

TECHNICAL REPORT

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Ships and marine technology — Automatic pilots

Navires et technologie maritime — Pilotes automatiques



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 11674, which is a Technical Report of type 2, was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 6, *Navigation*.

Following the fifth meeting of ISO/TC 8/SC 18, *Navigational instruments and systems*, held in October 1990 in Tokyo, the proposal for standardization of automatic pilots was approved. Then, IEC/TC 80, *Marine navigational and radiocommunication equipment and systems*, proposed that International Standards for automatic pilots should be developed jointly by ISO and IEC and this was subsequently accepted by both secretariats.

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The working draft, ISO/WD 11674, was aimed at satisfying the provisions contained in IMO resolution A.342(IX), *Recommendation on performance standards for automatic pilots*. The final committee draft, ISO/CD 11674, was circulated for voting by both and was accepted as a DIS.

The fortieth session of the NAV Subcommittee of IMO, held in September 1994, considered an amendment to the resolution A.342(IX). Hence, the ISO Central Secretariat and the Secretariat of ISO/TC 8/SC 6, *Navigation* (renamed and reorganized since 1995), agreed that the current document be published as a Technical Report of type 2.

At a later date ISO/TC 8/SC 6 will develop International Standards on automatic pilots, which will conform to the amended version of the IMO resolution which is expected to be made at the forty-second session of the NAV Subcommittee in July 1996.

This document is being issued in the Technical Report (type 2) series of publications (according to subclause G.3.2.2 of part 1 of the ISO/IEC Directives, 1995) as a “prospective standard for provisional application” in the field of navigational instruments because there is an urgent need for guidance on how standards in this field should be used to meet an identified need.

This document is not to be regarded as an “International Standard”. It is proposed for provisional application so that information and experience of its use in practice may be gathered. Comments on the content of this document should be sent to the ISO Central Secretariat.

A review of this Technical Report (type 2) will be carried out not later than three years after its publication with the options of: extension for another three years; conversion into an International Standard; or withdrawal.

Annexes A and B of this Technical Report are for information only.

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Ships and marine technology — Automatic pilots

1 Scope

This Technical Report specifies the structure, performance, inspection and testing of automatic pilots to be installed on board ships of 1 600 tonnes gross tonnage and upwards.

It applies to the automatic pilots which enable a ship, when navigating in accordance with the current regulations, *to keep a preset course with minimum operation of the ship's steering gear, within limits related to the ship's manoeuvrability, in conjunction with their source of heading information.*

NOTE 1 All requirements that are extracted from the recommendations of IMO Resolutions [A.342(IX) and A.694(17)] are printed in italics.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/R 694:1968, *Positioning of magnetic compasses in ships.*

IEC 945:1994, *Marine navigational equipment — General requirements — Methods of testing and required test results.*

IEC 1162-1:1995, *Maritime navigation and radiocommunication equipment and systems — Digital interfaces — Part 1: Single talker and multiple listeners.*

3 Definitions

For the purposes of this Technical Report, the following definitions apply.

3.1 course: Horizontal direction in which a ship is steered or intended to be steered, expressed as the angular direction with respect to north, usually from 000° at north, clockwise through 360°. Strictly, the term applies to the direction through the water, not the direction actually covered over the ground. Differs from heading.

3.2 heading: Horizontal direction in which a ship actually points or heads at any instant, expressed in angular units from a reference direction, usually from 000° at the reference direction clockwise through 360°.

3.3 manual steering: Method of controlling the steering gear manually, for example using a steering-wheel.

3.4 automatic steering: Method of controlling the steering gear automatically to keep a ship's heading, processing the heading information which is obtained by a gyrocompass or magnetic compass.

3.5 change-over device: Device for changing over from automatic to manual steering and vice versa.

3.6 automatic steering device: Device which controls automatic steering.

3.7 adjustment device: Device which changes the characteristics of an automatic steering device, including proportional rudder adjustment, derivative rudder adjustment, integral rudder adjustment and weather adjustment.

3.8 operating device: Switch, heading set device, etc. which is used for operating an automatic pilot.