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## **RESEARCH PROJECT 487 – The number and position of navigation lights for large commercial sailing and motor vessels**

Notice to Designers, Builders, Managers, Owners, Masters, Skippers of Pleasure Vessels, Yachts and Other Seagoing Craft.

Expiry Date: 31/12/05

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### **Summary**

**INFORMATION ON COMPLETED RESEARCH PROJECT 487 - THE NUMBER AND POSITION OF NAVIGATION LIGHTS FOR LARGE COMMERCIAL SAILING AND MOTOR VESSELS**

**RESEARCH CONTRACTOR: SOUTH TYNESIDE COLLEGE**

**TIMESCALE: JULY 2001 - JANUARY 2002**

#### **EXECUTIVE SUMMARY**

A key objective was to determine whether the requirements for the number and position of lights for large commercial sailing and motor vessels could be simplified. It was previously identified that large commercial sailing and motor vessels are being designed and constructed in such a way that the positioning of navigation lights are in many cases not in compliance with the International Regulations for Preventing Collisions at Sea, 1972 as amended (the ColRegs).

Key recommendations of the survey carried out as part of the research were that:

1. New buildings should comply with the ColRegs; and
2. Existing vessels should comply as closely as possible with the ColRegs.

### **1. Introduction / Background**

- 1.1 It was identified from safety surveys that large commercial sailing and motor vessels (Megayachts) are designed and constructed in such a way that the positioning of navigation lights are in many cases not in compliance with the International Regulations for Preventing Collisions at Sea, 1972 as amended. Paragraph 17 of the Code of Practice for Safety of Large Commercial Sailing and Motor Yachts also refers to this.
- 1.2 As a result, builders, managers or owners are bound to seek exemptions from the MCA. Additionally, owners of vessels transferring to the UK register for the first time also apply for similar exemptions.

1.3 One of two principle inconsistencies from the ColRegs arise, the first with respect to the placement of a single masthead light in vessels of between 20 to 50 metres in length in the final three-quarter length of the vessel. Annex 1 (3)(d) of ColReg requires where there is a single masthead light it is to be fitted forward of amidships.

1.4 The second inconsistency concerns Rule 23 and larger vessels. Some vessels exceed 50 metres in length, but still exhibit only one light abaft of amidships. Rule 23 (a)(ii) of ColReg states that vessels over 50 metres in length shall exhibit a masthead light forward with second one aft.

Further cases arise with regard to the positioning of the lights in relation to the hull and the positioning of the sidelights in relation to the masthead light(s).

## **2. The Project**

2.1 South Tyneside College used their full mission Norcontrol bridge simulator with associated software to develop ship models.

2.2 Two ship models were used, similar to a Mega Yacht, one below 50 metres in length, the other above 50 metres in length allowing any combination of masthead light(s) and sidelights to be displayed in any chosen position. Both were power driven based on the observation that the lights required for sailing vessels as described in Rule 25 of the ColRegs cannot be simplified any further. Also a sailing vessel under engine power is classed under the ColRegs as being a power driven vessel and would exhibit appropriate vessel lights.

2.3 Control ship models were made with various light configurations that varied from models under 50 metres in length and over 50 metres in length:

- .1 fully complying with the ColRegs; followed by;
- .2 those with masthead lights in various configurations not complying with the ColRegs.

## **3. Method**

3.1 Assessments were conducted in full darkness, without deck lights visible so that mariners were unable to determine the aspect by observation of the vessel's hull outline.

3.2 Over one hundred mariners of various qualification and rank completed the observations; these included serving master mariners, licensed pilots, serving watchkeeping officers, and MCA Marine Surveyors. After approximately fifty observations a pattern emerged, by the time one hundred observations had been recorded the pattern was confirmed and the assessment was complete.

## **4. Results and Recommendations**

4.1 The results of observations on the control models validated the use of the simulator for light identification and also that the mariners had sufficient knowledge of the ColRegs to take part in the survey.

4.2 The main conclusion from the survey was that there are significant changes in perception of length, aspect and type of vessel when mariners are faced with light configurations not complying with ColRegs.

4.3 A number of recommendations emerged, namely:

- new vessel buildings should comply with the ColRegs;

- existing vessels should comply as closely as possible with the ColRegs;
- if a single masthead light is fitted on a vessel over 50 metres in length, horizontal separation between masthead light and sidelight should comply with the ColRegs; and
- the vertical separation between masthead light and sidelight should comply with the ColRegs.

## 5. Implementation

- 5.1 Those involved in the design of future megayachts are asked to note the results and recommendations contained in the report.

## 6. Further Information

Copies of the summary reports for this project are held by:-

Maritime Projects Branch  
The Maritime and Coastguard Agency  
Bay 2/07, Spring Place  
105 Commercial Road  
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SO15 1EG

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These are also available on the Maritime and Coastguard Agency's web site: [www.mcga.gov.uk](http://www.mcga.gov.uk).

Further information on the contents of this MIN can be obtained from:

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