

**Resolution A.822(19)**  
*adopted on 23 November 1995*  
*(Agenda item 10)*

**PERFORMANCE STANDARDS FOR AUTOMATIC STEERING AIDS  
(AUTOMATIC PILOTS) FOR HIGH-SPEED CRAFT**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO resolution MSC.36(63), by which the Maritime Safety Committee, on 20 May 1994, adopted the International Code of Safety for High-Speed Craft (HSC Code),

RECALLING FURTHER resolution 1 of the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, by which the Conference, on 24 May 1994, adopted amendments to the 1974 SOLAS Convention, including a new chapter X on safety measures for high-speed craft, which makes the provisions of the HSC Code mandatory under that Convention for all such craft constructed on or after 1 January 1996,

BEARING IN MIND section 13.13 of the HSC Code, which requires that all navigational equipment to which chapter 13 applies should conform to performance standards not inferior to those adopted by the Organization,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-fourth session,

1. ADOPTS the Recommendation on Performance Standards for Automatic Steering Aids (Automatic Pilots) for High-Speed Craft set out in the annex to the present resolution;
2. RECOMMENDS Governments to ensure that automatic steering aids (automatic pilots) required to be carried on high-speed craft conform to performance standards not inferior to those set out in the annex to the present resolution;
3. REQUESTS the Maritime Safety Committee to keep these Performance Standards under review and to adopt amendments thereto, as necessary.

## **RECOMMENDATION ON PERFORMANCE STANDARDS FOR AUTOMATIC STEERING AIDS (AUTOMATIC PILOTS) FOR HIGH-SPEED CRAFT**

### **1 INTRODUCTION**

**1.1** In addition to the general requirements contained in resolution A.694(17), automatic steering aids (automatic pilots) installed in craft operating under the following conditions:

- .1 speed exceeding 30 knots and up to 70 knots;
- .2 maximum rate of turn 20°/s; and
- .3 normal range of operation between 70°N and 70°S;

should, as required by chapter 13 of the HSC Code, comply with the minimum performance requirements specified in these standards.

**1.2** The automatic steering aid (automatic pilot) should, within a speed range of up to 30 knots, comply with resolution A.342(IX), and within a speed range of 30 knots to 70 knots should comply with the requirements of this resolution.

### **2 GENERAL**

**2.1** Within limits related to the craft's manoeuvrability, the automatic steering aid, in conjunction with its source of heading information, should enable a craft to keep within  $\pm 2.0^\circ$  of a preset course.

**2.2** The automatic steering aid equipment should be capable of manual or automatic adjustment to different steering characteristics of the craft under various weather and loading conditions.

**2.3** The automatic steering aid should be connected to the gyro-compass if a gyro-compass is provided. Otherwise it should be electronically connected to the magnetic compass.

**2.4** A qualitative description of the effects of the automatic steering aid errors due to high speed, accelerations, course changes, sea state, etc., and a qualitative description of corresponding errors in other navigational aids, should be provided to the user.

### **3 CHANGE-OVER FROM AUTOMATIC TO MANUAL STEERING AND VICE VERSA**

**3.1** Change-over from automatic to manual steering and vice versa should be possible at any rudder position by means of a bumpless transfer.

**3.2** Change-over from automatic to manual steering should be possible under any conditions, including any failure in the automatic control system.

**3.3** When changing over from manual to automatic steering, the automatic steering aid (automatic pilot) should take over the actual heading as the preset course. Any alteration of the preset course should not be possible without action by the craft's personnel.

**3.4** Change-over controls should be located close to each other in the immediate vicinity of the main steering or conning position.

**3.5** Adequate indication should be provided to show which method of steering is in operation at a particular moment.

**3.6** The installation should include manual steering with an override function.

## **4 ALARM SIGNALLING FACILITIES**

**4.1** Alarm signals, both audible and visual to the navigator on watch, should be provided in order to indicate failure or a reduction in the power supply to the automatic steering aid, which would affect the safe operation of the equipment.

**4.2** A course monitor should be provided which operates a clearly audible "off-course" alarm signal after a course deviation of a preset amount from the ordered course.

**4.3** The information required to actuate the course monitor should be provided from an independent source.

**4.4** The automatic steering aid should provide an indication when any input from an external sensor is absent. The automatic steering aid should also repeat any alarm or status warnings concerning the quality of the input data from its external sensors which may influence its operation.

**4.5** The alarm signal facilities should be fitted near the steering or conning position.

## **5 CONTROLS**

**5.1** The automatic steering aid should be provided with automatic and manually operated controls for operational use to adjust the craft's steering performance to take account of the effects of weather.

**5.2** The sense of the control of the automatic steering aid should be such as to ensure altering course to starboard by turning the course setting control clockwise. If the control is digital then provision should also be made for keying in the required turn sense. Normal alterations of course should be possible by one adjustment only of the course setting control.

**5.3** Except for the course setting control, the actuation of any other control should not significantly affect the course of the craft.

**5.4** Additional controls at remote positions should comply with the provisions of these performance standards.

**5.5** The automatic steering aid should be able to perform turns within the turning capability of the craft based either on a preset turning radius or a preset rate of turn.

## **6 RUDDER ANGLE LIMITATION**

Means should be incorporated in the equipment to enable rudder angle limitation in the automatic mode of operation. Means should also be available to indicate when the angle of limitation has been reached.

## **7 PERMITTED YAW**

Means should be incorporated to prevent unnecessary activation of the rudder due to normal yaw motion.

## **8 INTERFACE**

The automatic steering aid should provide interface facilities conforming to relevant international marine interface standards.\*

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\* Refer to IEC 1162: 1994.