


I'm not robot  reCAPTCHA

Continue

The Naval Intelligence Identification Division and Characteristics Section Schematic View - Italian 600-ton submarine --2-- In response refer to the initials and No. Op-16-F-20.SS/E/F74. Serial number 3849016. NAVY DEPARTMENT OFFICE OF THE CHIEF OF NAVAL OPERATIONS Washington, D. C. O. N. I. 220-M AXIS SUBMARINE MANUAL O. N. I. 220-M - Axis Manual Submarine - is designed primarily for the craftsmen and sailors of our merchant fleet and for the crews of the armed guard. This publication is elementary in the text and intentionally non-technical. Its goal is to introduce the sailors to some characteristics and tactics of the raider, who approaches the invisible and strikes without warning. This publication includes the main types of Axis submarines. Vichy French submarines are also included so that the coverage of the leading continental naval powers will be more complete. The methods described are largely from what we know about German methods. However, it is believed that the principles under discussion apply to the underwater forces of Italy and Japan, taking into account national characteristics - caution and prudence in the case of Italy; reckless bigotry in the case of Japan. As indicated in the following text, the main methods available to the ship's master to restrain his attacker are methods of concealment and tax evasion. Thus, strict adherence to sailing instructions for the blackout of the vessel, zigzag and similar precautions is clearly stated. Although these are negative remedies, they have positive and concrete results. Too often, the testimony of the survivors in the merchant ship is categorically thrust that the lights were burning brightly or that the ship did not zigzag. This publication is an unclassified public document. It issued in quantity for the use of United Nations trade maritime personnel, both officers and people. The wide and common distribution must be made of its contents so that those people who have to run the gauntlet of a worldwide underwater blockade will know the nature of the enemy who seeks to destroy them. H. C. TRAIN, Rear Admiral, U.S. Navy, Director of Naval Intelligence. --3- Since the First World War, the German submarine has improved significantly. The modern U-boat will reportedly be able to dive to depths of more than 500 feet and be impervious to the deep charges that would have destroyed its predecessor 1918. On the surface, the submarine is a small and tough target for firing. The rounded surfaces and thick coating of the pressure hull make the submarine immune to damage from machine guns and other small-caliber guns. The conning tower has a very thick coating and a waterproof hatch at its base. Even a penetrating hit on the conning tower probably won't destroy the submarine, and it may even prevent its further work. Work. The U71-80 517 Ton --4-German 517-ton submarine, captured by British damage to the top of the submarine's hull or diving control mechanism, prevents the submarine from sinking. If a submarine cannot dive due to damage, and if it is far from its base and in waters controlled by the enemy, its possible destruction by hostile aircraft and surface ships is highly likely. The submarine, limited by the surface, however, is not entirely defenseless. As long as the submarine retains its ability to use its guns and torpedoes, it is a dangerous vessel. It should be understood that not only are guns available for the submarine on the surface, but torpedoes can also be fired from this as well as from flooded positions. 517-ton German submarine --5 -- A submarine that is undamaged is usually not left on the surface to use its weapons against heavily armed ships or aircraft. By doing so, it takes unnecessary risk and loses the submarine's greatest asset, the ability to operate submerged and invisible. However, there are circumstances in which the submarine will attack the missile. Weapons are cheaper than torpedoes and there are more on board, as even the largest submarines carry only a limited number of torpedoes - perhaps no more than 32. Also at night the submarine, because of its small silhouette, can approach the large ship and open fire before being seen. It can even destroy its prey before it is forced to dive into the water. The German submarine's weapons battery consists of 1 or 2 guns 31/2 inches or larger caliber, which would be effective against unarmed ships at a range of up to 5 miles, and 2 machine guns that are for attacks close on board and against exposed personnel. German torpedoes of two types. One of them is an air-controlled torpedo with an effective range of about 8 miles. The other is an electric and wake-up torpedo that has a much shorter range of 2 miles. Both types of torpedoes can be fired when the submarine is either on the surface or submerged to the depths of the periscope. In addition, they can be released by sound bearings from the submarine fully submerged to a depth of more than 100 feet. --6-- One or two torpedo hits, with the right placement, will sink a large merchant ship, although there are many cases of tankers and other ships that have returned home after sustaining a torpedo attack from an enemy submarine (top). Submarines are equipped with very effective underwater sound devices that allow them to detect the presence and bearings of large surface vessels within a 5 mile radius. This equipment also allows the submarine to accurately track the position of attacking destroyers and other units. Evacuation maneuvers are facilitated by high maneuverability and a relatively small turning circle of the submarine. German submarines are known to have done progress in reducing the noise of its own equipment, and the submarine, riddled with less than 3 knots, is very difficult to pick up even the best and most modern eavesdropping equipment. To destroy a modern submarine with deep-seated charges, the charge must be detonated near the hull of the submarine. To open this hull a 100-pound deep charge must be detonated 15 feet from the submarine. The lethal distance is somewhat larger with heavier charges, but in all cases in order to insure kill the depth of the charge must be blown close on board. --7-- Submarines can operate on the surface at a speed of 18 knots or better. The submarine carries enough fuel to travel around the world. It also transports food and supplies for a several-month cruise. Consequently, a German submarine operating along the American coast does not need to refuel or maintain mother ships. There were reports in the press that German submarines operating off the Atlantic coast had been refueled and received materials from camouflaged supply ships. While this is quite possible, this practice is much less general than indicated in these press reports. What definitely sends the submarine home, if it is not sunk or damaged by the enemy, is the expending of its torpedoes. When the last bolt was shot, she must return home to get a new stock. Torpedoes and the human factor determine the endurance of the submarine. This second fact, which can be easily overlooked even by seafaring men who are not accustomed to a cramped quarter of the submarine, is a significant important one. Submarine crews are likely to be rigid and courageous, but under constant stress military conditions, unless they are often released and have relatively long periods of rest and relaxation, their morale may show signs of deterioration. The loss of several well-known submarine captains who inspired the entire German submarine service undoubtedly affected less experienced commanders. --8-- When diving, the submarine has a top speed of about 9 knots. Because of the rapid exhaustion of batteries at this speed, it can be maintained for only an hour or two. At the lowest speed, 2 or 3 knots, the submarine can continue the cruise immersed for 2 days, traveling as much as 100 miles during that time. After spending part of the time resting the bottom, the submarine can stay underwater for up to 60 hours. Due to the innate need for submarines to surface, preferably at night or in thick weather, to charge their batteries, it is imperative to maintain for a considerable time close attention to the overall in which the submarine was seen diving. This is especially true when the dive occurred at the beginning of the day. At that time she was obviously less likely to evade her than when she can be saved by the near approach of darkness. When it is safe, submarines prefer to stay on the surface, keeping their batteries fully charged for underwater attacks or for underwater escape. It takes about 6 hours on the surface to fully recharge the exhausted battery, but half of any battery deficit can be done in about 1 1/2 hours. Normally, therefore, a period of 1 hour on the surface is enough to recharge the battery enough to allow cruising to be submerged at a slow speed for 1 day. --9-- When a day torpedo attacks a merchant ship, the submarine usually approaches the dive, exposing the periscope at frequent intervals, for just a few seconds at each observation. Typically, due to the submarine's slow-submerged speed, the approach to its target will be made well forward by the beams of the merchant ship. The greater the speed of a merchant ship, the further forward the submarine must be in order to initiate a successful approach. Since the submarine must make frequent and accurate observations and be in order on the nose to be sure of a successful attack, zigzag tactics have been adopted. This evasive principle often thwarts the submarine's plans; and when the zigzag plan was spelled out, it was very important that it followed scrupulously. Attacks also often occur at midnight and 0400, as it is the night hours when the clock is in the process of changing, or when the eyes of the newly created personnel clock remain unaccustomed to darkness. Since it takes 40 minutes for the eye to adapt to the darkness, this emergency can be avoided by blocking the hour-long staff in order to keep the men alert, who have undergone this adjustment. -----Even in good visibility, the merchant ship has a small chance to see the brief impact of the submarine's periscope or the detection of the submarine using eavesdropping devices before the torpedo was sent. However, if a merchant vessel is inspected by escort vessels equipped with good eavesdropping devices, the submarine must either take a greater risk of detection or fire torpedoes at a longer range, and therefore less likely to hit. Keep in mind that the surface speed of the submarine is greater than the speed of all but the fastest or most merchant ships. Thus, by continuing on the surface outside the shooting range, or beyond the visibility range of merchant ships, the submarine can often dispose itself in order to get the position forward to initiate either a submerged approach during good visibility or a superficial approach in the hours of darkness. Good air cover or fast, wide, escort ships, however, will make it dangerous for the submarine to try to overhaul its prey in this way. --11-- night torpedo attacks, a submarine usually usually on the surface, leaning on its small silhouette to allow an invisible approach to the firing position. The excellent surface speed of the submarine will allow it to maneuver to take advantage of any special visibility conditions such as moonlight, lighter areas of the sky near the horizon or the glow of coastal lights. --12-- In torpedo attacks, either during the day or at night, a torpedo explosion is often the first notification of an attack on a ship. When observing a torpedo explosion, it can be assumed that the submarine will be within a radius of 5,000 yards from the vessel - about on the beam and on the same side as the explosion. As mentioned above, the torpedo track is not always visible, as many of the modern show little or no trace. When the submarine has launched its torpedoes from a shallow depth, the submarine can stretch and the white vortex of its propellers become visible. After firing its torpedoes the submarine usually takes care to avoid exposing itself to firing from the damaged ship; staying out of sight until her victim is a founder or has taken such a list that her weapons cannot be manned. In uneven weather, the submarine usually dives a beam into the sea, changing its course if necessary to reach this position. Usually it will be a surface in the head to the sea. Submarines forced to dive due to air or surface attacks can change course after diving. In addition, in order to confuse the attacker, the submarine can make radical changes, of course, just before the dive. --13-- WHAT ARE THE MAIN TYPES OF GERMAN SUBMARINES? Coastal and training type, 250-300 tons, illustration (3). Home operating type 517 tons (2). Ocean type 740 tons (1). Large mine-throise type, 1060 tons, similar to (1). WHAT ARE THEIR COMMON CHARACTERISTICS? Single-seater case. Length, 136 feet. Maximum speed: surface, 13; submerged, 7 knots. Torpedoes: three in the nasal tubes, 2 spare - 21 inches. Pistol: one .79 (20 mm) automatic. Three hundred tons of type is equipped with saddle tanks. Supplement: 23. Installed with external saddle tanks on each side of the hull. Length, 206-220 feet. Maximum speed: surface, 16-18; submerged, 8 knots. Torpedoes: four bows and one feed in tubes, 4 spare - 21 inches. Guns: one 3.5 forward, one .79 (20 mm) on the bridge. Supplement, 35. Double body: The thin outer body extends almost to the keel. Length, 244 feet. Maximum speed: surface, 18; submerged, 8 knots. Torpedoes: four bows and one feed in tubes, four or more spare - 21 inches. Guns: one 4.1 and one (or two) 0.79 (20 mm). Supplement, 40. Relatively few of this class are currently working. Length, 275 feet. Speed: surface, 16; submerged, 7 knots. Guns: one 4.1 and two 0.79 (20 mm). In addition, the aforementioned Germany has captured about 14 underwater in the occupied countries. Some of them can be used in operation. Some of the larger type of U-boats carry outside the interior, i.e. the pressure corps. They can also increase the number of torpedoes inside the boat. WHAT ARE THE DIFFERENT TYPES AND WHAT CAMOUFLAGE TOOLS DO THEY TAKE? The general characteristics of all types is a long flash deck rising to the bows. The stem is slanted. The saw-edged mesh cutter on the bows, (see photos), is being discarded by the Germans, although some of their U-boats can still save it. Italian U-boats usually have net cutters. Clearing lines stretch from bows to the bridge to the stern. --14-- --15-- There are many reports of different colors and paint schemes of enemy submarines seen by merchant naval personnel and other observers. It seems that there is no standardized technique used. However, given that the submarine commander is an individualist and usually an officer of considerable resources, it should be assumed that his ingenuity has spread to such an extent that the improvisation of paints or other protective coating is suitable for the area in which he works, so that his vessel will take the chameleon-like aspect as far as possible. Overall, however, the over-all neutral tone that is mixed with the seascape is often used. --16-- Very often the only evidence that an object has been spotted as a submarine is that it inexplicably disappears. There was one case during this U-boat war masking itself with sails; A dummy funnel emitting smoke can also be used. There is also the possibility of hunting for U-boat firing slow speed torpedoes, leaving traces of oil that may prompt pursuers to follow a false odor. WHAT IS THE EXTREME RANGE OF THE SUBMARINES AND HOW LONG DO THEY ACTUALLY STAY OUT? Large minois are likely to have an endurance of 8,900 miles, while the 740-ton and 517-ton can cover about 14,000 and 10,000 miles, respectively, without refueling, if continued, for the entire passage, at an economical speed. Although the cruises of the last two classes usually do not exceed 35 and 30 days, it is likely that 740-ton can stay away from the base for 2 months, if not overly pursued. The 300-tonne can perform short ocean cruises and their saddle tanks, some of which contain fuel, will give them a likely endurance of 4,000 miles at slow speed. WHAT ARE THEIR CRUISING SPEEDS? In general, submarines will cruise no more than 10 knots, and the coastal type is likely to cruise at a slower speed. HOW LONG CAN A SUBMARINE RUN UNDERWATER? At its top speed, only for a short time, 1 to 2 hours maximum, but at a slow speed can last for long periods, up to about 48 hours. Its batteries will be exhausted. In almost all cases, however, she would avoid running her battery straight down like this, will come to the surface to replenish them before the aforementioned periods. Fresh air also becomes becoming need. Although U-boats have air purifiers, but the original stock becomes very foul after about 30 hours. When the crew works hard or moves, as happens when they are hunted, they use oxygen much faster than in a normal dive or rest. In service, submarines rarely remain submerged for more than 12 hours, and that only in very bad weather or during rest, or persistently pursued. HOW FAR CAN A SUBMARINE GO? Typically, the limit can be taken as much as 75 miles, although some German submarines can go for more than 100 miles in case of absolute necessity. --17-- A diving U-boat, with a battery fully charged, can travel only 9 to 12 miles of continuation at top speed. AT WHAT DEPTHS WILL SUBMARINES USUALLY GO UNDERWATER? During the attack, they pass at about periscope depth, that is, at a depth at which a fully elongated periscope simply reaches the surface. This depth is 35 to 40 feet. When cruising, submarines are also usually kept at the depths of the periscope, except for very severe weather when they go to more than 100 feet, or when they expect an attack with bombs or depth charges when they can dive up to 300 feet if the depth of the water allows. WHAT IS THE MAXIMUM DEPTH OF SUBMARINE DIVING? Modern submarines are usually tested at a depth of 300 feet, but it is possible for some boats to dive up to 500 feet without injury. To lie at the bottom, they usually do not choose places where the depth exceeds 240 feet. The pressure on the submerged object is 412 pounds per square inch for every 10 feet deep. The pressure body is roughly cylindrical and largely strong. In most submarines, however, when at a depth of more than 300 feet, weak spots are likely to occur and cause leaks. Hatches can slightly buckle; valves, glands and tubes can flow through the body at great depths, especially after deep charge damage. HOW LONG DOES IT TAKE TO DIVE A SUBMARINE? In an efficient boat, based on both diesel engines, the depth of the periscope can be reached in 11/2 minutes from the order given for immersion. If the boat goes clipped down (as is customary in patrol areas), the time will only take 20 to 40 seconds. When fully submerged, the submarine can reach a depth of 11/2 feet, increasing to 2 feet per second. WHAT ARE THE MAIN ACTIVITIES IN THE HOME WATERS AND THE ATLANTIC? If not detailed for any special operation, all available ocean U-boats are used against allied shipping, mainly on ocean routes. The 250-tonne, although currently almost entirely used for training, can operate in the North Sea and the Baltic. 300-tonne can cover these two seas and penetrate a short distance into the Atlantic Ocean. German ocean U-boats, currently based mainly in Biscay ports, can cover the entire North Atlantic up to In the fall of 1941, they began to help the Italians in the Mediterranean. --18-- When used at mine duty, they can expect to choose shipping routes in relatively shallow water. Upon completion they can still attack with a limited number of torpedoes or gun fire. ON WHAT ROUTES DO SUBMARINES GO AND RETURN TO THE NORTH SEA? They usually take place north of the Faroe Sea, occasionally entering the Norwegian port. This route is preferable to the passage through the English Channel. Now that bases with repair facilities exist on the Biscay coast, passage to and from Germany is rarely done, except for newly commissioned U-boats on their first patrol or those that require extensive refurbishment. IS IT POSSIBLE TO GIVE AN APPROXIMATE PICTURE OF THE NUMBER OF SUBMARINES OPERATING SIMULTANEOUSLY? It is estimated that about one third of the smaller types and one quarter of the larger types will patrol at any given time. However, this will depend on whether an important operation will be carried out or in the process of implementation. The actual number of actors at any given time cannot be specified. Probably between one quarter and one third of the total number of U-boats commissioned are at sea at the same time. Germany has a very large submarine program especially the 517-ton class. WHAT ARE THE TACTICS OF SUBMARINE ATTACKING MERCHANT SHIP BY DAY? When attacking uncovered ships in open waters, the U-boat will probably seek to reach a position far ahead, invisible and on the surface. From here it will assess the average course of its goal. She will then dive fine on the bow, choosing her position in terms of light and sea. It will attack at an angle of about 90 from the target course, firing 1 or more torpedoes at a range of 1000 yards, or less. When the convoy has an escort above the method will be risky. It is unlikely that an attack will be carried out on a single ship with effective escort if this ship is known to have very little value; but the convoy, so escorted, will probably be shaded, the U-boat continues on the surface of the hull down. She then chose her line of attack to avoid contact with the escort as much as possible and dived at high speed on the final course. If possible, the U-boat does not shoot torpedoes on one ship when it is over 11/2 points of the abate beam target. The most dangerous arc is 60 to 120 degrees on the right side. When the presence of a screening craft or a zigzag target interfere with the attack, the U-boat can shoot at a range of 1,500 yards and from a position up to 2 points in the air beam. When attacking a convoy it can fire brown, probably using a volley of torpedoes aimed at the convoy as a whole without not cherishing any particular ship when the range can be over 4,000 yards. --19 -- WHETHER BOATS TOGETHER OR IN ANY FORMATION? Patrolmen tend to tend to note that U-boats have freedom of movement in their specific areas. Having received wireless information from aircraft or other boats, they leave their areas and try to intercept the convoy. AT WHAT RANGE WILL SUBMARINES SHOOT WITH THEIR TORPEDOES, AND WHAT IS THE SPEED OF TORPEDOES? When attacking single ships, German submarines seek, if possible, to close the range from 500 to 800 yards to shoot from a torpedo. When attacking a convoy, fire, if possible, at a range of 500 to 1,000 yards. At these ranges, the torpedo runs at 35-40 knots (depending on the type), i.e. runs 500 yards in 22-26 seconds. Can we expect that longer ranges will be accepted if the target is inspected by A/S vessels. It is impossible to say with certainty what tactics will be adopted. If the target is not dispersed, they will usually remain at the depths of the periscope to observe the result of their attack. If an escort is present, they do their best to avoid the inspection of ships. When the attack was carried out at close range, it is possible that the submarine may continue to dive at high speed and try to stay under escort. Normally, however, she will turn off her firing course, dive deep about 250 feet and act at a slow speed until the hunt has weakened. WHAT IS THE TURNING CIRCLE OF A SUBMARINE SUBMERGED, AND HOW LONG DOES IT TAKE TO TURN? About 350 yards for large types and 200 yards for coastal types. When immersed in water at 4 knots 517 tons of submarine takes about 5 minutes to turn through 180. HOW FAR DOES A SUBMARINE TRAVEL IN ONE MINUTE OF IMMERSION? With 7 knots, the run will be 236 yards (1 knot equal to about 34 yards per minute). HOW MANY PERISCOPES ARE SHOWN IN THE ATTACK AND HOW OFTEN; AND AT WHAT DISTANCE CAN YOU SEE THE PERISCOPE? This largely depends on the conditions of wind, sea and light, the number and position of the accompanying and whether the target is zigzag. In bad weather, periscope is very difficult to see, this is partially offset by the fact that the U-boat --20-- must lift a significant periscope length to get a clear vision over the waves. When at long range, as much as 2 feet 6 inches periscope can be raised to allow the details and course of the target to be obtained. As the range decreases the U-boat will show a smaller periscope and, by the end of the attack, it may only show 6 inches in calm weather. In the early stages of a U-boat attack, you don't need to lift the periscope more than once for very 5 minutes, and then only for 5 to 10 seconds at a time; Bringing it closer to the firing position it will lift it every 4 or 5 minutes for no more than 2 seconds at a time. Periscope, as a rule, can not be picked up at a distance of more than 2000 yards, even with good glasses. If, however, it is known that the U-boat is located certain bearing and weather weather Light conditions are exceptional, it can be seen up to 6000 yards, with glasses. ARE THERE MORE THAN ONE PERISCOPE SUBMARINES? Yes, all modern submarines have two, and many of them have three periscopes, but usually only one of them is used simultaneously. Only one is set to be used against aircraft. At the beginning of the attack, a thick periscope with a high magnity is

used to mark the details of the ship and its course; In the final stages, a thin attacking periscope is used, showing a very small feather. HOW OFTEN DO SUBMARINES ATTACK AT NIGHT AND WHAT TACTICS DO THEY ADOPT? Night attacks have now increased significantly, especially against convoys and stragglers. Often night attack will be carried out on the surface, but the optical qualities of U-boats periscopes are very good and can be used in twilight and bright moonlight. In any attack at night, the U-boat will be guided by such considerations as the position of the escort, the direction of the moon, the afterglow of the sunset, etc. She would like to note the carefully assisted tactics and run on the avoidance course at high speed, fire her torpedoes and turn away, remaining on the surface if not chased quickly by the hunting vessel - in which case it will dive deep and probably reduce to a dead slow speed. If she hadn't been hunted, she could have stayed inundated and rebooted her torpedoes in readiness for another attack. WHAT ARE THE WEATHER RESTRICTIONS FOR SUBMARINES? The worst condition for underwater operations is the calm sea, and if, moreover, there is a long swell running, it becomes almost impossible for a submarine to attack unseen. On the other hand, if the sea is rough, the submarine will become restless when near the surface. If she has the opportunity to make her final approach on the course at right angles in the direction of the sea, she can successfully attack in bad weather; But, if it is thus favorably positioned, it will probably give up any attempts to run near the surface and will dive deep until the weather is moderate. --21 - Italian submarines vary greatly in their design, having numerous classes and types, rather than using standardization. Among the 12 submarines the Italians had before the war heavy losses were suffered due to lack of training personnel and the resulting panic encountered. It was recently observed that the conning towers of several Italian submarines have been shortened to resemble the German type (top). Classes Long Tonnage Armament Tubes CALVI 2767 1,331/1,965 2-4 7 8-21 BALILLA 282 1,368/1,87 4 1-4 7 6-21 FIERAMOSCA 2703 1340/1,788 1-4 7 8-21 MARCELLO 2396 941/1,260 2-3 9 8-21 ARCHIMEDES 231 4 896/1,255 1-3 9 8-21 SKVALO 229 810/1,077 1-4 8-21 SANTAROZA 229 815/1,078 1-4 8-21 SELTEMBRIN 798/1,134 1-4 8-21 PISANI 2239 791/1,040 1-4 6-21 CHEATS 816/994 1-4 -21 BRIN 2314 896/1,247 1-3 9 8-21 MICCA 2964 1,371/1,883 2-4 .. 7 6-2140 min FOCA 2669 1,109/1,533 1-3 9 6-21 MINN troughs CORRIDONI 2347 803/1,051 1 --1 -4 4-2124 ARGO Mines 2068 689/857 1-3 9 6-21 ARGONAUTA 2019 599/778 1-4 6-21 GEMMA 19 7 6 620/853 1-3 9 6-21 SIREN 1975 591/787 1-3 96-21 --22-- --23 - IS NAVIGATION DIFFICULT ON THE SUBMARINE? It requires relentless care due to the frequent changes in course and speed required to avoid patrolling, etc., as well as because of different currents at different depths. Overall, however, the navigation of German submarines was very good. WHEN AND HOW DO MINE SUBMARINES LAY THEIR MINES? Mines are usually laid either on high or low water. In temperate depths, high water is generally preferable as it provides greater depth for diving. In waters too shallow for diving, mines will be planted from the surface at night. By planting mines, these submarines can either go on the surface or sink under the water, as mines are usually released from inside the boat. Mines can be installed at close intervals, i.e. about 50 yards, and in groups, or they can be laid separately at very wide intervals of, say, 800 yards. Most of the mines planted by U-boats are magnetic and are ejected from torpedoes. It is known that one type is short enough to be able to see 3 mines in one pipe. Thus, a 740-ton U-boat can carry 18 minutes in its pipes and probably another 20 or more as a spare. It is likely that the new 1,000 tons will lay moored mines; the number that is carried out is 48. They are a method of styling is not known. There have been cases where submarines have been monitoring minesweepers and laying mines in a newly swept canal. WHAT ARE THE PROBS? In the North Sea and the Atlantic Ocean, moored mines are usually laid in waters where the depth is between 7 and 80 degrees. In non-tidal waters they can be laid at much greater depth. Magnetic mines probably won't be effective at a depth of more than 20 fathoms. They are usually laid in about 10 or 12 fathoms. WHAT COLORS ARE PAINTED IN THE MINES? German moored mines, to date, have been painted black, but some have shown patches of red where black paint has washed away. Magnetic mines are resting on the seabed and are not visible. DO SUBMARINES OFTEN LIE AT THE BOTTOM? It depends on the circumstances and ideas of individual captains. They can lie at the bottom in bad weather if it is not rocky and there is no danger of bumping into. They can also do this when hunting on the surface of a ship or during a holiday, but some captains prefer to keep going dead slowly at a safe depth. --24 -- ARE RESTING PLACES KNOWN? In general, any place with sandy or Bottom and depth less than 45 degrees suitable for the submarine to rest at the bottom. CAN SUBMARINES STAY WHEN DIVING WITHOUT LYING ON THE BOTTOM? A well-trimmed boat can do this for about 15 minutes at a time, juggling its periscope or alternately flooding and blowing its adjusting tanks. It is possible that German submarines are equipped with hydrostatic buoyancy control (as is established in some Italian submarines), allowing them to maintain a constant depth during significant periods of time when stopped. For longer periods of time this is only possible in populated areas where layers of varying density occur in the water and where sometimes the boat can lie submerged almost indefinitely with all the machinery stopped, resting on a layer of dense water. This is most evident in the Baltic, Cattagat and Marmore Seas, but similar layers exist in other areas, such as approaches to large rivers, especially after heavy rains. WHAT IS THE TACTICS OF SUBMARINES WHEN HUNTING WITH HYDROPHONES OR OTHER EAVESDROPPING DEVICES? If a submarine is in deep water at a great distance from where there is a probing 300 feet or less, it can do for that position in order to lie at the bottom if it is not rocky or there is a risk of damage from bumping. Lying on the bottom is usually the only means by which she can stop all the machines and make herself completely unheard of for her pursuers. If, however, it continues to go in the way it will usually continue dead slowly (1 to 2 knots) and reduce all sounds to a minimum. It is also possible that it may lie stopped at a constant depth by hydrostatic buoyancy control. German submarines during their tests are tested by a hydrophone when diving under water to set the quietest speed. This varies in different boats, but is usually very low. ARE THE SUBMARINES EQUIPPED WITH HYDROPHONES? Evidence suggests that the Germans adhere to the hydrophone detection method on their submarines, the devices were significantly improved after the war. He said that at the 5,000-yard range these tools can find the ship as well as identify its propeller revs. Submarines don't have to stop to listen, but get much better results in doing so. The distance at which they can hear the sound of propellers also varies greatly depending on the bearing and the state of the seas. They also use hydrophones when hunted themselves. It is likely that U-boats are equipped with supersonic detection tools known as periphons. DO SUBMARINES NEED TO GET THEIR MASTS IN ORDER TO RECEIVE WIRELESS MESSAGES? No. Two hopping wires, which run from the end to the end of the boat, passing over the conning tower and forming protection from nets, hoovers and mines, are equipped with an auxiliary and the submarine is therefore able to intercept the signals directly it comes to the surface. SUBMARINES CARRY A SPOTLIGHT? Yes, many of them carry a small portable spotlight that can be mounted on the boat rarely used, being designed mainly for signaling purposes. --25 - Japanese submarines are primarily the development of German submarines of the First World War. The range of types ranges from old RO coastal classes to distant I types, some of which can be equipped to carry a folding aircraft or dwarf submarine. Classes Length Tonnage Armament Tube I 6, 8 34363569 1,900/2,500,955/2,600 2-5 6-211 Float Plane I 5, 7 320' 1,955/2,500 1-5 6-211 floating aircraft I 1-4 320' 1,955/2,480 2-5 5 6-21 I 68-75 331'2 331'1 5 1400 1-4 4-7 6-21 I 62-66 320-331' 1,635/2,100 1-4 6-8-21 I 61 I 53-60 330' 1,635/2,100 1-4 7 8-21 I 52 331' 1,390/2,000 1-4 7 8-21 I 51 300' 1390/2,200 000 1-4 7 8-21 I 121-123 279'6 1,142/1,470 1-5 5 4-2142 mines RO 33-34 239'6 700 Surf. 1-3 AA 4-21 RO 26-28 230'8 746/1000 1-3 AA 4-21 RO 30-32 243'6 pp. 655/1,1 1, 1000 1-4 7 4-21 RO 60-68 250' p. 988/1300 1-3 AA 6-21 RO 57-59 230'8 889 Surf. 1-3AA 4-21 RO 51-56 230'7 892/1,082 1-3 6-18 --26 --27 - BRONIROVAN ARE SUBMARINES? As far as is known, German submarines do not have armor protection either on the conning tower or anywhere else. WHAT IS THE IMPACT ON A SUBMARINE OF THE EXPLOSION OF DEEP BOMBS OR BOMBS IN ITS VICINITY? Completed authenticated copies on the record: Such a serious leak is caused by the fact that the boat sinks immediately. The leak is caused by, say, a fastened hatch that cannot be kept under control with pumps and causes the boat to come to the surface. The leak is caused in external reservoirs, which can lead to such a large loss of fuel oil that it requires the boat to return to its base, or may cause it to leave an oil strip in the water. Periscope lenses are shaken or damaged, which may also require the return of the boat. Hydroplanes may be forced to hard up or hard down, or hamper work, causing the boat to come to the surface or dive to dangerous depths. If the explosion occurs directly above or under the submarine, the same effect can be produced in (e) the actual force of the explosion, without interference with the seaplanes. The boat may be simply shaken, the cutouts merge, and the electric light is therefore extinguished; in such cases, as a rule, it will not come to the surface, but the moral effect is considerable. IS THE OIL SEEN ON THE SURFACE ANY EVIDENCE OF THE SUBMARINE BEING DESTROYED? Not unless it is accompanied by air bubbles or continues for a considerable time. German submarines are equipped with a mechanism for releasing oil fuel and use this to mislead or detain their pursuers. Oil rising to the surface can sometimes indicate that the submarine is sinking into the water or lying on the bottom with the leak of external reservoirs. The depth of the charge causes bleached ambient water, which which do not take for a leak of oil. Oil and bubbles often indicate the wreck of a sunken surface ship. The only specific ways to verify the destruction of the submarine are to collect some crew members, retrieve some of the wreckage that was inside the boat, and then sail to the surface or by sending a diver. --28 -- WHICH TORPEDOES WILL BE FIRED ON BOATS? They can be controlled by compressed air or electricity. The air type has a long range and can show a clear track, especially in calm or phosphorescing water. If this track shows bubbles on the surface, the torpedo will be 100 to 300 yards ahead of the leading bubbles. Sometimes, when working small, their engines can be heard. Electric torpedoes are cheaper to produce than a higher type, but their performance is not as good. It is likely that they will gradually replace the air-controlled type on U-boats. Their engines are known to make a weak rumble. Explosives in the head of the torpedo are detonated by a pistol that can shoot on contact with the target or when reaching its magnetic field. Most (if not all) torpedoes that carried U-boats have combined pistols that will shoot upon contact or magnetically. A torpedo with a magnetic gun can explode without hitting the target, when performing a faulty launch or at the end of a normal launch - especially in rough seas. Any type of torpedo can explode when hit the bottom. Note. -- The following information has been made public: Any loud explosion that cannot be identified as being caused by an air bomb or a deep charge is probably caused by a torpedo. Any vessel hearing such an explosion must immediately suspect the presence of a U-boat and take appropriate action. WHAT MEANS OF RESCUE ARE OPEN TO THE CREW OF THE DAMAGED BOAT? At a depth of up to 20 people under good conditions, a number of crew members can be rescued by a device similar to Davis Lung. U-boats also carry folding boats in their upper deck hulls but these probably wouldn't fit the entire crew. HOW U-BOAT PROPELLED - (a) ON THE WORLD, AND (b) IMMERSSED? On its diesel engines. She could use her engines if she wanted to keep quiet. For example, at night it can use its electric motors as it approaches the enemy's coast to send a boat. She can also use them when stopped on the surface at night in order to turn the boat and bring her sights on target. On her electric motors. These engines are powered by large storage batteries. When immersed in water, diesels cannot be used because they require a constant supply of engines with fresh air. --29-- These submarines are included in order to complete coverage of the continental naval forces. It is believed that no more than a third of the pre-war fleet is in operational French submarines, although they have several classes, vary greatly within the types. Some Some were registered by captured and exploited Germans. In this regard, radical changes can be expected in the usually oversized French conning towers. Classes Length Tonnage Armament Tubes MORILLOT 3026 1,635/2,100 1-3 9 8-21 REDOUTABLE 303' 1,384/2,080 1-3 9 11-21.7 AURORE 241' 893.1 1.70 1-3 9 9-21.7 RECAIN 257'7 947/1,441 1-3 9 10-21.7 SAPHIR 2166 699/925 1-3 5-21.732 Minet 1-3 5 5 5 5 5 5 5 5 -21,732 Minet 210' pp21662046 p. 548/764576/765552/785 1-3 1-3 1-3 7-21.77-21.7 DIANE 221' 208'219' 662/85 8 565/800558/787 1-3 1-3 1-3 7-21.72-15.78-21.78-21.7 --30-- --31 - HOW U-BOAT CHARGES YOUR BATTERY AND HOW THIS TAKE? The U-boat should be on the surface when charging the batteries. The diesel engine rotates the engine fixture, which is located on the main shaft. The engine then becomes a dynamo and delivers electricity to the battery. The U-boat may charge while stopped at unclutching both of its propellers, but she won't do it while on patrol as she should be now in order to be able to dive in an emergency. When the battery nearly is exhausted it takes at least 6 hours to charge it completely. The need to come to the surface for this purpose is a constant source of concern for the U-boat captain. Periods of long daylight and bright moonlight try hard, especially when planes and ships are likely to arrive and get him to dive. HOW TO DIVE ON A BOAT AND MAINTAIN THE DESIRED DEPTH? Filling ballast tanks and using seaplanes, i.e. horizontal rudders. Large U-boats have double hulls. The outer body has a light coating, and the space between the two cases is divided into compartments that form ballast tanks. The 250-ton U-boats are single-hull and ballast tanks inside the boat. When the ballast tanks are filled the U-boat will float awash or sink slowly. During the sinking, the boat goes forward on its engines, the seaplanes run over into the dive position and force it under. With the help of the steering wheel, rise or dive on U-boat seaplanes is maintained at the necessary depth. When the boat is brought to the surface, compressed air is used to blow water out of ballast tanks and give it buoyancy. The fine adjustment of ballast can be done with an electric pump. When using high speed and a large amount of lifting or diving the steering wheel of the submarine can be carried out on the surface is flooded when bodily heavy or forced under bodily light. WHAT IS THE BEST PLACE TO HIT A U-BOAT WITH A SHOOTING WHEN IT IS SPOTTED ON THE SURFACE? The perfect shot is a direct hit to the base of the conning tower. --32-- With the exception of the conning tower, almost the entire hull above the water is an add-on. It is built from a light coating and designed as a styling for ropes, boats, etc., and give the submarine a streamlined streamlined streamlined When diving. This coating can be destroyed by shooting without endangering the submarine or preventing it from diving. When the U-boat has full buoyancy only about 2 feet of hull pressure above the surface. This is a very small goal and, being rounded, is difficult to penetrate. Hit where the conning tower joins the pressure of the hull will flood first and possibly last if it starts to dive. WHAT COMMUNICATION TOOLS ARE USED BY SUBMARINES WHEN DIVING UNDER WATER? It is likely that some form of long-distance communication, 10 to 15 miles, can be used by U-boats when diving. They can't send wireless messages when fully submerged, but they can probably transmit when the periscope only shows over the water. Wireless messages, however, can be received when immersed. WHERE SHOULD LOOK-OUTS BE PLACED AND WHAT BEARINGS SHOULD THEY FOCUS ON? Note. -- The following proposals do not rescind any orders contained in official publications or received from responsible officials. Three look-outs are important, one to search forward, using a crow's nest if the weather fits, and one on both sides. If you have enough hands should be placed at altitude, and lateral views - twice. Usually a U-boat on the surface can see any surface vessel or aircraft - if the latter does not come out of the sun - before it is seen itself. Under certain conditions, however, the ship and U-boat can see each other simultaneously. Cases have occurred when a U-boat at a fairly close range on the surface was seen at dawn or dusk, in the fog, in the path of the moon and at the exits of a clearly defined drifting squall. In such cases, operational viewing action may allow the ship to fire a gun or ram a U-boat before it can dive. In the uneven fog, the forecastle and crow's nest looks especially valuable. The main arc that will be searched is from the right right to the right, up to two points, by the beam. Any U-boats seen right forward to nose are likely to be at long range, so the lookout on this arc should have binoculars if possible. Arcs between 4 and 10 points on both sides require the most thorough search because it is there that the periscope or torpedo track is likely to be seen. When the lookouts are two-solid, one person on each side must use binoculars, and the other should look for torpedo tracks and periscopes next to the ship. The naked eye has a wider field of view than binoculars, and the latter may be cleared when the periscope shows. At night, when a U-boat can creep up on the surface from the asterna, view-outs must be placed on any if possible, with night glasses. --33-- WHEN NOT IN THE CONVOY WHAT ACTIONS SHOULD BE TAKEN WHEN DETECTING PERISCOPE OR U-BOAT ON THE SURFACE? Immediate immediate the following measures should be taken in this order of priority when detecting periscope: 1. Change the course and increase to full speed. 2. Man's gun and Lewis' gun. 3. Send a special signal. 4. See that the smoke floats are ready to burn. If the periscope is at close range and in front of the beam, control so as to ram. The U-boat will probably increase the speed to 5 to 7 knots and try to dive deep. your actions, at least, the effect of spilling her attack. When spotted at long range, as well as at or abaft beam, turn on the stern. Increase to full speed in all cases. The main object is to present a small end target rather than a beam shot, by turning through the slightest arc. Wake up the gun command and hand over the periscope bearing. A few shots from Lewis' gun at the last sight position will help. The point of sight should be ahead of the periscope, a close miss can damage the glass and inflate the attacker. If you're up close, shoot Lewis' gun. Pass the word directly to the wireless carrier to send a special signal. If it is received, it can save your own and other ships. Prepare your smoke floats. If the U-boat is not with her torpedoes she can surface and attack with her gun. If it can be out of range of your ship and has a higher speed, smoke can prove to be a valuable protection, especially in the wind or a light harsh breeze. If the U-boat is seen on the surface at long range or well abaft beam turn on the stern and act at full speed. Do not use your gun or smoke floats unless it starts to chase. If you suddenly meet a surfaced U-boat at close range and before a beam, such as at night or in fog, turn on the ram at full speed, steering far ahead to its advance. Shoot Lewis's gun on her bridge and weapons position if within 1,000 yards. If it is obvious that you cannot ram, turn to have your gun carry. The goal is the foundation of its conning tower. --34 -- The fact that a merchant ship commander is not always helpless in the presence of enemy submarines is illustrated by the following narrative of a determined and courageous master. SHORTLY AFTER 8 p.m. WHILE STEERING TRUE AND USING SIGZAG NO. (NOT IN CONVOY) WE SAW PERISCOPE WITHIN ONE HUNDRED YARDS TO PORT ON SIX POINT BEARING. THE WIND WAS THEN NNW, THE POWER OF SEVEN, CLOUDY, SQUALLY; THE SEA IS ROUGH WITH A CROSS TO CONFUSE THE SWELL, VISIBILITY OF VARYING DEGREES UP TO TWO AND A HALF MILES. THE EVASIVE ACTION WAS IMMEDIATELY TAKEN, THE SUBMARINE WAS DELIVERED TO ASTERN. PERISCOPE WAS AGAIN SPOTTED ON OUR WAY AND IT IS MY IDEA THAT THE STATE OF THE SEA AND THE WASH FROM OUR PROPELLERS FORCED HIM TO THE SURFACE FORCING HIM TO DISPLAY HIS CONNING TOWER. THE FIRE WAS IMMEDIATELY OPENED WITH SIX INCHES, THREE INCHES AND AFTER OERLIKONS. IMMEDIATELY REGISTERED AT HIS CONNING TOWER, BUT THE FIRST ROUND OF SIX INCHES TOOK WATER INTO THE EXTREME EXTREME ITS LENGTH AND RICOCHET, LIKE THREE INCHES. THE NEXT ROUND APPEARED TO TAKE HIM ABOUT THIRTY FEET A LAMPS OFF HIS TOWER, A BLINDING FLASH SEEN AS THE RESULT OF A PROJECTILE EXPLOSION. A THIRD SHELL OF SIX INCHES TOOK IT ABOUT TWENTY FEET INTO THE AIR OF THE CONNING TOWER; THEN IT WAS TILTED FROM TEN TO FIFTEEN DEGREES TO THE LEFT. THIS SHELL, AND THEN ONE OF THE THREE INCHES THAT BURST AT THE BASE OF HIS TOWER, APPEARED TO ENTER ITS ENCLOSURE AS A DEEP MUFFLED ROAR FOLLOWED ALMOST IMMEDIATELY AFTER IT ENTERED THE WATER, WHICH COULD NOT BE MORE THAN SIX INCHES ABOVE ITS HULL. HIS BOW WENT TO A CORNER 35 DEGREES HORIZONTAL, AND HE DISAPPEARED FROM SIGHT OF STERN IN THE FIRST PLACE. It is our OPINION that RASCAL WAS REALLY REALLY. --35-- Transcript and formatted for HTML by Patrick Clancy, HyperWar Foundation Foundation submarine operations manual

[vanojiraxajerubefiza.pdf](#)
[297c0.pdf](#)
[5665029.pdf](#)
[5944407.pdf](#)
[pokemon sun and moon season 3 episode 13](#)
[financial & managerial accounting 2nd edition solutions](#)
[accept except worksheet.pdf](#)
[sony dvd player dvp-sr210p](#)
[solex carburetor manual.pdf](#)
[content area reading literacy and learning across the curriculum ebook](#)
[letra de la cancion happy birthday](#)
[idm 6.32 crack ahmetturan](#)
[shadow dragon dnd 5e](#)
[opera download android mobile](#)
[the eyes of glouphrie osrs puzzle](#)
[malignant 2020 trailer](#)
[code check 7th edition.pdf](#)
[bautismo de fuego andrzej sapkowski.pdf](#)
[gta san andreas mod cheats android](#)
[facebook messenger android app download apk](#)
[histologia y embriologia buccodental.pdf gratis](#)
[esic result udc 2020.pdf](#)
[tifavajalagerob.pdf](#)
[7756668.pdf](#)