



Maritime and Coastguard Agency

Navigation: Navigation In Restricted Visibility

Notice to all Ship Owners, Masters, Skippers, Ships' Officers, and Pilots.

This notice replaces Marine Guidance Note 202 and should be read in conjunction with MGN 313 Keeping a Safe Navigational Watch on Fishing Vessels and MGN315 Keeping a Safe Navigational Watch on Merchant Vessels.

PLEASE NOTE:-

Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

Summary

A 2003 survey published by the Nautical Institute (*Seaways- Roger Syms*) showed that many Officers of the Watch (OOW) do not fully understand and properly follow the International Regulations for the Prevention of Collisions at Sea (COLREGS) and as a consequence collisions still occur.

This Guidance note;

- Describes the proper conduct of vessels in restricted visibility
- Sets out how to apply the Rule to determine risk of collision in a close-quarters situation and decide on the correct avoiding action
- Reminds operators that Sections I and III of the Steering and Sailing Rules of the Collision Regulations must be complied with strictly.
- Advises operators on how they should determine a safe speed and a close-quarters situation in restricted visibility.

Key Points

- Navigating a ship in restricted visibility requires a full understanding of the COLREGS, in particular Part B (Steering and Sailing Rules) both Section III (Rule 19) – Conduct of vessels in restricted visibility and Section I (Rules 4 to 10 inclusive) – Conduct of vessels in any condition of visibility.
- It is the responsibility of the OOW to comply with the COLREGS. Companies have to ensure compliance of their employees with COLREGS and issue guidance to that extent but the ultimate decision about safe navigation has to be made by the OOW taking into account all available information.

(continued)

- Rule 19 is the basis for navigation in reduced visibility; this Rule requires that a vessel shall proceed at a safe speed adapted to the prevailing circumstances, initially to be judged by all factors listed in Rule 6. Rule 19 requires that there is no stand-on vessel. All participants are required to take appropriate avoiding action.
- Keeping a proper look-out requires the OOW to ensure that all available means are used to obtain as much information as possible about the current traffic and navigation situation and then evaluate this information before taking action.

1. Introduction

1.1 This Marine Guidance Notice (MGN) explains the Maritime and Coastguard Agency (MCA) understanding of terms such as 'forward of the beam', 'safe speed', 'close-quarters situation', 'closest point of approach' (CPA), 'risk of collision' and 'proper look-out'.

1.2 This guidance does not free any company, master and/or Officer of the Watch (OOW) of their responsibility to take decisions about the safe operation of their ship in accordance with the law.

1.3 Many sources have been used as a basis for this MGN including MAIB collision investigation reports, The International Chamber of Shipping Bridge Procedures Guide, The Standards for Training and Certification for Watch Keepers 1978, as amended, North of England Protection and Indemnity Club (P&I), UK Admiralty Court and Court of Appeal judgements.

2. Rule 1 - Application

(a) *These Rules shall apply to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels.*

3. Steering and Sailing Rules

3.1 Part B of the COLREGS has three sections:

Section I (Rules 4 – 10) Conduct of vessels in any condition of visibility.

Section II (Rules 11-18) Conduct of vessels in sight of one another and

Section III (Rule 19) Conduct of vessels not in sight of one another.

4. Rule 19 – Conduct of vessels in restricted visibility

(a) *This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.*

- If you cannot see the other vessel visually, then Rule 19 shall apply, regardless of whether your vessel is in or near an area of restricted visibility

(b) *Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.*

- Safe speed cannot be explained in absolute numbers for all vessels
- The factors that determine a safe speed are dealt with in detail by Rule 6
- Strong winds and high seas may influence the manoeuvrability of the vessel
- Determination of safe speed must be continuously re-assessed as circumstances change
- The OOW should be aware of the effect that different load conditions (full or partly loaded or in ballast) will have on the vessel handling characteristics

(c) *Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.*

- When navigating in or near areas of restricted visibility Rule 19 is not the only Rule from Part B (Steering and Sailing Rules) that applies, Rules 4 to 10 inclusive (of Section I), also apply

(d) A vessel which detects by radar alone the presence of another vessel shall determine if a close-quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided:

- (i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;*
 - (ii) an alteration of course towards a vessel abeam or abaft the beam.*
- If risk of collision or a close-quarters situation is developing then avoiding action must be taken because there are no stand on vessels under Rule 19
 - If the target posing the risk of collision or a close-quarters situation is forward of your beam: Try to avoid altering to port for that vessel, unless you are overtaking it
 - If the target posing the risk of collision or a close-quarters situation is abeam or abaft of your beam: Try to avoid altering course in a direction that would take you towards that vessel

(e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

- Keep an effective listening watch for fog signals
- Have the engines ready for immediate manoeuvre
- Reducing speed may allow more time to assess the situation
- Not all vessels will be detected by radar, specially yachts and other small craft
- If a fog signal is heard it may be difficult to accurately determine the direction of the fog signal

5. Rule 5 – Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

- Maintaining a proper Look-out is an important element of safe watchkeeping, especially when the visibility is restricted, and includes look-out by hearing, radar, VHF, AIS as well as by sight.

6. Rule 6 – Safe Speed

6.1 Rule 6 states that, every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. Rule 6a lists the factors for safe speed that apply to all vessels, and Rule 6b lists factors that apply to ships fitted with radar.

6.2 Rule 19 reinforces Rule 6 by requiring all vessels to proceed at a safe speed in restricted visibility and by requiring power-driven vessels to ‘have their engines ready for immediate manoeuvre’.

6.3 In order to maintain a safe speed at all times a continuous appraisal of changes in circumstances and conditions should be made.

7. Rule 7 - Risk of collision

(a) *Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.*

- Use radar for assessing the risk of collision
- Maintain a good visual and listening watch at all times
- If in doubt, assume that risk of collision exists and act accordingly

(b) *Proper use shall be made of radar equipment if fitted and operational, including long – range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.*

- ARPA only produces systematic observation of acquired targets
- Make sure radar and ARPA are used to their full potential. They should be properly aligned and adjusted
- Make systematic observations of targets to assess risk of collision and build up situation awareness
- Use radar range-scale properly; that is, use shorter ranges when dealing with targets closer to your vessel and long-range scanning to provide early warning
- An operational radar is one without defects. All functions of the equipment have to be available for the operator and there should be no loss of target brilliance due to a worn out cathode ray tube or missing pixels of the liquid crystal display monitor. Particularly loss of targets near the centre, including clutter, would be an obvious concern

(c) *Assumptions shall not be made on the basis of scanty information, especially scanty radar information.*

- Take time to assess every situation properly, as it requires several minutes of systematic observation to produce useful information from a radar or ARPA set

(d) *In determining if risk of collision exists the following considerations shall be among those taken into account*

- Such risks shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change*
- Such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range*

- Determine risk of collision from a systematic plotting of targets
- Risk of collision exists if the compass bearing does not appreciably change
- Relative motion trails on a radar provide a reliable indication of collision risk
- Observing the compass bearing of a target is one means of determining whether risk of collision exists
- In restricted visibility the only way to observe the compass bearing of a target is to use a compass stabilised radar
- Even if the compass bearing does appreciably change, there may still be a risk of collision when approaching large targets or when approaching targets at close range
- An electronic bearing line (EBL) fixed to own-ship is a convenient way of observing changes to the compass bearing of a target
- On an ARPA display, risk of collision with a tracked target exists if the relative vector of the target points at own-ships' position on the screen
- CPA & TCPA alarms can be set to provide warning of collision risk or potential close quarters situation with tracked targets

8. Rule 8 - Action to avoid collision

(a) *Any action to avoid collision shall be taken in accordance with the Rules of this part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.*

- Observe good seamanship
- Comply with the steering and sailing Rules
- Take early action which results in a safe outcome

(b) *Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.*

- Do not make a series of small alterations
- Alterations should be readily apparent to other vessels
- Course alterations tend to be more readily apparent than change in speed

(c) *If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.*

(d) *Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.*

- Keep a safe distance from other vessels
- It is important to systematically observe the effectiveness of the action taken
- The safe distance will depend on the circumstances, however if you have sufficient sea room there is no reason to pass close to another vessel

(e) *If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.*

- A power driven vessel should have the engines ready for immediate manoeuvre

(f) *"A vessel which, by any of these Rules, is required not to impede the passage or safe passage of another vessel"...etc.*

- The requirement not to impede the passage or safe passage of another vessel does not apply only to vessels in sight of each other which are approaching in such a way that risk of collision is likely to develop.
- The requirements of Rule 8(f) together with Rules 9(b), (c) and (d), and 10(i) and (j) apply in both clear and restricted visibility.
- When there is an obligation not to impede in restricted visibility Rule 19 applies fully, together with Rule 8(f)

9. Forward of the beam

9.1 A vessel is forward of the beam as long as her relative bearing from the observing vessel is less than 90° or more than 270°.

10. Close-quarters Situation

10.1 Similar to 'safe speed' a 'close-quarters situation' depends on the particular circumstances and closing speeds of the vessels involved. Manoeuvring characteristics, visibility, weather, traffic density, restricted or open waters, will all have an influence on determining at what distance a close-quarters situation begins to exist. A close-quarters situation is not to be confused with a risk of collision which begins at an earlier point in time.

11. Closest Point of Approach (CPA)

11.1 Systematic observation of a radar target offers a forecast of the distance off at which a target will pass (the closest point of approach or CPA) and the time at which the target will reach its closest point of approach (TCPA). This information is an effective measure of the risk of close-quarters situation developing.

11.2 The ARPA or ATA must track the target(s) for a period of time, after which a vector can be displayed. Using the vector length control, the vectors can be extended to determine the CPA by observation against the back ground of the range rings and the TCPA can be read off from the vector length control.

11.3 It is possible to specify a CPA and TCPA (sometimes referred to as safe limits) which will activate an alarm if both are violated. For example, if the CPA and TCPA controls are set to 0.5 n miles and 30 min respectively and a target which is being tracked will come to a CPA of less than 0.5 n miles in less than 30 min, then the alarm will be activated.

12. MAIB Reported Collision Cases

12.1 A number of collisions in restricted visibility over the past years demonstrated that some of the vessels involved were neither well run nor was sufficient competency, awareness and conscientiousness displayed by bridge crews and skippers of vessels involved. (See the following MAIB investigation reports: *Diamont/Northern Merchant (2002)*, *P&O Nedlloyd Vespucci/Wahkuna (2003)*, *Lykes Voyager/Washington Senator (2006)*).

12.2 In 2002 a collision investigated by the MAIB involving a high-speed craft (HSC) and a ro-ro ferry on a crossing course in the Dover Strait, indicated the HSC was making 32 knots and the ro-ro ferry was making 21 knots. The predicted CPA was 3 cables.

12.3 The 2003 collision happened in the middle of the English Channel north of Cherbourg between a container ship making 25 knots on a crossing course with a sailing yacht making 7.5 knots. The predicted CPA was 8 cables.

12.4 The 2006 case involved two container vessels just north of the Taiwan Banks, on crossing courses with one making 17 knots and the other 19.5 knots. The predicted CPA was 2-3 cables.

12.5 Some of the key contributing factors identified in the above three collisions were excessive speed and too small a CPA. This is in line with findings of a wider study according to which approximately 60% of all collisions are said to involve excessive speed.

12.6 Rule 19(b) requires that all ships shall proceed at a safe speed, and in case of power driven vessels shall also have their engines ready for immediate manoeuvre.

13. Commercial considerations

13.1 Speed of a ship and thereby fuel consumption and the related costs are usually dictated by commercial interests. Even though a company has the right to give instructions to masters these instructions cannot overrule their decision on safety matters. Particular reference is made to the Regulation 34-1 "Master's Discretion" of SOLAS Chapter V.

"The owner, the charterer, the company operating the ship as defined in regulation IX/1, or any other person shall not prevent or restrict the master of the ship from taking or executing any decision which, in the master's professional judgement, is necessary for safety of life at sea and protection of the marine environment."

The MCA interpret this as ensuring the master has absolute discretion to take decisions in the interests of safety of life at sea and or protection of the marine environment.

13.2 Companies are advised to stress this point in their Safety Management System and positively encourage masters and OOWs to follow safe navigational practices in any situation, particularly in restricted visibility. Positive encouragement may be required to make the master and officers fully aware that it may be of disadvantage to the company for bridge teams not to comply with rules and regulations and the COLREGS in particular.

14. Well Run Ship

14.1 A 'well run ship' will under all circumstances be navigated in accordance with the regulations. This does not only require the OOW to follow the COLREGS but also obligates the company to provide the necessary resources and issue relevant guidance in compliance with the international Safety Management (ISM) Code.

14.2 Good Bridge Team Management is an essential tool in ensuring that a ship is well run. Navigators should be familiar with the contents of the latest International Chamber of Shipping (ICS) Bridge Procedures Guide.

15. Conclusion:

In conditions of restricted visibility when complying with Rule 19; there are no stand on or give way vessels. All vessels are required to determine whether a close-quarters situation is developing and if a risk of collision exists. If the likelihood of a close-quarters situation is detected then each vessel must take appropriate action to prevent the close-quarters situation from developing.

The judgment as to when a vessel is heading in to a close-quarters situation will have to be made by individual OOWs using all available means combined with their own experience and good seamanship. Over reliance must not be placed on calculated CPAs and TCPAs from ARPA equipment. Navigational constraints, environmental factors and knowledge of own vessels manoeuvrability must also be taken into account when reaching this judgement.

OOWs should be encouraged to call the master, or seek the view of more experienced members of the bridge team in ample time to assist in assessing the situation.

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