Merenkulkulaitos
TIEDOTUSLEHTI NRO 8/24.5.1999

ALUSTEN GPS-VASTAANOTTIMIEN JA TIETOKONEIDEN TOIMINTAHÄIRIÖT

GPS-vastaanottimien mahdolliset toimintahäiriöt elokuussa 1999

GPS-vastaanottimien toiminnassa on odotettavissa häiriöitä elokuun 21. ja 22. päivän välisenä yönä, jolloin niihin määritetty suurin viikkomäärä 1023 ylittyy, ja vastaanottimet voivat muuttua epätarkoiksi tai lakata kokonaan toimimasta.

GPS-vastaanottimien toiminnan varmistamiseksi on otettava yhteyttä vastaanottimen valmistajaan sen selvittämiseksi, miten vastaanotin on ohjelmoitu ja voidaanko se tarvittaessa päivittää toimivaksi.

Suomalaisissa aluksissa GPS-vastaanottimet on kytketty aluksen GMDSS-radiolaitteisiin. Toimimattomat GPS-vastaanottimet irrotetaan GMDSS-radiolaitteista alusten radiokatsastusten yhteydessä.

Vuosi 2000 aiheuttaa toimintahäiriöitä tietokoneissa

Vuosi 2000 aiheuttaa useita ongelmia tietokoneiden aikaan liittyville toiminnoille. Ohjelmat, joissa vuosi on merkitty kaksinumeroisena lukuna, eivät pääsääntöisesti tule ymmärtämään vuodesta 2000 lyhennettä 00, ja ongelmia saattaa ilmetä niissäkin ohjelmissa, joissa vuosiluku on merkitty nelinumeroisena.

Alusten kaikki tietokoneet ohjelmineen on testattava niiden toimivuuden varmistamiseksi ennen tämän vuoden loppua. Testaukset ovat erittäin tärkeitä keskeisten valvonta- ja hälytysjärjestelmien sekä integroitujen navigointijärjestelmien osalta. Järjestelmien toimimattomuus voi johtaa aluksen pysäyttämiseen.

Oheisena on Kansainvälisen merenkulkujärjestön (IMO) kiertokirje nro 2121 "Meeting on year 2000 (Y2K) problems". Kiertokirjeessä edellytettyjä aluksen valmiussuunnitelmia ryhdytään tarkastamaan satamatarkastusten (Port State Control) yhteydessä. Alusten tulee valmistautua vastaamaan kiertokirjeen liitteissä esitettyihin kysymyksiin.

ISM-sertifioitujen suomalaisten alusten tulee myös turvallisuusjohtamisjärjestelmänsä puitteissa varautua kaikkiin ennalta tunnettuihin riskeihin.

Meriturvallisuusjohtaja Heikki Valkonen

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Circular letter No.2121
5 March 1999

To: IMO Members and other Governments
United Nations and specialized agencies
Intergovernmental organizations
Non-governmental organizations in consultative status

Subject: **Meeting on year 2000 (Y2K) problems**

Upon the initiative of the United States Coast Guard and the United Kingdom Maritime and Coastguard Agency, a meeting was held at the Headquarters of the Organization on 3 and 4 March 1999 to consider issues relating to the year 2000 (Y2K) problem*, promote international awareness and knowledge sharing, identify and refine preparedness actions and promote contingency planning.

Invited to the meeting were representatives of non-governmental industry organizations. Their selection was based upon their particular awareness of the critical Y2K challenges facing the maritime community and also because of their special ability to effectively communicate, through their membership, with ships and ports around the world.

As a result of its deliberations, the meeting unanimously agreed to:

.1 The Year 2000 Code of Good Practice (annex 1); and

.2 Key elements of Y2K contingency plans for ships, ports and terminals (annex 2).

Member Governments are invited to bring the contents of this circular to the attention of shipowners, ship operators, shipping companies, seafarers, customs, port authorities, port and offshore terminals, vessel traffic service operators, maritime pilots, hydrographers, classification societies, maritime communication authorities, shippers, charterers, insurance organizations and all other parties concerned, for information and action as appropriate.

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* Of relevance are:

- MSC/Circ.804, of 9 June 1997, on Impact of the Year 2000 on software systems;
- MSC/Circ.868, of 27 May 1998, on Addressing the Year 2000 problem;
- MSC/Circ.894, of 17 December 1998, on Addressing the Year 2000 problem: Co-operation within mandatory ship reporting systems;
- MSC/Circ.891, of 21 December 1998, on Guidelines for the on-board use and application of computers; and
- resolution A.852(20) on Guidelines for a structure of an integrated system of contingency planning for shipboard emergencies.

ANNEX 1

THE YEAR 2000 CODE OF GOOD PRACTICE

Introduction

1 The Year 2000 problem, sometimes referred to simply as Y2K, is the term used to describe the potential electronic date recognition (EDR) failure of information technology systems prior to, on or after 1 January 2000. The potential exists because of the widespread practice of using two digits, not four, to represent the year in computer databases, software applications and hardware chips. For example, difficulty will arise in the year 2000 when machines may be unable to differentiate it from the year 1900. As a result, microchip-based systems may function incorrectly, or not at all.

2 The equipment involved may be as simple as a clock as sophisticated as the monitoring and control system for the main engine plant; or as complex as a port's vessel traffic system. All affected parties must assess the extent of the problem in their operations, prioritize potentially non-complaint units/systems and decide on the correct action. Depending on the system, equipment or software involved the correct action may be to repair it, replace it, or use alternative systems or manual operations.

3 Awareness of the nature and extent of the problem is critical in correcting it. The problem does not reside merely in mainframe or personal computer systems. It also affects programmes embedded in any microchip based system. One of the first steps in addressing the problem is to conduct an inventory of equipment that may be affected in order to establish whether or not software and hardware are Year 2000 compliant. Failure to identify and correct systems that could be affected by the Year 2000 problem could result in serious safety problems, such as unexpected shutdown of the main engines and ships' navigation systems or a breakdown in communications, or loss of shore utility services.

4 This Code of Good Practice recognises that the risk of unforeseen Year 2000-related failures cannot be totally discounted, notwithstanding that all proper steps to rectify possible Year 2000 problems may have been taken. It is vital, therefore, that ship operators, port authority and terminal operators identify and put in place operational contingency plans to ensure that safety is not compromised in the event of an unforeseen Year 2000 equipment or system malfunction. The Code acknowledges the need to exchange information and assurances relating to the measures and precautions taken by shipping companies and ports, respectively, if navigation and port operations are to continue during Year 2000 critical periods.

Elements of the Code of Good Practice

5 The Code recommends measures whereby those responsible for ship, port and terminal operations can reduce the risks associated with the possible malfunction of equipment incorporating "embedded systems", as well as computer equipment, which may be dependent on electronic date recognition. It stresses the importance of:

- the shipmaster's freedom to use his professional judgement in accordance with SOLAS regulation V/10-1*

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* **SOLAS Chapter V (Safety of Navigation), regulation 10-1:**
Master's discretion for safe navigation
The master shall not be constrained by the shipowner, charterer or any other person from taking any decision which, in the professional judgement of the master, is necessary for safe navigation, in particular in severe weather and in heavy seas.

- the shipowner's master's, port authority's and terminal operator's respective responsibilities for safety and the environment;

- compliance with rules and recommendations covering such matters as passage planning, maintaining appropriate margins of safety in case of breakdown, and prompt reporting when so required;

- the exchange of information between involved parties so as to ensure that all concerned are fully informed and that the measures that have been taken are appropriate to the circumstances; and

- the provision of suitable additional training, where appropriate.

6 The Code is not intended to preclude the adoption of other measures by individual shipping companies, port authorities and terminal operators, nor does it relieve those responsible of their duty to use their discretion in light of the many factors which contribute to safety and pollution prevention.

7 It is recommended that, for the duration of any period when there may be date induced uncertainty as to the performance or functionality of computer systems, electronic and electro-mechanical or similar equipment, the following precautions should be adopted:

.1 Sufficient competent personnel should be available on ships and within ports and terminals to monitor and maintain extra vigilance on critical systems and operations, and respond immediately to equipment failures during the Year 2000 critical periods. Furthermore, if it is planned to introduce operational contingency plans in excess of normal practice, it is important that staff are fully trained and exercised in the implementation of such plans.

.2 Prior to entering confined or congested waters and areas where hazards to navigation exist, the master, taking into account the prevailing circumstances and any advice or instructions received, should decide on the appropriate action to be taken to ensure the continued safety of his ship, crew, passengers and cargo, bearing in mind that not only the ship, but other ships in the vicinity, could lose power, steering or the use of electronic navigation equipment. If the master deems that the safety of the ship is at risk, the master should consider measures to minimize the risk by such means as reducing speed, delaying entry to the port or steering an alternative course.

.3 The port or terminal may obtain information in advance from ship operators in accordance with the questionnaire in Appendix 1. Prior to arrival in or departure from a port or terminal, or before entering port limits, information from authorized personnel should be exchanged by appropriate means between the ship and the port or terminal, as provided for in the questionnaires in Appendices 2 and 3.

.4 Prior to a ship entering or navigating within a port, the port authority or terminal operator should advise the ship of any additional conditions or constraints on navigation or cargo handling that the port authority or terminal operator has decided are necessary in order to minimize the risks associated with any Year 2000 equipment malfunction. Such measures might include minimum separation between ships, speed constraints, the use of tugs, loading/discharge restrictions, etc.

.5 If, after exchanging information, and prior to commencing cargo handling or bunkering operations, there is doubt whether the planned operation can be conducted safely, and without hazard to the environment, property or personnel, the master, port authority or terminal operator should within their respective scope of responsibility, postpone or suspend the operation until the risk of Year 2000 equipment malfunction has passed.

.6 Following a Year 2000 critical period, all equipment not used during that period, and potentially affected by electronic date recognition problems, should be tested to ensure that its performance has not been adversely affected.

APPENDIX 1

YEAR 2000 QUESTIONNAIRE 1

From: (Port Authority/Terminal Operator) _____

Name: _____ **Position:** _____

To: (Name of Ship Operating Company) _____

Please answer the following question if your company anticipates that a ship or ships operated by the company is expected to arrive at, operate in, or depart the above port during a period when there might be date induced uncertainty as to the performance or functionality of computer systems, electronic and electro-mechanical or similar equipment.

Person responsible for Year 2000 Policy, **Name:** _____
Position: _____
Contact Address: _____
_____

Ship Name(s)/IMO No(s): 1. _____
2. _____
3. _____

Ship Type(s): 1. _____
2. _____
3. _____

	Delete as appropriate	
1) Does your company have a documented Year 2000 policy in place?	**YES**	**NO**
2) Have inventory checks for each ship been carried out to identify and categorize potentially non-compliant equipment?	**YES**	**NO**
3) Has equipment critical to the operational safety of the ship(s) been investigated, and have appropriate remedial actions been carried out with regard to:		
- Navigational Systems?	**YES**	**NO**
- Propulsion and Power Generation Systems?	**YES**	**NO**
- Cargo Handling Equipment?	**YES**	**NO**
- Other Safety Equipment?	**YES**	**NO**
4) Are records of Year 2000 compliance, and/or the results of equipment tests/investigations, documented and available for inspection by the Port Authority/Terminal Operator?	**YES**	**NO**
5) Does each ship have a documented Year 2000 specific contingency plan?	**YES**	**NO**
6) Has each ship's Year 2000 contingency plan been tested and reviewed to confirm its effectiveness?	**YES**	**NO**

Signature (on behalf of the ship operating company): _____
Date: _____

APPENDIX 2

YEAR 2000 QUESTIONNAIRE 2

From: (Port Authority/Terminal Operator) _____
To: (Name of Ships) _____

Please answer the following as fully as you can. Your response to this questionnaire will assist the Port Authority/Terminal Operator in deciding whether due care has been exercised in avoiding possible equipment failure caused by Year 2000 electronic date recognition problems, and in putting in place contingency plans to cope with unforeseen failures.

Company: _____
Ship's IMO Number: _____ **Flag:** _____
Tonnage (gross): _____ **Ship Type (e.g. ro-ro, cargo):** _____
Date/time of expected arrival/departure: _____

	Delete as appropriate	
1) Does your company have a documented Year 2000 policy in place?	**YES**	**NO**
2) Has an inventory check to identify and categorize potentially non-compliant equipment been carried out?	**YES**	**NO**
3) Has equipment critical to the operational safety of the ship(s) been investigated, and have appropriate remedial actions been carried out with regard to:		
- Navigational Systems?	**YES**	**NO**
- Propulsion and Power Generation Systems?	**YES**	**NO**
- Cargo Handling Equipment?	**YES**	**NO**
- Other Safety Equipment?	**YES**	**NO**
4) Are records of Year 2000 compliance, and/or the results of equipment tests/investigations documented?	**YES**	**NO**
5) Are the above documents available onboard the ship for inspection by the port authority/terminal operator?	**YES**	**NO**
6) Does the ship have a documented Year 2000 specific contingency plan, including competent personnel to implement it?	**YES**	**NO**
7) Has the ship's Year 2000 contingency plan been tested and reviewed to confirm its effectiveness?	**YES**	**NO**
8) Has the ship's equipment not currently in use, but critical to safe operation of the ship, been checked to establish that its functionality has not been affected?	**YES**	**NO**
9) Has all necessary information been exchanged and agreed with the above named port/terminal on any additional Year 2000 specific requirements applicable to ship operations in the port?	**YES**	**NO**

Name of the Master: _____
Signature of the Master: _____
Date: _____

APPENDIX 3

YEAR 2000 QUESTIONNAIRE 3

From: (Ship/Shipping Company) _____

To: (Port Authority/Terminal Operator) _____

Date/time of expected arrival/departure: _____

It is anticipated that the above ship will/may require to navigate or handle cargo within your port on or around the above dates. Please complete the following questions concerning the Year 2000 preparations made by the Port Authority/Terminal Operator.

	Delete as appropriate	
1) Does the Port Authority/Terminal Operator have a documented Year 2000 policy in place?	**YES**	**NO**
2) Has an inventory check to identify and categorize non-compliant equipment been carried out?	**YES**	**NO**
3) Has all equipment critical to the safety of navigation/cargo handling been assessed for Year 2000 compliance?	**YES**	**NO**
4) Has the Port Authority/Terminal Operator investigated potential problems and solutions?	**YES**	**NO**
5) Where non-compliant equipment has not been replaced or upgraded have alternative systems or manual operations been established?	**YES**	**NO**
6) Has the Port Authority/Terminal Operator sought to establish whether its critical suppliers, utilities and external services are Year 2000 compliant?	**YES**	**NO**
7) Is there serious doubt as to the availability of any supply, utility or service which is critical to safety?	**YES**	**NO**
8) Does the Port Authority/Terminal Operator have operational contingency plans in place to cope with unforeseen Year 2000 equipment malfunctions?	**YES**	**NO**
9) Have these contingency plans been tested and reviewed to confirm their effectiveness?	**YES**	**NO**
10) Has all necessary information been exchanged and agreed with the ship/shipping company on any additional Year 2000 specific requirements applicable to port/terminal operations?	**YES**	**NO**

Name: _____
Position: _____
Contact Address: _____
_____

Signature: _____
Date: _____

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ANNEX 2

KEY ELEMENTS OF Y2K CONTINGENCY PLANS FOR SHIPS, PORTS AND TERMINALS

1 Specific Y2K contingency plans for ships, ports and terminals are necessary, as the chance of successfully finding and fixing all "Year 2000" problems is small. Furthermore, others within the transportation infrastructure could let you down.

2 This is a short guide aimed at assisting those in the marine transportation industry to understand the elements of Year 2000 Contingency Planning which may supplement/complement existing emergency response plans.

3 The following are examples of some specific Year 2000 factors that could be taken into account when drawing up Year 2000 contingency plans:

- Year 2000 failures may result in multiple/simultaneous failures of ships and port systems;
- Year 2000 specific training should be integrated into existing incident training structures;
- familiarization with and check of all manual control operations should increase; and
- all user operations/instruction manuals should be available and up to date.

4 The above are in addition to more general points that need to be considered when addressing contingency plans such as:

- **Identification of equipment**. Identify equipment, systems and systems integration which could be critically affected by Y2K (examples are attached in Appendices 1 and 2). The lists contained in the Appendices are not exhaustive and consideration should be given to the individual requirements of the specific ship, port or terminal.
- **Description of "failure scenarios"**. For each critical system, a "failure scenario" should be described. "Failure scenarios" should include when a failure is most likely to occur and the duration of the possible failure period.
- **An evaluation of risk**. Within risk one should cover the PROBABILITY an event will occur and the IMPACT, in terms of safety and business continuity, it may have on the port/terminal or vessel. At a minimum, IMPACT should be delineated into three categories. Example definitions follow:
  - **High Risk** - Failure of a high-risk item could cause loss of life, loss of ship, a collision or grounding, a major pollution incident, closure of port facilities or a serious threat to company survival.
  - **Medium Risk** - Failure of a medium risk item could cause delays to operations, commercial penalties or fines.
  - **Low Risk** - Failure of a low risk item could cause extra work and inconvenience.

- **A listing of mitigation options**. These are preventive actions that can be taken well in advance of the onset of a failure trigger date to offset or mitigate the effects of the failure. The chosen mitigation option should include the accepted risk that remains after it has been implemented.

- **A listing of contingency options**. Contingency options are strategies for responding to failure scenarios. It is anticipated that recovery procedures will already be in place for equipment, systems and system integration to address operational recovery from minor process failures up to complete critical system failure. However, these procedures should be reviewed and supplemented as required in light of the Year 2000 problem.

APPENDIX 1

EXAMPLES OF POSSIBLE CRITICAL SYSTEMS FOR PORTS AND TERMINALS

Cargo Management
- Loading/Unloading
- Inspection
- Cargo Storage
- Customs and Other Agencies
- Tracking
- Warehouses

Passenger and Crew Services
- People Embarkation/Disembarkation
- Vehicle Embarkation/Disembarkation
- Immigration Controls
- Ferry Services

Customs

Waste Disposal

Ship Repairs

Waterway and Port Management
- Aids to Navigation
- Pilotage and Tug Service
- Port Management
- Waterways Management
- Bridges
- VTS

Leisure
- Retail
- Marinas

Power Supply and Generation
- Supply
- Production
- Maintenance and Repair

Security

Health and Safety
- Fire Protection
- Pest Control/Quarantine
- Clean Water

Environment
- Pollution Prevention
- Bunkering

Site Access
- Rail
- Road
- Air
- Foot

Business Activities and Processes
- Office Functions

Asset Management
- Buildings
- Vehicles and Handling Equipment
- Maintenance

Financial Systems

Communications Systems
- External
- Internal

APPENDIX 2

EXAMPLES OF POSSIBLE CRITICAL SYSTEMS FOR SHIPS

Navigation
- Position
- Steering
- Manoeuvring

Propulsion and Utilities
- Engine control and Monitoring
- Electrical Power Generation
- Emergency Power Generation

Safety
- Fire Protection
- Gas Detection
- Flooding Control
- Position Warning
- Lifesaving Appliances

Cargo Management
- Load/Unload
- Monitoring

Maintenance and Repair

Communications
- External
- Internal

Environment
- Pollution Prevention
- Bunkering

Crew and Passenger Services
- Catering
- Domestic
- Leisure
- Hygiene
- Environment
- Medical
- Passenger Lifts
- Security

Business Services
- Office Services
- Stores
- Client Services
