

PUBLICLY
AVAILABLE
SPECIFICATION

**ISO/PAS
13613**

First edition
2010-08-01

**Ships and marine technology —
Maintenance and testing to reduce losses
in critical systems for propulsion**

*Navires et technologie maritime — Maintenance et essais pour réduire
les pertes dans les systèmes critiques pour la propulsion*



Reference number
ISO/PAS 13613:2010(E)

AVA Documents
Document Sharing Hub
© ISO 2010

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2010

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
0 Introduction.....	v
0.1 General	v
0.2 Air start system failure.....	v
0.3 Fuel oil quality problems	v
0.4 Fuel switching.....	v
0.5 Informative annexes.....	v
1 Scope.....	1
2 Terms and definitions	1
3 Requirements.....	1
3.1 General maintenance of ship systems.....	1
3.2 Compressed air systems maintenance.....	3
3.3 Fuel oil system maintenance	3
3.4 Maintenance and testing of ship automation systems.....	5
Annex A (informative) Example maintenance items for compressed air systems	6
Annex B (informative) Sample record of periodic maintenance procedures	7
Annex C (informative) Example diagram of engine fuel supply and switching system	8
Annex D (informative) Recommendations for lubricating oil systems	9
Annex E (informative) Recommendations for other common engineering system components	10
Bibliography.....	11

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/PAS 13613 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

0 Introduction

0.1 General

This Publicly Available Specification informs shipboard personnel and other parties about the need to consider factors affecting operational maintenance and testing for certain systems that have been linked to ship propulsion losses. A recently completed survey of SOLAS ship casualties from 2003 to 2007 revealed that a number of the reported casualties were propulsion losses involving

- air start systems for engine,
- fuel oil quality problems, and
- fuel switching.

Industry groups have stated that current procedures for fuel switching underway, in compliance with air quality regulations, may increase the risk of propulsion losses.

0.2 Air start system failure

Air start system failure typically occurs when a ship with direct drive diesel propulsion is changing direction. Air valves needed to stop and restart the engine in the other direction seize or fail to respond. Maintenance and testing of the air systems minimize the risk of failure.

0.3 Fuel oil quality problems

Fuel oil problems can cause propulsion loss by clogging a filter and starving the engine. Use of incorrect fuel over prolonged periods can cause damage to pumps and cylinders. A ship can also lose propulsion when a generator shuts down due to fuel problems because electric power is generally needed to provide cooling and lubrication to the propulsion engine. Maintenance and testing of fuel oil purifying equipment, tanks and piping minimize quality problems.

0.4 Fuel switching

In order to comply with air quality regulations, ships may need to switch to low sulfur fuel while underway. They perform the switch before they enter an emission control area (ECA). This procedure can involve a changeover from heavy fuel oil to a distillate fuel. Proper fuel switching procedures and awareness of possible fuel compatibility problems can minimize the risk of propulsion loss.

0.5 Informative annexes

Annexes A to E are provided for information only as examples of recommendations for ship engineering systems and components. The survey of ship propulsion casualties identified only high pressure air and fuel system (fuel quality and fuel switching) problems as being linked to a number of casualties.

