

**RESOLUTION A.526(13)**

*Adopted on 17 November 1983  
Agenda item 10(b)*

**PERFORMANCE STANDARDS FOR RATE-OF-TURN INDICATORS**

THE ASSEMBLY,

RECALLING Article 16(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations concerning maritime safety,

BEARING IN MIND regulation 12, chapter V of the International Convention for the Safety of Life at Sea, 1974, as amended in 1981, concerning the carriage of rate-of-turn indicators,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its forty-eighth session,

1. ADOPTS the recommendation on performance standards for rate-of-turn indicators set out in the Annex to the present resolution;
2. RECOMMENDS Member Governments to ensure that rate-of-turn indicators installed in compliance with regulation 12, chapter V on or after 1 September 1984, conform to performance standards not inferior to those specified in the Annex to the present resolution.

**ANNEX**

**PERFORMANCE STANDARDS FOR RATE-OF-TURN INDICATORS**

**1 GENERAL REQUIREMENTS**

The rate-of-turn indicator (ROTI) should, in addition to the requirements of these standards, comply with the requirements of resolution A.281(VIII) for shipborne electronic navigational aids.

**2 OPERATIONAL STANDARDS**

2.1 The ROTI should be capable of indicating rates of turn to starboard and to port of the ship to which it is fitted.

2.2 The ROTI may be self-contained; alternatively it may form part of, or derive information from, any other appropriate equipment.

**2.3 Indication**

2.3.1 The indication required should be provided by a centre-zero analogue type indicator (preferably circular). Where a circular scale indicator is used, the zero should be uppermost.

2.3.2 A turn of ship to port should be indicated on the left of the zero point and a starboard turn to the right of the zero point. If the actual rate of turn exceeds full scale deflection, this should be clearly indicated on the display.

2.3.3 In addition, an alphanumeric display may be provided. Positive indication of port and starboard should be provided on such displays.

2.3.4 The length of scale in either direction from zero should not be less than 120 mm. The sensitivity of the system should ensure that a change in the rate of turn of  $1^\circ$  per minute is represented by a distance of not less than 4 mm on its scale.

#### 2.4 Range scales

2.4.1 A linear range scale of not less than  $\pm 30^\circ$  per minute should be provided. This scale should be marked in intervals of  $1^\circ$  per minute on both sides of zero. The scale should be marked with figures every  $10^\circ$  per minute. Every  $10^\circ$  mark should be significantly longer than the  $5^\circ$  mark which in turn should be significantly longer than the  $1^\circ$  mark. The marks and figures should preferably be red or a light colour on a dark background.

2.4.2 Additional linear range scales may be provided.

2.4.3 Damping of the ROTI should be provided with a time constant which may be varied during operation in the range zero to at least 10 seconds.

#### 2.5 Accuracy

2.5.1 The indicated rate of turn should not deviate from the actual rate of turn of the ship by more than  $0.5^\circ$  per minute plus 5 per cent of the indicated rate of turn of the ship. These values include the influence of earth rate.

2.5.2 Periodic rolling motion of the ship with an amplitude of  $\pm 5^\circ$  and period of up to 25 seconds and periodic pitching motion with an amplitude of  $\pm 1^\circ$  and period of up to 20 seconds should not change the mean value of the indicated rate of turn by more than  $0.5^\circ$  per minute.

2.5.3 The ROTI should meet these accuracy requirements at all ship speeds up to 10 knots.

### 3 OPERATION

3.1 The ROTI should be ready for operation and comply with these standards within 4 minutes of being switched on.

3.2 The design should be such that whether operating or not the ROTI will not degrade the performance of any other equipment to which it is connected.

3.3 The ROTI should include a means of enabling the operator to verify that it is operating.