

C A B L E S H I P S U M M A R Y

Cablesips owned by the British Post Office had the prefix HMTS until 1-Oct-1969 when the B.P.O. ceased to be a department of the British Government and became a public corporation. After this time the prefix was C.S. (Cablesip).

NOTE. ALL SHIPS PHOTOGRAPHS WRONGLY OMITTED IN THIS ~~SECTION~~ (13 IN ALL)

Monarch (1)
built 1830
I
I
I
1870

Monarch (2)
1883
I
I
I
I
1915
note 1

Alert (1)
1890
I
I
1915
note 2

Iris (1)
1902 note 5.
I
I
I
1929

Monarch (3)
1916
I
I
I
I
1945
notes 3 & 4

Alert (2)
1918
I
I
I
1945
note 6

Iris (2)
1940
I
I
I
I
I
I
I
I
I
1976

Ariel
1939
I
I
I
I
I
I
I
I
I
1975

Monarch (4)
1946
I
I
I
I
1970

Alert (3)
1946, note 7
I
I
1960
Alert (4)
1961
I
I

Monarch (5)
1975
I
I
I
I

Iris (3)
1976
I
I
I

still in service 1985

Notes

1. Sunk outside Folkestone Harbour 1915.
2. Sold, unfit for further use.
3. Shelled and severely damaged by U.S. Navy 1944.
4. Mined and sunk off Southwold 1945.
5. Bore the prefix HMTS and spent all its life in the Pacific under the Pacific Cable Board.
6. Torpedoed and sunk 1945.
7. Ex-Norderney.

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In this appendix each cables^hip employed by the P.O./B.T.I. is considered in turn and details of size etc. are listed.

Propulsion	Steam, Paddles.
Horse power	130.
Service Speed	Just over 7 knots.
Cable stowage	Fore and main holds.

Cables^hip Monarch (1).

She was built at Thornton-on-Tees in 1830, and was purchased by the International Telegraph Co. in 1853. Transferred to the Post Office on acquisition by the Crown of the Electric and International Telegraph Co. on 29-Jan-1870.

Length, breadth, and depth not known for certain as she was modified soon after the International Telegraph Co. bought her. The first bow sheave was three foot in diameter and supported on timber joists. Both holds were cleared of all obstructions and relined to form smooth walled containers for the cables.

Deadweight 512 tons.

Complement (1870), in Mr. Webbs memoirs, he mentions a total of 9 officers and 28 men, not including cable staff or the testing officers. However at the Transfer date it is stated that 6 officers and 20 men were accepted to man the ship for the Post Office, the cable tester, engineer and two names now well remembered in the old telegraph service; Mr. David Lumsden who was the scientific assistant to Mr. Varley then the Engineer-in-Chief to the Electric and International Telegraph Company. Mr. Lumsden was appointed Electrician and Submarine Superintendent to the Post Office on the transfer of telegraphs. The other man was Mr. William R. Culley who sailed on the Monarch under Mr. Lumsden.

H.M. Telegraph Ship Monarch (2).

Builders: D & J Dunlop & Company, Inch Works, Port Glasgow, 1883.

Description: Iron, screw steamship for carrying, laying, and repairing telegraph cables.

Length	= 240 ft.
Breadth	= 33 ft. 2 ins.
Depth	= 20 ft.
Draught, loaded	= 15 ft. 6 ins.
Displacement, loaded	= 2,172 tons
Deadweight tonnage (i.e. the maximum cargo load)	= 720 tons.
Gross tonnage	= 1021.6 tons (or 1348 tons builders measurements).
Propulsion	= Steam, single screw.
Engine	= Compound, inverted cylinder.
Cylinder diameters, high pressure	= 30 ins.
low pressure	= 58 ins.
Boilers, main	= 2, each 14 ft. diameter by 9 ft. 4 ins. long
Boiler, Auxiliary	= 1, 9 ft. diameter by 8 ft. 4 ins. long.
Coal Capacity	= 240 tons.
Indicated Horsepower at 66 r.p.m.	= 1025.
Service speed	= 10 knots (used 10 tons coal /day at this speed).
Cable tanks, No. 1.	= 28 ft. dia. by 5 ft. high, = 3890 cu. ft.

No. 2. = 28 ft. dia. by 10 ft. high, = 6,600 cu. ft.
 No. 3. = 25 ft. dia. by 5 ft. high, = 2,730 cu. ft.

Cable machinery, Combined picking-up and paying-out gear made by Johnson & Phillips, powered by a steam engine of 150 horsepower at 80 lbs./sq. in.

Signal letters = GWLK

Complement (1883): Officers 9, ratings 36, plus cable staff of about 30.

Lost by enemy action off Folkestone, 8-Sept-1915.

H.M. Telegraph Ship Monarch (3)

Builders: Messrs. Swan, Hunter, and Wigham Richardson Ltd. 1916.

Description, Triple expansion steamship, twin screw.

Length = 222.7 ft.

Breadth = 32.2 ft.

Depth = 19.1 ft.

Gross tonnage = 1,150 tons

Propulsion = Steam, twin screw

Coal capacity = 255 tons

Service speed = 11 knots

Cable tanks, No. 1. = 17 ft. dia. by 5 ft. 6 ins. high = 1,170 cu. ft.

No. 2. = 23 ft. dia. by 11 ft. 6 ins. high = 4,110 cu. ft.

No. 3. = 23 ft. dia. with a capacity of 4,440 cu. ft.

Cable machinery, combined picking-up and paying-out machine made by the Telegraph Construction and Maintenance Company. A load of 26 tons at $\frac{3}{4}$ knot or 6 tons at $3\frac{3}{4}$ knots could be sustained by the cable gear which consisted of two independent combined paying-out and picking-up machines mounted on the main deck with their drums facing inboard. Control of the machines was from the awning deck where dynamometers were provided for each machine. There were no stern paying out facilities. Two bow sheaves were fitted as she was primarily a repair ship.

Complement, her normal complement was 65 officers and men.

In 1944 she was shelled by mistake by USS Plunkett killing her Commander, Chief Officer, and a Seaman cable-hand, whilst seriously wounding 13 other members of her complement.

After repairs she put to sea again only to be mined off Southwold in 1945.

H.M. Telegraph Ship Monarch (4)

Builders: Messrs. Swan, Hunter, and Wigham Richardson Ltd. at Neptune Yard, Walker-on-Tyne, 1946.

Description, Twin screws, Triple expansion, 4,500 b.h.p. giving $14\frac{1}{2}$ knots. From the time she was built until 1962 she was the biggest cables ship in the world.

Length = 479 ft. 9 ins. overall.

Breadth = 55 ft. 6 ins.

Draught when loaded = 27 ft. 10 ins.

Deadweight (maximum load she could carry as cargo) = 8,950 tons

Gross tonnage = 8,431 tons

Engine = Triple expansion

Cylinder diameters, high pressure = 21 ins.

Intermediate pressure = 35 ins.

Low pressure = 60 ins.

The cylinders had a common stroke of 39 ins. and developed about 4,500 h.p. at 110 r.p.m.

Oil bunker capacity = 2000 tons

Feed water capacity = 400 tons

Fresh water capacity = 400 tons.

Speed = 14½ knots

Boilers = 4 main boilers 15 ft. diameter, 11 ft. 6 ins. long and worked at 220 lbs/sq. ins. A Cochran vertical boiler worked at 110 lbs/sq. ins. was fitted for heating purposes when in port. All boilers were oil fired on White's system.

Cable tanks = 4, each 41 ft. diameter, total volume of the four tanks was 170,000 cu. ft. When loaded with deep-sea coaxial cable and repeaters the capacity was of the order of 1,500 nm. of lightweight cable. Repeaters were stacked on the shelter deck in the centrecastle with bight of cable issuing from the cable tanks.

Cable machinery, this was all electrically driven, a double paying-out and picking-up machine forward, and a paying-out machine aft. The ship had many modifications in her lifetime to meet the demands made upon her but the following describes her in 1968. The forward gear was capable of sustaining a load of 26 tons at ¾ knot or 6½ tons at 3 knots. Drums of 6 ft. 10 ins. diameter were fitted to the two forward machines. For paying out astern a multiple V-sheave laying gear was installed. A trough stretched from the repeater storage position to the stern sheave and in this trough the repeaters travelled on a trolley (the repeater laying procedure is explained in chapter 12). The Bow sheaves consisted of a three sheave arrangement, the port one was 6 ft. 10 ins diameter with a flat profile. The other two sheaves were 6 ft. diameter and of the usual V shape. A 7 ft.

diameter stern sheave was fitted on the port side.

The vessel was provided with means whereby the helm and engine could be controlled from the bow or stern through telegraphs.

The test room had facilities for normal D.C. testing, and elaborate A.C. testing. When laying the Transatlantic Telephone cable in 1956 she was fitted with the most advanced coaxial testing equipment ever used on a cables ship, as well as facilities for testing the equalisers to be adjusted on board ship. Specialists from the Post Office Research Station also travelled on her during this cable lay and carried out the calculations needed to set up the variable equalisers and to work under "Clean room" conditions to adjust these items.

For many years this cables ship led the world in new ideas, many developed by the Post Office Research Station and some brought into being by her officers and crew. The advent of lightweight cable and advanced repeater design demanded much more attention in their handling and laying and this vessel had many modifications made to her to solve these problems. By the early 1960s other countries realised the need for cable-layers based on the Monarch's standard, so competition for cable contracts to lay long cables became fierce, on 13-October-1970 she was sold to Cable & Wireless and renamed "Sentinel" (2).

Cable Ship Monarch (5)

Builder: Robb Caledon Shipbuilders Ltd., Dundee, 1975

Description: Geared diesel, twin screws.

Length overall = 319 ft.

Breadth, extreme = 49 ft. 4 ins.

Draught, loaded = 18 ft.

Draught, unloaded = 10 ft. 9 ins.

Gross tonnage = 3,873. 71 tons

Displacement tonnage = 4,578 tons

Deadweight tonnage = 2,117 tons

Main propulsion = 2 diesel engines, each 2,600 b.h.p., controllable pitch propellers.

Transverse Thrust = Pleuger bow thruster, 375 h.p., thrust 4.82 tons.

Active rudder = 300 h.p., thrust 4.23 tons.

Bollard pull = 41.34 tons

Cable machinery, Bow sheaves diameter = 9 ft. 10 ins.

Forward cable engine:

Drum diameter = 9 ft. 10 ins.

Port engine maximum force = 30. 5 tons.

Starboard engine maximum force = 30. 5 tons.

Hydraulic fleeting knives.

Draw off/hold back gear:

Port = 3 pair linear cable engine

Starboard = 3 pair linear cable engine.

Fuel = Capacity 325 tons.

Normal speed = 15 knots

Range = 5,500 nm.

Cable tanks, main = 4, each 20 ft. diameter, designed to take loaded pans of cable. A cylindrical spigot is fitted in each main tank and has a diameter of 3 ft. designed to fit the pans.

Cable tanks, auxiliary = 6, 3 to each side of the vessel, the two tanks fitted forward are 14.5 ft. in diameter, the two central tanks 16 ft. and the aft tanks are 15 ft.

Complement = officers: 15

Ratings: 49

Call sign = GUWD

H.M. Telegraph Ship Alert (1).

Builders: A. McMillan and Son, Dumbarton, 1871.

Description: Paddle Steamer, built of iron.

Note: Purchased in 1880 for the Submarine Telegraph Company and renamed after the wife of the Chairman of the Company. Taken over by the Post Office in 1889 and renamed the Alert.

Length = 162 ft. 10 ins.
 Breadth, extreme = 25 ft. 4 ins.
 Draught, loaded = 10 ft. 6 ins.
 Displacement = 760 tons
 Gross Tonnage = 369 tons
 Propulsion = Steam, paddles.
 Engine = Diagonal oscillating, made by J. J. Thomson of Glasgow.
 Cylinders = 40ins. diameter, with a 4 ft. stroke.
 Horse power = 165.
 Coal capacity = 85 tons (approx. 4 days steaming).
 Service speed = 8 knots.
 Cable tanks = None, cable stored in hold.
 Cable machine = Constructed by Thames Iron Works Company.
 Signal letters = GWMJ
 Complement (1889) = Officers 6
 Ratings 18
 plus cabling staff.

Taken out of service as unseaworthy 1915.

H.M. Telegraph Ship Alert (2).

Builders: Messrs. Swan, Hunter and Wigham Richardson Ltd., 1918.

Description: Twin screw, triple expansion.

Length = 196.7 ft.
 Breadth = 31.4 ft.
 Depth = 20.1 ft.
 Gross tonnage = 941
 Propulsion = Steam, twin screws.
 Engine = Triple expansion.
 Fuel capacity = 200 tons fuel oil.
 Service speed = 11 knots.
 Cable tanks = 3, each 21 ft. diameter, and their capacities were 3,220, 3,060, and 3,890 cu. ft.

Cabling machinery = The forward cabling machinery was designed and manufactured by the Telegraph Construction and Maintenance Company.

Ships complement = 53.

H.M.T.S. Alert was lost with all hands on 24-Feb-1945 when she was torpedoed off the North Goodwins.

H.M. Telegraph Ship Alert (3).

Builders: Howaldtswerke, Kiel, Germany.

Description: Steam, triple expansion.

Note. Built originally as an oil tanker for the German Navy, this vessel was converted into a cables ship in 1922 by Deutsche Werke, Rustringen, and named "Norderney". It continued to give good service until handed over to the British Post Office on 23-June-1945 as war reparations. After a lengthy refit she was renamed "Alert".

Length = 233 ft.

Breadth = 34.4 ft.

Depth = 17.5 ft.

Gross tonnage = 1,460.

Engine = Triple expansion.

Horse power = 1,600

Service Speed = 11 knots.

Cable tanks = total capacity of 14,833 cu. ft.

Taken out of commission in February 1960 and sold.

H.M.T.S. Alert (4)

Builders: Fairfield S. B. and Engineering Company Ltd., Govan, 1961.

It was built to Lloyds Register classification +100 A. 1. "With Freeboard", "Strengthened for Navigation in Ice, class 3".

Description: Twin screw, diesel electric.

Length = 417 ft.

Breadth = 54 ft.7 ins.

Draught = 22 ft. 5 ins.

Deadweight tonnage = 4,600 tons.

Gross tonnage = 6,413 tons.

Propulsion = 4, unidirectional marine propulsion diesels are fitted. Each of these engines is capable of developing 1860 B.H.P. at 428 r.p.m. and each drives one of four main generators plus an auxiliary generator tandem coupled. The four main generators each have an output of 895 Kw. at 428 r.p.m., 335 volts, 2675 amps, whilst the two main propulsion motors are each rated 2, 200 S.H.P. at 120 r.p.m., 660 volts, 2675 amps.

Each propeller shaft is driven by a fully compensated D.C. motor connected in series with two diesel-driven generators. The field strength of each motor is maintained constant at maximum value by an amplidyne exciter, except when automatically weakened for protective purposes.

Bow propeller = A Voith-Schneider bow propeller is fitted for precise control of the ship, it is capable of a 2.5 tons transverse thrust, and can be controlled from any of three points, Bridge, bow, or stern.

Cable tanks = 3 tanks, No. 1. is 30 ft., No. 2. is 42 ft., and No. 3 is 47 ft. diameters. Full depth vertical recesses are formed in the forward walls of No. 2 and 3 tanks for cable bight stowage (when laying repeaters).

Bow gear, one set of Bow Gear comprising 3 cast steel V sheaves 7 ft. diameter on the tread by 8 ft. overall by 14 inches wide. Each sheave being arranged to run in its own bearings between its own steel guards. The Bow Gear includes bow gantry and electrically operated hoisting and traversing winch.

After Cabling Machinery, for laying rigid repeater systems, there was an after cable machine consisting of 5 Sheaves each 6 ft. diameter as developed for the Monarch (4) and described in chapter 12. This After Cable Machine was replaced in 1971 by a Dowty linear engine.

The main cabling gear forward was manufactured by the Telegraph Construction and Maintenance Company Ltd. It comprises two forward paying-out and picking-up machines with cable drums 7 ft. diameter on the tread, 7 ft. 10 ins. over the flanges and 24 inches between the flanges, geared to the final drive shaft of a totally enclosed Telcon-Hindmarch gear reduction box. Each gear has three speeds for picking-up and one for paying out and is independently driven by a 250 h.p. constant current D.C. electric motor, fan ventilated by independent electric motors. Each machine is capable of the following loads in picking up:

- 30 tons at 1 knot,
- 15 tons at 2 knots, or
- 7.5 tons at 4 knots.

When paying-out, a tension of up to 9 tons at 8 knots can be applied.

Dynamometers, two sets of combined lead dynamometer assemblies are

installed forward of each gear on the upper deck with 7 ft. diameter sheaves. Capsule type electric load cells with leads to tension indicators are provided to indicate cable tension. Tachometer and Selsyn Units are provided to indicate speed of cable during picking up and paying out.

Accommodation is provided for a total ship's complement of 102 officers, petty officers and crew.

Bridge and Navigation Equipment. Precise navigation is essential to cable work, and a comprehensive range of navigational instruments and aids are provided, including the latest satellite navigation system.

Testing facilities, these are provided for the acceptance testing of submarine cables and associated equipment (repeaters, equalisers and other apparatus) and the location of breaks, and faults on cable systems.

Note. With more and more harbour and port authorities throughout the world becoming pollution conscious, many insist that ships using their ports do not discharge sewage whilst in port. During a refit at Redheads in 1981 the opportunity was taken to instal a sewage treatment plant on the Alert to meet these conditions and to bring her into line with the latest versions of C. S. Monarch and Iris.

H.M. Telegraph Ship Iris (1)

H.M. Telegraph Ship Iris (1)

Builders: D. J. Dunlop & Co., Glasgow, 1902.

Description: Twin screw, triple expansion engines.

Length	= 295 ft.
Breadth	= 40.7 ft.
Depth	= 15.1 ft.
Gross tonnage	= 2,253 tons
Horse power	= 3,120
Service speed	= 14.5 knots
Cable tanks	= 4

Cable machinery, designed and manufactured by the Telegraph Construction and Maintenance Company. Triple bow sheaves and a single stern sheave were fitted.

Notes. A number of Post Office cable staff transferred to this ship which was to serve the Commonwealth Governments with submarine cables in the Pacific Area. The Pacific Cable Board was formed to lay and maintain cables for these Governments. She was based at Auckland, and was transferred to the Imperial and International Communications in 1929 when she was renamed "Recorder".

H.M. Telegraph Ship Iris (2)

Builders: Swan, Hunter, Wigham Richardson Ltd., 1940.

Description: Twin Screws, Triple expansion engines.

Length	= 251.6 ft.
Breadth	= 35.3 ft.
Draught	= 16.3 ft.
Gross tonnage	= 1,479 tons
Horse power	= 1,400
Service speed	= 12 knots

Notes. She was the sister ship and identical in all respects to HMTS Ariel.

She was taken out of service 1-June-1976 and later sold for scrap.

Cable Ship Iris (3).

Builders: Robb Caledon Shipbuilders Ltd., Dundee, 1976.

Description: Twin screw diesels.

Length	= 309 ft. 9 ins.
Breadth	= 49 ft. 2 ins.
Draught	= 15 ft. 6 ins.

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Gross tonnage = 3.936 tons
 Horse power = 2,600 b.h.p.
 Speed = 15.5 knots

Notes. Sister ship to Monarch (5) and practically indetical in everyway.

Launched on 2-Oct-1975 and brought into service on 28-June-1976.

H.M. Telegraph Ship Ariel

Builders: Swan, Hunter, Wigham Richardson Ltd., 1939.

Description: Twin screws, triple expansion engine.

Length = 251ft. 8 ins.
 Breadth = 35 ft. 3 ins.
 Draught = 16 ft. 4 ins.
 Gross tonnage = 1,479 tons
 Horse power = 1,400 i.h.p.
 Cable tanks = 3, all forward of the machinery spaces.
 No. 1. 23 ft. diameter, 15 ft. deep.
 No. 2. 25 ft. diameter, 14 ft. deep.
 No. 3. 23 ft. diameter, 14 ft. deep.
 Total capacity 16,110 cu. ft.
 Cones and Crinolines were fitted in each tank.

Cable machinery was manufactured by Messrs. Johnson and Phillips and consisted of a double combined paying-out and picking-up machine. There was also a two-sheave bow gear with sheaves 4 ft. 6 ins. diameter on the flat reads and 14 in. wide between flanges. Two swinging davits were originally fitted in the bows but these were later replaced by a gantry for the handling of rigid repeaters over the bows. Two dynamometers were fitted, one on each side and indicated over a range of 7 cwts. to 30 tons. The double combined cable gear was mounted on the main deck and driven by two 3-cylinder steam engines developing 110 h. p. The following loads were possible;

either engine could drive both drums to give on each drum

7.5 tons at 1 knot or 2.5 tons at 2.5 knots

The after engine could drive the starboard drum while the forward engine was driving the port drum to give either;

15 tons at 1 knot or 5 tons at 2.5 knots

Both engines could drive either drum to give:

30 tons at 1 knot or 10 tons at 2.5 knots.

Fuel = 248 tons of fuel oil.

Fresh water = 85 tons

Boiler Feed Water = 90 tons

Water ballast = 184 tons

Notes. Taken out of service and sold when Monarch (5) came into service in 1976.

She was sister ship to HMTS Iris (2).