DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
OBDURATE 25th Jan., 1944 D.N.C.N6/BR316	Probably an Acoustic Homing Non Contact Torpedo fired from submarine	14 months	OBDURATE was escorting a Russia bound convoy, at 11 knots, when a heavy underwater explosion occurred about 20 ft. off the starboard side and abreast the after torpedo tubes. It dished the starboard hull plating between frames, stringers and longitudinals abreast the engine and gearing rooms. The upper and lower decks and bulkheads near the after oil fuel tanks were buckled and strained. Minor flooding in the engine room and gearing room, and leakage from the after oil fuel tanks into the gearing room was controlled. The starboard plummer block and gland space and shaft tube filled with oil fuel. All the starboard H.P. turbine feet and the after feet of the L.P. turbine fractured. The gearcase also cracked. Shock damage to auxiliary machinery put the starboard main and auxiliary circulators and the 10 Kw. auxiliary generator out of action. The starboard plummer block was distorted. After the damage the port main engine developed vibration. The electrical equipment suffered minor unimportant shock damage. Both twin 0.5 inch machine gun mountings were distorted. Fighting Efficiency - Seriously impaired. With the starboard main engine out of action the maximum speed was reduced to 16 knots. Both 0.5 inch machine guns were out of action.
HARDY 2nd 30th Jan., 1944	(i) Probably one possibly two Acoustic Homing Torpedoes fired from submarine (ii) Torpedo from own forces	Sunk	HARDY was escorting a convoy off the north coast of Norway, at 20 knots, when an explosion occurred at the after end, and as a result the ship quickly trimmed by the stern and heeled 5 to 10 degrees to starboard. A survey of the damage revealed no water in the engine room but the gearing room and possibly all compartments abaft this were flooded. The port engine had stopped but the starboard engine was racing, probably because the shaft was broken. Both turbo-generators were running but only the port one was on 'load'. About 3 minutes after the ship had been hit a second violent explosion occurred, either due to the after magazine blowing up or to a second torpedo hit. The ship first righted herself and then heeled 5 to 10 degrees to port. The machinery spaces were closed down and the "abandon ship" ordered. HARDY was sunk by a torpedo fired from one of the ships in company.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LOYAL 9th Feb., 1944	One Direct Hit probably 88 mm. direct action fuzed Shell	6 weeks including refit	LOYAL was being engaged by shore batteries off Anzio when a shell hit and detonated on the upper deck, starboard, above the after end of the engine room, about 6 ft. in from the ship's side, producing a hole some 18 inches square and piercing surrounding structure by splinters. The forced lubrication system of the starboard engine was holed by five splinters. Electric leads to the torpedo tubes and to one steering motor, and minor electric circuits, were cut. The fire main was fractured causing a temporary loss of cooling water to 'X' turret. The H.P. air line to this turret was also severed. The torpedo tubes were damaged and their roller paths were distorted, reducing the training arcs. Fighting Efficiency - Seriously impaired. The starboard main engine and one steering motor were out of action. The ship proceeded at 20 knots. The arcs of training the torpedo tubes were reduced.
PALADIN 12th Feb., 1944	Rammed submarine	5 months including refit	PALADIN, while operating in the Indian Ocean, rammed a submarine. As a result the ship's starboard side plating was torn for about 80 ft., from abreast the engine room to the after magazine, probably by the submarine's hydroplane. The tear was about 9 ft. below the upper deck and of maximum width 2 ft. The engine room, gearing room, gland spaces, after magazine and starboard after oil fuel tanks all flooded uncontrollably. Fighting Efficiency - Seriously impaired. The ship was immobilised by flooding of the engine room and gearing room.
WARWICK 20th Feb., 1944	Probably a Torpedo fired from submarine	Sunk	WARWICK was on anti-submarine patrol off Falmouth at 12 knots when a torpedo hit at the after end probably near the after magazine. The first explosion was followed 4 seconds later by another which was accompanied by a burst of orange red flash and flame. The ship broke in two near the after oil fuel tanks. The after end floated for a short time in a vertical position with the stern above water; the fore end remained for about 5 minutes with a list of 3 to 4 degrees to port, and then quickly capsized to port and sank by the stern, probably because the after bulkhead of the engine room collapsed. During the period that the fore end remained afloat oil fuel fires at the after end of the upper deck were controlled. Evidence indicated that the after magazine and/or warhead magazine blew up about 4 seconds after the first explosion.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INGLEFIELD 25th Feb., 1944	One Direct Hit and possibly one Near Miss Radio Controlled Glider Bombs type H.S.293	Sunk	INGLEFIELD was operating near Anzio anchorage, at 20 knots, when a bomb struck on the starboard side abreast the after superstructure. This was followed by a second explosion, thought to have been caused by a near miss from a second glider bomb. A large hole was torn in the ship's side at waterline level from the after superstructure to abreast the foremost torpedo tubes, leaving the engine room open to the sea. The searchlight platform, starboard depth charge throwers and after torpedo tubes were blown overboard. The ship was immobilised, quickly listed to port and settled by the stern. After a time the list partially corrected itself but the ship continued to settled until the stern rested on the bottom. INGLEFIELD remained like this for about three quarters of an hour, while steadily sagging amidships, until she finally sank.
MAHRATTA 25th Feb., 1944	One possibly two Acoustic Homing Torpedoes fired from submarine	Sunk	MAHRATTA, while screening a convoy in Northern waters, at 12 knots was hit in the neighbourhood of the propellers by a torpedo. A slight shock was felt and both engines stopped immediately. Further damage was caused by a much heavier explosion, probably a second torpedo. This torpedo possibly blew off the stern, and flooded all compartments as far forward as, and including the gearing room, and possibly the engine room. The ship took a heavy list to port and rolled slowly over to port and sank by the stern.
LAFOREY 30th March, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	LAFOREY was operating in the Mediterranean, at 6 knots, when a torpedo struck the port side abreast the forward boiler room. The director was displaced. The secondary lighting did not function. LAFOREY broke her back and quickly settled amidships, the bow and stern rising steeply. Within 2 minutes of the explosion both halves had disappeared.
SOUTHDOWN 13th April, 1944	Several Direct Hit Shells	8 days	SOUTHDOWN was operating in the English Channel when she received several shell hits in the side above the waterline. One after oil fuel tank was holed below the waterline and flooded. An auxiliary steam pipe in the after boiler room was cut and the deck over badly holed. The transmitter of the type 291 radar was wrecked. Fighting Efficiency - Impaired.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASHANTI ATHABASKAN (H.M.C.S.) HAIDA (H.M.C.S.) HURON (H.M.C.S.) 26th April, 1944	Shell	≋ 3 weeks Nil Nil ≋ 11 days ≋ including collision repairs	ASHANTI, ATHABASKAN, HAIDA and HURON were in action with 3 or 4 German destroyers, believed to be of the ELBING class, off the French coast near the Ile de Batz. All ships sustained minor shell damage. ASHANTI and HURON suffered collision damage whilst reforming to return to port. Fighting Efficiency of all ships - Not seriously impaired.
ATHABASKAN (H.M.C.S.) 29th April, 1944	One possibly two Torpedoes fired from destroyer	Sunk	ATHABASKAN was in action against German Destroyers of the ELBING class off the north coast of France when a torpedo struck the ship in the vicinity of the gearing room, starting a serious fire probably of oil fuel from the after tanks. The ship stopped with a slight list to port. All efforts to get the fire under control were unsuccessful. A heavier and more violent explosion than the first occurred in or abaft the engine room. This explosion was caused either by a second torpedo hit or the explosion of the after magazine. ATHABASKAN sank by the stern shortly afterwards.
OFFA 4th May, 1944	One Direct Hit one Near Miss with Bombs	1 month	OFFA, while on patrol in the English Channel, sustained one direct hit and a near miss. Damage was of a superficial nature only. Fighting Efficiency - Slightly impaired.
TANATSIDE 17/18th May, 1944	One Direct Hit 40 mm. direct action fuzed Shell	2 days	TANATSIDE was in action against E-boats when a 40 mm. shell hit at the level of the Wheelhouse deck in the Commanding Officer's sea cabin. The shell detonated on impact and made a hole in the deckhead 10 ins. by 8 ins. There was slight damage to ventilation trunking and lighting circuits around the burst. Fighting Efficiency - Not impaired.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WRESTLER 6th June, 1944	One Moored Contact type G.R. charge 90 lbs. Mine in 14 fathoms	Indeterminate (Ship not repaired)	WRESTLER was operating in the English Channel when a mine exploded under the bottom abreast the forward oil fuel tank (No.1). The hole in bottom was approximately 12 ft. long by 9 ft. wide and buckling and distortion of the hull plating extended for 50 ft. abreast No.2 store and asdic compartment forward of the explosion and the 4-inch magazine and shell room abaft of it. The hull plating abreast the after oil fuel tank (No.3) was buckled and split. Immediate flooding occurred in two forward oil fuel tanks (Nos.1 and 2), the asdic compartment and No.2 store, 4-inch magazine and shell room and the after oil fuel tank (No.3). The one remaining forward oil fuel tank was contaminated. Freeboard was reduced to 2 ft. at the break of forecastle. Fires were started by flash in the vicinity of the explosion; there was a serious fire in the galley flat and fore messdeck and oil in the forward tank (No.1) was thought to have ignited. The forward magazine flooding gear was damaged and put out of action. There was minor damage to electrical equipment and the low power supply failed due to flooding. The gyro compass and radar equipment were damaged by shock; the A/S, E/S, S.A. and W/T equipment were damaged and/or flooded. Fighting Efficiency - Seriously impaired. Speed was reduced to a maximum of 6 knots. The forward magazine group was flooded. Radar, W/T, A/S, E/S and S.A. gear were out of action. The gyro compass was temporarily out of action.
ONSLOW 6/7th June, 1944	One Near Miss Bomb	Nil immediately (see later action on Page 258)	ONSLOW was damaged when a near miss bomb burst underwater abreast the after end on the port side. The after end structure, was generally strained on the port side. Bulkheads of the after port side oil fuel tanks were strained and leaking and the tanks were made common. There were oil fuel leaks into the port plummer block compartment. The after magazine, shell room and spirit room were strained and leaking. The cover joints of both main thrust blocks were sprung which resulted in the loss of lubricating oil. The electric leads of starboard steering motor, Evershed system and lighting circuits were damaged. Fighting Efficiency - Impaired. These defects were not at first apparent and were only revealed as a result of steaming at high speeds.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TARTAR 9th June, 1944	One possibly Two Direct Hit Shells	2 weeks	TARTAR, while in action against German destroyers (probably 3 NARVIKS and 1 ELBING), in the vicinity of Ile de Batz received a direct hit at the base of foremast. Ready use oil drums stowed on upper deck were pierced by splinters and a fire started at the base of the mast. The ship also sustained some other damage including the lattice foremast which was bent to starboard just below the heel of top mast, possibly due to a second hit. Fighting Efficiency - Impaired. REMARKS This incident emphasised that when large quantities of special mineral lubricating oils must be carried for operational needs the bulk should be stowed as a reserve in the paint store where spraying arrangements are fitted - A.F.O.203/45 refers.
BOADICEA 13th June, 1944	One Torpedo dropped by aircraft	Sunk	BOADICEA, while escorting a convoy in the English Channel, at a speed of 10 knots, sustained a torpedo hit abreast the bridge. About 2 seconds after the first explosion there was a second and more violent explosion reported to have been the forward magazine blowing up, but there is no definite confirmatory evidence. The ship listed to starboard and settled by the bows. All structure forward of the engine room was wrecked. The ship sank bow first in about 3 minutes.
TALYBONT 17th June, 1944	One "Short" 170 mm. Shell	6 days	TALYBONT, while on patrol off Cherbourg, at a speed of 12 knots, was damaged by a "short" of the third salvo fired by a shore battery, which detonated about 12 ft. away from the starboard side of the after boiler room. This caused extensive but minor splinter damage to the ship's side above waterline and the topsides from abreast the after boiler room to 'A' gun. The main steam pipe in the after boiler room was cut and numerous electric leads were severed. The after boiler room was evacuated due to escaping steam. A minor electrical fire occurred in the after boiler room. Types 291 and 285 radar were damaged. Fighting Efficiency - Seriously impaired. The after boiler room was out of action; ship returned to port at 18 knots on one boiler. Types 291 and 285 radar were out of action.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ONSLOW 18th June, 1944	One Torpedo which did not detonate dropped by aircraft	5 days including damage sustained on 7th June, 1944	ONSLOW, while operating in the English Channel in support of the Normandy landings, was attacked by a torpedo-carrying aircraft. One torpedo struck the ship on the starboard side, forward of 'A' gun, but failed to detonate. The side frame at 20 station was slightly buckled between the 5th and 6th longitudinals and laps of hull plating in the vicinity were strained. Fighting Efficiency - Not impaired.
FURY 21st June, 1944	One Ground Mine	Indeterminate (Ship not repaired)	FURY was operating off the Normandy beaches, at 7 to 12 knots, when a mine exploded near the after end of the engine room. Extensive structural damage occurred. The hull plating and internal structure abreast machinery spaces, and the forward and after magazines and oil fuel tanks were strained and leaking. The forward and after magazines and oil fuel tanks slowly flooded and were made common by the internal damage. Water and oil fuel leaked from after tanks into the engine room. The ship listed 6 degrees to starboard. Structural damage to boiler bearers and feet resulted in the boiler drums being severely strained. All boilers were shut down and steam was lost due to leakage of boilers, loss of feed water and a fractured auxiliary pipe in the forward boiler room. The main engines were stopped after one minute owing to both circulators being out of action, loss of vacuum and the compartment being untenable due to escaping steam. Main and auxiliary machinery castings were extensively damaged. Steam was raised in No.3 boiler with salt water feed. Flooding in the engine room was controlled at 6 ft. but efforts to use the main engines failed. The engine room and boiler room were closed down. All W/T sets were out of action due to the loss of main aerials when the foremast snapped. The ship was immobilised and anchored. Efforts were made to tow the ship to sheltered water but the tow parted owing to adverse weather conditions and further damage was sustained by collision with other anchored vessels. FURY grounded on a rocky beach, broadside on, and sustained further extensive damage by pounding from heavy seas.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SWIFT 24th June, 1944	Probably One Ground Mine in 10 fathoms	Sunk	SWIFT was operating off the Normandy beaches, at 9 knots, when an explosion occurred under the forward boiler room. The ship immediately broke her back, heeled slightly to port and settled amidships until the funnel was submerged with the bow and stern above water. SWIFT remained in this condition for some time. The crew abandoned her, and as the tide rose she gradually settled and finally sank about one hour later.
ESKIMO 28th June, 1944	Direct Hit Oerlikon Shells	2 days	ESKIMO, while engaging enemy trawlers off the French coast, sustained a number of hits from close range Oerlikon fire. One shell detonated in the engine room and caused minor damage. Other hits damaged the tubes of No.3 boiler and cut some auxiliary steam pipes. One dynamo and the steering motor were damaged. Fighting Efficiency - Temporarily impaired. Nos. 2 and 3 boilers, one dynamo and the steering motor were temporarily out of action. Speed was reduced to 4 knots, for about 20 minutes.
ISIS 20th July, 1944	Mine or Torpedo probably the former	Sunk	ISIS was on anti-submarine patrol off the Normandy beaches when a large explosion occurred abreast the starboard side of the forward boiler room and was followed almost immediately by two other explosions. There was a large hole in the port side in the vicinity of the bridge; the bow structure was badly damaged and turned to port and there was a split in the starboard ship's side abreast 'B' gun deck. After the explosion, the ship trimmed by the bow, took a heavy list to starboard and almost immediately the deck was awash. A fire broke out in the forward galley. ISIS sank bows first in about 20 minutes. Surviving members of the crew were of the opinion that the explosions were caused by mines.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORESTER 22/23rd July, 1944	Two Direct Hit Shells from shore battery. Six Direct Hit Bofors Shells Numerous Direct Hit Oerlikon Shells	2 weeks	FORESTER, while in action against R-Boats off the French coast, was attacked by shore batteries and sustained two direct hits which damaged the protective plating and ready-use lockers on 'X' gun deck. Six hits were also sustained from Bofors shell two of which perforated the ship's side above the waterline. Many hits were scored by Oerlikon shell. The majority of the damaged caused by the above hits was at deck level which affected only gun-shields, ready-use lockers, carley floats, and weather deck fittings. Fighting Efficiency - Slightly impaired.
GOATHLAND 24th July, 1944	One Ground Mine in 17 fathoms charge about 1600 lbs.	Indeterminate (Ship not repaired)	GOATHLAND was on patrol off the coast of Normandy, at 11 knots, when an explosion occurred under the ship near the after magazine. This resulted in minor corrugation of the hull plating between frames for two-thirds of the length of the ship and widespread, but not severe, internal damage to structure. The after magazine and one after oil fuel tank were flooded and minor oil fuel leaks occurred in adjacent compartments. The ship heeled to starboard a maximum of 11 degrees. Extensive shock damaged occurred to main and auxiliary machinery; chocks under the sliding feet of L.P. turbines and gear cases were fractured; boiler feet were distorted and turbo generators extensively damaged. Both shafts were bent and eventually seized. The torpedo tubes jammed off their roller paths. Shock also damaged W/T equipment, director, gyro-compass and radar equipment. Fighting Efficiency - Seriously impaired. The ship was immobilised due to damaged main engines and bent shafts. The torpedo tubes and type 291 radar were out of action.
QUALITY 25th July, 1944	One Direct Hit Shell	Nil	QUALITY was taking part in the bombardment of Sabang when a shell from a shore battery hit the fore rigging and put the W/T and R/T temporarily out of action. Fighting Efficiency - Not seriously impaired.
QUILLIAM 25th July, 1944	One Direct Hit Shell	Nil	QUILLIAM, during the bombardment of Sabang, was hit aft by a shell from a shore battery. Slight damage was caused. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
QUORN 3rd Aug., 1944	Probably a Human Torpedo	Sunk	QUORN was operating in the British Assault Area off the Normandy beaches, at 8 knots, when a tremendous explosion occurred on the starboard side amidships. The whole of the starboard side of the midship section abreast the funnel was destroyed. The ship immediately took a 40 degree list to starboard and within a minute was on her beam ends, but within 1¾ minutes of the explosion had righted herself to a 50 degree list and had broken in two amidships. Both ends of the ship were observed to sink rapidly until about 30 ft. of the stern and 15 ft. of the bows were above water. REMARKS This incident emphasised the need to fit, in HUNT Class destroyers, an additional escape scuttle in the ship's side immediately abaft the collision bulkhead, to enable trapped personnel to escape.
BLENCATHRA 3rd Aug., 1944	One Human Torpedo	3 months including refit	BLENCATHRA was hoisting a human torpedo on board when the scuttling charge blew up. The ship sustained minor damage and one feed tank was put out of action. Fighting Efficiency - Impaired.
HAIDA (H.M.C.S.) 6th Aug., 1944	Shell	Nil	HAIDA while attacking an enemy convoy off St. Nazaire, was superficially damaged by shellfire. Fighting Efficiency - Not impaired.
ST. LAURENT (H.M.C.S.) 8th Aug., 1944	One Near Miss Radio Controlled Glider Bomb type H.S.293	9 days	ST. LAURENT, while operating off the west coast of France, sustained a near miss by a glider bomb. No hull damage was sustained but the circulating pump and one boiler room fan were put out of action. The gyro compass was damaged and 'A' gun was subsequently only 25% efficient. Fighting Efficiency - Not seriously impaired. The ship was able to remain at sea temporarily on operational duties.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASSINIBOINE (H.M.C.S.) 12th Aug., 1944	One Direct Hit 40 mm. Shell	4 days	ASSINIBOINE attacked an enemy convoy whilst operating off the west coast of France. She was hit by one shell which detonated in the engineer's workshop and caused minor damage. Fighting Efficiency - Not impaired.
ALBRIGHTON 12th Aug., 1944	"Shorts" Shell	Nil	ALBRIGHTON, while attacking an enemy convoy off the west coast of France, suffered superficial splinter damage. Fighting Efficiency - Not impaired.
SAUMAREZ 14th Aug., 1944	One Direct Hit 4.1 inch direct action fuzed Shell Several Direct Hit 37 mm. and 20 mm. Shells	10 days	SAUMAREZ was patrolling off the Channel Islands in company with ONSLAUGHT, at 25 knots, when a shell detonated in the after boiler room fan intake space on the starboard side. The resulting splinter damage was generally of a minor character but both engine room and two boiler room supply fans were severely damaged. Superficial damage was caused by hits from 37 mm. and 20 mm. shell. Fighting Efficiency - Slightly impaired. Speed was temporarily reduced to 20 knots but full speed was soon regained.
ONSLAUGHT 14th Aug., 1944	Several Direct Hit 20 mm. Shells	Nil	ONSLAUGHT was patrolling off the Channel Islands in company with SAUMAREZ, at 25 knots, when she received several hits with 20 mm. shell. Only superficial damage resulted. Fighting Efficiency - Not impaired.
MELBREAK 23rd Aug., 1944	One Direct Hit 37 mm. delay action fuzed Shell	Nil	MELBREAK was in action with R-boats off the French Coast near Cap D'Antifer, when a shell perforated the starboard side above the waterline and burst in the lubricating oil tank in the gearing room. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MELBREAK 24th Aug., 1944	Three Direct Hit 88 mm. and 37 mm. direct action fuzed Shell	Nil	MELBREAK was in action with an enemy convoy off the French Coast near Cap D'Antifer when she received 3 hits from shells. 88 mm. shell hit the starboard side abaft 'Y' gun and caused a 3 ft. diameter hole in the side plating. Internal damage was of a minor nature only. 37 mm. shell hit the starboard side aft abreast an oil fuel tank but did not cause any major damage. 37 mm. shell ricochetted off the windscreen and caused minor damage. Fighting Efficiency - Not seriously impaired.
MIDDLETON 27th Aug., 1944	Shell	1 month	MIDDLETON, while operating with Coastal Forces Craft off the coast of France, was attacked by an enemy force of eight Tank Landing Craft. MIDDLETON suffered only minor damage from shell fire. Fighting Efficiency - Not seriously impaired.
CATTISTOCK 29th Aug., 1944 D.N.C.6/R304	At least Twenty-Six Direct Hit direct action fuzed Shells (88 mm. down to small arms fire)	2 months including refit	CATTISTOCK, while in action against an enemy convoy, was attacked by shore batteries off the French coast. Hull plating and superstructure over the starboard side were perforated by direct hits and splinters. The largest concentration of hits occurred from abreast the forward 4 inch gun to the bridge; all damage was above the waterline. Direct hits and splinters caused serious damage to internal equipment and electric leads; radar sets, W/T equipment and aerials, gunnery and fire control circuits and transmitting station were all severely damaged. The forward 4 inch gun was damaged and there were many casualties amongst gun's crew. Fighting Efficiency - Seriously impaired. The forward 4 inch gun was out of action. All other guns were in local control. Type 271 and 291 radar, the director, transmitting station and gyro compass were out of action.
MIDDLETON 6th Sept., 1944	Shell	17 days	MIDDLETON, while operating in the English Channel, was fired on by shore batteries from Cap Gris Nez and sustained damage, mainly of a superficial nature. Fighting Efficiency - Impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LIDDESDALE 28th Sept., 1944 D.N.C.N6/BR306	One Direct Hit 88 mm. Two Direct Hit 75 mm. delay action fuzed Shells All judged to have been of A.P. type two of which did not detonate	17 days	LIDDESDALE, while operating in company with ZETLAND, and attacking enemy shipping in Pegadia Bay, Scarpanto, was fired on by shore batteries and hit three times. Hit No.1 an 88 mm. shell hit the starboard side of the bridge passed through the bridge structure and exploded on contact with the support of the port Oerlikon. It was considered that this shell only partially detonated. Hit No.2 a 75 mm. shell passed through a motor boat on the port side and a whaler on the starboard side without detonating. Hit No.3 a 75 mm. shell perforated the mast without detonating, but caused some damage to rigging and aerials. Fighting Efficiency - Slightly impaired. The main aerials were temporarily out of action. The port oerlikon mounting was put out of action.
ZETLAND 28th Sept., 1944	One Direct Hit Shell which did not detonate	10 days	ZETLAND, while in company with LIDDESDALE, and attacking enemy shipping in Pegadia Bay, Scarpanto, was fired on by shore batteries. A direct hit on the pom-pom damaged the mounting and wounded members of the guns crew. Fighting Efficiency - Slightly impaired. The pom-pom was put out of action.
FARNDALE	One Direct Hit 75 mm. direct action fuzed Shell	8 days	FARNDALE, while operating near Livadia Bay, Piskopi Island in the Aegean, was fired on by shore batteries. A shell hit the starboard side abreast the engine room at about waterline level and blew a hole about 2 ft. diameter in the plating. Controlled flooding occurred in the engine room. The starboard dynamo was damaged by splinters and put out of action. Fighting Efficiency - Not impaired. The ship was able to continue the patrol after a temporary patch had been fitted over the damaged side plating.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LOYAL 12th Oct., 1944	One Ground Mine in 7½ fathoms probably Acoustic type G.C. Charge 1550 lbs.	Indeterminate (Ship not repaired)	LOYAL was returning from the bombardment of enemy positions on the north east coast of Italy at 20 knots when an explosion occurred about 10 yds. off the starboard side abreast the engine and gearing room. The ship's structure was strained and bulkheads were buckled over an area extending from the forward boiler room to the stern, principally on the starboard side. The hull plating at the turn of bilge was corrugated to a maximum depth of 8 inches and the side framing was set inboard. Many rivets were pulled through the hull plating, causing leaks into the engine room and gearing room. The upper deck was lifted slightly, abreast the centre of damage. The structure of the starboard after fuel tanks was split which allowed oil to leak into the gearing room, gland and plummer block spaces and 'X' magazine, this resulted in a 7 degree list to port. Flooding into engine and gearing rooms was controlled. Flooding into 'X' magazine and the plummer block and gland spaces necessitated these compartments being shut down. The main and auxiliary machinery, electrical and radar equipment and gun armament were extensively damaged by shock. All steam and electrical power failed and the trailing steam pipe to the starboard main circulator was fractured which necessitated the evacuation of the engine room. Essential services were maintained by diesels. The after torpedo tubes jumped off their roller path. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow. The main engines, after torpedo tubes and radar equipment were put out of action. 'X' turret was out of action but the remainder of the main armament could have been fired in local control.
VERULAM 12/13th Nov., 1944	Twenty two Direct Hit 20 mm. Oerlikon and 2 Pdr. Shells	11 weeks including refit	VERULAM, while attacking an enemy convoy and its escort in northern waters, in company with ZAMBESI, received 22 hits with small calibre shell. These were widely dispersed throughout the ship but no serious damage resulted. Hits occurred on the D.C.T., 'X' and 'Y' guns, Bofors mounting, Oerlikon R.U. lockers, type 272 radar office, rangefinder director and the tiller flats. Three of the shells passed through the side plating, two into the forward boiler room and one into the engine room, but machinery was undamaged. Fighting Efficiency - Not impaired.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ZAMBESI 12/13th Nov., 1944	Six Direct Hit 20 mm. Oerlikon H.E. (direct action fuzed) armour piercing and tracer type Shells	Nil	ZAMBESI, while attacking an enemy convoy and its escort in northern waters, in company with VERULAM, received six shell hits. Hit No.1 (tracer) struck the lower support of the D.C.T. with no appreciable result. Hit No.2 (type unknown) struck the port after leg of the foremast at bridge level. Several unimportant electrical leads were cut. Hit No.3 (H.E.) struck the starboard after side of the funnel and burst on impact making a hole 10 inches in diameter in the funnel casing, and cutting the starboard siren drain pipe. Hit No.4 (armour piercing) perforated the shell plating abreast the after boiler room, about 12 inches above the waterline, then passed through the starboard fan casing and entered the boiler room air lock. Hit No.5 (presumed armour piercing) perforated the hull plating abreast the engine room, about 12 inches above the waterline, and cut a main electrical cable between the forward and after switchboards. Splinters pierced the main feeds between the starboard generator link boxes and the forward switchboard. Hit No.6 (type unknown) struck and dented the side plating abreast the after fuel tanks. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STEVENSTONE 30th Nov.,1944 D.N.C.N6/R328	One Moored Contact Mine in 8½ fathoms probably type G.R. charge 90lbs.	6½ months	STEVENSTONE was patrolling off the Schelt Estuary at 12 knots, when a mine detonated on her starboard side abreast the forward magazine. The bottom plating on the starboard side of the magazine was holed about 12 ft. in diameter and the surrounding structure was severely split and buckled. Immediately above the explosion the lower deck was blown up and holed about 6 ft. in diameter and the upper deck was bulged upwards about 9 inches and split in several places. The forward magazine was wrecked and the after bulkhead between it and the forward oil fuel tanks was badly buckled and split. The fore end of the ship for 50 ft. was open to the sea below the lower deck, including the magazine, 'A' and 'B' oil fuel tanks, the cold and cool rooms and the asdic compartments. The ship listed about 4 degrees to starboard and the lower mess spaces flooded to the waterline. The fore end compartments were isolated and closed down. Steering from the bridge failed due to a fracture in the telemotor pipe system. Fumes from the explosion, oil fuel, and heavy concentrations of Methyl Chloride gas from the refrigerating plant, caused many casualties on the forward mess decks. Fighting Efficiency - Seriously impaired. Due to structural damage at the fore end the ship could only steam astern: steering was only possible by hand control. Endurance was reduced due to the loss of the two forward oil fuel tanks. The forward gun and asdics were out of action.
WILTON 3rd Dec., 1944	Shell	Nil	WILTON, when in company with other Destroyers and M.T.B's and bombarding Lussin - Piccolo in the Adriatic, was slightly damaged by shell fire, presumably from shore batteries. Fighting Efficiency - Not impaired.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CASSANDRA 11th Dec., 1944	One Contact Torpedo probably Acoustic Homing type fired from submarine	2 years including refit	CASSANDRA was escorting a convoy to North Russia when a torpedo struck her starboard side forward in the vicinity of the Asdic compartments. The bow structure forward of the forward magazine, including 'A' gun was missing. Abaft this to abreast the forward oil fuel tanks - the forward bulkhead of which was only slightly strained and buckled - all structure was wrecked. A flooding boundary was established at the forward bulkhead of the oil fuel tanks, all remaining compartments forward were open to the sea. The two forward oil fuel tanks were contaminated due to leaks. The deck around 'B' mounting was lifted but the guns could still be trained and elevated. The Sperry master gyro suspension was broken. Fighting Efficiency - Seriously impaired. Ship could only steam slowly astern and eventually had to be taken in tow. 'A' gun was lost overboard, 'B' gun was out of action and the forward magazine and shell rooms were flooded. The A/S and Gyro compass were out of action.
ALDENHAM 14th Dec., 1944	Mine	Sunk	ALDENHAM, while operating in the Adriatic, about 30 miles north west of Zara, struck a mine and sank. No further information is available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARUNTA (H.M.A.S.) 5th Jan., 1945	Near miss by a Japanese Suicide Plane (Zero) which carried direct action fuzed Bomb (thought to have been about 250 lbs.)	Not known	ARUNTA was operating in the Philippines, when a suicide plane crashed into the sea about 30 ft. from her port side, abreast the engine and gearing rooms: the bomb it carried exploded on the surface. The ship's side plating above the waterline, abreast the engine room, gearing room, the 2nd W/T office and the after superstructure were perforated by splinters. The gearing room was flooded to the waterline through splinter holes and a fractured fire main. Partial flooding occurred in the engine room and office flat. All flooding was controlled. The exhaust steam main in the gearing room and the oil fuel filling line and forced lubrication system were punctured by splinters. The gearing room was evacuated due to escaping steam which necessitated the stopping of the main engines and the eventual shutting down of all boilers. Many high and low power electrical circuits were cut by splinters, including the H.P. supply to the engine and gearing rooms, leads to both steering motors and fire control circuits to 'X' and 'Y' guns. The 2nd W/T office was partially flooded, the equipment was damaged by splinters and the main aerials were brought down. Two small fires, one caused by splinters and the other by an electrical short, were quickly extinguished. Fighting Efficiency - Severely impaired. The ship was immobilised for 5 hours until temporary repairs to the machinery and electrical equipment could be effected and the gearing room pumped out. The steering gear was jammed and the ship turned in circles to take avoiding action till the rudder could be centred by hand. 'Y' mounting, the after fire control circuits, both steering motors, and the A/S gear and W/T equipment were temporarily out of action.

DESTROYERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WALPOLE 6th Jan., 1945	One Contact Mine in 16 fathoms	Indeterminate Ship not repaired	WALPOLE was on patrol in the North Sea, at 12 knots when a mine detonated on contact with the port side, abreast the forward boiler room. A hole was blown in the bottom plating, measuring approximately 30 ft. long, at the turn of bilge. The forward bulkhead of the boiler room was severely damaged and leaking; the after bulkhead was buckled and slightly leaking, and the upper deck above the centre of damage was bulged upwards. The funnel uptakes, mast, bridge, and forward superstructure were all severely damaged. The forward boiler room and a cofferdam on the fore side flooded immediately; leakage in the after boiler and engine room was controlled; the main and reserve feed tanks were flooded through open valves; and the ship listed to starboard about 12 degrees. The forward boiler room was wrecked, resulting in the complete loss of steam and failure of all electrical power. Steering gear to the wheelhouse was blown away, and the rudder jammed at 30 degrees. The oil fuel pipe line was fractured just aft of the forward boiler room. All essential leads on the foremast to types 242 and 291 radar were torn away and the W/T office and equipment were severely damaged by shock. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow due to loss of all steam power. Radar, W/T and A/S equipment was out of action, but the main and torpedo armament could have been fired in local control.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PATHFINDER 11th Feb., 1945	One Near Miss probably 68 kgm. delay action fuzed Bomb depth of water 5-6 fathoms	Indeterminate (Ship placed in Reserve)	PATHFINDER was operating in the Pakseik Taungmour River, north Burma, when a bomb hit the water about 50 ft. from the starboard side abreast the after magazine (No.5) and probably detonated under the ship on, or near, the river bed. The column of water thrown up by the explosion fell over practically the whole length of PATHFINDER. The explosion caused a transverse split in the hull plating of length 7 ft. and maximum width 18 inches abreast the after magazine (No.5) and the ship's structure was generally distorted and buckled from the after end of the gearing room to just forward of the steering compartment. The ship sagged about 10 inches and there was a whipping buckle down the side plating abreast the bulkhead between the engine room and boiler room. The after magazine (No.5) was flooded to the waterline. From this compartment rapid flooding, later controlled, spread into the after magazine (No.4), spirit room and starboard gland compartment. In the engine room and after boiler room leaks through strained rivets and splits in hull plating were controlled. The after oil fuel tanks leaked slowly into the port gland compartment, depth charge magazine and gearing room. The starboard shaft was set up and partially seized; the port shaft was stiff to use. Telegraph rod gearing on the bulkhead between the engine room and after boiler room jammed. The auxiliary superheated and main steam bulkhead valves were torn away from the bulkhead allowing steam to escape into the engine room. Water from the spray dome entered the engine room through the hatches. The loss of steam from the after boiler room caused a partial failure of electrical power until the diesels were put on load. Radar equipment was damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised. The after guns could only have been fired in an emergency due to the weakened condition of the structure.
PALADIN 11th Feb., 1945	Near Miss Bombs	Nil	PALADIN, whilst at anchor in the Pakseik Taungmow River, North Burma, was attacked by Japanese fighter bombers. Splinters from near miss bombs caused superficial damage to upperworks including the bridge and foremast. Fighting Efficiency - Not impaired.

DESTROYERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RAPID 19th March, 1945	Five Direct Hit several "Shorts" probably 6 inch direct action fuzed Shells	14 weeks including refit	RAPID, while operating in the Andaman Islands, in company with VOLAGE, was fired on by shore batteries and damaged by 5 direct hits and several shorts. Shell No.1 detonated just below the upper deck abreast the port side of the forward boiler room. The shell nose was found embedded in the boiler steam drum. The saturated and balance steam pipes were damaged and the boiler room temporarily evacuated. Shell No.2 detonated at the after end of the pom-pom platform. The pom-pom deck, starboard fan intakes to engine room and the forward torpedo tubes were all damaged by splinters. The splinter shield of the pom-pom was blown off and the two guns damaged. Shell No.3 detonated on and wrecked the port dinghy. Fan intakes to the after boiler room and electrical cables to the engine room fans were damaged by splinters. The after boiler room was temporarily shut down and steam to main engines was lost. Shell No.4 detonated on the searchlight which, with its pedestal, was blown overboard. The type 272 radar mast was badly buckled and the aerial array damaged. R.U. lockers of the after Oerlikons were pierced by splinters. Shell No.5 detonated on the starboard side of 'X' gunshield, which was practically blown away. 'X' gundeck and the after superstructure was extensively damaged by splinters. Splinters from "Shorts" damaged the port side plating and superstructure abreast, and forward of, the bridge, the H.A. director, the port side of funnel, three main aerials, the port side of 'B' gunshield and radar and W/T offices. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised by loss of steam. 'X' gun, two guns of the pom-pom, type 272 radar and one tube of the forward torpedo tube mounting, were put out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VOLAGE 19th March, 1945	Three Direct Hit probably 6 inch delay action fuzed Shells	15 weeks including refit	VOLAGE, while operating in the Andaman Islands, in company with RAPID, was fired on by shore batteries and sustained 3 direct hits. Hit No.1 passed through the motor boat and detonated in or near a wash deck locker situated about 1 ft. from the starboard side. A hole measuring 12 ins. by 14 ins. was blown in the upper deck above the forward boiler room and the surrounding structure was perforated by splinters which cut several main electric cables, as a result of which all electrical power in and forward of the forward boiler room failed. The type 276 radar office was damaged by splinters. Hit No.2 struck a carley float stowage and burst about 3 ft. above the forecastle deck. Splinters perforated the forecastle deck passed into compartments below and severed the telemotor leads to the steering gear in the wardroom. Several H.P. cables, including those to the wireless and radar alternators, were also cut. A rocket flare locker on 'B' gun deck was pierced by a splinter. The rockets burnt but did not detonate and the fire eventually burnt itself out. Hit No.3 struck the ship's starboard side about 3 ft. above the upper deck abreast the forward upper mess deck, and burst 2 ft. inboard. The side plating was blown out and holed 4½ ft. by 4 ft. and the upper deck was holed 24 ins. by 6 ins. Surrounding structure was damaged by splinters. Fighting Efficiency - Not seriously impaired. The ship was steered by the emergency telemotor system amidships. Lighting and electrical power was quickly restored to the fore end of the ship using emergency cables. The type 272 radar was damaged and out of action.

DESTROYERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ULSTER 1st April, 1945	One Near Miss 250 lbs. or 500 lbs. direct action fuzed Bomb	15 months	ULSTER was operating in the Philippines when a bomb detonated on impact with the water about 3 ft. from the ship's starboard side and abreast the after end of the after boiler room. The side plating was holed about 12 ft. diameter and forced inboard from the underside of the sheer strake to the bilge keel over a length of 22 ft. The bulkhead between the engine and boiler rooms was severely buckled on the starboard side. The engine room and after boiler room flooded immediately. Slow flooding in the gearing room was controlled and minor leaks occurred in the forward boiler room. Torpedoes, depth charges and equipment and other items of topweight were immediately jettisoned. The starboard side of the after end of the after boiler room was wrecked. The boiler side casings, front air casing over the superheater and the saturated and superheated steam exhaust ranges collapsed. Splinters cut and damaged the main steam pipes, H.P. and L.P. electric cables and wrecked the starboard steam fan. Steam was lost in the forward boiler room. All communications and controls to the after part of the ship failed. Fighting Efficiency - Seriously impaired. The ship was immobilised and taken in tow. Main armament was undamaged but fire control circuits to the after group were out of action. Torpedo and depth charge equipment was immobilised as all weapons had been jettisoned.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SAUMAREZ 16th May, 1945	Three Direct Hit probably (i) 5 inch S.A.P. (ii) 4.7 inch H.E. or S.A.P. (iii) 8 inch Shells	3 months including refit	SAUMAREZ, while in action against a Japanese Cruiser and Destroyer off the north coast of Sumatra, East Indies, received 3 direct hits. Hit No.1. A 5 inch shell struck and perforated the port side plating above the lower deck, just forward of the forward boiler room, passed across the stewards mess and detonated in the engineer's workshop. The base of the shell carried on to perforate the forward bulkhead of the forward boiler room, severed a main steam pipe and came to rest in No.1 boiler. Structure in the vicinity of the burst was damaged by splinters. The low power room filled with steam and was evacuated temporarily. Loss of power in the forward boiler room put the radar, gyro compass, torpedo control communications and some lighting circuits temporarily out of action until the boilers had been de-unitised. Hit No.2. An 8 inch shell struck and perforated the forecastle deck, passed through the flare of forecastle and thence over-board without detonating. The holes in the forecastle deck and side plating measured 30 ins. by 15 ins. and 15 ins. by 12 ins. respectively. Hit No.3. A 4.7 inch shell struck the port after side of the funnel and detonated inside it. The top of the funnel casings was wrecked over an area 4 feet square and the surrounding plating was damaged by splinters. One W/T set was put out of action by damaged aerials. Fighting Efficiency - Not seriously impaired. The ship was steaming on the unit system and when damage was sustained in the forward boiler room the only effect was a slight loss of speed whilst changing over to the after boiler room.
VIRAGO 16th May, 1945	One Near Miss Bomb	3 months including refit	VIRAGO while operating with unit of the East Indies Fleet, north of Sumatra, sustained a near miss on the port side abreast the after oil fuel tanks. The side plating above the waterline was perforated by numerous splinters. The after oil fuel tanks were holed and the suction system was put out of action. Minor damage to electrical cables aft was caused by splinters which also damaged the Bofors gun. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LAGAN 20th Sept.,1943 D.N.C.4B/R280	One Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship not repaired)	LAGAN was escorting a convoy in the North Atlantic, at 15 knots, when an explosion occurred at the after end in the vicinity of the propellers. About 30 ft. of the stern abaft the cut up was blown away, a further 30 ft. (to the after superstructure) was wrecked and blown upwards into the ship. Forward of this only minor damage occurred. Two fairly severe whipping buckles, one just abaft the funnel and the other just forward of the main damage, extended down to the waterline. There was immediate flooding of the plummer block and gland spaces; abaft this the ship was open to the sea. No serious damage occurred to the main or auxiliary machinery or to the electrical equipment outside the limits of the wrecked after end. Minor fires were started by the ignition of calcium flares in the wreckage aft. Fighting Efficiency - Seriously impaired. The ship was immobilised due to loss of the rudder, steering gear, both tail shafts and propellers. All depth charge equipment was out of action. The after 4 inch gun could only be fired in an emergency due to the weakened condition of the ship's structure.
ITCHEN 22nd Sept.,1943	Probably Acoustic Homing Torpedo fired from submarine	Sunk	ITCHEN, while escorting a convoy in the North Atlantic, sank following a violent explosion and only two survivors were rescued.
TWEED 25th Sept.,1943	Rammed submarine	2 weeks	TWEED, while operating in the North Atlantic, hit a submarine a glancing blow. The bow structure was damaged principally on the starboard side. The fore peak was open to the sea and minor flooding in the forward magazine and starboard forward oil fuel tanks was controlled. Fighting Efficiency - Impaired. Endurance was reduced due to the flooded oil fuel tanks.

FRIGATES - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CUCKMERE 11th Dec., 1943	One Contact Torpedo fired from submarine	Indeterminate (Ship placed in reserve)	CUCKMERE, while escorting a convoy in the Mediterranean at 12 knots was struck by a torpedo on the port side, forward of the bridge and abreast the A/S compartment. The fore end structure for 65 ft. from the hold to the forecastle deck and 10 ft. of the signal deck was wrecked. The bow pivoted about the forward bulkhead of the A/S compartment and dropped about 8 ft. A whipping buckle just forward of the funnel girthed the forecastle deck and the ship's side to below the waterline. The fore end was flooded to the waterline for 65 ft. including the forward oil fuel tanks and A/S and S.A. compartments. Oil fuel tanks abreast the forward boiler room were flooded through the whipping buckle; reserve feed tanks under the after boiler room were contaminated; both boiler rooms leaked oil fuel from tanks abreast them; the after ballast tank was flooded to correct trim. The starboard generator was put out of action and all lighting failed forward of the boiler rooms. The forward hedgehog mounting was destroyed and the elevating gear of the forward 4 inch gun was damaged. Both twin oerlikon mountings sustained minor damage. The A/S equipment was wrecked and radar aerials were damaged by shock. Fighting Efficiency - Seriously impaired. The ship was unable to steam ahead due to the damaged bow but could proceed astern under her own power at slow speed. Endurance was reduced due to the loss of forward oil fuel tanks and contamination of feed water. A/S equipment, hedgehog mounting, radar and gyro compass were out of action.
TWEED 7th Jan., 1944	Probably a Non-Contact Torpedo fired from submarine	Sunk	TWEED was operating in the North Atlantic at 13 knots, when a torpedo exploded in the vicinity of the after magazine. The ship broke her back just abaft the engine room and the after bulkhead of this compartment was thought to have collapsed. About 30 seconds after the torpedo hit at least one of a pattern of 10 depth charges exploded underwater and probably caused further damage. The ship took a heavy list to starboard, the bows came vertically out of the water and the stern was submerged from abaft the funnel. TWEED sank in approximately 2 minutes.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GOULD 1st March, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	GOULD was hunting a submarine in the Atlantic when a torpedo struck the port side abreast the after motor room. The ship broke in two and the stern quickly sank. A fire was reported on the upper deck. In the forward motor room the automatic lighting did not function when the main lighting failed. The fore end listed heavily to starboard and sank about twenty five minutes after being hit. REMARKS Shock tests indicate that the automatic emergency lantern is satisfactory except that the plug connection is liable to become detached from the lantern under shock or vibration. Instructions to overcome this have been issued, A.F.O.5434/44 refers.
VALLEYFIELD (H.M.C.S.) 7th May, 1944	Torpedo fired from submarine	Sunk	VALLEYFIELD was sunk by a torpedo whilst operating off Cape Race, Newfoundland. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HALSTEAD 11th June, 1944 D.N.C.6/R294	One Contact Torpedo probably fired from 'E' or 'R' Boat	Indeterminate (Ship placed in reserve)	HALSTEAD was in action against 'E' and 'R' Boats in the English Channel, at 5 knots, when a torpedo struck the fore end approximately abreast No.1 - 3 inch gun port side. About 80 ft. of the bow structure forward of the bridge was missing after the explosion. The forward superstructure and No.2 - 3 inch gun platform were wrecked and forced against the bridge; the forward bulkhead of the forward boiler room was bulged aft, but not leaking; the remaining hull structure forward of this was severely damaged. Oil fuel tanks, low power room and adjacent compartments on the 1st and 2nd platform decks, forward of the forward boiler room were open to the sea. A minor fire in the cafeteria was probably due to electrical 'shorts' and scattered oil fuel. This was soon got under control but smoke and carbon dioxide fumes were drawn into all machinery spaces which necessitated their temporary evacuation. Steam was later raised in the after boiler room but the forward boiler room was closed down. The steering from the bridge was put out of action. The W/T equipment was damaged by shock and the elevating and training gear of No.2 - 3 inch gun seized. Fighting Efficiency - Seriously impaired. No.1 - 3 inch gun, 2 pdr. pom-pom, forward magazines, hedgehog mounting and ammunition and A/S and E/S gear were blown away. The ship was able to proceed slowly astern using the after machinery spaces. The forward boiler room, forward transmitting station, No.2 - 3 inch gun and bridge Oerlikons were out of action. REMARKS After the damage the engine room telegraphs registered "full ahead" and this order was obeyed until countermanded by messenger. Approved to fit Mk. XV telephones between machinery spaces and the bridge - C.A.F.O's 2683/43 and 2684/43 refer.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MOURNE 15th June, 1944	One Contact Torpedo fired from submarine	Sunk	MOURNE was operating in the English Channel off the Normandy beaches at 3 - 5 knots, when a torpedo struck the port side in the vicinity of the forward boiler room. There was a dull clanging explosion accompanied by an upheaval of water and black smoke. About 2 seconds later another bigger explosion occurred on the starboard side, immediately opposite that on the port side, accompanied by a large flash of red orange flame. It was thought that the forward magazine exploded and flames were seen coming out of the starboard side. The ship quickly heeled over to port, capsized, and sank by the bow in 64 seconds.
BLACKWOOD 15/16th June, 1944	One Torpedo fired from submarine	Sunk	BLACKWOOD was operating in support of the Normandy landings at 12 knots, when a torpedo hit the fore end, on the starboard side, in the vicinity of the forward magazine which was thought to have exploded but there is no evidence to substantiate this. Immediately after the explosion the ship was obscured by a dense cloud of yellow smoke. The fore end, before the bridge, was blown away, the foremast collapsed and the bridge structure was wrecked. The ship's back appeared to have been broken. BLACKWOOD developed a slight list to starboard, trimmed by the bow and sank ten hours after being attacked.
GOODSON 25th June, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship placed in reserve)	GOODSON was operating off Cherbourg at 15 knots, when a torpedo struck in the vicinity of the steering compartment, probably on the port shaft. About 35 ft. of the stern was missing including the steering compartment, 40 mm. magazine and after store. A further 26 ft. forward of this, including the depth charge magazine and after crew's space was wrecked and blown upwards. The forward bulkhead of these compartments was severely damaged and leaked badly. The depth charge magazine flooded immediately; flooding in the after crews space, gland compartments and after magazines was controlled. The ship heeled about 20 degrees to starboard and settled 6 ft. by the stern. Heel and trim were reduced by counterflooding the fore peak, transferring oil fuel from aft to forward and jettisoning heavy weights from aft, including the depth charges. Both shafts were fractured and forced upwards with the damaged stern. The asdic gear was temporarily out of action and HF/DF equipment was damaged by shock. Minor fires were started by electrical failures. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow due to the loss of steering gear and fracture of shafts. The after depth charge gear was wrecked and out of action. 'X' gun was out of action due to the weakened condition of surrounding structure.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TROLLOPE 6th July, 1944	One Contact Torpedo fired from 'E'-boat	Indeterminate (Ship placed in reserve)	TROLLOPE was operating off the French coast at 18 knots, when a torpedo struck the fore end in the vicinity of the forward magazines which were reported to have exploded. About 130 ft. of the ship before the forward engine room, including the bridge and foremast, was blown away. A whipping buckle girthed the hull in the vicinity of the after oil fuel tanks. The forward engine room flooded and the after boiler room leaked. The ship heeled about 3 degrees to starboard. Fighting Efficiency - Severely impaired. The ship was immobilised due to the loss of the fore end.
MATANE (H.M.C.S.) 20th July, 1944	One Direct Hit with Radio Controlled Glider Bomb type H.S.293 delay action fuzed	8½ months including refit	MATANE was operating off the French coast at 20 knots, when a glider bomb struck a carley float stowed on the port side near 'Y' gun, glanced off the deck, perforated the side plating at the break of forecastle and exploded underwater abreast the engine room port side. A hole measuring about 8 ft. by 18 ft. long was blown in the ship's side, the surrounding plating was buckled and forced inboard. The remaining plating abreast the engine room was generally corrugated and laps and butts were strained. A deep buckle girthed the ship, and the forecastle deck was buckled at the fore and after ends of the engine room respectively. The engine room immediately flooded but minor flooding in the after boiler room was controlled. The port main engine and port turbo-generator was wrecked; auxiliaries on the port side of the engine room generally were damaged but those on the starboard side received only minor damage. All electrical power failed due to fractured steam pipes, wrecked generator and flooding in the engine room but power was restored by diesels. 'Y' gun was stiff to train. Fighting Efficiency - Severely impaired. The ship was immobilised due to the flooded engine room. All guns were in local control.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BICKERTON 22nd Aug., 1944	(i) One Acoustic Homing Torpedo fired from submarine (ii) Torpedo from own forces	Sunk	BICKERTON was in company with NABOB in the North Sea during an attack on TIRPITZ when a torpedo struck the after end. The ship was immobilised, developed a list to starboard and settled by the stern. The stern structure was wrecked and the upper deck was split and opened 2 ft. just abaft the engine room. Flooding occurred abaft the after bulkhead of the after engine room, and glands in this bulkhead leaked but the ship was considered reasonably seaworthy and would undoubtedly have remained afloat. Some confusion and panic was caused by the continued sounding of the steam siren and suffocation below decks due to C.S.A. smoke that had been drawn down the ventilation system from a damaged generator which had been blown forward near the intakes. Control of the situation was regained when the siren was shut off, but due to tactical considerations (NABOB had also been torpedoed) it was decided to abandon ship. $3\frac{1}{2}$ hours after the attack BICKERTON was sunk by a torpedo from own forces.
RETALICK 30th Aug., 1944	One Direct Hit with 40 mm. direct action fuzed Shell	10 days	RETALICK was engaging an enemy convoy and E-Boats in the English Channel when a shell hit and exploded on the zareba around the after oerlikon mounting but no serious damage was caused. Fighting Efficiency - Not impaired.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CHEBOGUE (H.M.C.S.) 4th Oct., 1944	One Torpedo probably Acoustic Homing type. Fired from submarine	Indeterminate (Ship placed in reserve)	CHEBOGUE was escorting a convoy in the Atlantic at 13 knots when an explosion occurred at the after end in the vicinity of the propellers. About 30 ft. of the stern abaft the cut up was blown away, a further 35 ft. to the after end of the after superstructure was wrecked and blown upwards, the upper deck being forced forward over the 12 pdr. gun. A part of the rudder post was thrown forward where it crashed through the forecastle deck abreast the funnel, passed through the diesel room (without seriously damaging the machinery), penetrated a double bottom oil fuel tank and finally came to rest 3 ft. from the ship's bottom. Forward of the wrecked stern structural damage was only of a minor nature. There was immediate flooding of the plummer block and gland spaces; abaft this the ship was open to the sea and the quarter deck was awash. The main condensers were strained and leaking, but there was no other serious damage to main or auxiliary machinery or electrical equipment outside the limits of the wrecked after end; the steering gear, rudder, propellers and shafts were either missing or seriously damaged. The after 12 pdr. gun was severely damaged but all other gun armament remained serviceable. Depth charges were blown overboard by the explosion and detonated at a great depth; all equipment was wrecked or seriously damaged. W/T aerials were unserviceable due to shattered insulators. Fighting Efficiency - Severely impaired. The ship was immobilised and towed a distance of 890 miles to port. All depth charge equipment and the after 12 pdr. gun was out of action.
MAGOG (H.M.C.S.) 14th Oct., 1944	One Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship not repaired)	MAGOG whilst operating in the North Atlantic, east of Newfoundland was struck aft by a torpedo. After the explosion about 60 ft. of the stern structure was missing but the after bulkhead of the engine room was intact and watertight. No further details of the damage are available. Fighting Efficiency - Seriously impaired. The ship was immobilised, taken in tow and then beached.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MOUNSEY 1st Nov., 1944	Probably a small Contact Mine charge about 90 lbs. depth of water 110 fathoms	4 months	MOUNSEY was patrolling off Kola Bay, North Russia, at 11 knots when an explosion occurred abreast the starboard after oil fuel tanks. The resultant hole in side plating measured 15 ft. by 12 ft.; the bulkheads of the plummer block compartment and between the oil fuel tanks were wrecked; above the explosion the first platform deck was wrecked and the main deck blown upwards. The two starboard oil fuel tanks, and the cofferdam and plummer block compartments immediately flooded to the waterline, and there was controlled flooding into the after motor room; as a result the ship developed a slight list to starboard. A serious fire aft which was caused by ignition of diesel oil from damaged tanks, spread to bedding, kit and materials in the after mess decks and compartments centred around the explosion, but was finally extinguished after about 5 hours. The starboard plummer block lifted and the shaft was slightly distorted. Steering by hand from the after conning position was necessary until temporary repairs to damaged electric cables had been effected. The explosion caused the failure of all electrical power abaft the after motor room. All communications to 'Y' gun and depth charge equipment were destroyed by the explosion and fire. Fighting Efficiency - Impaired. Speed was reduced to 11 knots to avoid further damage. The after guns and depth charge equipment could be fired in local control. Endurance was reduced due to flooding of the starboard after oil fuel tanks.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHITAKER 1st Nov., 1944 D.N.C.6/R329	Probably a Torpedo possibly a Mine	Indeterminate (Ship placed in reserve)	WHITAKER was escorting a convoy off Northern Ireland at 10 knots when an explosion occurred at the fore end, followed a few seconds later by another explosion of considerably greater violence than the first. The findings of the Board of Inquiry were that the first explosion was due to a floating mine although the possibility of a torpedo could not be dismissed. The second explosion was probably due to the ignition, by splinters, of cordite and/or hedgehog propellent stowed in the forward magazines. Admiralty Authorities have suggested that the first explosion was more probably caused by a torpedo. The bow structure up to just forward of the bridge was missing and the upper deck to nearly abreast the funnel was blown up and over the bridge. The bridge, forward boiler room and the remaining forward compartments were all wrecked and flooding occurred to the waterline. Abaft the forward boiler room only minor damage to structure occurred and all machinery and electrical equipment were in good working order. The forward 3 inch and oerlikon guns were missing or wrecked and the after guns were damaged by blast. Some damage to depth charge equipment occurred. A small fire in the vicinity of the funnel and bridge was probably caused by burning oil fuel. The main W/T and radar offices were wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised and taken in tow. A large number of the personnel were casualties and all the officers were killed.
DUFF 30th Nov., 1944	Probably a small Contact Moored Mine charge about 90 lbs. depth of water 15 fathoms	Indeterminate (Ship placed in reserve)	DUFF was returning to Harwich from patrol at 12 knots when an explosion occurred under the forward boiler room. A hole was torn in the bottom plating, between the centre line and the starboard bilge keel, measuring 11½ ft. by 10½ ft. In the forward boiler room, which was wrecked, the forward bulkhead was buckled and torn and the after bulkhead was slightly distorted. Immediate flooding to the waterline occurred in the forward boiler room and in the middle line and starboard after oil fuel tanks of the forward group. The remaining starboard tanks of this group also flooded as a result of the oil fuel suction line being fractured in the boiler room. W/T and radar equipment was damaged by shock. Fighting Efficiency - Impaired. One boiler room was out of action but the ship was able to proceed under her own power on the after unit. Endurance was reduced by loss of some of the forward group of oil fuel tanks.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BULLEN 6th Dec., 1944	One Torpedo probably Acoustic Homing type fired from submarine	Sunk	BULLEN was escorting a convoy off the north coast of Scotland when an explosion occurred on the starboard side amidships, just abaft the funnel. Evidence indicated that the after engine room and boiler room flooded immediately. The ship quickly broke in two, the fore part turning on its beam ends and the after part floating vertically. The fore part sank 41 minutes after the explosion. The after part sank 1 hour and 6 minutes later.
DAKINS 25th Dec., 1944	One Ground Mine in 10 fathoms probably type G.C. Charge 1550 lbs.	Indeterminate (Ship placed in reserve)	DAKINS was on patrol off the Belgian coast at 15 knots when an explosion occurred under the bottom on the starboard side of the forward magazines. Hull plating on the starboard side was severely buckled, principally below the waterline, from the bow to abreast the forward engine room. For about 30 ft. abreast the magazines, the side plating and framing was forced inboard below the first platform deck, and the plating was opened up over a length of about 21 ft. A large split also occurred in the keel. On the port side the buckling of the plating was less severe but in one place there was a split abreast the magazines. A whipping buckle occurred across the upper deck abreast the expansion joint in the superstructure. The A/S compartment was wrecked and the equipment out of action. About 80 ft. of the fore end of the ship - including the magazines, A/S compartment and hedgehog stowage - was flooded to the waterline. In the forward boiler room, oil fuel flooded into the bilges from a split in the bottom of an adjacent oil fuel tank, but this was controlled. The forward boiler room and both engine rooms started to fill with steam from a fractured pressure gauge pipe which necessitated the temporary shutting down of the boilers and a consequent failure of electrical power. The emergency lighting functioned correctly. Auxiliary machinery, secondary armament, radar and W/T equipment was extensively damaged by shock, but did not materially effect the ship's fighting efficiency. Fighting Efficiency - Impaired. The ship was able to return to port under her own power but seagoing efficiency was seriously reduced.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AFFLECK 26th Dec., 1944	Probably an Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship placed in reserve)	AFFLECK was patrolling off Cherbourg in company with CAPEL at 8 knots when an explosion aft in the vicinity of the port rudder. Approximately 50 ft. of the stern structure was wrecked and forced upwards about 12 degrees. Forward of the wrecked stern only minor structural damage occurred. Uncontrollable flooding to the waterline occurred over about 65 ft. of the after end of the ship including the after ammunition stowages and crew's accommodation. Forward of this there was some flooding in crew's accommodation which was controlled. As a result of the flooding and damage the ship heeled 7 degrees to starboard. Three smoke containers were blown forward, two burst amidships on the boat deck and one in the port waist. Both boiler rooms and engine rooms had to be temporarily evacuated due to acrid fumes from the containers being drawn down into the machinery compartments. Both shafts were fractured, the steering gear was wrecked, and the port rudder and starboard propeller were missing. The after 3 inch gun could not be fired due to damaged elevating gear and the amidships oerlikons were inoperative due to drenching by acid from the displaced smoke containers. The depth charge equipment was also wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised due to fractured shafts, wrecked steering gear and the loss of one propeller and rudder. The after 3 inch gun, the amidships oerlikons and all depth charge equipment was out of action.
CAPEL 26th Dec., 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	CAPEL was on patrol off Cherbourg in company with AFFLECK when an explosion occurred forward, followed shortly afterwards by a second explosion - possibly in the forward magazine. The bridge structure was partly blown away and forced back on to the funnel. As a result of serious damage sustained CAPEL sank slowly. There were heavy personnel casualties and all officers were killed.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MANNERS 26th Jan., 1945	(i) One Acoustic Homing Torpedo probably Non-contact (ii) One Torpedo probably Contact both fired from a submarine	Indeterminate (Ship placed in reserve)	MANNERS was on passage from Falmouth to Liverpool at 18½ knots when an explosion occurred under the stern. About 10 seconds later there was a further explosion well astern probably caused by the emergency ante-gnat depth charge countermining other depth charges blown overboard by the first explosion. The resultant damage to structure was not serious. The stern was slightly buckled and the upper deck set up. There was about 3 ft. of water on the lower deck aft. Depth charge rails were distorted and some depth charges were blown overboard. The main breaker in the forward engine room tripped as a result of the second explosion and caused the temporary failure of main motors until it was closed again. Efforts to move the ship failed, for although the shafts turned there was no propulsion and it was presumed the propellers or tail shafts were broken or seriously damaged. At least one of the smoke bottles was thrown forward and landed in the vicinity of the engine rooms which as a result were filled with smoke. The radar set was out of action and the asdics were operating at a very low efficiency. 13 minutes after the first explosion a third and much heavier explosion occurred 20 to 30 ft. from the stern near the forward end of the steering compartment. About 60 ft. of stern structure, from the after end to abreast the magazines, was blown away. No serious damage or flooding occurred forward of the wrecked stern. Apart from the loss of steering gear, shafts and propellers, no major damage was caused to machinery or electrical equipment. The after 3 inch gun was severely damaged. Fighting Efficiency As a result of the first two explosions the ship was immobilised due to damaged propellers or shafting, although not seriously damaged structurally. The third explosion wrecked the stern and put 'X' 3 inch gun out of action.

FRIGATES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AYLMER 26th Jan., 1945	Rammed German submarine	2½ months	AYLMER, while operating off the Western Approaches at 15 knots, rammed and struck a U-boat just before the conning tower. The bow structure from the keel to the 2nd platform deck was torn away over a length of 7 ft. and side plating and framing abaft this - to bulkhead 14 was slightly buckled and distorted. Bulkhead 14, which was the forward bulkhead of the asdic compartment, suffered only minor damage and leaked slightly, it was shored as a precautionary measure. The first and second peak tanks were open to the sea and flooded. At the time of the ramming the asdic dome was housed and this together with its associated equipment was undamaged. Fighting Efficiency - Not seriously impaired The ship proceeded stern first to prevent aggravation of the damaged fore end but it was found that excessive vibration was caused. It was therefore decided to go ahead and AYLMER reached port under her own power at 11 knots.
NEW GLASGOW (H.M.C.S.) 20th March, 1945	Rammed German submarine	11 weeks	NEW GLASGOW, while operating off the Western Approaches, rammed a German submarine. Hull damage was confined mainly to the after end, where the spirit room and after ballast tank were flooded. The bottom plating was split in four places and minor leaks occurred in the after 4 inch magazine. The port propeller was seriously damaged, its tail shaft was out of alignment and the supporting 'A' bracket bent. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COSBY 21st March, 1945	One Torpedo probably Acoustic Homing type fired from submarine	8 days	COSBY was hunting a submarine in the English Channel at 17 knots when a violent explosion occurred 30 to 40 yards astern, thought to have been caused by the counter mining of a GNAT torpedo. The structure of the ship was undamaged but internal equipment sustained fairly extensive shock damage. Auxiliary steam pipes and pipe lines to the firemain and water services were damaged; some steam joints leaked and minor flooding occurred on the P.O's mess deck due to a fracture in the firemain. The main propulsion motors were temporarily stopped due to the tripping of the field switches. In the forward motor room, a lubricating oil pipe of the turbo supply fan was fractured which necessitated shutting down this compartment and the boiler; power was lost temporarily until cross connections could be made with the after boiler rooms. Radar, asdics and plot were damaged by shock and rendered unserviceable. The range setting gear of No.1 - 3 inch gun was distorted. Fighting Efficiency - Seriously impaired temporarily. The ship was temporarily immobilised due to the tripping of the field switches but was later able to proceed under her own power using both engines and one boiler room. The efficiency of No.1 - 3 inch gun was considerably reduced due to elevation errors. Radar, plot and asdics, were out of action.
TEME (H.M.C.S.) 29th March, 1945	One Torpedo probably Acoustic Homing type fired from submarine	Indeterminate (Ship placed in reserve)	TEME was on anti-submarine patrol in the English Channel at 8 knots when an explosion occurred at the after end in the vicinity of the propellers. About 30 ft. of the stern abaft the cut up was blown away and a further 30 ft. (to the after end of the superstructure) was seriously damaged. The ship was taken in tow but while on passage weather conditions deteriorated and 9 hours later the 30 ft. of damaged stern broke away and sank. Forward of this damage was slight. The plummer block and gland spaces and the depth charge magazine were flooded; abaft this the ship was open to the sea. No serious damaged was visible to main and auxiliary machinery or of gunnery and electrical equipment outside limits of the wrecked after end, but it was suspected that the port engine was slightly out of alignment. Fighting Efficiency - Seriously impaired. The ship was immobilised by the loss of rudder, steering gear, both tail shafts and propellers. All depth charge equipment was out of action.

FRIGATES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EKINS 16th April, 1945	Two Ground Mines in 12 to 14 fathoms probably "Oyster" or "Sammy" charge about 1500 lbs.	Indeterminate (Ship placed in reserve)	EKINS was on patrol off the Dutch coast at 10 knots when an explosion occurred under the bottom just abaft the after engine room. All lighting and power failed, and a list to port, with a 2 ft. trim by the stern developed; the ship drifted slowly out of control. Fifteen minutes later a second explosion occurred off the port bow. The ship listed to starboard a maximum of 5 degrees and then trimmed by the bow. The first mine corrugated the port and starboard bottom plating below the waterline - maximum depression 4 inches - over a length of 140 ft. Over this area internal structure was severely strained and, in places, the plating was fractured. A deep buckle girthed the hull, port and starboard, abreast the after oil tanks and the keel was set up 6 inches. The after engine room, after boiler room, oil fuel tanks and gland spaces were flooded and slow flooding occurred in the forward engine room but was controlled. Damage to machinery and electrical equipment outside the limits of the flooded area was not serious. Main armament although damaged was still serviceable but close range armament was only 60% efficient due to shock damage. Shock damaged the radar and W/T equipment and resulted in the loss or damage of most of the aerials. The second mine corrugated the port and starboard hull plating below the waterline, over a length of 50 ft. at the fore end and the plating abreast the forward peak tanks was split. Flooding forward was confined below the 2nd deck, to the asdic compartment and forward peak tanks. The asdic compartment and associated equipment were wrecked. Fighting Efficiency - Seriously impaired. After two hours the ship was able to proceed under her own power at slow speeds using the starboard engines. Radar, W/T and asdics were out of action. Main armament was capable of being operated at reduced efficiency but 40% of the close range armament was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
REDMILL 27th April, 1945	One Torpedo probably Acoustic Homing type fired from submarine	Indeterminate (Ship placed in reserve)	REDMILL was operating off the north west of Ireland at 8 knots when an explosion occurred at the after end in the vicinity of the propellers. About 50 ft. of the stern was blown away. Forward of this a further 20 ft. - including 'Y' 3 inch gun and its support - was wrecked and blown upwards to an angle of about 45 degrees. Forward of the wrecked stern damage was only of a minor character. The after 3 inch magazine - just forward of the main damage - was flooded but the fresh water tanks to port and starboard of it were intact. Abaft this the ship was open to the sea. In the after engine room minor flooding occurred through a split in the side plating. All lighting and power failed temporarily due to the tripping of the main breakers. 'Y' - 3 inch gun was severely damaged and all depth charge equipment was blown away. Fighting Efficiency - Seriously impaired. The ship was immobilised by the loss of steering gear and both propeller shafts. 'Y' - 3 inch gun and all depth charge equipment was out of action.
GOODALL 29th April, 1945	(i) One Contact Torpedo fired from submarine (ii) Gunfire from own forces	Sunk	GOODALL was operating off Kola Inlet, North Russia, when a torpedo struck the fore end. The board of Inquiry investigating this incident stated that the forward magazine exploded but there is no definite evidence to confirm this point. The bridge structure was wrecked and forced back over the funnel. Evidence indicated that the forward motor room was structurally intact and that no serious flooding had occurred, but the main propulsion board in this compartment was torn away from the deckhead. The after machinery compartments were apparently undamaged and serviceable. The main motors failed due to the fracture of fuel supply pipes from the forward tanks and thereby all pressure on the firemain was lost. A large oil fuel fire enveloped the fore end and no adequate means for fighting this, apart from a small petrol pump and extinguishers, were available. GOODALL was thus abandoned and sunk by our own forces.

MINESWEEPERS - 1939/40

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HUSSAR 20th Nov., 1939	Mine probably contact type depth of water 7 fathoms	Nil	HUSSAR was sweeping a channel near the Humber Light Vessel when a mine jammed in the sweep and exploded 10 yards from the ship's side. Ship was severely shaken. Fighting Efficiency - Not impaired.
SPHINX 3rd Feb., 1940	One Direct Hit 220 lbs. direct action fuzed Bomb	Sunk	SPHINX was attacked by enemy aircraft whilst sweeping north of Kinnaird Head in company with SPEEDWELL and SKIPJACK. The bomb pierced the forecastle deck and exploded inside the ship. All the structure forward of the forward 4 inch gun was wrecked. About 90 tons of water and oil fuel was pumped overboard from the forward tanks to correct heel. The forward boiler room flooded and the ship capsized. The vessel was washed ashore bottom up about 1½ miles north of Lybster. REMARKS This incident emphasised the danger of pumping out oil fuel tanks to correct list, so causing loss of stability and possible subsequent loss of vessel in heavy weather. (This and other similar cases led to the issue of Appendix III to O.U.6331/39 - Damage Control Handbook)
SUTTON 30th March,1940	Mine probably Contact Moored, depth of water 23 fathoms	7 weeks	SUTTON was sweeping off Cromer Knoll when a mine broke surface and exploded 5 ft. astern. The ship vibrated violently, plating at the after end was buckled and the after peak tank flooded. Fighting Efficiency - Slightly impaired.
DUNOON 30th April,1940	One Moored Mine Contact depth of water 25 fathoms	Sunk	DUNOON was sweeping in the North Sea when a heavy double explosion occurred which obscured her in a cloud of smoke and spray. When next seen the entire fore-end forward of the funnel, including the superstructure, mast and bridge had been blown away, except for a small portion of the bows which were showing keel uppermost. It was thought that the forward magazine had exploded. Extensive damage was sustained to the after part of the ship and all lighting failed. Main engines and auxiliaries were damaged and out of action and steam pipes fractured. The after part of DUNOON remained afloat for 50 minutes.

MINESWEEPERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HUSSAR 15th May, 1940 D.N.C.4B/R19	Direct Hit size unknown direct action fuzed Bomb	6 weeks	HUSSAR was attacked by enemy aircraft whilst operating in the North Sea. The bomb struck near the starboard edge of the quarter deck and exploded blowing a hole in the deck and side plating. The steering gear was out of action but the main machinery was undamaged. Fighting Efficiency - Impaired. Due to damage aft and loss of otters the vessel could not operate as a minesweeper. The vessel could only be steered by hand, and this would have been almost impossible in rough weather. Owing to damage to W/T aerials ship could only receive messages.
HARRIER 25th May, 1940 D.N.C.4B/R23	One Direct Hit 250 kgm delay action fuzed Bomb Two Near Miss 250 kgm delay action fuzed Bombs	7 weeks	HARRIER was sweeping ahead of a convoy just off Zeebrugge when she was attacked by enemy aircraft. The bomb hit and pierced the superstructure, passed through the forecastle deck and out through the ship's side. Minor structural damage was caused in the path of the bomb. The near miss bomb exploded on contact with the water about 20 yards from the starboard side. This caused the fracture of castings in the machinery spaces, resulting in the speed being reduced from 14 to 10 knots. Fighting Efficiency - Impaired Speed reduced to 10 knots. REMARKS This incident revealed the need for extra isolation valves in the fire main so that damaged portions can be more easily isolated.
PANGBOURNE 29th May, 1940	Near Miss size unknown delay action fuzed Bombs	3 weeks	PANGBOURNE, during the evacuation from Dunkirk, sustained slight damage underwater from near miss bombs. Fighting Efficiency - Slightly impaired.
KELLET 29th May, 1940	Near Miss size unknown delay action fuzed Bombs	2 weeks	KELLET sustained damage to the sheer strake and upper deck edge from near miss bombs during the evacuation from Dunkirk. Fighting Efficiency - Unimpaired.

MINESWEEPERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HEBE 31st May, 1940	Size number and type unknown Bomb	5 days	HEBE, during the evacuation of Dunkirk, sustained slight structural damage. Fighting Efficiency - Unimpaired.
SALAMANDER 1st June, 1940	Size and type unknown Bomb	6 weeks	SALAMANDER was attacked by enemy aircraft during the evacuation of Dunkirk. Castings of main and auxiliary machinery were cracked and the ship could only proceed slowly. Fighting Efficiency - Seriously impaired.
SKIPJACK 1st June, 1940	Five Direct Hit size and type unknown Bombs	Sunk	SKIPJACK, during the evacuation of Dunkirk, was attacked by enemy aircraft. Two bombs hit the ship, one penetrated to an oil fuel tank on the port side, and the other hit the starboard side. The ship was immobilised with a heavy list to port. Immediately afterwards three more bombs hit the ship, one passed through the bridge, another through the forecastle and the third went into the engine room. About five minutes after these last bomb hits SKIPJACK capsized to port and sank.
TEDWORTH 30th July, 1940	Near Miss size and number unknown direct action fuzed Bombs	11 weeks	TEDWORTH was attacked by enemy aircraft whilst off Dover. Splinter damage was sustained and the D/G was shattered on the port side. Minor damage occurred in the superstructure and engine room. Slight flooding occurred. Fighting Efficiency - Impaired. Speed was reduced owing to damage and D.G. was out of action.

MINESWEEPERS - 1940/41

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HALCYON 27th Sept.,1940 D.N.C.4B/R33	One Mine Non-contact Acoustic depth of water 13 fathoms	9 months	HALCYON was proceeding in the North Sea at 13 knots when an explosion occurred beneath the vessel. The stern dropped three ft. and the minesweeping store was flooded. At the after end the outer bottom was corrugated, and the double bottom frames distorted. The main machinery castings were fractured and one dynamo wrecked. Abaft the forward bulkhead of the after magazine flooding to the waterline, took place. Flooding occurred above the lower deck as far forward as the after bulkhead of the after boiler room. The ship was towed to harbour in a sinking condition. Fighting Efficiency - Seriously impaired. HALCYON was immobilised due to machinery damage and would have foundered in heavy weather or on a long tow. The W/T was out of action.
DUNDALK 16th-17th Oct., 1940	One Mine type unknown (Probably contact)	Sunk	DUNDALK, whilst minesweeping in company with SUTTON, SPEEDWELL and FITZROY off the east coast of England was damaged by a mine which exploded on her starboard side abreast the forward boiler room. A hole was blown in the ship's side 30 ft. long from the upper deck to below the waterline. No.1 boiler room flooded immediately and No.2 boiler room flooded slowly, and all steam was lost. DUNDALK eventually capsized, trimmed by the bow and sank 8¼ hours after the explosion. As the ship capsized the hole in the ship's side was seen to taper to a split which crossed the keel and passed a short distance up the port side.
ELGIN 6th Nov., 1940	One Mine Non-contact Acoustic	6 weeks	ELGIN was near the Sunk Light Vessel when an explosion 50 yards off the starboard beam caused minor hull damage. Most of the castings of auxiliary machinery were cracked. Fighting Efficiency - Impaired. Vessel was immobilised and taken in tow.
SALTBURN 9th Jan., 1941	One Near Miss size and type unknown Bomb	Nil	SALTBURN, whilst in Portsmouth Dockyard, sustained minor damage from the blast of the bomb which sank H.M. Tug SWARTHY. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FITZROY 14th Jan., 1941 D.N.C.4B/R60	One Non-Contact Acoustic Mine depth of water 12 fathoms	$4\frac{1}{2}$ months	FITZROY was operating with other units in the North Sea near the Ship Wash when an explosion occurred about 45 ft. to starboard abreast the forward boiler room. Ship was proceeding at 13 knots at the time of the explosion. The hull plating, starboard side was strained and leaking from amidships forward. Slow flooding occurred in all compartments below the lower deck with the exception of the after peak. The main steam bulkhead valve (cast iron) was fractured and serious damage sustained to auxiliary machinery castings. The main switchboard was wrecked. Fighting Efficiency - Seriously impaired. FITZROY was immobilised and all machinery out of action. All power and lighting was lost. The forward 4 inch gun was out of action due to shock. Vessel was unseaworthy and was beached at Harwich. REMARKS The ship's report contained the following proposals:- Some form of cross connection between the main steam pipes should be fitted. Downton suction should be run below the upper deck in this class of vessel so as to be accessible for emergency repairs.
HUNTLEY 31st Jan., 1941	One Direct Hit delay action fuzed Bomb One Direct Hit or Near Miss type unknown Bomb Machine gun attack	Sunk	HUNTLEY was attacked three times by enemy aircraft whilst on passage from Mersa Matruh to Tobruk. 1st Attack caused one direct hit in the vicinity of No.1 boiler room and machine gun fire damaged the bridge. Severe damage was sustained to side plating and internal structure between the boiler rooms. Ship was immobilised. 2nd Attack was by machine gun only and caused casualties among the crew. 3rd Attack caused a direct hit or a very near miss on the stern. The hit caused two depth charges to explode which in turn disintegrated the vessel from the stern to the minesweeping winch (30 ft.). The vessel sank half an hour after the first attack, 4 miles from Ra Abu Lahu.

MINESWEEPERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRAMBLE 20th Feb., 1941	One Direct Hit 250 kgm type unknown Bomb. Machine gun attack	4 days	BRAMBLE, whilst approaching Harwich in company with SPEEDY, SEAGULL, SHARPSHOOTER and BRITOMART, was attacked by two enemy aircraft. The bomb struck the ship's side in way of the ship's office and came to rest at the after end of the cabin flat without exploding. The top half of the mainmast was carried away by the low flying aircraft. Superficial damage was caused by machine gun fire. Fighting Efficiency - Not impaired. Temporary loss of W/T aerials due to damage to mast.
BLACKPOOL 24th Feb., 1941	Machine gun attack	Nil	BLACKPOOL, whilst sweeping off the N.E. Coast of Scotland, was attacked by enemy aircraft which raked her with machine gun fire. Superficial damage was sustained. Fighting Efficiency - Not impaired.
BRITOMART 15th March, 1941	One Direct Hit 100 kgm delay action fuzed Bomb	2½ months	BRITOMART was attacked by enemy aircraft whilst at anchor at Rye Harbour, Sussex. The bomb hit the starboard side of the superstructure aft, pierced the upper deck and passed out through the ship's side, port, above the waterline. The bomb exploded an unknown distance underwater. The hull plating between 75 station and the stern was corrugated and the ballast tank was leaking. The sliding feet of the port and starboard L.P. turbines were fractured. Fighting Efficiency - Seriously impaired. The machinery damage restricted the ship to steaming at slow speeds for short periods. BRITOMART proceeded to Portsmouth at slow speed under her own power.
STOKE 20th April, 1941	One Near Miss size and type unknown Bomb	2 weeks	STOKE sustained minor structural damage caused by a near miss bomb. The outer bottom plating was strained and leaking. Internal flooding took place which developed to 12 tons per hour. Fighting Efficiency - Impaired. Speed was reduced due to flooding, but vessel returned to port under her own power.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FERMOY 29th April, 1941	One Direct Hit size and type unknown Bomb	See Below	FERMOY, whilst in No.5 deck at Malta, during an air raid, sustained a direct hit which caused severe structural damage and internal flooding. Vessel settled by the bows. Fighting Efficiency - Seriously impaired.
ABINGDON 30th April, 1941	One Non-contact Acoustic Mine	Nil	ABINGDON sustained minor damage when she exploded an acoustic mine while sweeping. Fighting Efficiency - Not impaired.
FERMOY 30th April, 1941	One Direct Hit size and type unknown Bomb	Wrecked beyond repair	FERMOY sustained further serious damage during an air raid on Malta Dockyard. The deck was flooded and the vessel sank. Vessel damaged beyond repair and the wreck broken up.
SELKIRK 4th May, 1941 D.N.C.4B/R64	One Near Miss 500 kgm delay action fuzed Bomb	3 months	SELKIRK, while at anchor 5 cables from Rough Buoy, was damaged by a near miss bomb which fell 15 ft. to port abreast the after end of the engine room. Minor structural damage was sustained to the outer bottom plating. The main inlet on the port side was fractured and the engine room and after store room were flooded. Fighting Efficiency - Seriously impaired. Vessel was immobilised and taken in tow. The steering gear and W/T was out of action due to shock. REMARKS The ships report contained the following proposal:- A submersible portable pump should be carried to expedite pumping in an emergency.
STOKE 7th May, 1941	One Direct Hit size and type unknown Bomb	Sunk	STOKE was sunk during an air attack on Tobruk. No further details available.

MINESWEEPERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WIDNES 18th May, 1941	One Near Miss size and type unknown Bomb Machine gun attack	Nil	WIDNES was attacked by dive bombers and sustained minor structural damage from a near miss. Superficial damage was caused by splinters and machine gun bullets. Fighting Efficiency - Not impaired.
WIDNES 20th May, 1941	Three Near Miss size unknown delay action fuzed Bombs	Beached	WIDNES, while in position one mile west of Cape Depano, was damaged by near misses which caused minor structural damage. The hull plating was strained and leaking and slow flooding of the forward boiler room, engine room and gland spaces took place. The starboard condenser circulator discharge was fractured. Fighting Efficiency - Seriously impaired. Starboard engine was out of action and the pumps were unable to cope with the flooding. WIDNES was beached in Suda Bay.
SELKIRK 8th Aug., 1941	Near Misses number unknown size and type unknown Bombs	Nil	SELKIRK sustained minor damage to the hull and to the dynamo and capstan engine as a result of near miss bombs. Fighting Efficiency - Not impaired.
ALBURY 7th Nov., 1941	Four Near Miss delay action fuzed Bombs	5 weeks	ALBURY, whilst proceeding at 13 knots off the East coast of Scotland, was attacked by enemy aircraft. The bombs fell about 30 yards astern and caused only minor machinery damage. No structural damage was sustained. The shunt regulators of dynamos and various pipe flanges on the ship's side were blown off. Fighting Efficiency - Not impaired. REMARKS The various anti-shock arrangements undoubtedly saved the machinery from serious damage.

MINESWEEPERS - 1941/42

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROSS 1st Dec., 1941	One Direct Hit 250 lb. delay action fuzed Bomb	10 days	ROSS, whilst proceeding off the East Coast of Scotland at 7½ knots, was damaged by a bomb which hit the cable locker port side and passed out through the starboard side, below the waterline, before exploding. The cable locker was flooded. Fighting Efficiency - Not impaired.
SPEEDY 17th Dec., 1941	Four Direct Hits several 'Shorts' direct action fuzed 4 inch probably 5 inch Shell	8 weeks including refit	SPEEDY was in action with enemy destroyers off Govodetski Light, Russia, moving at 11 knots and was damaged by shell fire. A direct hit occurred on the after gun, seriously damaging it and splinter damage was sustained in the vicinity of the burst. Two direct hits shot away the foremast and the wireless aerials. A direct hit on the forward gun, did not detonate but carried away the elevating gear. Superficial damage was caused by splinters from shorts. Fighting Efficiency - Seriously impaired. Main armament out of action.
ROTHESAY 9th Jan., 1942	One Non-contact acoustic Mine	3 weeks	ROTHESAY, whilst operating off the south east coast of England, was damaged by a mine which exploded 30 to 40 yards off the starboard bow. No major damage was sustained to the hull but the Gyro, A/S gear, W/T and minor auxiliary machinery were damaged by shock. The 3 inch gun was unseated and unable to train. Fighting Efficiency - Not seriously impaired.
BRITOMART 24th Jan., 1942	Near Miss number and type unknown Bombs	Nil	BRITOMART was operating off North Russia when she sustained superficial damage from near miss bombs. Fighting Efficiency - Not impaired.
PROTEA 13th Feb., 1942	One Near Miss 250 lbs. direct action fuzed Bomb	Nil	PROTEA was at anchor in Tobruk Harbour when a near miss bomb off the starboard quarter caused splinter damage to the upperworks. Fighting Efficiency - Not impaired.
DELORAINE (H.M.A.S.) 5th March, 1942	Bombs	Nil	DELORAINE, whilst operating in the Far East, was attacked twice and damaged by enemy aircraft. Effect on Fighting Efficiency - Not known.

MINESWEEPERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HUSSAR 17th March, 1942	Bomb	Nil	HUSSAR was damaged during an air raid on Murmansk. Effect on Fighting Efficiency - Not known.
SHARPSHOOTER 24th March, 1942	Rammed submarine	3 months	SHARPSHOOTER rammed an enemy submarine at 13 knots whilst operating in the Barents Sea. The fore peak and rudder were damaged. Fighting Efficiency - Not seriously impaired.
ABINGDON 1st April, 1942	Bomb	Beached	ABINGDON sustained serious damage during an air raid on Malta. The vessel was beached, broke in two and was considered a total loss.
FAREHAM 2nd April, 1942	Two Near Miss direct action fuzed Bombs	2 months	FAREHAM was escorting a convoy in the Mediterranean when enemy aircraft attacked on several occasions. Splinters from near miss bombs caused damage to hull and upper works, port side, at and above the waterline. Fighting Efficiency - Not seriously impaired.
POOLE 25th May, 1942	Mine	5 weeks including refit	POOLE was minesweeping in Diego Suarez Bay, Madagascar, when a mine explosion caused severe damage and destroyed the minesweeping gear. Fighting Efficiency - Seriously impaired.
FITZROY 27th May, 1942	One Contact Mine	Sunk	FITZROY, whilst operating off the East Coast of England, was damaged by a mine which exploded under the ship on the port side between the boiler rooms. These M/C spaces flooded immediately, and the ships lighting failed. A hole 18 ft. long was blown in the shell plating under the boiler room. FITZROY heeled to starboard and sank in 10 minutes.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LEDA 14th June, 1942	Five Near Miss delay action fuzed Bombs	2 days	LEDA was attacked by enemy aircraft whilst lying at anchor at Mishukov Point. The bombs fell off the port bow and along the starboard side. Only minor structural damage was sustained. The sliding feet of both L.P. turbines dropped due to shearing of rigid-resilient bearing and keep plates to fixed feet were partially crushed. Fighting Efficiency - Slightly impaired. REMARKS The clearance between the fixed feet and the after keeps of turbine to be increased to allow the turbine feet to clear and prevent crushing of keeps when the crushing/shearing devices collapse.
HEBE 15th June, 1942	One Direct Hit probably 6 inch direct action fuzed Shell	Nil	HEBE was attacked by enemy forces in the Mediterranean. A shell hit on the port side of the forecastle deck and burst on impact. Extensive but minor splinter damage was sustained. Electric cables to L.L. and S.A. gear and L.P. circuits were pierced by splinters. Fighting Efficiency - Slightly impaired.
HEBE 16th June, 1942	One Contact Mine	6 weeks	HEBE, whilst entering Malta harbour at 10 knots, struck a mine on the port side abreast the forward magazines. The side plating was holed 24 ft. by 16 ft., and internal structure severely damaged. The 4 inch and S.A. magazines and L.P. room were flooded to the waterline. Extensive damage to the electrical equipment was caused by the flooding. The starboard shaft was bent and the propeller damaged. Fighting Efficiency - Seriously impaired. Loss of speed and manoeuvrability due to damaged propeller and shaft. W/T, gyro, asdic, and S.A. gear out of action.
GOSSAMER 24th June, 1942	One Direct Hit Bomb	Sunk	GOSSAMER was attacked while at anchor in Kola Inlet, Russia. A direct bomb hit just forward of the winch caused the ship to sink in eight minutes. No further information available.

MINESWEEPERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BLYTH 11th July, 1942 D.N.C.4B/R114	One Direct Hit 250 kgm delay action fuzed Bomb	16 days	BLYTH, whilst minesweeping off Dartmouth, was attacked by enemy aircraft. The bomb struck the beef screen, smashed the starboard boat davit and exploded below water abreast the engine room. Plating under the engine room was set in 2 inches at the turn of the bilge. Auxiliary machinery was damaged by shock and the cast iron scupper pipes fractured, causing minor flooding. The holding down bolts of the 3 inch gun were sheared. Fighting Efficiency - Seriously impaired. One boiler room was shut down and speed was reduced to 10 knots. 3 inch gun out of action. REMARKS This incident emphasised that storm valves should not be fitted below the deep waterline and, if of cast iron, should be enclosed in cement (A.F.O.2178/41).
SELKIRK 18th Sept., 1942	One Near Miss 250 kgm Bomb	2 months	SELKIRK, during an air raid on the Dartmouth area, was berthed alongside a collier. The collier received a direct hit. SELKIRK was severely shaken and the structure generally strained from the fore end of bridge to the 12 pounder gun on the quarter deck. Minor leaks developed in the forward magazine and the gland spaces due to strained rivets. Pipes to the main suction line and fresh water system were fractured. The plummer blocks were fractured and other minor damage occurred to castings of main and auxiliary machinery. Elevating and training gear of the forward 12 pounder gun was very stiff after the explosion. Shock damage was sustained to equipment in the W/T office and the gyro compass and repeaters were badly shaken. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LEDA 20th Sept.,1942 D.N.C.4B/R182	(i) One contact Torpedo fired from submarine (ii) Gunfire from own forces	Sunk	LEDA was proceeding in the Greenland Sea at 9½ knots when a torpedo struck the starboard side amidships on the bulkhead between the boiler rooms. The main explosion was followed almost immediately by two smaller ones, probably the boilers exploding. The hull structure starboard side amidships from the boat deck to below the waterline and about 70 ft. of the boat deck was blown away. The funnel was split up its entire length on the starboard side. Immediate flooding occurred in both boiler rooms, and slow flooding was caused in the provision room due to damage to the bulkhead at the fore end of the forward boiler room. Fires started on the upper deck and in the forward boiler room. Communications between the bridge and engine room, and all steam and electrical power failed immediately. LEDA listed 20 degrees to port, settled and gradually heeled on her beam ends. Twenty minutes after being torpedoed the ship capsized and floated with the bow and stern out of water. The wreck was later sunk by gunfire of own forces.
HAZARD 24th Oct., 1942	Mine	Nil	HAZARD, whilst detonating acoustic mines in Yugorsky Strait, Russia, sustained minor damage due to a mine which exploded in the vicinity of the ship. Fighting Efficiency - Not seriously impaired.
CROMER 9th Nov., 1942	One Mine Contact depth of water 60 fathoms	Sunk	CROMER was proceeding in the Mediterranean off Mersa Matruh when a mine exploded on the port side just abaft the bridge. The ship immediately broke in two and capsized to starboard. The after portion of the ship sank in a few seconds but about 20 ft. of the forward portion remained above water for 20 minutes.
BENGAL (H.M.I.S.) 11th Nov., 1942	Shell	Nil	BENGAL, whilst in action with an enemy surface raider five hundred miles south west of the Cocos Islands, was damaged by shell fire. A large hole was blown in the starboard side of the bow, above the waterline. The forward and after ends of the ship were damaged by splinters. Fighting Efficiency - Impaired.
ALGERINE 15th Nov., 1942	Torpedo fired from submarine	Sunk	ALGERINE was sunk while operating 5 miles north of Cape Carbon, Algeria. No further information available.

MINESWEEPERS - 1942/43

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CADMUS 4th Dec., 1942	Rammed submarine	10 days	CADMUS sighted and rammed an enemy submarine whilst on patrol off Freetown, Sierra Leone. Speed at ramming was 12 knots, CADMUS struck the submarine a glancing blow abreast the conning tower. The bow structure of CADMUS was buckled and torn at the extreme fore end and the port bilge keel was distorted for about 20 ft. The port side bottom plating under the boiler room was forced slightly inboard. Fighting Efficiency - Not impaired.
BRAMBLE 31st Dec., 1942	Shell	Sunk	BRAMBLE was sunk by gunfire from enemy surface craft while operating in the Barents Sea. No further details available.
ALARM 2nd Jan., 1943	One Near Miss Bomb	See later action below	ALARM sustained extensive structural damage from a near miss bomb which exploded under her stern during an air raid on Bone harbour. Fighting Efficiency - Seriously impaired. Ship immobilised and possibly beached.
ACUTE 8th Jan., 1943	One Torpedo dropped by aircraft	6 weeks	ACUTE was attacked by enemy aircraft in the Mediterranean. The torpedo struck right aft in the vicinity of the propeller but failed to explode. The propeller was damaged. Fighting Efficiency - Impaired.
ALARM - Feb., 1943	One Direct Hit Bomb	Ship not repaired	During salvage operations on ALARM in Bone harbour a direct hit bomb exploded in the engine room. The ship's structure abaft forward bulkhead of the engine was seriously damaged. Fighting Efficiency Ship was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PIRIE (H.M.A.S.) 11th April, 1943	(i) One Direct Hit delay action fuzed Bomb (ii) Cannon fire	Nil	PIRIE, whilst escorting a convoy off New Guinea at 14½ knots, sustained a direct bomb hit on the roof of the bridge. The bomb passed out through the fore side of the bridge and burst on the middle line of the upper deck. The crew of the 12 pounder gun, on the forecastle deck were killed and a minor fire started in kit lockers on the mess deck. The fore end of the ship was raked by cannon fire, deck planking damaged and forecastle deck perforated. Fighting Efficiency - Not seriously impaired.
SPEEDY 15th May, 1943 D.N.C.4B/R259	One Mine probably Italian type J (325 lbs. charge) or type K (440 lbs. charge) Contact depth of water 68 fathoms	11 months	SPEEDY was minesweeping at 5 knots off the St. Elmo Light in the Mediterranean when an explosion occurred under the ship at the turn of the bilge abreast the bridge, starboard side. The bottom plating was holed for 10 ft. long by 16 ft. deep. For a length of 38 ft. it was severely distorted and forced inboard from 8 ft. to port of the middle line to the lower deck level on the starboard side. The keel was blown upwards and wrecked for 20 ft. The lower deck in way of the explosion was destroyed for 15 ft. and the upper deck was distorted and split. A buckle girthed the ship at the after end of the after superstructure between and below lower deck, port and starboard. The starboard forward 4-inch magazine and storerooms etc. abreast the bridge from keel to waterline for 25 ft., flooded immediately. Slow flooding occurred in the S.A. magazine, low power room and C.O2 compartment. The ship listed 10 degrees to starboard. All L.P. electrical supply failed. H.P. supply and equipment in damaged area was out of action. Fighting Efficiency - Seriously impaired. The ship was only able to steam at reduced speed. The forward 4 inch gun was out of action due to the weakened condition of the structure and the forward magazine flooded. Type 271 radar was out of action. REMARKS:- 1. It is desirable for a 50 ton diesel driven portable pump to be supplied to this class of ship for salvage and firefighting duties. 2. It is desirable for the generators of the main transmitter to be separated.

MINESWEEPERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FANTOME 20th May, 1943 D.N.C.4B/R276	One Contact Mine German Type X 330 lbs. Hexamite. Depth of water 23 fathoms	Indeterminate (Ship not repaired)	FANTOME, while minesweeping at 10 knots in the Mediterranean, was damaged by a mine which exploded under her stern probably in contact with the starboard propeller. A hole was blown in the ship's bottom in way of the steering compartment 15 ft. by 12 ft. Structure of the steering compartment and minesweeping store was wrecked. The rudder was blown away. The ship's bottom and lower deck were forced upwards to touch the upper deck which was blown upwards a maximum of 6 ft. Severe structural damage extended to the after bulkhead of the engine room. Whipping caused a buckle which girthed the ship in this vicinity. The after end of the ship was completely flooded to the after bulkhead of the engine room, in which compartment minor controlled flooding occurred. The after end of the quarter deck was seven feet below the waterline. Both "A" brackets were fractured, the port shaft hung down 10 ft. below the keel and the starboard shaft was blown up into the ship. The steering gear was wrecked. All H.P. electrical circuits and equipment abaft the engine room was out of action because of flooding or damage. The L.P. supply was lost temporarily and the type 271 radar damaged by shock. All the depth charge equipment aft was seriously damaged. Fighting Efficiency - Seriously impaired. Ship was immobilised and taken in tow. Type 271 radar and after depth charge equipment was out of action. The after oerlikons could not be fired owing to weakened structure. REMARKS 1. Bulkhead 84¾ between stoker's mess and 'LL' generator compartment, lower to upper decks, to be made watertight. 2. Rod gearing to be fitted from the upper deck to all valves of the ventilation system which affects the refrigerating machinery compartment, seamen's lower mess deck and asdic compartment. 3. Extension spindles to be fitted to the engine room master drain valves on the reserve feed tanks. 4. In new construction ships the main circulator bilge suction intake is to be sited nearer the centre of the engine room.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BOSTON 16th July, 1943	Near Miss Bombs	Nil	BOSTON, during an air raid on Syracuse Harbour, sustained minor damage due to near misses. Fighting Efficiency - Not impaired.
POOLE 16th July, 1943	One Near Miss Bomb	Nil	POOLE, during an air raid on Syracuse Harbour, sustained minor damage due to a near miss. Fighting Efficiency - Not impaired.
HYDRA 1st Sept., 1943	Shell "Shorts"	1 month	HYDRA, whilst operating off the French Coast, was fired on by enemy coastal batteries. Splinters from shorts put the W/T and gyro compass out of action. The ship was later straddled by a 12 gun salvo when just off Dover. This caused extensive but not serious splinter damage to the hull. Fighting Efficiency - Slightly impaired. W/T and gyro compass was out of action.
CADMUS 9th Sept., 1943	Three Near Miss probably 250 kgm Bombs	Nil	CADMUS, while on minesweeping operations north of Salerno, was near missed by three bombs one 30 ft. off the port quarter, one 50 ft. astern and the other 100 ft. off the starboard quarter. No serious structural damage was sustained. Some welding in the port reserve feed tank was fractured. The H.P. balance pipe to the bellows piece on the port main engine was severed. Loss of vacuum temporarily reduced the ship's speed until repairs were effected. Some minor shock damage to the auxiliary machinery and electrical instruments resulted. Fighting Efficiency - Temporarily impaired. Speed was temporarily reduced due to a fractured balance pipe.
HYTHE 11th Oct., 1943	One Contact Torpedo fired from submarine	Sunk	HYTHE, while escorting a convoy in the Mediterranean at 8 knots, was struck by a torpedo on the port side, abreast the bridge, between the forward boiler room and the provision room. The bow broke off forward of the bridge, and the after part of ship, still under way with the main engines running bore down on the fore end. The mast collapsed on to the bridge and it was believed that the funnel also collapsed. The bridge was completely wrecked and apparently set on fire. The ship settled very rapidly by the bow and sank on an almost even keel about four minutes after being hit.

MINESWEEPERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CROMARTY 23rd Oct., 1943	One Contact Mine in 57 fathoms	Sunk	CROMARTY was minesweeping off Maddelena, North Sardinia, at 9 knots, when a mine exploded under the port side abreast the fore end of the bridge. The bridge structure was severely damaged, and the forecastle deck was buckled athwartships at the base of the funnel, which was afterwards leaning 15 degrees to starboard. It is probable that the fore bulkhead of the machinery spaces was blown in and the forward boiler room was flooded. On inspection the engine room was found to contain a lot of debris though no flooding was visible and the main engines appeared intact and continued to run for a time until shut down. The structure forward of the bridge broke away and, after floating bow uppermost, finally sank. Immediately after the explosion the main part of the ship settled by the head and listed heavily to starboard; the stern was soon out of water with the port propeller clear. The ship started to turn over about 3 minutes after the explosion. Within 6 minutes she had completely capsized and sunk by the head.
RHYL 1st Nov., 1943	One Near Miss Bomb	Nil	RHYL was at anchor in Pozzoli Bay, in the vicinity of Naples, when an attack by 20 to 30 bombers developed during which the ship sustained minor damage from a near miss. Fighting Efficiency - Not impaired.
RHYL 10th Nov., 1943	One Near Miss 250 kgm delay action fuzed Bomb in 7 fathoms	8½ months including fitting of type 86 W/T set	RHYL, while at anchor in Pozzoli Bay, in the vicinity of Naples, was near missed to port, just off the quarter deck by a bomb which burst under the ship at a probable depth of about 40 ft. The hull plating at the after end was indented abaft the engine room and some damage was caused to the internal structure. General straining of the structure at the after end caused minor leaking at the laps and butts of hull plating. Both shafts and main engines were out of alignment, with the plummer blocks distorted. A cover plate on the evaporator distiller was fractured. Shock damage was sustained by electrical and W/T equipment. Fighting Efficiency - Seriously impaired. Ship was immobilised due to damaged main engines and shafting. Endurance was reduced to 36 hours due to a damaged evaporator-distiller. The ship was able to receive but not to transmit W/T.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CADMUS 20th Nov., 1943	(i) One Near Miss 50 kgm delay action fuzed Bomb (ii) Machine gun and Cannon fire	Nil	CADMUS, while stationary in the Gulf of Gaeta, off the west coast of Italy, was attacked by aircraft with various calibre weapons, including 50 kgm and anti-personnel bombs, cannon and machine guns. One of the 50 kgm bombs appeared to skip on the water surface towards the ship, and finally detonated underwater about 5 yards off the starboard quarter. Only minor damage was caused, the most serious effect being a fracture in the bulkhead between No.8 oil fuel tank and the port reserve feed tank. Leakage of oil fuel resulted in the contamination of all feed water. One forced lubrication supply pipe was fractured. Shock damage caused temporary failure of gyro compass and lighting in the engine room and boiler room. Upper deck fittings received minor damage from machine gun and cannon fire. Fighting Efficiency - Slightly impaired. Endurance was reduced by the contamination of feed water.
HEBE 22nd Nov., 1943	Probably a Ground Mine type Sammy in 8½ fathoms charge about 1500 lbs.	Sunk	HEBE was minesweeping off Bari Harbour, on the east coast of Italy, when an explosion occurred off the port side abreast the bulkhead between the boiler rooms, followed by a second explosion in about the same position. Evidence indicated that one boiler burst. The forward 4 inch gun was lost overboard. HEBE listed heavily to port and capsized in about 4 minutes. She began to break in two before disappearing.
ARDROSSAN 26th Nov., 1943 D.N.C.4B/R290	One Moored Mine in 22 fathoms type G.R. charge 90 lbs.	4 months	ARDROSSAN was minesweeping off Great Yarmouth, at 6 knots, when a mine exploded about 4 ft. abaft the stern. The transom plating was buckled and forced inboard a maximum of 18 inches, with one hole measuring about 18 ins. by 5 ins; the port and starboard side plating abreast the steering compartment and below the knuckle line was corrugated between frames; the rudder was sheared off at the stock and lost. The ballast tank under the steering compartment was flooded, leaks in steering compartment spirit room and gland space were kept under control. The fore peak was counterflooded to correct trim. The steering engine was damaged, and guide rods in the steering gear were distorted. Fighting Efficiency - Seriously impaired. The ship was partially immobilised by the loss of the rudder and damage to the steering gear. ARDROSSAN steamed clear of the minefield but was later taken in tow.

MINESWEEPERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FELIXSTOWE 18th Dec., 1943	One Moored Mine probably type G.R. Charge 90 lbs.	Sunk	FELIXSTOWE was minesweeping off Maddalena, North Sardinia, at 10 knots, when a mine exploded very close to, or in contact with, the stern. The stern structure in way of the steering compartment was wrecked; the hull plating was split and buckled to below the waterline as far forward as the after bulkhead of the engine room. A whipping buckle crossed the quarter deck; the lower deck was split and buckled near the ward room. The steering compartment, minesweeping flat, after cabin flat and engine room flooded rapidly. After the explosion the ship immediately heeled to starboard and settled by the stern until the quarter deck was awash. The starboard main engine and steering engine were put out of action. FELIXSTOWE turned over and sank by the stern about one hour and forty minutes after the explosion.
CLACTON 31st Dec., 1943	One Moored Contact Mine in 200 fathoms probably Italian type K Charge 440 lbs.	Sunk	CLACTON was escorting a convoy off the east coast of Corsica when an explosion occurred under her in the vicinity of the boiler rooms. The ship immediately heeled to port and settled by the stern. Within 4 minutes the list was such that a hole extending to about half-way up the starboard side was revealed under the bottom near the boiler rooms. About 20 minutes after the explosion the stern portion abaft the break of forecastle parted and sank about 20 minutes later. The fore end sank more slowly; after 2 hours a few feet of the bows were still visible.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CIRCE 23rd April, 1944 D.N.C.6/R320	One Moored Mine in 24 fathoms	8 months	CIRCE was minesweeping off the west coast of Italy, in the vicinity of Anzio, when a mine brought up in the sweeps is thought to have detonated on the transom, slightly to port of the middle line and about 2 ft. below the waterline. The transom plating was wrecked and blown forward, and the side plating in the immediate vicinity was corrugated between frames. The upper deck over steering compartment was blown upwards, to a maximum height of 2½ ft., and the steering compartment bulkhead was split and buckled; the watertight door in it was destroyed. The forward bulkhead in the minesweeping store was buckled above the lower deck, and the watertight door blown through its frame. The main suction and firemain were fractured in the minesweeping store. Water flooded freely into the steering compartment, but was kept under control in the minesweeping store. Slight flooding in the 'LL' compartment and messdecks aft of the engine room was later pumped out. The ship listed slightly to port and settled by the stern. Depth charges and heavy gear aft were jettisoned, and oil from the after tanks was pumped overboard to correct list and trim. Minor fires started in the minesweeping flat and steering compartment. The steering engine and telemotor gear were put out of action. Minor electrical equipment in the immediate vicinity of the explosion was damaged. Fighting Efficiency - Seriously impaired. The ship had to be taken in tow as the rudder was jammed "hard to port". Minesweeping and depth charge gear was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ELGIN 3rd May, 1944	One Ground Mine in 20 fathoms	Indeterminate (Ship not repaired)	ELGIN was minesweeping in the English Channel at 12 knots, when a mine exploded about 50 yards off the starboard quarter. There was no major hull damage but the bottom plating was split in two places under the engine room. Some bulkheads suffered minor damage. Flooding in the engine room was controlled. The ship listed a maximum of 8 degrees to port; this was later reduced to 5 degrees by pumping. The starboard main engine was out of action owing to a damaged circulating pump. The port engine could have been used but with difficulty due to the condenser, air pump and one main feed pump being damaged. Extensive damage was caused to castings of auxiliary machinery; the steering engine bedplate was fractured. All electrical power failed when the main breakers "came off" due to shock. Steam to the turbo-generator was lost through a fractured pipe. Lighting was supplied from the diesel generator at the time of damage. W/T equipment was damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised by shock damage to main and auxiliary machinery. The steering gear and W/T equipment were out of action.
STORMCLOUD 30th May, 1944	One Non-contact Mine	6 weeks	STORMCLOUD was minesweeping in the English Channel when an explosion occurred under the ship slightly to starboard. The hull plating port and starboard abreast both boiler rooms and on the starboard side from the engine room to the cut up was corrugated between frames. Abreast the spirit room and cooling machinery compartment leaks occurred through strained laps and butts of plating. Serious internal damage was caused in both boiler rooms. Both boilers were out of action due to burst oil fuel pipes. Fighting Efficiency - Seriously impaired. The ship was immobilised.
BLYTH 11th June, 1944	Mine	Nil	BLYTH, sustained very minor damage whilst operating off the Normandy beaches. Fighting Efficiency - Not impaired.

MINESWEEPERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RATTLESNAKE 15th June, 1944	Probably an Acoustic Ground Mine	1 month	RATTLESNAKE was minesweeping off the Normandy beaches at 13 knots, when an explosion occurred about 15 yards off the port side just abaft the funnel. The hull plating in way of the after boiler room was corrugated with fairly extensive but not serious structural damage internally. No flooding occurred. Lighting partially failed due to blown fuses. Fighting Efficiency - Not seriously impaired. The ship was later able to raise steam in the forward boiler room, and proceeded under her own power at 9 knots.
ILFRACOMBE 21st June, 1944	Ground Mines	9 days	ILFRACOMBE was minesweeping in the English Channel when ground mines exploded about 50 yards off her starboard beam. The gyro compass and asdic dome were shattered. The type 291 radar was put out of action. Fighting Efficiency - Impaired.
PERSIAN 23rd June, 1944	One Ground Mine in 12 fathoms	4½ months including refit	PERSIAN was minesweeping off the French coast, at 10 knots, when a mine exploded under the stern slightly to starboard. The hull plating over the after end abaft the cut up was corrugated and the rudder plating was distorted. Internal structure suffered minor damage. The watertight compartment under the steering flat flooded to the waterline. Slow flooding in the starboard gland space and depth charge and small arms magazines was kept under control. The starboard main engine was put out of action and the efficiency of the port engine was considerably reduced apparently because the shafts were bent. The seating of the main circulating pump was buckled and its casting fractured. The steering engine was damaged and the rudder stiff to operate. Other auxiliaries sustained minor shock damage. All dynamos came off the board due to shock, and lighting temporarily failed. The gyro compass was damaged. Fighting Efficiency - Seriously impaired. The ship was immobilised due to damaged shafting. The steering engine and gyro compass were out of action.

MINESWEEPERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRIDPORT 25th June, 1944	One "Short" from Shell probably 9 inch	12 days including boiler cleaning	BRIDPORT, while minesweeping off Cherbourg, was engaged by shore batteries, and a shell burst off the port side in the vicinity of the forward 3 inch gun. One splinter made a hole in the ship's side about 5 inches diameter, 6 ft. above the waterline. Other splinters caused minor damage to structure near the bridge. Fighting Efficiency - Not impaired.
PIQUE 25th June, 1944	Non-contact Mines	9 days	PIQUE, while minesweeping off the Normandy beaches, sustained minor damage from mines which exploded nearby. Fighting Efficiency - Impaired.
BLACKPOOL 29th June, 1944	One Direct Hit with direct action fuzed probably 4.7 inch Shell	Nil	BLACKPOOL, whilst minesweeping off Cherbourg, was engaged by shore batteries which scored a direct hit on the starboard side of the forecastle deck just beside the 3-inch gun. The gunner's store was wrecked and the forecastle deck holed 6 ft. by 3 ft. Fittings near the burst received minor splinter damage. One smoke float ignited and was thrown overboard. The starshell ready-use locker was lost. Fighting Efficiency - Not impaired.
FRIENDSHIP 5th July, 1944	One Non-Contact Mine probably Acoustic	3 months including refit	FRIENDSHIP, while operating off the Normandy beaches, exploded a mine some distance from her. The explosion did not cause any important structural damage; no leaks were reported. Shock caused major defects to the main engines. Fighting Efficiency - Impaired.
MAGIC 6th July, 1944	Probably a Human Torpedo	Sunk	MAGIC was at anchor off the Normandy beaches, when a heavy explosion occurred abaft the engine room. The ship quickly listed to starboard and settled by the stern with her back broken. The engine room flooded and all lighting failed. Six minutes after the explosion, MAGIC settled stern first, capsized and floated with about 80 ft. of the bow just awash.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CATO 6th July, 1944	Probably a Human Torpedo	Sunk	CATO was engaged in rescuing survivors from MAGIC, off the Normandy beaches, when an explosion occurred just forward of the bridge under the wardroom flat. Large holes were visible on both sides of the ship in the vicinity of the explosion and her back was broken just forward of the bridge. The ship settled by the bows, listing to port; the upper deck being soon awash. Two hours and twenty five minutes after the explosion, when about to be taken in tow, CATO capsized and floated bottom upwards with the stern just above water.
PYLADES 8th July, 1944	One probably two Human Torpedoes	Sunk	PYLADES was operating off the Normandy beaches when an explosion occurred aft, and one minute later a second explosion also occurred aft. Orders were given for the main engines to be stopped and an inspection of the ship made. It was found that the minesweeping flat aft had been blown away under the upper deck, the minesweeping winch reels had been torn from their seatings, and the upper deck over the after engine room was corrugated athwartships but not fractured. The bridge Oerlikons and standard compass had been torn from the deck. The after engine room flooded rapidly and a fire was suspected in this compartment. The ship settled by the stern and listed heavily to port. This list slowly increased until the ship had completely turned over, with her stern submerged and the forefoot about 30 ft. above water. PYLADES sank ten minutes after the first explosion.
PELORUS 10th July, 1944	One Non-Contact Mine in 18 fathoms	$2\frac{1}{2}$ months including refit	PELORUS was minesweeping off the Normandy beaches, at 11 knots, when a mine exploded about 20 yards off the port beam causing extensive but not serious structural damage. No flooding occurred but one forward oil fuel tank was slightly contaminated. Minor shock damage affected both main and auxiliary machinery. All ventilation supply and exhaust fans, with the exception of the engine room supply failed temporarily. The 4-inch gun could not be trained to port due to the distortion of the base plate. All ready-use depth charges were release overboard by shock. Shock also damaged the gyro compass, rangefinder, type 271 radar, A/S and E/S equipment. Fighting Efficiency - Seriously impaired. The efficiency of the 4-inch gun was considerably reduced and the gyro compass was out of action. The ship returned to the assault area under her own power at slow speed.

MINESWEEPERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GORGON 11th July, 1944	One Ground Mine	2 weeks	GORGON was operating in the English Channel, at 6 knots, when a mine exploded about 20 yards off the starboard beam causing minor structural damage. The port stern tube glands and rudder post were leaking, otherwise no flooding occurred. The holding down bolts of the main engines were stripped. One main and two auxiliary sea suction pipes to the main engines were fractured. The steering gear was damaged and the rudder was suspected of being out of alignment. There was some shock damage to auxiliary machinery. The depth charge rails were damaged and distorted. Shock extensively damaged radar, gyro and magnetic compasses, W/T receiver, telephone system and E/S equipment. Fighting Efficiency - Seriously impaired. The main engines were temporarily out of action. Radar and E/S gear were permanently out of action.
CHAMOIS 21st July, 1944	One Ground Mine in 16 fathoms probably Acoustic	Indeterminate (Ship placed in reserve)	CHAMOIS was minesweeping off the Normandy beaches, at 8 knots, when an explosion occurred about 12 ft. to port and abreast the after end of the bridge. The hull plating below the waterline from the bow to the after end of machinery spaces, was corrugated, the damage being more severe on the port side. Over this area, internal structure was generally buckled and distorted. Several compartments leaked slightly through strained laps and butts of hull plating. Shock caused the failure of the propulsion exciter in the forward engine room (the propelling machinery was diesel electric), damaged the reduction gear lubricating oil pump in the after engine room and, to a varying degree, other auxiliary machinery. Both main engines were temporarily immobilised; five out of six plummer blocks supporting the starboard shaft were fractured. The steering gear in the wheelhouse was shattered. Shock effects also damaged W/T, A/S and S.A. equipment, gyro and other compasses and radar equipment. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised by the failure of the main engines but power was later restored to both engine rooms and a reduced speed of 6 knots maintained. Steering had to be controlled from the after position. Radar, W/T, A/S and S.A. equipment and the gyro compass were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VESTAL 10th Aug., 1944	One Non-Contact Mine probably acoustic type G.G. Charge 1600 lbs.	4 months including refit	VESTAL was minesweeping off the Normandy beaches, at 7 knots, when a mine exploded about 20 yards ahead fine on the port bow. Hull structure was slightly corrugated from the bow to abreast the bridge, with minor damage to internal structure. Slow flooding into the forward ballast tank and A/S compartment through strained laps and butts of hull plating, was kept under control. The port main engine was temporarily out of action due to a fractured corrosion piece in the circulating water system to the forced lubricating cooler. Damage to gearing in the bridge indicator at first prevented steering from the wheelhouse. Shock damage to the 4 inch gun rendered training and elevating stiff. The asdic dome was fractured and the gyro compass wrecked. Shock caused serious damage to W/T, A/S, radar, S.A. and E/S equipment. Fighting Efficiency - Seriously impaired. The 4-inch gun, S.A, E/S and A/S gear, radar and gyro compass were out of action.
LOYALTY 22nd Aug., 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	LOYALTY was minesweeping in the English Channel, at 16 knots, when an explosion occurred off the starboard side aft. The quarter deck was blown bodily upwards. The ship immediately developed a rapidly increasing list to starboard and settled by the stern. When abandoned the engine room was not flooded but the emergency lighting there had failed. Ship capsized between 5 and 7 minutes after being hit but remained afloat, with only the forepart of the keel above water, for about another 15 minutes.
GLEANER 25th Aug., 1944	One Non-Contact Mine probably magnetic	1½ months including refit	GLEANER was minesweeping in the English Channel when she exploded a non-contact mine. It was reported that the ship sustained extensive damage, but no details are available. Fighting Efficiency - Impaired. The ship was immobilised with the main engine out of action.
PIQUE 20th Sept., 1944	One Non-Contact Mine	Nil	PIQUE was minesweeping off the French coast when a non-contact mine detonated in her vicinity. The starboard engine was temporarily put out of action. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MULGRAVE (H.M.C.S.) 8th Oct., 1944 D.N.C.N6/R332	One Ground Mine in 9 fathoms	Indeterminate (Ship placed in reserve)	MULGRAVE was operating in Seine Bay off the north coast of France at 14 knots when an explosion occurred off her starboard quarter. The damage to the outer bottom below the waterline extended from the stern to abreast the engine room and was almost symmetrical port and starboard. The plating was strained and corrugated between frames and many rivets were sheared. The internal structure over this area was distorted and strained. The upper deck throughout the length of the ship and the forecastle deck - particularly near the breakwater - was distorted in a series of waves. Flooding could not be controlled, due to loss of steam and electrical power, and all compartments abaft the engine room rapidly filled. The ship was abandoned and taken in tow, during which time slow flooding in the engine room reached a maximum of 5 ft. and the quarter deck became awash. The explosion stopped the main engines and jammed the rudder. No apparent damage was sustained by the main engines, but both shafts were distorted. The steering gear and some auxiliary machinery - including the circulator, distiller and condenser - were severely damaged. The engine room was evacuated due to steam escaping from damaged pipes and both boilers were shut down within 10 minutes. This deprived the ship of all steam and electrical power. The main breakers came off the board - probably due to shock - but electrical equipment in or forward of the engine room was not seriously damaged. Radar sets, A/S and E/S equipment, and all but one small W/T set, were damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised and abandoned in a sinking condition but was later taken in tow and reached port safely. Radar, A/S, E/S and all but one small W/T set were out of action. All guns could have been fought in local control.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LARNE 15th Oct., 1944	One Moored Contact Mine in 75 fathoms type G.R. Charge 90 lbs.	14 months	LARNE was minesweeping in the Aegean Sea, South of Greece, when a mine struck the ship on the starboard side under the forward boiler room. The resulting hole in the bottom plating measured 20 ft. by 10 ft. and the surrounding plating was torn and forced inboard. The longitudinal bulkhead separating the forward boiler room and the starboard wing oil tank was destroyed and other bulkheads and structure adjacent to the explosion were severely strained and distorted. Flooding occurred over a length of about 50 ft. in centre line and the starboard compartments, including the forward boiler room, starboard forward oil fuel tanks, low power and gyro compass rooms. Flooding which could have been controlled had power been available occurred in the forward magazine, cold and cool rooms, naval store and forward mess decks. As a result the ship listed 25 degrees to starboard. The forward boiler room was wrecked but the machinery was otherwise not seriously damaged. All steam power was immediately lost after the explosion due to the fracture of valve boxes in the forward boiler room. Flooding of junction boxes, cables, and the low power room, caused the failure of all lighting and power forward of the machinery spaces. Radar equipment was seriously damaged by shock which also temporarily rendered the W/T equipment unserviceable. Flash back from the forward boiler room and the explosion of the mine caused burns and casualties among personnel in the vicinity. Fighting Efficiency - Seriously impaired. The ship was immobilised due to the loss of all steam and electrical power and had to be beached.

MINESWEEPERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CLINTON 15th Oct., 1944	One Moored Contact Mine in 40 fathoms type G.R. charge 90 lbs.	9½ months including refit	CLINTON was minesweeping in the Aegean Sea, South of Greece, at 6 knots, when a mine struck the ship on the starboard side just abaft the forward magazine. Holes measuring 10 ft. by 6 ft. and 5 ft. by 2½ ft. were blown in the lower deck and 11 ft. by 15 ft. in the bottom plating on the starboard side. The keel was split and set up a maximum of 18 inches over a length of 13 ft. Compartments forward of the forward boiler room and below the upper deck, were flooded, including the magazines, oil fuel tanks, low power room and forward mess decks i.e. a length of about 50 ft. As a result the ship trimmed by the bow with a 2 degree list to starboard. The forward boiler room filled with smoke and was shut down for about 4 minutes. Flooding in the low power room put the gyro compass out of action, and the main W/T set failed temporarily due to flooding of the fuse box. Type 271 radar became unserviceable owing to the flooding of the alternator and the aerial of type 277 radar was fractured. Fighting Efficiency - Seriously impaired. The ship was difficult to manoeuvre and speed was limited to 4 knots. The gyro compass was out of action and the main W/T set was temporarily unserviceable.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HYDRA 10th Nov., 1944	One Moored Contact Mine in 8 fathoms type G.R. Charge 90 lbs.	Indeterminate (Ship not repaired)	HYDRA was operating off Ostend at 8 knots when a mine struck the ship under the bottom at the fore end of the after boiler room on the starboard side. A hole 6 ft. diameter was blown in the bottom and surrounding plating from bilge keel to bilge keel was forced inboard over a length of 35 ft. The keel was set up a maximum of 18 inches. A deep buckle, in which the plating was split in many places, girthed the hull, upper and forecastle decks abreast the main damage, and the ship sagged considerably. The after boiler room flooded immediately and the forward boiler room within 5 minutes. Flooding also occurred in the four wing oil fuel tanks abreast the boiler rooms and, during the time the ship was temporarily abandoned, the engine room, diesel generator and gyro rooms slowly filled. As a result of this flooding the ship heeled 12 degrees to port. The after boiler room was wrecked but the machinery was otherwise not seriously damaged. All steam was lost, and lighting and power failed due to the flooding of the boiler room and diesel generator compartment. Outside the limits of flooding, which included the gyro compass room, electrical equipment was practically undamaged. Fighting Efficiency - Seriously impaired. The ship was immobilised by the loss of all steam and electrical power and was temporarily abandoned due to the critically weakened condition of her structure. For this reason it would not have been considered safe to have fired the main armament.
CLAYOQUOT (H.M.C.S.) 24th Dec., 1944	Torpedo fired from submarine	Sunk	CLAYOQUOT, while operating off the approaches to Halifax, Nova Scotia, was torpedoed and sunk. No further information is available.

MINESWEEPERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
REGULUS 12th Jan., 1945	One Moored Contact Mine in 30 fathoms	Sunk	REGULUS was minesweeping in the south channel of the approaches to Corfu Island when an explosion occurred under the stern, possibly in contact with the propellers. The full extent of structural damage to the after end could not be assessed but it was known that several splits occurred in the hull plating on or near the waterline. In the engine room, there were splits in the starboard side and at the after end under the port side; abaft the engine room there was another split on the port side of the stokers mess deck. The lower deck in the minesweeping store, and the upper deck above this and over the engine room, were buckled and split. It was thought that all compartments abaft the engine room were damaged to some degree and their watertight integrity so impaired that flooding generally occurred. The ship was immobilised as a result of the explosion and was taken in tow 15 minutes later. 23 minutes after being taken in tow all machinery spaces were evacuated. The after end of the quarter deck was submerged and there was a heavy list to starboard. The ship was abandoned 42 minutes after explosion, and 4 minutes later was sinking by the stern with the bows almost vertical. REGULUS disappeared - 54 minutes after being mined.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ANTARES 25th Jan., 1945	One Moored Contact Mine in 26 fathoms probably type G.R. charge 90 lbs.	$5\frac{1}{2}$ months	ANTARES was minesweeping in the Adriatic, off the coast of Italy, at 8 knots when a mine struck the ship on the starboard bow, about 20 ft. from the fore end. Holes were blown in the hull plating, one on the starboard side measuring 10 ft. by 11 ft. and another on the port side measuring 3 ft. by 6 ft. Damage to the internal structure and bulkheads extended over a length of 30 ft. The lower deck was severely split and buckled over a length of 22 ft. and the corresponding portion of the upper deck was split and set up about 6 inches. The fore end of the ship was open to the sea and flooded for about 40 ft. The main engines and boilers were undamaged but fractured pipes in the forward steam heating system caused some contamination of the feed water until the system was blanked off. The main breaker tripped after the explosion but was immediately replaced, with no adverse effect on the electrical installations. The gyro compass was damaged by shock. The radar aerial was fractured as also were the shackles and insulators of the main transmitting aerials. The A/S compartment and associated equipment was wrecked. Fighting Efficiency - Not seriously impaired. ANTARES continued minesweeping duties at a speed of $10\frac{1}{2}$ knots. The forward 4 inch gun could have been fired but it was not considered advisable due to the possibility of disturbing the shoring of the damaged structure at the fore end. Radar, A/S equipment and the gyro compass were put out of action.
FROLIC 31st Jan., 1945	Ground Mines	12 days	FROLIC, while minesweeping off the East coast in the vicinity of Harwich, sustained multiple minor shock damage caused by the detonation of mines close to the ship. Fighting Efficiency - Not seriously impaired. The engine room defects were temporarily repaired by the ship's staff enabling FROLIC to return to base under her own power.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GUYSBOROUGH (H.M.C.S.) 7th March, 1945	Two Torpedoes fired from submarine	Sunk	GUYSBOROUGH, while operating in the Atlantic, north of Spain, was attacked and sunk by a submarine. The first torpedo struck the ship aft and 90 minutes later a second torpedo hit amidships. No further information is available.
ESQUIMALT (H.M.C.S.) 16th April, 1945	Torpedo fired from submarine	Sunk	ESQUIMALT, while operating off the approaches to Halifax, Nova Scotia, was torpedoed and sunk. No further information is available.
PROMPT 9th May, 1945	One Acoustic Mine in 12 fathoms	Indeterminate (Ship placed in reserve)	PROMPT was operating in the English Channel at 11½ knots, when an explosion occurred abaft the engine room under the bottom. The hull plating was corrugated from the stern, to abreast the engine room on the port side, and to abreast the forward boiler room on the starboard side; laps and butts of plating in this area were strained and leaking. The most serious deformation occurred over a length of 50 ft. abaft the fore end of the engine room, where corrugations reached a maximum depth of 4½ inches. The keel was split for 2 ft. at the cut up; and two other splits 6 inches long occurred in plating abreast the plummer block compartments. Internal structure abaft the engine room was severely damaged, and bulkheads were split and leaking. Flooding occurred in all compartments abaft the engine room below the lower deck and slowly spread to all compartments above. The engine room was partially flooded through a fractured overboard discharge valve, but, when pumping facilities were later made available, flooding in the engine room and all lower deck compartments was controlled. The cooling machinery and asdic compartments forward were flooded through damaged fittings. The ship listed 7 degrees to starboard but this was corrected by the jettisoning of top weight. The engine room was evacuated and boilers shut down due to steam escaping from broken auxiliary pipes. The main engine bearers were severely buckled the shafts were put out of line and the propellers and 'A' brackets were damaged. Fractured oil fuel pipes caused fires in the forward boiler room and in the officers' galley but these were never out of control and were extinguished with foamite. Fighting Efficiency - Seriously impaired. The ship was immobilised due to extensive shock damage. No power was available until one hour after the explosion when temporary repairs had been made to the diesel generator.

MINESWEEPERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARCTURUS 4th June, 1945	One Ground Mine in 10 fathoms	4 months including refit	ARCTURUS was minesweeping in the Gulf of Venice at 9 knots when a mine detonated off the port quarter about 40 ft. abaft the stern. The hull plating on the port side was slightly buckled below the waterline from the stern to abreast the engine room, and some rivets in it were strained and leaking. Abreast the gland compartment side frames were buckled and plating corrugated. Although there were no ruptures in the hull plating, the engine room flooded to a depth of 2 ft. through a fractured bilge injection pipe. This and minor flooding in the diesel generator room, gland space and forward boiler room, caused by fractured fresh water pipes was controlled. The engine room was temporarily evacuated due to steam escaping from a damaged main circulating pump and an auxiliary steam pipe. This necessitated stopping both engines and shutting down boilers with a consequent loss of all power. The latter was restored in about 1½ hours, and lighting made available when the diesel generator was started. The port engine was found to be stiff, probably due to a damaged 'A' bracket and the shaft being out of alignment. A small oil fuel fire in the after boiler room was extinguished by using sand. The gyro and magnetic compasses had permanent errors due to shock damage. Fighting Efficiency - Seriously impaired. The ship was immobilised for about 1½ hours. When steam power was again made available it was possible to use the starboard engine at slow speeds.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARIES 2nd July, 1945	One Moored Contact Mine in 11½ fathoms type G.Y. charge 660 lbs.	7 months	ARIES was minesweeping in the North Adriatic at about 13 knots when an explosion occurred just abaft the stern. About 35 ft. of the stern was wrecked and blown upwards 4 ft. Forward of this to the after end of the engine room the structure below the waterline was damaged and non-watertight. A severe whipping buckle girthed the hull at the after end of the engine room. All compartments abaft the engine room and below the lower deck flooded quickly. Slow flooding, which was controlled, occurred in compartments above the lower deck. The after bulkhead of the engine room was damaged, and leaking, but flooding through it was controlled. Machinery and electrical equipment outside the limits of the damaged stern were not seriously damaged. The starboard 'A' bracket was broken and the shaft dropped; the port shaft was out of alignment. The rudder was distorted and jammed at 20 degrees to port. All depth charge equipment was wrecked or severely damaged. Fighting Efficiency - Severely impaired. The ship was immobilised due to damaged shafting, broken 'A' bracket, and jammed rudder. Main armament was undamaged and serviceable, but depth charge equipment was out of action.
SQUIRREL 24th July, 1945	(i) One Contact Mine in 35 fathoms (ii) Gunfire from own forces	Sunk	SQUIRREL was minesweeping with the East Indies Fleet at 13 knots when an explosion occurred under the ship forward of the boiler room. Within one minute the ship had settled by the bow until the forecastle deck was awash to abreast the breakwater and a starboard list of 5 to 10 degrees had developed. The forecastle deck was split and buckled athwartships abaft the 4 inch gun and all compartments forward of the boiler room were flooded. The steering wheel was torn away from the steering column and communications with the engine room failed. The type 271 radar lantern was shattered. The forward boiler room commenced to flood, and as the boilers were shut down and steam lost, all power failed. About 2½ hours after the explosion SQUIRREL was abandoned and, as she was gradually settling by the bow and developing a heavy list to starboard, it was decided to sink her by gunfire from own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VESTAL 26th July, 1945	(i) Hit by one Japanese Suicide Plane (Val or Sonia) (ii) Torpedo and Shell fire from own forces	Sunk	VESTAL, while minesweeping with the East Indies Fleet, was attacked by a suicide plane, which crashed on the port side between the funnel and foremast and penetrated the hull in the vicinity of the boiler rooms. The hull was severely damaged in the region of the hit, part of the upper deck being forced out and projecting over the starboard side. A serious oil fuel fire started which soon got out of control. Immediately after the hit all power failed and the firemain was out of action. The only fire fighting equipment available was portable extinguishers which were unable to cope with a fire of such magnitude. VESTAL was heavily on fire and it was decided to abandon ship and sink her with a torpedo and shell fire from our own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PELICAN 22nd April,1940 D.N.C.4B/R15	(i) One Direct Hit 250 lbs. delay action fuzed Bomb (ii) Two Near Miss 250 lbs. direct action fuzed Bombs	7 months	PELICAN was attacked by enemy aircraft whilst proceeding off the Norwegian coast. The direct hit burst on impact with the quarter deck and exploded a number of depth charges stowed in the rails. As a result of the explosion the whole of the ship abaft 'X' mounting was destroyed. The near miss bombs caused severe splinter damage over a large area. PELICAN was flooded from the plummer block compartments aft. Fighting Efficiency - Severely impaired. The vessel was immobilised and unseaworthy in rough weather. Half the ships armament was out of action.
AUCKLAND 24th April,1940	One Near Miss size unknown direct action fuzed Bomb	Nil	AUCKLAND sustained minor splinter damage from a near miss bomb. Small holes were pierced in the hull plating above the waterline aft. Fighting Efficiency - Unimpaired.
BLACK SWAN 28th April,1940 D.N.C.4B/R17	One Direct Hit 250 lbs. piercing type delay action fuzed Bomb	5 weeks	BLACK SWAN, whilst in Mi Fjord on the Norwegian coast, was subjected to persistent enemy bombing attacks. Throughout the attacks the ship was steaming at 19 knots. A bomb pierced the upper deck on the starboard side just forward of the after 4 inch twin mounting, and passed through the lower deck in the ward room, through the outer bottom and exploded some distance beneath the ship. Minor structural damage was sustained in the path of the bomb. Flooding occurred in No.3 4 inch magazine and the starboard fresh water tank. Fighting Efficiency - Impaired. Speed was reduced and the main W/T aerials were shot away.
FLEETWOOD 29th April,1940	Near Miss size and type unknown Bomb	Nil	FLEETWOOD, whilst operating off the Norwegian coast, was attacked by aircraft which dropped 28 bombs one of which near missed the ship. Only minor damage was sustained. Fighting Efficiency - Unimpaired.

SLOOPS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BITTERN 30th April,1940	(i) One Direct Hit 500 lbs. direct action fuzed Bomb (ii) Torpedo fired by own forces	Sunk	BITTERN was attacked by enemy aircraft whilst lying off Namsos. The bomb struck the quarter deck and a number of 8¼ lbs. T.N.T. charges (stowed aft) exploded. The ship was destroyed aft of 101 bulkhead. A severe fire started in the after lobby and the office flat and spread to the small arms magazine. BITTERN was abandoned and sunk by a torpedo fired by own forces.
BIDEFORD 29th May, 1940 D.N.C.4B/R24	Two Direct Hit 250 lbs. delay action fuzed Bombs	10½ months	BIDEFORD, during the Evacuation of Dunkirk, sustained damage from bomb hits. One bomb struck and burst at the extreme after end of the ship and another struck the fore end of the quarter deck and exploded between the upper and lower decks. Some depth charges on the quarter deck detonated and the whole after end of the ship disintegrated. A small fire broke out in the cabin flat, but it was soon controlled. The main engines were undamaged but as both shafts were bent the ship was immobilised. Fighting Efficiency - Severely impaired. BIDEFORD was immobilised and half of her armament out of action. W/T out of action due to damage to aerials. M/S gear destroyed.
FOXGLOVE 9th July, 1940 D.N.C.4B/R27	Three Direct Hit One 110 lbs. and one 500 lbs. direct action fuzed and the other 110 lbs. delay action fuzed Bombs	Not repaired	FOXGLOVE was bombed by enemy aircraft whilst approaching Portsmouth harbour on completion of convoy duty. The first bomb (110 lbs.) burst on impact with the boat deck, holes 3 ft. in diameter were blown in the boat deck and 2 ft. by 2 ft. 3 ins. in the upper deck. Splinters damaged the dynamo in the engine room. The second bomb (500 lbs.) struck and exploded on the boat deck just forward of the after bulkhead of the galley, it demolished a portion of the boat deck across the full width of the ship. Splinter damage was widespread. The third bomb (110 lbs.) penetrated the boat and upper decks passed through the starboard bunker and burst on contact with the wing bulkhead to No.2 Boiler room. No.2 Boiler room flooded immediately and No.1 Boiler room flooded slowly. The ship was immobilised. Fighting Efficiency - Severely impaired. FOXGLOVE was considered a total loss and was not repaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PENZANCE 24th Aug., 1940	Torpedo fired from submarine	Sunk	PENZANCE was attacked and sunk by a submarine torpedo while operating in the North Atlantic. No further information available.
STORK 8th Sept., 1940 D.N.C.4B/R41	One Contact Torpedo dropped by aircraft in 19 fathoms	8 months	STORK was hit by a torpedo dropped by German aircraft whilst she was lying at anchor in Methil Roads, Firth of Forth. The torpedo exploded on contact with the starboard side about 5 ft. below the waterline near the rudder head. The forward bulkhead of the steering compartment and hull structure abaft was wrecked and the small arms magazine and all compartments aft flooded immediately. A deep buckle girthed the ship at the after end of the superstructure. The rudder was missing and both shaft brackets fractured. Fighting Efficiency - Severely impaired. STORK was immobilised due to the fractured shaft brackets and the loss of the rudder, but the dynamoes were not damaged and there were no electrical failures. All gunnery armament, ammunition and supply remained intact. The W/T was out of action temporarily due to the main yard being shattered but a jury aerial was quickly rigged.
DUNDEE 14th-15th Sept., 1940	One Contact Torpedo fired from submarine	Sunk	DUNDEE was operating in the North Atlantic when an explosion occurred at the after end followed by two more (due to depth charges thrown overboard by the 1st explosion). Vessel was destroyed abaft 102 bulkhead and was abandoned. The ship was later boarded and attempts made to take her in tow. DUNDEE sank about 14½ hours after the first explosion. REMARKS This incident emphasised the need for maintaining steam so that all available pumping power can be used as and when required.

SLOOPS - 1940/41

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BLACK SWAN 1st Nov., 1940 D.N.C.4B/R36	One Non-Contact Acoustic Mine in 13 fathoms	6½ months	BLACK SWAN was proceeding at 16 knots near Inchkeith Light when an explosion occurred off the port quarter. The outer bottom plating was dished between frames from the after end of the after boiler room to the stern of the ship. Minor controlled flooding occurred at the after end. The main machinery was out of action due to fractured castings. Fighting Efficiency - Seriously impaired. BLACK SWAN was immobilised due to main machinery damage.
EGRET 7th Nov., 1940	One Near Miss size unknown direct action fuzed Bomb	1 week	EGRET was escorting a convoy at 8 knots in the Thames Estuary when a near miss bomb on the starboard bow caused minor structural damage. The starboard side above water was perforated by splinters and two oil fuel tanks were leaking. A minor fire was caused by a splinter in a 4 inch R.U. locker. Fighting Efficiency - Impaired. Speed was reduced temporarily due to loss of oil fuel.
LOWESTOFT 5th Jan., 1941 D.N.C.4B/R57	One Non-Contact Acoustic Mine in 13 fathoms	8½ months	LOWESTOFT was proceeding at 10 knots in the Thames Estuary when an explosion occurred under her bottom port side abreast the after end of the engine room. The side plating from the fore end of engine room to the after cut up, port, and from the after end of the after 4 inch magazine to the fore end of the spirit room, starboard, was dished between the frames. The keel was set up about 4 inches in the after ballast tank. The hold compartments abaft the engine were flooded, but flooding was controlled in the plummer block space and gland compartments. Five sliding feet of the H.P. turbines were fractured and minor damage sustained by auxiliary machinery. Fighting Efficiency - Severely impaired. Vessel was immobilised owing to machinery damage. The after 4 inch gun, rangefinder and depth charge chutes were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PELICAN 19th Feb., 1941 D.N.C.4B/R58	Two Non-Contact Acoustic Mines one in 10 fathoms one in 8 fathoms	$8\frac{1}{2}$ months	PELICAN was proceeding at 12 knots about $12\frac{1}{2}$ miles off Harwich when an explosion occurred 100 to 150 ft. abreast Y gun, port. Minor structural damage occurred on the port side abreast the engine room and also abreast the gland compartment, this caused minor flooding. No.2 turbo generator, port side, was put out of action. The port intermediate shaft was slightly out of line, but was insufficient to prevent PELICAN from continuing on her course. About three quarters of an hour after the first explosion a second explosion occurred in the vicinity of the after engine room. The hull plating was corrugated from the keel to the waterline, between the centre of the engine room and the stern. The internal structure in the vicinity was distorted and the vertical arm of the starboard 'A' bracket was fractured. Serious damage was sustained by the main and auxiliary machinery castings. Slow flooding occurred in all compartments abaft the engine room. Fighting Efficiency - Seriously impaired. PELICAN was immobilised due to machinery damage. 'X' and 'Y' guns were out of action due to shock and 'A' and 'B' guns could only be supplied by hand. The rangefinder was also out of action. The steering gear was jammed.
LUPIN 10th-11th March, 1941 D.N.C.4B/R66	One Near Miss size and type unknown Bomb	Nil	LUPIN, during an air raid on Portsmouth Dockyard, was damaged by a near miss bomb which burst 30 yds. from the ship. A large number of splinters pierced the hull plating, superstructure, funnels and fittings over an area extending from the breakwater to the mainmast. Fighting Efficiency - Not seriously impaired. Damage to the ship was mainly superficial.

SLOOPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ERNE 30th April, 1941 D.N.C.4B/R75	One Direct Hit 100 kgm delay action fuzed Bomb Two Near Miss 100 kgm delay action fuzed Bombs	12 months including refit	ERNE was proceeding at 7 knots in the North Sea when attacked by enemy aircraft. Bombs were released at about 1000 yards range from a height of 50 ft. and skimmed across the water in short "jumps". One bomb burst close to the port quarter and the hull plating in the vicinity was dished inboard and fractured. Another bomb jumped over the ship just forward of the funnel and exploded below water causing minor damage to the hull plating. The third bomb struck 'B' gun blast screen and passed overboard without exploding. The after end of ship dropped 15 ins. and was set to port 15 ins. 'X' gun support was displaced and the feet of L.P. and H.P. turbines fractured. All main and auxiliary machinery castings were fractured. Flooding occurred in the vicinity of the explosion. Fighting Efficiency - Seriously impaired. ERNE was immobilised due to machinery damage. Guns able to fire in local control only. D/G was out of action.
GRIMSBY 25th May, 1941	Two Direct Hit size unknown delay action fuzed Bombs One Near Miss 100 kgm delay action fuzed Bomb	Sunk	GRIMSBY was attacked by enemy aircraft whilst escorting a convoy in the Mediterranean about 30 miles from Tobruk. In the first attack a near miss bomb, 20 ft. to starboard, caused minor structural damage and put the forward pusher hoist out of action. The A/S was temporarily out of action. The second attack occurred 3 hours 22 minutes later, a direct hit passed through the engine room and another through the after end of the ward room. Both bombs burst on or just below the outer bottom. Extensive flooding and structural damage was sustained from the engine room to the mining flat. Slow flooding occurred at the after end. GRIMSBY was immobilised and listed to port. 'B' gun jumped from the roller path. 53 minutes after the second attack the ship was abandoned with a 30 degree list to port and the quarter deck awash. Enemy aircraft were in the vicinity and heavy explosions were heard about 1½ hours after the ship was abandoned and it was considered that the wreck was again bombed.

SLOOPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AUCKLAND 24th June, 1941	Four Direct Hit several Near Miss size and type unknown Bombs	Sunk	AUCKLAND, while on passage from Alexandria to Tobruk, was damaged by several near misses and later was hit by a heavy bomb which wrecked the stern above the waterline. The ship continued to steam at 10 knots with the rudder jammed at 30 degrees to port. Three more bombs struck the ship, one through the sick bay, another through the bridge exploding as it passed out through the ship's side, and a third hit amidships. AUCKLAND was on fire and abandoned with a heavy list to port, a heavy explosion then occurred, probably a delay action fuzed bomb, which broke her back. AUCKLAND capsized and sank about 40 minutes after the first bomb hit.
FLAMINGO 30th June, 1941	(i) Two Near Miss 500 kgm delay action fuzed Bombs. (ii) Six Near Miss 250 kgm direct action fuzed Bombs. (iii) Number unknown Near Miss 50 kgm direct action fuzed Bombs.	Not known	FLAMINGO was subjected to three attacks whilst proceeding off the Libyan coast. Many near misses caused minor damage, the outer bottom plating was strained and leaking causing minor flooding. The feet of the starboard L.P. turbine and keeps of the port L.P. turbine were fractured. There was a partial loss of vacuum in the port L.P. turbine. The after 20 ton pump was out of action. Fighting Efficiency - Slightly impaired. The speed was reduced due to damaged machinery castings.
BLACK SWAN 24th Aug., 1941	Near Miss size and type unknown Bombs Three Direct Hit Bombs which did not explode	3 weeks	BLACK SWAN, whilst escorting a convoy, was attacked by an enemy aircraft which dropped six bombs. Minor damage was caused by the near misses and superficial damage sustained from splinters. The steam and exhaust pipes of the steering engine and governor gear was fractured. Minor damage was sustained by the auxiliaries. Fighting Efficiency - Seriously impaired. The steering gear was out of action and BLACK SWAN was steered by the main engines.
PARRAMATTA (H.M.A.S.) 27th Nov., 1941	Torpedo fired from submarine	Sunk	PARRAMATTA was sunk whilst operating 20 miles east of Tobruk. No further information available.

SLOOPS - 1941/42

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FLAMINGO 7th Dec., 1941	Two Direct Hit one 1000 kgm and one 100 kgm Bombs Ten Near Miss delay action fuzed Bombs	22 months	FLAMINGO was attacked whilst proceeding off the Libyan coast at 14 knots. Extensive structural damage was caused as a result of direct hits and near misses. The outer and inner bottoms were holed and distorted in way of the engine room. Bottom castings of all turbines were cracked. Extensive damage was caused to the auxiliary machinery. Fighting Efficiency - Seriously impaired. Vessel was immobilised and out of action.
PELICAN 8th Dec., 1941	Aircraft Machine gun	Nil	PELICAN was operating off the east coast of Scotland at 14 knots when she sustained superficial damage from machine gun bullets. The echo sounding gear recorder was punctured. Fighting Efficiency - Not impaired.
SWAN (H.M.A.S.) 19th Feb., 1942	Near Miss Bombs	2 months approx.	SWAN, whilst at Port Darwin, during an air raid, sustained severe damage to structure and A/S gear. Fighting Efficiency - Seriously impaired.
YARRA (H.M.A.S.) 4th March, 1942	Shell	Sunk	YARRA was in action with Japanese cruisers and destroyers South West of Java. Ship was sunk as a result of many direct hits which started a fierce fire and immobilised the ship.
INDUS (H.M.I.S.) 6th April, 1942	Bomb	Sunk	INDUS, whilst operating in the Bay of Bengal, was bombed and sunk. No further information available.
CORNWALLIS 10th Sept.,1942	Torpedoes fired from submarine	1 month	CORNWALLIS was at Barbadoes, West Indies, when four explosions occurred in the anti-torpedo net. Ship was not seriously damaged. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
IBIS 10th Nov., 1942	One Contact Torpedo dropped by aircraft	Sunk	IBIS, whilst operating 10 miles north of Algiers, was struck on the port side oil fuel tanks just forward of the forward boiler room. The ship's side was opened up from within 10 ft. of the upper deck port side and extending under the bottom. The forward oil fuel tanks port side and both boiler rooms were immediately flooded. A serious fire started in the port passage but was extinguished by escaping steam from No.2 boiler. The engine room and starboard dynamo room were flooded with burning oil through the forward bulkhead of the engine room. The main steam pipes in the engine room were fractured. IBIS took an immediate list of 10 to 15 degrees to starboard and was abandoned. Two minutes later th list increased to 45 degrees and one minute later the vessel rolled over to starboard and for a time remained afloat bottom upwards.
STORK 12th Nov., 1942 D.N.C.4B/R206	One Contact Torpedo fired from submarine	8 months	STORK, while carrying out an anti submarine patrol at 15 knots off Algiers, was struck by a torpedo. The torpedo struck the starboard side in the vicinity of the fore foot about 7 ft. below the waterline. The fore end structure for 32 ft. below the lower deck and for 14 ft. below the upper deck was blown away. The remaining structure forward of the asdic compartment was severely buckled and distorted. Minor damage extended to abreast 'A' gun. The ship was buckled around the girth, just abaft 'B' gun and at the after end of the bridge. The steering gear was temporarily jammed owing to bent shafting. The ship was open to the sea forward of the asdic compartment. Lighting circuits at the fore end were severely damaged and the gyro compass was out of action due to shock. 'A' mounting could not be trained due to distortion of structure. Fighting Efficiency - Seriously impaired. Speed was reduced to 6 knots and steering gear was temporarily out of action. 'A' and 'B' mountings out of action due to danger of aggravating structural damage. The gyro compass out of action.

SLOOPS - 1942/43

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ENCHANTRESS 13th Dec., 1942	Rammed submarine	5 months including refit	ENCHANTRESS was on convoy duty in the Mediterranean when an enemy submarine was sighted travelling at 10 knots. ENCHANTRESS increased speed to 15 knots and rammed the submarine fine on the starboard side between the conning tower and the stern. The fore foot was torn away and structure in the way of fore peak from keel to lower deck was forced to starboard and bent aft. Minor damage was sustained between the lower and upper decks and in way of the oscillator compartment. The fore peak and oscillator compartment flooded immediately. Fighting Efficiency - Impaired. Speed was reduced to 10 knots in fair weather. The S/A gear was out of action.
LONDONDERRY 3rd Feb., 1943	One Non-Contact Torpedo fired from submarine	8½ months	LONDONDERRY was escorting a convoy in the North Atlantic when an enemy submarine was detected. During a depth charge attack on the suspected submarine, a heavy explosion occurred aft. No serious structural damage was visible except for buckling of the hull plating around the ship's girth abreast the after end of the superstructure. The steering compartment was flooded and the gear wrecked. The main engines had to be stopped due to overheating of the shaft bearings and when the ship was later in tow the starboard shaft was found to be fractured. Movement of the stern suggested that the ship's back was broken and whilst in tow the stern structure abaft the superstructure broke away and floated on an even keel. Fighting Efficiency - Seriously impaired. The ship was immobilised due to damaged shafts and the loss of the stern structure.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STARLING 24th June, 1943 D.N.C.4B/R266	Rammed submarine	6 weeks	STARLING was on anti-submarine patrol in the Bay of Biscay when an enemy submarine was attacked by depth charges and blown to the surface where it was proceeding slowly and apparently under control. STARLING rammed the submarine at 10 knots when it commenced to dive. The submarine was awash when it was rammed and was struck abreast the conning tower. STARLING's bow structure for 9 ft. above the keel and for 4 ft. aft, was bent to starboard. Surrounding plating was corrugated between the frames. The hull plating port side abreast 'B' magazine and the flour store was holed for 21 ft. by 1 ft. over the garboard and 'A' strake. 'A' and 'B' magazines, flour and canteen stores flooded immediately. The Asdic dome was torn away and the S/A oscillator shattered. Fighting Efficiency - Seriously impaired. The maximum speed was reduced to 14 knots due to damage and flooding. The ammunition to the forward guns was lost. The asdic and S/A gear was out of action.
BIDEFORD 25th Aug., 1943	Near Miss Radio controlled glider Bombs Type H.S.293	1 month	BIDEFORD was proceeding at 8 knots off Cape Ortegal when enemy aircraft attacked her with radio controlled glider bombs. Splinter damage was sustained to the port side forward of the bridge, above and below the waterline. The cable locker, paint room, upper and lower central stores, asdic compartment and forward messdeck were holed by splinters. Flooding occurred through splinter holes into the cable locker, asdic compartment and lower central store. The electric leads, degaussing gear and foremast were damaged by splinters. Fighting Efficiency - Not seriously impaired. Asdic and degaussing gear was out of action.

SLOOPS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EGRET 27th Aug., 1943	One Direct Hit radio controlled glider Bomb Type H.S.293	Sunk	EGRET, whilst proceeding off the west coast of Spain, was hit amidships on the starboard side in the vicinity of the forecastle deck. The bomb exploded inside the ship probably near the port side. EGRET heeled over to port, capsized and was floating bottom upwards within one minute. The ship subsequently sank about 1¼ hours later. In view of the extensive damage which caused the ship to capsize in so short a time and from photographs taken of the explosion it is considered that a magazine explosion probably occurred.
CHANTICLEER 18th Nov., 1943	Probably an Acoustic Homing Torpedo fired from submarine	Indeterminate (not repaired converted to Base Ship)	CHANTICLEER was escorting a convoy in the North Atlantic, at 15 knots, when an explosion occurred at the after end. The stern was blown off with serious structural damage as far forward as the engine room. The forecastle and main decks were buckled near the after boiler room. The rudder was blown on to the upper deck. The portion of the ship abaft the engine room was open to the sea and was abandoned. Flooding forward of the engine room through whipping buckles, also in the stabiliser compartment through strained glands, was kept under control. The ship listed to port. 'X' magazine was reported to be on fire as much smoke was emerging from the shell hoist. Water was sprayed into the magazine with an oil spray nozzle and the smoke ceased. Both main engines and the steering gear were out of action. Fighting Efficiency - Seriously impaired. The ship was immobilised and towed to the Azores.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WOODPECKER 19th-27th Feb., 1944	(i) Probably an Acoustic Homing Torpedo fired from submarine (ii) Shell fired by own forces	Sunk	WOODPECKER, at 2216/19 while operating in the North Atlantic, at a speed of 17 knots, was struck by a torpedo in the vicinity of the after end. About 60 ft. of the stern, abaft the after magazine was blown away. The ship was immobilised with both shafts out of action. The forecastle and upper decks were badly buckled and split abaft the forward boiler room, a whipping buckle abreast the funnel extended down the ship's port side and another abreast the after end of the engine room extended down both sides. Each buckle reached to below the waterline. Flooding extended forward of the main damage through splits in the hull plating in the vicinity of whipping buckles. The air space abaft the engine room, after magazine and stabiliser compartment flooded slowly. Oil fuel tanks aft were contaminated. All possible topweight was jettisoned. At 1030/20 the ship was taken in tow. 0845/25. All flooding forward of the main damage, through whipping buckles, etc., was under control. 1830/26. Tow continued but ship abandoned due to adverse weather report. 0721/27. Ship capsized in very bad weather. 0815/27. Sinking was expedited by shell fire from own forces.
KITE 21st Aug., 1944	Torpedo fired from submarine	Sunk	KITE was lost while operating in the Greenland Sea. No further information available.
NARBADA (H.M.I.S.) 13th Jan., 1945	One Near Miss Bomb	Nil	NARBADA, while operating with an assault force off the coast of Burma, near the Akyab Area, was attacked by eight Japanese aircraft. Minor damaged was sustained from a near miss bomb. Fighting Efficiency - Not impaired.

SLOOPS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LARK 7th Feb., 1945	One Torpedo probably Acoustic Homing type fired from submarine	Indeterminate (Ship not repaired)	LARK was carrying out an anti-submarine sweep outside Kola Inlet, North Russia, at 10 knots, when a heavy explosion occurred and her stern was blown off. About 55 ft. of stern structure was missing and a further 30 ft. to the after end of the 4 inch magazine was wrecked or seriously damaged. Buckles and splits occurred in the decks and hull plating abreast the after oil fuel tanks and the two boiler rooms. No important flooding occurred forward of the wrecked stern, but some water entered the 4 inch magazine through flooded stern tubes and damaged shaft glands. The port and starboard shafts and propellers were missing but otherwise all main and auxiliary machinery was serviceable. The after oerlikons were blown away and 'X' 4 inch gun was damaged and unusable. The deck surrounding this gun was badly distorted. All depth charge equipment was missing or wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised, by loss of shafts, propellers and steering gear and had to be taken in tow. The after 4 inch gun, oerlikons and all depth charge equipment were out of action.
LAPWING 20th March, 1945	One Contact Torpedo fired from submarine	Sunk	LAPWING was escorting a convoy off Kola Inlet, North Russia, when a torpedo struck her on the starboard side abreast the funnel. All lights were extinguished and the ship heeled to port. Abreast the explosion there was a large hole in the upper deck and surrounding structure was covered in oil. Survivors' evidence indicated that the hull had been practically blown in two. 15 minutes after the attack the ship broke in two and at 3 minutes later the two ends began to settle. LAPWING was abandoned 20 minutes after the attack with the bow and stern high out of the water, both of which sank shortly afterwards.

CORVETTES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KINGFISHER 1st June, 1940	Size and type unknown Bomb	Nil	KINGFISHER was damaged by enemy bombing during the evacuation of Dunkirk. Ship was unseaworthy in rough weather. No further details available. Fighting Efficiency - Impaired.
PATHAN (H.M.I.S.) 23rd-24th June, 1940	One Contact Mine	Sunk	PATHAN was operating off Bombay when a heavy explosion aft wrecked the stern structure and forced the upper deck over the after gun and on to the boat deck. The ship was immobilised with a heavy list to port and considerable trim by the stern. Efforts to use the main engines proved unsuccessful. When last inspected the engine room was slowly flooding with 6 ft. of water already present. The ship was abandoned and eventually sank on the 24th June.
GUILLEMOT 30th July, 1940	One Near Miss 250 lbs. delay action fuzed Bomb	Nil	GUILLEMOT, while operating off East Anglia, was attacked by enemy aircraft. No structural damage was sustained from a near miss bomb although a large column of water was thrown up by the explosion. Some water passed down the funnel and put out the boiler sprayers. Fighting Efficiency - Temporarily impaired. GUILLEMOT was temporarily immobilised due to loss of steam.
KINGFISHER 14th Aug., 1940	Near Miss size unknown direct action fuzed Bombs	Nil	KINGFISHER sustained splinter holes in the ship's side and superstructure from near miss bombs. The port propeller shaft was bent and the port engine out of action. The D.G. coils were cut by splinters. Fighting Efficiency - Impaired. The maximum speed was reduced and the D.G. was out of action.

CORVETTES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MALLARD 30th Sept., 1940	One Direct Hit two Near Miss 50 kgm delay action fuzed Bombs	9 months	MALLARD was attacked by a low flying enemy aircraft which dropped five bombs. The attack occurred whilst the ship was in the vicinity of the Kentish Knock Lightship and proceeding to Harwich at 17 knots. A near miss on the port quarter and another on the starboard side caused minor structural damage. The direct hit bomb struck the engine room and exploded about 10 ft. beneath the keel, the ship's bottom was blown inwards in the vicinity of the explosion and a hole was blown in the hull plating 5 to 6 ft. in diameter. The engine room was wrecked and the engine and boiler rooms flooded immediately. Fighting Efficiency - Seriously impaired. MALLARD was immobilised, W/T out of action and guns could only be fired in local control.
ANEMONE 28th Oct., 1940	Near Miss size and type unknown Bomb	Nil	ANEMONE was damaged while lying in Gladstone dock during an air raid on Liverpool. A near miss bomb caused damaged to the oil fuel suction line. Oil fuel leaked into the starboard bilge (20 to 30 tons). Fighting Efficiency - Impaired.
PINTAIL 1st Nov., 1940 D.N.C.4B/R38	Two Direct Hit size unknown One delay action and One direct action fuzed Bombs	4½ months	PINTAIL, whilst escorting a convoy in the North Sea at 9 knots, was attacked by enemy aircraft which dropped 6 bombs during shallow dives, two of which scored direct hits. 1st Bomb exploded in contact with the upper deck over the forward boiler room port side. A hole 5 ft. 6 ins. in diameter was blown in the deck plating. Splinters pierced the outer bottom and caused the forward boiler room to flood. No.1 boiler room was damaged by splinters and blast. 2nd Bomb struck the bridge and burst 3 ft. from the starboard side. The bridge structure was severely damaged and a hole 3 ft. by 5 ft. was blown in the bridge deck. Fighting Efficiency - Seriously impaired. PINTAIL was only able to steam at reduced speed. W/T and A/S was out of action. The 4 inch gun was out of action due to casualties.

CORVETTES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RHODODENDRON 17th Jan., 1941	One Non-Contact Acoustic Mine	3 months	RHODODENDRON sustained minor structural damage from a mine whilst in the vicinity of Q.1 Buoy, Liverpool Harbour. The main engines and steering gear were put out of action. Fighting Efficiency - Seriously impaired. RHODODENDRON was immobilised and taken in tow.
HONEYSUCKLE 19th Jan., 1941	One Non-Contact Acoustic Mine	3 months	HONEYSUCKLE was near the Bar Light Vessel. When she sustained minor structural damage from a non-contact mine. One boiler was temporarily out of action. Fighting Efficiency - Slightly impaired. HONEYSUCKLE entered harbour under her own power.
SHELLDRAKE 11th March, 1941	Blast from a Contact Torpedo	Nil	SHELLDRAKE, whilst escorting a convoy, sustained minor damage to the port propeller and shafting from the explosion of a torpedo which hit DOLTERILL close by. Fighting Efficiency - Not impaired.
ASTER 4th May, 1941	Near Miss size and type unknown Bomb	Nil	ASTER was damaged during an air raid on Belfast. No serious damage was sustained by the ship's structure but boats and lifesaving equipment were damaged by blast. Fighting Efficiency - Not impaired.
GLOXINA 16th May, 1941	One Non-Contact Acoustic Mine	Nil	GLOXINA sustained minor damage from an acoustic mine whilst sweeping at Malta. Fighting Efficiency - Not impaired.
SALVIA 18th May, 1941	Size and type unknown Bomb	Not known	SALVIA was attacked in Suda Bay and minor structural damage was sustained. The engine and boiler room were temporarily out of action. Fighting Efficiency - Seriously impaired. SALVIA was temporarily immobilised but returned to Alexandria under her own power.

CORVETTES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PINTAIL 10th June, 1941	One Contact Mine 12 fathoms	Sunk	PINTAIL was mined and sunk off the Humber. No further details available.
HYACINTH 5th July, 1941	Three Near Miss size and type unknown Bombs	9 days	HYACINTH was damaged in Famagusta Harbour. Minor structural damage was sustained under No.2 Boiler room. Fighting Efficiency - Impaired. Minesweeping gear was out of action. HYACINTH was beached but was later refloated by PEONY.
PICOTEE 12th Aug., 1941	Probably Torpedo fired from submarine	Lost	PICOTEE was probably torpedoed by a submarine off Iceland. No further details available.
ZINNIA 23rd Aug., 1941	One Torpedo Contact fired from submarine	Sunk	ZINNIA was escorting a convoy off the coast of Portugal when an explosion occurred on her port side abreast the funnel. The asdic house collapsed and the ship disintegrated in the region of the hit. ZINNIA heeled to starboard and capsized in 5 seconds. REMARKS The ship's reported contained the following proposals:- 1. Small compressed air cylinders should be supplied to inflate lifebelts. 2. Lights, similar to the Board of Trade pattern for indicating position in water, should be supplied. 3. Whistles should be supplied in addition to lifebelt lights. 4. A preparation to remove oil fuel from survivors to be supplied to H.M. Ships.
LEVIS (H.M.C.S.) 19th Sept., 1941	Torpedo fired from submarine	Sunk	LEVIS, whilst operating in the North Atlantic, was seriously damaged by a torpedo, she was taken in tow but eventually sank. No further information available.
FLEUR DE LYS 14th Oct., 1941	Torpedo fired from submarine	Sunk	FLEUR DE LYS was lost whilst operating west of Gibraltar. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLADIOLUS 16th Oct., 1941	Probably Torpedo fired from submarine	Sunk	GLADIOLUS was lost whilst operating in the North Atlantic. No further information available.
SALVIA 24th Dec., 1941	Torpedo fired from submarine	Sunk	SALVIA was lost whilst operating off Egypt. No further information available.
ARBUTUS 5th Feb., 1942	One Contact Torpedo fired from submarine	Sunk	ARBUTUS was searching for a U-Boat at 14 knots when a torpedo hit the starboard side abreast the forward bulkhead of the forward boiler room. The ship listed to starboard and sank by the bows about half an hour after being hit. REMARKS OF THE BOARD OF ENQUIRY:- 1. Service type inflatable lifebelt is of little use in oily water as compared with the merchant navy kapok lifebelt, the collar of which protects the head from oil fuel. 2. Hemp slings attached to lifebelts are invaluable in rescuing men who have been immersed in oil fuel.
SPIKENARD (H.M.C.S.) 11th Feb., 1942	One Contact Torpedo fired from submarine	Sunk	SPIKENARD was struck by a torpedo just forward of the bridge, in or near the 4 inch magazine. The ship was flooded forward of No.1 Boiler room immediately after the explosion. A serious fire developed in the bridge and W/T Office. The ship sank very quickly after being hit. REMARKS OF THE BOARD OF ENQUIRY:- 1. The hatch from the upper to lower mess decks should be made watertight in all corvettes. 2. Improvements in life saving apparatus and means of attracting attention to floating rafts etc. is necessary.

CORVETTES - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOLLYHOCK 9th April, 1942	Two Direct Hit One Near Miss delay action fuzed Bombs	Sunk	HOLLYHOCK was attacked by enemy aircraft while on passage from Trincomalee to Colombo. Japanese dive bombers attacked and one bomb fell close alongside putting No.2 boiler out of action. 9 minutes later two direct hits were sustained, one, near the funnel, was thought to have exploded in or near the after magazine. HOLLYHOCK immediately blew up, disintegrated and sank within 45 seconds.
AURICULA 5th-6th May, 1942	One Contact Mine	Sunk	AURICULA, while minesweeping in the Approaches to Courier Bay, Madagascar, struck a mine and broke her back. The ship sank while at anchor about 8 hours later. No further information available.
PRIMULA 14th June, 1942	Near Miss Bombs	12 days	PRIMULA was damaged by near miss bombs whilst escorting a convoy to Malta. Fighting Efficiency - Impaired.
DIANTHUS 9th Aug., 1942	Rammed submarine	4 months	DIANTHUS sank a U-boat in the North Atlantic after ramming four times. The stem was badly buckled and turned to starboard and a large hole was torn in the starboard side plating abreast the forward mess decks. The fore end below the lower deck was flooded for 70 ft. including the magazines and asdic compartment. The fore ends of the bilge keels port and starboard were crumpled. Fighting Efficiency - Severely impaired. Speed was reduced to $6\frac{1}{2}$ knots.
CHARLOTTETOWN (H.M.C.S.) 10th Sept.,1942	Two Torpedoes fired from submarine	Sunk	CHARLOTTETOWN was struck by two torpedoes whilst at the mouth of the river St. Lawrence, Canada. The ship sank within four minutes of being hit. No further information available.
CROCUS 6th Oct., 1942	Rammed submarine	10 days	CROCUS, while on patrol off Freetown, Sierra Leone, sighted an enemy submarine and ten minutes later rammed it at $16\frac{1}{2}$ knots. The submarine remained under the bow for a short period and then broke away to port. CROCUS again rammed the submarine in the vicinity of the stern. The submarine passed down the starboard side and was last seen heavily listing. Fighting Efficiency - Unimpaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KITTIWAKE 13th Oct., 1942	One Near Miss Bomb	4 days	KITTIWAKE, during an air raid on Portsmouth was in a floating dock when a direct hit on the deck caused superficial damage to the vessel. Fighting Efficiency - Not impaired.
ARMIDALE (H.M.A.S.) 1st Dec., 1942	Two Torpedoes dropped by aircraft	Sunk	ARMIDALE was struck by two torpedoes and sunk when attacked by enemy aircraft. No further information available.
MARIGOLD 9th Dec., 1942	One Contact Torpedo dropped by aircraft	Sunk	MARIGOLD was escorting a convoy in the Mediterranean when a torpedo struck the ship in way of the asdic compartment. The structure in way of the forward mess decks was wrecked. The mast and radar hut collapsed across the bridge. The boilers collapsed inwards and considerable buckling occurred amidships. The forward 4 inch gun was blown overboard. MARIGOLD remained on an even keel and down by the bow for about 4 minutes. The ship suddenly lurched to port, heeled over at an angle of 45 degrees for about 5 minutes and finally sank by the bow.
SNAPDRAGON 19th Dec., 1942	Four Near Miss Bombs	Sunk	SNAPDRAGON, while escorting a convoy in the Mediterranean, was attacked by an enemy aircraft which dropped a stick of four bombs. One near miss dropped about 30 yards off the port quarter and two others fell very close along the port side. The after oil fuel tanks and structure in the vicinity of the wardroom were holed by splinters. A fourth near miss fell very close to the ship abreast the bridge and caused extensive damage to the structure in the vicinity. SNAPDRAGON immediately listed 15 degrees to port and slowly settled by the bows while still proceeding at 7 knots. The ship was abandoned and sank about 4 minutes after the attack.

CORVETTES - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VILLE DE QUEBEC (H.M.C.S.) 13th Jan., 1943	Rammed submarine	8 days	VILLE DE QUEBEC rammed a submarine between the conning tower and forward gun after it had been blown to the surface by a depth charge attack. The stem bar and bow plating, port and starboard of VILLE DE QUEBEC was badly buckled over the garboard strake, 'A' strake and the bottom of 'B' strake for a distance of 15 ft. The lower edge of the asdic trunk was distorted. Fighting Efficiency - Not impaired.
SAMPHIRE 30th Jan., 1943	One possibly two Contact Torpedoes fired by submarine	Sunk	SAMPHIRE was escorting a convoy at 10 knots in the Mediterranean when a torpedo struck the starboard side at the after end of the engine room. A second explosion, thought to be another torpedo, occurred aft about one minute later. SAMPHIRE settled rapidly aft and sank by the stern about 2 minutes after the first explosion.
LOUISBURG (H.M.C.S.) 6th Feb., 1943	One Contact Torpedo dropped by aircraft	Sunk	LOUISBURG was escorting a convoy in the Mediterranean when a torpedo, dropped by an enemy aircraft, struck the port side abreast the after depth charge thrower. The ship immediately listed to port and sank about 3 to 4 minutes after the explosion.
ERICA 9th Feb., 1943	One Contact Mine	Sunk	ERICA, whilst escorting a convoy in the Mediterranean, struck a mine on the port side abreast the bridge. The ship was flooded from the bows to the forward boiler room bulkhead. An extensive fire started in the boiler room and the wardroom flat. ERICA settled by the bows and sank about a quarter of an hour after striking the mine. REMARKS It was not possible to have sealed off the fire in the boiler room because of the unauthorised substitution of the steel access hatch by a wooden one to simplify the blackout arrangements.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WEYBURN (H.M.C.S.) 22nd Feb., 1943	One possibly Non-contact Mine in 70 fathoms	Sunk	WEYBURN was escorting a convoy off Cape Spartel, Gibraltar, when a mine exploded amidships on the port side. A large hole was blown in the ship's side, the upper deck was buckled and the funnel split vertically. All bulkheads in the wardroom flat were blown down. The engine room flooded quickly with oil and water. WEYBURN sank about 20 minutes after the explosion. A few seconds after the ship had disappeared a very large explosion occurred underwater and WIVERN, which was standing by, was seriously damaged.
SUNFLOWER 5th-6th May, 1943	Rammed submarine	8 days	SUNFLOWER rammed an enemy submarine whilst escorting a convoy in the North Atlantic. The stem bar was bent to starboard 140 degrees for 6 ft. above the keel, the garboard and 'A' strakes in the vicinity were distorted and fractured between the frames. Fighting Efficiency - Not seriously impaired.
POLYANTHUS 20th Sept.,1943	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	POLYANTHUS, while escorting a convoy in the North Atlantic at 10 knots, was torpedoed right aft. POLYANTHUS was attacking a submarine and was under full starboard helm when the torpedo struck. There was a possibility that the ship blew up; only one survivor was rescued.
ABELIA 9th Jan., 1944	Underwater Explosion in 2500 fathoms	2 months	ABELIA, while escorting a convoy in the North Atlantic at 14 knots, detected submarines and hunted them. During the hunting an explosion occurred about 20 yards distant fine on the starboard quarter. There was a column of water about 20 ft. high and a flash was seen below the surface. Minor structural damage was caused. Hull plating below the waterline at the after end was corrugated between the frames abreast the steering compartment and the rudder was missing. Flooding in the steering compartment, due to the loss of the rudder, was controlled. There was minor damage to steering gear and depth charge equipment. Fighting Efficiency - Seriously impaired. The ship was able to steam but unable to steer owing to the loss of the rudder, and had to be taken in tow.

CORVETTES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASPHODEL 9th March, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	ASPHODEL was escorting a convoy in the North Atlantic, at 15 knots, when a torpedo hit the ship on the starboard side aft. The stern apparently broke away and sank immediately; the forward portion settled aft and heeled rapidly to port. After the main explosion, nine other separate explosions, probably due to the depth charges, were heard. Within about 50 seconds of being hit ASPHODEL had disappeared.
ALBERNIE (H.M.C.S.) 14th June, 1944	Shell	5 days	ALBERNIE, while operating off the Normandy beaches, was fired on by shore batteries and some damage was sustained. No details are available. Fighting Efficiency - Not seriously impaired.
PINK 27th June, 1944	Probably a Contact Mine in 23 fathoms	Indeterminate Ship not repaired	PINK was operating off the Normandy beaches, at 15 knots, when a mine exploded at the after end. Stern structure in way of the steering compartment was blown away. The short portion of the upper deck remaining abaft the superstructure was blown up 2 ft. and the ship structure was severely damaged. The after bulkhead of the engine room was distorted and leaking. A deep buckle at the fore end of the engine room girthed the upper deck and ship's side to below the waterline. The rudder, propeller and tail-shaft were lost and the inboard shafting bent; the main engines and most auxiliaries were seriously damaged, the bed-plate of the main engine being fractured. Electrical equipment abaft the engine room was wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised and towed back to port.
REGINA (H.M.C.S.) 8th Aug., 1944	Probably a Torpedo fired from submarine	Sunk	REGINA was attacked while escorting a convoy in the English Channel. Evidence indicates that the ship was hit on the port side amidships near the engine room or boiler room. Survivors reported a large flash aft. The ship listed to port and sank by the stern almost immediately. After the explosion REGINA was surrounded by a cloud of smoke and spray.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ORCHIS 21st Aug., 1944	Mine	Indeterminate (Ship beached and considered a total loss)	ORCHIS was operating off the Normandy beaches at 9 knots, when a mine exploded under the starboard side of the bow which was blown off to abreast the 4 inch gun. A deep buckle crossed the deck at the after end of the boiler room. The ship was temporarily immobilised and listed heavily to port. The engine room was partially flooded but the engines were later re-started. Because of the serious damage and extensive flooding the ship eventually had to be beached.
ALBERNIE (H.M.C.S.) 21st Aug., 1944	Torpedo or Mine in 28 fathoms probably the former	Sunk	ALBERNIE was operating off the Normandy beaches at 14 knots, when an explosion occurred on the port side near the after end of the engine room. The ship listed to port, settled by the stern, and sunk in less than 30 seconds.
HURST CASTLE 1st Sept., 1944	Probably an Acoustic Homing Torpedo	Sunk	HURST CASTLE was operating off the north coast of Ireland at 14 knots, when an explosion occurred on the port side aft, probably abreast No.14 oil fuel tank. The steering compartment, after peak, engineers' workshop and store, naval store and provision room flooded immediately. The after engine room bulkhead collapsed almost immediately and the forward engine room bulkhead collapsed within one minute. The forecastle deck abreast the bridge appeared to be buckled on the port side. The steering gear from the bridge failed. The ship listed to port, settled slowly by the stern and finally sank in about 6 minutes. In sinking, the bows rose vertically and hung for some minutes with about 40 ft. above water.
SHAWINIGAN 25th Nov., 1944	Probably a Torpedo fired from submarine	Sunk	SHAWINIGAN, whilst operating south west of Newfoundland, off Duck Island, was attacked by a submarine and sunk. No further information is available.

CORVETTES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GUILLEMOT 24th Jan., 1945	Three Direct Hit and several 'Shorts' from Shell judged to have been 20 mm. Oerlikon and 30 mm. armour piercing Cannon Shell	Nil	GUILLEMOT was on patrol in the North Sea when a group of E-Boats were intercepted and attacked. Two shell hits in the vicinity of the seamens heads and another in the provision room caused minor damage. Superficial damage to amidship superstructures was caused by splinters from 'Shorts'. Fighting Efficiency - Not impaired.
DENBIGH CASTLE 13th Feb., 1945	One Torpedo probably Acoustic Homing type fired from submarine	Sunk	DENBIGH CASTLE was escorting a convoy into Kola Inlet, North Russia, at 7½ knots, when an explosion occurred at the fore end. Damage could not be accurately assessed but it was known that the bow structure at forecastle deck level, to abreast the forward 4 inch gun was wrecked or missing and that rapid flooding was occurring in most forward compartments on and below the lower deck. 2 hours 3 minutes later the ship was taken in tow, a flooding boundary having been established at the fore bulkhead of the forward boiler room. Excessive trim by the bow allowed progressive flooding into most compartments forward of the boiler room on and above the lower deck, until the forecastle was awash to abreast the bridge and the stern was high out of the water. The ship was beached 7¼ hours after the explosion but due to a sudden heavy list to port she was abandoned 1½ hours later. About 10 minutes later DENBIGH CASTLE capsized to port and slid bodily into deep water. A diver's examination of the wreck revealed that the bow structure for 27 ft. at upper deck level and for 9 ft. at keel level had dropped bodily and the forward 4 inch gun had been thrown onto the squid platform.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BLUEBELL 17th Feb., 1945	Torpedo fired from submarine	Sunk	BLUEBELL, while screening a convoy in Kola Inlet, North Russia, was torpedoed and sunk. Reports from observers on a nearby ship indicated that BLUEBELL increased speed just prior to being torpedoed, probably in an effort to attack the submarine which sank her. The torpedo appeared to have struck aft followed immediately by a heavy explosion. BLUEBELL sank in 30 seconds. Three members of the ships company were rescued of which only one survived.
VERVAIN 20th Feb., 1945	One Contact Torpedo fired from submarine	Sunk	VERVAIN, while escorting a convoy south of Ireland, was struck by a torpedo on the starboard side forward in the vicinity of the reserve feed tanks. After the explosion the bow structure forward of the 4 inch gun was missing and the foremast collapsed. Flooding was thought to have occurred back to the forward bulkhead of the boiler room. The ship was abandoned and sank by the bows with a slight list to starboard 21 minutes after the attack.
TRENTONIAN (H.M.C.S.) 22nd Feb., 1945	One Contact Torpedo fired from submarine	Sunk	TRENTONIAN was escorting a convoy off Falmouth, at 14 knots, when a torpedo struck her on the starboard side aft. Survivors evidence indicated that the torpedo hit abreast the shaft tunnel and that the after bulkhead of the engine room was split. Flooding quickly spread through the after part of the ship and within 4 minutes had reached the engine room by which time the ship was settling by the stern until finally the boiler room was flooding through the fan casings. TRENTONIAN continued to sink slowly with the bow rising vertically until she finally disappeared 10 minutes after the attack.

CORVETTES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PUFFIN 26th March,1945	Rammed Midget German Submarine	Indeterminate (Ship placed in reserve)	PUFFIN, while on patrol in the North Sea at 12½ knots rammed a midget submarine. Almost immediately afterwards a heavy explosion occurred thought to have been due to the detonation of the submarines torpedo warheads. PUFFIN was lifted bodily at the fore end whipped severely and was showered with burning oil fuel. About 13 ft. of the fore-end - from the keel to just above the lower deck - was blown away and the bow structure sagged; at the point of hinging the hull and deck plating was severely buckled. Two whipping buckles girthed the ship, one forward in the vicinity of the breakwater and the other just abaft the after bulkhead of the engine room. About 22 ft. of the fore-end was open to the sea. Leaks occurred in the forward fresh water tanks - situated abaft the flooding boundary - and in the after oil fuel tanks which were abreast the after whipping buckle. At the time of ramming, the A/S dome was in the down position; the dome was holed and the equipment damaged. The suspension of the gyro compass was broken. Fighting Efficiency - Not seriously impaired. The ship was able to return to port under her own power. The asdics and gyro compass were out of action.

SUBMARINES - 1939

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SEAHORSE 5th Sept., 1939	Near Miss Bombs	4 days	SEAHORSE was bombed while operating in the North Sea. The bombs did no damage, but slight buckling at the bottom of the stem and damage to the A/S cage and gear was caused by grounding. Fighting Efficiency - Impaired.
SPEARFISH 24th Sept.,1939	Depth Charges and Explosive Sweep	5 months	SPEARFISH, while lying on the bottom in about 15 fathoms of water, came under attack from enemy surface craft. Depth charges were heard to explode at various ranges, and a charge from an explosive sweep exploded very close to the submarine. The engine room pressure hull and frames were slightly dished and distorted. Serious H.P. air leaks occurred and the after hydroplane shaft was found to be out of line and jammed. Minor flooding which occurred was controlled. Slight machinery and electrical damage was done. Fighting Efficiency - Severely impaired. The vessel was unable to dive.
TRIUMPH 26th Dec., 1939	One Floating size unknown Contact Mine	2½ months	TRIUMPH, while proceeding on the surface at 6 knots in the North Sea, was struck by a floating mine forward on the port bow. About 18 ft. of the fore end of the submarine was blown away. Forward of 25 station, the structure was set to starboard and the pressure hull buckled. The garboard strake on the port side of the ship amidships was split. Forward of 16 bulkhead complete flooding occurred and between 16 and 25 bulkhead controlled flooding took place. No.1 battery was partially flooded. Slight electrical damage occurred. Fighting Efficiency - Severely impaired. Maximum surface speed was 9½ knots in order not to further damage the structure. The vessel was unable to dive in safety.

SUBMARINES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNDINE 7th Jan., 1940	(i) Three Depth Charges (ii) Scuttled	Sunk	UNDINE, while operating in the Heligoland Bight, was attacked by enemy trawlers. Three violent explosions lifted the submarine upwards and damaged her so badly that the fore end flooded and had to be abandoned. Serious leaks occurred in the engine room and galley. UNDINE now proved impossible to control and rose almost to the surface exposing herself to the enemy. As she was unable to dive or defend herself she was abandoned, after the main vents had been opened.
STARFISH 9th Jan., 1940	(i) Depth Charges (ii) Scuttled	Sunk	STARFISH, while operating in the Heligoland Bight, was attacked by enemy surface craft. STARFISH dived to the bottom in about 90 ft. of water and was then subjected to heavy depth charge attacks which caused serious damage. Rivets were sheared and leaks in the shell plating of the pressure hull occurred on the starboard side at the fore end. The pressure hull beneath or near the drain oil tanks in the engine room was badly damaged. The external structure was severely damaged. The engine room crank cases and the starboard forward main motor bearing were flooded and both the torpedo trenches and all the bilges were nearly full of water due to leaks. Numerous leaks occurred in the H.P. air line which was strained. After being submerged for 9 hours the generally serious conditions within the submarine made it necessary for an attempt to be made to escape on the surface during the night. The enemy craft, however, were in close proximity when STARFISH surfaced, and quickly illuminated her with searchlights. The order was given to abandon ship and STARFISH was scuttled.
SEAHORSE 10th Jan., 1940	Not known, probably Mine	Sunk	SEAHORSE was lost while operating in the Heligoland Bight. No further details available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRUANT 9th April, 1940	Depth Charges	8 days	TRUANT, while operating off Norway, torpedoed an enemy cruiser and was afterwards subjected to a depth charge attack. The submarine was at 120 ft. diving rapidly to 320 ft. when one pattern of depth charges exploded over the bow, another abreast amidships and a third over the stern. The explosion of the first charges made the fore hatch jump open and shut, admitting water. Slight structural and machinery damage occurred. Fighting Efficiency - Not impaired. REMARKS This incident emphasised the need for stops to be fitted to hatches in the pressure hull to prevent lifting during depth charge etc. attack.
THISTLE 10th April, 1940	Probably Torpedo from submarine	Sunk	THISTLE, while operating off the south west of Norway, was attacked and sunk by the German submarine U4. No other details available.
TARPON 14th April, 1940	Probably Depth Charges	Sunk	TARPON, while operating near the entrance to the Skagerrak, was attacked and sunk by enemy surface craft. No other details available.
TRUANT 25th April, 1940	Presumed Magnetic Torpedo	18 days	TRUANT, while proceeding on the surface on patrol, at 12½ knots in 35 fathoms of water, sustained a severe explosion forward on the starboard side alongside the fore casing. The submarine was severely shaken but only slight damage occurred to the structure. Several main battery containers were cracked. Torpedoes in Nos. 7 and 8 tubes sheared their securing pins and fell out of the tubes without the heads exploding. Fighting Efficiency - Impaired. Speed under water was reduced.
STERLET 18th April, 1940	Probably Depth Charges	Sunk	STERLET, while operating in the Skagerrak, was attacked and sunk by enemy surface craft. No other details available.

SUBMARINES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SEAL 5th May, 1940	Mine	Captured by enemy	SEAL, while operating in the Kattegat, struck a mine, and was apparently holed in the extreme after compartment just abaft the crew space. The mining took place at 90 ft. causing flooding aft to 129 bulkhead. Due to this flooding SEAL bottomed in 200 ft. of water and it required 4 hours of sustained effort before the vessel would rise. Exact details of the damage sustained are not available. SEAL was towed away by the Germans with the water up to the conning tower level.
TAKU 8th May, 1940	Twenty-nine Depth Charges	2 days	TAKU, after attacking some enemy ships with torpedoes, was severely depth charged. Little internal damage was caused. The forward D.S.E.A. hatch was lifted slightly and leaked, and two depth gauges were damaged. Fighting Efficiency - Not seriously impaired.
OLYMPUS May, 1940	Near Miss Bombs	Uncertain	OLYMPUS was damaged by near miss bombs while lying in Malta Dockyard. The damage was not severe, being caused mainly by splinters.
GRAMPUS 24th June, 1940	Not Known	Sunk	GRAMPUS was lost while operating in the Mediterranean off Augusta, Sicily. No further information available.
ODIN 14th June, 1940	Torpedo and Gunfire	Sunk	ODIN was sunk in the Gulf of Taranto by torpedo and gunfire from Italian surface craft. No further details available.
ORPHEUS 27th June, 1940	Probably Torpedo fired from submarine	Sunk	ORPHEUS was probably torpedoed by an Italian submarine between Malta and Alexandria. No further details available.
SEALION 3rd July, 1940	Thirty four Depth Charges	Nil	SEALION, while operating in the Skagerrak, was depth charged by aircraft and surface craft when submerged at 30-60 ft. The asdic set was put out of action and the hydrophones damaged. Flooding, which took place through a leaking stern gland, was controlled by removing the water from the after bilges to the engine room by means of buckets. Fighting Efficiency - Not seriously impaired. The submarine continued on patrol.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SEALION 4th July, 1940	Two Near Miss delay action fuzed Bombs	Nil	SEALION, while operating off Skudesnes, was attacked by aircraft when submerged at 40 ft. Two bombs were dropped, one amidships on the starboard side and one on the port quarter. The explosion of the bombs caused temporary failure of the steering gear, hydroplanes, compass and lighting. A few air leaks were started. Fighting Efficiency - Not seriously impaired. The submarine continued on patrol.
SHARK 6th July, 1940	Probably Depth Charges	Sunk	SHARK was heavily attacked and damaged by German forces off Skudesnes, and was finally scuttled. No further details available.
OLYMPUS 7th July, 1940	One Direct Hit size unknown direct action fuzed Bomb	Uncertain, damaged whilst undergoing repairs	OLYMPUS, while in No.3 Dock at Malta Dockyard, was struck by a bomb during an air raid. The bomb made a hole in the pressure hull starboard abreast the after torpedo hatch. Machinery and electrical equipment were slightly damaged. Fighting Efficiency - Severely impaired.
SALMON 9th July, 1940	Mine	Sunk	SALMON was mined and sunk in the North Sea off South Norway. No further details available.
PHEONIX 21st July, 1940	Not known	Sunk	PHEONIX was lost while operating off the Sicilian coast. No details are available.
NARWHAL 1st Aug., 1940	Not known	Sunk	NARWHAL was lost probably off Trondheim, Norway. No details are available.
OSWALD 1st Aug., 1940	Rammed by destroyer	Sunk	OSWALD, while operating 10 miles south east of Spartivento Bay (Calabria), was rammed and sunk by an Italian destroyer. No further details available.
SPEARFISH 3rd Aug., 1940	Torpedo	Sunk	SPEARFISH, while operating off Stavanger, Norway, was torpedoed by a U-boat and sunk. No further details available.

SUBMARINES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
THAMES 24th July, 1940 approx.	Probably Mine	Sunk	THAMES, while proceeding to her patrol area, is believed to have crossed a new minefield and was probably mined and sunk.
SEALION 6th Aug., 1940	Rammed by Merchant Ship	Uncertain	SEALION, while attacking an enemy convoy, was rammed by a merchant vessel. No damage occurred to the main structure but the periscope standards were carried away. Fighting Efficiency - Impaired.
H.50 31st Aug., 1940 - 4th Sept., 1940	Underwater Explosions and contact with E-boat	Uncertain	H.50, during the period stated, experienced some underwater explosions and was in contact with an enemy E-boat. One engine was put out of action. No further details available. Fighting Efficiency - Impaired.
OLYMPUS 7th Sept., 1940	One Near Miss Bomb	Nil damaged whilst undergoing repairs	OLYMPUS, while in No.3 Dock at Malta Dockyard, sustained a near miss bomb which fell on the west side of the dock abreast the bridge. The plating of the bridge screen, periscope standards and gun mounting and platform were slightly damaged by splinters and falling masonry. The electrical circuits and leads on the upper deck and bridge were damaged. Fighting Efficiency - Slightly impaired.
RAINBOW 13th Oct., 1940	Shells	Sunk	RAINBOW, while operating off Calabria, Italy, was sunk by gunfire from an Italian submarine.
REGENT 5-9th Oct.,1940	Depth Charges and Collision	1 month	REGENT, while operating in the South Adriatic, came in collision with a caique and sustained damage to the foremost hydroplanes. Later REGENT attacked an enemy convoy and was then severely depth charged causing damage to Y and Z tanks. 8 days after the collision with the caique the starboard foremost hydroplane dropped off on surfacing. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRIAD 20th Oct., 1940	Not known	Sunk	TRIAD was sunk whilst operating off Calabria, Italy. Further details are not known.
H.49 18th Oct., 1940	Depth Charges	Sunk	H.49, while operating off the Dutch Coast, was attacked by enemy surface craft and sunk with depth charges. No further details available.
L.27 5th Nov., 1940	Underwater explosion	2½ months	L.27 was damaged by an underwater explosion. The periscope standards, gun and bridge were wrecked. Fighting Efficiency - Impaired.
SWORDFISH 16th Nov., 1940	Not known	Sunk	SWORDFISH was lost whilst operating off Ushant, from an unknown cause. There is nothing to suggest loss from surface craft or aircraft and no mines had been laid in the area.
REGULUS 6th Nov., 1940 approx.	Not known perhaps Bombs	Sunk	REGULUS, while operating in the Straits of Otranto, was sunk. The cause of sinking is unknown, although the Italians claimed to have sunk a submarine by bombing on the 26th November, 1940, off Loremba.
THUNDERBOLT 17th Dec., 1940	Probably Explosive Sweep	Nil	THUNDERBOLT, after attacking an enemy force in the Bay of Biscay, near the Gironde estuary, was hunted by the enemy, and sustained superficial damage from what was probably an explosive sweep. No.1 battery hull valve leaked and the jumping wire was severed right aft. The main aerial was carried away and the loop aerial damaged. A W/T deck tube was broken. Fighting Efficiency - Not impaired.
TRITON 18th Dec., 1940	Not known probably Mine	Sunk	TRITON was lost while operating in the South Adriatic Sea. No further details available.

SUBMARINES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROVER 7th Jan., 1941	Not known perhaps Torpedo	13 days	ROVER, after an attack on the enemy in the Mediterranean, suffered a violent explosion near the hull and possibly immediately above. It was afterwards thought to have been an enemy torpedo. Severe damage occurred to the batteries, fifty one cells being cracked. A deck tube insulator was cracked and the deck tube flooded. Slight electrical damage occurred and two firing reservoir gauges forward were broken. The chain of the foreplane handgear was thrown off. Fighting Efficiency - Impaired.
SNAPPER 13th Feb., 1941	Probably Mine	Sunk	SNAPPER was lost while operating in the Bay of Biscay. No further details available.
REGENT 22nd April, 1941	Six Near Miss size unknown delay action fuzed Bombs Machine gun and small fragmentation Bombs	2 weeks	REGENT, while in Kotor Harbour, was bombed and machine gunned by Italian aircraft. Six bombs were dropped within 15 ft. of the hull, one of them being only about 3 ft. from the hull, abreast the fore hatch. Afterwards the planes dropped some small bombs which exploded about bridge height, throwing out shrapnel and what appeared to be explosive bullets. The submarine was severely shaken but suffered no structural damage. On arrival at Malta 117 battery containers were found to be cracked. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROVER 24th April, 1941	One Near Miss probably 1000 lbs. delay action fuzed Bomb	3 years including refit	ROVER was lying alongside the port side of YORK in Suda Bay, Crete, when she sustained a near miss bomb which fell about 20 to 30 ft. from the port side of the engine room. The submarine was lifted bodily and settled with a list of 7 degrees and slightly down by the stern. The external plating of Nos.4, 5 and 6 port main ballast tanks was destroyed and other tanks leaked. The pressure hull was strained and leaked in places, especially on the starboard forward side of the engine room where an internal buttstrap was forced $\frac{1}{4}$ inch away from the pressure hull. The portable plate over the forward end of the engine room was forced about $\frac{1}{8}$ inch off the pressure hull in places, most of the bolts on the athwartship line having their heads completely sheared off. In two places in way of the portable plate the pressure hull was fractured from the corner of the aperture to the nearest bolt holes. Severe damage occurred to the main battery but a fire which started in No.3 battery was soon extinguished. It was found however that this fire would restart when the intakes were opened. Acid started wood fires in all three sections of the battery. The gun mounting was badly damaged. The main motors appeared to be undamaged. Fighting Efficiency - Severely impaired. The vessel was towed to port, as, with the battery shattered, it was not possible to proceed under her own power.
USK 3rd May, 1941	Probably Mine	Sunk	USK was lost while operating off Cape Bon, Tunisia, probably having been mined. No further details available.
UNDAUNTED 13th May, 1941	Probably Depth Charge	Sunk	UNDAUNTED was probably sunk by enemy surface craft whilst operating off Tripoli. No further details available.

SUBMARINES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
P.32 (U Class) 31st May, 1941	Number unknown Near Miss delay action fuzed Bombs	Nil	P.32, when attacked by an enemy aircraft, dived and was at 70 ft. when the bombs appeared to fall in a line along the length of the submarine on the port side and exploded at an unknown depth. The engine room and D.S.E.A. hatches lifted momentarily and let in a small quantity of water. Some rivets in the torpedo stowage compartment on top of the pressure hull were strained and a leakage occurred. The after hydroplanes jammed at first, then would only work sluggishly. Owing to the steering motor starting switch falling off the steering wheel jammed. Slight damage occurred to electrical circuits, and about 35 containers in the main battery were found to be cracked. The asdic dome was slightly damaged. Fighting Efficiency - Impaired.
TRIUMPH 5th July, 1941	One Shell from shore battery	5 weeks	TRIUMPH was on the surface engaging an enemy merchant ship, near Ras Tayones on the Libyan coast, when she was shelled by a shore battery. One shell hit right forward on the starboard side, holing No.1 main ballast tank on the waterline. Damage occurred inside the tank to Nos.1 to 5 torpedo tube vent and drain pipes, No.1 L.P. Blow pipe and No.3 Bow Cap operating gear. Fighting Efficiency - Impaired.
P.33 (U Class) 15th July, 1941	Depth Charges	Uncertain	P.33, after attacking some enemy vessels, was heavily counter attacked with depth charges. The attack forced the submarine to a maximum depth of 310 ft. and major leaks developed in the fore hatch tunnel through loose rivets, in the bulkhead of No.6 Main Ballast in the way of the after plane operating gear, and at 4 Main Vent pad piece. The steering motor became flooded. Other damage was of a minor nature only. Fighting Efficiency - Impaired.
UNION 22nd July, 1941	Not known perhaps Mine or Depth Charges	Sunk	UNION was sunk while on the Pantelleria, Lampedusa and Tunis area patrol. Italian reports, which were based on strong circumstantial evidence, suggest that she was sunk by Italian surface craft, but mining is suspected.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
OLYMPUS 31st July, 1941	Bombs	10 weeks	OLYMPUS was proceeding at periscope depth when she was bombed by an enemy aircraft which dropped a stick of bombs right on top of the submarine. Many rivets were strained and at least twelve tanks were leaking. The engine room hatch cover plate leaked. About 70 containers in Nos. 2 and 3 batteries were cracked. The Sperry, diving compass, main motor rheostats and all eversheds were put out of action. A W/T deck insulator was broken. Fighting Efficiency - Impaired.
CACHALOT 1st Aug., 1941	Rammed	Sunk	CACHALOT, while operating off the coast of Syrenaica, was rammed and sunk by an Italian destroyer. No further details available.
UNIQUE 20th Aug., 1941	Near Miss delay action fuzed Bombs	Nil	UNIQUE, after attacking an enemy convoy off Tripoli, was bombed whilst at 60 ft. depth. The bombs seemed to burst below the submarine, one on the port beam and one on the port quarter, and the vessel was considerably shaken. An oil fuel leak developed from the forward group of fuel tanks. Leaks occurred in 4 and 5 main ballast tanks and in "O" compensating tanks. The main aerial was damaged. Fighting Efficiency - Impaired. The submarine had to return to port owing to the oil fuel leak leaving a track on the surface.
P.32 (U Class) 18th Aug., 1941 approx.	Probably Mine	Sunk	P.32 sank whilst operating off Tripoli after apparently hitting a mine. The whole of the fore end of the submarine up to the control room crew space watertight door was flooded. She lay on the bottom in 200 ft. of water with a 7° list to port and could not surface. No.2 main battery started to give off chlorine gas rather badly. Some escapes were then made via the conning tower.
P.33 (U Class) 20th Aug., 1941 approx.	Probably Mine	Sunk	P.33 was probably mined whilst operating off Tripoli, Libya. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SUNFISH 2nd Oct., 1941 D.N.C.4B/R99	One Near Miss 250 kgm Bomb	22½ months	SUNFISH, while berthed starboard side to the north wall of the Albert Edward Dock, River Tyne, was damaged by a near miss bomb which exploded 50 ft. from the jetty abreast the fore hatch of the submarine. The external plating on the port side was badly set in between the frames from the bow back to the position of No.5 oil fuel tank. The plating in way of fuel tanks however sustained little or no damage. The garboard strakes over the same length, port and starboard, were pressed in about 1½ to 2 inches except in way of No.1 oil fuel tank. Several frames forward of the magazine to the bow were distorted. A buckle was caused in the submarine in the neighbourhood of the gun access trunk. The port external ballast tanks were badly damaged while the starboard ones were slightly damaged. W.T. doors in the tube compartment would not close satisfactorily. The main engines dropped about ⅜ inch owing to shearing of the securing bolts. The main thrust block covers were distorted. The auxiliary machinery was slightly damaged. The main motors jammed and the forward hydroplane motor was unusable owing to a broken end bracket. All main battery containers and covers were cracked or broken. Widespread damage of a minor nature occurred in various compartments. The gun bearing was fractured and torpedo tubes were out of action. Fighting Efficiency - Seriously impaired. At sea the ship would have been immobilised, armament out of action and inside of hull untenable due to heat and presence of chlorine.
TETRARCH 26th Oct., 1941 - 2nd Nov.,1941	Not known	Sunk	TETRARCH was lost in the Western Mediterranean when on passage from Malta to Gibraltar. The cause of the loss is unknown.
PERSEUS 11th Dec., 1941	Mine	Sunk	PERSEUS was mined and sunk 7 miles north of Zante, Greece. No further information available.
H.31 24th Dec., 1941	Probably Mine	Sunk	H.31 was presumed to have been mined whilst operating in the Bay of Biscay. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
P.31 7th Jan., 1942	One Near Miss Bomb	4 weeks including refit	P.31 was in No.1 dock at Malta Dockyard when a bomb, dropped by an enemy aircraft exploded on the dockside. The pressure hull was pierced by splinters in about 20 places, the holes being small. Minor damage occurred to pipe and electrical systems. The after hydroplane ram was badly damaged. Fighting Efficiency - Seriously impaired.
TRIUMPH 30th Dec., 1941 - 9th Jan.,1942	Probably Mine	Sunk	TRIUMPH was sunk, probably by a mine, in the Aegean Sea. No further details are available.
UNBEATEN 20th Jan., 1942	Machine gun and Cannon fire	Nil	UNBEATEN was attacked by an enemy aircraft and the conning tower was hit by machine gun and cannon fire, causing superficial damage. Fighting Efficiency - Unimpaired.
PROTEUS 8th Feb., 1942	Rammed by destroyer	Nil	PROTEUS, while operating off the south west corner of Leukas, or Santa Maura, was attacked by an enemy destroyer. Turning to minimize a ram the submarine passed a few feet from the destroyer on exactly opposite courses. The port hydroplane was struck by the destroyer and snapped off, while the starboard one would not work after the blow. Fighting Efficiency - Impaired.
TEMPEST 13th Feb., 1942	Depth Charges	Sunk	TEMPEST was sunk by an Italian destroyer in the Gulf of Taranto as a result of a prolonged and accurate depth charge attack lasting about seven hours. The asdic and hydrophones were out of action, depth gauges smashed, starboard foreplane out of action, the switchboard came off mounting, the battery was badly damaged and the ship filled with gas. The main line H.P. line telemotor system was satisfactory and the hull undamaged. On the order to abandon ship the motors were left running and vents opened. The motors may have been damaged.

SUBMARINES - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
P.38 8th Feb., 1942 - 25th Feb.,1942	Possibly Mine	Sunk	P.38 was lost, possibly mined, whilst operating in the Gulf of Hammamet. No further details are available.
TORBAY 2nd March, 1942	Eighteen Depth Charges	Nil	TORBAY was attacked in the Mediterranean by an enemy surface vessel which dropped depth charges, most of them close to the submarine. The submarine was severely shaken, but no serious damage occurred. Electrical fittings suffered very minor damage and some gauges were upset. Fighting Efficiency - Not impaired.
UPRIGHT 3rd March, 1942	Near Miss Bomb	2 weeks	UPRIGHT, whilst at Malta Dockyard, sustained slight damage from a near miss bomb. Fighting Efficiency - Impaired.
P.39 (U Class) 6th March, 1942	Bomb (whilst undergoing repairs)	Nil see *	P.39 was attacked during an air raid on Malta. Some internal damage was caused and the torpedo tubes were put out of alignment. The batteries were damaged. Fighting Efficiency - Impaired.
P.36 (U Class) 6th March, 1942	Bomb (whilst undergoing repairs)	Nil see ≠	P.36 was attacked during an air raid on Malta. One perforation and one dent occurred in the pressure hull above the waterline. Both periscopes sustained damage. Fighting Efficiency - Impaired.
P.39 (U Class) 26th March, 1942	One Bomb	Beached *	P.39, during an enemy air attack on Malta, was damaged when a bomb fell and exploded under her. The submarine was split athwartships between 53-54 stations. The watertight doors held and only the P.O's and E.R.A's living space were flooded. P.39 was beached and fittings aboard utilised for other vessels. Later the beached vessel was bombed, receiving further damage.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNBEATEN 1st April, 1942	One Bomb	5 months including refit	UNBEATEN, while at Malta, during an air raid, was damaged by a bomb which fell about 15 yards from the submarine on the starboard bow. The damage to the hull plating was confined to the starboard side as far aft as the cable locker approximately. The flat keel plate was badly dented in one position and the plates at the fore end of A, B and C strakes were badly wrinkled between every frame to a maximum depth of $2\frac{3}{4}$ inches. The plating in way of the torpedo hatch was slightly flattened. Only very slight indentations were made on the port side plating. Framing in way of the torpedo tube compartment was found to be tripped and buckled both above and below the flat. The forward hydroplanes were found to be stiff to work. Minor damage occurred to the main battery. No.3 bow cap was leaking badly. Fighting Efficiency - Impaired.
P.36 (U Class) 1st April, 1942	Bombs	Sunk	P.36 was bombed and sunk in Marsamxett Harbour, Malta, during an enemy air raid. No further details available.
PANDORA 1st April, 1942	Bombs	Sunk	PANDORA, while lying at Hamilton Wharf, Malta, was bombed and sunk. No further details available.
P.34 (U Class) 12th April,1942	Mine	Nil	P.34, while operating south of the Gulf of Taranto, sustained a violent explosion, almost certainly due to a mine, on the starboard side aft. The explosion blew the submarine to the surface. The pressure hull on the starboard side aft was indented over a length of about 22 ft. The fore hatch lifted and admitted a considerable quantity of water. All top stops and spring catches on the torpedo tubes were jammed. Damage occurred to electric light circuits, gauges and ammeters and a container in No.2 battery section was cracked. The after compressor sump was fractured. Fighting Efficiency - Impaired.

SUBMARINES - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UPHOLDER 14th April, 1942	Probably Depth Charges	Sunk	UPHOLDER was probably sunk by Italian surface craft while attacking a convoy in the Gulf of Tripoli. No further details available.
URGE 27th April, 1942 -6th May, 1942	Probably Mine	Sunk	URGE was lost in the Eastern Mediterranean, probably due to mines. No further details available.
OLYMPUS 8th May, 1942	Mine	Sunk	OLYMPUS was sunk by a mine, off the Grand Harbour, Malta. No further details available.
THORN 29th July, 1942 -11th Aug., 1942	Probably Mine	Sunk	THORN, while operating off Libya, in the Eastern Mediterranean was sunk probably due to a mine. No further details available.
PORPOISE 19th Aug., 1942	Twenty-seven Depth Charges	3 weeks	PORPOISE, while operating in the Eastern Mediterranean, was severely depth charged by an enemy destroyer. All main ballast tanks with the exception of No.1 suffered damaged from strained rivets and small cracks along the seams. A small pressure hull leak was found along the strap in the way of the after fresh water tank. All main vents were leaking. Most of the telemotor operated kingstons were defective. The main battery was severely damaged in all three sections, 226 containers in all being broken. Fighting Efficiency - Severely impaired. Owing to lack of electrical current the submarine could not dive.
TALISMAN 18th Sept.,1942	Depth Charges	Sunk	TALISMAN, while operating off Marittimo, Sicily, was depth charged and sunk by enemy surface craft. No further details available.
P.34 September, 1942	Depth Charges	Nil	P.34 was heavily depth charged, one pattern of charges straddling the vessel. The stern glands leaked and main motor bilges started to fill. The asdic and wireless transmitters were temporarily put out of action. Minor internal damage occurred. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNBROKEN 19th Oct., 1942	Twenty Depth Charges	3 weeks	UNBROKEN, after attacking an enemy convoy, was heavily depth charged by enemy destroyers. Electrical equipment and the main batteries were damaged by the explosions. All main lighting was smashed. The after hydroplanes were out of line and out of action. Depth gauges not shut off were smashed. Fighting Efficiency - Impaired. The patrol was abandoned owing to the gassing of battery, voltage drop and other damage.
UNIQUE Sometime after 9th Oct., 1942	Not known	Sunk	UNIQUE was reported off the Scillies on her way to Gibraltar on 9th October. No further news of her was received and the cause of sinking is unknown.
THRASHER 25th Oct., 1942	Thirty Depth Charges	Nil	THRASHER, after attacking an enemy liner, was attacked, with depth charges, by the escort. No serious damaged occurred, but lights were broken, glands leaked and Nos.4 and 5 starboard L.P. tanksides were blown off their seatings, flooding the L.P. line. Fighting Efficiency - Slightly impaired.
TRIBUNE 22nd Nov.,1942	Depth Charges	1 month	TRIBUNE was attacked by an enemy destroyer near Bocca Piccola. Many depth charges were dropped, some of them very close. After the attack a number of rivets in Nos.3 and 4 Port Main Ballast tanks, 'O' Port and Starboard compensating tanks and 'Q' quick diving tanks were found to be leaking. The H.P. air and telemotor system developed numerous leaks. Electrical equipment suffered damage from shock. Fighting Efficiency - Impaired.
UTMOST 24th Nov.,1942	Depth Charges	Sunk	UTMOST, while operating south west of Marettimo Island, was sunk by an Italian Patrol craft. No further details available.
TRAVELLER 8th Dec., 1942 approx.	Probably Depth Charges	Sunk	TRAVELLER was sunk, whilst operating in the Gulf of Taranto, by Italian surface craft. No further information available.
P.222 12th Dec., 1942	Probably Depth Charges	Sunk	P.222 was sunk whilst operating off Naples probably by depth charges from surface craft. No further information available.

SUBMARINES - 1942/43

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SERAPH 28th Dec., 1942	Ramming	2 months approx.	SERAPH, while engaged in operations off North Africa, rammed an enemy submarine. The stem was damaged by the blow. No further details are available. Fighting Efficiency - Impaired.
P.48 25th Dec., 1942 approx.	Probably Depth Charges	Sunk	P.48, while operating in the Gulf of Tunis was sunk, probably by Italian surface craft. No further details available.
URSULA 30th Dec., 1942	Rammed by enemy	Nil	URSULA, while attacking an enemy convoy, was at 29 ft. submerging, when one of the enemy vessels passed over the submarine and struck it a slight blow on the periscope standards and bridge. Both standards were snapped and the periscopes were bent at the top to about 35 degrees. Superficial damage occurred to the bridge. The upper telegraphs were broken and part of the jumping wire carried away. Fighting Effficiency - Impaired.
P.311 30th Dec., 1942 -8th Jan., 1943	Probably Mine	Sunk	P.311 was lost whilst operating off Maddalena, Sardinia. The cause is unknown but was probably a mine. No further details available.
TIGRIS 6th March, 1943 -10th March, 1943	Not known	Sunk	TIGRIS was lost from an unknown cause whilst operating in the Gulf of Naples. No further details are available.
THUNDERBOLT 13th March, 1943	Depth Charges	Sunk	THUNDERBOLT was depth charged and sunk whilst operating off Cape Milazzo Sicily. No further details are available.
TURBULENT 17th March, 1943 approx.	Probably Mine	Sunk	TURBULENT was lost while operating off Maddalena, Sardinia. The caused was probably a mine. No further details are available.
REGENT 16th April, 1943	Probably Depth Charges	Sunk	REGENT was sunk in the Straits of Otranto by Italian surface craft. No further details are available.