

Chapter 10

IALA MARITIME BUOYAGE SYSTEM

10.1 BASIC PRINCIPLES OF THE COMBINED CARDINAL AND LATERAL SYSTEM

The combined Cardinal and Lateral system was intended to satisfy the following criteria:

1. The system must be **simple and easily understood** by all mariners.
2. When confronted with a navigational mark the mariner must be able to determine immediately and with certainty, the side on which that mark should be passed. To that end he must refer to the relevant direction of buoyage or to the compass. He may then, if necessary, look on the chart to find out which mark he has just passed in order to determine his position.
3. It must be possible to use the marks without constraint or the need to employ auxiliary points of reference, such as transition marks.
4. Maximum use should be made of day colours, appropriate shapes and top-marks, and the most appropriate colours and characteristics for the lights.
5. No distinction should be made between a wreck and other obstructions.
6. Newly-discovered dangers must be clearly indicated.

10.2 DESCRIPTION OF THE COMBINED CARDINAL AND LATERAL SYSTEM — GENERAL REMARKS

10.2.1 Scope

The system applies to most fixed and floating navigational marks. The exceptions are lighthouses, sector lights, leading lights, directional lights and marks, lightvessels and lanbys. The system's purpose is to identify the sides and/or centrelines of navigable channels or fairways, natural dangers, and other obstructions such as wrecks, rocks, shoals, other features or navigational hazards of importance to the mariner, and new dangers. The term **fixed marks** includes most lighted and unlighted beacons.

10.2.2 Types of marks

The system provides six types of marks which may be used alone or in combination: **Lateral marks**, **Cardinal marks**, **Isolated Danger marks**, **Safe Water marks**, **Special marks** and **New Danger marks**.

The combination of Cardinal and Lateral marks, which makes it possible to indicate a wreck or shallow water just like any other obstruction, surpasses several marks of the old system (the Uniform System of Buoyage-Geneva 1936).

10.2.3 Characteristics of marks

The significance of a mark depends on one or more features:

- a. *by day*: colour, topmark, shape, name, or number;
- b. *at night*: colour and character of the light;
- c. *in poor visibility*: type and character of the sound device.

10.2.4 Day colours

Red is reserved for port Lateral marks in Region A and for starboard Lateral marks in Region B.

Green is reserved for starboard Lateral marks in Region A and for port Lateral marks in Region B.

Black and yellow are reserved for Cardinal marks.

Yellow is used for Special marks.

Black with one or more red horizontal bands indicates an Isolated Danger.

Red and white vertical stripes are used for Safe Water marks.

Yellow and blue vertical stripes are used for New Danger marks.

10.2.5 Shapes of marks

There are five basic buoy shapes: can, conical, spherical, pillar, and spar.

Can, conical, and spherical marks indicate the side(s) on which they should be passed. The shapes of **pillar** and **spar** buoys do not give any indication of the side on which they should be passed and they require a topmark or a specific day colour for that purpose. The term pillar buoy includes any buoy, other than a lanby, with a tall central structure on a broad base.

10.2.6 Topmarks

The system makes use of can, conical, spherical, X- and †-shaped topmarks only. These topmarks are compulsory on pillar buoys. They are recommended on spar buoys when ice or other conditions do not prevent their use.

NOTE

Buoys used in Region B seldom use topmarks

For the use of topmarks, in conjunction with the six types of marks, the following general rules may be adopted:

Lateral marks: compulsory, when practicable, except on can or conical buoys;

Cardinal marks: compulsory, when practicable;

Isolated Danger marks: compulsory, when practicable;

Safe Water marks: compulsory, when practicable, except on spherical buoys;

Special marks: not compulsory.

New danger marks: compulsory when practicable.

10.2.7 Colours and characters of lights

Red and green lights of any character are reserved for Lateral marks. When Lateral marks are used to indicate a danger, it is recommended that a quick flashing light is used. The frequency of flashes is determined by the degree of danger:

The greater the danger, the more rapid the rhythm.

Single fixed lights should not be used (they are being replaced in the United Kingdom) to avoid confusion with ships' lights or the lights of populated coast-lines.

The lights of Cardinal, Isolated Danger, and Safe Water marks are **white** with the following characteristics :

- a. quick flashing or very quick flashing for Cardinal marks;
- b. group flashing (2) for Isolated Danger marks;
- c. isophase, occulting, or single long flashes for Safe Water marks;

Yellow, is for Special marks. They may have any character other than those used for white lights, i.e. : flashing, group flashing and Morse Code.

Alternating blue and yellow lights are used on New Danger marks.

10.2.8 Piers and jetties

To avoid confusion with the sidelights of ships, lights marking pier heads and extremities of jetties, if fixed, are shown in pairs disposed vertically and corresponding with the conventional direction of buoyage (Figures 315 and 316).

10.2.9 Radar reflectors

It is recommended that, wherever practicable, radar reflectors are incorporated in topmarks. In the case of buoys without topmarks, the radar reflector shall be sited so that it cannot be mistaken for a topmark.