnberg , and Köln . The force patrolled off the Åland Islands for a few days before returning to Kiel . On 14 January 1942 , Tirpitz left German waters for Norway , arriving on the 17th .

On 6 March , Tirpitz , escorted by three destroyers , launched a raid on the British convoys to the Soviet Union . The Germans attempted to intercept convoys PQ @-@ 12 and QP @-@ 8 , but the inclement weather prevented them from finding the convoys . The British located Tirpitz , and the aircraft carrier Victorious launched a strike of twelve Fairey Albacore torpedo bombers . The aircraft were repulsed without having scored any hits on the German ships . Tirpitz and the destroyers were

back in port by 12 March . The close call prompted Hitler to mandate that Tirpitz was not to attack another convoy unless its escorting aircraft carrier had been sunk or disabled .

Over the next two months , the RAF launched a series of unsuccessful bombing raids against Tirpitz while she was moored in the Faettenfjord . The first , by 34 Handley Page Halifax bombers , took place on 31 March . Two followed a month later , on 28 and 29 April . The first attack was conducted by 43 Halifax and Avro Lancaster bombers , the second by 34 Halifax and Lancaster . A combination of heavy German anti - aircraft fire and poor weather caused all three missions to fail . Over the rest of the year and into late 1942 , Tirpitz underwent a refit in the Faettenfjord , which lacked dockyard facilities of any type . As a result , the work was done incrementally ; a large caisson was built to allow the rudders to be replaced . Naval historians William Garzke and Robert Dulin stated that " the repairs to this ship were one of the most difficult naval engineering feats of World War II . "

In January 1943 , Tirpitz emerged from the lengthy overhaul , after which she was transferred to Altafjord . Here , she participated in extensive training operations with Scharnhorst and the heavy cruiser Lützow , which lasted until the middle of the year . In early September , Tirpitz , Scharnhorst , and ten destroyers bombarded the island of Spitzbergen , which served as a British refuelling station . The two battleships destroyed their targets and returned safely to Altenfjord ; this was the first time Tirpitz fired her main guns in anger . On 22 - 23 September , six British midget submarines attacked Tirpitz while at anchor . Two of the submarines successfully planted explosive charges against the battleship 's hull , which did serious damage . Tirpitz had been successfully neutralised . Over the next six months , a workforce of some 1 000 men effected the needed repairs , which were finished by March 1944 .

The British resumed the series of air attacks almost immediately after repairs were completed . On 3 April , the Royal Navy launched Operation Tungsten , during which 40 fighters and 40 Barracuda bombers from six carriers attacked the ship . They scored 15 direct hits and two near misses , which caused heavy damage , killed 122 men , and wounded 316 more . The Royal Navy attempted to repeat the attack three weeks later on the 24th , but had to call the operation off due to inclement weather . Operation Brawn , another carrier - launched attack , followed on 15 May , but again weather interfered . Another carrier strike was attempted on 28 May , but it too was cancelled due to poor weather conditions . Operation Mascot , which was to be conducted by Victorious , Furious , and Indefatigable on 17 July , was frustrated by the heavy smokescreen over the battleship .

The Royal Navy launched the Operation Goodwood series in late August . Goodwood I took place on 22 August , with 38 bombers and 43 fighters from five carriers . The attackers failed to score any hits . Goodwood III followed two days later , with 48 bombers and 29 fighters from Formidable , Furious , and Indefatigable . The bombers made two hits on the ship , which did only minor damage . The last Royal Navy operation , Goodwood IV , followed on 29 August . Thirty - four bombers and 25 fighters , launched from Formidable and Indefatigable , attacked the ship , though fog prevented them from scoring any hits .

The task of sinking Tirpitz now fell to the RAF , which performed three airstrikes armed with new 5 000 kg (11 000 lb) Tallboy bombs . The first attack , Operation Paravane , came on 15 September , when a force of 27 Lancasters dropped a single Tallboy each ; the bombers succeeded in hitting Tirpitz directly in the bow with one of the bombs . The bomb completely penetrated the ship and exploded directly under her keel . This caused 1 500 t (1 500 long tons ; 1 700 short tons) of water to flood the ship ; Tirpitz had again been disabled . A month later , on 15 October , Tirpitz was moved to Haaköy Island off Tromsø to be used as a floating artillery battery . Two weeks later , on 29 October , the British launched Operation Obviate , which consisted of 32 Lancaster bombers . Only a near miss was achieved , though it caused Tirpitz to take in more water . The last attack , Operation Catechism , took place on 12 November . Thirty - two Lancasters attacked the ship and scored a pair of direct hits and a near miss . The bombs detonated one of Tirpitz 's ammunition magazines and caused the ship to capsize . Casualties were high : 1 204 men were killed in the attack . Another 806 men managed to escape the sinking ship , and a further 82 were rescued from the capsized hulk . The wreck was gradually broken up for scrap between 1948 and 1957 .

= = See Also = =

List of ships of the Second World War

List of ship classes of the Second World War