



Treaty Series

*Treaties and international agreements
registered
or filed and recorded
with the Secretariat of the United Nations*

VOLUME 1361

Recueil des Traités

*Traités et accords internationaux
enregistrés
ou classés et inscrits au répertoire
au Secrétariat de l'Organisation des Nations Unies*

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*Treaties and international agreements
registered or filed and recorded
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VOLUME 1361

1984

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***Traités et accords internationaux
enregistrés ou classés et inscrits au répertoire
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VOLUME 1361

1984

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NOTE BY THE SECRETARIAT

Under Article 102 of the Charter of the United Nations every treaty and every international agreement entered into by any Member of the United Nations after the coming into force of the Charter shall, as soon as possible, be registered with the Secretariat and published by it. Furthermore, no party to a treaty or international agreement subject to registration which has not been registered may invoke that treaty or agreement before any organ of the United Nations. The General Assembly, by resolution 97 (I), established regulations to give effect to Article 102 of the Charter (see text of the regulations, vol. 859, p. VIII).

The terms "treaty" and "international agreement" have not been defined either in the Charter or in the regulations, and the Secretariat follows the principle that it acts in accordance with the position of the Member State submitting an instrument for registration that so far as that party is concerned the instrument is a treaty or an international agreement within the meaning of Article 102. Registration of an instrument submitted by a Member State, therefore, does not imply a judgement by the Secretariat on the nature of the instrument, the status of a party or any similar question. It is the understanding of the Secretariat that its action does not confer on the instrument the status of a treaty or an international agreement if it does not already have that status and does not confer on a party a status which it would not otherwise have.

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Unless otherwise indicated, the translations of the original texts of treaties, etc., published in this *Series* have been made by the Secretariat of the United Nations.

NOTE DU SÉCRÉTARIAT

Aux termes de l'Article 102 de la Charte des Nations Unies, tout traité ou accord international conclu par un Membre des Nations Unies après l'entrée en vigueur de la Charte sera, le plus tôt possible, enregistré au Secrétariat et publié par lui. De plus, aucune partie à un traité ou accord international qui aurait dû être enregistré mais ne l'a pas été ne pourra invoquer ledit traité ou accord devant un organe des Nations Unies. Par sa résolution 97 (I), l'Assemblée générale a adopté un règlement destiné à mettre en application l'Article 102 de la Charte (voir texte du règlement, vol. 859, p. IX).

Le terme «traité» et l'expression «accord international» n'ont été définis ni dans la Charte ni dans le règlement, et le Secrétariat a pris comme principe de s'en tenir à la position adoptée à cet égard par l'Etat Membre qui a présenté l'instrument à l'enregistrement, à savoir que pour autant qu'il s'agit de cet Etat comme partie contractante l'instrument constitue un traité ou un accord international au sens de l'Article 102. Il s'ensuit que l'enregistrement d'un instrument présenté par un Etat Membre n'implique, de la part du Secrétariat, aucun jugement sur la nature de l'instrument, le statut d'une partie ou toute autre question similaire. Le Secrétariat considère donc que les actes qu'il pourrait être amené à accomplir ne confèrent pas à un instrument la qualité de «traité» ou d'«accord international» si cet instrument n'a pas déjà cette qualité, et qu'ils ne confèrent pas à une partie un statut que, par ailleurs, elle ne posséderait pas.

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Sauf indication contraire, les traductions des textes originaux des traités, etc., publiés dans ce *Recueil* ont été établies par le Secrétariat de l'Organisation des Nations Unies.

I

Treaties and international agreements

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from 1 July 1984 to 11 July 1984

No. 23001

Traités et accords internationaux

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N° 23001

No. 23001

MULTILATERAL

International Convention on standards of training, certification and watchkeeping for seafarers, 1978 (with annex). Concluded at London on 7 July 1978

Authentic texts: Chinese, English, French, Russian and Spanish.

Registered by the International Maritime Organization on 11 July 1984.

(For the authentic French, Russian and Spanish texts, see volume 1362.)

N° 23001



MULTILATERAL

Convention internationale de 1978 sur les normes de formation des gens de mer, de délivrance des brevets et de veille (avec annexe). Conclue à Londres le 7 juillet 1978

Textes authentiques : chinois, anglais, français, russe et espagnol.

Enregistrée par l'Organisation maritime internationale le 11 juillet 1984.

(Pour les textes authentiques français, russe et espagnol, voir volume 1362.)

[CHINESE TEXT — TEXTE CHINOIS]

1978 年海员培训、发证 和值班标准国际公约

本公约各缔约国，

本着制订一致同意的海员培训、发证和值班的国际标准，以增进海上人命与财产的安全和保护海洋环境的愿望，

考虑到达到这一目的的最好办法为缔结一项海员培训、发证和值班标准国际公约，

现经协议如下：

第一条 公约的一般义务

一、各缔约国承担义务实施本公约及其附则的各项规定，该附则为本公约的组成部分。凡引用本公约时，同时也就是引用该附则。

二、各缔约国承担义务颁布一切必要的法律、法令、命令和规则，并采取一切必要的其它措施，使本公约充分和完全生效，以便从海上人命与财产的安全和保护海洋环境的观点出发，保证船上的海员胜任其职责。

第二条 定义

除另有明文规定者外，就本公约而言：

一、“缔约国”系指本公约已对之生效的国家；

二、“主管机关”系指船舶有权悬挂其国旗的缔约国政府；

三、“证书”系指由主管机关颁发或经主管机关授权颁发或为主管机关所认可的一种有效文件(不论其名称如何),该文件委派其持有人担任该文件中所指定的或国家规章所规定的职务;

四、“具有了证书的”系指持有恰当的证书;

五、“组织”系指政府间海事协商组织(海协);

六、“秘书长”系指海协组织秘书长;

七、“海船”系指除了在内陆水域中或者遮蔽水域或港章所适用的区域以内或与此两者紧邻的水域中航行的船舶以外的船舶;

八、“渔船”系指用于捕捞鱼类、鲸鱼、海豹、海象或其他海洋生物资源的船舶;

九、“无线电规则”系指附于或被视作附于随时有效的最新国际电信公约的无线电规则。

第三条 适用范围

本公约适用于在有权悬挂缔约国国旗的海船上工作的海员,但在下列船上工作的海员不在此例:

一、军舰、海军辅助舰船或者为国家拥有或营运而只从事于政府的非商业性服务的其他船舶;但是各缔约国应采取无损于其拥有或营运的此类船舶的作业或作业能力的适当措施以保证在此类船上工作的人员,在合理可行的范围内符合本公约的要求;

二、渔船;

三、非营业的游艇;或

四、构造简单的木船。

第四条 资料交流

一、各缔约国应尽快将下述资料送交秘书长：

1. 就本公约范围内各项事宜所颁布的法律、法令、规则及文件的文本；

2. 为根据本公约规定所颁发的每一种证书而设置的学习课程内容和期限的详细情况(如适当时)及其国家的考试和其他要求；

3. 根据本公约规定所颁发的证书足够数量的样本。

二、秘书长应将本条第一款第1项所规定的任何资料的收到情况通知所有缔约国，同时为了第九条和第十条的目的，在承索时，特别应将按本条第一款第2项和第3项所送交的资料提供给这些国家。

第五条 其它条约与解释

一、缔约国之间现行有效的一切以前的关于海员培训、发证和值班标准的条约、公约及协定，在其有效期间，对以下所述应继续完全和充分有效：

1. 不适用于本公约的海员；

2. 适用于本公约的海员但本公约未予明文规定的事项。

二、但是，在这些条约、公约或协定与本公约规定相抵触的方面，各缔约国应对其按这些条约、公约及协定所承担的义务重新予以审查，以保证这些义务与其根据本公约所承担的责任不相抵触。

三、凡本公约中未予明文规定的事项，仍受缔约国法律的约束。

四、本公约的任何规定，均不得损害根据联合国大会 C(XXV)第 2750 号决议召开的联合国海洋法会议对海洋法的编纂和发展，也不得损害任何国家目前和今后就海洋法以及沿海国和船旗国的管辖权的性质和范围所提出的要求和法律上的意见。

第六条 证 书

一、船长、高级船员或一般船员的证书，应颁发给按照本公约附则的相应规定、主管机关满意地认为在服务、年龄、健康、训练、资格和考试各方面都符合要求的应试者。

二、按本条规定发给船长和高级船员的证书，应由发证的主管机关按附则第1/2条规定的形式予以签证。如所用文字不是英文，则该签证应包括有英文译文。

第七条 过渡规定

一、在本公约对某一缔约国生效前，按缔约国法律或无线电规则，对本公约要求具有证书的职位所颁发的适任或职务证书，在本公约对该缔约国生效后，仍应被认为是有效的。

二、本公约对某一缔约国生效后，其主管机关可继续在不超过五年的期间内，按其过去的做法颁发适任证书。就本公约而言，这种证书应被认为是有效的。在这一过渡期间内，这种证书只应颁发给在本公约对该缔约国生效前业已开始在与这种证书有关的船上特定部门内从事海上工作的海员。主管机关应保证对所有其他要求取得证书的应试者均按本公约的规定进行考试和发证。

三、在本公约对某一缔约国生效后两年之内，该缔约国可对在本公约对该缔约国生效前既未持有本公约规定的适当证书，也未持有按该缔约国法律颁发的适任证书的海员，颁发职务证书，但这些海员应：

1. 在本公约对该缔约国生效前的最近七年之内，至少在海上按其所要求取得的职务证书的职位已工作了三年；
2. 已提出其令人满意地执行该项职务的证据；

3. 已使主管机关参照其申请时的年龄认为健康状况、包括视力和听力均属合格。

就本公约而言，根据本款规定颁发的职务证书，应视为等同于根据本公约规定所颁发的证书。

第八条 特 免

一、在特殊需要的情况下，主管机关如认为对人员、财产和环境不致造成危险时，可颁发特免证明，允许某一指定的海员在某一指定的船上，在为期不超过六个月的指定期间内，担任他并未执有适当证书的职业（除有关的无线电规则所规定者外，无线电报务员和无线电话务员不在此例），但是，被发给这种特免证明的人员，应系主管机关满意地认为能安全地充分胜任其所补空缺者。然而，除在不可抗力的情况下外，对船长或轮机长不得给予特免证明，因而在这种情况下所给予的这种证明其期限应尽可能地短。

二、凡给予某职位的特免证明，只应发给适当证明可充任仅比该职务低一级职务的人员。如本公约对该项低一级的职位并无证书要求，则可对主管机关认为其资格和经验显然相当于所要充任的职位的要求的人员颁发特免证明，但是，如果该人并未持有相应的证书，则应通过一个主管机关可接受的考试，以表明这种特免证明的颁发是安全的。此外，主管机关应保证尽速由持有相应证书的人员来充任该项职位。

三、各缔约国应于每年元月一日后，尽速向秘书长送交一份报告，说明一年中间海船所颁发的关于有证书要求的每项职位的特免证明的总数，以及分别说明总吨位在 1600 吨以上和以下的这些船舶的艘数。

第九条 等 效

一、本公约的规定不应妨碍主管机关保留或采取其它教育和训练的安排，包括涉及专门适应技术上的发展和特种船舶及贸易的水上业务和船上组织的教育和训练的安排，但在船、货航行和技术操作方面，海上服务、知识与效率的水平，应保证并具有至少相当于本公约要求的海上安全程度和防污的效果。

二、应尽早将这种安排的详情报告秘书长，秘书长则应将这种详情通知所有缔约国。

第十条 监 督

一、除第三条所排除的船舶外，船舶在一缔约国的港口时，应受该缔约国正式授权的官员的监督，以核实船上凡公约要求具有证书的海员均持有证书或适当的特免证明。除非有明显的理由认为证书系骗取的或持证人不是该证书原来所发给的本人，否则此类证书应予承认。

二、在根据第一款或附则第 I/4 条“监督程序”的规定发现任何缺陷时，执行监督的官员应以书面通知该船船长及船旗国的领事或（在无领事时）最近的外交代表或海事管理当局，以便采取适当的措施。这种通知应说明所发现的缺陷的细节，以及该缔约国据以判定这些缺陷对人员、财产和环境危险的理由。

三、在根据第一款的规定执行监督时，如果考虑到船舶的大小和类型以及航程的长短和性质，附则第 I/4 条第三款中所述的缺陷未能纠正，并经判定这将对人员、财产或环境构成危险时，执行监督的缔约国应采取措施，务使符合这些要求，从而危险得以消除后，才准其开航。关于所采取的行动的实情，应立即报告秘书长。

四、在根据本条执行监督时，应尽量避免使船舶受到不适当的扣留或延误。如果船舶受到这种扣留或延误，则该船对于由此而引起的任何损失或损害，有权要求赔偿。

五、本条规定应根据必要予以施行，以保证不给予有权悬挂非缔约国国旗的船舶以比有权悬挂缔约国国旗的船舶以较为优惠的待遇。

第十一条 促进技术合作

一、本公约缔约国应与本组织协商并在本组织的协助下，促进并支持对下述有技术援助要求的缔约国：

1. 培训行政管理和技术人员；
2. 建立海员培训学校；
3. 供应培训学校的设备与设施；
4. 制订适当的培训计划，包括在海船上的实际训练；
5. 促进提高海员资历的其它措施与安排。

考虑到发展中国家在这方面的特殊需要，这些援助宜以国家、分区或地区为基础，以推进本公约的目的和宗旨。

二、本组织方面，应根据情况与其他国际组织特别是国际劳工组织进行协商或联合，对以上所述作出努力。

第十二条 修正案

一、本公约可按下述的任一程序进行修正：

1. 经本组织内审议后的修正：

(1) 一缔约国提议的任何修正案，应提交给秘书长，然后由秘书长至少在审议此修正案之前六个月分发给本组织所有会员、所有缔约国及国际劳工组织总干事；

(2) 按上述规定提议和周知的任何修正案,应提交给本组织海上安全委员会审议;

(3) 缔约国,不论其是否为本组织的会员,均有权参加海上安全委员会对修正案进行审议和通过的会议;

(4) 修正案应在按本款第(3)项所规定的扩大的海上安全委员会(以下简称为“海上安全委员会扩大会议”)上,以到会并投票的缔约国的三分之二多数通过,但在表决时,至少应有三分之一的缔约国出席;

(5) 这样通过的修正案,应由秘书长通知所有缔约国,以供接受;

(6) 对于条款的修正案,在其为三分之二的缔约国接受之日,即应视为已被接受;

(7) 对于附则的修正案,在下列情况下,应视为已被接受:

(i) 自通知缔约国供其接受之日起满两年时;或

(ii) 在海上安全委员会扩大会议上通过该修正案时经到会并投票的缔约国三分之二多数所确定的另一期限届满时,但这一期限不得少于一年;

但是,如果在规定的期间内,有三分之一以上的缔约国,或其商船总和不少于世界 100 总登记吨及 100 总登记吨以上的商船总吨位的 50% 的缔约国,通知秘书长反对该修正案,则该修正案应视为未被接受;

(8) 对条款的修正案,对已接受该修正案的各缔约国,应在其视为已被接受之后经过六个月生效;对在该修正案被视为接受之日后接受该修正案的每一缔约国,则应在该缔约国接受之日后经过六个月生效;

(9) 对附则的修正案,应在其视为已被接受之日后过六个月对所有缔约国生效,但按第 1 项第(7)目的规定对该修正案提出过反对且未

曾撤销该项反对的缔约国除外。在规定的生效日期之前，任何缔约国可通知秘书长，在该修正案生效之日起不超过一年的期间内，或在海上安全委员会扩大会议通过该修正案时经到会并投票的缔约国的三分之二多数确定的较此为长的期间内，该缔约国免于实施该修正案。

2. 会议修正：

(1) 应一个缔约国的请求，并至少有三分之一缔约国的同意，本组织应与国际劳工组织总干事联合或与之协商召开一次缔约国会议来审议对本公约的修正案；

(2) 凡由这种会议以到会并投票的缔约国的三分之二多数通过的修正案，应由秘书长通知所有缔约国，以供接受；

(3) 除会议另有决定外，该修正案应分别按第1项第(6)目和第(8)目或第1项第(7)目和第(9)目中所规定的程序视为已被接受和生效，但这些项目中所提到的海上安全委员会扩大会议应被认为是指标的缔约国政府会议。

二、对于一项修正案的任何接受或反对的声明，或根据第一款第1项第(9)目所作的任何通知，均应以书面提交给秘书长。秘书长应将此类文件的提交及其收到日期通知所有缔约国。

三、秘书长应将任何生效的修正案连同每项这种修正案的生效日期通知所有缔约国。

第十三条 签字、批准、接受、核准和加入

一、本公约自一九七八年十二月一日起至一九七九年十一月三十日止，在本组织总部开放供签字，此后应继续开放供加入。任何国家可按下列方式参加本公约：

1. 签字而对批准、接受或核准无保留；或

2. 签字而有待批准、接受或核准，随后再予批准、接受或核准；或

3. 加入。

二、批准、接受、核准或加入，应向秘书长交存一份相应的文件。

三、秘书长应将任何签字，或关于批准、接受、核准或加入的任何文件的交存及其交存日期，通知已签字或已加入本公约的所有国家和国际劳工组织总干事。

第十四条 生效

一、本公约应在至少有二十五个国家，其商船总和不少于全世界100总登记吨及100总登记吨以上的商船总吨的百分之五十，按第十三条已签字而对批准、接受或核准无保留，或已交存所需的关于批准、接受、核准或加入的文件之后，经过十二个月生效。

二、秘书长应将本公约的生效日期通知所有已签字或已加入本公约的国家。

三、凡在第1款所述的十二个月的期间内交存的批准、接受、核准或加入的文件，应在本公约生效之日生效，或在交存上述文件之日起过三个月生效，以较晚者为准。

四、凡在本公约生效之日后交存的批准、接受、核准或加入的文件，应在交存之日后经过三个月生效。

五、在修正案根据第十二条规定视为已被接受之日后交存的任何批准、接受、核准或加入的文件，应适用于修正后的公约。

第十五条 退出

一、任何缔约国，在本公约对其生效满五年后，可随时退出本公约。

二、退出本公约应以书面通知秘书长。秘书长应将收到的任何这种通知和收到日期以及退出的生效日期，通知所有其他缔约国和国际劳工组织总干事。

三、退出本公约应在秘书长收到退出通知一年后，或该通知中所载明的任何较此为长的期限届满后生效。

第十六条 保管和登记

一、本公约应交由秘书长保管，秘书长应将核证无误的本公约副本分发所有已签字或已加入本公约的国家。

二、本公约一经生效，秘书长应即按照联合国宪章第 102 条的规定，将本公约文本送联合国秘书长登记并公布。

第十七条 文 字

本公约正本一份，用中文、英文、法文、俄文和西班牙文写成，各种文本具有同等效力。应准备有阿拉伯文、德文的正式译本，与签署的正本一并存放。

下列具名的经各自政府授权的代表，特签署本公约，以昭信守。

一九七八年七月七日订于伦敦。

[For signatures affixed to the Convention, see p. 256 in volume 1362 — Pour les signatures apposées sous la Convention, voir p. 256 du volume 1362.]

第一章 总 则

规 则 I/1

定 义

除另有明文规定者外，就本公约而言：

1. “规则”系指公约附件中的规则；
2. “认可”系指主管机关的认可；
3. “船长”系指指挥一条船的人；
4. “高级船员”系指船长以外的由国家法律或规则所指派或在没有这种指派时，由集体协议或习惯法指派的任一船员；
5. “驾驶员”系指甲板部合格的高级船员；
6. “大副”系指级别仅低于船长的驾驶员，并在船长不能工作时由其指挥船舶；
7. “轮机员”系指轮机部的合格的高级船员；
8. “轮机长”系指负责船舶机械推进职能的高级轮机员；
9. “大管轮”系指级别仅低于轮机长的轮机员，并在轮机长不能工作时由其负责船舶的机械推进；
10. “助理轮机员”系指正在培训并将由国家法律或规则指派为轮机员的人；
11. “电报员”系指持有一级或二级无线电报员证书或持有按无线电规则规定颁发的水上行动业务无线电通讯报务员一般证书的人，他在国际海上人命安全公约所要求的船上无线电台工作；
12. “无线电话务员”系指持有按无线电规则规定颁发的适当的证书者；

13. “一般船员”系指船长或高级船员以外的船员；
14. “近岸航行”系指缔约国规定的在其附近的航行；
15. “推进动力”系指船舶登记证书或其它官方文件*上出现的以千瓦计的功率；
16. “无线电职责”包括(如为适当时)，根据无线电规则、国际海上人命安全公约及由各主管机关自行决定的有关海协建议案中的值班和技术保养及修理；
17. “油轮”系指建造成和应用于运载散装石油和石油产品的船舶；
18. “化学品船”系指建造成和应用于运载海协“运载散装危险化学品船舶的构造和设备规则”中所列的任何散装液体化学品的船舶；
19. “液化气体船”系指建造成和应用于运载海协“运载散装液化气船舶的构造和设备规则”中所列的任何液化气体的船舶。

规 则 I/2

证书的内容和签证的格式

一、证书必须用官方语言或发证国语言。如使用的语言不是英语，必须包括英语译文。

二、关于电报员和无线电话务员，主管机关可：

1. 包括为签发符合无线电规则要求的证书而举行的考试中所要求的本公约附件有关规则的附加知识；或

* 出现在登记证书或其他官方文件上的动力，在此假设为船舶所有主推进机械的合计最大连续额定输出功率。

2. 颁发一张单独的证书，指明证书持有者具有公约附件中所要求的附加知识。

三、公约第六条所要求的证书签证格式须按下列形式：

证书签证形式

证书的签证

(公章)

(国家)

根据 1978 年海员培训、发证和值班标准国际公约规定发给

二者选一* (××)政府证明

本人(以下签字者)证明

现证书/证书编号：.....**，发给×××(姓名)，

按 1978 年海员培训、发证和值班标准国际公约××规则规定，完全有资格作为_____***，仅有下列局限：

此处填局限)_____

或)_____

填“无”)_____

(如为适当时)

本签证签发日期：_____

(公章)

签字_____

(正式授权之官员姓名和签字)

持证人出生日期：_____

持证人签字：_____

* 用一行或其他。

** 适当时可删去。

*** 填入证书的公约级别或等级。

规 则 I/3

有关近岸航行的原则

1. 就本公约而言，任何规定近岸航行的缔约国不得将培训、经验或发证方面的要求强加于在悬挂另一缔约国国旗并从事此类航行的船上服务的海员，以造成对这些船员的要求比在悬挂自己国旗的船上服务的海员更为严格的情况。在任何情况下，此缔约国不得把超过公约中有关从事非近岸航行船舶的要求，强加于在悬挂另一缔约国国旗船上服务的海员。

2. 对于悬挂缔约国国旗、航行于另一缔约国海岸附近的定期近岸航行的船舶，其船旗国须为在此种船上服务的海员规定至少相当于船舶所航经的缔约国的培训、经验和发证要求，但这些要求不能超过公约对于非近岸航行的船舶的要求。航行超出一缔约国所规定的近岸航行并进入定义未涉及水域的船舶，须履行公约的要求，不得因本条规定而有所放宽。

3. 一缔约国可对有权悬挂其国旗的船舶，在其定期在另一非缔约国海岸附近从事近岸航行时，给予本公约有关近岸航行规定的利益。

4. 本规则中的内容在任何情况下都不得限制任何国家的管辖权，不论其是否为缔约国。

规 则 I/4

监 督 程 序

一、一个正式授权的监督官员按第十条规定行使的监督应限于下述方面：

1. 按第十条第一款规定核实所有在船上服务而公约又要求发证的海员都持有有效的证书或有效的特免证明；

2. 如果因在一缔约国港内或进入该港时发生了下列情况而有理由认为未能维持值班标准时，判断公约所要求的船上海员维持值班标准的能力情况：

(1) 船舶发生碰撞、搁浅或触礁；或

(2) 船舶在航行、锚泊或靠泊时从船上排放按国际公约规定为非法物质；或

(3) 船舶操作不稳定或不安全或未按航向标志或分道通航制航行。

二、在按第一款采取的监督活动中发现下列缺陷时，监督官员应按第十条规定，向船长和船旗国相应的代表提出书面情况：

1. 海员不持有所要求的适当有效的证书或有效的特免证明；

2. 未按船旗国规定要求作航海或轮机值班安排；

3. 值班中无合格人员操作对安全航行或防污染至为必要的设备；

4. 船长在一个航次开始时的值班和其后的接班中未能提供休息好的人员。

三、未能纠正第二款第1项中所涉缺陷——有关船长、轮机长和负责航行和轮机值班的高级船员以及(如有关时)电报员的证书问题，以及第二款第2项有关问题，这些将构成一缔约国按第十条规定扣留船舶的唯一依据。

第二章 船长——甲板部

规 则 II/1

航行值班中应遵守的基本原则

一、缔约国应指示船舶所有人、船舶营运人、船长和值班人员遵守下列原则，以确保在任何时候均能保持安全航行值班。

二、每艘船舶的船长，必须确保值班的安排适于保持安全航行值班。在船长的统一指挥下，值班驾驶员在他们的值班期间，特别是在关系到避免碰撞和搁浅时，负责船舶的安全航行。

三、所有船舶必须考虑包括下列、但不限于下列的基本原则。

四、值班安排

1. 值班编制在任何时候都必须充分和适应当时的环境和情况，并必须考虑保持正规了望的必要。

2. 在决定可能包括合适的甲板部一般船员在内的驾驶台值班编制时，尤其应考虑下列因素：

(1) 在任何时候，驾驶台不许无人看管；

(2) 天气情况、能见度、白天和黑夜；

(3) 临近航行上的危险时，可能需要负责值班的驾驶员执行额外的航行职责；

(4) 助航仪器，如雷达或电子定位仪以及其它影响船舶安全航行的设备的使用和操作条件；

(5) 船上是否装有自动操舵装置；

(6) 由于特殊的操作环境可能产生对航行值班的特别要求。

五、对职责的适任

值班制度应使值班驾驶员和值班船员的工作效率，不因疲劳而受影响。值班人员的编排务使航行开始时的第一班及其后的接班人员都能得到充分休息，或使其适任职责即可。

六、航行

1. 对预定的航次，应在研究一切有关资料后事先计划，并在启航前对制定的航线进行核对。

2. 在值班期间，应使用船上的一切助航仪器，对所驶的航向、船位和航速，通过足够频繁的间隔进行核对，以确保本船沿着计划航线行驶。

3. 值班驾驶员应充分了解船上所有安全和航行设备的放置地点和操作方法，并应注意和考虑到这些设备操作上的局限性。

4. 负责航行值班的驾驶员，不应被分配或担负任何妨碍船舶安全航行的职责。

七、航行设备

1. 值班驾驶员应最有效地使用在他支配之下的所有航行设备。

2. 在使用雷达时，值班驾驶员必须记住，在任何时候都必须遵守适用的海上避碰规则中所载的有关使用雷达的规定。

3. 在需要时，值班驾驶员应毫不犹豫地使用舵、主机和音响信号装置。

八、航行职责

1. 负责值班的驾驶员应：

(1) 在驾驶台坚持值班，在正式交班之前，无论如何都不得离开驾驶台；

(2) 继续对船舶的安全航行负责, 即使船长在驾驶台, 直到船长明确地通知他, 船长已承担责任并彼此领会时;

(3) 在为了安全而采取某种行动发生疑问时通知船长;

(4) 不向接班驾驶员交班, 如果他有理由相信接班驾驶员显然不能有效地履行其职责, 在这种情况下, 必须据情通知船长。

2. 接班驾驶员接班时, 应对本船的估计船位或真船位情况表示满意, 并证实预定的航迹、航向和航速, 还应注意在他值班期间预期可能遇到的任何航行危险。

3. 在值班期间, 有关本船航行的动态和活动, 应作恰当的记录。

九、了望

除了为充分判断碰撞、搁浅和其它危害航行安全的危险和情况而保持正规了望外, 了望人员的职责还应包括发现遇难的船舶和飞机、船舶遇难人员、沉船和碎片。在执行了望时, 应遵守下列各项:

1. 为保持正规了望, 了望应集中精力, 并不应承担或被分配给会妨碍本工作的其他职责;

2. 了望人员和舵工的职责是分开的。舵工在操舵时不应被视为了望人员, 但在小船上, 能在操舵位置上无障碍地看到周围情况, 且不存在夜里视力的减损和执行正规了望的其它障碍时除外。在白天, 如在下列各种情况下, 负责值班的驾驶员可以是唯一的了望人员:

(1) 已对外境仔细估量, 并确信此种做法是安全的;

(2) 已对包括下列但不限于下列的所有因素作了充分考虑:

——天气情况

——能见度

——通航密度

——临近的航行危险

——当航行在或接近于分道通航制区域时必要的注意；

(3) 当情况发生变化而需要协助时，协助人员能立即应召至驾驶室台。

十、有引航员在船时的航行

尽管引航员有其职责和义务，他在船上引航并不解除船长或负责值班的驾驶员对船舶安全所负的职责和义务。船长和引航员应交换有关航行方法、当地情况和船舶性能等情况。船长和值班驾驶员应与引航员紧密合作，并保持正确的船舶船位和动态。

十一、保护海上环境

船长和负责值班的驾驶员，应了解由于操作不当或意外事故对海上环境污染的严重后果，并应采取一切可能的预防措施，特别应采取有关国际规则和港规规定的预防措施，以防止这类污染。

规 则 II/2

对 200 总登记吨或以上的船舶的船长和大副发证的法定最低要求

对 1600 总登记吨或以上船舶的船长和大副

一、每个 1600 总登记吨或以上的海船的船长和大副都应持有相应的证书。

二、每个申请发证的应试者应：

1. 符合主管机关对体检的要求，特别是视力和听力；
2. 符合在 200 总登记吨或以上的船舶上负责航行值班的驾驶员的发证要求，并已对该职位具有被认可的海上服务经历；

(1) 大副证书, 不少于十八个月; 但是, 如果主管机关要求特殊培训, 而此种培训被视作至少相当于六个月的负责航行值班驾驶员的服务经历的话, 则此段时间, 可以缩减为不少于十二个月;

(2) 船长证书, 不少于三十六个月, 但是, 如果他已具有不少于十二个月的大副海上经历, 或如主管机关要求可被视为等同于此种海上经历的特殊培训的话, 则此段时间可以缩减为不少于二十四个月。

3. 已通过使主管机关满意的相应考试。这种考试必须包括本规则附则中规定的材料, 除非主管机关认为需要时, 才可改变对吨位有限、从事近岸航行船舶的船长和大副的考试要求, 但应注意对可能在同一水域航行的所有船舶安全的影响。

通则

三、在本附则各标题下, 所要求的知识水准, 可按证书是否发给船长或大副, 或证书是否适用于 1600 总登记吨及以上的船舶还是 200 至 1600 总登记吨之间的船舶而有所不同。

规则 II/2 附则

对 200 总登记吨或以上的船舶的船长和大副发证的最低 知识要求

一、下列纲要为报考 200 总登记吨或以上的船舶的船长或大副证书的应试者而编制的。纲要意在扩大和深化规则 II/4 «对 200 总登记吨或以上的船舶负责航行值班的驾驶员发证的法定最低要求» 内包含的课题。意识到船长对于船舶、旅客、船员和货物的安全负有最高责任, 而大副则处于随时承担这种责任的地位, 因此, 对这些课题的考试是为了考查他们对影响船舶安全的所有情况的融会贯通的能力。

二、航行和定位

1. 航次计划和在各种条件下的航行:

- (1) 以公认的方法画出远洋航线;
- (2) 在受限制的水域内;
- (3) 在冰区;
- (4) 在能见度不良时;
- (5) 在分道通航制区域内;
- (6) 在大的潮汐影响区域内。

2. 定位:

- (1) 包括利用太阳、恒星、月亮和行星的天体观测;
- (2) 天文观测, 包括通过相应的海图、航海通告和其他航海书籍, 结合利用陆标方位及诸如灯塔、航标和浮标等助航设备的能力, 以判断最终所得船位的正确性;

(3) 在使用一切现代船舶的电子助航仪器方面, 使主管机关满意, 尤应扩大对这些仪器的操作原理、局限性、误差来源、误传信息的探测和校正方法等的知识面, 以获得正确的船位。

三、值班

1. 表明对国际海上避碰规则的内容、应用及其意图, 包括附件中有关安全航行方面所具备的全面知识;

2. 表明对规则 II/1《航行值班中应遵守的基本原则》所具备的知识。

四、雷达设备

结合雷达模拟器的使用, 或无此种设备时, 结合运动图的使用, 表明对雷达的基本原理和操作与使用雷达的能力, 以及理解和分析由此设备获得的信息方面所具备的知识, 包括:

1. 影响性能和精确度的因素；
2. 调定和保持显示；
3. 误传信息的测试、假回波、海面回波等；
4. 距离和方位；
5. 危险回波的鉴别；
6. 他船的航向和航速；
7. 交叉、对遇或追越船的最接近点的时间和距离；
8. 他船航向和航速变化的推断；
9. 本船航向或航速，或二者兼具的变化所产生的影响；
10. 国际海上避碰规则的应用。

五、罗经、磁罗经和电罗经

具有测定和校正磁罗经和电罗经误差的能力，以及校正这种误差方法的知识。

六、气象学和海洋学

1. 表明在考虑了当地天气的情况下，理解和解释天气图和预测地区天气的能力；
2. 具有各种天气体系特性的知识，包括热带飓风及避开风暴中心和危险象限的知识；
3. 具有洋流系统的知识；
4. 具有使用一切有关潮汐和海流的相应航海书籍的能力，包括英文版本；
5. 具有计算潮汐情况的能力。

七、船舶操纵

在各种情况下操纵船舶，包括下列情况：

1. 在接近引航船或引航站时的船舶操纵，特别注意天气、潮汐、淌航距离和冲距等情况；
2. 在河道及江河口等处操纵船舶时，注意风流和限制的水域对舵效的影响；
3. 浅水中的船舶操纵，包括由于船体下坐⁽¹⁾、横摇、纵摇的影响而减少龙骨下的富裕水深；
4. 在两船会航和船与近岸间的相互作用(运河效应)；
5. 在各种不同的风流条件下，用或不用拖轮靠离泊位；
6. 锚地选择：在有限锚地内，使用单锚或双锚锚泊以及决定使用锚链长度的有关因素；
7. 走锚：清解绞缠的锚链；
8. 进干船坞，包括有损坏和无损坏；
9. 在恶劣天气下的船舶管理和操纵，包括救助遇难船舶或飞机，进行拖带作业，使失控船舶脱离波谷的方法，减少漂流和镇浪撒油等；
10. 在恶劣天气下，施放救生艇或救生筏时船舶操纵的注意事项；
11. 从救生艇和救生筏上将遇难人员救上船的方法；
12. 具有确定主要类型船舶的操纵和主机特性的能力，特别注意船舶在各种吃水和速度下的冲程和旋回圈；
13. 以减速航行避免因本船的艏艉波所造成浪损的重要性；
14. 当航行于冰区或船上结冰的情况下，应采取的切实可行的办法；

注(1) 船体下坐：指船在航行中由于船体下沉和纵倾变更而导致龙骨下富裕水深的减少；这种影响在浅水中尤甚，而在船速降低时减小。

15. 分道通航制的使用和在分道通航制区域内的船舶操纵。

八、船舶稳性⁽²⁾构造和波损控制

1. 了解船舶构造的基本原理和影响纵倾和稳性的理论和因素，以及保持安全纵倾和稳性的必要措施；

2. 在一舱受损并因而浸水时影响船舶纵倾和稳性的知识以及应采取的对策；

3. 表明对稳性、纵倾和强度图表以及强度计算仪器的使用，包括为了使船体强度保持在容许限度内的装货和压载方面的知识；

4. 船舶主要构件的一般知识和各种部件的正规名称；

5. 海协有关船舶稳性建议案的知识。

九、船舶动力装置

1. 船用动力装置的工作原理；

2. 船舶辅机；

3. 船用轮机术语的一般知识。

十、货物装卸和积载

1. 船上货物的积载和绑扎，包括起货设备；

2. 装卸作业，特别注意重件货物的装卸；

3. 有关货物运输的国际规则和建议案，特别是国际海上危险品运输规则(IMDG)；

4. 危险货物的运输。装卸作业过程中应采取的预防措施和航行中对危险货物的注意事项；

5. 现行有关油轮安全指导准则的内容和应用的实际工作知识；

6. 通常使用的货油管系和泵系布置的实际工作知识；

注(2) 在小船上服务的船长和大副应充分熟悉此种船舶的基本稳性要求。

7. 用于说明一般货油如原油、中质油、挥发油等特性的术语和定义；

8. 防污染规则：压载、洗舱和消除油气作业；

9. 污油上装油程序。

十一、防火和消防设备

1. 消防演习的组织；

2. 火灾的种类及其化学性质；

3. 灭火系统；

4. 参加认可的消防课程；

5. 有关消防设备规则的知识。

十二、应急措施

1. 船舶抢滩时注意事项；

2. 搁浅前后应采取的措施；

3. 在有援助或无援助时起浮搁浅船舶；

4. 碰撞后应采取的措施；

5. 渗漏的临时堵塞；

6. 在紧急情况下，旅客和船员的保护及安全的措施；

7. 船舶在发生火灾或爆炸后损害的控制及救护；

8. 弃船；

9. 应急舵的紧急操作、装配和使用，以及在实际可行时装配应急舵的方法；

10. 从遇难船或沉船上救人；

11. 救助落水人员的方法。

十三、医护

具有使用下列书籍内容的全面知识：

1. 船用国际医疗指南或国内出版的类似书籍；
2. 国际信号规则中的医疗部分；
3. 用于危险品事故医疗急救指南。

十四、海法

1. 国际协议和公约中包括的有关国际海洋法的知识，因为它们涉及船长的特殊义务和职责，尤其涉及其关于安全和保护海上环境方面的特殊义务和职责。尤应注意下列各项：

(1) 国际公约要求随船携带的证书或其它文件，如何取得这些证件以及这些证件的法定有效期限；

(2) 国际载重线公约有关要求的职责；

(3) 国际海上人命安全公约有关要求的职责；

(4) 国际防止船舶造成污染公约要求的职责；

(5) 航海健康申明书，国际健康规则的要求；

(6) 关于国际海上避碰规则公约要求的职责；

(7) 其它影响船舶、旅客、船员和货物安全的国际文件所要求的职责。

2. 国家海上法律的知识程度由主管机关确定，但当包括实施国际协定和公约的国内安排。

十五、人事管理及培训职责

船上人事管理、组织和培训的知识。

十六、通信

1. 用摩斯灯收发信息和使用国际信号规则的能力；如果应试者在取得较低级别证书时，主管机关已考过他们这些课题，则当他们在报考船长证书时，可有免试的选择。

2. 无线电通信使用程序的知识和使用无线电的能力、特别是使用有关遇险、紧急、安全和航行的信息方面的能力。

3. 无线电规则规定的无线电报应急遇险信号程序知识。

十七、救生

具有救生设备规则(国际海上人命安全公约)、组织弃船演习、救生艇、救生筏及其它救生设备的全面知识。

十八、搜索和救助

具有海协《商船搜寻救生手册》中的全面知识。

十九、表明熟习业务的方法

1. 航行

表明对六分仪、哑罗经和方位仪的使用以及描绘船位、航向、方位等能力。

2. 国际海上避碰规则

(1) 利用小模型显示恰当信号或灯号或航行灯模拟器；

(2) 运动图或雷达模拟器。

3. 雷达

(1) 雷达模拟器；或

(2) 运动图

4. 消防

参加认可的消防课程。

5. 通信

视觉和听觉的实际测验。

6. 救生

救生艇和其它救生设备的放落和操纵，包括救生衣的穿着。

规 则 II/3

对 200 总登记吨以下的船舶的船长和负责航行值班的驾驶员发证的法定最低要求

一、不从事近岸航行的船舶

1. 每个在 200 总登记吨以下不从事近岸航行的海船上服务的船长应持有为主管机关认可的 200 至 1600 总登记吨船舶的船长证书。

2. 每个在 200 总登记吨以下不从事近岸航行的海船上服务的负责航行值班的驾驶员应持有 200 总登记吨或以上船舶的相应证书。

二、从事近岸航行的船舶

1. 船长

(1) 每个在 200 总登记吨以下从事近岸航行的海船上服务的船长应持有相应的证书。

(2) 每个申请发证的应试者应：

(i) 年龄不小于二十岁；

(ii) 具有被认可的负责航行值班驾驶员不少于十二个月的海上经历并使主管机关满意，具有在有关船上相应于他职责的足够知识，这些知识应包括本规则附则中所列的内容。

2. 负责航行值班的驾驶员

(1) 每个在 200 总登记吨以下从事近岸航行的海船上负责航行值班的驾驶员，必须持有相应的证书。

(2) 每个申请发证的应试者应：

(i) 年龄不小于十八岁；

(ii) 符合主管机关对体检的要求，特别是视力和听力；

(iii) 使主管机关满意，他已：

——成功地经过专门培训，包括主管机关所要求的相应的海上服务的足够期限；或者

——完成被认可的不少于三年在甲板部工作的海上经历；

(iv) 使主管机关满意具有在有关船上相应于他职责的足够知识，这些知识包括在附则中所列的内容。

三、培训

为了完成必要知识和实际经验的培训，必须以规则 II /1——«航行值班中应遵守的基本原则»和有关国际规则和建议案为基础。

四、免除

主管机关如果认为某一船舶的大小及其航行的条件会使适用于本规则及其附则的全部要求成为不合理或不切实可行时，则可免除对这种船舶或这种船级的船长或负责航行值班驾驶员的某些要求，但应注意对可能在同一水域航行的所有船舶安全的影响。

规则 II/3 附则

对 200 总登记吨以下的船舶船长和负责航行值班的驾驶员发证的最低知识要求

一、1. 具有下列知识:

- (1) 沿海航行并在其要求范围内的天文航海;
- (2) 国际海上避碰规则;
- (3) 国际海上危险品规则(IMDG);
- (4) 磁罗经;
- (5) 无线电话及视觉信号;
- (6) 防火和消防设备;
- (7) 救生;
- (8) 应急措施;
- (9) 船舶操纵;
- (10) 船舶稳性;
- (11) 气象;
- (12) 小船动力装置;
- (13) 急救;
- (14) 搜索和救助;
- (15) 防止海上环境的污染。

2. 除第 1 项所列的要求外,还应具有安全地操作装在有关船上的所有助航仪器和设备的足够知识。

3. 对第 1 项和第 2 项中具体规定所要求的知识水平,应足以使值班驾驶员能安全地执行其职责。

二、每个在 200 总登记吨以下海船上服务的船长，除上述第一款规定的要求以外，还应在具备安全地执行其船长的全部职责的知识方面使主管机关满意。

规 则 II/4

对 200 总登记吨或以上的船舶负责航行值班的驾驶员发证的法定最低要求

一、每个在 200 总登记吨或以上海船上服务的负责航行值班的驾驶员，必须持有相应的证书。

二、每个申请发证的应试者应：

1. 年龄不小于十八岁；
2. 符合主管机关的体检要求，特别是视力和听力；
3. 具有在甲板部工作不少于三年的认可的海上经历。这段时间应包括在合格驾驶员监督下在驾驶台值班至少六个月的期限；但是，主管机关可以允许以一个特殊培训期限代替不超过二年认可的海上经历，只要该主管机关认为该项培训至少能等同于它所替代的海上经历；

4. 通过相应的考试使主管机关确信他具有与其职责相适应的足够的理论和实践知识。

三、无限航区证书

为颁发无限航区证书而举行的考试，应考核应试者在本规则附则中所列内容方面是否具有足够的理论和实践知识。

四、有限航区证书

为颁发限于近岸航行的证书，主管机关可以删去附则中的下列内容，但应注意对可能同一水域航行的所有船舶安全的影响：

1. 天文航海；
2. 用电子系统定位以及在无此系统覆盖的水域中的航行。

五、知识水平

1. 本附则所列内容所要求的知识水平应足以使值班驾驶员能安全地执行其值班职责。主管机关在决定相适应的知识水平时，应考虑附则中每一内容的说明。

2. 为了完成必要的理论知识和实际经验的培训工作，应以规则 II /1《航行值班中应遵守的基本原则》和有关国际规则及建议案为基础。

规则 II/4 附则

对 200 总登记吨或以上的船舶负责航行值班的驾驶员发证的最低知识要求

一、天文航海

使用天体确定船位和罗经差的能力。

二、地文和沿海岸航海

1. 使用下列各项确定船位的能力：

- (1) 陆标；
- (2) 灯塔、航标和浮标等助航标志；
- (3) 考虑风、潮汐、水流和按推进器每分钟转数和按计程仪得到的航速以推算船位。

2. 对海图和航海书籍，诸如航路指南、潮汐表、航行通告、无线电航行警告和船舶航路资料等的全面知识和使用能力。

三、雷达导航

雷达的基本知识、操作和使用雷达的能力以及理解和分析由雷达获得的信息的能力，包括下列各项：

1. 影响性能和精确度的因素；
2. 调定和保持显示；
3. 误传信息的测试，假回波、海面回波等；
4. 距离和方位；
5. 危险回波的鉴别；
6. 他船的航向和速度；
7. 交叉、对遇或追越船的最接近点的时间和距离；
8. 他船航向和航速变化的推断；
9. 本船航向或航速或二者兼具的变化所产生的影响；
10. 国际海上避碰规则的应用。

四、值班

1. 表明对国际海上避碰规则的内容应用及其意图，包括附件中有关安全航行方面所具备的全面知识。

2. 表明对规则 II /1《航行值班中应遵守的基本原则》所具备的知识。

五、定位和导航电子系统

具有使用电子导航仪器确定船位的能力并使主管机关满意。

六、无线电测向仪和回声测深仪

具有正确地操作这些设备和应用所得资料的能力。

七、气象学

具有船用气象仪器和使用这些仪器的知识。各种天气系统的特性，报告程序和记录系统的知识以及运用所据有的气象资料的能力。

八、罗经——磁罗经和电罗经

具有磁罗经和电罗经原理、包括其误差及修正方面的知识。关于电罗经，了解在主罗经控制下的每个系统以及主要类型电罗经的操作和注意事项方面的知识。

九、自动操舵

具有自动操舵系统和程序的知识。

十、无线电话和视觉信号

1. 用摩斯灯收发信息的能力；
2. 使用国际信号规则的能力；
3. 无线电话通信使用程序的知识和使用无线电话；特别是有关遇险、紧急、安全和航行的信息方面的能力。

十一、防火和消防设备

1. 组织消防演习的能力；
2. 火灾的种类及其化学性质方面的知识；
3. 消防系统的知识；
4. 参加认可的消防课程。

十二、救生

组织弃船演习的能力和操作救生艇、救生筏、救生浮具及其属具，包括手提式无线电装置和无线电应急示位标等方面的知识。海上救生技术的知识。

十三、应急措施

国际劳工组织/海协《指导文件》最新版相应附则中所列项目方面的知识。

十四、船舶操纵、

具有下列知识：

1. 不同载重量、吃水、纵倾、航速和龙骨下的水深对旋回圈和冲程的影响；
2. 风、流对船舶操作的影响；
3. 救助落水人员的操纵；
4. 船体下坐、浅水和类似影响；
5. 抛锚和带缆的恰当方法。

十五、船舶稳性

1. 具有对稳性、纵倾和强度图表和强度计算仪器的应用和操作方面的实际知识；
2. 懂得一旦丧失部分完整浮力时应采取的基本行动。

十六、英语

足够的英语知识能使驾驶员使用海图和其他航用书籍，了解气象资料和有关船舶安全和操作的信息，并能在和他船或岸台通信中清楚地表达意思。具有了解和使用海协编制的标准航海用语。

十七、船舶构造

船舶主要构件的一般知识和各种部件的正规名称。

十八、货物装卸和积载

货物的安全装卸和积载的知识及这些因素对船舶安全的影响。

十九、医疗救护

医疗指南和无线电指导的实际应用，包括根据这种知识在船上可能发生事故和疾病时采取有效行动的能力。

二十、搜索和救助

具有海协《商船搜寻救生手册》所叙述的知识。

二十一、防止海上环境的污染

防止海上环境污染应遵守的预防措施方面的知识。

规 则 II/5

为确保船长和驾驶员不断精通业务和掌握最新知识的法 定最低要求

一、每个在海上服务或在岸上一段时间后意欲重返海上服务的持有证书的船长和驾驶员，为了继续适于海上服务，要求他在不超过五年的间隔中，符合主管机关的下列要求：

1. 体检合格，特别是视力和听力；和
2. 专业能力

(1) 在前五年期间，至少具有一年认可的船长或驾驶员的海上经历；或

(2) 已完成有关相适应于其所持证书级别职责的职能，而此职能是视为至少等同于第一款第2项第(1)目中所要求的海上经历；或

(3) 具有下列各项之一

- 通过认可的考核；或
- 成功地完成了一门认可的课程或几门课程；或
- 在他担任证书上所授与的职务之前，已在作为编外驾驶员职务上具有不少于三个月的认可的上海经历。

二、主管机关应与有关方面协商，为在海上工作，特别是重新上船工作的船长及驾驶员制定或促进一项进修课程和最新课程的设置，按情况既可自愿参加亦可强制参加。主管机关必须确保所作的安排能使所有有关人员参加与他们的经验和职责相适应的这些课程。这些课

程应由主管机关认可，并应包括航海技术和有关海上人命安全和海上环境保护的国际规则及建议案的变动。

三、为了继续在船上从事国际上同意的需经特殊培训的海上工作，每个船长和驾驶员都应成功地完成一项认可的有关培训。

四、主管机关应确保在其管辖的船舶获得有关海上人命安全和海上环境保护的国际规则的最新修订文本。

五、一个海员如果在本规则被主管机关批准实施之前的五年中有不少于一年的时间在甲板部工作，他即可被主管机关认为已符合本规则要求。

规 则 11/G

对组成航行值班部分的一般船员的法定最低要求

一、下述第二款规定了 200 总登记吨或以上海船上组成航行值班部分的一般船员的要求，这些要求既不是为一水*发证规定的要求（除大小有限的船舶外），也不是对成为航行值班中唯一的一般船员所规定的要求。主管机关对于成为航行值班中唯一的一般船员可以提出附加的培训和资格方面的要求。

二、凡组成 200 总登记吨或以上海船航行值班部分的一般船员，应：

1. 年龄不小于十六岁；
2. 符合主管机关对体检的要求，特别是视力和听力；
3. 使主管机关满意，他已：

* 参阅国际劳工组织《1946 年一水发证公约》或任何其后的公约。

(1) 具有认可的海上经历，包括不少于六个月的、特别与航行值班职责相关的海上经验，或

(2) 成功地在在上船前或在船上经过了特殊培训，包括主管机关所要求的不少于两个月的足够的海上经历。

4. 具有包括下列各项的经验或训练：

(1) 消防、急救、个人救生技术，人身事故和个人安全的基本原理；

(2) 理解值班驾驶员的命令，并使值班驾驶员理解他所表示的与其职责有关事项的能力；

(3) 操舵和遵照舵令操舵的能力，并具有使能完成这些职责所需的磁罗经和电罗经的足够知识；

(4) 用视觉和听觉保持正规了望，并能以度数、点数报告声号、灯号或其它物标的大致方位的能力；

(5) 熟悉自动操舵和手操舵的相互更换；

(6) 使用相应的船上内部通讯和警报系统的知识；

(7) 烟火求救信号的知识；

(8) 应急职责的知识；

(9) 适应于他职务的船上术语及其定义的知识。

三、第二款第3项及第4项所要求的经验、经历或训练，可以通过执行与航行值班相关联的职责获得，但这些职责的执行须在船长、负责航行值班的驾驶员或合格的一般船员的直接监督下进行。

四、主管机关应确保对依照本规则以其经验或训练符合作为组成航行值班部分的一般船员的资格的每个海员发给认可的证件，或者在他现有的证件上作相应的签证。

五、如果一个海员，他在本公约对其主管机关生效前的五年内有不少于一年的时间已在甲板部担任有关的工作，则该主管机关可以认为他已符合本规则的要求。

规 则 II/7

在港值班应遵守的基本原则

一、在正常情况下，在港内安全地系泊或安全地锚泊的任何船上，为了安全，船长必须安排保持相应而有效的值班。

二、在组织值班时，应注意 1978 年海员培训和发证国际会议上通过的《对负责在港值班驾驶员的业务指导及工作原则的建议案》以及《对负责在港值班轮机员的业务指导及工作原则的建议案》的规定。

规 则 II/8

在运载危险品船舶上在港值班的法定最低要求

一、每个运载散装危险品船舶的船长，不论所运载的危险品是或者可能是易爆的、易燃的、有毒的、危害健康的、或污染环境的，应确保指派现有在船的合格的高级船员和一般船员（在合适时）保持安全甲板值班和安全轮机值班，即使当船舶在港安全系泊或安全锚泊时，也应如此。

二、每个运载非散装的危险品船舶的船长，不论所运载的危险品是或可能是易爆、易燃、有毒、危害健康或污染环境的，应在组织安全值班安排时充分注意到这些危险品的性质、数量、包装和积载以及船上、水面上和岸上的任何特殊情况。

三、在组织值班时,必须充分注意到 1978 年海员培训和发证国际会议上通过的《对负责在港值班驾驶员的业务指导及工作原则的建议案》以及《对负责在港值班轮机员的业务指导及工作原则的建议案》。

第三章 轮 机 部

规 则 III/1

轮机值班中应遵守的基本原则

一、缔约国必须指示船舶所有人、船舶营运人、船长、轮机长和值班人员注意遵守下列基本原则,以保证在任何时候都能进行安全轮机值班。

二、本规则中“值班”一词,既指“组成值班的小组”,也指“轮机员的责任期间”,在此期间,可以要求也可以不要求他亲临机舱。

三、所有的船舶必须考虑包括下列、但不限于下列的基本原则:

四、总则

1. 每条船的轮机长应与船长协商,确保值班的安排适合于保持安全值班,在决定轮机值班组成时,可包括合适的一般轮机人员在内,下列标准应特别予以考虑:

(1) 船舶类型;

(2) 机器类型和状况;

(3) 由于情况的变化如气候、冰区、污染水域、浅水水域、各种应急情况、船损控制或消除污染而采用的特殊操作方法;

(4) 值班船员的资格和经验;

- (5) 人命、船舶、货物和港口的安全及环境保护；
- (6) 国际、国家和当地规章的遵守；
- (7) 保持船舶正常运行。

2. 在轮机长的指导下，负责值班的轮机员必须按照要求对他职责范围内的一切机器和设备进行检查、操作和试验；负责值班的轮机员是轮机长的代表，在任何时候，他的主要责任都应是对影响船舶安全的机械设备进行安全有效的使用和保养。

3. 轮机长应在与船长协商的情况下，预先确定计划航次的需要，对燃料、淡水、润滑油、化学品、消耗品和其它备件、工具、供应品的需求以及其他任何的需要加以考虑。

五、操作

1. 负责值班的轮机员应确保既定的值班安排坚持下去。在他的全面指导之下，必须要求机舱值班的一般船员协助使推进机械和辅助设备得以安全和有效的工作。

2. 在轮机值班开始时，应对当时所有机器的运转参数和工作情况加以验证。任何机器如运转失常，预料将发生故障或需特殊处理的情况应和已经采取的措施做出记录。如果需要，应为进一步的措施拟出计划。

3. 负责值班的轮机员应保证将主推进装置和辅助系统置于经常的监管之下，对机舱和舵机房应按适当的间隔进行检查，并采取相应的措施来排除已发现的故障。

4. 对于需要有人值班的机舱，负责值班的轮机员，随时应能立即操纵推进设备以适应变向和变速的需要。

对于定期无人值班机舱，指定的负责值班的轮机员，当机舱呼叫照料时，应立即到达。

5. 一切驾驶台的命令必须迅速执行。主推进装置的变向和变速应做记录，除非主管机关认为由于个别船舶的特性和大小，使这种记录行不通时，才可不这样做。当人工操作时，负责值班的轮机员应保证在备车或操作状态下，主推进装置的控制器不间断地受到照料。

6. 负责值班的轮机员不应再被分派或承担任何可能妨碍他对主推进系统及其附属设备的管理任务，而应保证做到使主推进系统和辅助设备处于经常的监管之下，直至他正式交班为止。

7. 应给予一切机器的保养和维护应有的注意，包括机械、电气、液压和空气系统及其控制装置和与此相关的安全设备，一切居住舱室的生活设备以及物料和备品的使用记录。

8. 轮机长应保证做到将一切预防保养、船损控制或在值班时进行的修理工作等情况通知负责值班的轮机员。负责值班的轮机员应负责切断、旁通和调整他所管辖的将要操作的一切机器，并将已进行的所有工作记录下来。

9. 负责值班的轮机员在下班前，应将一切与主辅机有关的事件相应地记录下来。

10. 为使船舶和船员的安全免遭任何威胁，负责值班的轮机员，在发生火警、机舱可能采取导致船舶减速的措施、舵机即将失灵、船舶推进系统停止运转或供电方面发生任何变化或类似威胁安全的情况时立即通知驾驶台。此种通知，如果可能，应在采取行动之前完成，以便驾驶台有最充分的时间采取一切可能的措施避免可能发生的海难。

11. 当机舱处于备车状态时，负责值班的轮机员应保证一切在操作时可能用到的机器和设备处于随时可用状态，并使电力有充足的储备，以用于舵机和其它需要。

六、值班的要求

1. 值班的每一成员，必须熟悉指派给他的值班职责。此外，每个成员对其船舶应：

(1) 恰当的使用内部通信系统的知识；

(2) 机舱脱险途径的知识；

(3) 机舱报警系统的知识，特别是关于辨别各种警报与二氧化碳警报的能力；

(4) 有关机舱灭火设备的位置和使用的知识。

2. 在任何时候航行中的值班组织，应适于确保影响船舶安全运行的所有机器的安全运转，不论是自动还是手动操作，都应适合当时的环境和条件。为此，下列各点应特别予以考虑：

(1) 在任何时候，对影响船舶安全运行的机器都应加以妥善管理；

(2) 遥控推进设备和操舵设备及其控制器的状况和可靠性、控制的位置及程序，包括发生故障或应急时改用人工操作的程序；

(3) 固定的火警控测器、灭火设备或控制火灾的器材的位置和操作方法；

(4) 影响船舶安全航行、系泊或靠泊作业的辅助、备用和应急设备的使用和操作情况；

(5) 保持机器设备正常状态的必要方法和步骤，以保证用各种方法操作船舶时机器能够有效地运转；

(6) 由于特殊操作情况可能引起对值的任何其他要求。

3. 在开敞锚地，轮机长应与船长协商是否仍按航行时值班。

七、对职责的适任

值班制度不应由于疲劳影响值班工作效率，因此，轮机长在组织值班时，应使航行开始的第一班和其后各班的接班人都能经过充分的休息，或使其适任职务即可。

八、海上环境保护

所有轮机员和机舱一般船员均应意识到由于操作或偶然事故所造成的海上环境污染的严重后果，并应对这种污染采取一切可能的措施，特别是要采取有关国际和港口规定的措施。

规 则 III/2

主推进动力装置为 3000 千瓦或以上的船舶轮机长和大管轮发证的法定最低要求

一、在主推进动力装置为 3000 千瓦或以上海船上的轮机长和大管轮均应持有相应的证书。

二、应试者应：

1. 符合主管机关对体检的要求，包括视力和听力；
2. 符合取得负责值班的轮机员证书的要求，并

(1) 对于大管轮证书，须有不少于 12 个月经认可的轮机员或助理轮机员的海上经历；

(2) 对于轮机长证书，须有不少于 36 个月经认可的海上经历，其中担任负责轮机员工作不少于 12 个月，同时具备大管轮的资格；

3. 参加过认可的消防实习课程；

4. 已通过相应的考试，成绩及格并使主管机关满意。这种考试应包括本规则附则所列的内容，除非主管机关认为有必要，对近岸航

行、推进动力在限额以下的船舶的轮机员变更对这些考试的要求，但应注意对可能同一水域航行的所有船舶安全的影响。

三、为取得必要的理论知识和实际经验的培训工作，应注意有关的国际规定和建议案。

四、附则各款所要求的知识水准，可根据证书是发给轮机长级或发给大管轮级的实际情况而定。

规则 III/2 附则

主推进动力装置为 3000 千瓦或以上的船舶轮机长和大管轮发证所要求的最低知识

一、下列纲要是为取得主推进动力装置为 3000 千瓦或以上的船舶轮机长或大管轮合格证书的应试者而编写的。注意到大管轮随时可能承担轮机长的责任，故在拟订这些科目的考试时，应以测验应试者掌握影响船舶机械操作安全的一切有用知识的能力为目的。

二、关于下面的第四款第 1 项，主管机关可以删去那些推进机械装置以外的其他机械类型的知识要求，所发的这种证书应是有效的，但以此为依据所发的证书对任何已删去的机械装置类型，在证明该轮机员能胜任这些项目并取得主管机关的满意之前，一律无效。任何这样的局限性应在证书上注明。

三、所有应试者都应具有下列科目的理论知识：

1. 热力学和传热学；
2. 力学和流体力学；
3. 船舶动力装置(柴油、蒸汽和燃气轮机)和制冷设备的操作原理；

4. 燃油和润滑油的理化性质；
5. 材料工艺学；
6. 火灾和灭火剂的物理和化学性质；
7. 船舶电气工艺学，电子学和电气设备；
8. 自动控制基本原理，检测仪表和控制系统；
9. 造船学和船舶结构，包括船损控制。

四、所有应试者应至少对下列科目具有足够的实际知识：

1. 下列机械装置的操作和保养：

- (1) 船用柴油机；
- (2) 船用蒸汽推进装置；
- (3) 船用燃气轮机；

2. 辅机的操作和保养，包括泵系和管路、蒸锅炉装置和舵机系

统；

3. 电气和控制设备的操作、测试和保养；
4. 起货设备和甲板机械的操作和保养；
5. 机器故障的查找，损坏部位的确定和防止损坏的措施；
6. 安全保养和修理程序的组织；
7. 防火、探火和灭火的设备和方法；
8. 防止船舶污染环境的设备和方法；
9. 为防止海上环境污染应遵守的规定；
10. 海上环境污染的影响；
11. 有关在机舱内可能发生的工伤的急救和急救设备的使用；
12. 救生设备的作用和使用方法；
13. 船损控制的方法；
14. 安全操作的实践。

五、所有应试者都应具有国际协定和公约中体现的国际海法知识，因这些国际协定和公约影响轮机部的特定职责，特别是那些有关安全和海上环境保护方面的职责。国家海事法规知识的范围应为主管机关自行决定，但应包括履行国际协定和公约的国家安排。

六、所有应试者都应具有人员组织管理和在船上培训的知识。

规 则 III/3

主推进动力装置在 750 千瓦和 3000 千瓦之间的船舶轮机长和大管轮发证的法定最低要求

一、主推进动力装置在 750 千瓦和 3000 千瓦之间的海船上所有轮机长和大管轮应持有认可的证书。

二、所有应试者应：

1. 符合主管机关对体检的要求，包括视力和听力；

2. 符合取得负责值班的轮机员证书的要求，并

(1) 对于大管轮证书须有不少于 12 个月经认可的轮机员或助理轮机员的海上经历；

(2) 对于轮机长证书，须有不少于 24 个月经认可的海上经历，其中担任负责轮机员的工作不少于 12 个月，同时具备大管轮的资格。

3. 参加过认可的灭火实践课程；

4. 已通过相应的考试，成绩及格并使主管机关满意。这种考试应包括本规则附则中所列的内容，除主管机关可能改变对近岸航行船舶的轮机员的考试和海上服务经历的要求，但要注意这种船舶所安装的自动控制和遥控装置的类型以及对可能同一水域航行的所有船舶安全的影响。

三、为取得必要的理论知识和实践经验的培训工作，应注意国际规定和建议案。

四、附则中的不同条款所要求的知识水准可根据证书是发给轮机长级或是发给大管轮级而定。

五、有资格担任主推进动力装置为 3000 千瓦或以上船舶大管轮工作的轮机员，如果有不少于 12 个月经认可的负责轮机员的海上经历，可以在主推进动力装置为 3000 千瓦以下的船舶上担任轮机长。

规则 III/3 附则

主推进动力装置在 750 千瓦和 3000 千瓦之间的船舶轮机长和大管轮发证所要求的最低知识

一、下列纲要为取得主推进动力装置在 750 千瓦和 3000 千瓦之间的船舶轮机长或大管轮合格证书的应试者而编写的。注意到大管轮随时都可能承担起轮机长的责任，故在拟订这些科目的考试时，应以测验应试者掌握影响船舶机械操作安全的一切有用知识的能力为目的。

二、关于下面的第三款第 4 项和第四款第 1 项，主管机关可以删去那些推进机械装置以外的其他机械类型的知识要求，所发的这种证书应是有效的。但以此为依据所发的证书，对任何已删去机械装置类型，在证明该轮机员能胜任这些项目并使主管机关满意之前，一律无效。任何这样的局限性，应在证书中注明。

三、所有应试者都应具有足够的基本理论知识，以便理解下列科目中的基本原理：

1. 燃烧过程；
2. 传热学；

3. 力学和流体力学；
4. (1) 船用柴油机；
(2) 船用蒸汽推进装置；
(3) 船用燃气轮机。
5. 舵机系统；
6. 燃油和润滑油的性质；
7. 材料性质；
8. 灭火剂；
9. 船用电气设备；
10. 自动装置，测试和控制系统；
11. 船舶结构包括船损控制；
12. 辅助系统。

四、所有应试者都应至少对下列科目具备足够的实际知识：

1. 下列机械的操作和保养：
 - (1) 船用柴油机；
 - (2) 船用蒸汽推进装置；
 - (3) 船用燃气轮机。
2. 辅机系统，包括舵机系统的操作和保养；
3. 电气和控制设备的操作、测试和保养；
4. 装卸货设备和甲板机械的操作和保养；
5. 机械故障的查找，损坏部位的确定和防止损坏的措施；
6. 修理顺序和安全保养的组织；
7. 防火、探火和灭火的设备和方法；
8. 应该遵守的关于海上环境污染规定和防止这种污染的方法和
设备；

9. 有关在机舱内可能发生的工伤的急救知识和急救设备的使用方法；

10. 救生设备的作用和使用方法；

11. 船损控制的方法，特别是海水进入机舱时应采取的措施；

12. 安全操作的实践。

五、所有应试者都应具有国际协定和公约中体现的国际海商法知识，因这些国际协定和公约影响轮机部的特定职责，特别是那些有关安全和海上环境保护方面的职责。国家海事法规知识的范围，应由主管机关自行决定，但应包括履行国际协定和公约的国家安排。

六、所有应试者都应具有人员组织管理和在船上培训的知识。

规 则 III/4

对传统的有人看守机舱负责值班的轮机员或定期无人看守机舱指派的值班轮机员发证的法定最低要求

一、所有主机推进动力为 750 千瓦或以上的海船上传统有人看守机舱的值班轮机员或定期无人看守机舱指派的轮机员应持有相应的证书。

二、每个应试者应：

1. 年龄不小于十八岁；

2. 符合主管机关对体检的要求，包括视力和听力；

3. 具有不少于三年与轮机员职责有关的认可的教育或训练；

4. 已完成足够时间的海上工作经历，这段经历可包括在第 3 项所载明的三年时间之内；

5. 使主管机关满意他具有与轮机员的职责相适应的操作与保养

的理论与实践知识；

6. 参加过主管机关认可的消防课程；
7. 具有安全操作的实践知识。

主管机关可改变对近岸航行的主机推进动力在 3000 千瓦以下船舶的轮机员关于第 3、第 4 项的要求，但要注意对可能在同一水域航行的一切船舶安全的影响。

三、所有应试者都应具有操作和保养主辅机的知识，其中包括与规定的要求有关的知识，至少也包括下列规定的各项：

1. 日常值班

- (1) 接班责任；
- (2) 值班期间例行职责；
- (3) 填写轮机日志和记下读数的意义；
- (4) 交班责任。

2. 主辅机

- (1) 协助主辅机备车工作；
- (2) 蒸汽锅炉，包括燃烧系统的操作；
- (3) 检查蒸汽锅炉水位的方法以及水位不正常时必须采取的措施；
- (4) 查找机舱和锅炉间的机械设备和装置的一般故障及预防损坏的必要措施。

3. 泵系

- (1) 泵的操作规程；
- (2) 舱底水、压舱水和货泵系统的操作。

4. 电站

发电机的备车、起动、并车和转换。

5. 安全和应急措施

(1) 值班时须遵守的安全注意事项以及一旦发生火警和发生意外事故时，特别是有关油的系统的事故或火灾时立即采取的措施；

(2) 对电气或其他类型的动力装置和设备，在允许工作人员检修之前，需要对这种动力装置和设备从系统中切断以策安全。

6. 防止污染措施

应遵守防止油、货底、粪便、排烟或其它污染物质对环境污染的事项，防污染设备的使用，包括油水分离器、渣油柜系统、粪便处理装置等。

7. 急救

机舱内可能发生工伤的基本急救方法。

四、在蒸汽锅炉不构成船舶主辅机的船上，主管机关可删去第三款第2项第(2)和第(3)目所要求的知识。以此为根据所发的证书，对在蒸汽锅炉构成船舶主辅机的船上工作、证明该轮机员能胜任删去的项目所规定的要求并使主管机关满意之前，一律无效。任何这样的局限性应在证书上注明。

五、取得必要的理论知识和实践经验的培训必须注意有关国际规定和建议案。

规 则 III/5

保证轮机员不断精通业务并掌握最新知识的法定最低要求

一、在海上工作的所有持证轮机员，或在离船上岸一段时间之后欲重返海上工作的持证轮机员，为了继续取得与其证书相应的海上工作职称，须在不超过五年的间隔期限之内，符合主管机关下列要求：

1. 体检合格；和

2. 业务能力：

(1) 在过去五年中，至少有一年认可的轮机员工作的经历；或

(2) 已完成了与所持证书规定的等级相符的职责有关的任务，这至少可以被认为是与第一款第2项第(1)目中所要求的海上经历相等；或

(3) 能做到下列各项之一：

——通过认可的测验；或

——圆满地修完认可的一门或几门课程；

——已完成不少于三个月认可的轮机员海上经历，在就任证书职称之前不久，担任过低于该证书级别的职务。

二、第一款第2项第(3)目所述一门或几门课程，特别应包括与海上人命安全和海上环境保护有关的国际规则及其变动情况。

三、主管机关应保证将与海上人命安全和海上环境保护有关的国际规则的最新变动的条文发给其所管辖的船舶。

规 则 III/6

对组成机舱值班部分的一般船员的法定最低要求

一、对组成机舱值班部分的一般船员的最低要求应如第二款所列，这些要求不适用于：

1. 已提名为负责值班的轮机员的助手的一般船员*；

2. 正在培训的一般船员；

3. 在值班时其职责属非技术性的一般船员。

* 参照 1978 年海员培训和发证国际会议所通过的 9 号决议——“对指定作为负责值班轮机员助理的一般船员的最低要求”的建议案。

二、每个组成机舱值班部分的一般船员应：

1. 不小于十六岁；
2. 符合主管机关对体检的要求，包括视力和听力；
3. 满足主管机关下列要求：

(1) 有关消防、基本急救、自救技术、人身事故及人身安全方面的经验或训练；

(2) 在有关他职责内的事务中理解命令和使人理解的能力。

4. 符合主管机关要求，他具有：

(1) 主管机关所要求的足够的海上经历来弥补与他海上职务有关的陆上经验；或

(2) 在上船前或在船上受过专门培训，包括主管机关所要求的足够的海上工作经历；或

(3) 至少六个月认可的海上工作经历。

三、每个这样的一般船员都应具有下列知识：

1. 机舱值班程序和执行与其职责相适应的日常值班能力；
2. 与机舱操作有关的安全工作实际经验；
3. 与其职责有关的机舱用语以及机器和设备名称；
4. 环境保护的基本措施。

四、每个指定值锅炉班的一般船员，应具有安全使用锅炉的知识，并应具有保持正确水位和汽压的能力。

五、所有组成机舱值班部分的一般船员，应熟悉他在该船机舱内值班的任务，尤其应具有与该船有关的：

1. 使用相应的船内通信系统的知识；
2. 机舱脱险途径的知识；

3. 机舱警报系统的知识和有分辨不同警报、特别是气体灭火警报的能力；

4. 熟悉机舱内消防设备的位置和使用方法。

六、一个海员，如果在本规则被主管机关批准实施之前的五年中有不少于一年的时间在轮机部工作，他即可被主管机关认为已符合本规则要求。

第四章 无线电部分

无线电值班和维修

说明：

关于无线电值班的法定规定，已订入无线电规则；关于安全无线电值班和维修的规定，已订入国际海上人命安全公约和无线电规则，这两种规则日后可能有所修正，但目前仍属有效。关于1978年海员培训和发证国际会议所通过的有关决议亦已有所注意。

规 则 IV/1

无线电报员发证的法定最低要求

一、在船上负责或执行无线电职责的每个电报员必须持有按无线电规则的规定、由主管机关颁发或承认的一种或几种适当的证书，并具有足够合格的资历。

二、此外，电报员应：

1. 年龄不小于18岁；

2. 符合主管机关对体检的要求，特别是视力、听力和说话能力，

3. 符合本规则附则的要求。

三、要求每个应试者必须通过一种或几种考试，并使主管机关满意。

四、发证所要求的知识水平，应使电报员足以安全和有效地执行其无线电职责。在确定适当的知识水平和为要取得此种知识和实际能力时所需要的培训，主管机关应考虑无线电规则和本规则附则的要求。主管机关也应考虑 1978 年海员培训和发证国际会议所通过的有关决议案和有关的海协建议案。

规则 IV/1 附则

无线电报员最低附加知识和培训要求

除符合按照无线电规则颁发证书的要求外，电报员应该具有下述知识和包括实际训练在内的培训：

1. 无线电应急业务的规定，包括：

(1) 弃船；

(2) 船舶失火；

(3) 电台局部或全部损坏。

2. 救生艇、救生筏、救生浮具及其属具，特别是关于便携式和固定式救生艇无线电装置和应急无线电示位标的操作；

3. 海上救助；

4. 急救；

5. 防火和灭火，特别是关于无线电设施的防火和灭火；

6. 与船舶和人员安全有关的无线电设备的危害的预防措施, 包括电的、辐射的、化学的和机械的危害;

7. 海协《商船搜寻救生手册》的使用, 特别是其中有关无线电通信部分的使用;

8. 船位报告系统和程序;

9. 国际信号规则和海协标准航海用语的使用;

10. 无线电医疗系统和程序。

规 则 IV/2

保证无线电报员不断精通业务和掌握最新知识的法定最低要求

一、每个持有由主管机关颁发或承认的一种或几种证书的电报员, 为了继续取得海上服务的资格, 必须符合主管机关的下述要求:

1. 在每隔不超过五年的时间内, 进行体检, 体格健康, 特别是视力、听力和说话能力; 以及

2. 专业能力;

(1) 被认可的一个电报员的无线电通信业务, 一次中断不得超过五年;

(2) 如发生中断, 应在海上或岸上, 通过主管机关承认的测验或圆满地完成主管机关批准的(单科或综合的)训练课程, 这些课程必须包括的内容是直接关系到海上人命安全和现代化无线电通信设备, 也可包括无线电导航设备。

二、当有权悬挂其旗帜的船舶采用了新的方法、设备或业务时, 该主管机关可以要求无线电报员在海上或岸上通过一次被认可的测验或圆满地完成一次适当的、特别是与安全职责有关的单科或综合的训练课程。

三、经国际会议通过，在具有特殊培训要求的特种船舶上工作的每个电报员为继续取得海上工作的资格，必须圆满地完成认可的有关培训或考试，这些培训或考试，应该考虑有关的国际规则和建议案。

四、主管机关必须保证向它所管辖下的船舶提供有关无线电通信和海上人命安全的国际规则中的最新修改的文本。

五、在与有关方面协商下，鼓励主管机关在海上或岸上自愿或强制地(如适当)为现职的，特别是为重返海上服务的电报员制定或促使制订其结构公式化的复习和现代化课程。这些单科与综合的课程应该包括的内容是直接关系到无线电职责和海上无线电通信技术变化和有关的国际规则以及有关海上人命安全的建议案*。

规 则 IV/3

无线电话务员发证的法定最低要求

一、在船上负责或执行无线电职责的每个无线电话务员，必须持有在无线电规则的规定下，由主管机关颁发或承认的一种或几种相应的证书。

二、此外，在国际海上人命安全公约要求装有无线电话台的船上的无线电话务员，必须：

1. 年龄不小于 18 岁，
2. 符合主管机关对体检的要求，特别是视力、听力和说话能力，
3. 符合本规则附则的要求。

* 包括任何有关海上遇险系统发展的建议案。

三、要求每个应试者必须通过一种或几种考试，并使有关主管机关满意。

四、证书所要求的知识水平，对于无线电话务员完全地和有效地执行其无线电职责应该是足够的。在确定适当的知识水平和为要达到此种知识和实际能力所需的培训时，主管机关必须考虑无线电规则和本规则的附则的要求，主管机关也应考虑 1978 年海员培训和发证国际会议通过的有关决议案和有关的海协建议案。

规则 IV/3 附则

无线电话务员最低附加知识和培训要求

除符合无线电规则颁发证书的要求外，无线电话务员应具有下述知识和训练，包括实际的训练：

1. 无线电应急业务的规定，包括：

- (1) 弃船；
- (2) 船舶失火；
- (3) 电台局部或全部损坏。

2. 救生艇、救生筏、救生浮具及其属具，特别是关于便携式和固定式救生艇无线电装置和应急无线电示位标的操作；

3. 海上救助；

4. 急救；

5. 防火和灭火，特别是关于无线电设施的防火和灭火；

6. 与船舶和人员安全有关的无线电设备的危害的预防措施，包括电的、辐射的、化学的和机械的危害；

7. 海协《商船搜寻救生手册》的使用，特别是其中有关无线电通信部分；
8. 船位报告系统和程序；
9. 国际信号规则和海协标准航海用语的使用；
10. 无线电医疗系统和程序。

第五章 对槽管轮的特别要求

规 则 V/1

对油轮船长、高级船员和一般船员的培训和资格的法定最低要求

一、在油轮上与货和货运设备有关的、即将负有特殊职责和与那些职责有关的责任，以及那些未曾在油轮上作为正式人员工作过的高级船员和一般船员，在履行这种职责之前，应在岸上完成有关的消防课程，和

1. 为了获得足够的安全操作实践知识，在船上实习一个适当长的时期；或

2. 被认可的油轮业务课程，包括安全基础，防污染措施和方法，不同类型油轮的布局、货的类别，它们的危害性和处理设备，一般的操作顺序及油轮术语。

二、船长、轮机长、大副、大管轮和除上述人员以外与装卸和照管运输和处理货油有直接责任的人员，除本规则第一款的规定外，还应：

1. 有相应于他们在油轮职责的有关经验；和

2. 已完成一个与他们职责相适应的专门化的培训项目，包括油轮安全、防火安全措施和系统，防止和控制污染，操作实践以及适用法律和规则的应尽义务。

三、缔约国在本公约生效后二年内，如果一个海员在这以前的五年中有不少于一年的时间在油轮上担任有关职务，则可被认为是符合本规则第二款第2项的要求。

规 则 V/2

对化学品船船长、高级船员和一般船员的培训和资格的法定最低要求

一、在化学品船上与货和货运设备有关的、即将负有特殊职责和与那些职责有关的责任以及那些未曾在化学品船上作为正式人员工作过的高级船员和一般船员，在履行这种职责之前，应在岸上完成有关的消防课程，和

1. 为了获得足够的安全操作实践知识，在船上实习一个适当长的时期；或

2. 被认可的化学品船业务课程，包括安全基础、防污染措施和方法，不同类型化学品船的布局、货的类别，它们的危害性和处理设备，一般的操作顺序及化学品船的术语。

二、船长、轮机长、大副、大管轮和除上述人员以外与装卸和照管运输和处理货物有直接责任的人员，除本规则第一款的规定外，还必须：

1. 有相应于他们在化学品船职责的有关经验；和

2. 已完成一个与他们职责相适应的专门培训项目，包括化学品船安全、防火安全措施和系统、防止和控制污染、操作实践以及适用法律和规则的应尽义务。

三、缔约国在本公约生效后二年之内，如果一个海员在这以前五年中有不少于一年的时间在化学品船上担任有关职务，则可被认为是符合本规则第二款第2项的要求。

规 则 V/3

对液化气体船船长、高级船员和一般船员的培训和资格的法定最低要求

一、在液化气体船上与货和货运设备有关的、即将负有特殊职责和与那些职责有关的责任，以及那些未曾在液化气体船上作为正式人员工作过的高级船员和一般船员，在履行这种职责之前，应在岸上完成有关的消防课程，和

1. 为了获得足够的安全操作实践知识，在船上实习一个适当长的时期；或

2. 被认可的液化气体船业务课程，包括安全基础、防污染措施和方法，不同液化气体船的布局、货的类别，它们的危害性和处理设备，一般的操作顺序和液化气体船的术语。

二、船长、轮机长、大副、大管轮和除上述人员之外与装卸和照管运输和处理货物有直接责任的人员，除本规则第一款的规定外，还应：

1. 有相应于他们在液化气体船职责的有关经验；和
2. 已完成一个与他们职责相适应的专门培训项目，包括液化气体船的安全、防火安全措施和系统，防止和控制污染，操作实践以及适用法律和规则的应尽义务。

三、缔约国在本公约生效后的二年之内，如果一个海员在这以前的五年中，有不少于一年的时间在液化气体船上担任有关职务，则可被认为是符合本规则第二款第2项的要求。

第六章 精通救生艇业务

规 则 VI/1

关于颁发精通救生艇业务证书的法定最低要求

每个发给精通救生艇业务证书的海员应：

- 一、年龄不小于17岁半；
- 二、符合主管机关对体检的要求；
- 三、不少于12个月已认可的海上经历或参加过认可的训练课程与不少于九个月认可的海上经历；
- 四、考试或在认可的训练课程中经常性考核使主管机关满意，即他已具有本规则附则所列内容的知识；
- 五、通过考试或在认可的训练课程中的经常性考核，使主管机关满意，表明他已具有下列能力：
 1. 正确地穿着救生衣；从高处安全地跳入水中；穿着救生衣从水中登上救生艇；

2. 穿着救生衣扶正一个倾覆的救生筏；
3. 说出救生艇上所标的额定乘员数；
4. 对救生艇筏的放落、登乘、驶离大船、操纵和人员离艇作出所要求的正确指挥；
5. 准备放艇并安全地放艇入水，迅速地驶离大船船边；
6. 在弃船过程中和弃船后处理受伤人员；
7. 划桨及操舵、竖桅、升帆、用帆和依罗经操舵时管理救生艇；
8. 使用信号设备，包括烟火；
9. 使用救生艇用的便携式无线电设备。

规则 VI/1 附则

颁发精通救生艇业务证书的最低知识要求

- 一、可能发生的紧急情况类别，如碰撞、失火、沉没。
- 二、救生原则包括：
 1. 训练和操练的意义；
 2. 必须随时准备好应付任何紧急情况；
 3. 当召唤至放救生艇处时应采取的行动；
 4. 当要求弃船时应采取的行动；
 5. 在水中应采取的行动；
 6. 在救生艇上应采取的行动；
 7. 对生还者的主要危险。
- 三、分配给注明在集合名单中各个船员的专门职责，包括召集所有船员到救生艇或失火场所两种信号不同的部署。
- 四、通常配备于船上的救生设备的种类。

- 五、救生艇的构造和装备及其设备的各个细目。
- 六、救生艇的特殊性能和设备。
- 七、用于放落救生艇的吊艇柱的各种类型。
- 八、将救生艇放到大风浪海面的方法。
- 九、离大船后应采取的行动。
- 十、在恶劣天气下操纵救生艇筏。
- 十一、索具、海锚及所有其他设备的使用。
- 十二、救生艇上食品和淡水的分配。
- 十三、直升飞机救助的方法。
- 十四、使用急救箱和复苏技术。
- 十五、带在救生艇上的无线电设备，包括应急无线电示位标。
- 十六、低温影响和防护，防护遮盖及防护服的使用。
- 十七、启动和操纵救生艇机器的方法和所配灭火机的使用。
- 十八、使用应急艇和机动救生艇以集合救助生还者与落海人员。
- 十九、救生艇的抢滩。

一九七八年海员培训和发证国际会议

最 终 议 定 书 ¹

一、政府间海事协商组织根据其一九七一年十月十五日大会通过的海大248 (VII)号决议,于一九七八年六月十四日至七月七日在伦敦召开了海员培训和发证国际会议。这次会议是由国际劳工组织协同召开的。

二、应政府间海事协商组织邀请,下列国家派代表团出席了会议:

阿尔及利亚	哥伦比亚
安哥拉	古巴
阿根廷	塞浦路斯
沃大利亚	捷克斯洛伐克
巴林	民主也门
孟加拉	丹麦
比利时	埃及
巴西	芬兰
加拿大	法国
佛得角	德意志民主共和国
智利	德意志联邦共和国
中国	加纳

¹ Published for information only. The International Maritime Organization, in a communication dated 5 June 1985, informed the Secretary-General that it did not consider the Final Act of the Conference to be an integral part of the International Convention on standards of training, certification and watchkeeping for seafarers, 1978 — Publié pour information seulement. L'Organisation maritime internationale, dans une communication en date du 5 juin 1985, a informé le Secrétaire général qu'elle ne considérait pas l'Acte final de la Conférence comme partie intégrante de la Convention internationale de 1978 sur les normes de formation des gens de mer, de délivrance des brevets et de veille.

希腊	新西兰
格林纳达	尼日利亚
梵蒂冈	挪威
印度	巴拿马
印度尼西亚	秘鲁
伊拉克	菲律宾
爱尔兰	波兰
以色列	葡萄牙
意大利	卡塔尔
象牙海岸	大韩民国
牙买加	罗马尼亚
日本	沙特阿拉伯
肯尼亚	塞内加尔
科威特	新加坡
利比里亚	索马里
利比亚阿拉伯民众国	西班牙
马达加斯加	苏丹
马来西亚	瑞典
墨西哥	瑞士
摩洛哥	泰国
荷兰	特立尼达和多巴哥
苏维埃社会主义共和国联盟	美利坚合众国

大不列颠及北爱尔兰联合王国

乌拉圭

喀麦隆共和国

南斯拉夫

三、斐济由观察员出席了会议。

四、政府间海事协商组织联系会员香港派观察员列席了会议。

五、国际劳工组织派包括政府、船东和海员等代表的三方代表团参加了会议。联合国环境保护署亦参加了会议。

六、下列政府间组织派观察员列席了会议：

欧洲共同体委员会

阿拉伯国家联盟

七、下列非政府性组织亦派观察员列席了会议：

国际航运公会

国际航运有限合伙会

国际自由工会联合会

国际海上无线电委员会

石油公司国际海运协会

国际海上引水员协会

国际船东协会

国际地球之友

国际钻井承包商协会

国际航海学院协会

国际船长协会联合会

石油工业国际勘探和生产协会

八、非洲统一组织和阿拉伯国家联盟承认的下列解放运动派观察员列席了会议：

巴勒斯坦解放组织

九、会议由政府间海事协商组织秘书长钱·帕·斯里瓦斯塔瓦先生宣布开幕。主管公司、航空和海运的政务次官斯·克林顿·戴维斯先生代表联合王国女王陛下政府致词欢迎各国代表，强调这次会议的重要性，并支持其宗旨。

十、会议选举丹麦代表团团长塔格·马德森先生为会议主席。

十一、会议选出下列十名副主席：

马·帕·帕勤特船长（阿根廷）

塞·亚·埃·卡巴纳麦船长（巴西）

亨·莫勤斯先生（佛得角）

格·蒙斯曼船长（德意志民主共和国）

塞·库格布伦纽先生（加纳）

塞·达·塞尔曼·阿拉西姆博士（伊拉克）

朱·赫林格先生（荷兰）

法·沃纳米锡先生阁下（泰国）

朱·科莱斯尼克夫先生（苏联）

詹·凯·赖斯—奥克斯利先生（英国）

十二、会议秘书处由下列官员组成：

秘书长： 钱·帕·斯里瓦斯塔瓦先生
该组织秘书长
执行秘书： 乔·科斯塔利夫船长
付执行秘书： 威·斯·戈·莫里森船长
大会秘书： 沃·德戈德先生

十三、会议设立下列委员会，其官员如下：

指导委员会

主席： 塔格·马德森先生（丹麦），
会议主席

第一委员会

主席： 杰·冯特先生（波兰）
付主席： 尊敬的杰·夫·比·庭帕先生
（利比里亚）

第二委员会

主席： 佩·索·范钱斯沃船长（印度）
付主席： 穆·沃·格利先生（沙特阿拉伯）

第三委员会

主席： 泰·福·巴尔默先生（英国）
付主席： 汉·克·奥尔达格先生（德意志
联邦共和国）

第四委员会

主席： 奥·安德森先生(挪威)

副主席： 亨·哈·加德纳先生(加拿大)

起草委员会

主席： 朱·霍·辛曼先生(美国)

副主席： 奥思曼·宾·达鲁斯船长(马来西亚)

代表证书审查委员会

主席： 伊·巴·钱福先生(喀麦隆联合共和国)

十四、下列文件作为会议工作的基础：

—— 政府间海事协商组织培训和值班标准小组委员会草拟的，并经该组织海上安全委员会认可的海员培训和发证国际公约草案及有关决议；

—— 有关政府和组织向会议提出的提案及意见；

—— 一九七八年国际油轮安全和防止污染会议通过的第八号决议和第十三号决议。

十五、作为全体会议记录摘要所载的会议审议的结果，会议通过了一九七八年海员培训、发证和值班标准国际公约，该公约构成本最终议定书的附件一。

十六、会议还通过了本最终议定书附件二中的决议。

十七、本最终议定书文本，包括其附件，用中文、英文、法文、俄文和西班牙文写成原本一份，交政府间海事协商组织秘书长保存。公约的官方译本将用阿拉伯文和德文译就，并与本最终议定书一起保存。

十八、政府间海事协商组织秘书长将把本最终议定书连同会议决议的核证无误的付本，本公约正式文本的核证无误的付本和本公约的官方译本，如已译就，按这些政府的愿望，分送应邀派代表出席会议的各国政府。

各国代表签署本最终议定书，以昭信守。

本最终议定书于一九七八年七月七日订于伦敦。

[For signatures affixed to the Final Act, see p. 379 in volume 1362 — Pour les signatures apposées sous l'Acte final, voir p. 379 du volume 1362.]

“附件二”

大会决议

决议 1

对负责航行值班驾驶员的业务指导

大会，

认识到安全而有效的航行值班对海上人命财产的安全和防止海上环境污染的重要性，

注意到作为 1978 年关于海员培训、发证和值班标准国际公约一部分的在航行值班中应予遵循的基本原则，

考虑到制定对负责航行值班驾驶员业务指导的必要性，

决定：

(a) 通过本决议案附件中关于对负责航行值班驾驶员业务指导的建议案；

(b) 敦促各有关政府将本建议案的内容尽快予以实施。

请政府间海事协商组织：

(a) 将本建议案予以审查并将今后的修正案通知所有有关政府；

(b) 将本决议案通知与会的各国政府。

附 件

对负责航行值班驾驶员业务指导的建议案

引言

1. 本建议案内容包括对负责航行值班驾驶员普遍适用的业务指导，并希船长们对此作出适当的补充。重要的是，值班驾驶员应充分理解到有效地履行他们的职责对于海上人命财产和避免海上环境污染是十分必要的。

总则

2. 值班驾驶员是船长的代表，不论何时，船舶的安全航行是他的首要职责。他必须时刻遵照海上避碰规则行事（参阅第 22 和第 23 条）。

3. 特别重要的是值班驾驶员要随时确保有效的了望。在驾驶台和海图室分开的船上，为了履行其必要的职责，可以短时间进入海图室，但是他必须事先确信这样做是安全的，并确保有效的了望仍予维持。

4. 值班驾驶员必须记住主机是听凭他指挥的，需要时可毫不犹豫地使用。然而，在可能时，应及时通知主机变速的意图。他还必须知道本船包括冲程在内的操纵性能，并应知道其它船舶可能具有不同的操纵性能。

5. 值班驾驶员还应记住声号装置也是听凭他指挥的，并应遵照有关海上避碰规则毫不犹豫地使用它。

接班

6. 接班驾驶员应确保本班人员完全能履行他们的职责，特别关于夜视力的适应调节。

7. 接班驾驶员在他的视力未完全调节到适应光线条件以及对下列有关事项尚未明确以前，不应接班：

(a) 船长对船舶航行有关的常规命令和其他特别指示；

(b) 船位、航向、航速和吃水；

(c) 当时和预报的潮汐、海流、气象、能见度和这些因素对航向和航速的影响；

(d) 航行处境, 包括:

- (i) 正在使用或在值班期间有可能使用的航行和安全设备的工作状况;
- (ii) 电罗经和磁罗经的误差;
- (iii) 看到的或知其附近的船舶情况及动态;
- (iv) 值班期间可能会遇到的情况及危险;
- (v) 由于船的横摇、纵摇、水的比重及下坐*对龙骨下富裕水深可能的影响。

8. 如果在值班驾驶员应换班的时候正在进行船舶操纵或避免危险的操作行动, 接班驾驶员应在这种操作完成之后再接班。

航行设备的定期校验

9. 船上的航行设备, 只要情况允许, 应经常在海上作操作试验, 尤其在预料对航行有危险影响时。做这些试验应予记录。

10. 值班驾驶员应作定期校验, 以确保:

- (a) 舵工或自动舵按正确的航向行驶;
- (b) 每班至少测定标准罗经的误差一次。在有较大改向后, 如可能, 也应测定。标准罗经和电罗经应经常进行核对, 主罗经与复示仪应同步;
- (c) 每班至少试验一次自动舵的手动位置;
- (d) 航行灯和信号灯及其他航行设备的正常工作。

自动舵

11. 值班驾驶员应随时注意遵守 1974 年国际海上人命安全公约第五章第 19 条的要求的必要性。他应考虑到及时地使舵工就位并改

* 下坐: 指船在航行中由于船体下沉和纵倾变更而导致龙骨下富裕水深的减少; 这种影响在浅水中尤甚, 而在船速降低时减小。

为手动操舵以使潜在的危險处境转危为安的必要性。使用自动操舵的船舶，如发生的情况使值班驾驶员得不到其它帮助以至不得不中止了望才能采取紧急措施的程度那是非常危险的。由自动操舵转换为手工操舵，或作相反转换，都必须由值班驾驶员或在其监督之下进行。

电子助航设备

12. 值班驾驶员应完全熟悉所装备的电子助航仪器的使用方法，包括其工作性能及局限性。

13. 回声测深仪是一种很有使用价值的助航仪器，应适时予以使用。

雷达

14. 在适当的时候和遇到或预料视程受到限时，以及在拥挤水域的全部时间里，值班驾驶员应使用雷达，但需注意其局限性。

15. 每当使用雷达时，值班驾驶员应选择合适的距离档，仔细观察显示器，并有效地作雷达运动图。

16. 值班驾驶员应确保所使用的距离档，以足够频繁的间隔予以转换，以便能及早地发现回波。

17. 应注意微弱的和反射力差的回波可能被漏掉。

18. 值班驾驶员应确保在充裕的时间里开始作雷达运动图和作系统的分析。

19. 天气良好时，只要有可能，值班驾驶员应进行雷达方面的操练。

沿岸航行

20. 应使用本船所有的、适合于该地区的并依据最近期的资料改正过的最大比例尺的海图。应频繁地测定船位，环境许可时应使用多种方法定位。

21. 值班驾驶员应确切地辨认所有有关航行标志。

良好天气

22. 值班驾驶员应经常地测定接近船舶的精确的罗经方位作为及早发现碰撞危险的方法；有时甚至方位变化有明显的改变但碰撞危险可能依然存在，特别是当接近大型船舶或拖船时，或者在距离接近它船时，他应按避碰规则及早地采取积极的行动，随后还应检查此种避碰行动是否取得预期的效果。

能见度不良

23. 遇到或预料能见度不良时，值班驾驶员的首要职责是遵照海上避碰规则的相应条款，特别是有关雾号的施放采用安全航速，并使主机处于立即可操纵的准备状态，此外，还应该：

- (a) 通知船长(参阅第 24 条)；
- (b) 布置了望人员和舵工，在拥挤水域立即改为手操舵；
- (c) 显示航行灯；
- (d) 开动和使用雷达。

值班驾驶员应了解包括冲程在内的本船操纵性能是重要的，亦应了解其它船舶可能具有不同的操纵性能。

呼叫船长

24. 在下列情况下值班驾驶员应立即告知船长：

- (a) 如遇到或预料能见度不良时；
- (b) 如对通航条件或它船的动态发生疑虑时；
- (c) 如对保持航向发生困难时；
- (d) 如在预计的时间未能看到陆地、航标或测得水深时；
- (e) 如果意外地看到陆地、航标或水深突然发生变化时；

- (f) 主机、舵机或任何主要的航行设备发生故障时；
- (g) 在大风浪天，对受气象损害的可能性有所疑虑时；
- (h) 如果遇到危及航行的任何情况，诸如遇到冰或弃船时；
- (i) 其他紧急情况或对当时情况感到疑虑时。

尽管在上述情况中要求立即通知船长，但当情况需要时，值班驾驶员为了船舶的安全，应毫不犹豫地采取果断行动。

有引航员在船时的航行

25. 如值班驾驶员对引航员的行动或意图有所怀疑，他应请求引航员予以澄清，如仍有怀疑，应立即报告船长，并在船长到达之前采取必要的行动。

值班人员

26. 值班驾驶员应给予全体值班人员一切适宜的指示和情况介绍，以确保包括妥善了望在内的安全值班。

船在锚泊

27. 如船长认为必要，在锚泊时也应保持连续的航行值班。在锚泊的所有情况下，值班驾驶员应：

- (a) 在实际情况可能时应尽快地测定船位并画在合适的海图上。如果情况许可，应以足够频繁的间隔，利用固定航标或岸上容易辨认的物标测定方位，以校核船舶是否走锚；
- (b) 确保维持有效的了望；
- (c) 确保定期地巡视船舶周围情况；
- (d) 观察气象及潮汐情况以及海面情况；
- (e) 假如船舶走锚，通知船长并采取一切必要的措施；
- (f) 根据船长的指示，确保主机和其他机器处于准备使用状态；

(g) 如果能见度变坏,通知船长并遵照有关的海上避碰规则条款处理;

(h) 根据需要随时确保船舶相应的号灯、号型的显示,并按时发出相应的声号;

(i) 采取措施防止对船舶周围环境的污染,并遵守适用的防污染规则。

决 议 2

对负责值班的轮机员的业务指导

大会,

认识到安全而有效的轮机值班对于海上人命、财产的安全和防止海上环境污染的重要性,

注意到 1978 年关于海员培训、发证和值班标准国际公约在轮机值班中应予遵循的基本原则,

考虑到建立对负责值班的轮机员的业务指导的必要性,

决定:

(1) 通过本决议案附件中关于负责值班的轮机员业务指导的建议案;

(2) 敦促有关政府将本建议案的内容尽快予以实施。

请政府间海事协商组织:

(1) 将本建议案予以审查,并将今后的修正案通知所有有关政府;

(2) 将本决议案通知给与会各国政府。

附 件

对负责值班的轮机员的业务指导的建议案

引言

1. 本建议案是包括在下列情况下普遍适用于负责值班的轮机员的业务指导：

(1) 在航时的轮机值班(第一部分)；

(2) 在开敞锚地的轮机值班(第二部分)。

2. 轮机长应对业务指导进行适当的补充。

3. 每个负责值班的轮机员，应理解到有效地履行他的职责对于海上人命、财产的安全和防止海上环境污染的必要性。本建议案中的“值班”一词，既指“组成值班人员的小组”，亦指轮机员的“责任期间”，在此期间，可以要求也可以不要求轮机员亲临机舱。

4. 本业务指导包括但并不局限于应被各轮所加以考虑的下列内容。

第一部分——在航时的轮机值班

总则

5. 负责值班的轮机员是轮机长的代表，在所有时间里，他的首要责任是对船舶安全运行有影响的机器能安全和有效地持续运行。他应确保在所有时间里驾驶台有关变速或换向的命令能立即执行。

6. 负责值班的轮机员应确保既定的值班安排得以维持。在他总的指导下，要求作为值班组成部分的其它机舱船员能协助推进机械和辅助设备得以安全有效地运转。

7. 负责值班的轮机员应保持对主推进装置和辅助系统进行连续不断的监视，直到交完班为止。他还应确保在机舱和舵机间进行足够

的巡视，以利于观察和报告设备的故障和损坏，执行或指导日常调节需要的保养以及其它必要的工作。

8. 负责值班的轮机员，应指导其它值班人员，通知他有关对机器有影响的潜在危险情况，以及危及人命或船舶安全的情况。

9. 负责值班的轮机员，应确保机舱是在被监管之下。万一值班人员丧失值班能力时，安排代理人员。值班不能使机舱处于无人监管状况，这将妨碍机舱设备或调节阀的手动操纵。

10. 负责值班的轮机员应采取必要的措施，以控制由于设备损坏、失火、进水、断裂、碰撞、搁浅和其它原因所引起的损害的影响。

11. 负责值班的轮机员，应确保所有的值班人员熟悉消防设备和船损控制器材的数量、位置、型式，以及他们的使用方法和各种应予遵守的安全预防措施。

12. 负责值班的轮机员，应知道在机舱中能引起伤人的潜在危险，并能进行急救处理。

13. 尽管轮机长在机舱，负责值班的轮机员应继续对机舱工作负责，直到轮机长明确通知值班轮机员他已承担责任、并且双方都已充分的理解。

接班

14. 负责值班的轮机员，如有理由认为接班轮机员显然不能有效地履行其职责，他不应交班，遇此情况，他应报告轮机长。接班轮机员应确信本班人员显然完全有能力并有效地执行他们的职责。

15. 接班轮机员在他对轮机日志进行检查和核对并与他自己的观察一致之后，才能接班。

16. 接班轮机员在接班之前，至少应彻底弄清下列各项：

- (1) 轮机长关于船舶系统和机器运转的固定命令和专门指示；
- (2) 对所有机器和系统进行的修理工作的性质和有关的人员以及潜在的危險的情况；
- (3) 使用中的舱底污水或残渣、压载舱、污油舱、备用舱、淡水柜、粪便柜的情况和液面高度，以及其中贮存物的使用或处理的特殊要求；
- (4) 在燃油备用舱、沉淀柜、日用柜和其它燃油贮存设备中的燃油液位的高度和状况；
- (5) 有关卫生系统处理的特殊要求；
- (6) 各种主、副机系统的操作方法和状况；
- (7) 在使用中的用手动操作监视设备和控制仪表的情况；
- (8) 在使用中的自动锅炉控制情况，诸如火焰安全控制系统、限位控制系统、燃烧控制系统、燃油供给控制系统和其它与蒸汽锅炉操纵有关的设备；
- (9) 由于恶劣天气、冰冻、污染或浅水引起的潜在不利条件；
- (10) 由于设备故障或在不利于船舶的条件下采取的特殊操作方法；
- (11) 有关分派给机舱一般船员任务的报告；
- (12) 消防设备的有效性。

机器的定期检查

17. 负责值班的轮机员的职责是定期检查他所管辖的机器。这类检查应证实：

- (1) 主、副机，控制系统，指示仪表和通信系统的性能良好；

- (2) 舵机系统和所有的附属装置性能良好；
- (3) 锅炉和热交换设备中的水位保持在适当高度；
- (4) 机器和锅炉的排烟表明燃烧性能良好，如有吹扫设备时，烟垢业已吹过；
- (5) 各污水沟的水位及污物情况正常；
- (6) 各种管系包括控制系统和机械系统的管系无泄漏，工作正常，并得到适当的保养，特别应注意高压油管。

轮机日志

18. 在下班前，负责值班的轮机员，应确保发生在本班之中有关主、副机的文件都有适当的记录。

预防性和修理性的保养

19. 在进行一次预防维修、船损控制或维修工作时，值班轮机员应与负责维修的轮机员合作。这应包括但并不局限于如下内容：

- (1) 对独立的和旁通的机器进行工作；
- (2) 维修期间，将其余的设备调节至适当、安全的功能状态；
- (3) 为了有利于接班轮机员工作和做好记录的目的，在轮机日志或其它适当的文件中记录继续在工作的设备及与此有关的人员和由他所采取的安全措施；
- (4) 需要时，将已修理的机器或设备进行试验及投入使用。

20. 负责值班的轮机员，应确保在机舱从事于维修的一般船员，当万一自动设备失灵时，可协同对机器进行手动操作。

驾驶台通知

21. 负责值班的轮机员应注意，由于机器故障引起的速度变化或操舵失效，可能在海上危及船舶和人命的安。在机舱万一发生失火

紧急情况，可能引起降速，航机即将失灵，船舶推进器系统停止运转或电力供电机发生变化或类似威胁安全的情况，应立即通知驾驶台。这种通知，如有可能，应在采取行动之前完成，以便为驾驶台有最充分的时间采取一切可能的行动以避免可能的海难。

在拥挤水域航行

22. 负责值班的轮机员，当接到船舶在拥挤水域中航行的通知时，应确保所有操纵船舶的机器能即刻置于手动操作的方式。值班轮机员还应保证有足够的备用动力，以供操舵和其它操作要求之所需。应急操舵和其它辅助设备也应准备好以备立即使用。

能见度受限制时的航行

23. 负责值班的轮机员，应确保供雾中声号用的持久的空气或蒸汽压力。他应准备好回答驾驶台的任何命令。此外，还应保证备妥用于操纵的辅助机械。

呼叫轮机长

24. 在下述情况下，负责值班的轮机员应立即通知轮机长：

(1) 当他判断机器发生的故障或损坏会危及船舶的安全运行时；

(2) 当他判断所发生的故障会引起推进机、副机或监视和调节系统的损坏或破坏时；

(3) 发生紧急情况或对于采取什么措施或决定无把握时。

25. 除将上述情况需要报告轮机长以外，为了船舶机器和船员的安全，负责值班的轮机员应在需要的地方，毫不犹豫地立即采取措施。

值班人员

26. 负责值班的轮机员，应将保证安全值班的一切适当指示和情况告知值班人员。日常的机器保养工作，作为保持安全值班的一部分的临时任务纳入值班的日常工作制度之内。详细的维修工作，包括电气的、机械的、液压的、空气的或全船可使用的电子设备的修理，应在值班的负责轮机员和轮机长的监视下进行。这些修理应作记录。

第二部分——在开敞锚地的轮机值班

当船舶在开敞锚地或其它任何实际上是“在海上”的情况时，值班的负责轮机员应保证：

- (1) 保持有效值班；
- (2) 定时检查所有运转和备用的机器；
- (3) 按驾驶台命令使主副机保持备用状态；
- (4) 采取措施，防止本船污染周围环境并遵守现行的防污染规则；
- (5) 所有船损控制和消防系统均处于备用状况。

决 议 3

对负责在港值班驾驶员的业务指导及工作原则

大会，

认识到安全而有效的在港值班对海上人命、财产的安全和防止海上环境污染的重要性，

注意到 1978 年海员培训、发证和值班标准国际公约在航行值班中应予遵循的基本原则，

考虑到制定对负责在港值班驾驶员的业务指导和工作原则的必要性，

决定：

(a) 通过本决议案附件中关于负责在港值班驾驶员的业务指导和工作原则的建议案；

(b) 敦促各有关政府将本建议案的内容尽快予以实施。

请政府间海事协商组织：

(a) 将本建议案予以审查并将今后的修正案通知所有有关政府；

(b) 将本决议案通知与会各国政府。

附 件

对负责在港值班驾驶员的业务指导及工作原则的建议案

引言

1. 本建议案适用于正常情况下在港安全系泊或安全锚泊的船舶。对泊于遮蔽锚地的船舶，应参阅本次大会所通过的1978年海员培训、发证和值班标准国际公约规则Ⅱ/1中的补充注意事项——“航行值班中应遵守的基本原则”，以及“对负责航行值班驾驶员业务指导的建议案”。对于特种船舶或特殊货物可能需要特殊的要求。

2. 船舶所有人、船舶营运人、船长和值班驾驶员应注意下列原则及业务指导：

值班安排

3. 船舶在港内时的值班安排应：

(a) 确保人命、船舶、货物及港口的安全；

(b) 遵守国际的、本国的及当地的规章；

(c) 维持船上正常的工作和秩序。

4. 船长应根据系泊情况、船舶类型和值班特点决定组成值班人员和值班的持续时间。

5. 应有一名合格的驾驶员负责值班工作，但总吨在 500 吨以下且不装有危险品的船舶，可由船长指派有相应资格的人担任在港值班。

6. 为了有效的值班，应给予安排必要的设备。

接班

7. 交班驾驶员如有理由相信接班驾驶员明显地没有能力去有效地执行其职责，则不应交班。遇到这种情况，他应据情报告船长。

8. 交班驾驶员应告知接班驾驶员下述事项：

(a) 泊位水深、船舶吃水、高潮和低潮的时间和潮高、系缆情况、锚和松出的锚链情况以及对船舶安全至关重要的其他系泊情况，主机状态及应急使用的可能性；

(b) 在船上所有应完成的工作，已装的货或尚未装的货或卸后残存在船的货的数量及性质以及其配置状况；

(c) 污水柜和压载舱的水位高度；

(d) 显示的信号或灯号；

(e) 要求在船的船员人数和在船的其他人员；

(f) 消防设备的情况；

(g) 任何特殊的港口规定；

(h) 船长的常规命令和特殊命令；

(i) 在发生紧急情况或需要援助时船舶与码头人员或与港口当局之间可以使用的通信线路；

(j) 对船舶安全和防止环境污染的其它重要情况。

9. 接班驾驶员应使自己满意:

- (a) 系泊索具或锚链是恰当的;
- (b) 显示和悬挂的信号和灯号是合适的;
- (c) 安全措施和防火规定是维护着的;
- (d) 他知道正在装卸的有危害或危险的货物的性质, 并知道在发生溢满或失火时应采取的措施;
- (e) 没有外界的条件或情况危及本船, 本船也不会危及其它船只。

10. 在交接班的时刻若正在进行重要的操作, 除非船长另有指令, 该操作应由交班驾驶员完成。

值班

11. 值班驾驶员应:

- (a) 以适当的间隔巡视全船;
- (b) 特别要注意到:
 - (i) 舷梯、锚链或系泊索具的情况和固定, 特别在转潮时或在有较大潮差的泊位, 必要时, 应采取措施以确保它们处于正常工作状态;
 - (ii) 吃水、龙骨下的富裕水深和船舶状态以及在装卸货或打压载水时避免发生危险的横倾与纵倾;
 - (iii) 天气和海面的情况;
 - (iv) 有关安全预防措施和防火等所有规定的遵守情况;
 - (v) 污水沟及水柜中水位的高度;
 - (vi) 所有在船人员及其所在地点, 特别是那些在远处或封闭舱室处的人员;
 - (vii) 任何显示的信号或灯号。

- (c) 在坏天气或收到风暴警报时，采取必要的措施以保护船舶、人员和货物；
- (d) 采取各种预防措施以防止本船对周围环境的污染；
- (e) 在紧急威胁船舶安全的时候，拉响警报，报告船长，采取一切可能的措施，以避免船舶受损坏，如有必要，要求岸方当局或附近船只予以援助；
- (f) 掌握船舶的稳性情况，以便在失火时能向岸上消防当局提供可喷用于船的水的大约数量而不致危及船舶；
- (g) 对遇险的船只或人员提供援助；
- (h) 当推进器在转动时，采取必要的预防措施，以防发生事故或损坏；
- (i) 凡对船舶有影响的重大事项均须记入航海日志。

决 议 4

对负责在港值班轮机员的业务指导及工作原则

大会，

认识到安全而有效的轮机在港值班对人命财产的安全和防止海上周围环境污染的重要性，

注意到 1978 年海员培训、发证和值班标准国际公约附件中有关轮机员在轮机值班中应予遵循的基本原则，

考虑到建立对在港值班的负责轮机员的业务指导和工作原则的必要性，

决定：

(a) 通过本决议案附件中关于对在港值班的负责轮机员的业务指导和工作原则的建议案；

(b) 敦促各有关政府将本建议案内容尽快予以实施。

请政府间海事协商组织：

(a) 将本建议案予以审查并将今后的修正案通知各有关政府；

(b) 将本决议案通知给与会各国政府。

附 件

对负责在港值班轮机员的业务指导及工作原则的建议案

引言

1. 本建议案适用于在港安全系泊或安全锚泊的船舶和有关值班轮机员在值班期间的要求，对于具有特种型式或推进系统或特殊辅助设备以及对装载有危害的、危险的、有毒的或极易燃物品或其它特殊货物的船舶，另有特殊的要求。

值班安排

2. 各船的轮机长应与船长商议，必须保证轮机值班的安排适合于保持在港轮机的安全值班，在决定轮机值班人员的组成时，可包括合适的一般轮机人员在内，下列各点应予考虑：

(a) 船型；

(b) 机器的类型和情况；

(c) 由于天气、冰区、污染水域或浅水水域、紧急情况、船损控制或消除污染等所需采用的特殊操作方法；

- (d) 组成值班部分的一般船员的资格和经验；
- (e) 人命、船舶、货物、港口和周围环境的安全；
- (f) 国际的、国家的和当地的规章的遵守；
- (g) 船上正常的日常命令。

3. 在轮机长指导下，负责值班的轮机员有责任对其责任范围内的所有机器和设备在必要时进行检查和测试。

4. (a) 所有推进功率为 3000 千瓦或以上的船舶必须经常有一名轮机员负责值班；

(b) 推进功率为 1500~3000 千瓦的船舶，当有驾驶员负责全船值班并且船上不装有散装危险品时，在船长的指示并与轮机长的商酌下，可以不设轮机员负责值班；

(c) 推进功率小于 1500 千瓦的船舶，只要船上不装载有散装危险品，则无需轮机员负责值班。

5. 值班的组成，在任何时候，都应足以保证使装卸操作、船舶、港口及其周围环境的安全有关的全部机器能安全运转。

6. 轮机员在负责值班期间不应再被分配或承担任何职责与任务，以免妨碍他对船上机械系统的监管任务。

接班

7. 负责值班的轮机员如有理由认为接班轮机员明显地不能有效履行其职责，则不应交班，遇此情况，他应报告轮机长。接班轮机员应确信本班成员显然完全有能力有效地执行他们的职责。

8. 值班轮机员应于接班轮机员接班前告知以下事项：

(a) 当时的常规指令，有关船舶操作、保养工作、船舶机械或控制设备的修理的特殊命令；

(b) 对所有的船舶机械和系统进行的修理工作的性质,有关的人员和潜在的危險;

(c) 使用中的舱底污水或残渣、压载水舱、污油舱、粪便柜、备用柜的液位高度及状态,以及其中贮存物的使用或处理的特殊要求;

(d) 有关卫生系统处理的特殊要求;

(e) 移动或固定式灭火设备以及烟火探测系统的状况和备用状况;

(f) 获准从事机器修理的人员,其工作地点和修理项目,其它获准的人员和需要的船员;

(g) 有关船舶排出物、消防要求,特别是在恶劣天气将临时的准备方面的港口规定;

(h) 船上与岸上人员可使用的通讯线路包括万一发生紧急事件或要求援助时与港口当局的通讯线路;

(i) 其它有关船舶、船员、货物的安全以及防止环境污染等的重要情况;

(j) 由于轮机部造成环境污染时通知有关当局的手续。

9. 接班轮机员在接受值班任务前应:

(a) 他完全明白所有有关操作、保养、机械及控制设备修理的常规指令及特殊命令;

(b) 熟悉现有的和可能有的电、热、光源及其分配情况;

(c) 了解船上的燃油、润滑油及一切淡水供给的可用程度和情况;

(d) 熟悉船上的压载水系统及其操纵;

(e) 核实相应的机舱一般船员的出席情况并了解他们的体力能有效地履行职责；

(f) 了解货物的装卸情况，保养及修理工作的状况以及一切其他与值班有影响的作业；

(g) 了解用于旅客和船员生活、装卸货、运转用水的供给和排出系统的辅机的情况；

(h) 了解港方对防污染的要求以及正确操纵船上的设备以满足这些要求；

(i) 了解所有安全保护和防火的所有规定，以及与岸上消防机构的联系方法；

(j) 熟悉船上所有探测器和警报系统，以及对这些系统动作时相应的反应；

(k) 熟悉所有焰火探测、警报和消防系统的配备和操作灭火的方法，船上各类手提式灭火设备的类型及其最有效的使用方法；

(l) 熟悉在有危险与有毒气的环境下，为保护生命安全而准备的设备放置地点及使用方法；

(m) 查清应急急救物品，特别是治疗烫伤和灼伤的物品，应处于备妥可用状态；

(n) 了解船上内部的以及船上与岸上有关当局的一切通讯手段；

(o) 尽可能地准备好船及其机器，以便在需要时备车或应付紧急状况。

值班

10. 负责值班的轮机员应特别注意：

(a) 遵守在他值班范围内的一切命令、有关危险情况及其防范的特殊操作程序和规定；

(b) 测试仪表和控制系统、监测所有动力供应设备运行中的各种设备和系统；

(c) 为防止违反地方当局有关污染规定所必需的技术、方法和步骤；

(d) 污水沟的情况。

11. 负责值班的轮机员应：

(a) 在紧急情况下，当他判断情况需要时，拉响警报并采取一切可能的措施以避免船舶及其货物和船上人员遭受损害；

(b) 了解管理货物的驾驶员在装卸货物时对设备的要求，以及对压载和其它船舶稳定控制系统的补充要求；

(c) 经常巡查以判断可能发生的设备故障或损坏，并立即采取补救措施以保障船舶、装卸货、港口及其周围环境的安全；

(d) 保证在其职责范围内采取必需的预防措施，以避免船上各种电气、液压、空气以及机械系统发生事故或损坏。

(e) 保证将影响船上机械运转、调节和修理的所有重要事项完整地记录下来。

决 议 5

关于无线电报员安全无线电值班和维修的基本准则和业务指导

大会，

认识到有效安全无线电值班和维修对海上人命和财产安全的重要性，

注意到国际电信公约所附的无线电规则和国际海上人命安全公约的规定，

考虑到在这方面必须为电报员制订基本准则和业务指导，

决定：

(a) 通过关于无线电报员安全无线电值班和维修的基本准则和业务指导的建议案，作为本决议案的附件，

(b) 敦促所有有关政府尽快实施本建议案。

请政府间海事协商组织：

(a) 审议本建议案并使所有有关政府注意将来的任何修改，

(b) 将本决议案通知所有与会国政府。

附 件

关于无线电报员安全无线电值班和维修的基本准则和业务指导的建议案

引言

1. 各国政府应该提请船舶所有人、船舶营运人、船长和无线电值班人员注意，遵守下列的准则和业务指导，以保证在航船舶保持足够的安全无线电值班。

2. 在考虑本建议案准则时，应该遵守国际电信公约所附的无线电规则*、国际海上人命安全公约** 和任何其它有关的国际协议。

3. 本建议案的规定并不修正或更改无线电规则或安全公约的任何规定，如有抵触，以无线电规则和安全公约为准。

4. 此外，本建议案不打算对海上安全体制将来的发展有任何妨碍。

A 应遵守的基本准则

5. 每艘船的船长应要求：

(a) 按照无线电规则和安全公约的有关规定保持无线电值班；

(b) 保持设备处于有效的工作状态。

6. 所有船舶都应考虑下列所包括的基本准则，但不应尽限于下列：

(a) 电报员在其值班期间，应该用耳机或扬声器在 500KHz 遇险频率上保持连续的守听，在其它时间使用无线电报自动报警器；

(b) 也应该按国际协议可能的要求在其它遇险频率上保持守听；

(c) 对本船和其它船舶应该提供安全无线电服务；

(d) 应保持法定无线电通信设备始终处于有效的工作状态；

(e) 当电报员为了执行符合安全公约的其它职责或在其它频率上通报或执行其它紧要的无线电职责而允许中断其守听时，如果在不能保持耳听接收的情况下，应使用无线电报自动报警器；尽管如此，在静默期间应该按(h)项的要求保持守听；

(f) 航行中，当电报员不值班时，备用无线电报发射机和接收机应调到 500KHz，

* 以下简称无线电规则。

** 以下简称安全公约。

(g) 航行中, 不管无线电自动报警器是开启还是关闭, 都应对其进行试验; 如果发现不能有效地工作, 应立即通知船长或负责航行的值班驾驶员;

(h) 在值班的静默时间, 应采取步骤守听 500KHz 频率, 以保证遇险和其它应急发射的接收, 这可由搜索 495KHz 到 505KHz 频段来实现;

(i) 应该随时备有定期更新的船位, 并按船长的指示, 突出地显示在工作位置上, 如适用, 应将其输入自动遇险报警装置;

(j) 应保持附近船舶一览表(船名、呼号和已知船位);

(k) 收到遇险、紧急和安全电报应该立即送交负责航行的值班驾驶员;

(l) 收到本船航区和船长要求的其它海区的日常气象和航行警告, 应立即送交负责航行的值班驾驶员;

(m) 在参加船位报告系统的船上, 由船长授权, 按需发送有关的船位报;

(n) 无线电规则规定以外的额外值班时间, 应安排来覆盖尽可能广泛的范围。通报表、气象预报、航行警告、发射气象观察(系指自愿观测船)和最佳高频传播条件的时间;

(o) 按照安全公约保持无线电话值班;

(p) 未经准许的发射, 特别是那些在静默时间或遇险发射期间的、和任何有害的干扰事件(如果可能应识别)记入日志并按照无线电规则从无线电日志中作适当摘录, 提请主管机关注意;

(q) 无线电守听人员当班的安排, 应使其值班效能不因疲劳而削弱, 上班时, 应是经过休息的并且其它方面也胜任;

(r) 采取预防措施保证无线电值班人员的听力不因面临船上过分的外部噪音而损害。当过分的外部噪声不可避免时，应戴上听觉保护器。

B 关于安全无线电值班和维修的业务指导

总则

7. 开航前，报务主任应确保：

(a) 电报员有责任使所有无线电设备处于有效的工作状态，并将蓄电池充足电；

(b) 具备国际协定所要求的全部文件和补充资料，对船舶无线电台的通知和监督机关所要求的附加文件，如有不符，应报告船长；

(c) 无线电报房时钟是准确的；

(d) 天线安置正确，无损伤并且联接得当。

8. 电报员应该保证全部有关文件均按照最新的补充资料予以校正和修改。

9. 电报员首次上船工作时，他必须确保无线电通信设备的所有技术手册、备件、测试仪器和工具都在船上，对无线电导航装置是否如此，则由船长自行决定，如有不符，报告船长。

值班职责：

10. 无线电报

(a) 离港航行前，电报员应（如适当）及时将船舶将要航行的海区和船长所要求的其它海区的最新的日常气象和航行警告送交船长；

(b) 在离港开航和开启电台时，电报员应：

(i) 在遇险频率 500KHz 上收听可能存在的遇险情况；

- (ii) 发送船位报 (TR) (船名、船位和目的港等) 给本地岸台和可望有通报的其它有关的岸台;
 - (iii) 抄收有关岸台第一次发送的气象预报和航行警告。
- (c) 当电台已经开启, 电报员应:
- (i) 至少每天一次将时标信号转送海图室, 以便校正天文钟;
 - (ii) 至少每天一次用时标信号校正报房钟;
 - (iii) 在被选船舶上的值班时间, 通过有关岸台, 尽力发完尽可能多的可用的 OBS (气象报告) 电报;
 - (iv) 在进入一个可望有通报的中频海区或其它岸台的海区时, 发射船位报, 在离开有关岸台服务的海区时应通知它;
 - (v) 尽可能地收听可望有通报的岸台所发射的通报表, 在听到本船的呼号时, 应尽快地回答。
- (d) 当抵港关闭电台时, 电报员应:
- (i) 通知本地岸台和在船抵港时曾经保持联系的其它岸台, 然后关机;
 - (ii) 确保天线接地;
 - (iii) 检查蓄电池是否充足电。

11. 无线电话

(a) 凡在报房里在 2182KHz 上进行无线值班, 此频率应监听遇险、紧急和安全发射;

(b) 当侦听到任何这样的发射时, 应按下面的第 12、13、14 条中有关部分详述的程序进行;

(c) 在 2182KHz 频率上进行任何监听值班的开启和关闭时间和任何遇险、紧急和安全通报的详情都应记入无线电日志，但不必重复那些已经在 500KHz 上收听到的情况。

在遇险、紧急和安全情况下采取的措施：

12. 遇险

遇险呼叫应该绝对优先于其它一切发射。听到遇险的所有电台应立即停止会干扰遇险通报的任何发射。

(a) 本船遇险时，电报员应：

- (i) 从驾驶台取得真实船位或估算船位或，如无法得到时，
则用最后已知船位，或相对于某一固定地理位置的真方位和距离，当使用最后已知船位时，其时间应用格林威治时间表示；
- (ii) 按照无线电规则使用无线电报遇险程序通常在 500KHz 上发射；必要时，按照无线电规则可使用其它合适的国际遇险频率(或其它频率)。遇险呼叫和电文只能在船长或船舶负责人员的授权下才能发送；
- (iii) 不时的重复遇险电文，特别是在静默时间，如有必要，在遇险电文前冠以报警信号和遇险呼叫，直到收到回答为止；
- (iv) 如果在某个遇险频率上发送的遇险电文得不到回答，应该在可以引起注意的任何其它可用频率上重复电文；
- (v) 使用任何方法以引起注意；
- (vi) 收到一切遇险通信立即交船长；

(vii) 如果该船在被其它船舶找到之前不得不弃船, 如有必要和情况许可将无线电设备置于连续发射状态。

(b) 在它船遇险的情况下, 无线电报员应:

(i) 抄收电报并送到驾驶台;

(ii) 如有可能, 同时确保取得无线电测向方位; 如所得方位是相对方位, 也应记录该船航向;

(iii) 如果确信本船就在遇险船附近, 应立即承认收妥; 如果在遇险船能与岸台建立可靠的通信的海区, 可以暂时推迟承认, 以使岸台得以承认收妥;

(iv) 如果确信本船不在遇险船舶附近, 允许过一段时间再承认收妥, 以免干扰较近电台承认收妥;

(v) 不承认收妥:

(1) 本船离遇险处很远, 不处于给予援救的位置时, 除所听遇险电报一直没被认收外;

(2) 对岸台所转发的遇险电报, 直到船长确认遇险船舶已处于给予援救的位置时为止。

(vi) 在(v)(1)项中指出的情况下, 且:

(1) 当已知遇险船舶不在发送遇险电报的位置时; 或

(2) 船长认为需要给予进一步帮助; 或

(3) 已经收到应急无线电示位标信号, 但没有传送遇险或紧急通报。

使用合适的发射机, 以全功率发送遇险电报, 尽可能冠以报警信号, 在 500KHz 上使用 DDD 程序, 如果合适, 在 2182KHz 或 156.8MHz 上使用 “MAYDAY

RELAY”程序，也可以在遇险情况可使用的任何其它频率上采用一切其它措施，如本船遇险一样，通告可能给予援助的当局。

- (vii) 在船长的命令下，尽快的发送本船的船名、船位、速度和抵达遇险位置的估算时间，如对遇险船舶的位置表示怀疑，在遇险船舶的真方位前冠以缩语 QTE 和方位的类别；
- (viii) 记录其它的承认船位和抵达时间以及其它有关的遇险通报并送交驾驶台；
- (ix) 如遇险通报的指挥为某岸台或便于向遇险船舶提供援助的某船所承担，应与该指挥台保持正常联系；
- (x) 保持连续值班直到遇险结束；如果足够的援助已经被较近的船舶所提供或已经和岸台取得联系，并且向遇险船舶提供转报的方便或专门通告已无必要，可以恢复正常的值班。

13. 紧急

- (a) 在本船处于紧急情况时，电报员应：
 - (i) 仅在船长授权下使用无线电报紧急程序，在 500KHz 或在遇险情况下可使用的任何其它频率上发送紧急信号和电文；在电文很长的情况下或医疗呼叫或在通报繁忙的海区重复紧急电文时，可使用工作频率发射；在这种情况下，在呼叫中包括将发射的紧急电文的具体频率；

- (ii) 如果紧急电报涉及人员的伤亡或人员落水，只有当需要其它船舶援助并在使用紧急信号不能满意地达到目的时，才允许在呼叫前冠以报警信号；
 - (iii) 如果电文发至某一特定电台，在转换到工作频率之前应与该电台建立联系；
 - (iv) 如果电文发向所有电台，在重复呼叫和发射电报之前，允许一段合理的间歇时间；
 - (v) 在发向所有电台的紧急情况结束，并不需再采取措施时，在有关的频率上，给所有电台发送取消电文。
- (b) 在它船处于紧急情况时，无线电报员应：
- (i) 紧急信号优先于除遇险外的所有其它通信，注意不要干扰紧急信号或紧随紧急信号而发射的电文；
 - (ii) 抄收电文并送到驾驶台；
 - (iii) 至少连续收听三分钟；在这期间结束时，如果没有听到紧急电文，如有可能，将紧急信号的接收情况通知岸台；然后恢复正常工作；
 - (iv) 如紧急信号发向某特定电台，允许在与发射紧急信号或紧急电文所使用的不同频率上继续工作；如被要求，应予以协助使紧急电报顺利地发给收报者，例如转发。

14. 安全

- (a) 发射安全电报时，无线电报员应：
- (i) 在第一个可得到的静默时间的末尾，在一个或几个国际遇险频率 (500KHz, 2182KHz, 156.8MHz 如为

- 适当时) 上或在遇险情况下可使用的任何其它频率上发送安全信号和呼叫;
- (ii) 在静默时间结束后, 紧跟着呼叫, 立刻在工作频率上发送安全电报, 并在呼叫结束时对发射电文给予适当的通知, 在通报繁忙的地区外, 可例外地在 500KHz 上发送简短的安全电报;
- (iii) 尽快发送含有重要的气象和航行警告的安全呼叫和电文, 并在第一次静默时间结束时紧接着重复之。
- (b) 在收听安全信号*时, 无线电报员应:
- (i) 不干扰信号或电报;
- (ii) 抄收电报并送到驾驶台;
- (iii) 如必要, 向所有船舶发报, 在转播方面给予充分的协助, 如要求, 可将限定内容的电报转送给收报方。

其它职责

15. 日志保管

- (a) 无线电日志应该按照无线电规则和安全公约的要求保存;
- (b) 无线电日志应该保存在无线电报房内, 并且应便于主管当局授权的官员检查, 日志记载的时间, 全部用格林威治时间;
- (c) 无线电日志无论何时都应便于船长检查, 而且无线电报员应提请船长注意记入日志的有关安全的重要内容。

16. 必要的测试

船舶在航行途中, 无线电报员应按照安全公约进行测试。此外, 为便于早期发现发展中的故障, 应进行下述工作:

* 岸台可广播紧急旋风警告作为安全电文冠以报警信号和安全信号。

(a) 每周至少一次校对信号构成和定时用的自动拍发器；

(b) 定期校对无线电通信设备中的所有测试点并记录异常情况；

(c) 在可能时，测试漂浮状态下的救生艇内的便携式和固定式无线电设备；无论如何，每三个月也要在船上测试救生艇内的便携式和固定式无线电设备；当测试是在架设天线的情况下进行时，在对其它发射不产生干扰的情况下，力求和其它船舶或岸台建立联系；当救生艇中的无线电装置使用非充电式电池时，应按厂方建议的时间予以更换，如果在测试中性能降低，可提前更换；

(d) 当无线电航标在视线以内，相隔一定时间与驾驶员配合，在尽可能多的航向上取得校正方位，检验测向仪校准曲线的精度；记录结果并报告船长；应该找出船上可能引起误差的因素，包括金属线索位置的变动，未经许可的天线等，并报告船长。

17. 救生艇便携式无线电设备的示范

可能时，救生艇便携式无线电设备的操作，应对新船员示范，使他们熟悉设备的使用。当设备在救生艇上试验时，它的装配和操作应向尽可能多的船员示范。

18. 备用无线电设备的示范

对被船长指定的、在应急情况下，当无线电报员由于任何原因不能工作时使用这些装置的人员，在主管机关要求在备用无线电报装置、包括自动拍发器上装设指导图和相应数量的指示器时，应以适当间隔给予示范。

19. 保养

(a) 船在航行途中或在港期间,无线电报员应确保他所管理的所有设备得到有效地保养。为此,他应遵循本建议书附则“有效的保养项目准则”中的步骤。

(b) 记录

应有一本单独的“设备维修记录”,以便记入做过的所有维修以及观察到的异常现象作为将来的参考并与出现的故障相联系。它应按主要设备类型编成索引并保存在船上。该记录应包括的细节:

- (i) 保养和校正性维修措施的日期和时间,包括停止工作的总计时间;
- (ii) 涉及的设备;
- (iii) 维修开始时设备的状况;
- (iv) 注意到的异常现象,(如有的话);
- (v) 采取的任何预防性维修措施(在没有发现异常现象的地方)以及对发现异常现象的地方采取的校正性维修措施;
- (vi) 修理或调整过的元件;
- (vii) 采取了上面(v)和(vi)目中的措施后的设备状况;
- (viii) 消耗的备品。

对有一个以上电报员的船舶的附加规定:

20. 接班时,接班的电报员应到无线电报房用足够的时间进行:

- (a) 检查是否有正在进行的遇险、紧急或安全通报;
- (b) 检查被更新的船位是否有效,是否显示在通常的位置上;

(c) 查询特殊指令或要求,包括预约电报和所要求的异常气象报告;

(d) 离班电报员一作完记录并“签离”,接班电报员则在无线电日志中“签到”。

21. 交班时,当班电报员应:

(a) 把特别的指令或要求交给接班电报员,并将异常的传播情况或其它直接有关的事项通知他;

(b) 完成无线电日志并“签离”。

附 则

有效的保养项目准则

1. 目的

保养是为了:

(a) 保持设备在尽可能长的一段时间内顺利地工作;

(b) 保持设备具有最佳的工作效能;

(c) 保护装置不受振动、泥土、灰尘、湿度、腐蚀和温度等的有害影响;

(d) 延长设备使用寿命。

必须认识到,在各类装置和器件中现代化制造技术生产了高密度、高集成的电子组件,为此,在把个别的装置纳入经常的预防性维修程序表中时,应考虑设备制造商的意见。

2. 适用于所有设备的一般程序

(a) 人身的保护措施

当带有危险电压工作时，应该遵守一切必要的安全措施，当手触及这种设备时，“保护人”应在场。

(b) 设备的保护措施

(i) 触动元件、电路和电缆时要小心，使用工具要小心，插头、螺钉、螺齿的机械配合要良好；

(ii) 保存一张适用备件和申请补充各项消耗品的清单；

(iii) 检查所有设备的灰尘、腐蚀、过热痕迹、异物、不良连接及应更换的元件或导线；

(iv) 检查所有设备的机械松动，包括螺丝松开、触点和元件等；

(v) 在需要的地方小心施加润滑油；

(vi) 没有其它说明时，不良元件应该处理，并不要存放在备品中，在特殊情况下，当船上没有备品时，可疑元件可以保留并清楚地标注“可疑”记号，直到提供新备件为止。

3. 工具和测试仪器的保养和保管

工具和仪器不应滥用。如有必要，应把仪器送岸上校准。

4. 天线和接地系统的管理

应检查防止天线损坏的保护措施，以确保其合适的装配和状态。所有天线都应定期检查，象线状天线的裂口和变脆，棒状天线的裂痕和采取的必要的补救措施。绝缘，包括汽笛牵索、水平支索和静止索的绝缘子和测向仪环状天线中的绝缘物应定期擦净，可能的话，更换

受损坏部分。接地线包括支索上的接地线，应检查并定期进行低阻接触测试。

决 议 6

关于无线电话务员安全无线电值班的基本准则和业务指导

大会，

认识到有效的安全无线电值班对海上人命和财产的安全的重要性，

注意到国际电信公约所附的无线电规则和国际海上人命安全公约的规定，

考虑到在这方面必须为话务员建立基本准则和业务指导，

决定：

(a) 通过关于话务员安全无线电值班的基本准则和业务指导的建议案，作为本决议案的附件；

(b) 敦促所有有关政府尽快实施本建议案。

请政府间海事协商组织：

(a) 经常审议本建议案并使所有有关政府注意将来的任何修改；

(b) 将本决议案通知给所有与会国政府。

附 件

关于话务员安全无线电值班的基本准则和业务指导的建议案

引言

1. 各国政府应该提请船舶所有人、船舶营运人、船长和无线电值班员注意，遵守下列准则和业务指导，以保证船舶在航行途中保持足够的安全无线电值班。

2. 在考虑本建议案准则时，应该遵守国际电信公约所附的无线电规则^{*}，国际海上人命安全公约^{**}和任何其它的有关的国际协议。

3. 本建议案的规定不以任何方式修正或改变包括在无线电规则或安全公约中的任何规定，如有抵触，以无线电规则和安全公约为准。

4. 另外，本建议案不打算对海上安全体系将来的发展有任何妨碍。

A 应遵守的基本准则

5. 安全公约适用的每艘船舶的船长应要求：

- (a) 按照无线电规则和安全公约的有关规定保持无线电话值班；
- (b) 保持设备，连同备用电源(如有的话)处于有效的工作状态。

6. 对第5条不适用的每艘船舶的船长，应该要求按照主管机关的规定保持足够的无线电话值班，同时应考虑无线电规则的规定。

7. 船长应确保无线电话台由话务员管理，在本船或它船应急的情况下，无线电话台应适当地配备人员。

* 以下简称无线电规则。

** 以下简称安全公约。

8. 所有船舶都应该考虑的基本准则包括如下, 但不应仅限于下述:

(a) 按照安全公约在遇险频率 2182KHz 上保持连续的值班; 安全公约中不涉及的船舶, 应该按主管机关的规定保持无线电话值班;

(b) 按照无线电规则和安全公约 VHF(甚高频)上保持值班;

(c) 对本船和它船提供安全无线电话服务;

(d) 在静默时间, 必须将静噪自滤波扬声器和自动报警器上除去, 并加以足够的音量电平, 以保证不漏掉遇险电报; 由于紧急和安全电报在静默时间结束后可能重发, 因此, 在静默时间结束后应该继续守听一段时间;

(e) 收到遇险、紧急和安全电报应立即送交船长;

(f) 应该记录本船航区以及有直接关系的其它海区的日常气象和航行警告;

(g) 参与船位报告系统的船舶, 有关船位报经船长批准后, 按需发送。

9. 未经准许的发射, 特别是那些在静默时间或遇险发射期间的未经准许的发射和任何有害的干扰事件(如有可能, 应识别)记入日志并按照无线电规则, 从无线电日志中以适当的摘录提请主管机关注意。

B 关于安全无线电话值班的业务指导

总则

1. 航行前, 无线电话务员应确保:

(a) 无线电话务员有责任使全部无线电设备均处于有效的工作状态并将蓄电池充足电;

(b) 具备国际协议所要求的全部文件和补充文件,对船舶无线电台的通知和监督机关所要求的附加文件,如有不符,报告船长;

(c) 报房钟是准确的;

(d) 天线位置正确,未受损伤并且连接得当。

2. 无线电话务员应确保全部有关文件均按照最新的补充资料予以校正和修改。

值班职责

3. 离港航行前,(在切实可行的场合)无线电话务员及时将船舶要航行的海区和船长所要求的其它海区的日常气象和航行警告,送交船长。

4. 离港起航和开启电台时,无线电话务员应:

(a) 在适当的遇险频率上收听可能存在的遇险情况;

(b) 发送船位报(船名、船位和目的港等)给本地的岸台和可望有通报的其它适当的岸台;

(c) 抄收首次发送的气象预报和航行警告。

5. 当电台已经开启,无线电话务员应:

(a) 每天至少一次,对照时标信号校正无线电报房钟;

(b) 当进入一个可望有通报岸台的海区时发送船位报;在离开该岸台所服务的海区时,应通知之。

6. 当抵港关闭电台时,无线电话务员应:

(a) 通知本地岸台和本船抵港时曾经保持联系的其它岸台并关机;

(b) 确保天线接地;

(c) 检查蓄电池是否充足电。

遇险、紧急和安全情况下所采取的措施

7. 遇险

遇险呼叫应该绝对优先于一切其它发射。听到遇险呼叫的所有电台应该立即停止会干扰遇险通报的一切发射。

(a) 本船遇险时，无线电话务员应：

- (i) 从驾驶台取得真实船位或估算船位，如不能得到，则用最后已知船位，或相对于某一固定地理位置的真方位和距离；当使用最后已知船位时，其时间应该用格林威治时间表示；
- (ii) 按照无线电规则，使用无线电话遇险程序通常在 2182KHz 上发射，适当时，可在 156.8MHz 上发射；必要时，按照无线电规则可以使用其它合适的国际遇险频率(或其它频率)；只有在船长或船舶负责人员的批准下，才能发送遇险呼叫和遇险电报；
- (iii) 每当可能时，发射报警信号，因为除警报信号的接收首先示警外，任何在附近的用滤波扬声器或报警接收机保持守听的船舶是听不到语言电文的；当以自动方式产生时，拍发的无线电话报警信号至少持续 30 秒钟，但不超过 1 分钟；当以其它方式产生时，拍发的信号尽可能持续 1 分钟以上；
- (iv) 不时的重发遇险电报，特别是在静默时间，直到收到回答为止，每当可能时，在遇险电报前面冠以报警信号和遇险呼号；

- (v)如果在某个遇险频率上发送的遇险电报得不到回答，
在可能被引起注意的任何其它可用频率上重发遇险电文；
 - (vi)使用任何方法以引起注意；
 - (vii)收到的一切遇险通信立即送交船长。
- (b)在它船遇险时，无线电话员应：
- (i)抄收电文，并送交船长；
 - (ii)如有可能，同时保证取得无线电测向方位，如此方位是相对方位，也应记录该船航向；
 - (iii)如果确信本船就在遇险处附近，应立即承认收妥，如果在遇险船舶能与岸台建立可靠的通信的海区，可暂时推迟承认以使岸台得以承认收妥；
 - (iv)如果确信本船不在遇险处附近，允许过一段时间承认收妥，以免干扰较近电台承认收妥；
 - (v)不承认收妥：
 - (1)当本船离遇险处很远，不处于给予援助的位置时，但已收听到遇险电报而一直没被认收者除外；
 - (2)对岸台所转发的遇险电报，直到船长确认遇险船已处于给予援救的位置时为止。
 - (vi)在第(v)项第(1)目中指出的情况下，且当：
 - (1)已知遇险船舶不在发射遇险电报的位置时；或
 - (2)船长认为需要给予进一步的帮助；或
 - (3)已经收到应急无线电示位标信号，但没有传送遇险或紧急通报；使用合适的发射机以全功率发送

遇险电报，无论何时尽可能冠以报警信号，在 2182KHz 或 156.8MHz 上使用“MAYDAY RELAY”程序，如果合适，可以在遇险情况下使用的任何其它频率上，采取一切其它措施，如同本船遇险一样，通告可能给予援助的当局。

- (vii) 在船长的命令下，尽快的发送本船船名、船位、速度和抵达遇险位置的估算时间，如对遇险船舶的位置表示怀疑，用无线电测向仪测其方位；
- (viii) 记录其它的承认、船位和抵达时间以及其它有关的遇险通报并送交船长；
- (ix) 如遇险通报的指挥为某岸台或便于向遇险船舶提供援助的某船承担，应与该指挥台保持正常的联系。

8. 紧急

- (a) 本船处于紧急情况，话务员应：
 - (i) 仅在船长授权下使用无线电报紧急程序，在 2182KHz，适当时在 156.8MHz 上或在遇险情况下可使用的任何其它频率上发送紧急信号和电报；在报文很长或医疗呼叫或在通报繁忙的海区重发紧急报文时，应在工作频率上发送，在这种情况下，在呼叫中包括将发射的紧急电文的具体频率；
 - (ii) 如果紧急电报涉及人员伤亡或人员落水，只有当需要它船援助并且使用紧急信号不能获得满意的结果时，允许在呼叫前冠以报警信号；

- (iii) 如果发向某一特定电台的电文, 转换到工作频率前应
与该台建立联系;
 - (iv) 如果发向所有电台的电文, 在重复呼叫和发送电文前,
允许一段合理的间隙时间;
 - (v) 当发向所有电台的紧急情况结束, 不需要再采取措施
时, 在有关的频率上, 给所有电台发送取消电文。
- (b) 它船处于紧急情况, 无线电话务员应:
- (i) 紧急信号优先于除遇险情况外的所有其它通信, 注意
不要干扰紧急信号或紧跟紧急信号发射的电文;
 - (ii) 抄收电文并送交船长;
 - (iii) 至少连续收听三分钟, 在这阶段结束时, 如果没有听到
紧急电文, 如有可能, 将紧急信号的接收情况通告
岸台, 然后恢复正常工作;
 - (iv) 如紧急信号发向某特定电台, 允许在用作发送紧急信
号或紧急电文的使用的不同频率上继续工作, 如被要
求, 应给予援助, 使紧急电文顺利地发往收报者, 例
如转发。

9. 安全

- (a) 当发射安全电报时, 无线电话务员应:
- (i) 第一个可得到的静默时间的末尾发送安全信号并且在
2182KHz 上, 适当时在 156.8MHz 上或在遇险情况
下可使用的任何其它频率上呼叫;

- (ii)在静默时间结束，在工作频率上紧接着呼叫立刻发送安全电报，在呼叫结束时，对发射安全电文给予一个适当的通知；
 - (iii)尽快发送包括重要的气象和航行警告的安全呼叫和电文，并在第一个静默时间结束时紧跟着重复之。
- (b) 在收听安全信号时，无线电话务员应：
- (i)不干扰信号或电文；
 - (ii)抄送电文并送给船长；
 - (iii)如必要，向所有船舶发电文，在转播方面给予充分的协助，如要求，可将限定内容的电文转发给收报方。

其它职责

10. 日志保管

- (a) 无线电话日志应按照无线电规则和安全公约的要求保存；
- (b) 无线电话日志应在保持守听的地方保存并且应便于主管机关授权的官员检查；记载的所有时间，应以格林威治时间记录；
- (c) 无线电话日志在任何时候都应便于船长检查，无线电话务员应该告诉船长注意记入日志的有关安全的重要内容。

11. 保养

无线电话务员应：

- (a) 测试蓄电池，如有必要并使之达到足够的充电状态；
- (b) 检查防止天线损坏的保护措施并且确保其合适的装配和状态；
- (c) 检查天线的裂口或变脆并且采取任何必要的补救措施；

(d) 检查汽笛牵索、水平支索和静止索中的绝缘子，定期清洁，并且在可能的地方更换损伤的部分；

(e) 每周一次检查救生阀便携式无线电设备的状态。

决 议 7

无线电值班员

大会，

认识到有效的安全无线电值班和维修对海上人命和财产安全的重要性，

注意到有些不被国际海上人命安全公约所要求的船舶安装了无线电报装置，

注意到国际电信公约所附的无线电规则的规定，按照无线电规则的规定，这些船舶的无线电报业务可由持有无线电报值班员特种证书的无线电值班员所执行，

决定：

(a) 通过下列的建议案作为本决议案的附件：

(i) 无线电值班员发证的最低要求建议案；

(ii) 确保无线电值班员不断精通业务和掌握最新知识的最低要求建议案；

(iii) 关于无线电值班员安全无线值班和维护的基本准则和业务指导的建议案；

(iv) 无线电值班员培训建议案。

(b) 敦促所有有关政府尽快实施这些建议案。

请政府间海事协商组织：

(a) 审议这些建议案，并使所有有关政府注意将来的任何修改；

(b) 如果合适，与其它国际组织、特别是与国际劳工组织和国际电信联盟协商与联合，审议无线电值机员培训建议案；

(c) 将本决议案通知给所有与会国政府。

附 件 I

无线电值机员证书的最低要求建议案

1. 在装有无线电报台、但不为国际协议所规定的船上负责或执行无线电职责的每个无线电值机员，按无线电规则的规定，应该持有由主管机关颁发或承认的一种或几种适当的证书。

2. 此外，无线电值机员应：

(a) 年龄不小于 18 岁；

(b) 符合主管机关对体检的要求，特别是视力、听力和说话能力；

(c) 符合本建议案附件 I 的附则的要求。

3. 要求每个应试者，应该通过科目考试或综合考试，并使主管机关满意。

4. 发证所要求的知识水平对于无线电值机员安全地和有效地执行其无线电职责应是足够的，在确定适当的知识水平和为要达到此种知识和实际能力的培训，主管机关应该考虑无线电规则和本建议案附则的要求。主管机关也应考虑 1978 年海员培训和发证国际会议所通过的其它有关决议案和有关的海协建议案。

附 则

无线电值班员的最低附加知识和培训要求

除满足按照无线电规则颁发证书的要求外，无线电值班员应具有下列知识和训练，包括实际的训练：

- (a) 无线电应急业务的规定，包括：
 - (i) 弃船；
 - (ii) 船舶失火；
 - (iii) 无线电台局部或全部损坏。
- (b) 救生艇、救生筏、救生浮具及其属具，特别是关于便携式和固定式救生艇无线电设备和应急无线电示位标的操作；
- (c) 海上救助；
- (d) 急救；
- (e) 防火和灭火，特别是关于无线电设施的防火和灭火；
- (f) 与船舶和人员安全有关的无线电装置的危害的预防措施，包括电的、辐射的、化学的和机械的危害；
- (g) 海协《商船搜寻救生手册》的使用，特别是其中有关无线电通信的部分；
- (h) 船位报告系统和程序；
- (i) 国际信号规则和海协标准航海用语的使用；
- (j) 无线电医疗系统和程序。

附 件 II

**保证无线电值班员不断精通业务和掌握最新知识的最低
要求建议书**

1. 每个持有由主管机关颁发或承认的一种或几种证书的无线电值班员，为了继续取得海上服务的资格，必须符合主管机关的下述要求：

(a) 在每隔不超过五年的时间内，进行一次体检，特别是视力、听力和说话能力；并且

(b) 专业能力：

(i) 被认可的无线电值班员的无线电通信业务，一次中断不得超过五年；

(ii) 如发生中断，就要在海上或岸上，通过主管机关认可的测试或圆满地完成主管机关认可的单科或综合的训练课程，这些课程应该包括的内容是直接关系到海上人命安全和现代化无线电通信装置，也可包括无线电导航装置。

2. 当有权悬挂其旗帜的船舶采用了新的方法、装置或业务时，该主管机关可以要求无线电值班员在海上或岸上通过一次认可的测验或圆满地完成一次适当的特别是与安全职责有关的单科或综合的训练课程。

3. 经国际会议通过，具有特殊培训要求的特种船舶上工作的每个无线电值班员为继续取得海上服务的资格，应该圆满地完成被认可的培训或通过考试，这些培训或考试应该考虑有关的国际规则和建议案。

4. 主管机关应该确保向它所管辖下的船舶提供有关无线电通信和海上人命安全的国际规则中的最新变化的文本。

5. 在与有关方面协商下, 鼓励主管机关在海上或岸上, 自愿或强制地(视情况而定), 为现职的、特别是为重返海上工作的无线电值班员制定或促使其制定复习与最新课程的计划, 这些单科与综合课程应该包括海上无线电通信技术和有关国际规则以及有关海上人命安全的建议案^{*}中的变化。

附 件 III

关于无线电值班员安全无线电值班和维修的基本准则和 业务指导建议案

引言

1. 各国政府应该提请船舶所有人、船舶营运人、船长和无线电值班人员注意, 遵守下列的准则和业务指导, 以确保在航船舶保持足够的安全无线电值班。

2. 在考虑本建议案准则时, 应该遵守国际电信公约所附的无线电规则^{**}、国际海上人命安全公约^{***}和其它有关国际协议。

3. 本建议案的条款, 不以任何方式修正或改变无线电规则或安全公约的任何规定, 如有抵触, 以无线电规则和安全公约为准。

* 包括有关海上遇险系统的发展的任何海协建议案。

** 以下简称无线电规则。

*** 以下简称安全公约。

4. 此外，本建议案不打算对海上安全体系将来的发展有任何妨碍。

A 应遵守的基本准则

5. 每艘船舶的船长应要求：

(a) 按照无线电规则和安全公约的规定保持无线电值班；

(b) 保持设备处于有效的工作状态。

6. 所有船舶都应考虑下列的基本准则，但不应尽限于下列：

(a) 在遇险频率 500KHz 上和其他适合的遇险频率上，尽可能保持连续的守听；

(b) 对本船和其他船舶提供安全无线电服务；

(c) 应保持强制性无线电通信设备始终处于有效的工作状态；

(d) 在值班的静默时间，应采取步骤守听频率 500KHz，以确保遇险和其他应急发射的接收，这可由搜索 495KHz 到 505KHz 频段来实现；

(e) 应该随时备有定期更新的船位，并按船长的指示，突出地显示在工作位置上；

(f) 收到遇险、紧急和安全电报应立即送交负责航行的值班驾驶员；

(g) 收到本船航区和船长要求的其它海区的日常气象和航行警告应立即送交负责航行的值班驾驶员；

(h) 在参加船位报告系统的船上，由船长授权，按需发送有关的船位报；

(i) 按主管机关的决定保持无线电值班；

(j) 未经允许的发射,特别是那些在静默时间或遇险发射期间的未经准许的发射和任何有害的干扰事件(如有可能,应该识别),记入日志,并按照无线电规则从无线电日志中作适当的摘录,以提请主管机关注意;

(k) 无线电守听人员值班的安排,应使其值班能力不因疲劳而削弱,走上岗位时,是经过休息的并且其它方面也适宜;

(l) 采取措施确保无线电守听人员的听觉不因面临船上过分的外部噪声而损害,当过分的外部噪声不可避免时,应该戴上听觉保护器。

B 关于安全无线电值班和维修的业务指导

总则

1. 开航前,值班无线电值班员应确保:

(a) 无线电值班员有责任使所有无线电设备处于有效的工作状态,将蓄电池充足电;

(b) 具备国际协定所要求的全部文件和补充资料,对船舶无线电台的通知和监督机关所要求的附加文件,如有不符应报告船长;

(c) 报房钟是准确的;

(d) 天线位置正确,无损伤和连接得当。

2. 无线电值班员应确保一切有关文件均按照最新的补充资料予以校正和修改。

3. 无线电值班员首次上船工作时,必须确保无线电通信设备的所有技术手册、备品、测试仪器和工具都在船上,对无线电导航设备是否如此,则由船长自行决定,如有不符,报告船长。

值班职责

4. 无线电报

(a) 离港开航前(如切实可行)无线电值机员应该及时将船舶将要航行的海区和船长所要求的其他海区的最新的日常气象和航行警告立即送交船长。

(b) 在离港开航和开启电台时,无线电值机员应:

(i) 在遇险频率 500KHz 上收听可能存在的遇险情况;

(ii) 发送船位报(船名、船位和目的港等)给可望有通报的当地电台和其它适当的岸台;

(iii) 抄收有关岸台第一次发送的气象预报和航行警告。

(c) 当电台已经开启,无线电值机员应:

(i) 每天至少一次将时标信号转送海图室,以便校对天文钟;

(ii) 每天至少一次用时标信号校对无线电报房钟;

(iii) 在被选船舶上的值班期间,通过有关岸台,尽力发完尽可能多的可用的 OBS(气象报告)电报;

(iv) 当进入一个可望有通报的中频或其它岸台的海区时发送船位报;当离开该岸台服务的海区时,应通知之;

(v) 尽可能地收听可望有通报的岸台所发射的通报表,在听到本船的呼号时,应尽快地回答。

(d) 当抵港关闭电台时,无线电值机员应:

(i) 通知本地岸台和曾经保持联系的其它岸台关于本船抵港和关机情况;

- (ii) 确保天线接地；
- (iii) 检查蓄电池是否充足电。

5. 无线电话

(a) 凡在无线电报房中，在 2182KHz 上进行无线电值班时，此频率应监听遇险、紧急或安全发射；

(b) 当侦听到任何这样的发射时，应按下面的第 6、7 和 8 条有关部分中详述的程序进行；

(c) 在 2182KHz 频率上进行任何监听值班的开启和关闭时间和任何遇险、紧急和安全通报的详情，都应记入无线电日志，但不必重复那些已经在 500KHz 上收听到的情况。

在遇险、紧急和安全情况下采取的行动

6. 遇险

遇险呼叫应该绝对地优先于其他的一切发射，听到遇险呼叫的所有电台，应该立即停止会干扰遇险通报的任何发射。

(a) 在本船遇险的情况下，无线电值班员应：

(i) 从驾驶台取得真实船位或估算船位，如无法得到，则使用最后所知船位或相对于某一固定地理位置的真方位和距离；当使用最后已知船位时，该位置的时间应该用格林威治时间表示；

(ii) 按照无线电规则，使用无线电报遇险程序通常在 500KHz 上发射；必要时，按照无线电规则，可使用其它合适的国际遇险频率(或其它频率)；遇险呼叫和电文只能在船长或船舶负责人员的授权下才能发送；

- (iii) 不时的重复遇险电文, 特别是在静默时间; 如有必要, 在遇险电文前, 冠以报警信号和遇险呼叫, 直到收到回答为止;
 - (iv) 如果在某个遇险频率上, 发送的遇险电文得不到回答, 应该在可以引起注意的任何其它可用频率上重复电文;
 - (v) 使用任何方法以引起注意;
 - (vi) 收到所有的遇险通信, 立即送交船长;
 - (vii) 如果该船在被其它船舶找到之前, 不得不弃船, 如有必要和情况许可, 置无线电设备于连续发射状态。
- (b) 在它船遇险的情况下, 无线电值班员应:
- (i) 抄收电文并送到驾驶台;
 - (ii) 同时(如有可能), 保证取得无线电测向方位, 如所得方位是相对的, 应记录该船航向;
 - (iii) 如果确信本船就在遇险船舶附近, 应该立即承认收妥; 如果所在海区遇险船舶能与岸台建立可靠的通信, 可暂时推迟承认, 以使岸台得以承认收妥;
 - (iv) 如果确信本船不在遇险船舶附近, 允许过一段时间再承认收妥, 以免干扰就近电台承认收妥;
 - (v) 不承认收妥:
 - (1) 除所听遇险电报一直未被认收外;
 - (2) 对岸台所转发的遇险电报, 直到船长确认遇险船已处于给予援助的位置时为止。

- (vi) 在第(v)项第(1)目中指出的情况下, 以及当
- (1) 已知遇险船舶不在发送遇险电报的位置时; 或
 - (2) 船长认为需要给予进一步帮助; 或
 - (3) 已经收到应急无线电示位标信号, 同时没有传送遇险或紧急通报。
- 使用合适的发射机以全功率发射遇险电报并尽可能冠以报警信号; 在 500KHz 上使用 DDD 程序, 如果合适, 在 2182KHz 或 156.8MHz 上或在遇险情况下在可使用的任何其它频率上使用“MAYDAY RELAY”程序, 以及采用一切其它措施, 如本船遇险一样, 通告可能给予援助的当局。
- (vii) 在船长的命令下, 尽快的发送本船的船名、船位、速度和抵达遇险位置的估算时间, 而且, 如果对遇险船舶的位置表示怀疑, 在遇险船舶的真方位前冠以缩语 QTE 和方位的类别;
- (viii) 记录其它的承认、船位和抵达的时间以及其它有关的遇险通报, 并送交驾驶台;
- (ix) 如果遇险通报的指挥为某岸台或便于向遇险船舶提供援助的某船所承担, 应与该指挥台保持正常联系;
- (x) 保持连续值班, 直到遇险结束; 如果较近的船舶已经提供了足够的援助或已经和岸台建立了联系, 并且向遇险船舶提供转报方便或专门通告已无必要, 正常的值班可以恢复。

7. 紧急

(a) 在本船处于紧急情况时，无线电值班员应：

- (i) 仅在船长授权下使用无线电报紧急程序，在 500KHz 或在遇险情况下在可使用的任何其它频率上发送紧急信号和电文；在电文很长的情况下，或医疗呼叫或在通报繁忙的海区重复紧急电文时在可使用工作频率发射；在这种情况下，在呼叫中包括将发射的紧急电文的具体频率；
- (ii) 如果紧急电报涉及人员的伤亡或人员落水，只有在需要其它船舶援助、并且使用紧急信号不能满意地达到目的时，才允许在呼叫前冠以报警信号；
- (iii) 如果发向某一特定电台的电文，在转换到工作频率之前，应与该台建立联系；
- (iv) 如果发向所有电台的电文，在重复呼叫和发射电文之前，允许一段合理的间歇时间；
- (v) 当发向所有电台的紧急电文结束并且不需要再采取措施时，在有关的频率上，向有关电台发送取消电文。

(b) 在它船处于紧急情况时，无线电值班员应：

- (i) 紧急信号优先于除遇险外的所有其它通信，注意不要干扰紧急信号或紧随紧急信号而发射的电文；
- (ii) 抄收电报并送到驾驶台；
- (iii) 至少连续收听三分钟；在这期间结束后，如果没有听到紧急电文(如有可能)将紧急信号的接收的情况通知岸台，然后恢复正常工作；

(iv) 如果紧急信号发向某特定电台，允许在与发射紧急信号或紧急电文所使用的不同频率上继续工作；如要求，应给予一切援助使紧急电报顺利地送给收报者，例如转发。

8. 安全

(a) 发射安全电报时，无线电值班员应：

(i) 在第一个可得到的静默时间的末尾，在一个或几个国际遇险频率(500KHz, 2182KHz, 156.8MHz 在适当的地点)上，或在遇险情况下在可使用的任何其它频率上发送安全信号和呼叫；

(ii) 在静默时间一结束，紧接着呼叫，立刻在工作频率上发送安全电报，并在呼叫结束时，对发射电文给予一个适当的通告；在通报繁忙的地区之外，简短的安全电报可例外地在频率 500KHz 上发送；

(iii) 尽快发送含有重要的气象和航行警告的安全呼叫和电文，并在第一次静默时间结束时紧接着重复之。

(b) 在收听安全信号时，无线电值班员应：

(i) 不干扰信号和电文；

(ii) 抄收电报并送到驾驶台；

(iii) 发向所有船舶的电报(如有必要)在转播方面给予充分的协助，如果对方要求，可将限定内容的电报转送给收报方。

其它职责

9. 保存日志

(a) 无线电日志应按照无线电规则和安全公约的要求保存；

(b) 无线电日志应保存在无线电报房内，并且应便于主管机关授权的官员检查，日志记载的时间，全部用格林威治时间记录；

(c) 无线电日志无论何时都应便于船长检查，无线电值机员还应提请船长注意记入日志的有关安全的重要内容。

10. 必要的测试

船舶在航行途中，无线电值机员应按照安全公约测试；此外，为便于早期发现发展中的故障，应进行下述工作：

(a) 每周至少一次校对作为信号构成和定时用的自动拍发器；

(b) 定期校对无线电通信设备中的所有测试点并记录异常情况；

(c) 如有可能，应测试漂浮状态下的救生艇上便携式和固定式无线电设备；无论如何，每三个月也要在船上测试救生艇中的便携式和固定式无线电设备；当测试是在架设天线的情况下进行时，在对其他发射不产生干扰的情况下，力求和其他船舶或岸台建立联系；当救生艇中的无线电设备使用非充电式电池时，应按厂方建议的时间予以更换，如果在测试中性能降低，可提前更换；

(d) 当无线电航标在视线以内，相隔一定时间与驾驶台配合，在尽可能多的航向上取得校正方位，检验测向仪校准曲线的精度；记录结果并报告船长；应该找出船上可能引起误差的因素，包括金属线索位置的变动、未经许可的天线等，并报告船长。

11. 救生艇便携式无线电设备的示范

当可能时，救生艇便携式无线电设备的操作，应对新船员示范，使他们熟悉设备的使用。当设备在救生艇中试验时，它的装配和操作应向尽可能多的船员示范。

12. 备用无线电装置的示范

当主管机关要求在备用无线电设备(包括自动拍发器)上装设指导图和有关的数目指示器时，对于在应急情况下当无线电值机员由于任何原因不能工作时，由船长指定的使用这些装置的适当人员，以适当的间隔按这样的步骤给予示范。

13. 维修

维修仅在于简单的修理。

附 件 IV

无线电值机员培训建议案

在海上安全无线电通信方面培训的最低水准

总则

1. 培训前，应试者应符合体检要求，特别是听力，视力和说话能力。

2. 培训应适合于当时有效的国际电信公约所附的无线电规则和国际海上人命安全公约的规定，对海上无线电通信技术和无线电通信系统的最新发展予以特别的注意，今后大纲应考虑下列各项，但不应局限于下列：

理论

3. 在本建议书附件中列出了教学大纲。

实践

4. 实践的培训要求如下：

- (a) 基本上看懂电路图；
- (b) 安全公约所要求携带的工具和测试仪器的使用和保管；
- (c) 焊接和脱焊技术，包括那些含有半导体器件和新式电路的焊接和脱焊技术；
- (d) 船用无线电通信装置的操作和调整；
- (e) 救生艇便携式无线电设备的操作和基本维修；
- (f) 基本的故障位置的逻辑推理；
- (g) 简单故障的排除；
- (h) 基本的维修程序；
- (i) 基本的测向仪校正程序和取得测向方位；
- (j) 屏蔽接收机不受电的和电磁干扰的基本方法；
- (k) 天线装配，修理和保养的考虑；
- (l) 安全程序；
- (m) 电源的操作和维修，例如电机，变流机和蓄电池。

无线电通信技术

5. 培训应给以

- (a) 操作技术，包括如下：
 - (i) 拍发和接收莫尔斯电码应达到无线电规则要求的目标；
 - (ii) 在典型的干扰(真实的或录制的)情况下，接收莫尔斯电码；

- (iii) 在严重的干扰情况下使用滤波器电路和调整拍频振荡器(BFO)以改善所需信号的接收;
- (iv) 单边带信号接收机的调谐技术;
- (v) 发射机调谐和天线调整技术;
- (vi) 接收移频信号、包括传真和选择性呼叫的接收机的调谐技术。

(b) 无线电报值班, 无线电报通报联络, 特别是有关遇险, 紧急和安全程序以及保存日志, 包括业务缩语和 Q——缩语的使用;

(c) 无线电话值班, 无线电话联络, 特别是遇险、紧急和安全程序以及保存日志, 包括国际语音字母和数码的使用;

(d) 国际信号规则和海协标准航海用语的使用;

(e) 海协《商船搜寻救生手册》中使用无线电报和无线电话的通信程序;

(f) 船位报告系统和程序;

(g) 无线电医疗系统及程序;

(h) 高频通信确定最佳频率的程序;

(i) 高频呼叫频率的使用;

(j) 当同时监听或工作时, 监听遇险频率规定。

6. 培训应该以无线电规则和安全公约要求为基础, 特别是那些有关部分

(a) 遇险, 紧急和安全无线电通信;

(b) 避免发生有害的干扰, 特别是对遇险通报;

(c) 船舶电台携带的文件及其使用。

杂项

7. 建议

(a) 为了有关海上人命安全的无线电话和无线电报通信联络的需要，在有效范围内，所教的英语达到适当的水平；

(b) 在个人救生技术方面和在救生装置的实际使用方面应给予培训；

(c) 培训应包括一门完善的消防课程，着重于报房灭火的方法，并尽可能使无线电设施的损害减到最小。

附 则

涉及海上安全无线电通信理论的教学大纲

1. 电学和无线电通信的基本知识

(a) 电学、原电池和蓄电池；

(b) 电磁学、电感；

(c) 静电学、电容；

(d) 交流电，变压器和电机；

(e) 热离子管和半导体器件的功能；

(f) 电表和测量；

(g) 无线电通信原理。

2. 海上无线电通信

(a) 电源的基本知识；

(b) 音频和射频放大器、振荡器、调制方式、变频和信号检波的功能的认识；

- (c) 无线电波的辐射，天线类型的基本知识；
- (d) 发射机、接收机、测向仪、自动报警器(无线电报和无线电话)和救生艇便携式无线电设备，包括应急无线电示位标的基本方框图；
- (e) 自动拍发器的功能的知识。

决 议 8

对组成航行值班部分的一般船员的附加训练

大会，

考虑到对组成航行值班部分的一般船员提高其技术熟练的必要性，

认识到这种提高将通过 1978 年海员培训、发证和值班标准国际公约中关于组成航行值班部分的一般船员的法定最低要求的附加课目来促使其实现，

决定建议对组成航行值班部分的一般船员应在以下几方面进行训练：

- (a) 适应于他们职责的驾驶台设备的操作与使用；和
- (b) 防止污染海上环境的基本要求。

敦促一切有关政府尽快实施本决议案的内容。

决 议 9

对指定作为负责值班轮机员助理的一般船员的最低要求

大会，

认识到对组成机舱值班部分并负有特殊责任的一般船员有制定其要求的重要性和迫切性，

认识到对组成机舱值班部分并负有特殊责任的一般船员的训练尚未进行广泛的适当的安排，

决定：

(a) 通过本决议案附件中对指定作为负责值班轮机员助理的一般船员的最低要求的建议案；

(b) 敦促一切有关政府尽快实施本建议案的内容。

请政府间海事协商组织：

(a) 对本建议案予以审查并将今后的修正案通知所有有关政府；

(b) 将本决议案通知给与会各国政府。

附 件

对指定作为负责值班轮机员助理的一般船员的最低要求的建议案

1. 在海船上凡被指定作为负责值班轮机员助理并负有特殊职责的、而这些职责的责任与机械的安全运行和操作有关的一般船员，应使主管当局满意并符合如下的最低要求：

(a) 年龄不小于 17 岁；

- (b) 体检合格，包括听力和视力；
- (c) 受过有关消防、基础急救、自救、人身事故、自身安全等训练；
- (d) 至少有 12 个月的海上机舱工作能力，其中一半时间可由被认可的训练来代替；

(e) 符合 1978 年海员培训、发证和值班标准的国际公约中规则 III/6 的要求——即“对组成机舱值班部分的一般船员的法定最低要求”。

2. 每个这种一般船员应具备：

- (a) 对主推进机和辅助机械的功能、操作和运行的知识；
- (b) 机舱值班程序的知识 and 执行日常值班的能力；
- (c) 对手工工具和可携式电动工具的使用知识；
- (d) 读出和理解与其值班职责有关的指示仪表的数据的能力；
- (e) 各种泵浦系统的功用、操作和运行的知识；
- (f) 与机舱操作有关的安全工作实践的知识；
- (g) 有关机械场所的技术术语和所有机械细目及设备名称的知识。

3. 每个这种组成机舱值班部分的一般船员应熟悉其在机械场所的值班职责，特别是关于他的职责。在任何船上，他还应具有：

- (a) 使用相应的船内通信系统的知识；
- (b) 从机舱脱险的途径的知识；
- (c) 机舱警报系统的知识和有分辨各种不同警报，特别是气体灭火警报的能力；
- (d) 熟悉机舱内消防设备的位置和使用方法；
- (e) 熟悉环境周围的防护设备；

(f) 理解值班轮机员的意图和被其理解的能力。

4. 主管机关应保证对符合本建议案第 1 和第 2 两条的合格海员发给证件或在他现在所持有的证件上予以签证。

5. 一个海员如果他在本建议案被主管机关批准实行之前的五年中有不少于一年的时间是从事于轮机部工作的，他就可被主管机关认为是符合于本建议案的要求。

决 议 10

油轮高级船员和一般船员的培训和资格

大会，

意识到涉及处理散装油的事故对人类生命和周围环境可能造成的危害，

认识到对处理散装油负有特殊责任的高级船员和关键的一般船员制定要求的重要性和迫切性，

注意到 1978 年油轮安全和防污染国际会议的第 8 号决议，认识到对处理散装油负有专门责任的高级船员和一般船员的培训安排还不完备，

决定：

(a) 通过本决议案附件中关于油轮高级船员和一般船员培训和资格的建议案；

(b) 敦促各有关政府将本建议案内容尽快予以实施。

请政府间海事协商组织：

(a) 将本建议案予以审查并将其后的修正案，通知所有有关政府，

(b) 将本决议案通知给与会各国政府。

附 件

关于油轮高级船员和一般船员的培训和资格的建议案

I 对货和货运设备负有专门职责和责任的高级船员和一般船员的培训

应将培训分成两部分，即涉及原则方面有关的一般部分和将这些原则运用于船舶操作的部分。本培训的任何部分可在海上或岸上进行。这种培训应由海上实际指导，作为补充和需要时亦可在有合适的岸上设施地培训。所有的训练和指导应有适当资格的人担任。

A 原则

1. 油类货物的特性

处理概要包括所装散油的物理性质的实际说明，蒸汽压力/温度的关系，在沸点时压力的影响，饱和蒸汽压力，扩散、局部压力，燃烧界限，爆炸界限，石油蒸汽、蒸汽流动，闪点和和自燃点的解释。闪点和燃烧下限的实际意义，产生静电饱和的各种简单解释。

2. 毒性

简单原理和基本概念的解释：毒性界限，毒性的急性和慢性反应，全身中毒和刺激性。

3. 危害性

(a) 爆炸和燃烧危害

燃烧界限，燃烧和爆炸的起因，蒸汽气流漂移的危害。

(b) 对人体的危害

皮肤接触、吸进和吞入的危害。

(c) 对环境的危害

海上排油对人类生命和海洋生物的影响，比重和溶解度的影响，蒸汽压力和大气条件的影响。

(d) 腐蚀性的危害

4. 危害控制

惰性、监视技术、防静电措施、通风、隔离和不同材料相容的重要性。

5. 安全设备和人身保护

气量计和类似设备的功用和校正、特殊性能的消防设备、呼吸器具和油舱排空设备、防护服和保护设备的安全使用。

B 运用于船

1. 规范和实用规则

制定船舶应急部署的重要性，熟悉：

(a) 有关国际公约的相应规定；

(b) 国际和国内的规范；

(c) 海协的防油污手册；

(d) 有关油轮的安全指导*。

* 参考国际航运公会和石油公司国际海运座谈会联合出版的对油轮和油码头的国际安全指导，以及国际航运公会对直升飞机/船舶操作的指导。

2. 船舶设计和油轮设备

熟悉：

- (a) 管路，泵浦，油舱和甲板布置；
- (b) 货泵种类及其对各种货物的应用；
- (c) 清舱，清除有毒气体和惰性气体的系统；
- (d) 货舱和生活舱室的通风；
- (e) 计量系统和报警；
- (f) 货油加热系统；
- (g) 电器系统的安全系数。

3. 船舶操作

货油计算，装卸计划，包括船对船驳载的装卸程序，核对清单，监视设备的使用，人员正视监督的重要性，清除有毒气体和清舱作业。当需要时原油的洗舱方法和惰性气体系统的操作和维持，进入泵房和封闭处所的控制。探测气体设备和安全设备的使用，装于上部及压载和排除压载的正规方法，防止空气和水的污染。

4. 修理和保养

当在进行包括影响到泵浦、管路、电路和控制系统的修理和保养工作之前及在其过程中应采取的预防措施。在进行火工工作时，必要的安全因素。火工工作和正规火工工作程序的控制。

5. 应急操作

应急部署。装卸操作的紧急停止。货物装卸作业万一发生事故时的行动。油轮的消防。发生碰撞、搁浅或溢油后的行动。急救方法和复苏设备的使用。呼吸器的使用。封闭处所的救助人员。

注意：

建议尽可能多地使用船上的操作和设备手册，电影和合适的视觉器具，并利用机会，介绍船上安全组织所起作用的讨论，以及安全委员和安全委员会的作用。

II 其他人员的培训

这种人员应经过在船上的培训，当需要时，并应经过有经验的合格人员在岸的对货运处理和货油特性及其安全方法的培训。

1. 规则

在港和在海时油轮上人员安全的船舶规章和规则的知识。

2. 人身事故和应采取的预防措施

皮肤接触的危害。吸进和偶然地吞进货油。缺氧特别注意惰性气体系统的缺氧。所运货物的有害性质，人员事故及其有关急救，应做和不应做事项一览表。

3. 防火和消防

吸烟控制和烹调管理。火源。防火防爆。灭火方法。可携器械和固定装置的概况。

4. 防止污染

防止污染空气和水应遵循的程序。溢油时应采取的措施。

5. 安全设备及其使用

防护服和设备，复苏器，脱险和救助设备的使用。

6. 应急程序

熟悉应急部署程序。

7. 货运设备及其操作

装卸操作设备的一般说明，安全装卸程序及注意事项。安全进入封闭场所。

■ 消防训练

所有人员应参加过认可的与其职责和责任有关的基本的消防训练课程或高级实用的消防训练课程。

决 议 11

化学品船高级船员和一般船员的培训和资格

大会，

意识到涉及处理散装化学品的事故对人类生命和周围环境可能造成的危害，

认识到对处理有危险的或有毒的散装化学品负有特殊责任的高级船员和关键的一般船员制定要求的重要性和迫切性，

考虑到政府间海事协商组织通过的关于这方面的海大决议 A286 (VIII 届)，

注意到海大 A286 (VIII 届) 决议的主要事项是和本会议的目标紧密相关的，

决定：

(a) 通过本决议案附件中关于化学品船高级船员和一般船员培训和资格的建议案；

(b) 敦促各有关政府将本建议案的内容尽快予以实施。

请政府间海事协商组织：

(a) 将本建议案予以审查并将其后包括处理有危险的或有毒的散装干货化学品的有关规定的修正案通知所有有关政府；

(b) 将本决议案通知给与会各国政府。

附 件

关于化学品船高级船员和一般船员培训和资格的建议案

I 对负责货物装卸和货运设备的高级船员和一般船员的培训应分成两部分，即涉及原则方面的一般部分和将各条原则运用于船舶操作的部分。本培训的任何部分可在海上或岸上进行。这种培训应由海上实践指导，作为补充和需要时亦可在有合适的岸上设施处培训。所有的培训和指导应有适当资格的人担任。

A 原则

1. 基础物理学

处理概要包括所运载散装化学品的物理性能的实际说明，蒸汽压力/温度的关系。在沸点时压力的影响。饱和蒸汽压力、扩散、局部压力、燃烧界限、闪点和自燃点的解释。闪点和燃烧下限的实际意义。产生静电饱和的各种简单解释。

2. 基础化学

化学符号和结构，酸和碱的化学成分，常运化学品的结构和性质，常见化学基的化学反应，足以正确地运用规范。

3. 毒性

简单原理和基本概念的解释：毒性界限，毒性的急性和慢性反应，全身中毒和刺激性。

4. 危害性

(a) 爆炸和燃烧危害

燃烧界限，燃烧和爆炸的起因。

(b) 对人体的危害

皮肤接触，吸进和吞入的危害。

(c) 对环境的危害

海上排出化学品对人类生命和海洋生物的影响，比重和溶解度的影响。蒸汽气流漂移的危害，蒸汽压力和大气条件的影响。

(d) 反应危害

自身反应；聚合作用，温度影响，杂质如催化剂，与空气、水和其它化学品的反应。

(e) 腐蚀性的危害

对人员的危害，对结构材料的侵害，浓缩影响，氢扩散。

5. 危害控制

惰性，充水，干燥剂，监视技术，防止静电措施，通风，分隔，货物的存放，不同材料相容的重要性。

6. 安全设备和人身保护

测量仪器和类似设备的功用和校正。专用消防设备，呼吸器和救生器材，防护服和设备的安全使用。

B 运用于船

1. 规范和实用规则

熟悉海协、国内的和有关国际的规范*和港口规则，制定船舶应急部署的重要性。

* 参考国际航运公会油轮安全指南(化学品)和直升飞机/船舶操作指导。

2. 船舶设计和化学品船设备

专用管路，泵浦和货舱布置的概述。溢出控制。货泵的类型及其对各种不同类型货物的应用。清舱和清除有毒气体系统。货舱和生活舱室通风、气闸、计量系统。货舱温度控制系统，电器系统的安全因素。

3. 船舶操作

货物计算。装卸计划。装卸方法。核对清单。监视设备的使用。消除有毒气体和清舱作业(适当使用中和剂、润湿剂和清洁剂)。惰性气体的使用和维护。进入泵房和封闭处所的控制。探测和安全设备的使用。废物和洗涤物处理。

4. 修理和保养

在维修和保养泵浦、管路、电器和控制系统前应采取的预防措施。

5. 应急操作

应急部署，装卸操作的紧急停止。货物装卸作业万一发生事故时的行动。化学品船的消防。发生碰撞、搁浅或溢漏时的行动。急救方法及复苏器与消毒设备的使用。呼吸器具的使用。封闭处所的救助。

注意：

建议尽可能多地使用船上的操作和设备手册，电影和合适的视觉器具，并利用机会介绍船上安全组织所起作用的讨论及安全委员和安全委员会的作用。

Ⅱ 其他人员的培训

这种人员应该经过在船的培训，当需要时，并应经过对安全方法和运载这种类型货物有经验的并又达到所要求的标准的合格人员的在岸培训。

1. 规则

在港和在海时化学品船人员安全的船舶规章和规则的知识。

2. 人身事故和应采取的预防措施

皮肤接触的危害，吸进和吞入货物，缺氧，特别注意惰性气体系统的缺氧。所运货物的毒性。人员事故及其有关急救、应做和不应做事项一览表。

3. 防火和消防

吸烟控制和烹调管理。火源，防火防爆，灭火方法。可携器械和固定装置的概况。

4. 防止污染

防止污染空气和水应遵循的程序。货物溢漏时应采取的措施。

5. 安全设备及其使用

防护服和设备，复苏器，脱险和救助设备的正确使用。

6. 应急程序

熟悉应急部署程序。

7. 货物设备和操作

装卸操作设备的一般说明。安全装卸程序及其注意事项。安全进入封闭处所。

Ⅲ 消防训练

所有人员应参加过认可的与其职责和责任有关的基本的或高级的实用消防训练课程。

决 议 12

液化气体船船长、高级船员和一般船员的培训和资格

大会，

意识到涉及处理散装液化气体的事故对人类生命和周围环境可能造成的危害，

认识到对处理这种货负有特殊责任的船长、高级船员和一般船员的强制性培训，其合适的安排还不完备，

相信法定最低要求会被尽快地予以履行，

决定通过作为本决议案附件的关于液化气体船船长、高级船员和一般船员培训和资格的建议案，

建议：

(a) 所有有关政府考虑列于本决议案附件中的指导；

(b) 要求所有在这种船上的船长、高级船员和一般船员完成在安全、应急措施和消防等方面的认可的基本训练。这种培训应有足够的范围和期限，以确保受训人员不仅知道所涉及的危险，而且还懂得包括船舶的设计和结构的安全特征，以免在处理紧急情况和小事故时犹豫和惊慌失措；

(c) 与货、货运设备有特殊职责与责任的所有船长、驾驶员与轮机员和那些一般船员应要求完成认可的特殊培训课程，而这种课程应有足够的时期，并且将由在船培训与在船取得经验以作补充；

(d) 所有有关政府，在认可精通业务标准时，既要根据规定的培训的结果，又要接受成功的完成了认可的在严密监督和包括定期评定，与由指导工作人员和学生参与的全部评价的培训课程，两者分别予以鉴定；

(e) 所有有关政府，应对货物负主要责任的高级船员的资格标准得到满意，并应保证对那些由培训和凭经验而适任的人，发给相应的证明文件。

请政府间海事协商组织：

(a) 将本建议案予以审查，并将其后的修正案通知所有有关政府；

(b) 将本决议案通知给与会的各国政府。

附 件

关于液化气体船船长、高级船员和一般船员培训和资格的建议案

I 引言

1. 培训应分为两部分：

(a) 用岸上设施或在设有培训设备和专职指导人员的专门配备船上进行监督指导，讲解有关原理及其在船舶操作中的应用。在特殊情况下，主管机关可允许低级驾驶员和轮机员以及一般船员在其服务的液化气体船上进行培训；但是这种服务有主管机关规定的一定期限，此类船员对货或货运设备不负职责或责任。如以后有新的工作，再按建议案培训。

(b) 附加的船上培训和经验,即把所学的原理应用于特殊的船舶和货物有关的系统。

2. 在拟定主管机关批准的培训纲要时,应考虑海协关于运载散装液化气体船结构和设备的规范和有关的油轮安全指导。^{*}

培训应达到下列水平:

A 船长,所有的高级船员和一般船员

1. 关于气体船的基本安全培训课程

这种培训应在分配上船前在认可的陆上培训设施进行。此外,也可在船长监督和指导之下,由合格人员在船上按认可的培训项目有组织地进行安全培训。这种安全培训应包括下列各项:

(a) 绪论

- (i) 载运气体的类型;
- (ii) 那些可能被处理的有关气体的危害;
- (iii) 货运系统的一般说明;
- (iv) 包括货物通风系统在内的装卸系统;
- (v) 安全设计的特性和专门要求。

(b) 防火和消防

吸烟控制和烹调管理、火源、防火防爆、灭火方法、可携器械和固定装置的情况。

(c) 人身事故和人员保护

- (i) 皮肤接触和吸入货物蒸汽或惰性气体的危害,解毒药的类型及其反应;

^{*} 参考国际航运公会的油轮安全指导(液化气体)和国际航运公会直升飞机/船舶操作指南。

(ii) 防护服、呼吸器、复苏器、救助设备和脱险装置的正确使用；

(iii) 进入封闭处所。

(d) 防止污染

防止污染空气和水应遵循的程序，货物溢漏时应采取的措施。

(e) 应急程序

应急部署的基本要点，若发生下列事故时的措施：

(i) 失火；

(ii) 碰撞和搁浅；

(iii) 液化气体的溢出或泄漏；

(iv) 人员事故。

2. 包括气体船火灾特性的消防课程

(a) 所有人员应参加过认可的与其职责和责任有关的基本的或高级的实用消防训练课程。

(b) 这种培训应在岸上设施或在装有专门训练设备和专职指导人员的船上进行。

3. 新船员一上船，就应使他们充分熟悉所列应急程序各方面的内容。

B 船长、所有驾驶员和轮机员以及对货和货运设备有特殊职责和责任的一般船员

1. 这部分应完全适用于船长、大副、轮机长、大管轮以及不属于前四类而对货物负有主要责任的高级船员。

2. 但是主管机关可根据其它船员所履行的职责和所起的作用，允许变更下列纲要所要求的知识深度。

3. 与货和货运设备的特殊职责和责任是指那些有关货物装卸、货物管理、船上使用货物的处理和监管职责及其有关设备的操作和保养。

4. 这种培训应包括、但不局限于下列内容：

(a) 化学和物理性能

与船舶安全运载散装液化气体有关的基本化学和物理性能的绪论：

(i) 液化气体及其蒸汽的性质和特性

- (1) 气体定义；
- (2) 简单的气体定律；
- (3) 气体方程；
- (4) 气体浓度；
- (5) 气体的扩散和混合；
- (6) 气体的压缩；
- (7) 气体液化；
- (8) 气体冷却；
- (9) 临界温度；
- (10) 闪点的实际意义；
- (11) 爆炸的上限和下限；
- (12) 自燃温度；
- (13) 气体的相容性；
- (14) 反应；
- (15) 聚合作用。

(ii) 单纯液体的特性

- (1) 液体的比重；
- (2) 温度的变化；
- (3) 蒸汽压力和温度；
- (4) 汽化和沸液。

(iii) 溶液的本质和特性

- (1) 气体在液体中的溶解性；
- (2) 在液体内和温度变化影响的混合性；
- (3) 溶液的比重及对温度和浓度的依属性；
- (4) 溶解物质在溶点和沸点时的反应；
- (5) 水合物，合成和扩散；
- (6) 吸湿性；
- (7) 空气和其他气体的干燥处理。

(b) 对人体的危害

(i) 毒性

- (1) 因液化气体及其蒸汽引起的中毒方式；
- (2) 所运载的液化气体和结构材料两者的燃烧生成物
与制品的毒性；
- (3) 毒的急性和慢性，全身中毒和刺激品的反应。
- (4) 临界极限值(TLV)。

(ii) 皮肤接触、吸进和吞入的危害。

(iii) 急救和解毒药的使用。

(c) 货物的牵制

- (i) 牵制系统的原理。
- (ii) 规则。
- (iii) 检验。
- (iv) 货舱结构、材料、涂料、绝缘。
- (v) 相容性。

(d) 操作程序

- (i) 规范和实用规则。
- (ii) 熟悉海协、国内和有关的国际规则。^{*}
- (iii) 港口规则。
- (iv) 船舶应急部署和责任分配的重要性。

(e) 污染

- (i) 对人类生命和海上环境的危害。
- (ii) 比重和溶解度的影响。
- (iii) 蒸汽气流漂移的危害。
- (iv) 冷冻液体的抛弃。
- (v) 国内、国际和当地的规则。

(f) 货物操纵系统

- (i) 泵浦的主要类型及其布置，蒸汽返回系统，管道系统和阀门说明书。
- (ii) 压力、真空、吸力、气体流通、水头的解释。
- (iii) 过滤器和滤网。
- (iv) 膨胀器。

* 参考国际航运公会的油轮安全指导(液化气体)和国际航运公会对直升飞机/船舶的操作指导。

- (v) 火焰罩。
 - (vi) 常用惰性气体。
 - (vii) 储藏、发生、分配系统。
 - (viii) 不同类型的系统及其安全有效操作和服务的概要。
 - (ix) 温度和压力监视系统。
 - (x) 货物通风系统。
 - (xi) 液体的再循环和再液化系统。
 - (xii) 货物计量和测量仪器系统。
 - (xiii) 气体探测和监视系统。
 - (xiv) 二氧化碳监视系统。
 - (xv) 货物沸腾脱胶系统。
 - (xvi) 辅助系统。
- (g) 船舶操作程序
- (i) 装卸准备和程序。
 - (ii) 核查单证。
 - (iii) 在途中和在港内货物状态的维持。
 - (iv) 货物的隔离和货物转运的程序。
 - (v) 调换货物，清舱程序。
 - (vi) 货物取样。
 - (vii) 压载和排除压载。
 - (viii) 加热和冷却系统。
 - (ix) 加热和消除有毒气体的程序。
 - (x) 排气系统从环境温度冷却的程序和有关的安全注意事项。

(h) 安全业务和设备

- (i) 轻便测量仪器的性能、校正和使用。
- (ii) 消防设备和程序。
- (iii) 呼吸器。
- (iv) 复苏器。
- (v) 脱险装置。
- (vi) 救助设备。
- (vii) 防护服和设备。
- (viii) 进入封闭处所。
- (ix) 在修理和保养货物和控制系统前及其过程中应采取的
预防措施。
- (x) 在可能发生危险的操作中人员的监护。
- (xi) 有安全保证的电器设备的类型和原理。
- (xii) 火源。

(i) 应急程序

- (i) 应急部署。
- (ii) 货物操作的应急制止。
- (iii) 应急货阀关闭系统。
- (iv) 货物操纵重要系统发生事故时的行动。
- (v) 发生碰撞、搁浅、溢出，船舶被围在有毒或可燃蒸汽
中的行动。

5. 根据船舶操作手册补充的船上培训和经历应酌情包括下列系统：

- (a) 装卸货物系统
 - (i) 管道系统、泵浦、阀门、膨胀装置和蒸汽系统。
 - (ii) 货物装卸系统的管理、要求和操作特性。
 - (iii) 液体的再循环。
- (b) 测量仪表系统
 - (i) 货物水平指示器。
 - (ii) 气体探测系统。
 - (iii) 船壳和货物温度监视系统。
 - (iv) 从传感器至监视台传送信号的各种方法。
 - (v) 自动关闭系统。
- (c) 沸騰脱胶的处理
 - (i) 作燃料使用
 - (1) 压缩器
 - (2) 热交换器
 - (3) 气体管道及在机舱和人员住处的通风
 - (ii) 双燃油原理
 - (4) 锅炉
 - (5) 气体透平
 - (6) 柴油机
 - (iii) 应急通风
 - (iv) 再液化
- (d) 辅助系统
 - (i) 通风、灌惰性气体。
 - (ii) 阀门。

- (1) 快速关闭
 - (2) 遥控
 - (3) 气动
 - (4) 超流量
 - (5) 安全释放
 - (6) 压力/真空
- (iii) 空舱、压载舱、冷凝器的蒸汽系统。
- (e) 装卸货设备操纵的一般原理
- (i) 货舱和空舱灌惰性气体。
 - (ii) 货舱冷却、装货。
 - (iii) 载货和压载航行期间的操作。
 - (iv) 卸货和货舱收脚。
 - (v) 应急措施, 包括发生泄漏、火灾、碰撞、搁浅、应急卸货、人员事故时的预定行动。

注意:

建议应尽可能多地使用船上操作和设备手册、电影、视觉器具和其它适当的辅助教具, 并应讨论船上安全组织及安全委员和安全委员会的作用。应鼓励提供此类适宜的辅助教具, 以执行连续的和有效的船上安全项目的培训。

对货物负主要责任的高级船员应:

- (a) 直接对船长负责;
- (b) 已成功地完成一切要求的培训;
- (c) 已在运载散装液化气体船上工作不少于两个月, 这种工作务

必:

(i)是在对货物负主要责任的高级船员的领导、监督和培训下进行的。

(ii)包括货物运输、装和卸。

(d) 船长对他总的资格和能力感到满意。

II 总则

1. 主管机关应保证对每个通过培训和依据本附件作为对货物负主要责任的有经验的符合条件的高级船员颁发给认可的证件。

2. 在相应的认可的标准下, 每条船的船长应保证对货物负主要责任的高级船员持有这种证件, 并具有在相应类型船上最近的足够的实际经验, 以允许他安全地履行其职责。

3. 主管机关经与各有关方面协商, 应制定或促进形成一种与进修和最新课程相适应的机构。

决 议 13

除散装外装有危险品船舶的高级船员和一般船员的资格 与培训

大会,

鉴于通过了有关散装油船装载有潜在危险和危害货物的船上的船长、高级船员和一般船员的值班与培训规则及其有关决议案,

注意到 1974 年国际海上人命安全公约的第七章和 1973 年国际防止船舶造成污染公约中附件三的条文,

还注意到海上运输有危险的与有危害的物品的迅速增长的数量,

认识到对管理危险货物负有特别责任的高级船员有其制定培训要求的迫切性和重要性,

认为除散装以外装有危险和危害货物船舶的高级船员和一般船员的资格与培训的国际共同安排有其迫切的需要，

请政府间海事协商组织对此问题作为紧急事项予以研究。

决 议 14

无线电报员的培训

大会，

注意到作为 1978 年海员培训、发证和值班标准国际公约的组成部分关于无线电报员发证的法定最低要求，

认识到有必要制定无线电报员培训的附加要求，

注意到电信公约所附的无线电规则和国际海上人命安全公约中的规定，

决定：

(a) 通过本决议案附件中关于无线电报员培训建议案；

(b) 敦促各有关政府将本建议案的内容尽快予以实施。

请政府间海事协商组织：

(a) 将本建议案予以审查，如果合适，与其它国际组织，特别是与国际劳工组织和国际电信联盟协商与联合，并且提请所有有关政府注意将来的任何修改；

(b) 将本决议通知给与会各国政府。

附 件

无线电报员培训建议案

第 一 部 分

在海上安全无线电通信方面培训的最低水准

总则

1. 培训前, 应试者应符合体检要求, 特别是听力、视力和说话能力。

2. 培训应适合于当时已经生效的国际电信公约所附的无线电规则^{*}和国际海上人命安全公约^{**}的规定, 对海上无线电通信技术和无线电通信系统的最新发展应予以特别的注意, 今后的纲要应考虑下列各项但应不尽限于:

理论

3. 本建议案附则第一部分列出的教学大纲应被有关实验室或实际作业作为后盾。

实践

4. 实践的培训要求如下:

(a) 看懂电路图;

(b) 安全公约所要求携带的工具和测试仪器的使用和保管;

(c) 焊接和脱焊技术, 包括那些含有半导体器件和新式电路的焊接与脱焊技术;

* 以下简称无线电规则。

** 以下简称安全公约。

- (d) 船用无线电通信设备的操作和调整；
- (e) 救生艇便携式和固定式无线电设备的操作和维修；
- (f) 合理的确定故障的位置，着重于系统分析的解决方法；
- (g) 排除故障，包括对故障的分析；
- (h) 维修程序；
- (i) 测向仪校准程序和用测向仪测定方位；
- (j) 减少电和电磁干扰的方法，例如接地、屏蔽和旁路；
- (k) 天线的装配、修理和保养；
- (l) 与船舶和人员的安全有关无线电设备的危害的预防措施，包括电的、辐射的、化学的和机械的危害；
- (m) 电源的操作和维修，例如电机、变流机和蓄电池。

无线电通信技术

5. 培训要求如下：

- (a) 操作技术，包括下列各项：
 - (i) 拍发和接收莫尔斯电码应达到无线电规则要求的目标；
 - (ii) 在典型的干扰(真实的或录制的)情况下接收莫尔斯电码；
 - (iii) 在严重的干扰情况下，使用滤波器和调整拍频振荡器(BFO)，以改善所需信号的接收；
 - (iv) 单边带信号接收机调谐技术；
 - (v) 发射机调谐和天线调整技术；
 - (vi) 接收移频信号包括传真、直接印字和选择性呼叫信号的接收机的调谐技术。

(b) 无线电报值班，无线电报业务联络，特别是有关遇险、紧急和安全程序及保存日志，包括业务缩语和 Q 缩语的使用；

(c) 无线电话值班，无线电话业务联络，特别是有关遇险、紧急和安全程序以及保存日志，包括国际语音字母和数码的使用；

(d) 窄频带直接印字系统的操作程序；

(e) 国际信号规则和海协标准航海用语的使用；

(f) 海协《商船搜寻救生手册》中使用无线电报和无线电话的通信程序；

(g) 船位报告系统和程序；

(h) 无线电医疗系统和程序；

(i) 传播预报表的使用和为高频通信确定最佳频率的其它程序；

(j) 高频呼叫频率的使用；

(k) 监听遇险频率时，至少在一个其它频率上同时监听或工作；

规定

6. 培训应以无线电规则和安全公约的要求为基础，特别是那些有关部分；

(a) 遇险，紧急和安全无线电通信；

(b) 避免发生有害的干扰，特别是对遇险通报；

(c) 船舶电台携带的文件及其使用。

杂项

7. 建议：

(a) 为了有关海上人命安全的无线电话和无线电报通信联络的需要，在一定范围内所教的英语达到适当的水准；

- (b) 在个人救生和救生设备的实际使用方面应给予培训；
- (c) 培训应包括一门认可的消防课程，着重于报房灭火的方法，并尽可能使设施所受的损害减到最小；
- (d) 为了在抄写电文时使用打字机在打字手法方面应给予基本的训练。

船上训练

8. 在无线电报员开始海上服务的期间，在报务主任的指导下，应完成一个适当的海上培训计划项目，包括：

- (a) 首先的任务是提供应急程序的基本知识和适当的船上应急反应；
- (b) 熟悉无线电通信设备，通信业务和操作职责；
- (c) 无线电通信装置和辅助装置的日常维修；
- (d) 管理无线电工作；
- (e) 熟悉船舶和船上其它人员的职责。

附 则

海上安全无线电通信原理教学大纲

- 1. 电学和无线电通信的基础：
 - (a) 基础电学和直流电。
 - (b) 原电池和蓄电池。
 - (c) 电磁学，电感。
 - (d) 静电学，电容。
 - (e) 交流电，包括非正弦波形。

- (f) 单相和多相电源。
 - (g) 变压器和电机。
 - (h) 变流机。
 - (i) 热离子管和半导体器件。
 - (j) 电表和电子测量仪器。
 - (k) 组合逻辑和时序逻辑。
 - (l) 电子读出器件，例如数码管、发光二极管。
 - (m) 集成电路。
 - (n) 音频放大器。
 - (o) 射频放大器。
 - (p) 振荡器和频率合成器。
 - (q) 调制的类型，变频和检波。
 - (r) 脉冲电路，非正弦波形。
 - (s) 天线。
 - (t) 电磁波传播。
 - (u) 馈线和天线匹配。
2. 海上无线电通信和设备：
- (a) 船舶电源。
 - (b) 发射机。
 - (c) 接收机。
 - (d) 船用天线系统，辐射和传播。
 - (e) 测向仪和校准程序。
 - (f) 救生艇无线电设备，包括应急无线电示位标。
 - (g) 自动拍发器。

(h) 自动报警器。

(i) 在船用无线电通信装置包括无线电终端装置中常用的其它电路、元件和系统。

3. 总则

保养和维修的基本原则。

第二部分

涉及无线电电子导航设备和附加的 无线电通信设备的补充教育大纲

当主管机关要求无线电报员具有修理和维修附加的无线电通信设备或无线电电子导航设备的适当培训或资格时，这个大纲(适当时)应包括下述各项：

1. 直接印字和数据技术：

(a) 基本原理。

(b) 电源。

(c) 预防错误的方法包括自动检错重发法(ARQ)和前向纠错法。

(d) 噪声的影响和传播条件。

(e) 辅助设备例如磁带读出器凿孔机，电传打字机，纠错器件和音频电报。

2. 选择性呼叫系统：

(a) 基本原理。

(b) 噪声的影响和传播条件。

(c) 读出器件。

(d) 辅助设备。

3. 传真：

(a) 基本原理。

(b) 传感器。

(c) 调制系统。

(d) 复制。

(e) 录音机电路。

(f) 同步。

(g) 图象失真。

4. 卫星装置：

(a) 无线电通信：

(i) 基本原理；

(ii) 天线；

(iii) 发射机和接收机；

(iv) 调制解调器和接口。

(b) 无线电定位技术：

(i) 基本原理；

(ii) 系统；

(iii) 设备；

(iv) 系统误差。

5. 雷达：

(a) 基本原理。

(b) 电源。

- (c) 触发和同步电路。
 - (d) 阴极射线管。
 - (e) 时基电路。
 - (f) 扫描辉度和消隐电路。
 - (g) 方位发射系统。
 - (h) 测距电路。
 - (i) 方位稳定电路。
 - (j) 波导。
 - (k) 微波振荡器。
 - (l) 雷达发射机。
 - (m) 雷达接收机。
 - (n) 海浪抑制电路。
 - (o) 雷达天线和传播。
 - (p) 导航方位例如相对运动和真运动。
6. 无线电导航计算机:
- (a) 基本原理。
 - (b) 输入, 速度和航向的接口。
 - (c) 数据存储和取回。
 - (d) 显示。
 - (e) 编程序, 包括预置。
7. 双曲线系统:
- (a) 基本原理。
 - (b) 不同的构成特征和系统。
 - (c) 系统误差。

8. 回声测声原理:

- (a) 基本原理。
- (b) 信息显示的方法。
- (c) 换能器。
- (d) 发射机和接收机系统例如脉冲和多普勒。
- (e) 影响回波探测的质量和精度的因素。

9. 电视:

- (a) 基本原理。
- (b) 电视摄象机系统。
- (c) 扫描。
- (d) 接收机——显示单元。
- (e) 录音单元。

10. 船用无线电通信和无线电电子导航装置中常用的其它系统。

11. 有关上述各种装置的保养和维修技术应包含方框图的使用, 系统分析, 单元分析和电路分析, 使用适当工具和测试仪器, 发现所有主要故障的逻辑推理; 适当时也应包括性能检验。

决 议 15

无线电话务员的培训

大会,

注意到作为 1978 年海员培训、发证和值班标准国际公约的组成部分, 即无线电话务员发证的法定最低要求,

认识到有必要制定无线电话务员培训的附加要求,

注意到国际电信公约所附的无线电规则和国际海上人命安全公约的规定，

决定：

(a) 通过本决议案附件中关于无线电话务员培训建议案；

(b) 敦促各有关政府将本建议案的内容尽快予以实施。

请政府间海事协商组织：

(a) 与其它国际组织，(如果合适)特别是国际劳工组织和国际电信联盟协商与联合，将本建议案予以审查并提请所有有关政府注意将来的任何修改；

(b) 将本决议案通知给与会各国政府。

附 件 I

无线电话务员培训建议案(限用证书)在海上安全无线电话通信方面培训的最低水准

总则

1. 培训前，试者应符合体检要求，特别是听力、视力和说话能力。

2. 培训应适合于当时生效的国际电信公约所附的无线电规则^{*}和国际海上人命安全公约^{**}的规定，对海上无线电话通信方面的最新发展应予以特别的注意，并需要高标准的通信纪律来保持国际遇险和安全频率的完整性，制订纲要应考虑下列各项，但不应尽限于下列各项。

* 以下简称无线电规则。

** 以下简称安全公约。

实践

3. 实践的培训要求如下：

- (a) 船用无线电话通信设备的操作；
- (b) 救生艇便携式无线电装置的操作；
- (c) 用无线电话发送和接收口述电文；
- (d) 蓄电池的保养。

通信程序

4. (a) 培训要求如下：

- (i) 无线电话值班，包括保存日志；
- (ii) 关于发送和接收无线电话电文，特别是那些关于遇险、紧急和安全电文的程序；
- (iii) 国际语音字母和数码的使用。

(b) 话务员应具备的知识：

- (i) 国际信号规则和海协标准航海用语的使用；
- (ii) 船位报告系统和程序；
- (iii) 海协《商船搜寻救生手册》中使用无线电话的通信程序；
- (iv) 无线电医疗系统和程序。

规定

5. 培训应以无线电规则和安全公约的要求为基础，特别是那些有关部分：

- (a) 遇险、紧急和安全无线电话通信；
- (b) 避免产生有害的干扰，特别是对遇险通报的有害干扰；
- (c) 船舶无线电话台携带的文件及其使用。

杂项

6. 建议:

(a) 为了有关海上人命安全的无线电话通信联络的需要,在一定范围内,所教的英语达到适当水准;

(b) 在个人救生和救生设备的实际使用方面应给予训练;

(c) 培训应包括一门认可的消防课程,着重于无线电设施的灭火方法,并尽可能使所受的损害减到最小。

附 件 II

无线电话务员培训建议案(一般证书)

在海上安全无线电话通信方面培训的最低水准

总则

1. 培训前,应试者应符合体检的要求,特别是听力、视力和说话能力。

2. 培训应适合于当时生效的无线电规则和安全公约的规定,对海上无线电话通信方面的最新发展应予以特别的注意,并且为保持正常的国际遇险和安全业务,高标准的通信训练是必要的,制订纲要应考虑下列各项但不应尽限于下列各项。

理论

3. 无线电话的基本原理的知识应和本建议案附则中列出的教学大纲相一致。

实践

4. 实践的培训要求如下：

- (a) 船用无线电通信设备的操作和调整；
- (b) 与装置结合在一起的仪器的使用；
- (c) 救生艇中便携式无线电装置的操作；
- (d) 出现于保险丝、天线和开关处的简单故障的查找和排除以及更换管子、参考有关话务员手册(如果适当的话)、分析故障的情况；
- (e) 无线电测向和归航(如果适当)；
- (f) 天线装配和保养的考虑；
- (g) 与船舶和人员的安全有关的无线电装置的危害的预防措施，包括电的、辐射的、化学的和机械的危害；
- (h) 电源的维修例如电机、交流机和蓄电池。

无线电通信技术

5. 培训应要求如下：

- (a) 操作技术，包括下列各项：
 - (i) 单边带信号接收机调谐技术；
 - (ii) 在典型干扰(真实的和录制的)情况下的接收；
 - (iii) 发射机调谐和天线调整技术；
- (b) 无线电电话值班，无线电电话通话联络，特别是关于遇险、紧急和安全程序以及保存日志，包括国际语音字母和数码的使用；
- (c) 传播预报表的使用和为高频通信确定最佳频率的其它程序；
- (d) 监听遇险频率时，至少在一个其它频率上同时监听或工作。

6. 话务员应具有的知识:

- (a) 国际信号规则和海协标准航海用语的使用;
- (b) 船位报告系统和程序;
- (c) 海协《商船搜寻救生手册》中使用无线电话的通信程序;
- (d) 无线电医疗系统和程序。

规定

7. 培训应该以无线电规则和安全公约的要求为基础, 特别是那些有关部分:

- (a) 遇险、紧急和安全无线电话通信;
- (b) 避免产生有害的干扰, 特别是对遇险业务的有害干扰;
- (c) 船舶无线电话台携带的文件及其使用。

杂项

8. 建议:

- (a) 为了有关海上人命安全的无线电话通信联络的需要, 在一定范围内, 所教的英语达到适当的水准;
- (b) 在个人救生设备的实际使用方面应给予训练;
- (c) 培训应包括一门认可的消防课程, 着重于无线电设施中的灭火方法, 并尽可能使所受损害减到最小。

附 则

无线电话原理的基本知识的教学大纲

1. 发射机:

- (a) 调制类型。
- (b) 欠调制和过调制的产生。

(c) 双边带和单边带发射。

(d) 电磁波传播。

(e) 发射机射程。

2. 接收机

(a) 超外差式，各级的作用；

(b) 变频和检波；

(c) 单边带接收，包括载波重置，频率稳定。

3. 必要的维修和管理：

(a) 天线：绝缘子沾污和破裂的影响；海水浪花的影响；

(b) 蓄电池：比重计读数，开/关负载电压读数，注满蒸馏水，

端点连接；

(c) 电机。

4. 下列的知识是需要的：

(a) 热离子管和半导体器件；

(b) 音频放大器；

(c) 射频放大器；

(d) 振荡器；

(e) 话筒和扬声器；

(f) 天线特性，包括长度、高度和漏电阻。

决 议 16

油轮、化学品船和液化气体船船长及其它负责人的培训 和资格的技术援助

大会，

认识到对于在油轮、化学品船和液化气体船上工作的船长和其他人员给予足够培训的重要性，

注意到 1978 年海员培训、发证和值班标准国际公约第 V/1、V/2 和 V/3 各条规则中第二款的要求，这些条款规定对船长、高级船员和其它对油轮、化学品和液化气体船货物装卸、运输管理或处理直接负责的一切人员制定培训和资格的最低法定要求，

意识到在某些情况下，特别是在发展中国家在取得所需要的经验和提供专门培训项目方面设施有限，

相信促进政府间一级的技术合作会使得那些在提供这种培训和经验方面尚未具备足够的技术和设施的国家加速执行公约，

强烈敦促各国政府能够或同政府间海事协商组织协同安排，对那些达到这些要求有困难的以及要求这种援助的国家提供援助。

请政府间海事协商组织尽力对这些国家提供所需要的援助并在其技术援助项目内作适当的安排，

进一步敦促各国政府和政府间海事协商组织按照本决议案即开始行动，而不要等本公约生效后才开始行动，

决 议 17

对大型船舶和具有特殊操纵性能的船舶的船长和大副的 附加培训

大会，

认识到在他们担任大型船舶或与他们最近所服务过的船舶有着大不相同的特殊操纵与操纵性能的船舶的船长或大副之前的预先培训和取得有关经验的重要性，

注意到这种性能通常存在于具有相当载重量和长度及特殊设计或高速的船舶，

建议：

(a) 指派为这种船的船长和大副之前，应该：

(i) 告知这种船的操纵性能，特别是有关 1978 年海员培训、发证和值班标准国际公约中规则 II/2，即“对 200 总登记吨或以上的船舶的船长和大副发证的法定最低要求”附则中第 7 条所列的有关内容；

(ii) 完全熟悉安装在这种船上的航行和操纵辅助装置，包括它们的性能和局限性。

(b) 未来的船长在担当指挥上述这类船舶之前，应有足够的和相应的船长和大副的一般经验，并且：

(i) 有在同一条船上作为大副或编外人员的足够的和相应的操纵经验，或曾在有着相似操纵性能的上当过船长、大副或某职称的编外人员；或

(ii) 受过装有模拟这种船舶操纵性能的模拟装置的被认可的模拟器操作课程。

(c) 动力支承艇的船长和大副的资格与附加培训，应根据政府间海事协商组织关于动力支承艇安全规则的准则进行。

请政府间海事协商组织：

(a) 如果适当，与其他国际组织特别与国际劳工组织协商或联合对本建议案所列内容予以审查，并将今后的任何修正案通知所有有关政府；

(b) 将本决议案通知与会各国政府。

决 议 18

雷 达 模 拟 器 训 练

大会，

认识到有关海上人命和财产的安全以及保护海上环境而进行足够的雷达训练是极为重要的，

考虑到在船长和驾驶员中对雷达使用的指导方法还未获得理想的熟练水平，

注意到 1978 年海员培训、发证和值班标准国际公约中要求这些驾驶员在所有的工作条件下都具有足够的熟练水平，

决定建议对所有的船长和驾驶员进行雷达模拟器训练。

请政府间海事协商组织将本决议案通知给与会的各国政府，

号召各有关政府将本决议案作为一种紧急事项予以应有的考虑。

决 议 19

海员个人救生技术的培训

大会，

考虑到对所有海员进行个人救生技术训练的必要性，
认识到此种训练可增加他们在海上紧急情况中生还的机会，
决定：

- (a) 通过本决议案附件中关于海员个人救生技术训练的建议案；
- (b) 敦促各有关政府将本建议案内容尽快予以实施。

请政府间海事协商组织：

- (a) 与其他国际组织，或如需要时尤应与国际劳工组织经常审议本建议案，并将其后的修正案通知所有有关政府；
- (b) 将本决议案通知与会各国政府。

附 件

关于对海员个人救生技术进行训练的建议案

每个未来的海员、在其从事海员工作之前应接受个人救生技术的训练，关于这种训练作建议如下：

1. 每个未来的海员应受下列指导：
 - (a) 可能发生的紧急情况的种类，如碰撞、失火、沉没；
 - (b) 一般配备于船的救生设备种类；
 - (c) 遵循救生原则的必要性；
 - (d) 训练和操练的意义；

- (e) 随时准备应付任何紧急情况和经常注意下列事项的必要性：
 - (i) 应急部署表的资料，特别是：
 - (1) 在任何情况下他的专门职责；
 - (2) 他自己所属救生艇的位置；
 - (3) 召集所有船员奔赴救生艇或失火处的信号。
 - (ii) 自己的和备用的救生衣的放置地点；
 - (iii) 消防警报器的控制处理；
 - (iv) 脱险方法；
 - (v) 惊慌失措的后果。
- (f) 召集在救生艇边集合时应采取的行动，包括：
 - (i) 穿上一件合适的衣服；
 - (ii) 穿好救生衣；
 - (iii) 如有时间，收集如毛毯等的附加保护物品。
- (g) 弃船时要求采取的行动，诸如：
 - (i) 怎样从船上或在水中登上救生艇；
 - (ii) 怎样从高处跳入水中，而在入水时减少受伤的危险。
- (h) 在水中时应采取的行动，诸如：
 - (i) 如何在下述情况下脱险：
 - (1) 水面有火或油；
 - (2) 在寒冷的情况下；
 - (3) 鲨鱼出没的水域。
 - (ii) 如何扶正倾覆的救生艇。

- (i) 登上救生艇后应采取的行动, 如:
 - (i) 使救生艇迅速离开船边;
 - (ii) 防冻或高温;
 - (iii) 使用浮标或海锚;
 - (iv) 保持了望;
 - (v) 生还者的恢复健康和照料;
 - (vi) 便于被人发现;
 - (vii) 检查救生艇内所有的设备并正确的使用;
 - (viii) 尽可能留在附近。
- (j) 生还者的主要危险和救生的一般原则, 包括:
 - (i) 在寒冷的气候中应采取的预防措施;
 - (ii) 在热带气候中应采取的预防措施;
 - (iii) 暴露于太阳、风雨和海水中;
 - (iv) 穿着合适衣服的重要性;
 - (v) 救生筏中的保护措施;
 - (vi) 浸在水中及体温过低的影响;
 - (vii) 保持血液循环的重要性;
 - (viii) 预防晕船;
 - (ix) 淡水及食品的适当使用;
 - (x) 饮用海水的后果;
 - (xi) 便于被人发现可用的方法;
 - (xii) 保持信心的重要性。

2. 每个未来的海员至少在下列各方面应给予实际指导：

- (a) 正确穿着救生衣；
- (b) 穿着救生衣从高处跳入水中；
- (c) 穿着救生衣游泳；
- (d) 不穿救生衣保持浮在水面的方法；
- (e) 穿着救生衣从船上或水中登上救生筏；
- (f) 协助他人登上救生艇；
- (g) 救生艇设备的操作包括手提式无线电设备的操作；
- (h) 施放浮标或海锚。

决 议 20

使用避碰设备的培训

大会，

鉴于通过了 1978 年海员培训、发证和值班标准国际公约，包括其中对船长及驾驶员的培训以正确使用雷达的发证要求，

注意到 1978 年油轮安全和防污染国际会议通过的第 13 号决议，该决议要求海协在不迟于 1979 年 7 月 1 日前制订安装于一万总吨及以上船舶的避碰设备的性能标准和装配要求，并应提请本届大会注意在 1978 年海员培训、发证和值班标准国际公约中拟订有关避碰设备使用的相应条款的必要性，

认识到如果这种设备装在这种船上，则船长和负责航行值班的驾驶员在这种设备的使用方面适当的培训和充分了解其功能与局限性是至为重要的，

注意到在拟订培训要求或建议之前，首先应该制订性能标准和装配要求，

请政府间海事协商组织在通过避碰设备的国际配备要求和操作性能标准后起草相应的关于避碰设备使用方面的培训要求或建议案。

决 议 21

国际适任证书

大会，

认识到取得在海船上工作的船长和高级船员发证方面一致的重要性和迫切性，

意识到其他国际公约已作出了合适的安排，

请政府间海事协商组织：

(a) 为国际适任证书制定一种标准的格式和标题；和

(b) 将本决议案通知与会各国政府。

决 议 22

人员之间的关系

大会，

鉴于采纳了1978年海员培训、发证和值班标准国际公约，

认识到不仅船舶及其设备的安全操作而且在船人员之间良好关系将极大地提高海上人命的安全，

注意到对监管人员的发证要求具有对船上的人员管理、组织和培训方面的知识，

建议这种知识应包括人员之间的关系和社会责任方面的基本原则知识，

请所有政府：

(a) 建立或鼓励建立旨在保证船上人员之间良好关系的培训项目，

(b) 采取充分措施，以便将船上所有人员的寂寞孤单减少到最低程度，

(c) 保证船员在开始其职责前得到充分的休息。

决 议 23

促进技术合作

大会，

满意地注意到政府间海事协商组织已在其技术合作项目中，将海上培训列为最优先的项目，

记载了本组织对发展中国家建立符合全球培训标准的航海培训设施方面的协助所表示的感谢，

请本组织本着促进全球普遍接受并实施 1978 年海员培训、发证和值班标准国际公约关于海上培训规定方面的目的，加强其努力，

此外，还请本组织在作出其上述努力时，应与其他国际组织(如为适当)，特别是国际劳工组织进行协商或联合。

INTERNATIONAL CONVENTION¹ ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978

The Parties to this Convention,

Desiring to promote safety of life and property at sea and the protection of the marine environment by establishing in common agreement international standards of training, certification and watchkeeping for seafarers,

Considering that this end may best be achieved by the conclusion of an International Convention on Standards of Training, Certification and Watchkeeping for Seafarers,

Have agreed as follows:

¹ Came into force on 20 April 1984 in respect of the following States, i.e., 12 months after the date on which not less than 25 States, the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, had either signed it definitively or deposited the requisite instruments of ratification, acceptance, approval or accession with the Secretary-General of the International Maritime Organization, in accordance with article XIV (1):

<i>State</i>	<i>Date of definitive signature (s), or of the deposit of the instrument of ratification, acceptance (A), approval (AA) or accession (a)</i>	<i>State</i>	<i>Date of definitive signature (s), or of the deposit of the instrument of ratification, acceptance (A), approval (AA) or accession (a)</i>
Argentina	6 October 1982 <i>a</i>	Greece	22 March 1983
Australia*	7 November 1983	Japan	27 May 1982 <i>a</i>
Bahamas	7 June 1983 <i>a</i>	Liberia	28 October 1980
Bangladesh	6 November 1981 <i>a</i>	Libyan Arab Jamahiriya	10 August 1983 <i>a</i>
Belgium	14 September 1982	Mexico	2 February 1982 <i>a</i>
Brazil	17 January 1984 <i>a</i>	Norway	18 January 1982
Bulgaria	31 March 1982 <i>a</i>	Peru	16 July 1982 <i>a</i>
China	8 June 1981 <i>AA</i>	Poland	27 April 1983
Colombia	27 July 1981 <i>a</i>	South Africa	27 July 1983 <i>a</i>
Czechoslovakia	6 May 1981 <i>a</i>	Spain	21 October 1980 <i>a</i>
Denmark*	20 January 1981	Sweden	8 January 1981
Egypt	22 September 1980 <i>a</i>	Union of Soviet Socialist Re- publics**	9 October 1979 <i>s</i>
Finland	27 January 1984	United Arab Emirates	15 December 1983 <i>a</i>
France**	11 July 1980 <i>AA</i>	United Kingdom of Great Britain and Northern Ire- land**	28 November 1980
Gabon	21 January 1982 <i>a</i>	United Republic of Tanzania .	27 October 1982 <i>a</i>
German Democratic Repub- lic**	5 November 1979		
Germany, Federal Republic of*	28 May 1982		

* For the text of the declarations and reservations made upon ratification see p. 374 of volume 1362.

** For the text of the declarations relating to the application of the Convention to Berlin (West), see p. 376 of volume 1362.

Subsequently, the Convention came into force for the following State three months after the deposit of its instrument of accession with the Secretary-General of the International Maritime Organization, in accordance with article XIV (3):

<i>State</i>	<i>Date of deposit of the instrument of accession (a)</i>
Philippines	22 February 1984 <i>a</i>
(With effect from 22 May 1984.)	

Article I. GENERAL OBLIGATIONS UNDER THE CONVENTION

(1) The Parties undertake to give effect to the provisions of the Convention and the Annex thereto, which shall constitute an integral part of the Convention. Every reference to the Convention constitutes at the same time a reference to the Annex.

(2) The Parties undertake to promulgate all laws, decrees, orders and regulations and to take all other steps which may be necessary to give the Convention full and complete effect, so as to ensure that, from the point of view of safety of life and property at sea and the protection of the marine environment, seafarers on board ships are qualified and fit for their duties.

Article II. DEFINITIONS

For the purpose of the Convention, unless expressly provided otherwise:

(a) "Party" means a State for which the Convention has entered into force.

(b) "Administration" means the Government of the Party whose flag the ship is entitled to fly.

(c) "Certificate" means a valid document, by whatever name it may be known, issued by or under the authority of the Administration or recognized by the Administration authorizing the holder to serve as stated in this document or as authorized by national regulations.

(d) "Certificated" means properly holding a certificate.

(e) "Organization" means the Inter-Governmental Maritime Consultative Organization (IMCO).¹

(f) "Secretary-General" means the Secretary-General of the Organization.

(g) "Sea-going ship" means a ship other than those which navigate exclusively in inland waters or in waters within, or closely adjacent to, sheltered waters or areas where port regulations apply.

(h) "Fishing vessel" means a vessel used for catching fish, whales, seals, walrus or other living resources of the sea.

(i) "Radio Regulations" means the Radio Regulations annexed to, or regarded as being annexed to, the most recent International Telecommunication Convention² which may be in force at any time.

Article III. APPLICATION

The Convention shall apply to seafarers serving on board sea-going ships entitled to fly the flag of a Party except to those serving on board:

(a) Warships, naval auxiliaries or other ships owned or operated by a State and engaged only on governmental non-commercial service; however, each Party shall ensure by the adoption of appropriate measures not impairing the operations or operational capabilities of such ships owned or operated by it, that the persons serving on board such ships meet the requirements of the Convention so far as is reasonable and practicable;

¹ By an amendment adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization (IMCO) by its resolutions A.358 (IX) of 14 November 1975 and A.371 (X) of 9 November 1977 [rectification of resolution A.358 (IX)], the name of the Organization was changed to "International Maritime Organization (IMO)" with effect from 22 May 1982. See United Nations, *Treaty Series*, vol. 1276, p. 468.

² For the Radio Regulations, see International Telecommunications Union, *Radio Regulations*, Geneva, 1959; for the text of the most recent International Telecommunications Convention concluded at Malaga-Torremolinos in 1973, see United Nations, *Treaty Series*, vol. 1209, p. 32, and vol. 1210, p. 2.

- (b) Fishing vessels;
- (c) Pleasure yachts not engaged in trade; or
- (d) Wooden ships of primitive build.

Article IV. COMMUNICATION OF INFORMATION

(1) The Parties shall communicate as soon as practicable to the Secretary-General:

- (a) The text of laws, decrees, orders, regulations and instruments promulgated on the various matters within the scope of the Convention;
- (b) Full details, where appropriate, of contents and duration of study courses, together with their national examination and other requirements for each certificate issued in compliance with the Convention;
- (c) A sufficient number of specimen certificates issued in compliance with the Convention.

(2) The Secretary-General shall notify all Parties of the receipt of any communication under paragraph (1)(a) and, *inter alia*, for the purposes of Articles IX and X, shall, on request, provide them with any information communicated to him under paragraphs (1)(b) and (c).

Article V. OTHER TREATIES AND INTERPRETATION

(1) All prior treaties, conventions and arrangements relating to standards of training, certification and watchkeeping for seafarers in force between the Parties, shall continue to have full and complete effect during the terms thereof as regards:

- (a) Seafarers to whom this Convention does not apply;
- (b) Seafarers to whom this Convention applies, in respect of matters for which it has not expressly provided.

(2) To the extent, however, that such treaties, conventions or arrangements conflict with the provisions of the Convention, the Parties shall review their commitments under such treaties, conventions and arrangements with a view to ensuring that there is no conflict between these commitments and their obligations under the Convention.

(3) All matters which are not expressly provided for in the Convention remain subject to the legislation of Parties.

(4) Nothing in the Convention shall prejudice the codification and development of the law of the sea by the United Nations Conference on the Law of the Sea convened pursuant to resolution 2750 C(XXV) of the General Assembly of the United Nations,¹ nor the present or future claims and legal views of any State concerning the law of the sea and the nature and extent of coastal and flag State jurisdiction.

Article VI. CERTIFICATES

(1) Certificates for masters, officers or ratings shall be issued to those candidates who, to the satisfaction of the Administration, meet the requirements for service, age, medical fitness, training, qualification and examinations in accordance with the appropriate provisions of the Annex to the Convention.

¹ United Nations, *Official Records of the General Assembly, Twenty-fifth Session, Supplement No. 28 (A/8028)*, p. 26.

(2) Certificates for masters and officers, issued in compliance with this Article, shall be endorsed by the issuing Administration in the form as prescribed in Regulation I/2 of the Annex. If the language used is not English, the endorsement shall include a translation into that language.

Article VII. TRANSITIONAL PROVISIONS

(1) A certificate of competency or of service in a capacity for which the Convention requires a certificate and which before entry into force of the Convention for a Party is issued in accordance with the laws of that Party or the Radio Regulations, shall be recognized as valid for service after entry into force of the Convention for that Party.

(2) After the entry into force of the Convention for a Party, its Administration may continue to issue certificates of competency in accordance with its previous practices for a period not exceeding five years. Such certificates shall be recognized as valid for the purpose of the Convention. During this transitional period such certificates shall be issued only to seafarers who had commenced their sea service before entry into force of the Convention for that Party within the specific ship department to which those certificates relate. The Administration shall ensure that all other candidates for certification shall be examined and certificated in accordance with the Convention.

(3) A Party may, within two years after entry into force of the Convention for that Party, issue a certificate of service to seafarers who hold neither an appropriate certificate under the Convention nor a certificate of competency issued under its laws before entry into force of the Convention for that Party but who have:

- (a) Served in the capacity for which they seek a certificate of service for not less than three years at sea within the last seven years preceding entry into force of the Convention for that Party;
- (b) Produced evidence that they have performed that service satisfactorily;
- (c) Satisfied the Administration as to medical fitness, including eyesight and hearing, taking into account their age at the time of application.

For the purpose of the Convention, a certificate of service issued under this paragraph shall be regarded as the equivalent of a certificate issued under the Convention.

Article VIII. DISPENSATION

(1) In circumstances of exceptional necessity, Administrations, if in their opinion this does not cause danger to persons, property or the environment, may issue a dispensation permitting a specified seafarer to serve in a specified ship for a specified period not exceeding six months in a capacity, other than that of the radio officer or radiotelephone operator, except as provided by the relevant Radio Regulations, for which he does not hold the appropriate certificate, provided that the person to whom the dispensation is issued shall be adequately qualified to fill the vacant post in a safe manner, to the satisfaction of the Administration. However, dispensations shall not be granted to a master or chief engineer officer, except in circumstances of *force majeure* and then only for the shortest possible period.

(2) Any dispensation granted for a post shall be granted only to a person properly certificated to fill the post immediately below. Where certification of the post below is not required by the Convention, a dispensation may be issued to a person whose qualification and experience are, in the opinion of the Administration, of a

clear equivalence to the requirements for the post to be filled, provided that, if such a person holds no appropriate certificate, he shall be required to pass a test accepted by the Administration as demonstrating that such a dispensation may safely be issued. In addition, Administrations shall ensure that the post in question is filled by the holder of an appropriate certificate as soon as possible.

(3) Parties shall, as soon as possible after 1 January of each year, send a report to the Secretary-General giving information of the total number of dispensations in respect of each capacity for which a certificate is required that have been issued during the year to sea-going ships, together with information as to the numbers of those ships above and below 1,600 gross register tons respectively.

Article IX. EQUIVALENTS

(1) The Convention shall not prevent an Administration from retaining or adopting other educational and training arrangements, including those involving sea-going service and shipboard organization especially adapted to technical developments and to special types of ships and trades, provided that the level of sea-going service, knowledge and efficiency as regards navigational and technical handling of ship and cargo ensures a degree of safety at sea and has a preventive effect as regards pollution at least equivalent to the requirements of the Convention.

(2) Details of such arrangements shall be reported as early as practicable to the Secretary-General who shall circulate such particulars to all Parties.

Article X. CONTROL

(1) Ships, except those excluded by Article III, are subject, while in the ports of a Party, to control by officers duly authorized by that Party to verify that all seafarers serving on board who are required to be certificated by the Convention are so certificated or hold an appropriate dispensation. Such certificates shall be accepted unless there are clear grounds for believing that a certificate has been fraudulently obtained or that the holder of a certificate is not the person to whom that certificate was originally issued.

(2) In the event that any deficiencies are found under paragraph (1) or under the procedures specified in Regulation I/4, "Control Procedures", the officer carrying out the control shall forthwith inform, in writing, the master of the ship and the Consul or, in his absence, the nearest diplomatic representative or the maritime authority of the State whose flag the ship is entitled to fly, so that appropriate action may be taken. Such notification shall specify the details of the deficiencies found and the grounds on which the Party determines that these deficiencies pose a danger to persons, property or the environment.

(3) In exercising the control under paragraph (1) if, taking into account the size and type of the ship and the length and nature of the voyage, the deficiencies referred to in paragraph (3) of Regulation I/4 are not corrected and it is determined that this fact poses a danger to persons, property or the environment, the Party carrying out the control shall take steps to ensure that the ship will not sail unless and until these requirements are met to the extent that the danger has been removed. The facts concerning the action taken shall be reported promptly to the Secretary-General.

(4) When exercising control under this Article, all possible efforts shall be made to avoid a ship being unduly detained or delayed. If a ship is so detained or delayed it shall be entitled to compensation for any loss or damage resulting therefrom.

(5) This Article shall be applied as may be necessary to ensure that no more favourable treatment is given to ships entitled to fly the flag of a non-Party than is given to ships entitled to fly the flag of a Party.

Article XI. PROMOTION OF TECHNICAL CO-OPERATION

(1) Parties to the Convention shall promote, in consultation with, and with the assistance of, the Organization, support for those Parties which request technical assistance for:

- (a) Training of administrative and technical personnel;
- (b) Establishment of institutions for the training of seafarers;
- (c) Supply of equipment and facilities for training institutions;
- (d) Development of adequate training programmes, including practical training on sea-going ships; and
- (e) Facilitation of other measures and arrangements to enhance the qualifications of seafarers;

preferably on a national, sub-regional or regional basis, to further the aims and purposes of the Convention, taking into account the special needs of developing countries in this regard.

(2) On its part, the Organization shall pursue the aforesaid efforts, as appropriate, in consultation or association with other international organizations, particularly the International Labour Organisation.

Article XII. AMENDMENTS

(1) The Convention may be amended by either of the following procedures:

(a) Amendments after consideration within the Organization:

- (i) Any amendment proposed by a Party shall be submitted to the Secretary-General, who shall then circulate it to all Members of the Organization, all Parties and the Director-General of the International Labour Office at least six months prior to its consideration;
- (ii) Any amendment so proposed and circulated shall be referred to the Maritime Safety Committee of the Organization for consideration;
- (iii) Parties, whether or not Members of the Organization, shall be entitled to participate in the proceedings of the Maritime Safety Committee for consideration and adoption of amendments;
- (iv) Amendments shall be adopted by a two-thirds majority of the Parties present and voting in the Maritime Safety Committee expanded as provided for in sub-paragraph (a)(iii) (hereinafter referred to as the "expanded Maritime Safety Committee") on condition that at least one third of the Parties shall be present at the time of voting;
- (v) Amendments so adopted shall be communicated by the Secretary-General to all Parties for acceptance;
- (vi) An amendment to an Article shall be deemed to have been accepted on the date on which it is accepted by two thirds of the Parties;
- (vii) An amendment to the Annex shall be deemed to have been accepted:
 - I. At the end of two years from the date on which it is communicated to Parties for acceptance; or

2. At the end of a different period, which shall be not less than one year, if so determined at the time of its adoption by a two-thirds majority of the Parties present and voting in the expanded Maritime Safety Committee; however, the amendments shall be deemed not to have been accepted if within the specified period either more than one third of Parties, or Parties the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, notify the Secretary-General that they object to the amendment;
- (viii) An amendment to an Article shall enter into force with respect to those Parties which have accepted it, six months after the date on which it is deemed to have been accepted, and with respect to each Party which accepts it after that date, six months after the date of that Party's acceptance;
- (ix) An amendment to the Annex shall enter into force with respect to all Parties, except those which have objected to the amendment under sub-paragraph (a)(vii) and which have not withdrawn such objections, six months after the date on which it is deemed to have been accepted. Before the date determined for entry into force, any Party may give notice to the Secretary-General that it exempts itself from giving effect to that amendment for a period not longer than one year from the date of its entry into force, or for such longer period as may be determined by a two-thirds majority of the Parties present and voting in the expanded Maritime Safety Committee at the time of the adoption of the amendment; or
- (b) Amendment by a conference:
- (i) Upon the request of a Party concurred in by at least one third of the Parties, the Organization shall convene, in association or consultation with the Director-General of the International Labour Office, a conference of Parties to consider amendments to the Convention;
- (ii) Every amendment adopted by such a conference by a two-thirds majority of the Parties present and voting shall be communicated by the Secretary-General to all Parties for acceptance;
- (iii) Unless the conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in sub-paragraphs (a)(vi) and (a)(viii) or sub-paragraphs (a)(vii) and (a)(ix) respectively, provided that references in these sub-paragraphs to the expanded Maritime Safety Committee shall be taken to mean references to the conference.
- (2) Any declaration of acceptance of, or objection to, an amendment or any notice given under paragraph (1)(a)(ix) shall be submitted in writing to the Secretary-General, who shall inform all Parties of any such submission and the date of its receipt.
- (3) The Secretary-General shall inform all Parties of any amendments which enter into force, together with the date on which each such amendment enters into force.

Article XIII. SIGNATURE, RATIFICATION, ACCEPTANCE,
APPROVAL AND ACCESSION

(1) The Convention shall remain open for signature at the Headquarters of the Organization from 1 December 1978 until 30 November 1979 and shall thereafter remain open for accession. Any State may become a Party by:

- (a) Signature without reservation as to ratification, acceptance or approval; or
- (b) Signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval; or
- (c) Accession.

(2) Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

(3) The Secretary-General shall inform all States that have signed the Convention or acceded to it and the Director-General of the International Labour Office of any signature or of the deposit of any instrument of ratification, acceptance, approval or accession and the date of its deposit.

Article XIV. ENTRY INTO FORCE

(1) The Convention shall enter into force twelve months after the date on which not less than twenty-five States, the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have either signed it without reservation as to ratification, acceptance or approval or deposited the requisite instruments of ratification, acceptance, approval or accession in accordance with Article XIII.

(2) The Secretary-General shall inform all States that have signed the Convention or acceded to it of the date on which it enters into force.

(3) Any instrument of ratification, acceptance, approval or accession deposited during the twelve months referred to in paragraph (1) shall take effect on the coming into force of the Convention or three months after the deposit of such instrument, whichever is the later date.

(4) Any instrument of ratification, acceptance, approval or accession deposited after the date on which the Convention enters into force shall take effect three months after the date of deposit.

(5) After the date on which an amendment is deemed to have been accepted under Article XII, any instrument of ratification, acceptance, approval or accession deposited shall apply to the Convention as amended.

Article XV. DENUNCIATION

(1) The Convention may be denounced by any Party at any time after five years from the date on which the Convention entered into force for that Party.

(2) Denunciation shall be effected by notification in writing to the Secretary-General who shall inform all other Parties and the Director-General of the International Labour Office of any such notification received and of the date of its receipt as well as the date on which such denunciation takes effect.

(3) A denunciation shall take effect twelve months after receipt of the notification of denunciation by the Secretary-General or after any longer period which may be indicated in the notification.

Article XVI. DEPOSIT AND REGISTRATION

(1) The Convention shall be deposited with the Secretary-General who shall transmit certified true copies thereof to all States that have signed the Convention or acceded to it.

(2) As soon as the Convention enters into force, the Secretary-General shall transmit the text to the Secretary-General of the United Nations for registration and publication, in accordance with Article 102 of the Charter of the United Nations.

Article XVII. LANGUAGES

The Convention is established in a single copy in the Chinese, English, French, Russian and Spanish languages, each text being equally authentic. Official translations in the Arabic and German languages shall be prepared and deposited with the signed original.

IN WITNESS WHEREOF the undersigned, being duly authorized by their respective Governments for that purpose, have signed the Convention.

DONE at London this seventh day of July, one thousand nine hundred and seventy-eight.

[For signatures affixed to the Convention, see p. 256 in volume 1362.]

ANNEX

CHAPTER I. GENERAL PROVISIONS

Regulation 1/1. DEFINITIONS

For the purpose of this Convention, unless expressly provided otherwise:

- (a) "Regulations" means Regulations contained in the Annex to the Convention.
- (b) "Approved" means approved by the Administration.
- (c) "Master" means the person having command of a ship.
- (d) "Officer" means a member of the crew, other than the master, designated as such by national law or regulations or in the absence of such designation by collective agreement or custom.
- (e) "Deck officer" means a qualified officer in the deck department.
- (f) "Chief mate" means the deck officer next in rank to the master and upon whom the command of the ship will fall in event of the incapacity of the master.
- (g) "Engineer officer" means a qualified officer in the engine department.
- (h) "Chief engineer officer" means the senior engineer officer, responsible for the mechanical propulsion of the ship.
- (i) "Second engineer officer" means the engineer officer next in rank to the chief engineer officer and upon whom the responsibility for the mechanical propulsion of the ship will fall in the event of the incapacity of the chief engineer officer.
- (j) "Assistant engineer officer" means a person under training to become an engineer officer and designated as such by national law or regulations.
- (k) "Radio officer" means a person holding a first class or second class radiotelegraph operator's certificate or a radiocommunication operator's general certificate for the maritime mobile service issued under the provisions of the Radio Regulations, who is employed in the radiotelegraph station of a ship which is required to have such a station by the International Convention for the Safety of Life at Sea.
- (l) "Radiotelephone operator" means a person holding an appropriate certificate issued under the provisions of the Radio Regulations.
- (m) "Rating" means a member of the ship's crew other than the master or an officer.
- (n) "Near-coastal voyages" means voyages in the vicinity of a Party as defined by that Party.
- (o) "Propulsion power" means the power in kilowatts which appears on the ship's Certificate of Registry or other official document.*
- (p) "Radio duties" include, as appropriate, watchkeeping and technical maintenance and repairs in accordance with the Radio Regulations, the International Convention for the Safety of Life at Sea and, at the discretion of each Administration, the relevant IMCO recommendations.
- (q) "Oil tanker" means a ship constructed and used for the carriage of petroleum and petroleum products in bulk.
- (r) "Chemical tanker" means a ship constructed and used for the carriage in bulk of any liquid chemical listed in the IMCO "Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk".
- (s) "Liquefied gas tanker" means a ship constructed and used for the carriage in bulk of any liquefied gas listed in the IMCO "Code for the Construction and Equipment of Ships carrying Liquefied Gases in Bulk".

* It is assumed that the power so appearing on the Certificate of Registry or other official document is the total maximum continuous rated output power of all the ship's main propulsion machinery.

Regulation 1/2. CONTENT OF CERTIFICATES AND FORM OF ENDORSEMENT

1. Certificates shall be in the official language or languages of the issuing country. If the language used is not English, the text shall include a translation into that language.

2. In respect of radio officers and radiotelephone operators, Administrations may:

- (a) Include the additional knowledge required by the relevant Regulations of the Annex to the Convention in the examination for the issue of a certificate complying with the Radio Regulations; or
- (b) Issue a separate certificate indicating that the holder has the additional knowledge required by the Annex to the Convention.

3. The form of certificate endorsement required by Article VI of the Convention shall be as follows:

Form of Endorsement of Certificates

ENDORSEMENT OF CERTIFICATES

(Official Seal)

(Country)

Issued under the provisions of the
International Convention on Standards of
Training, Certification and Watchkeeping
for Seafarers, 1978

Either* (The Government of (name) certifies
(I, the undersigned certify

that the present Certificate/Certificate No:**, is issued to
..... (full name of person), who has been found
duly qualified in accordance with the provisions of Regulation
of the International Convention on Standards of Training, Certification
and Watchkeeping for Seafarers, 1978, as*** with the
following limitations only:

Insert here)
limitations)
or "none" as)
appropriate.)

Date of issue of this endorsement:

(Official Seal)

Signed

(Name and signature of duly
authorized official)

Date of birth of the holder of the Certificate:

Signature of the holder of the Certificate:

* Use one line or the other.

** Delete as appropriate.

*** Insert Convention grade or class of Certificate.

Regulation I/3. PRINCIPLES GOVERNING NEAR-COASTAL VOYAGES

1. Any Party defining near-coastal voyages for the purpose of the Convention shall not impose training, experience or certification requirements on the seafarers serving on board the ships entitled to fly the flag of another Party and engaged on such voyages in a manner resulting in more stringent requirements for such seafarers than for seafarers serving on board ships entitled to fly its own flag. In no case shall any such Party impose requirements in respect of seafarers serving on board ships entitled to fly the flag of another Party in excess of those of the Convention in respect of ships not engaged on near-coastal voyages.

2. With respect to ships entitled to fly the flag of a Party regularly engaged on near-coastal voyages off the coast of another Party, the Party whose flag the ship is entitled to fly shall prescribe training, experience and certification requirements for seafarers serving on such ships at least equal to those of the Party off whose coast the ship is engaged, provided that they do not exceed the requirements of the Convention in respect of ships not engaged on near-coastal voyages. A ship which extends its voyage beyond what is defined as a near-coastal voyage by a Party and enters waters not covered by that definition shall fulfil the requirements of the Convention without relaxation under this Regulation.

3. A Party may afford a ship which is entitled to fly its flag the benefits of the near-coastal voyages provisions of the Convention when it is regularly engaged off the coast of a non-Party on near-coastal voyages as defined by the Party.

4. Nothing in this Regulation shall in any way limit the jurisdiction of any State, whether or not a Party to the Convention.

Regulation I/4. CONTROL PROCEDURES

1. Control exercised by a duly authorized control officer under Article X shall be limited to the following:

- (a) Verification in accordance with Article X(1) that all seafarers serving on board who are required to be certificated by the Convention hold a valid certificate or a valid dispensation.
- (b) Assessment of the ability of the seafarers of the ship to maintain watchkeeping standards as required by the Convention if there are grounds for believing that such standards are not being maintained because, while in the port of a Party or in the approaches to that Port, the following have occurred:
 - (i) The ship has been involved in a collision, grounding or stranding; or
 - (ii) There has been a discharge of substances from the ship when underway, at anchor or at berth which is illegal under international conventions; or
 - (iii) The ship has been manoeuvred in an erratic or unsafe manner or navigational course markers or traffic separation schemes have not been followed.

2. The control officer shall provide written information to the master of the ship and the appropriate representative of the flag State according to Article X if, as a result of control action taken in accordance with paragraph 1, any of the following deficiencies are revealed:

- (a) Failure of seafarers, required to hold a certificate, to have an appropriate valid certificate or valid dispensation;
- (b) Failure of navigational or engineering watch arrangements to conform to the requirements specified for the ship by the flag State;
- (c) Absence in a watch of a person qualified to operate equipment essential to safe navigation or the prevention of pollution;
- (d) Inability of the master to provide rested persons for the first watch at the commencement of a voyage and subsequent relieving watches.

3. Failures to correct the deficiencies referred to in paragraph 2(a) — to the extent that they relate to the certificates of the master, chief engineer officer and officers in charge of navigational and engineering watches and, where relevant, the radio officer — and in paragraph 2(b), shall be the only grounds under Article X on which a Party may detain a ship.

CHAPTER II. MASTER, DECK DEPARTMENT

Regulation II/1. BASIC PRINCIPLES TO BE OBSERVED IN KEEPING A NAVIGATIONAL WATCH

1. Parties shall direct the attention of shipowners, ship operators, masters and watch-keeping personnel to the following principles which shall be observed to ensure that a safe navigational watch is maintained at all times.

2. The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the watch are responsible for navigating the ship safely during their periods of duty when they will be particularly concerned with avoiding collision and stranding.

3. The basic principles, including but not limited to the following, shall be taken into account on all ships.

4. *Watch arrangements*

(a) The composition of the watch shall at all times be adequate and appropriate to the prevailing circumstances and conditions and shall take into account the need for maintaining a proper look-out.

(b) When deciding the composition of the watch on the bridge which may include appropriate deck ratings, the following factors, *inter alia*, shall be taken into account:

- (i) At no time shall the bridge be left unattended;
- (ii) Weather conditions, visibility and whether there is daylight or darkness;
- (iii) Proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;
- (iv) Use and operational condition of navigational aids such as radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;
- (v) Whether the ship is fitted with automatic steering;
- (vi) Any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

5. *Fitness for duty.* The watch system shall be such that the efficiency of watchkeeping officers and watchkeeping ratings is not impaired by fatigue. Duties shall be so organized that the first watch at the commencement of a voyage and the subsequent relieving watches are sufficiently rested and otherwise fit for duty.

6. *Navigation*

(a) The intended voyage shall be planned in advance taking into consideration all pertinent information and any course laid down shall be checked before the voyage commences.

(b) During the watch the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.

(c) The officer of the watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment.

(d) The officer in charge of a navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.

7. *Navigational equipment*

(a) The officer of the watch shall make the most effective use of all navigational equipment at his disposal.

(b) When using radar, the officer of the watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the applicable regulations for preventing collisions at sea.

(c) In cases of need the officer of the watch shall not hesitate to use the helm, engines and sound signalling apparatus.

8. *Navigational duties and responsibilities*

(a) The officer in charge of the watch shall:

- (i) Keep his watch on the bridge which he shall in no circumstances leave until properly relieved;
- (ii) Continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until the master informs him specifically that he has assumed that responsibility and this is mutually understood;
- (iii) Notify the master when in any doubt as to what action to take in the interest of safety;
- (iv) Not hand over the watch to the relieving officer if he has reason to believe that the latter is obviously not capable of carrying out his duties effectively, in which case he shall notify the master accordingly.

(b) On taking over the watch the relieving officer shall satisfy himself as to the ship's estimated or true position and confirm its intended track, course and speed and shall note any dangers to navigation expected to be encountered during his watch.

(c) A proper record shall be kept of the movements and activities during the watch relating to the navigation of the ship.

9. *Look-out.* In addition to maintaining a proper look-out for the purpose of fully appraising the situation and the risk of collision, stranding and other dangers to navigation, the duties of the lookout shall include the detection of ships or aircraft in distress, shipwrecked persons, wrecks and debris. In maintaining a look-out the following shall be observed:

(a) The look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task.

(b) The duties of the look-out and helmsman are separate and the helmsman shall not be considered to be the look-out while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out. The officer in charge of the watch may be the sole look-out in daylight provided that on each such occasion:

- (i) The situation has been carefully assessed and it has been established without doubt that it is safe to do so;
- (ii) Full account has been taken of all relevant factors including, but not limited to:
 - State of weather,
 - Visibility,
 - Traffic density,
 - Proximity of danger to navigation,
 - The attention necessary when navigating in or near traffic separation schemes;
- (iii) Assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

10. *Navigation with pilot embarked.* Despite the duties and obligations of a pilot, his presence on board does not relieve the master or officer in charge of the watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and officer of the watch shall co-operate closely with the pilot and maintain an accurate check of the ship's position and movement.

11. *Protection of the marine environment.* The master and officer in charge of the watch shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Regulation II/2. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF MASTERS AND CHIEF MATES OF SHIPS OF 200 GROSS REGISTER TONS OR MORE

Master and chief mate of ships of 1,600 gross register tons or more

1. Every master and chief mate of a sea-going ship of 1,600 gross register tons or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

- (a) Satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
- (b) Meet the requirements for certification as an officer in charge of a navigational watch on ships of 200 gross register tons or more and have approved sea-going service in that capacity:
 - (i) For certification as chief mate, not less than 18 months; however, this period may be reduced to not less than 12 months if the Administration requires special training which it considers to be equivalent to at least six months' service as officer in charge of a navigational watch;
 - (ii) For certification as master, not less than 36 months; however, this period may be reduced to not less than 24 months if not less than 12 months of such sea-going service has been served as chief mate, or if the Administration requires special training which it considers to be equivalent to such service;
- (c) Have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary these examination requirements for masters and chief mates of ships of limited size engaged on near-coastal voyages, as it considers necessary, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

Master and chief mate of ships of between 200 and 1,600 gross register tons

3. Every master and chief mate of a sea-going ship of between 200 and 1,600 gross register tons shall hold an appropriate certificate.

4. Every candidate for certification shall:

- (a) Satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
- (b)
 - (i) For certification as chief mate, meet the requirements of an officer in charge of a navigational watch on ships of 200 gross register tons or more;
 - (ii) For certification as master, meet the requirements of an officer in charge of a navigational watch on ships of 200 gross register tons or more and have approved sea-

going service in that capacity of not less than 36 months; however, this period may be reduced to not less than 24 months if not less than 12 months of such sea-going service has been served as chief mate, or if the Administration requires special training which it considers to be equivalent to such service;

- (c) Have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix, except that the Administration may vary these examination requirements for masters and chief mates of ships engaged on near-coastal voyages, as it considers appropriate, to exclude such material as is not applicable to the waters or ships concerned, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

General

5. The level of knowledge required under the different headings of the Appendix may be varied according to whether the certificate is being issued at master or chief mate level, and according to whether the certificate or certificates is applicable to ships of 1,600 gross register tons or more, or to ships of between 200 and 1,600 gross register tons.

APPENDIX TO REGULATION 11/2. MINIMUM KNOWLEDGE REQUIRED FOR CERTIFICATION OF MASTERS AND CHIEF MATES OF SHIPS OF 200 GROSS REGISTER TONS OR MORE

1. The syllabus given below is compiled for examination of candidates for certification as master or chief mate of ships of 200 gross register tons or more. It is intended to expand and extend in depth the subjects contained in Regulation 11/4, "Mandatory Minimum Requirements for Certification of Officers in Charge of a Navigational Watch on Ships of 200 Gross Register Tons or More". Bearing in mind that a master has ultimate responsibility for the safety of the ship, its passengers, crew and cargo, and that a chief mate shall be in a position to assume that responsibility at any time, examination in these subjects shall be designed to test their ability to assimilate all available information that affects the safety of the ship.

2. Navigation and position determination

- (a) Voyage planning and navigation for all conditions:
- (i) By acceptable methods of plotting ocean tracks;
 - (ii) Within restricted waters;
 - (iii) In ice;
 - (iv) In restricted visibility;
 - (v) In traffic separation schemes;
 - (vi) In areas of extensive tidal effects.
- (b) Position determination:
- (i) By celestial observations, including the use of sun, stars, moon and planets;
 - (ii) By terrestrial observations, including the ability to use bearings from landmarks and aids to navigation such as lighthouses, beacons and buoys in conjunction with appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix;
 - (iii) Using all modern ship electronic navigational aids to the satisfaction of the Administration, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing.

3. *Watchkeeping*

- (a) Demonstrate thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea,¹ including those Annexes concerned with safe navigation;
- (b) Demonstrate knowledge of Regulation II/1, "Basic Principles to Be Observed in Keeping a Navigational Watch".

4. *Radar equipment.* Demonstrate in conjunction with the use of [a] radar simulator or, when not available, [a] manoeuvring board, knowledge of the fundamentals of radar and ability in the operation and use of radar, and in the interpretation and analysis of information obtained from this equipment, including:

- (a) Factors affecting performance and accuracy;
- (b) Setting up and maintaining displays;
- (c) Detection of misrepresentation of information, false echoes, sea return, etc.;
- (d) Range and bearing;
- (e) Identification of critical echoes;
- (f) Course and speed of other ships;
- (g) Time and distance of closest approach of crossing, meeting or overtaking ships;
- (h) Detecting course and speed changes of other ships;
- (i) Effect of changes in own ship's course or speed or both;
- (j) Application of the International Regulations for Preventing Collisions at Sea.

5. *Compasses — magnetic and gyro.* Ability to determine and correct the errors of the magnetic and gyro-compasses and knowledge of the means for correcting such errors.

6. *Meteorology and oceanography*

- (a) Demonstrate the ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions;
- (b) Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants;
- (c) Knowledge of ocean current systems;
- (d) Ability to use all appropriate navigational publications on tides and currents, including those in the English language;
- (e) Ability to calculate tidal conditions.

7. *Ship manoeuvring and handling.* Manoeuvring and handling of a ship in all conditions, including the following:

- (a) Manoeuvres when approaching pilot vessels or stations with due regard to weather, tide, headreach and stopping distances;
- (b) Handling a ship in rivers, estuaries, etc., having regard to the effects of current, wind and restricted water on the response to the helm;
- (c) Manoeuvring in shallow water, including the reduction in keel clearance due to the effect of squat,* rolling and pitching;
- (d) Interaction between passing ships and between own ship and nearby banks (canal effect);
- (e) Berthing and unberthing under various conditions of wind and tide with and without tugs;

* *Squat.* The decrease in clearance beneath a ship which occurs when the ship moves through the water and is caused both by bodily sinkage and by change of trim. The effect is accentuated in shallow water and is reduced with a reduction in ship's speed.

¹ See "Convention on the International Regulations for Preventing Collisions at Sea, 1972", United Nations, *Treaty Series*, vol. 1050, p. 16.

- (f) Choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used;
 - (g) Dragging; clearing fouled anchors;
 - (h) Dry-docking, both with and without damage;
 - (i) Management and handling of ships in heavy weather, including assisting a ship or aircraft in distress, towing operations, means of keeping an unmanageable ship out of a sea trough, lessening drift and use of oil;
 - (j) Precautions in manoeuvring for launching boats or liferafts in bad weather;
 - (k) Methods of taking on board survivors from lifeboats or liferafts;
 - (l) Ability to determine the manoeuvring and engine characteristics of major types of ships with special reference to stopping distances and turning circles at various draughts and speeds;
 - (m) The importance of navigating at reduced speed to avoid damage caused by own ship's bow or stern wave;
 - (n) Practical measures to be taken when navigating in ice or conditions of ice accumulation on board;
 - (o) The use of, and manoeuvring in, traffic separation schemes.
8. *Ship stability,* construction and damage control*
- (a) Understanding fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve safe trim and stability;
 - (b) Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and counter measures to be taken;
 - (c) Demonstrate use of stability, trim and stress tables, diagrams and stress calculating equipment, including knowledge of loading cargoes and ballasting in order to keep hull stresses within acceptable limits;
 - (d) General knowledge of the principal structural members of a ship and the proper names of the various parts;
 - (e) Knowledge of IMCO recommendations concerning ship stability.
9. *Ship power plants*
- (a) Operating principles of marine power plants;
 - (b) Ships' auxiliary machinery;
 - (c) General knowledge of marine engineering terms.
10. *Cargo handling and stowage*
- (a) The stowage and securing of cargoes on board ships, including cargo gear;
 - (b) Loading and discharging operations, with special regard to loading and discharging of heavy weights;
 - (c) International regulations and recommendations relating to the carriage of cargoes, in particular the International Maritime Dangerous Goods Code (IMDG);
 - (d) Carriage of dangerous goods; precautions to be taken during loading and discharging operations and the care of dangerous goods during a voyage;
 - (e) Working knowledge of contents and application of current relevant tanker safety guides;
 - (f) Working knowledge of commonly used cargo piping and pumping arrangements;
 - (g) Terms and definitions used to describe properties of common oil cargoes, such as crude oil, middle distillates, naphtha;

* Masters and chief mates serving on small ships shall be fully acquainted with the basic stability requirements of such ships.

- (h) Pollution regulations; ballasting, tank cleaning and gas freeing operations;
 - (i) Load-on-top procedures.
11. *Fire prevention and fire-fighting appliances*
- (a) Organization of fire drills;
 - (b) Classes and chemistry of fire;
 - (c) Fire-fighting systems;
 - (d) Attendance at an approved fire-fighting course;
 - (e) Knowledge of regulations concerning fire-fighting equipment.
12. *Emergency procedures*
- (a) Precautions when beaching a ship;
 - (b) Action to be taken prior to, and after, grounding;
 - (c) Floating a grounded ship, with and without assistance;
 - (d) Action to be taken following a collision;
 - (e) Temporary plugging of leaks;
 - (f) Measures for the protection and safety of passengers and crew in emergencies;
 - (g) Limiting damage and salvaging the ship following a fire or explosion;
 - (h) Abandoning ship;
 - (i) Emergency steering, rigging and use of jury steering and the means of rigging a jury rudder, where practicable;
 - (j) Rescuing persons from a ship in distress or from a wreck;
 - (k) Man-overboard procedures.
13. *Medical care.* A thorough knowledge of the use of the contents of the following publications:
- (a) International Medical Guide for Ships or equivalent national publications;
 - (b) Medical section of the International Code of Signals;
 - (c) Medical First Aid Guide for Use in Accidents Involving Dangerous Goods.
14. *Maritime law*
- (a) A knowledge of international maritime law as embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the master, particularly those concerning safety and the protection of the marine environment. Regard shall be paid especially to the following subjects:
 - (i) Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and the period of their legal validity;
 - (ii) Responsibilities under the relevant requirements of the International Convention on Load Lines;¹
 - (iii) Responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea;²
 - (iv) Responsibilities under international conventions for the prevention of pollution from ships;
 - (v) Maritime declarations of health; the requirements of the International Health Regulations;³

¹ United Nations, *Treaty Series*, vol. 640, p. 133.

² *Ibid.*, vol. 1184, p. 2, and vol. 1185, p. 2.

³ *Ibid.*, vol. 764, p. 3, vol. 943, p. 428, and vol. 1286, p. 390.

- (vi) Responsibilities under the Convention on the International Regulations for Preventing Collisions at Sea;
 - (vii) Responsibilities under other international instruments affecting the safety of the ship, passengers, crew and cargo.
- (b) The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.

15. *Personnel management and training responsibilities.* A knowledge of personnel management, organization and training aboard ships.

16. *Communications*

- (a) Ability to transmit and receive messages by morse light and to use the International Code of Signals; where the Administration has examined candidates in these subjects at the lower levels of certification, they may have the option of not re-examining in these subjects for certification as master;
- (b) Knowledge of procedures used in radiotelephone communications and ability to use radiotelephones, in particular with respect to distress, urgency, safety and navigational messages;
- (c) A knowledge of the procedures for emergency distress signals by radiotelegraphy as prescribed in the Radio Regulations.

17. *Life-saving.* A thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea), organization of abandon ship drills, lifeboats, liferafts and other life-saving equipment.

18. *Search and rescue.* A thorough knowledge of the IMCO Merchant Ship Search and Rescue Manual (MERSAR).

19. *Methods for demonstration of proficiency*

- (a) *Navigation.* Demonstrate the use of sextant, pelorus, azimuth mirror and ability to plot position, course, bearings.
- (b) *International Regulations for Preventing Collisions at Sea*
 - (i) Use of small models displaying proper signals or lights, or navigation light simulator;
 - (ii) Manoeuvring board or radar simulator.
- (c) *Radar*
 - (i) Radar simulator; or
 - (ii) Manoeuvring boards.
- (d) *Fire-fighting.* Attendance at an approved fire-fighting course.
- (e) *Communications.* Visual and vocal practical test.
- (f) *Life-saving.* Launching and handling of lifeboats and other life-saving appliances, including the donning of life-jackets.

Regulation II/3. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF OFFICERS IN CHARGE OF A NAVIGATIONAL WATCH AND OF MASTERS OF SHIPS OF LESS THAN 200 GROSS REGISTER TONS

1. *Ships not engaged on near-coastal voyages*

(a) Every master serving on a sea-going ship of less than 200 gross register tons not engaged on near-coastal voyages shall hold a certificate recognized by the Administration for service as master of ships of between 200 and 1,600 gross register tons.

(b) Every officer in charge of a navigational watch serving on a sea-going ship of less than 200 gross register tons not engaged on near-coastal voyages shall hold an appropriate certificate for ships of 200 gross register tons or more.

2. *Ships engaged on near-coastal voyages*

(a) *Master*

(i) Every master serving in a sea-going ship of less than 200 gross register tons engaged on near-coastal voyages shall hold an appropriate certificate.

(ii) Every candidate for certification shall:

- (1) Be not less than 20 years of age;
- (2) Have approved sea-going service of not less than 12 months as officer in charge of a navigational watch;
- (3) Satisfy the Administration that he possesses adequate knowledge appropriate to his duties on the ships concerned which shall include the subjects contained in the Appendix to this Regulation.

(b) *Officer in charge of a navigational watch*

(i) Every officer in charge of a navigational watch on a sea-going ship of less than 200 gross register tons engaged on near-coastal voyages shall hold an appropriate certificate.

(ii) Every candidate for certification shall:

- (1) Be not less than 18 years of age;
- (2) Satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
- (3) Satisfy the Administration that he has:
 - Successfully undergone special training, including an adequate period of appropriate sea-going service as required by the Administration; or
 - Completed approved sea-going service in the deck department of not less than three years;
- (4) Satisfy the Administration that he possesses adequate knowledge appropriate to his duties on the ships concerned, which shall include the subjects contained in the Appendix.

3. *Training.* Training to achieve the necessary knowledge and practical experience shall be based on Regulation II/1, "Basic Principles to Be Observed in Keeping a Navigational Watch", and relevant international regulations and recommendations.

4. *Exemptions.* The Administration, if it considers that a ship's size and the conditions of its voyage are such as to render the application of the full requirements of this Regulation and its Appendix unreasonable or impracticable, may to that extent exempt the master and the officer in charge of a navigational watch on such a ship or class of ships from some of the requirements, bearing in mind the safety of all ships which may be operating in the same waters.

APPENDIX TO REGULATION II/3. MINIMUM KNOWLEDGE REQUIRED FOR CERTIFICATION OF OFFICERS IN CHARGE OF A NAVIGATIONAL WATCH AND OF MASTERS OF SHIPS OF LESS THAN 200 GROSS REGISTER TONS

1. (a) Knowledge of the following:

- (i) Coastal navigation and, to the extent required, celestial navigation;
- (ii) International Regulations for Preventing Collisions at Sea;
- (iii) International Maritime Dangerous Goods Code (IMDG);
- (iv) Magnetic compass;
- (v) Radiotelephony and visual signalling;
- (vi) Fire prevention and fire-fighting appliances;
- (vii) Life-saving;

- (viii) Emergency procedures;
- (ix) Ship manoeuvring;
- (x) Ship stability;
- (xi) Meteorology;
- (xii) Small ship power plants;
- (xiii) First aid;
- (xiv) Search and rescue;
- (xv) Prevention of pollution of the marine environment.

(b) In addition to the requirements of sub-paragraph (a), sufficient knowledge to operate safely all navigational aids and equipment fitted aboard the ships concerned.

(c) The level of knowledge to be required in the subjects specified in sub-paragraphs (a) and (b) shall be sufficient for the officer of the watch to carry out his duties safely.

2. Every master serving on a sea-going ship of less than 200 gross register tons shall, in addition to the requirements of paragraph 1 above, satisfy the Administration that he possesses the knowledge to carry out all the duties of such a master safely.

Regulation II/4. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF OFFICERS IN CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF 200 GROSS REGISTER TONS OR MORE

1. Every officer in charge of a navigational watch serving on a sea-going ship of 200 gross register tons or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

- (a) Be not less than 18 years of age;
- (b) Satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;
- (c) Have approved sea-going service in the deck department of not less than three years which shall include at least six months of bridge watchkeeping duties under the supervision of a qualified officer; however, an Administration may allow the substitution of a period of special training for not more than two years of this approved sea-going service, provided the Administration is satisfied that such training is at least equivalent in value to the period of sea-going service it replaces;
- (d) Satisfy the Administration by passing an appropriate examination that he possesses adequate theoretical and practical knowledge appropriate to his duties.

3. *Certificates for service without restriction.* For issue of certificates for service without restriction as to area of operation, the examination shall test the adequacy of the candidate's theoretical and practical knowledge in the subjects shown in the Appendix to this Regulation.

4. *Restricted certificates.* For issue of restricted certificates for service on near-coastal voyages, the Administration may omit the following subjects from those shown in the Appendix, bearing in mind the effect on the safety of all ships which may be operating in the same waters:

- (a) Celestial navigation;
- (b) Electronic systems of position fixing and navigation for waters not covered by such systems.

5. *Level of knowledge*

(a) The level of knowledge to be required in the subjects shown in the Appendix shall be sufficient for the officer of the watch to carry out his watchkeeping duties safely. In determining the appropriate level of knowledge the Administration shall take into account the remarks under each subject in the Appendix.

(b) Training to achieve the necessary theoretical knowledge and practical experience shall be based on Regulation II/1, "Basic Principles to Be Observed in Keeping a Navigational Watch", and relevant international regulations and recommendations.

APPENDIX TO REGULATION II/4. MINIMUM KNOWLEDGE REQUIRED FOR CERTIFICATION OF OFFICERS IN CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF 200 GROSS REGISTER TONS OR MORE

1. *Celestial navigation.* Ability to use celestial bodies to determine the ship's position and compass errors.

2. *Terrestrial and coastal navigation*

(a) Ability to determine the ship's position by the use of:

- (i) Landmarks;
- (ii) Aids to navigation, including lighthouses, beacons and buoys;
- (iii) Dead reckoning, taking into account winds, tides, currents and speed by propeller revolutions per minute and by log.

(b) Thorough knowledge of and ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information.

3. *Radar navigation.* Knowledge of the fundamentals of radar and ability in the operation and use of radar and ability to interpret and analyse information obtained by use of radar including the following:

- (a) Factors affecting performance and accuracy;
- (b) Setting up and maintaining displays;
- (c) Detection of misrepresentation of information, false echoes, sea return, etc.;
- (d) Range and bearing;
- (e) Identification of critical echoes;
- (f) Course and speed of other ships;
- (g) Time and distance of closest approach of crossing, meeting or overtaking ships;
- (h) Detecting course and speed changes of other ships;
- (i) Effect of changes in own ship's course or speed or both;
- (j) Application of the International Regulations for Preventing Collisions at Sea.

4. *Watchkeeping*

(a) Demonstrate thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, including those Annexes concerned with safe navigation;

(b) Demonstrate knowledge of content of Regulation II/1, "Basic Principles to Be Observed in Keeping a Navigational Watch".

5. *Electronic systems of position fixing and navigation.* Ability to determine the ship's position by the use of electronic navigational aids to the satisfaction of the Administration.

6. *Radio direction-finders and echo-sounders.* Ability to operate the equipment and apply the information correctly.

7. *Meteorology.* Knowledge of shipborne meteorological instruments and their application. Knowledge of the characteristics of various weather systems, reporting procedures and recording systems and the ability to apply the meteorological information available.

8. *Compasses — magnetic and gyro.* Knowledge of the principles of magnetic and gyro-compasses including errors and corrections. With regard to gyro-compasses, an understanding of the systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compasses.

9. *Automatic pilot.* Knowledge of automatic pilot systems and procedures.
10. *Radiotelephony and visual signalling*
- (a) Ability to transmit and receive messages by morse light;
 - (b) Ability to use the International Code of Signals;
 - (c) Knowledge of procedures used in radiotelephone communications and ability to use radiotelephones, in particular with respect to distress, urgency, safety and navigational messages.
11. *Fire prevention and fire-fighting appliances*
- (a) Ability to organize fire drills;
 - (b) Knowledge of classes and chemistry of fire;
 - (c) Knowledge of fire-fighting systems;
 - (d) Attendance at an approved fire-fighting course.
12. *Life-saving.* Ability to organize abandon ship drills and knowledge of the operation of lifeboats, liferafts, buoyant apparatus and similar life-saving appliances along with their equipment, including portable radio apparatus and emergency position-indicating radio beacons (EPIRBs). Knowledge of survival at sea techniques.
13. *Emergency procedures.* Knowledge of the items listed in the appropriate Appendix of the current edition of the ILO/IMCO "Document for Guidance".
14. *Ship manoeuvring and handling.* Knowledge of:
- (a) The effects of various deadweights, draughts, trim, speed and under keel clearance on turning circles and stopping distances;
 - (b) Effects of wind and current on ship handling;
 - (c) Manoeuvres for the rescue of man-overboard;
 - (d) Squat, shallow water and similar effects;
 - (e) Proper procedures for anchoring and mooring.
15. *Ship stability*
- (a) Working knowledge and application of stability, trim and stress tables, diagrams and stress calculating equipment.
 - (b) Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy.
16. *English language.* Adequate knowledge of the English language enabling the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation and to express himself clearly in his communications with other ships or coast stations. Ability to understand and use the IMCO Standard Marine Navigational Vocabulary.
17. *Ship construction.* General knowledge of the principal structural members of a ship and the proper names of the various parts.
18. *Cargo handling and stowage.* Knowledge of safe handling and stowage of cargoes and the effect of these factors on the safety of the ship.
19. *Medical aid.* Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship.
20. *Search and rescue.* Knowledge of the IMCO Merchant Ship Search and Rescue Manual (MERSAR).
21. *Prevention of pollution of the marine environment.* Knowledge of the precautions to be observed to prevent pollution of the marine environment.

Regulation II/5. MANDATORY MINIMUM REQUIREMENTS TO ENSURE THE CONTINUED PROFICIENCY AND UP-DATING OF KNOWLEDGE FOR MASTERS AND DECK OFFICERS

1. Every master and every deck officer holding a certificate who is serving at sea or intends to return to sea after a period ashore shall, in order to continue to qualify for sea-going service, be required at regular intervals not exceeding five years to satisfy the Administration as to:

- (a) Medical fitness, particularly regarding eyesight and hearing; and
- (b) Professional competence:
 - (i) By approved sea-going service as master or deck officer of at least one year during the preceding five years; or
 - (ii) By virtue of having performed functions relating to the duties appropriate to the grade of certificate held which are considered to be at least equivalent to the sea-going service required in paragraph 1(b)(i); or
 - (iii) By one of the following:
 - Passing an approved test; or
 - Successfully completing an approved course or courses; or
 - Having completed approved sea-going service as a deck officer for a period of not less than three months in a supernumerary capacity immediately prior to taking up the rank to which he is entitled by virtue of his certificate.

2. The Administration shall, in consultation with those concerned, formulate or promote the formulation of a structure of refresher and up-dating courses, either voluntary or mandatory, as appropriate, for masters and deck officers who are serving at sea, especially for re-entrants to sea-going service. The Administration shall ensure that arrangements are made to enable all persons concerned to attend such courses as appropriate to their experience and duties. Such courses shall be approved by the Administration and include changes in marine technology and relevant international regulations and recommendations concerning the safety of life at sea and the protection of the marine environment.

3. Every master and deck officer shall, for continuing sea-going service on board ships for which special training requirements have been internationally agreed upon, successfully complete an approved relevant training.

4. The Administration shall ensure that the texts of recent changes in international regulations concerning the safety of life at sea and the protection of the marine environment are made available to ships under its jurisdiction.

Regulation II/6. MANDATORY MINIMUM REQUIREMENTS FOR RATINGS FORMING PART OF A NAVIGATIONAL WATCH

1. The minimum requirements for a rating forming part of a navigational watch on a sea-going ship of 200 gross register tons or more are set out in paragraph 2. These requirements are not those for certification of able seamen,* nor, except for ships of limited size, are they minimum requirements for a rating who is to be the sole rating of a navigational watch. Administrations may require additional training and qualifications for a rating who is to be the sole rating of a navigational watch.

2. Every rating forming part of a navigational watch on a sea-going ship of 200 gross register tons or more shall:

- (a) Be not less than 16 years of age;
- (b) Satisfy the Administration as to medical fitness, particularly regarding eyesight and hearing;

* Reference is made to ILO Certification of Able Seamen Convention, 1946¹ or any successive convention.

¹ United Nations, *Treaty Series*, vol. 94, p. 11.

- (c) Satisfy the Administration that he has:
- (i) Completed approved sea-going service, including not less than six months' sea experience associated, in particular, with navigational watchkeeping duties; or
 - (ii) Successfully undergone special training, either pre-sea or aboard ship, including an adequate period of sea-going service as required by the Administration which shall be not less than two months;
- (d) Have experience or training which includes:
- (i) Basic principles of fire-fighting, first aid, personal survival techniques, health hazards and personal safety;
 - (ii) Ability to understand orders and make himself understood by the officer of the watch in matters relevant to his duties;
 - (iii) Ability to steer and comply with helm orders, together with sufficient knowledge of magnetic and gyro-compasses for performance of these duties;
 - (iv) Ability to keep a proper look-out by sight and hearing and report the approximate bearing of a sound signal, light or other object in degrees or points;
 - (v) Familiarity with the change-over from automatic pilot to hand steering and vice-versa;
 - (vi) Knowledge of the use of appropriate internal communication and alarm systems;
 - (vii) Knowledge of pyrotechnic distress signals;
 - (viii) Knowledge of his emergency duties;
 - (ix) Knowledge of shipboard terms and definitions appropriate to his duties.

3. The experience, service or training required by paragraphs 2(c) and (d) may be acquired through performance of duties associated with navigational watchkeeping, but only if such duties are carried out under the direct supervision of the master, officer in charge of the navigational watch or a qualified rating.

4. Administrations shall ensure that an authorized document is issued to every seafarer who by experience or training is qualified in accordance with this Regulation to serve as a rating forming part of a navigational watch, or that his existing document is duly endorsed.

5. A seafarer may be considered by the Administration to have met the requirements of this Regulation if he has served in a relevant capacity in the deck department for a period of not less than one year within the last five years preceding the entry into force of the Convention for that Administration.

*Regulation II/7. BASIC PRINCIPLES TO BE OBSERVED
IN KEEPING A WATCH IN PORT*

1. On any ship safely moored or safely at anchor under normal circumstances in port, the master shall arrange for an appropriate and effective watch to be maintained for the purpose of safety.

2. In organizing the watches note shall be taken of the provisions of the "Recommendation on Principles and Operational Guidance for Deck Officers in Charge of a Watch in Port" and the "Recommendation on Principles and Operational Guidance for Engineer Officers in Charge of an Engineering Watch in Port" adopted by the International Conference on Training and Certification of Seafarers, 1978.

*Regulation II/8. MANDATORY MINIMUM REQUIREMENTS FOR A WATCH IN PORT
ON SHIPS CARRYING HAZARDOUS CARGO*

1. The master of every ship carrying cargo in bulk that is hazardous — whether it is, or may be, explosive, flammable, toxic, health-threatening or environment polluting — shall ensure that a safe deck watch and a safe engineering watch are maintained by the ready availability on board

of a duly qualified officer or officers, and ratings where appropriate, even when the ship is safely moored or safely at anchor in port.

2. The master of every ship carrying hazardous cargo other than in bulk — whether it is, or may be, explosive, flammable, toxic, health-threatening or environment polluting — shall in organizing safe watchkeeping arrangements take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions on board, afloat and ashore.

3. In organizing the watches full account shall be taken of the “Recommendation on Principles and Operational Guidance for Deck Officers in Charge of a Watch in Port” and the “Recommendation on Principles and Operational Guidance for Engineer Officers in Charge of an Engineering Watch in Port” adopted by the International Conference on Training and Certification of Seafarers, 1978.

CHAPTER III. ENGINE DEPARTMENT

Regulation III/1. BASIC PRINCIPLES TO BE OBSERVED IN KEEPING AN ENGINEERING WATCH

1. Parties shall direct the attention of shipowners, ship operators, masters, chief engineer officers and watchkeeping personnel to the following principles which shall be observed to ensure that a safe engineering watch is maintained at all times.

2. The term “watch” is used in this Regulation to mean either a group of personnel composing the watch or a period of responsibility for an engineer officer during which his physical presence in the machinery space may or may not be required.

3. The basic principles, including but not limited to the following, shall be taken into account on all ships.

4. *General.* (a) The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe watch. When deciding the composition of the watch, which may include appropriate engine room ratings, the following criteria, *inter alia*, shall be taken into account:

- (i) Type of ship;
- (ii) Type and condition of the machinery;
- (iii) Special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;
- (iv) Qualifications and experience of the watch;
- (v) Safety of life, ship, cargo and port, and protection of the environment;
- (vi) Observance of international, national and local regulations;
- (vii) Maintaining the normal operations of the ship.

(b) Under the direction of the chief engineer officer, the engineer officer in charge of the watch shall be responsible for the inspection, operation and testing, as required, of all machinery and equipment under his responsibility. The engineer officer in charge of a watch is the chief engineer officer’s representative and his primary responsibility, at all times, shall be the safe and efficient operation and up-keep of machinery affecting the safety of the ship.

(c) The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

5. *Operation.* (a) The engineer officer in charge of the watch shall ensure that the established watchkeeping arrangements are maintained. Under his general direction engine

room ratings, if forming part of the watch, shall be required to assist in the safe and efficient operation of the propulsion machinery and the auxiliary equipment.

(b) At the commencement of the engineering watch, the current operational parameters and condition of all machinery shall be verified. Any machinery not functioning properly, expected to malfunction or requiring special service, shall be noted along with any action already taken. Plans shall be made for any further action if required.

(c) The engineer officer in charge of the watch shall ensure that the main propulsion plant and auxiliary systems are kept under constant surveillance, inspections are made of the machinery and steering gear spaces at suitable intervals and appropriate action is taken to remedy any malfunction discovered.

(d) When the machinery spaces are in the manned condition, the engineer officer in charge of the watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed. When the machinery spaces are in the periodic unmanned condition, the designated duty engineer officer in charge of the watch shall be immediately available and on call to attend the machinery spaces.

(e) All bridge orders shall be promptly executed. Changes in direction or speed of the main propulsion unit shall be recorded, except where an Administration determines that the size or characteristics of a particular ship make such recording impracticable. The engineer officer in charge of the watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under standby or manoeuvring conditions.

(f) The engineer officer in charge of the watch shall not be assigned or undertake any duties which would interfere with his supervisory duty in respect of the main propulsion system and its ancillary equipment and he shall ensure that the main propulsion system and auxiliary equipment are kept under constant surveillance until he is properly relieved.

(g) Due attention shall be paid to the maintenance and support of all machinery, including mechanical, electrical, hydraulic and pneumatic systems, their control apparatus and associated safety equipment, all accommodation service systems equipment and the recording of stores and spare gear usage.

(h) The chief engineer officer shall ensure that the engineer officer in charge of the watch is informed of all preventive maintenance, damage control, or repair operations to be performed during the watch. The engineer officer in charge of the watch shall be responsible for the isolation, by-passing and adjustment of all machinery under his responsibility that is to be worked on, and shall record all work carried out.

(i) Before going off duty, the engineer officer in charge of the watch shall ensure that all events related to the main and auxiliary machinery are suitably recorded.

(j) To avoid any danger to the safety of the ship and its crew, the engineer officer in charge of the watch shall notify the bridge immediately in the event of fire, impending actions in machinery spaces that may cause reduction in ship's speed, imminent steering failure, stoppage of the ship's propulsion system or any alteration in the generation of electric power, or similar threat to safety. This notification, where possible, shall be accomplished before changes are made in order to afford the bridge the maximum available time to take whatever actions are possible to avoid a potential marine casualty.

(k) When the engine room is put in a standby condition, the engineer officer in charge of the watch shall ensure that all machinery and equipment which may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.

6. *Watch requirements.* (a) Every member of the watch shall be familiar with his assigned watchkeeping duties. In addition, every member shall have with respect to that ship:

- (i) Knowledge of the use of appropriate internal communication systems;
- (ii) Knowledge of escape routes from machinery spaces;

(iii) Knowledge of engine room alarm systems and the ability to distinguish between the various alarms with special reference to the CO₂ alarm;

(iv) Knowledge of the positions and use of the fire-fighting equipment in the machinery spaces.

(b) The composition of an underway watch shall, at all times, be adequate to ensure the safe operation of all machinery affecting the operation of the ship, in either automated or manual mode and be appropriate to the prevailing circumstances and conditions. To achieve this, the following, *inter alia*, shall be taken into account:

(i) Adequate supervision, at all times, of machinery affecting the safe operation of the ship;

(ii) Condition and reliability of any remotely operated propulsion and steering equipment and their controls, control location and the procedures involved in placing them in a manual mode of operation in the event of breakdown or emergency;

(iii) Location and operation of fixed fire detection, fire extinction or fire containment devices and apparatus;

(iv) Use and operational condition of auxiliary, standby and emergency equipment affecting the safe navigation, mooring or docking operations of the ship;

(v) Steps and procedures necessary to maintain the condition of machinery installations in order to ensure their efficient operation during all modes of ship operation;

(vi) Any other demands on the watch which may arise as a result of special operating circumstances.

(c) At an unsheltered anchorage the chief engineer officer shall consult with the master whether or not to maintain an underway watch.

7. *Fitness for duty.* The watch system shall be such that the efficiency of the watch is not impaired by fatigue. Duties shall be so organized by the chief engineer officer that the first watch at the commencement of a voyage and the subsequent relieving watches are sufficiently rested and otherwise fit for duty.

8. *Protection of the marine environment.* All engineer officers and engine room ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Regulation III/2. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF CHIEF ENGINEER OFFICERS AND SECOND ENGINEER OFFICERS OF SHIPS POWERED BY MAIN PROPULSION MACHINERY OF 3,000 kW PROPULSION POWER OR MORE

1. Every chief engineer officer and second engineer officer of a sea-going ship powered by main propulsion machinery of 3,000 kW propulsion power or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

(a) Satisfy the Administration as to medical fitness, including eyesight and hearing;

(b) Meet the requirements for certification as an engineer officer in charge of a watch; and

(i) For certification as second engineer officer, have not less than 12 months' approved sea-going service as assistant engineer officer or engineer officer;

(ii) For certification as chief engineer officer, have not less than 36 months' approved sea-going service of which not less than 12 months shall be served as an engineer officer in a position of responsibility while qualified to serve as second engineer officer;

(c) Have attended an approved practical fire-fighting course;

(d) Have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except

that the Administration may vary these examination requirements for officers of ships with limited propulsion power that are engaged on near-coastal voyages, as it considers necessary, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

3. Training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

4. The level of knowledge required under the different paragraphs of the Appendix may be varied according to whether the certificate is being issued at chief engineer officer or second engineer officer level.

APPENDIX TO REGULATION III/2. MINIMUM KNOWLEDGE REQUIRED FOR CERTIFICATION OF CHIEF ENGINEER OFFICERS AND SECOND ENGINEER OFFICERS OF SHIPS POWERED BY MAIN PROPULSION MACHINERY OF 3,000 kW PROPULSION POWER OR MORE

1. The syllabus given below is compiled for examination of candidates for certification as chief engineer officer or second engineer officer of ships powered by main propulsion machinery of 3,000 kW propulsion power or more. Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of a chief engineer officer at any time, examination in these subjects shall be designed to test the candidate's ability to assimilate all available information that affects the safe operation of the ship's machinery.

2. With respect to paragraph 4(a) below, the Administration may omit knowledge requirements for types of propulsion machinery other than those machinery installations for which the certificate to be awarded shall be valid. A certificate awarded on such a basis shall not be valid for any category of machinery installation which has been omitted until the engineer officer proves to be competent in these items to the satisfaction of the Administration. Any such limitation shall be stated in the certificate.

3. Every candidate shall possess theoretical knowledge in the following subjects:

- (a) Thermodynamics and heat transmission;
- (b) Mechanics and hydromechanics;
- (c) Operational principles of ships' power installations (diesel, steam and gas turbine) and refrigeration;
- (d) Physical and chemical properties of fuels and lubricants;
- (e) Technology of materials;
- (f) Chemistry and physics of fire and extinguishing agents;
- (g) Marine electrotechnology, electronics and electrical equipment;
- (h) Fundamentals of automation, instrumentation and control systems;
- (i) Naval architecture and ship construction, including damage control.

4. Every candidate shall possess adequate practical knowledge in at least the following subjects:

- (a) Operation and maintenance of:
 - (i) Marine diesel engines;
 - (ii) Marine steam propulsion plant;
 - (iii) Marine gas turbines;
- (b) Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering gear systems;
- (c) Operation, testing and maintenance of electrical and control equipment;
- (d) Operation and maintenance of cargo handling equipment and deck machinery;
- (e) Detection of machinery malfunction, location of faults and action to prevent damage;
- (f) Organization of safe maintenance and repair procedures;

- (g) Methods of, and aids for, fire prevention, detection and extinction;
- (h) Methods and aids to prevent pollution of the environment by ships;
- (i) Regulations to be observed to prevent pollution of the marine environment;
- (j) Effects of marine pollution on the environment;
- (k) First aid related to injuries which might be expected in machinery spaces and use of first aid equipment;
- (l) Functions and use of life-saving appliances;
- (m) Methods of damage control;
- (n) Safe working practices.

5. Every candidate shall possess a knowledge of international maritime law embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the engine department, particularly those concerning safety and the protection of the marine environment. The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.

6. Every candidate shall possess a knowledge of personnel management, organization and training aboard ships.

Regulation III/3. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF CHIEF ENGINEER OFFICERS AND SECOND ENGINEER OFFICERS OF SHIPS POWERED BY MAIN PROPULSION MACHINERY BETWEEN 750 kW AND 3,000 kW PROPULSION POWER

1. Every chief engineer officer and second engineer officer of a sea-going ship powered by main propulsion machinery of between 750 and 3,000 kW propulsion power shall hold an appropriate certificate.

2. Every candidate for certification shall:

- (a) Satisfy the Administration as to medical fitness, including eyesight and hearing;
- (b) Meet the requirements for certification as an engineer officer in charge of a watch; and
 - (i) For certification as second engineer officer, have not less than 12 months' approved sea-going service as assistant engineer officer or engineer officer;
 - (ii) For certification as chief engineer officer, have not less than 24 months' approved sea-going service of which not less than 12 months shall be served while qualified to serve as second engineer officer;
- (c) Have attended an approved practical fire-fighting course;
- (d) Have passed appropriate examination to the satisfaction of the Administration. Such examination shall include the material set out in the Appendix to this Regulation, except that the Administration may vary the requirements for examination and sea-going service for officers of ships engaged on near-coastal voyages, bearing in mind the types of automatic and remotely operated controls with which such ships are fitted and the effect on the safety of all ships which may be operating in the same waters.

3. Training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

4. The level of knowledge required under the different paragraphs of the Appendix may be varied according to whether the certificate is being issued at chief engineer officer or second engineer officer level.

5. Every engineer officer who is qualified to serve as second engineer officer of ships powered by main propulsion machinery of 3,000 kW propulsion power or more, may serve as chief engineer officer of ships powered by main propulsion machinery of less than 3,000 kW propulsion power provided that not less than 12 months' approved sea-going service shall have been served as an engineer officer in a position of responsibility.

APPENDIX TO REGULATION III/3. MINIMUM KNOWLEDGE REQUIRED FOR CERTIFICATION OF CHIEF ENGINEER OFFICERS AND SECOND ENGINEER OFFICERS OF SHIPS POWERED BY MAIN PROPULSION MACHINERY OF BETWEEN 750 kW AND 3,000 kW PROPULSION POWER

1. The syllabus given below is compiled for examination of candidates for certification as chief engineer officer or second engineer officer of ships powered by main propulsion machinery of between 750 kW and 3,000 kW propulsion power. Bearing in mind that a second engineer officer shall be in a position to assume the responsibilities of the chief engineer officer at any time, examination in these subjects shall be designed to test the candidate's ability to assimilate all available information that affects the safe operation of the ship's machinery.

2. With respect to paragraphs 3(d) and 4(a) below, the Administration may omit knowledge requirements for types of propulsion machinery other than those machinery installations for which the certificate to be awarded shall be valid. A certificate awarded on such a basis shall not be valid for any category of machinery installation which has been omitted until the engineer officer proves to be competent in these items to the satisfaction of the Administration. Any such limitation shall be stated in the certificate.

3. Every candidate shall possess sufficient elementary theoretical knowledge to understand the basic principles involved in the following subjects:

- (a) Combustion processes;
- (b) Heat transmission;
- (c) Mechanics and hydromechanics;
- (d) (i) Marine diesel engines;
(ii) Marine steam propulsion plant;
(iii) Marine gas turbines;
- (e) Steering gear systems;
- (f) Properties of fuels and lubricants;
- (g) Properties of materials;
- (h) Fire-extinguishing agents;
- (i) Marine electrical equipment;
- (j) Automation, instrumentation and control systems;
- (k) Ship construction, including damage control;
- (l) Auxiliary systems.

4. Every candidate shall possess adequate practical knowledge, in at least the following subjects:

- (a) Operation and maintenance of:
 - (i) Marine diesel engines;
 - (ii) Marine steam propulsion plant;
 - (iii) Marine gas turbines;
- (b) Operation and maintenance of auxiliary machinery systems, including steering gear systems;
- (c) Operation, testing and maintenance of electrical and control equipment;
- (d) Operation and maintenance of cargo handling equipment and deck machinery;
- (e) Detection of machinery malfunction, location of faults and action to prevent damage;
- (f) Organization of safe maintenance and repair procedures;
- (g) Methods of, and aids for, fire prevention, detection and extinction;
- (h) Regulations to be observed regarding pollution of the marine environment and methods and aids to prevent such pollution;

- (i) First aid related to injuries which might be expected in machinery spaces and use of first aid equipment;
- (j) Functions and use of life-saving appliances;
- (k) Methods of damage control with specific reference to action to be taken in the event of flooding of sea water into the engine room;
- (l) Safe working practices.

5. Every candidate shall possess a knowledge of international maritime law as embodied in international agreements and conventions as they affect the specific obligations and responsibilities of the engine department, particularly those concerning safety and the protection of the marine environment. The extent of knowledge of national maritime legislation is left to the discretion of the Administration but shall include national arrangements for implementing international agreements and conventions.

6. Every candidate shall possess a knowledge of personnel management, organization and training aboard ships.

Regulation III/4. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF ENGINEER OFFICERS IN CHARGE OF A WATCH IN A TRADITIONALLY MANNED ENGINE ROOM OR DESIGNATED DUTY ENGINEER OFFICERS IN A PERIODICALLY UNMANNED ENGINE ROOM

1. Every engineer officer in charge of a watch in a traditionally manned engine room or the designated duty engineer officer in a periodically unmanned engine room on a sea-going ship powered by main propulsion machinery of 750 kW propulsion power or more shall hold an appropriate certificate.

2. Every candidate for certification shall:

- (a) Be not less than 18 years of age;
- (b) Satisfy the Administration as to medical fitness, including eyesight and hearing;
- (c) Have not less than a total of three years approved education or training, relevant to the duties of a marine engineer;
- (d) Have completed an adequate period of sea-going service which may have been included within the period of three years stated in sub-paragraph (c);
- (e) Satisfy the Administration that he has the theoretical and practical knowledge of the operation and maintenance of marine machinery appropriate to the duties of an engineer officer;
- (f) Have attended an approved practical fire-fighting course;
- (g) Have knowledge of safe working practices.

The Administration may vary the requirement of sub-paragraphs (c) and (d) for engineer officers of ships powered by main propulsion machinery of less than 3,000 kW propulsion power engaged on near-coastal voyages, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

3. Every candidate shall have knowledge of the operation and maintenance of main and auxiliary machinery, which shall include knowledge of relevant regulatory requirements and also knowledge of at least the following specific items:

- (a) *Watchkeeping routines*
 - (i) Duties associated with taking over and accepting a watch;
 - (ii) Routine duties undertaken during a watch;
 - (iii) Maintenance of the machinery space log book and the significance of readings taken;
 - (iv) Duties associated with handing over a watch.

- (b) *Main and auxiliary machinery*
 - (i) Assisting in the preparation of main machinery and preparation of auxiliary machinery for operation;
 - (ii) Operation of steam boilers, including combustion system;
 - (iii) Methods of checking water level in steam boilers and action necessary if water level is abnormal;
 - (iv) Location of common faults of machinery and plant in engine and boiler rooms and action necessary to prevent damage.
- (c) *Pumping systems*
 - (i) Routine pumping operations;
 - (ii) Operation of bilge, ballast and cargo pumping systems.
- (d) *Generating plant.* Preparing, starting, coupling and changing over alternators or generators.
- (e) *Safety and emergency procedures*
 - (i) Safety precautions to be observed during a watch and immediate actions to be taken in the event of a fire or accident, with particular reference to oil systems;
 - (ii) Safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant and equipment.
- (f) *Anti-pollution procedures.* The precautions to be observed to prevent pollution of the environment by oil, cargo residue, sewage, smoke or other pollutants. The use of pollution prevention equipment, including oily water separators, sludge tank systems and sewage disposal plant.
- (g) *First aid.* Basic first aid related to injuries which might be expected in machinery spaces.

4. Where steam boilers do not form part of a ship's machinery, the Administration may omit the knowledge requirements of paragraphs 3(b)(ii) and (iii). A certificate awarded on such a basis shall not be valid for service on ships in which steam boilers form part of a ship's machinery until the engineer officer proves to be competent in the omitted items to the satisfaction of the Administration. Any such limitations shall be stated in the certificate.

5. The training to achieve the necessary theoretical knowledge and practical experience shall take into account relevant international regulations and recommendations.

*Regulation III/5. MANDATORY MINIMUM REQUIREMENTS TO ENSURE
THE CONTINUED PROFICIENCY AND UP-DATING OF KNOWLEDGE FOR ENGINEER OFFICERS*

1. Every engineer officer holding a certificate who is serving at sea or intends to return to sea after a period ashore shall, in order to continue to qualify for sea-going service in the rank appropriate to his certificate, be required at regular intervals not exceeding five years to satisfy the Administration as to:

- (a) Medical fitness, including eyesight and hearing; and
- (b) Professional competence:
 - (i) By approved service as an engineer officer of at least one year during the preceding five years; or
 - (ii) By virtue of having performed functions relating to the duties appropriate to the grade of certificate held which is considered to be at least equivalent to the sea-going service required in paragraph 1(b)(i); or
 - (iii) By one of the following:
 - Passing an approved test; or
 - Successfully completing an approved course or courses; or

- Having completed approved sea-going service as an engineer officer for a period of not less than three months in a supernumerary capacity, or in a lower rank than that for which he holds the certificate, immediately prior to taking up the rank to which he is entitled by virtue of his certificate.

2. The course or courses referred to in paragraph 1(b)(iii) shall include, in particular, changes in the relevant international regulations and recommendations concerning the safety of life at sea and the protection of the marine environment.

3. The Administration shall ensure that the texts of recent changes in international regulations concerning the safety of life at sea and the protection of the marine environment are made available to ships under its jurisdiction.

*Regulation III/6. MANDATORY MINIMUM REQUIREMENTS FOR RATINGS
FORMING PART OF AN ENGINE ROOM WATCH*

1. The minimum requirements for a rating if forming part of an engine room watch shall be as set out in paragraph 2. These requirements are not for:

- (a) A rating nominated as the assistant to the engineer officer in charge of the watch;*
- (b) A rating who is under training;
- (c) A rating whose duties while on watch are of an unskilled nature.

2. Every rating forming part of an engine room watch shall:

- (a) Be not less than 16 years of age;
- (b) Satisfy the Administration as to medical fitness, including eyesight and hearing;
- (c) Satisfy the Administration as to:
 - (i) Experience or training regarding fire-fighting, basic first aid, personal survival techniques, health hazards and personal safety;
 - (ii) Ability to understand orders, and make himself understood in matters relevant to his duties;
- (d) Satisfy the Administration that he has:
 - (i) Shore experience relevant to his sea-going duties supplemented by an adequate period of sea-going service as required by the Administration; or
 - (ii) Undergone special training either pre-sea or on board ship, including an adequate period of sea-going service as required by the Administration; or
 - (iii) Approved sea-going service of at least six months.

3. Every such rating shall have knowledge of:

- (a) Engine room watchkeeping procedures and the ability to carry out a watch routine appropriate to his duties;
- (b) Safe working practices as related to engine room operations;
- (c) Terms used in machinery spaces and names of machinery and equipment relative to his duties;
- (d) Basic environmental protection procedures.

4. Every rating required to keep a boiler watch shall have knowledge of the safe operation of boilers, and shall have the ability to maintain the correct water levels and steam pressures.

5. Every rating forming part of an engine room watch shall be familiar with his watch-keeping duties in the machinery spaces on the ship on which he is to serve. In particular, with respect to that ship the rating shall have:

* Reference is made to Resolution 9, "Recommendation on Minimum Requirements for a Rating nominated as the Assistant to the Engineer Officer in Charge of the Watch", adopted by the International Conference on Training and Certification of Seafarers, 1978.

- (a) Knowledge of the use of appropriate internal communication systems;
- (b) Knowledge of escape routes from machinery spaces;
- (c) Knowledge of engine room alarm systems and ability to distinguish between the various alarms with special reference to fire-extinguishing gas alarms;
- (d) Familiarity with the location and use of fire-fighting equipment in the machinery spaces.

6. A seafarer may be considered by the Administration to have met the requirements of this Regulation if he has served in a relevant capacity in the engine department for a period of not less than one year within the last five years preceding the entry into force of the Convention for that Administration.

CHAPTER IV. RADIO DEPARTMENT; RADIO WATCHKEEPING AND MAINTENANCE

Explanatory note: Mandatory provisions relating to radio watchkeeping are set forth in the Radio Regulations, and the safety radio watchkeeping and maintenance provisions are set forth in the International Convention for the Safety of Life at Sea and in the Radio Regulations, as these two sets of Regulations may be amended and are in force. Attention is also directed to the relevant resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978.

Regulation IV/1. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF RADIO OFFICERS

1. Every radio officer in charge of, or performing, radio duties in a ship shall hold an appropriate certificate or certificates issued or recognized by the Administration under the provisions of the Radio Regulations, and have adequate qualifying service.

2. In addition, a radio officer shall:

- (a) Be not less than 18 years of age;
- (b) Satisfy the Administration as to medical fitness, particularly regarding eyesight, hearing and speech;
- (c) Meet the requirements of the Appendix to this Regulation.

3. Every candidate for a certificate shall be required to pass an examination or examinations to the satisfaction of the Administration concerned.

4. The level of knowledge required for certification shall be sufficient for the radio officer to carry out his radio duties safely and efficiently. In determining the appropriate level of knowledge and the training necessary to achieve that knowledge and practical ability, the Administration shall take into account the requirements of the Radio Regulations and the Appendix to this Regulation. Administrations shall also take into account the relevant resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978, and relevant IMCO recommendations.

APPENDIX TO REGULATION IV/1. MINIMUM ADDITIONAL KNOWLEDGE AND TRAINING REQUIREMENTS FOR RADIO OFFICERS

In addition to satisfying the requirements for the issue of a certificate in compliance with the Radio Regulations, radio officers shall have knowledge and training, including practical training, in the following:

- (a) The provision of radio services in emergencies, including:
 - (i) Abandon ship;
 - (ii) Fire aboard ship;
 - (iii) Partial or full breakdown of the radio station;

- (b) The operation of lifeboats, liferafts, buoyant apparatus and their equipment, with special reference to portable and fixed lifeboat radio apparatus and emergency position-indicating radio beacons;
- (c) Survival at sea;
- (d) First aid;
- (e) Fire prevention and fire-fighting with particular reference to the radio installation;
- (f) Preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
- (g) The use of the IMCO Merchant Ship Search and Rescue Manual (MERSAR) with particular reference to radiocommunications;
- (h) Ship position-reporting systems and procedures;
- (i) The use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
- (j) Radio medical systems and procedures.

*Regulation IV/2. MANDATORY MINIMUM REQUIREMENTS TO ENSURE
THE CONTINUED PROFICIENCY AND UP-DATING OF KNOWLEDGE FOR RADIO OFFICERS*

1. Every radio officer holding a certificate or certificates issued or recognized by the Administration shall, in order to continue to qualify for sea-going service, be required to satisfy the Administration as to the following:

- (a) Medical fitness, particularly regarding eyesight, hearing and speech, at regular intervals not exceeding five years; and
- (b) Professional competence:
 - (i) By approved radiocommunications service as a radio officer with no single interruption of service exceeding five years;
 - (ii) Following such interruption, by passing an approved test or successfully completing an approved training course or courses at sea or ashore, which shall include elements that are of direct relevance to the safety of life at sea and modern radiocommunication equipment and may also include radionavigation equipment.

2. When new modes, equipment or practices are being introduced aboard ships entitled to fly its flag, the Administration may require radio officers to pass an approved test or successfully complete an appropriate training course or courses, at sea or ashore, with particular reference to safety duties.

3. Every radio officer shall, to continue to qualify for sea-going service on board particular types of ships for which special training requirements have been internationally agreed upon, successfully complete approved relevant training or examinations which shall take into account relevant international regulations and recommendations.

4. The Administration shall ensure that the texts of recent changes in international regulations relating to radiocommunications and relevant to the safety of life at sea, are available to ships under its jurisdiction.

5. Administrations are encouraged, in consultation with those concerned, to formulate or promote the formulation of a structure of refresher and up-dating courses, either voluntary or mandatory, as appropriate, at sea or ashore, for radio officers who are serving at sea and especially for re-entrants to sea-going service. The course or courses shall include elements that are of direct relevance to radio duties and include changes in marine radiocommunication technology and relevant international regulations and recommendations* concerning the safety of life at sea.

* Including any IMCO recommendations concerning the development of the maritime distress system.

Regulation IV/3. MANDATORY MINIMUM REQUIREMENTS FOR CERTIFICATION OF RADIOTELEPHONE OPERATORS

1. Every radiotelephone operator in charge of, or performing, radio duties in a ship shall hold an appropriate certificate or certificates issued or recognized by the Administration under the provisions of the Radio Regulations.

2. In addition, such radiotelephone operator of a ship which is required to have a radiotelephone station by the International Convention for the Safety of Life at Sea, shall:

- (a) Be not less than 18 years of age;
- (b) Satisfy the Administration as to medical fitness, particularly regarding eyesight, hearing and speech;
- (c) Meet the requirements of the Appendix to this Regulation.

3. Every candidate for a certificate shall be required to pass an examination or examinations to the satisfaction of the Administration concerned.

4. The level of knowledge required for certification shall be sufficient for the radiotelephone operator to carry out his radio duties safely and efficiently. In determining the appropriate level of knowledge and the training necessary to achieve that knowledge and practical ability, the Administration shall take into account the requirements of the Radio Regulations and the Appendix to this Regulation. Administrations shall also take into account the relevant resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978, and relevant IMCO recommendations.

APPENDIX TO REGULATION IV/3. MINIMUM ADDITIONAL KNOWLEDGE AND TRAINING REQUIREMENTS FOR RADIOTELEPHONE OPERATORS

In addition to satisfying the requirements for the issue of a certificate in compliance with the Radio Regulations, radiotelephone operators shall have knowledge and training, including practical training, in the following:

- (a) The provision of radio services in emergencies, including:
 - (i) Abandon ship;
 - (ii) Fire aboard ship;
 - (iii) Partial or full breakdown of the radio station;
- (b) The operation of lifeboats, liferafts, buoyant apparatus and their equipment, with special reference to portable and fixed lifeboat radio apparatus and emergency position-indicating radio beacons;
- (c) Survival at sea;
- (d) First aid;
- (e) Fire prevention and fire-fighting with particular reference to the radio installation;
- (f) Preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
- (g) The use of the IMCO Merchant Ship Search and Rescue Manual (MERSAR) with particular reference to radiocommunications;
- (h) Ship position-reporting systems and procedures;
- (i) The use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
- (j) Radio medical systems and procedures.

CHAPTER V. SPECIAL REQUIREMENTS FOR TANKERS

Regulation V/1. MANDATORY MINIMUM REQUIREMENTS FOR THE TRAINING AND QUALIFICATIONS OF MASTERS, OFFICERS AND RATINGS OF OIL TANKERS

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connexion with cargo and cargo equipment on oil tankers and who have not served on board an oil tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and

- (a) An appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or
- (b) An approved oil tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of oil tankers, types of cargo, their hazards and their handling equipment, general operational sequence and oil tanker terminology.

2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:

- (a) Relevant experience appropriate to their duties on oil tankers; and
- (b) Completed a specialized training programme appropriate to their duties, including oil tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

3. Within two years after the entry into force of the Convention for a Party, a seafarer may be considered to have met the requirements of paragraph 2(b) if he has served in a relevant capacity on board oil tankers for a period of not less than one year within the preceding five years.

Regulation V/2. MANDATORY MINIMUM REQUIREMENTS FOR THE TRAINING AND QUALIFICATIONS OF MASTERS, OFFICERS AND RATINGS OF CHEMICAL TANKERS

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connexion with cargo and cargo equipment on chemical tankers and who have not served on board a chemical tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and

- (a) An appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or
- (b) An approved chemical tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of chemical tankers, types of cargo, their hazards and their handling equipment, general operational sequence and chemical tanker terminology.

2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:

- (a) Relevant experience appropriate to their duties on chemical tankers; and
- (b) Completed a specialized training programme appropriate to their duties including chemical tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

3. Within two years after the entry into force of the Convention for a Party, a seafarer may be considered to have met the requirements of paragraph 2(b) if he has served in a relevant capacity on board chemical tankers for a period of not less than one year within the preceding five years.

Regulation V/3. MANDATORY MINIMUM REQUIREMENTS FOR THE TRAINING AND QUALIFICATIONS OF MASTERS, OFFICERS AND RATINGS OF LIQUEFIED GAS TANKERS

1. Officers and ratings who are to have specific duties, and responsibilities related to those duties, in connexion with cargo and cargo equipment on liquefied gas tankers and who have not served on board a liquefied gas tanker as part of the regular complement, before carrying out such duties shall have completed an appropriate shore-based fire-fighting course; and

- (a) An appropriate period of supervised shipboard service in order to acquire adequate knowledge of safe operational practices; or
- (b) An approved liquefied gas tanker familiarization course which includes basic safety and pollution prevention precautions and procedures, layouts of different types of liquefied gas tankers, types of cargo, their hazards and their handling equipment, general operational sequence and liquefied gas tanker terminology.

2. Masters, chief engineer officers, chief mates, second engineer officers and, if other than the foregoing, any person with the immediate responsibility for loading, discharging and care in transit or handling of cargo, in addition to the provisions of paragraph 1, shall have:

- (a) Relevant experience appropriate to their duties on liquefied gas tankers; and
- (b) Completed a specialized training programme appropriate to their duties including liquefied gas tanker safety, fire safety measures and systems, pollution prevention and control, operational practice and obligations under applicable laws and regulations.

3. Within two years after the entry into force of the Convention for a Party, a seafarer may be considered to have met the requirements of paragraph 2(b) if he has served in a relevant capacity on board liquefied gas tankers for a period of not less than one year within the preceding five years.

CHAPTER VI. PROFICIENCY IN SURVIVAL CRAFT

Regulation VI/1. MANDATORY MINIMUM REQUIREMENTS FOR THE ISSUE OF CERTIFICATES OF PROFICIENCY IN SURVIVAL CRAFT

Every seafarer to be issued with a certificate of proficiency in survival craft shall:

- (a) Be not less than 17½ years of age;
- (b) Satisfy the Administration as to medical fitness;
- (c) Have approved sea-going service of not less than 12 months or have attended an approved training course and have approved sea-going service of not less than nine months;
- (d) Satisfy the Administration by examination or by continuous assessment during an approved training course that he possesses knowledge of the contents of the Appendix to this Regulation;
- (e) Demonstrate to the satisfaction of the Administration by examination or by continuous assessment during an approved training course that he possesses the ability to:
 - (i) Don a life-jacket correctly; safely jump from a height into the water; board a survival craft from the water while wearing a life-jacket;
 - (ii) Right an inverted liferaft while wearing a life-jacket;
 - (iii) Interpret the markings on survival craft with respect to the number of persons they are permitted to carry;
 - (iv) Make the correct commands required for launching and boarding the survival craft, clearing the ship and handling and disembarking from the survival craft;
 - (v) Prepare and launch survival craft safely into the water and clear the ship's side quickly;
 - (vi) Deal with injured persons both during and after abandonment;

- (vii) Row and steer, erect a mast, set the sails, manage a boat under sail and steer a boat by compass;
- (viii) Use signalling equipment, including pyrotechnics;
- (ix) Use portable radio equipment for survival craft.

APPENDIX TO REGULATION VI/1. MINIMUM KNOWLEDGE REQUIRED FOR THE ISSUE
OF CERTIFICATES OF PROFICIENCY IN SURVIVAL CRAFT

1. Types of emergency situations which may occur, such as collisions, fire, foundering.
2. Principles of survival including:
 - (a) Value of training and drills;
 - (b) Need to be ready for any emergency;
 - (c) Actions to be taken when called to survival craft stations;
 - (d) Actions to be taken when required to abandon ship;
 - (e) Actions to be taken when in the water;
 - (f) Actions to be taken when aboard a survival craft;
 - (g) Main dangers to survivors.
3. Special duties assigned to each crew member as indicated in the muster list, including the differences between the signals calling all crew to survival craft and to fire stations.
4. Types of life-saving appliances normally carried on board ships.
5. Construction and outfit of survival craft and individual items of their equipment.
6. Particular characteristics and facilities of survival craft.
7. Various types of devices used for launching survival craft.
8. Methods of launching survival craft into a rough sea.
9. Action to be taken after leaving the ship.
10. Handling survival craft in rough weather.
11. Use of painter, sea anchor and all other equipment.
12. Apportionment of food and water in survival craft.
13. Methods of helicopter rescue.
14. Use of the first aid kit and resuscitation techniques.
15. Radio devices carried in survival craft, including emergency position-indicating radio beacons.
16. Effects of hypothermia and its prevention; use of protective covers and protective garments.
17. Methods of starting and operating a survival craft engine and its accessories together with the use of fire extinguisher provided.
18. Use of emergency boats and motor lifeboats for marshalling liferafts and rescue of survivors and persons in the sea.
19. Beaching a survival craft.

FINAL ACT¹ OF THE INTERNATIONAL CONFERENCE ON TRAINING AND CERTIFICATION OF SEAFARERS, 1978

1. Pursuant to Resolution A.248(VII)² of 15 October 1971 adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization, the Organization convened an International Conference on Training and Certification of Seafarers which was held in London from 14 June to 7 July 1978. The Conference was convened in association with the International Labour Organisation.

2. Upon the invitation of the Inter-Governmental Maritime Consultative Organization the following States were represented by delegations at the Conference:

Algeria	Greece	Philippines
Angola	Grenada	Poland
Argentina	Holy See	Portugal
Australia	India	Qatar
Bahrain	Indonesia	Republic of Korea
Bangladesh	Iraq	Romania
Belgium	Ireland	Saudi Arabia
Brazil	Israel	Senegal
Canada	Italy	Singapore
Cape Verde	Ivory Coast	Somalia
Chile	Jamaica	Spain
China	Japan	Sudan
Colombia	Kenya	Sweden
Cuba	Kuwait	Switzerland
Cyprus	Liberia	Thailand
Czechoslovakia	Libyan Arab Jamahiriya	Trinidad and Tobago
Democratic Yemen	Madagascar	Union of Soviet Socialist Republics
Denmark	Malaysia	United Kingdom of Great Britain and Northern Ireland
Egypt	Mexico	United Republic of Cam- eroon
Finland	Morocco	United States of America
France	Netherlands	Uruguay
German Democratic Re- public	New Zealand	Yugoslavia
Germany, Federal Re- public of	Nigeria	
Ghana	Norway	
	Panama	
	Peru	

3. Fiji was represented at the Conference by an observer.

4. Hong Kong, an Associate Member of the Inter-Governmental Maritime Consultative Organization, sent observers to the Conference.

5. The International Labour Organisation sent to the Conference a tripartite delegation including representatives of Governments, Shipowners and Seafarers. The United Nations Environment Programme was also represented.

¹ Published for information only. The International Maritime Organization, in a communication dated 5 June 1985, informed the Secretary-General that it did not consider the Final Act of the Conference to be an integral part of the International Convention on standards of training, certification and watchkeeping for seafarers, 1978.

² Inter-Governmental Maritime Consultative Organization, *Resolutions and Other Decisions, Seventh Session*, 5-15 October 1971, p. 170.

6. The following inter-governmental organizations sent observers to the Conference:

Commission of the European Communities
League of Arab States

7. The following non-governmental organizations also sent observers to the Conference:

International Chamber of Shipping (ICS)
International Shipping Federation Ltd. (ISF)
International Confederation of Free Trade Unions (ICFTU)
International Radio-Maritime Committee (CIRM)
Oil Companies International Marine Forum (OCIMF)
International Maritime Pilots' Association (IMPA)
International Shipowners' Association (INSA)
Friends of the Earth International (FOE)
International Association of Drilling Contractors (IADC)
International Association of Institutes of Navigation (IAIN)
International Federation of Shipmasters' Associations (IFSMA)
Oil Industry International Exploration & Production Forum (E&P Forum)

8. The following liberation movement recognized by the Organization of African Unity/League of Arab States sent observers to the Conference:

Palestine Liberation Organization (PLO)

9. The Conference was opened by Mr. C. P. Srivastava, Secretary-General of the Inter-Governmental Maritime Consultative Organization. On behalf of Her Majesty's Government in the United Kingdom, Mr. S. Clinton Davis, Parliamentary Under-Secretary of State for Companies, Aviation and Shipping made a statement welcoming the delegates, emphasizing the importance of the Conference and supporting its objectives.

10. The Conference elected Mr. Tage Madsen, Head of the Danish delegation, as President of the Conference.

11. Ten Vice-Presidents of the Conference were elected, as follows:

Captain M. P. Palet (Argentina)
Captain S. A. E. Capanema (Brazil)
Mr. H. Morais (Cape Verde)
Captain G. Hausmann (German Democratic Republic)
Mr. S. Kugblenu (Ghana)
Dr. S. D. Salman Alhashim (Iraq)
Mr. J. Heringa (Netherlands)
H.E. Mr. Phan Wannamethee (Thailand)
Mr. G. Kolesnikov (USSR)
Mr. J. K. Rice-Oxley (United Kingdom)

12. The Secretariat of the Conference consisted of the following officers:
Secretary-General: Mr. C. P. Srivastava, Secretary-General of the Organization

Executive Secretary: Captain G. Kostylev

Deputy Executive Secretary: Captain W. S. G. Morrison
Secretary to the Plenary: Mr. W. de Goede

13. The Conference established the following Committees with officers indicated:

Steering Committee

Chairman: Mr. Tage Madsen (Denmark), President of the Conference

Committee I

Chairman: Mr. J. Vonau (Poland)

Vice-Chairman: The Hon. Mr. G. F. B. Cooper (Liberia)

Committee II

Chairman: Captain P. S. Vanchiswar (India)

Vice-Chairman: Mr. M. W. Ghali (Saudi Arabia)

Committee III

Chairman: Mr. T. F. Balmer (United Kingdom)

Vice-Chairman: Mr. H.-C. Oldag (Germany, Federal Republic of)

Committee IV

Chairman: Mr. O. Andersen (Norway)

Vice-Chairman: Mr. H. H. Gardner (Canada)

Drafting Committee

Chairman: Mr. J. H. Singman (United States)

Vice-Chairman: Captain Othman bin Darus (Malaysia)

Credentials Committee

Chairman: Mr. E. B. Chamfor (United Republic of Cameroon)

14. The following documentation formed the basis for the work of the Conference:

- A draft International Convention on Training and Certification of Seafarers and related Resolutions prepared by the Sub-Committee on Standards of Training and Watchkeeping of the Inter-Governmental Maritime Consultative Organization and approved by its Maritime Safety Committee;
- Proposals and comments thereon submitted to the Conference by interested governments and organizations;
- Resolutions 8 and 13 adopted by the International Conference on Tanker Safety and Pollution Prevention, 1978.

15. As a result of its deliberations, recorded in the Summary Records of the plenary sessions, the Conference adopted the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, which constitutes Attachment 1 to this Final Act.

16. The Conference also adopted the Resolutions contained in Attachment 2 to this Final Act.

17. The text of this Final Act, including its attachments, is established in a single original text in the Chinese, English, French, Russian and Spanish languages and is deposited with the Secretary-General of the Inter-Governmental Maritime Consultative Organization. Official translations of the Convention shall be prepared in the Arabic and German languages and shall be deposited with this Final Act.

18. The Secretary-General of the Inter-Governmental Maritime Consultative Organization shall send certified copies of this Final Act together with the Resolutions of the Conference, certified copies of the authentic texts of the Convention and, when they have been prepared, of the official translations of the Convention, to the Governments of the States invited to be represented at the Conference, in accordance with the wishes of those Governments.

IN WITNESS WHEREOF the undersigned have affixed their signatures to this Final Act.

DONE at London this seventh day of July one thousand nine hundred and seventy-eight.

[For signatures affixed to the Final Act, see p. 379 in volume 1362.]

ATTACHMENT 2

RESOLUTIONS ADOPTED BY THE CONFERENCE

RESOLUTION 1. OPERATIONAL GUIDANCE FOR OFFICERS
IN CHARGE OF A NAVIGATIONAL WATCH

The Conference,

Recognizing the importance of a safe and efficient navigational watch for the safety of life and property at sea and the prevention of pollution of the marine environment,

Bearing in mind the Basic Principles to Be Observed in Keeping a Navigational Watch, forming part of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Considering the need to establish operational guidance for officers in charge of a navigational watch,

Resolves:

- (a) To adopt the Recommendation on Operational Guidance for Officers in Charge of a Navigational Watch, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON OPERATIONAL GUIDANCE FOR OFFICERS
IN CHARGE OF A NAVIGATIONAL WATCH*Introduction*

1. This Recommendation contains operational guidance of general application for officers in charge of a navigational watch, which masters are expected to supplement as appropriate. It is essential that officers of the watch appreciate that the efficient performance of their duties is necessary in the interests of the safety of life and property at sea and the prevention of pollution of the marine environment.

General

2. The officer of the watch is the master's representative and his primary responsibility at all times is the safe navigation of the ship. He should at all times comply with the applicable regulations for preventing collisions at sea (see also paragraphs 22 and 23).

3. It is of special importance that at all times the officer of the watch ensures that an efficient look-out is maintained. In a ship with a separate chart room the officer of the watch may visit the chart room, when essential, for a short period for the necessary performance of his navigational duties, but he should previously satisfy himself that it is safe to do so and ensure that an efficient look-out is maintained.

4. The officer of the watch should bear in mind that the engines are at his disposal and he should not hesitate to use them in case of need. However, timely notice of intended variations of engine speed should be given where possible. He should also know the handling characteristics of his ship, including its stopping distance, and should appreciate that other ships may have different handling characteristics.

5. The officer of the watch should also bear in mind that the sound signalling apparatus is at his disposal and he should not hesitate to use it in accordance with the applicable regulations for preventing collisions at sea.

Taking over the navigational watch

6. The relieving officer of the watch should ensure that members of his watch are fully capable of performing their duties, particularly as regards their adjustment to night vision.

7. The relieving officer should not take over the watch until his vision is fully adjusted to the light conditions and he has personally satisfied himself regarding:

- (a) Standing orders and other special instructions of the master relating to navigation of the ship;
- (b) Position, course, speed and draught of the ship;
- (c) Prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;
- (d) Navigational situation, including but not limited to the following:
 - (i) Operational condition of all navigational and safety equipment being used or likely to be used during the watch;
 - (ii) Errors of gyro and magnetic compasses;
 - (iii) Presence and movement of ships in sight or known to be in the vicinity;
 - (iv) Conditions and hazards likely to be encountered during his watch;
 - (v) Possible effects of heel, trim, water density and squat* on underkeel clearance.

8. If at the time the officer of the watch is to be relieved a manoeuvre or other action to avoid any hazard is taking place, the relief of the officer should be deferred until such action has been completed.

Periodic checks of navigational equipment

9. Operational tests of shipboard navigational equipment should be carried out at sea as frequently as practicable and as circumstances permit, in particular when hazardous conditions affecting navigation are expected; where appropriate these tests should be recorded.

10. The officer of the watch should make regular checks to ensure that:

- (a) The helmsman or the automatic pilot is steering the correct course;
- (b) The standard compass error is determined at least once a watch and, when possible, after any major alteration of course; the standard and gyro compasses are frequently compared and repeaters are synchronized with their master compass;
- (c) The automatic pilot is tested manually at least once a watch;
- (d) The navigation and signal lights and other navigational equipment are functioning properly.

Automatic pilot

11. The officer of the watch should bear in mind the necessity to comply at all times with the requirements of Regulation 19, Chapter V of the International Convention for the Safety of Life at Sea, 1974. He should take into account the need to station the helmsman and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner. With a ship under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer of the watch is without assistance and has to break the continuity of the look-out in order to take emergency action. The change-over from

* *Squat*. The decrease in clearance beneath the ship which occurs when the ship moves through the water and is caused both by bodily sinkage and by change of trim. The effect is accentuated in shallow water and is reduced with a reduction in ship's speed.

automatic to manual steering and vice-versa should be made by, or under the supervision of, a responsible officer.

Electronic navigational aids

12. The officer of the watch should be thoroughly familiar with the use of electronic navigational aids carried, including their capabilities and limitations.

13. The echo-sounder is a valuable navigational aid and should be used whenever appropriate.

Radar

14. The officer of the watch should use the radar when appropriate and whenever restricted visibility is encountered or expected, and at all times in congested waters having due regard to its limitations.

15. Whenever radar is in use, the officer of the watch should select an appropriate range scale, observe the display carefully and plot effectively.

16. The officer of the watch should ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible.

17. It should be borne in mind that small or poor echoes may escape detection.

18. The officer of the watch should ensure that plotting or systematic analysis is commenced in ample time.

19. In clear weather, whenever possible, the officer of the watch should carry out radar practice.

Navigation in coastal waters

20. The largest scale chart on board, suitable for the area and corrected with the latest available information, should be used. Fixes should be taken at frequent intervals; whenever circumstances allow, fixing should be carried out by more than one method.

21. The officer of the watch should positively identify all relevant navigation marks.

Clear weather

22. The officer of the watch should take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision; such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. He should also take early and positive action in compliance with the applicable regulations for preventing collisions at sea and subsequently check that such action is having the desired effect.

Restricted visibility

23. When restricted visibility is encountered or expected, the first responsibility of the officer of the watch is to comply with the relevant rules of the applicable regulations for preventing collisions at sea, with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvres. In addition, he should:

- (a) Inform the master (see paragraph 24);
- (b) Post a proper look-out and helmsman and, in congested waters, revert to hand steering immediately;
- (c) Exhibit navigation lights;
- (d) Operate and use the radar.

It is important that the officer of the watch should know the handling characteristics of his ship, including its stopping distance, and should appreciate that other ships may have different handling characteristics.

Calling the master

24. The officer of the watch should notify the master immediately in the following circumstances:

- (a) If restricted visibility is encountered or expected;
- (b) If the traffic conditions or the movements of other ships are causing concern;
- (c) If difficulty is experienced in maintaining course;
- (d) On failure to sight land, a navigation mark or to obtain soundings by the expected time;
- (e) If, unexpectedly, land or a navigation mark is sighted or change in soundings occurs;
- (f) On the breakdown of the engines, steering gear or any essential navigational equipment;
- (g) In heavy weather if in any doubt about the possibility of weather damage;
- (h) If the ship meets any hazard to navigation, such as ice or derelicts;
- (i) In any other emergency or situation in which he is in any doubt.

Despite the requirement to notify the master immediately in the foregoing circumstances, the officer of the watch should in addition not hesitate to take immediate action for the safety of the ship, where circumstances so require.

Navigation with pilot embarked

25. If the officer of the watch is in any doubt as to the pilot's actions or intentions, he should seek clarification from the pilot; if doubt still exists, he should notify the master immediately and take whatever action is necessary before the master arrives.

Watchkeeping personnel

26. The officer of the watch should give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch including an appropriate look-out.

Ship at anchor

27. If the master considers it necessary, a continuous navigational watch should be maintained at anchor. In all circumstances, while at anchor, the officer of the watch should:

- (a) Determine and plot the ship's position on the appropriate chart as soon as practicable; when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;
- (b) Ensure that an efficient look-out is maintained;
- (c) Ensure that inspection rounds of the ship are made periodically;
- (d) Observe meteorological and tidal conditions and the state of the sea;
- (e) Notify the master and undertake all necessary measures if the ship drags anchor;
- (f) Ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;
- (g) If visibility deteriorates, notify the master and comply with the applicable regulations for preventing collisions at sea;
- (h) Ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made at all times, as required;
- (i) Take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

RESOLUTION 2. OPERATIONAL GUIDANCE FOR ENGINEER OFFICERS
IN CHARGE OF AN ENGINEERING WATCH

The Conference,

Recognizing the importance of a safe and efficient engineering watch for the safety of life and property at sea and the prevention of pollution of the marine environment,

Bearing in mind the Basic Principles to Be Observed in Keeping an Engineering Watch, forming part of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Considering the need to establish operational guidance for engineer officers in charge of an engineering watch,

Resolves:

- (a) To adopt the Recommendation on Operational Guidance for Engineer Officers in Charge of an Engineering Watch, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON OPERATIONAL GUIDANCE FOR ENGINEER
OFFICERS IN CHARGE OF AN ENGINEERING WATCH

Introduction

1. This Recommendation contains operational guidance of general application for engineer officers in charge of a watch during:

- (a) Engineering watch underway (Part I);
- (b) Engineering watch at an unsheltered anchorage (Part II).

2. The chief engineer officer should supplement this operational guidance as appropriate.

3. Every engineer officer in charge of a watch should appreciate that efficient performance of his duties is necessary in the interests of the safety of life and property at sea and the prevention of pollution of the marine environment. The term "watch" as used in this Recommendation means, as appropriate, either "group of personnel composing the watch" or "period of responsibility" during which the physical presence of an engineer officer in the machinery space may or may not be required.

4. This operational guidance including, but not limited to, the following should be taken into account on all ships.

Part I. ENGINEERING WATCH UNDERWAY

General

5. The engineer officer in charge of the watch is the chief engineer's representative and his primary responsibility, at all times, is the safe and efficient operation and upkeep of machinery affecting the safe operation of the ship. He should ensure that at all times bridge orders relating to changes in speed or direction of operation are immediately implemented.

6. The engineer officer in charge of the watch should ensure that the established watch-keeping arrangements are maintained. Under his general direction, engine room ratings, if

forming part of the watch, should assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment.

7. The engineer officer in charge of the watch should keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved. He should also ensure that adequate tours of the machinery and steering gear spaces are made for the purpose of observing and reporting equipment malfunctions or breakdowns, performing or directing routine adjustments, required upkeep and any other necessary tasks.

8. The engineer officer in charge of the watch should direct any other member of the watch to inform him of potentially hazardous conditions which may adversely affect the machinery and jeopardize the safety of life or the ship.

9. The engineer officer in charge of the watch should ensure that the machinery space watch is supervised and arrange for substitute personnel in the event of the incapacity of any watch personnel. The watch should not leave the machinery spaces unsupervised in a manner which would prevent the manual operation of the engine room plant or throttles.

10. The engineer officer in charge of the watch should take the action necessary to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.

11. The engineer officer in charge of the watch should ensure that all members of the watch are familiar with the number, location and types of fire-fighting equipment and damage control gear, their use and the various safety precautions to be observed.

12. The engineer officer in charge of the watch should be aware of potential hazards in the machinery spaces which could cause injury, and be able to administer first aid.

13. The engineer officer in charge of the watch should continue to be responsible for machinery space operations despite the presence of the chief engineer officer in the machinery spaces, until the chief engineer officer informs him specifically that he has assumed that responsibility and this is mutually understood.

Taking over the watch

14. The engineer officer in charge of the watch should not hand over the watch to the relieving engineer officer if he has reason to believe that the latter is obviously not capable of carrying out his duties effectively, in which case he should notify the chief engineer officer accordingly. The relieving engineer officer of the watch should satisfy himself that the members of his watch are apparently fully capable of performing their duties effectively.

15. The relieving engineer officer should not take over the watch until he has examined the engine room log and checked that it is in accordance with his own observations.

16. Prior to taking over the watch the relieving engineer officer should satisfy himself regarding at least the following:

- (a) Standing orders and special instructions of the chief engineer officer relating to the operation of the ship's systems and machinery;
- (b) Nature of all work being performed on machinery and systems, personnel involved and potential hazards;
- (c) Level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and special requirements for use or disposal of the contents thereof;
- (d) Condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities;
- (e) Special requirements relating to sanitary system disposals;
- (f) Condition and mode of operation of the various main and auxiliary systems;
- (g) Where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;

- (h) Where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, limit control systems, combustion control systems, fuel supply control systems and other equipment related to the operation of steam boilers;
- (i) Potentially adverse conditions resulting from bad weather, ice, contaminated or shallow water;
- (j) Special modes of operation dictated by equipment failure or adverse ship conditions;
- (k) Reports of engine room ratings relating to their assigned duties;
- (l) Availability of fire-fighting appliances.

Periodic checks of machinery

17. It is the responsibility of the engineer officer in charge of the watch to periodically inspect the machinery in his charge. Such inspection should verify that:

- (a) Main and auxiliary machinery, control systems, indicating panels and communication systems are functioning satisfactorily;
- (b) Steering system and all associated gear are functioning satisfactorily;
- (c) Water level is properly maintained in the boiler and heat exchanger equipment;
- (d) Engine or boiler exhausts indicate good combustion characteristics and soot has been blown where applicable;
- (e) Condition of the bilges with respect to water level and contamination is satisfactory;
- (f) Various piping, including control and machinery systems piping are free from leaks, functioning properly and being adequately maintained; special attention is given to pressurized oil piping.

Engine room log

18. Before going off duty, the engineer officer in charge of the watch should ensure that all events related to the main and auxiliary machinery which have occurred during the watch are suitably recorded.

Preventive and repair maintenance

19. The engineer officer in charge of the watch should co-operate with any engineer officer in charge of maintenance work during all preventive maintenance, damage control or repairs. This would include but not necessarily be limited to:

- (a) Isolating and by-passing machinery to be worked on;
- (b) Adjusting the remaining plant to function adequately and safely during the maintenance period;
- (c) Recording, in the engine room log or other suitable document, the equipment worked on and the personnel involved, the safety steps taken and by whom, for the benefit of relieving engineer officers and for record purposes;
- (d) Testing and putting into service, where necessary, the repaired machinery or equipment.

20. The engineer officer in charge of the watch should ensure that any engine room ratings who perform maintenance duties are available to assist in the manual operation of machinery in the event of automatic equipment failure.

Bridge notification

21. The engineer officer in charge of the watch should bear in mind that changes in speed, resulting from machinery malfunction or loss of steering, may imperil the safety of the ship and life at sea. The bridge should be immediately notified, in the event of fire, of impending actions in machinery spaces that may cause reduction in ship's speed, imminent steering failure, stoppage of the ship's propulsion system or any alteration in the generation of electric

power or similar threat to safety. This notification, where possible, should be accomplished before changes are made, in order to afford the bridge the maximum available time to take whatever actions are possible to avoid a potential marine casualty.

Navigation in congested waters

22. The engineer officer in charge of the watch should ensure that all machinery involved with the manoeuvring of the ship can immediately be placed in manual modes of operation when notified that the ship is in congested waters. The engineer officer should also ensure that an adequate reserve of power is available for steering and other manoeuvring requirements. Emergency steering and other auxiliary equipment should be ready for immediate operation.

Navigation during restricted visibility

23. The engineer officer in charge of the watch should ensure a permanent air or steam pressure for fog sound signals. He should be ready to respond to any bridge orders and should ensure, in addition, that auxiliary machinery used for manoeuvring is readily available.

Calling the chief engineer officer

24. The engineer officer in charge of the watch should notify the chief engineer officer without delay, in the following circumstances:

- (i) When engine damage or malfunctions occur which in his opinion are such as to endanger the safe operation of the ship;
- (ii) When malfunctions occur which in his opinion may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems;
- (iii) In emergencies or in situations when he is in doubt as to what decision or measures to take.

25. Despite the requirement to notify the chief engineer officer in the foregoing circumstances, the engineer officer in charge of the watch should in addition not hesitate to take immediate action for the safety of the ship, its machinery and crew where circumstances require.

Watchkeeping personnel

26. The engineer officer in charge of the watch should give the watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch. Routine machinery upkeep, performed as incidental tasks as a part of keeping a safe watch, should be set up as a regimen of the watch routine. Detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment throughout the ship should be performed with the cognizance of the engineer officer in charge of the watch and chief engineer officer. These repairs should be recorded.

Part II. ENGINEERING WATCH AT AN UNSHELTERED ANCHORAGE

When a ship is at anchor in an open roadstead or any other virtually "at sea" condition, the engineer officer in charge of the watch should ensure that:

- (a) An efficient watch is kept;
- (b) Periodic inspection is made of all operating and stand-by machinery;
- (c) Main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;
- (d) Measures are taken to protect the environment from pollution by the ship and that applicable pollution regulations are complied with;
- (e) All damage control and fire-fighting systems are in readiness.

RESOLUTION 3. PRINCIPLES AND OPERATIONAL GUIDANCE FOR DECK OFFICERS
IN CHARGE OF A WATCH IN PORT

The Conference,

Recognizing the importance of keeping a safe and efficient watch in port for the safety of life and property and the prevention of pollution of the marine environment,

Bearing in mind the Basic Principles to Be Observed in Keeping a Navigational Watch, forming part of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Considering the need to establish principles and operational guidance for deck officers in charge of a watch in port,

Resolves:

- (a) To adopt the Recommendation on Principles and Operational Guidance for Deck Officers in Charge of a Watch in Port, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON PRINCIPLES AND OPERATIONAL GUIDANCE
FOR DECK OFFICERS IN CHARGE OF A WATCH IN PORT

Introduction

1. This Recommendation applies to a ship safely moored or safely at anchor under normal circumstances in port. For ships at an exposed anchorage reference should be made to the additional precautions contained in Regulation II/1, "Basic Principles to Be Observed in Keeping a Navigational Watch", of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and in the "Recommendation on Operational Guidance for Officers in Charge of a Navigational Watch" adopted by the Conference. Special requirements may be necessary for special types of ships or cargo.

2. The following principles and operational guidance should be taken into account by shipowners, ship operators, masters and watchkeeping officers.

Watch arrangements

3. Arrangements for keeping a watch when the ship is in port should:

- (a) Ensure the safety of life, ship, cargo and port;
- (b) Observe international, national and local rules;
- (c) Maintain order and the normal routine of the ship.

4. The ship's master should decide the composition and duration of the watch depending on the conditions of mooring, type of the ship and character of duties.

5. A qualified deck officer should be in charge of the watch, except in ships under 500 gross register tons not carrying dangerous cargo, in which case the master may appoint whoever has appropriate qualifications to keep the watch in port.

6. The necessary equipment should be so arranged as to provide for efficient watch-keeping.

Taking over the watch

7. The officer of the watch should not hand over the watch to the relieving officer if he has any reason to believe that the latter is obviously not capable of carrying out his duties effectively, in which case he should notify the master accordingly.

8. The relieving officer should be informed of the following by the officer being relieved:

- (a) The depth of water at the berth, ship's draught, the level and time of high and low waters; fastening of the moorings, arrangement of anchors and the slip of the chain, and other features of mooring important for the safety of the ship; state of main engines and availability for emergency use;
- (b) All work to be performed on board the ship; the nature, amount and disposition of cargo loaded or remaining, or any residue on board after unloading the ship;
- (c) The level of water in bilges and ballast tanks;
- (d) The signals or lights being exhibited;
- (e) The number of crew members required to be on board and the presence of any other persons on board;
- (f) The state of fire-fighting appliances;
- (g) Any special port regulations;
- (h) The master's standing and special orders;
- (i) The lines of communication that are available between the ship and the dock staff or port authorities in the event of an emergency arising or assistance being required;
- (j) Other circumstances of importance to the safety of the ship and protection of the environment from pollution.

9. The relieving officer should satisfy himself that:

- (a) Fastenings of moorings or anchor chain are adequate;
- (b) The appropriate signals or lights are properly hoisted and exhibited;
- (c) Safety measures and fire protection regulations are being maintained;
- (d) He is aware of the nature of any hazardous or dangerous cargo being loaded or discharged and the appropriate action in the event of any spillage or fire;
- (e) No external conditions or circumstances imperil the ship and that his own ship does not imperil others.

10. If, at the moment of handing over the watch, an important operation is being performed it should be concluded by the officer being relieved, except when ordered otherwise by the master.

Keeping a watch

11. The officer of the watch should:

- (a) Make rounds to inspect the ship at appropriate intervals;
- (b) Pay particular attention to:
 - (i) The condition and fastening of the gangway, anchor chain or moorings, especially at the turn of the tide or in berths with a large rise and fall and, if necessary, take measures to ensure that they are in normal working condition;
 - (ii) The draught, underkeel clearance and the state of the ship to avoid dangerous listing or trim during cargo handling or ballasting;
 - (iii) The state of the weather and sea;
 - (iv) Observance of all regulations concerning safety precautions and fire protection;
 - (v) Water level in bilges and tanks;

- (vi) All persons on board and their location, especially those in remote or enclosed spaces;
- (vii) The exhibition of any signals or lights;
- (c) In bad weather, or on receiving a storm warning, take the necessary measures to protect the ship, personnel and cargo;
- (d) Take every precaution to prevent pollution of the environment by his own ship;
- (e) In an emergency threatening the safety of the ship, raise the alarm, inform the master, take all possible measures to prevent any damage to the ship and, if necessary, request assistance from the shore authorities or neighbouring ships;
- (f) Be aware of the state of stability so that, in the event of fire, the shore fire-fighting authority may be advised of the approximate quantity of water that can be pumped on board without endangering the ship;
- (g) Offer assistance to ships or persons in distress;
- (h) Take necessary precautions to prevent accidents or damage when propellers are to be turned;
- (i) Enter in the appropriate log-book all important events affecting the ship.

RESOLUTION 4. PRINCIPLES AND OPERATIONAL GUIDANCE FOR ENGINEER
OFFICERS IN CHARGE OF AN ENGINEERING WATCH IN PORT

The Conference,

Recognizing the importance of keeping a safe and efficient engineering watch in port for the safety of life and property and the prevention of pollution of the marine environment,

Bearing in mind the Basic Principles to Be Observed in Keeping an Engineering Watch, annexed to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Considering the need to establish principles and operational guidance for engineer officers in charge of an engineering watch in port,

Resolves:

- (a) To adopt the Recommendation on Principles and Operational Guidance for Engineer Officers in Charge of an Engineering Watch in Port, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON PRINCIPLES AND OPERATIONAL GUIDANCE FOR ENGINEER
OFFICERS IN CHARGE OF AN ENGINEERING WATCH IN PORT

Introduction

1. This Recommendation applies to a ship in service while in port, safely moored or safely at anchor and relates to the requirements for watchkeeping by engineer officers during these periods. Particular requirements may be necessary for special types of propulsion systems or

ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly inflammable materials or other special types of cargo.

Watch arrangements

2. The chief engineer officer of every ship is bound, in consultation with the master, to ensure that engineering watchkeeping arrangements are adequate to maintain a safe engineering watch while in port. When deciding the composition of the engineering watch, which may include appropriate engine room ratings, the following points are among those to be taken into account:

- (a) Type of ship;
- (b) Type and condition of the machinery;
- (c) Special modes of operation dictated by weather, ice, contaminated or shallow water, emergency conditions, damage containment or pollution abatement;
- (d) Qualifications and experience of the ratings forming part of the watch;
- (e) Safety of life, ship, cargo, port and the environment;
- (f) Observance of international, national and local rules;
- (g) Maintaining order in the normal routine of the ship.

3. Under the direction of the chief engineer officer, the engineer officer in charge of the watch is responsible for inspection and testing, as required, of all machines and equipment under his responsibility.

4. (a) On all ships of 3,000 kW propulsion power and over there should always be an engineer officer in charge of the watch.

(b) On ships of 1,500-3,000 kW propulsion power there may be, at the master's discretion and in consultation with the chief engineer officer, no engineer officer in charge of the watch, provided there is a deck officer in charge of the ship, and provided that the ship does not carry hazardous cargo in bulk.

(c) On ships of less than 1,500 kW propulsion power there need not be an engineer officer in charge of the watch, provided that the ship does not carry hazardous cargo in bulk.

5. The composition of the watch should, at all times, be adequate to ensure the safe operation of all machinery related to cargo operation, the safety of the ship, the port and its environment.

6. The engineer officer, while in charge of a watch, should not be assigned or undertake any task or duty which would interfere with his supervisory duty in respect of the ship's machinery system.

Taking over the watch

7. The engineer officer in charge of the watch should not hand over the watch to the relieving engineer officer if he has any reason to believe that the latter is obviously not capable of carrying out his duties effectively, in which case he should notify the chief engineer officer accordingly. The relieving engineer officer of the watch should satisfy himself that the members of his watch are apparently fully capable of performing their duties effectively.

8. Prior to taking over the watch, the relieving engineer officer should be informed by the engineer officer in charge of the watch as to:

- (a) Standing orders of the day, any special orders relating to the ship operations, maintenance functions, repairs to the ship's machinery or control equipment;
- (b) Nature of all work being performed on machinery and systems on board ship, personnel involved and potential hazards;
- (c) Level and condition, where applicable, of water or residue in bilges, ballast tanks, slop tanks, sewage tanks, reserve tanks and special requirements for use or disposal of the contents thereof;

- (d) Any special requirements relating to sanitary system disposals;
- (e) Condition and state of readiness of portable fire-extinguishing equipment and fixed fire-extinguishing installations and fire detection systems;
- (f) Authorized repair personnel on board engaged in engineering activities, their work location and repair functions; other authorized persons and required crew;
- (g) Any port regulations pertaining to ship effluents, fire-fighting requirements, and ship readiness, particularly during potential conditions of bad weather;
- (h) Lines of communication available between the ship and shoreside personnel, including port authorities, in the event of an emergency arising or assistance being required;
- (i) Other circumstances of importance to the safety of the ship, its crew, cargo and the protection of the environment from pollution;
- (j) Procedures for notifying the appropriate authority of environmental pollution resulting from engineering activities.

9. The relieving engineer officer before assuming charge of the watch should:

- (a) Satisfy himself that he is fully aware of all standing and special orders relating to operations, maintenance functions, and repairs to the ship's machinery and control equipment;
- (b) Be familiar with existing and potential sources of power, heat and lighting and their distribution;
- (c) Know the availability and condition of ship's fuel, lubricants and all water supplies;
- (d) Be familiar with the ship's ballast system and its controls;
- (e) Verify the presence of appropriate engine room ratings and satisfy himself that they are physically capable of performing duties effectively;
- (f) Be aware of cargo activities, status of maintenance and repair functions and all other operations affecting the watch;
- (g) Be aware of auxiliary machinery in use for passenger or crew accommodation services, cargo operations, operational water supplies and exhaust systems;
- (h) Be aware of the port requirements for pollution prevention and proper operation of on-board equipment to meet these requirements;
- (i) Be aware of all regulations concerning safety precautions and fire protection and of the means of communication with the shore fire service;
- (j) Be familiar with all shipboard detection and alarm systems and the appropriate response to the activation of those systems;
- (k) Familiarize himself as to the availability and operation of all fire detection alarm and extinguishing systems, method of fire containment, types of portable extinguishing equipment on board and their most effective use;
- (l) Be familiar with the location and use of the equipment provided for the safety of life in the presence of a hazardous or toxic environment;
- (m) Ascertain that materials for administration of emergency first aid are readily available, particularly those required for the treatment of burns and scalds;
- (n) Be aware of all means of communication on board and communications between ship and appropriate shore authorities;
- (o) Be ready to prepare the ship and its machinery, as far as is possible, for stand-by or emergency conditions as required.

Keeping a watch

10. The engineer officer in charge of the watch should pay particular attention to:

- (a) Observance of all orders, special operating procedures and regulations concerning hazardous conditions and their prevention in all areas in his charge;

- (b) Instrumentation and control systems, monitoring of all power supplies, components and systems in operation;
 - (c) Techniques, methods and procedures necessary to prevent violation of the pollution regulations of the local authorities;
 - (d) State of the bilges.
11. The engineer officer in charge of the watch should:
- (a) In emergencies, sound the alarm when in his opinion the situation so demands, and take all possible measures to prevent damage to the ship, its cargo and persons on board;
 - (b) Be aware of the cargo officer's needs relating to the equipment required in the loading or unloading of the cargo and the additional requirements of the ballast and other ship stability control systems;
 - (c) Make frequent tours of inspection to determine possible equipment malfunction or failure and take immediate remedial actions to ensure the safety of the ship, cargo operations, the port and its environment;
 - (d) Ensure that the necessary precautions are taken, within his responsibility, to prevent accidents or damage to the various electrical, hydraulic, pneumatic and mechanical systems of the ship;
 - (e) Ensure that all important events affecting the operation, adjustment or repair of the ship's machinery are satisfactorily recorded.

**RESOLUTION 5. BASIC GUIDELINES AND OPERATIONAL GUIDANCE RELATING TO
SAFETY RADIO WATCHKEEPING AND MAINTENANCE FOR RADIO OFFICERS**

The Conference,

Recognizing the importance of efficient safety radio watchkeeping and maintenance for the safety of life and property at sea,

Bearing in mind the provisions of the Radio Regulations annexed to the International Telecommunication Convention and of the International Convention for the Safety of Life at Sea,

Considering the need to establish basic guidelines and operational guidance on these matters for radio officers,

Resolves:

- (a) To adopt the Recommendation on Basic Guidelines and Operational Guidance Relating to Safety Radio Watchkeeping and Maintenance for Radio Officers, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

**ANNEX. RECOMMENDATION ON BASIC GUIDELINES AND OPERATIONAL GUIDANCE RELATING TO
SAFETY RADIO WATCHKEEPING AND MAINTENANCE FOR RADIO OFFICERS**

Introduction

1. Governments should direct the attention of shipowners, ship operators, masters and radio watchkeeping personnel to the following guidelines and operational guidance which

should be complied with to ensure that an adequate safety radio watch is maintained while a ship is at sea.

2. In taking account of the guidelines given in this Recommendation, the Radio Regulations annexed to the International Telecommunication Convention,¹ the International Convention for the Safety of Life at Sea² and other relevant international agreements should be complied with.

3. No provision of this Recommendation in any way amends or alters any provisions contained in the Radio Regulations or Safety Convention and, in the event of any conflict, the Radio Regulations and Safety Convention prevail.

4. In addition, this Recommendation is not intended to preclude in any way future development of the maritime safety system.

A. *Basic guidelines to be observed*

5. The master of every ship should require that:

- (a) The radio watch is maintained in accordance with the relevant provisions of the Radio Regulations and the Safety Convention;
- (b) The equipment is maintained in an efficient working condition.

6. Basic guidelines including, but not limited to, the following should be taken into account on all ships:

- (a) A continuous watch should be maintained on the distress frequency of 500 kHz by the radio officer during his period of watch using headphones or loudspeaker and at other times by the use of the radiotelegraph auto alarm;
- (b) Watch, as may be required by international agreements, should also be maintained on other distress frequencies;
- (c) Safety radio services should be provided to own and other ships;
- (d) Mandatory radiocommunication equipment should be maintained to ensure that, at all times, it is in an efficient operating condition;
- (e) When the radio officer is permitted to discontinue his watch in order to perform other duties in compliance with the Safety Convention or to handle traffic on another frequency or perform other essential radio duties, the radiotelegraph auto alarm should be used if aural reception is impracticable; nevertheless during silence periods, aural watch should be maintained as provided in sub-paragraph (h);
- (f) While at sea when the radio officer is not on duty, the reserve radiotelegraph transmitter and reserve receiver should be tuned to 500 kHz;
- (g) While at sea, the radiotelegraph auto alarm should be tested whenever it is brought into and taken out of operation; if found to be not operating effectively, the master or officer in charge of the navigational watch should be immediately informed;
- (h) During silence periods that occur in watchkeeping hours steps should be taken to watch the frequency 500 kHz to ensure reception of distress and other urgent transmissions which can be done by searching the band 495 to 505 kHz;
- (i) The ship's position, regularly updated, should be available and, at the order of the master, prominently displayed at the operating position; where applicable it should be entered into automatic distress alerting devices;
- (j) A list of ships (names, call signs and positions if known) in the vicinity should be maintained;
- (k) Distress, urgency and safety messages should be passed to the officer in charge of the navigational watch, immediately on receipt;

¹ See note 2 on p. 191 of this volume.

² See note 2 on p. 208 of this volume.

- (l) Routine weather and navigational warning messages for the area the ship is traversing and, at the request of the master, for other areas, should be passed to the officer in charge of the navigational watch immediately on receipt;
- (m) On ships participating in a ship position-reporting system, relevant position messages, authorized by the master, should be sent as necessary;
- (n) The additional watchkeeping hours, not fixed by the Radio Regulations, should be arranged to cover, as far as possible, traffic lists, weather forecasts, navigational warning schedules, transmission of weather observations (in the case of voluntary observing ships) and best high frequency propagation condition times;
- (o) Radiotelephone watchkeeping should be maintained in accordance with the Safety Convention;
- (p) Unauthorized transmissions, especially those made during silence periods or during distress transmissions, and any harmful interference incidents should, if possible, be identified, logged and brought to the attention of the Administration, with an appropriate extract from the radio log in compliance with the Radio Regulations;
- (q) The radio watchkeeper's duties should be so arranged that the efficiency of the watchkeeper is not impaired by fatigue and he is rested and otherwise fit when going on duty;
- (r) Precautions should be taken to ensure that the radio watchkeeper's hearing is not damaged by exposure to excessive extraneous noises on the ship. When unavoidably exposed to excessive noise, hearing protection devices should be worn.

B. Operational guidance relating to safety radio watchkeeping and maintenance

General

7. Before the commencement of a voyage, the radio officer in charge should ensure that:
- (a) All radio equipment for which the radio officer is responsible is in an efficient working condition and accumulator batteries are sufficiently charged;
 - (b) All documents and supplements required by international agreements, notices to ship radio stations and additional documents required by the controlling Administration are available and discrepancies are reported to the master;
 - (c) The radio room clock is accurate;
 - (d) Antennae are correctly positioned, undamaged and properly connected.
8. The radio officer should ensure that all relevant documents are corrected and amended in accordance with the latest supplements.
9. When the radio officer first joins a ship, he should ensure that all technical manuals, spares, test instruments and tools for the radiocommunication equipment and, at the discretion of the master, for radio navigational equipment are on board. Discrepancies should be reported to the master.

Watchkeeping duties

10. *Radiotelegraph.* (a) Immediately prior to sailing from a port, the radio officer should, where practicable, update routine weather and navigational warning messages for the area the ship will be traversing and, at the request of the master, for other areas and pass such messages to the master.
- (b) On sailing from a port and opening the station, the radio officer should:
 - (i) Listen on the distress frequency 500 kHz for a possible existing distress situation;
 - (ii) Send TR (name, position and destination, etc.) to the local coast station and other appropriate coast stations from which traffic may be expected;
 - (iii) Copy weather forecasts and navigational warnings on the first relevant transmissions.

- (c) When the station is open, the radio officer should:
- (i) Enable chronometer checks to be made by relaying time signals to the chartroom at least once a day;
 - (ii) Check the radio room clock against standard time signals at least once a day;
 - (iii) On selected ships, endeavour to clear as many of the OBS (weather report) messages as are available, via relevant coast stations, during watchkeeping hours;
 - (iv) Send a TR when entering the area of a medium frequency or other coast station from which traffic might be expected; the coast station concerned should be informed on leaving its service area;
 - (v) As far as possible, listen to traffic lists transmitted by coast stations from which traffic might be expected; on hearing his ship's call sign, reply as soon as possible;
- (d) When closing the station on arrival at a port, the radio officer should:
- (i) Advise the local coast station and other coast stations with which contact has been maintained of the ship's arrival and closing of the station;
 - (ii) Ensure that antennae are earthed;
 - (iii) Check that accumulator batteries are sufficiently charged.

11. *Radiotelephone.* (a) Whenever a radio watch on 2,182 kHz is being kept in the radio room, this frequency should be monitored for distress, urgency or safety transmissions.

(b) Where any such transmissions are intercepted, the procedure detailed in the relevant sections of paragraphs 12, 13 and 14 should be followed.

(c) Times of opening and closing any monitoring watch on 2,182 kHz and details of any distress, urgency or safety traffic, which are not repetitions of those already heard on 500 kHz, should be entered in the radio log.

Action to be taken in cases of distress, urgency and safety

12. *Distress.* The distress call should have absolute priority over all other transmissions. All stations which hear it should immediately cease any transmissions capable of interfering with distress traffic.

- (a) In cases of distress affecting own ship, the radio officer should:
- (i) Obtain from the bridge the ship's actual or estimated position or, if not available, use the last known position or the true bearing and distance from a fixed geographical position; when using the last known position, time of such position should be stated in GMT;
 - (ii) Normally transmit on 500 kHz using the radiotelegraph distress procedure in accordance with the Radio Regulations; the distress call and message should be sent only on the authority of the master or person responsible for the ship; other suitable international distress frequencies (or other frequencies), if necessary, may be used in accordance with the Radio Regulations;
 - (iii) Repeat at intervals, especially during silence periods, the distress message, preceded by the alarm signal, if necessary, and the distress call, until an answer is received;
 - (iv) If no answer is received to a distress message sent on a distress frequency, repeat the message on any other available frequency on which attention might be attracted;
 - (v) Use any means in order to attract attention;
 - (vi) Pass to the master all distress communications immediately on receipt;
 - (vii) If the ship has to be abandoned before being located by other ships, set the radio apparatus for continuous emission, if considered necessary and circumstances permit.
- (b) In cases of distress affecting other ships, the radio officer should:
- (i) Copy the message and pass it to the bridge;

- (ii) At the same time, if possible, ensure that a direction finder bearing is obtained; if the bearing is relative, the ship's heading should also be noted;
 - (iii) If, beyond any doubt, his ship is in the vicinity of the distress, immediately acknowledge receipt; in areas where reliable communications with coast stations are practicable, defer acknowledgement for a short interval so that a coast station may acknowledge receipt;
 - (iv) If, beyond any doubt, his ship is not in the vicinity of the distress, allow a short interval of time to elapse before acknowledging receipt of the message to permit nearer stations to acknowledge receipt without interference;
 - (v) Not acknowledge receipt:
 - (1) When his ship is a long distance away from the distress and not in a position to render assistance, except when a distress message is heard which has not been acknowledged;
 - (2) Of a distress message transmitted by a coast station until the master has confirmed that the ship is in a position to render assistance;
 - (vi) In the case indicated in sub-paragraph (v)(1); and when:
 - (1) It has been learned that a ship in distress is not itself in a position to transmit a distress message; or
 - (2) The master considers that further help is necessary; or
 - (3) An emergency position-indicating radio beacon signal has been received while no distress or urgency traffic is being passed;transmit a distress message using the appropriate transmitter on full power, whenever possible preceded by the alarm signal, using the DDD procedures on 500 kHz or "May-day Relay" procedures on 2,182 kHz or 156.8 MHz, as appropriate, or on any other frequency which may be used in case of distress and take all other steps, as if it were own ship in distress, to notify authorities who may be able to render assistance;
 - (vii) On the order of the master, transmit as soon as possible own ship's name, position, speed and estimated time of arrival at the distress position and, if the position of the ship in distress appears doubtful, the true bearing of the ship in distress preceded by the abbreviation QTE and classification of the bearing;
 - (viii) Record and pass to the bridge other acknowledgements, positions and times of arrival and other relevant distress traffic;
 - (ix) If control of distress traffic is taken over by a coast station or a ship more favourably placed to assist the one in distress, normally work with that control station;
 - (x) Remain on continuous watch until the distress ends; if adequate assistance is being provided by closer ships or contact has been made with coast stations and no possibility exists of being required to provide relay facilities or specialized advice, normal watch may be resumed.
13. *Urgency.* (a) In cases of urgency affecting own ship, the radio officer should:
- (i) Using the radiotelegraph urgency procedure, send, only on the authority of the master, the urgency signal and message on 500 kHz or on any other frequency which may be used in case of distress. In the case of a long message, or a medical call, or when repeating the message in areas of heavy traffic, transmit the message on a working frequency. In such cases include in the call details of the frequency on which the urgency message will be transmitted;
 - (ii) If the urgency message concerns the loss of a person or persons overboard, be permitted to precede the call by the alarm signal, only when the assistance of other ships is required and cannot be satisfactorily obtained by the use of the urgency signal;

- (iii) If the message is addressed to a particular station, establish contact with that station before transferring to a working frequency;
- (iv) If the message is addressed to all stations, allow a reasonable period before repeating the call and transmitting the message;
- (v) When an urgency addressed to all stations is ended and action is no longer necessary, send a message of cancellation on the relevant frequency addressed to all stations.

(b) In cases of urgency affecting other ships, the radio officer should:

- (i) As the urgency signal has priority over all other communications except distress, take care not to interfere with it or the transmission of the message that follows the urgency signal;
- (ii) Copy the message and pass it to the bridge;
- (iii) Continue to listen for at least three minutes; at the end of that period, if no urgency message has been heard, notify a coast station, if possible, of the receipt of the urgency signal; thereafter resume normal working;
- (iv) If the urgency signal is addressed to a particular station, be permitted to continue working on frequencies other than that in use for the transmission of the urgency signal or urgency message; all assistance should be given, if required, in the clearance of the urgency message to the addressee, for example by re-transmission.

14. *Safety.* (a) When a safety message is to be transmitted, the radio officer should:

- (i) Send the safety signal towards the end of the first available silence period and call on one or more of the international distress frequencies (500 kHz, 2,182 kHz and 156.8 MHz where applicable) or on any other frequency which may be used in case of distress;
- (ii) Immediately after the end of the silence period send the safety message which follows the call, on a working frequency, making a suitable announcement to this effect at the end of the call; outside regions of heavy traffic short safety messages may be sent exceptionally on the frequency 500 kHz;
- (iii) Transmit safety calls and messages, which contain important meteorological and navigational warnings, as soon as possible and repeat them at the end of the first silence period that follows.

(b) On hearing the safety signal,* the radio officer should:

- (i) Not interfere with the signal or message;
- (ii) Copy the message and pass it to the bridge;
- (iii) Give every assistance in disseminating, as necessary, such messages when addressed to "all ships" and re-transmit to the addressee messages of a more limited nature, if so requested.

Other duties

15. *Log-keeping.* (a) The radio log should be kept in compliance with the requirements of the Radio Regulations and the Safety Convention.

(b) The radio log should be kept in the radio room and should be available for inspection by authorized officials of the Administration; the times of all entries should be recorded in GMT.

(c) The radio log should at all times be available for inspection by the master and the radio officer should call his attention to any entry important to safety.

16. *Essential tests.* While the ship is at sea, tests should be made by the radio officer in accordance with the Safety Convention. In addition, the following should be carried out to facilitate early detection of developing faults:

* A coast station may broadcast an urgent cyclone warning as a safety message preceded by the alarm signal and the safety signal.

- (a) At least once a week check the automatic keying device for signal formation and timing;
- (b) At regular intervals check all metered test points in the radiocommunication equipment and record abnormalities;
- (c) When possible test the portable and fixed radio apparatus in a survival craft afloat; in any event, every three months test the portable and fixed radio apparatus in a survival craft on board ship; when the tests are undertaken with the antenna rigged, efforts should be made to establish contact with other ships or coast stations provided no interference is caused to other transmissions; when non-chargeable batteries are used in the survival craft radio equipment, they should be replaced at the intervals recommended by the manufacturers or earlier if performance on test is degraded;
- (d) At intervals, when within sight of a radio beacon, in co-operation with a navigating officer, check bearings should be taken to verify the accuracy of the direction finder calibration curve on as many ship's headings as possible; the results should be recorded and reported to the master; possible shipboard causes of errors, including alteration to wire rigging and unauthorized antennae should be sought and reported to the master.

17. *Demonstration of portable radio apparatus for survival craft.* Whenever possible, the operation of the portable radio apparatus for survival craft should be demonstrated to new crew members in order to familiarize them in its use. When the apparatus is tested in survival craft, the rigging and operation of it should be demonstrated to as many crew members as possible.

18. *Demonstration of reserve radiotelegraph equipment.* Where Administrations require an instruction chart and related numbering indicators on the reserve radiotelegraph equipment, including automatic keying devices, suitable persons designated by the master to use such equipment in an emergency when the radio officer is incapacitated for any reason, should be given demonstrations in such procedure at appropriate intervals.

19. *Maintenance.* (a) While the ship is at sea or in port, the radio officer should ensure that all equipment in his charge is effectively maintained. To this end, he should follow the procedures in the "Guidelines for an Effective Preventive Maintenance Programme" in the Appendix, attached to this Recommendation.

(b) *Records.* A separate "Equipment Maintenance and Repair Record" should be kept for logging all maintenance undertaken, as well as all observed abnormalities, for future reference and correlation with fault occurrence. It should be indexed by major equipment type and be retained aboard the vessel. The record should include details of:

- (i) Date and time of preventive or corrective maintenance procedures, including total time out of service;
- (ii) Equipment involved;
- (iii) Condition of equipment at outset of procedure;
- (iv) Abnormalities noted, if any;
- (v) Any preventive maintenance steps taken (where no abnormality is noted) and corrective maintenance procedures undertaken where abnormality is found;
- (vi) Components repaired or adjusted;
- (vii) Condition of the equipment after steps taken under (v) and (vi) above are completed;
- (viii) Spare parts consumed.

Additional provisions for ships carrying more than one radio officer

20. When taking over the radio watch, the relieving radio officer should arrive in the radio room in sufficient time to:

- (a) Check whether distress, urgency or safety traffic is in progress;
- (b) Check that the updated ship's position is available and displayed at the usual place;

- (c) Enquire as to special orders or requests, including messages expected and unusual weather reports requested;
 - (d) "Sign on" in the radio log as soon as the outgoing radio officer has completed entries and "signed off".
21. When handing over the radio watch, the radio officer on watch should:
- (a) Pass on any special orders or requests to his relief and inform him of any abnormal propagation conditions or other items of direct concern;
 - (b) Complete the radio log and "sign off".

APPENDIX. GUIDELINES FOR AN EFFECTIVE PREVENTIVE MAINTENANCE PROGRAMME

1. *Objectives.* Preventive maintenance is designed to:

- (a) Keep the equipment operating for the longest possible period of time without breakdown;
- (b) Maintain it at optimum operating efficiency;
- (c) Protect it from detrimental effects of vibration, dirt, dust, moisture, corrosion and temperature;
- (d) Prolong its useful life.

It must be recognized that in many types of equipment and devices modern manufacturing techniques are producing high density electronic packages of high integrity for which the advice of the equipment manufacturers should be taken into account in incorporating individual equipment into regular preventive maintenance schedules.

2. *General procedures applicable to all equipment*

(a) *Safeguarding personnel.* When working with dangerous voltages, all necessary safety precautions should be observed, and a "standby man" should be present when reaching into such equipment.

(b) *Safeguarding equipment*

- (i) Handle components, circuits and cables carefully, use tools with care, provide good mechanical mating of plugs, screws and threads;
- (ii) Maintain an inventory of appropriate spares and requisition replacements for consumed items;
- (iii) Inspect all equipment for dirt, corrosion, signs of overheating, foreign matter, poor connections and displaced components or wires;
- (iv) Inspect all equipment for mechanical insecurity, including loose screws, contacts and components;
- (v) Where required, lubricants should be applied with care;
- (vi) In the absence of other instructions faulty components should be disposed of and not kept among spares; in exceptional cases, when no spares are on board, doubtful components may be kept and clearly marked "doubtful" until new spares are provided.

3. *Maintenance and care of tools and test instruments.* The tools and instruments should not be misused. Instruments should, if necessary, be sent ashore for calibration.

4. *Antennae and earthing system care.* The protection against antenna breakage should be inspected to ensure proper fitting and condition. All antennae should be regularly inspected for snagging or weakening of wire antenna and fracture of rod antenna, and any necessary remedial action taken. Insulation, including insulators in whistle lanyards, triatics, stays and direction finder loops, should be cleaned regularly and, where possible, any damaged items replaced. Earthing straps, including those on stays, should be inspected and tested regularly for low resistance contact.

RESOLUTION 6. BASIC GUIDELINES AND OPERATIONAL GUIDANCE RELATING TO
SAFETY RADIO WATCHKEEPING FOR RADIOTELEPHONE OPERATORS

The Conference,

Recognizing the importance of efficient safety radio watchkeeping for the safety of life and property at sea,

Bearing in mind the provisions of the Radio Regulations annexed to the International Telecommunication Convention and of the International Convention for the Safety of Life at Sea,

Considering the need to establish basic guidelines and operational guidance on these matters for radiotelephone operators,

Resolves:

(a) To adopt the Recommendation on Basic Guidelines and Operational Guidance Relating to Safety Radio Watchkeeping for Radiotelephone Operators annexed to this Resolution;

(b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

(a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;

(b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON BASIC GUIDELINES AND OPERATIONAL GUIDANCE RELATING TO
SAFETY RADIO WATCHKEEPING FOR RADIOTELEPHONE OPERATORS

Introduction

1. Governments should direct the attention of shipowners, ship operators, masters and radio watchkeeping personnel to the following guidelines and operational guidance which should be complied with to ensure that an adequate safety radio watch is maintained while a ship is at sea.

2. In taking account of the guidelines given in this Recommendation, the Radio Regulations annexed to the International Telecommunication Convention,* the International Convention for the Safety of Life at Sea** and any other relevant international agreements should be complied with.

3. No provision of this Recommendation in any way amends or alters any provisions contained in the Radio Regulations or Safety Convention and, in the event of any conflict, the Radio Regulations and Safety Convention prevail.

4. In addition, this Recommendation is not intended to preclude in any way future development of the maritime safety system.

A. *Basic guidelines to be observed*

5. The master of every ship to which the Safety Convention applies should require that:

(a) The radiotelephone watch is maintained in accordance with the relevant provisions of the Radio Regulations and the Safety Convention;

(b) The equipment and, where provided, the reserve source of energy are maintained in an efficient working condition.

* Hereinafter referred to as the Radio Regulations.

** Hereinafter referred to as the Safety Convention.

6. The master of every ship to which paragraph 5 does not apply, should require that radiotelephone watch is adequately maintained as determined by the Administration, taking into account the Radio Regulations.

7. The master should ensure that the radiotelephone station is controlled by a radiotelephone operator and, in an emergency concerning own or other ships, that the radiotelephone station is properly manned.

8. Basic guidelines including, but not limited to, the following should be taken into account on all ships:

- (a) A continuous watch should be maintained on the distress frequency 2,182 kHz in compliance with the Safety Convention; on ships not covered by the Safety Convention, the radiotelephone watch should be kept as prescribed by the Administration;
- (b) Watch should be maintained on VHF in compliance with the Radio Regulations and the Safety Convention;
- (c) Safety radiotelephone services should be provided to own and other ships;
- (d) During silence periods the mute should be lifted from the filtered loudspeaker and auto alarm and an adequate volume level set to ensure that no distress messages are missed; since repetitions of urgency and safety messages may be transmitted at the end of silence periods, this aural watch should be continued for an adequate period after the end of each silence period;
- (e) Distress, urgency and safety messages should be passed to the master immediately on receipt;
- (f) Routine weather and navigational warning messages for the area the ship is traversing, and for other areas of direct interest, should be noted;
- (g) On ships participating in a ship position-reporting system, relevant position messages, authorized by the master, should be sent as necessary.

9. Unauthorized transmissions, especially those made during silence periods or during distress transmissions and any harmful interference incidents should, if possible, be identified, logged and brought to the attention of the Administration, with an appropriate extract from the radio log in compliance with the Radio Regulations.

B. Operational guidance relating to safety radiotelephone watchkeeping

General

10. Before the commencement of the voyage, the radiotelephone operator should ensure that:

- (a) All radio equipment for which the radiotelephone operator is responsible is in an efficient working condition and accumulator batteries are sufficiently charged;
- (b) All documents and supplements required by international agreements, notices to ship radio stations and additional documents required by the controlling Administration are available and discrepancies are reported to the master;
- (c) The radio room clock is accurate;
- (d) Antennae are correctly positioned, undamaged and properly connected.

11. The radiotelephone operator should ensure that all relevant documents are corrected and amended in accordance with the latest supplements.

Watchkeeping duties

12. Immediately prior to sailing from a port, the radiotelephone operator should, where practicable, update routine weather and navigational warning messages for the area the ship will be traversing and, at the request of the master, for other areas and pass such messages to the master.

13. On sailing from a port and opening the station, the radiotelephone operator should:
- (a) Listen on the appropriate distress frequency for a possible existing distress situation;
 - (b) Send TR (name, position and destination, etc.) to the local coast station and other appropriate coast stations from which traffic may be expected;
 - (c) Copy weather forecasts and navigational warnings on the first relevant transmissions.
14. When the station is open, the radiotelephone operator should:
- (a) Check the radio clock against standard time signals at least once a day;
 - (b) Send a TR when entering the area of a coast station from which traffic might be expected; the coast station concerned should be informed on leaving its service area.
15. When closing the station on arrival at a port, the radiotelephone operator should:
- (a) Advise the local coast station and other coast stations with which contact has been maintained of the ship's arrival and closing of the station;
 - (b) Ensure that antennae are earthed;
 - (c) Check that accumulator batteries are sufficiently charged.

Action to be taken in cases of distress, urgency and safety

16. *Distress.* The distress call should have absolute priority over all other transmissions. All stations which hear it should immediately cease any transmissions capable of interfering with distress traffic.

- (a) In cases of distress affecting own ship, the radiotelephone operator should:
 - (i) Obtain from the bridge the ship's actual or estimated position or, if not available, use the last known position or the true bearing and distance from a fixed geographical position; when using the last known position, time of such position should be stated in GMT;
 - (ii) Normally transmit on 2,182 kHz, and, when appropriate, on 156.8 MHz using the radiotelephone distress procedure in accordance with the Radio Regulations; the distress call and message should be sent only on the authority of the master or person responsible for the ship; other suitable international distress frequencies (or other frequencies), if necessary, may be used in accordance with the Radio Regulations;
 - (iii) Transmit, whenever possible, the alarm signal as any ship in the vicinity keeping watch by means of a filtered loudspeaker or alarm receiver will not hear a spoken message unless first alerted by reception of the alarm signal; send the radiotelephone alarm signal, when generated by automatic means, continuously for a period of at least 30 seconds, but not exceeding one minute; when generated by other means, send the signal as continuously as practicable over a period of approximately one minute;
 - (iv) Repeat at intervals, especially during silence periods, the distress message, preceded by the alarm signal whenever possible, and the distress call, until an answer is received;
 - (v) If no answer is received to a distress message sent on a distress frequency, repeat the message on any other available frequency on which attention might be attracted;
 - (vi) Use any means in order to attract attention;
 - (vii) Pass to the master all distress communications immediately on receipt.
- (b) In cases of distress affecting other ships, the radiotelephone operator should:
 - (i) Copy the message and pass it to the master;
 - (ii) At the same time, if possible, ensure that a direction finder bearing is obtained; if the bearing is relative, the ship's heading should also be noted;
 - (iii) If, beyond any doubt, his ship is in the vicinity of the distress, immediately acknowledge receipt; in areas where reliable communications with coast stations are practicable, defer acknowledgement for a short interval so that a coast station may acknowledge receipt;

- (iv) If, beyond any doubt, his ship is not in the vicinity of the distress, allow a short interval of time to elapse before acknowledging receipt of the message to permit nearer stations to acknowledge receipt without interference;
 - (v) Not acknowledge receipt:
 - (1) When his ship is a long distance away from the distress and not in a position to render assistance, except when a distress message is heard which has not been acknowledged;
 - (2) Of a distress message transmitted by a coast station until the master has confirmed that the ship is in a position to render assistance;
 - (vi) In the case indicated in sub-paragraph (v)(1); and when:
 - (1) It has been learned that a ship in distress is not itself in a position to transmit a distress message; or
 - (2) The master considers that further help is necessary; or
 - (3) An emergency position-indicating radio beacon signal has been received while no distress or urgency traffic is being passed;

transmit a distress message using the appropriate transmitter on full power, whenever possible preceded by the alarm signal, using the "Mayday Relay" procedures on 2,182 kHz or 156.8 MHz, as appropriate, or on any other frequency which may be used in case of distress and take all other steps, as if it were own ship in distress, to notify authorities who may be able to render assistance;
 - (vii) On the order of the master, transmit as soon as possible own ship's name, position, speed and estimated time of arrival at the distress position and, if the position of the ship in distress appears doubtful, the direction finder bearing;
 - (viii) Record and pass to the master other acknowledgements, positions and times of arrival and other relevant distress traffic;
 - (ix) If control of distress traffic is taken over by a coast station or a ship more favourably placed to assist the one in distress, normally work with that control station.
17. *Urgency.* (a) In cases of urgency affecting own ship, the radiotelephone operator should:
- (i) Using the radiotelephone urgency procedure, send, only on the authority of the master, the urgency signal and message on 2,182 kHz and, when appropriate, on 156.8 MHz or on any other frequency which may be used in case of distress; in the case of a long message, or a medical call, or when repeating the message in areas of heavy traffic, transmit the message on a working frequency; in such cases, include in the call details of the frequency on which the urgency message will be transmitted;
 - (ii) If the urgency message concerns the loss of a person or persons overboard, be permitted to precede the call by the alarm signal, only when the assistance of other ships is required and cannot be satisfactorily obtained by the use of the urgency signal;
 - (iii) If the message is addressed to a particular station, establish contact with that station before transferring to a working frequency;
 - (iv) If the message is addressed to all stations, allow a reasonable period before repeating the call and transmitting the message;
 - (v) When an urgency addressed to all stations is ended and action is no longer necessary, send a message of cancellation on the relevant frequency addressed to all stations.
- (b) In cases of urgency affecting other ships, the radiotelephone operator should:
- (i) As the urgency signal has priority over all other communications, except distress, take care not to interfere with it or the transmission of the message that follows the urgency signal;
 - (ii) Copy the message and pass it to the master;

- (iii) Continue to listen for at least three minutes; at the end of that period, if no urgency message has been heard, notify a coast station, if possible, of the receipt of the urgency signal; thereafter resume normal working;
- (iv) If the urgency signal is addressed to a particular station, be permitted to continue working on frequencies other than that in use for the transmission of the urgency signal or urgency message; all assistance should be given, if required, in the clearance of the urgency message to the addressee, for example by re-transmission.

18. *Safety.* (a) When a safety message is to be transmitted, the radiotelephone operator should:

- (i) Send the safety signal towards the end of the first available silence period and call on 2,182 kHz and, when appropriate, 156.8 MHz or on any other frequency which may be used in case of distress;
- (ii) Immediately after the end of the silence period, send the safety message which follows the call on a working frequency, making a suitable announcement to this effect at the end of the call;
- (iii) Transmit safety calls and messages, which contain important meteorological and navigational warnings as soon as possible and repeat them at the end of the first silence period that follows.

(b) On hearing the safety signal,* the radiotelephone operator should:

- (i) Not interfere with the signal or message;
- (ii) Copy the message and pass it to the master;
- (iii) Give every assistance in disseminating, as necessary, such messages when addressed to "all ships" and re-transmit to the addressee messages of a more limited nature, if so requested.

Other duties

19. *Log-keeping.* (a) The radiotelephone log should be kept in compliance with the requirements of the Radio Regulations and the Safety Convention.

(b) The radiotelephone log should be kept at the place where listening watch is maintained and should be available for inspection by authorized officials of the Administration; the times of all entries should be recorded in GMT.

(c) The radiotelephone log should at all times be available for inspection by the master and the radiotelephone operator should call his attention to any entry important to safety.

20. *Maintenance.* The radiotelephone operator should:

- (a) Test accumulator batteries and, if necessary, bring them up to a sufficiently charged condition;
- (b) Inspect the protection against antenna breakage and ensure proper fitting and condition;
- (c) Inspect antennae for snagging or weakening and take any necessary remedial action;
- (d) Inspect insulators in whistle lanyards, triatics and stays, clean regularly and, where possible, replace damaged items;
- (e) Inspect weekly the condition of portable radio apparatus for survival craft.

* A coast station may broadcast an urgent cyclone warning as a safety message preceded by the radiotelephone alarm signal and the safety signal.

RESOLUTION 7. RADIO OPERATORS

The Conference,

Recognizing the importance of efficient safety radio watchkeeping and maintenance for the safety of life and property at sea,

Noting that there are ships where radiotelegraph equipment is installed but not required by the International Convention for the Safety of Life at Sea,

Bearing in mind the provisions of the Radio Regulations annexed to the International Telecommunication Convention, according to which the radiotelegraph service on such ships may be carried out by a radio operator who is the holder of a radiotelegraph operator's special certificate,

Resolves:

- (a) To adopt the following Recommendations, annexed to this Resolution:
 - (i) Recommendation on Minimum Requirements for Certification of Radio Operators;
 - (ii) Recommendation on Minimum Requirements to Ensure the Continued Proficiency and Up-dating of Knowledge for Radio Operators;
 - (iii) Recommendation on Basic Guidelines and Operational Guidance Relating to Safety Radio Watchkeeping and Maintenance for Radio Operators;
 - (iv) Recommendation on Training for Radio Operators;
- (b) To urge all Governments concerned to give effect to the contents of these Recommendations as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep these Recommendations under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To keep the Recommendation on Training for Radio Operators under review, in consultation or association, as appropriate, with other international organizations, particularly with the International Labour Organisation and the International Telecommunication Union;
- (c) To communicate this Resolution to all Governments invited to the Conference.

ANNEX 1. RECOMMENDATION ON MINIMUM REQUIREMENTS FOR
CERTIFICATION OF RADIO OPERATORS

1. Every radio operator in charge of or performing radio duties in a ship in which a radiotelegraph station is provided, but not prescribed by international agreements, should hold an appropriate certificate or certificates, issued or recognized by the Administration, under the provisions of the Radio Regulations.

2. In addition, a radio operator should:

- (a) Be not less than 18 years of age;
- (b) Satisfy the Administration as to medical fitness, particularly regarding eyesight, hearing and speech;
- (c) Meet the requirements of the Appendix to Annex 1 of this Recommendation.

3. Every candidate for a certificate should be required to pass an examination or examinations to the satisfaction of the Administration concerned.

4. The level of knowledge required for certification should be sufficient for the radio operator to carry out his radio duties safely and efficiently. In determining the appropriate level of knowledge and the training necessary to achieve that knowledge and practical ability, the Administration should take into account the requirements of the Radio Regulations and the Appendix to this Recommendation. Administrations should also take into account the other relevant resolutions adopted by the International Conference on Training and Certification of Seafarers, 1978, and relevant IMCO recommendations.

APPENDIX. MINIMUM ADDITIONAL KNOWLEDGE AND TRAINING
REQUIREMENTS FOR RADIO OPERATORS

1. In addition to the requirements for the issue of a certificate in compliance with the Radio Regulations, radio operators should have knowledge and training, including practical training, in the following:

- (a) The provision of radio services in emergencies, including:
 - (i) Abandon ship;
 - (ii) Fire aboard ship;
 - (iii) Partial or full breakdown of the radio station;
- (b) The operation of lifeboats, liferafts, buoyant apparatus and their equipment, with special reference to portable and fixed lifeboat radio apparatus and emergency position-indicating radio beacons;
- (c) Survival at sea;
- (d) First aid;
- (e) Fire prevention and fire-fighting with particular reference to the radio installation;
- (f) Preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
- (g) The use of the IMCO Merchant Ship Search and Rescue Manual (MERSAR), with particular reference to radiocommunications;
- (h) Ship position-reporting systems and procedures;
- (i) The use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
- (j) Radio medical systems and procedures.

ANNEX II. RECOMMENDATION ON MINIMUM REQUIREMENTS TO ENSURE THE CONTINUED
PROFICIENCY AND UPDATING OF KNOWLEDGE FOR RADIO OPERATORS

1. Every radio operator holding a certificate or certificates issued or recognized by the Administration should, in order to continue to qualify for sea-going service, be required to satisfy the Administration as to the following:

- (a) Medical fitness, particularly regarding eyesight, hearing and speech, at regular intervals not exceeding five years; and
- (b) Professional competence:
 - (i) By approved radiocommunications service as a radio operator with no single interruption of service exceeding five years;
 - (ii) Following such interruption, by passing an approved test or successfully completing an approved training course or courses at sea or ashore, which should include elements that are of direct relevance to the safety of life at sea and modern radio-communication equipment and may also include radionavigation equipment.

2. When new modes, equipment or practices are being introduced aboard ships entitled to fly its flag, the Administration may require radio operators to pass an approved test or successfully complete an appropriate training course or courses, at sea or ashore, with particular reference to safety duties.

3. Every radio operator should, to continue to qualify for sea-going service on board particular types of ships for which special training requirements have been internationally agreed upon, successfully complete approved relevant training or pass examinations which should take into account relevant international regulations and recommendations.

4. The Administration should ensure that the texts of recent changes in international regulations relating to radiocommunications and relevant to the safety of life at sea are available to ships under its jurisdiction.

5. Administrations are encouraged, in consultation with those concerned, to formulate or promote the formulation of a structure of refresher and updating courses either voluntary or mandatory, as appropriate, at sea or ashore, for radio operators who are serving at sea and especially re-entrants to sea-going service. The course or courses should include changes in marine radiocommunication technology and relevant international regulations and recommendations* concerning the safety of life at sea.

ANNEX III. RECOMMENDATION ON BASIC GUIDELINES AND OPERATIONAL GUIDANCE RELATING TO SAFETY RADIO WATCHKEEPING AND MAINTENANCE FOR RADIO OPERATORS

Introduction

1. Governments should direct the attention of shipowners, ship operators, masters and radio watchkeeping personnel to the following guidelines and operational guidance which should be complied with to ensure that an adequate safety radio watch is maintained while a ship is at sea.

2. In taking account of the guidelines given in this Recommendation, the Radio Regulations annexed to the International Telecommunication Convention,** the International Convention for the Safety of Life at Sea*** and other relevant international agreements should be complied with.

3. No provision of this Recommendation in any way amends or alters any provisions contained in the Radio Regulations or Safety Convention and, in the event of any conflict, the Radio Regulations and Safety Convention prevail.

4. In addition, this Recommendation is not intended to preclude in any way future development of the maritime safety system.

A. *Basic guidelines to be observed*

5. The master of every ship should require that:

- (a) The radio watch is maintained in accordance with the relevant provisions of the Radio Regulations and Safety Convention;
- (b) The equipment is maintained in an efficient working condition.

6. Basic guidelines including, but not limited to the following, should be taken into account on all ships:

- (a) A watch, as continuous as possible, should be maintained on the distress frequency of 500 kHz and other appropriate distress frequencies;
- (b) Safety radio services should be provided to own and other ships;

* Including any IMCO recommendations concerning the development of the maritime distress system.

** Hereinafter referred to as the Radio Regulations.

*** Hereinafter referred to as the Safety Convention.

- (c) Mandatory radiocommunication equipment should be kept in an efficient operating condition;
- (d) During silence periods that occur in watchkeeping hours steps should be taken to watch the frequency 500 kHz to ensure reception of distress and other urgent transmissions which can be done by searching the band 495 to 505 kHz;
- (e) The ship's position, regularly updated, should be available and, at the order of the master, be prominently displayed at the operating position;
- (f) Distress, urgency and safety messages should be passed to the officer in charge of the navigational watch, immediately on receipt;
- (g) Routine weather and navigational warning messages for the area the ship is traversing and, at the request of the master, for other areas, should be passed to the officer in charge of the navigational watch immediately on receipt;
- (h) On ships participating in a ship position-reporting system, relevant position messages, authorized by the master, should be sent as necessary;
- (i) Radiotelephone watchkeeping should be maintained as determined by the Administration;
- (j) Authorized transmissions, especially those made during silence periods or during distress transmissions, and any harmful interference incidents should, if possible, be identified, logged and brought to the attention of the Administration, with an appropriate extract from the radio log in compliance with the Radio Regulations;
- (k) The radio watchkeeper's duties should be so arranged that the efficiency of the watchkeeper is not impaired by fatigue and he is rested and otherwise fit when going on duty;
- (l) Precautions should be taken to ensure that the radio watchkeeper's hearing is not damaged by exposure to excessive extraneous noises on the ship. When unavoidably exposed to excessive noise, hearing protection devices should be worn.

B. *Operational guidance relating to safety radio watchkeeping and maintenance*

General

7. Before the commencement of a voyage, the radio operator in charge should ensure that:

- (a) All radio equipment for which the radio operator is responsible is in an efficient working condition and accumulator batteries are sufficiently charged;
- (b) All documents and supplements required by international agreements, notices to ship radio stations and additional documents required by the controlling Administration are available and discrepancies are reported to the master;
- (c) The radio room clock is accurate;
- (d) Antennae are correctly positioned, undamaged and properly connected.

8. The radio operator should ensure that all relevant documents are corrected and amended in accordance with the latest supplements.

9. When the radio operator first joins a ship, he should ensure that all technical manuals, spares, test instruments and tools for the radiocommunication equipment and, at the discretion of the master, for radio navigational equipment are on board. Discrepancies should be reported to the master.

Watchkeeping duties

10. *Radiotelegraph.* (a) Immediately prior to sailing from a port, the radio operator should, where practicable, update routine weather and navigational warning messages for the area the ship will be traversing and, at the request of the master, for other areas and pass such messages to the master.

- (b) On sailing from a port and opening the station, the radio operator should:
- (i) Listen on the distress frequency 500 kHz for a possible existing distress situation;
 - (ii) Send TR (name, position and destination, etc.) to the local coast station and other appropriate coast stations from which traffic may be expected;
 - (iii) Copy weather forecasts and navigational warnings on the first relevant transmissions.
- (c) When the station is open, the radio operator should:
- (i) Enable chronometer checks to be made by relaying time signals to the chartroom at least once a day;
 - (ii) Check the radio room clock against standard time signals at least once a day;
 - (iii) On selected ships endeavour to clear as many of the OBS (weather report) messages as are available, via relevant coast stations, during watchkeeping hours;
 - (iv) Send a TR when entering the area of a medium frequency or other coast station from which traffic might be expected; the coast station concerned should be informed on leaving its service area;
 - (v) As far as possible, listen to traffic lists transmitted by coast stations from which traffic might be expected; on hearing his ship's call sign, reply as soon as possible.
- (d) When closing the station on arrival at a port, the radio operator should:
- (i) Advise the local coast station and other coast stations with which contact has been maintained of the ship's arrival and closing of the station;
 - (ii) Ensure that antennae are earthed;
 - (iii) Check that accumulator batteries are sufficiently charged.

11. *Radiotelephone.* (a) Whenever a radio watch on 2,182 kHz is being kept in the radio room, this frequency should be monitored for distress, urgency or safety transmissions.

(b) Where any such transmissions are intercepted, the procedure detailed in the relevant sections of paragraphs 12, 13 and 14 should be followed.

(c) Times of opening and closing any monitoring watch on 2,182 kHz and details of any distress, urgency or safety traffic, which are not repetitions of those already heard on 500 kHz, should be entered in the radio log.

Action to be taken in cases of distress, urgency and safety

12. *Distress.* The distress call should have absolute priority over all other transmissions. All stations which hear it should immediately cease any transmissions capable of interfering with distress traffic.

- (a) In cases of distress affecting own ship, the radio operator should:
- (i) Obtain from the bridge the ship's actual or estimated position or, if not available, use the last known position or the true bearing and distance from a fixed geographical position; when using the last known position, time of such position should be stated in GMT;
 - (ii) Normally transmit on 500 kHz using the radiotelegraph distress procedure in accordance with the Radio Regulations; the distress call and message should be sent only on the authority of the master or person responsible for the ship; other suitable international distress frequencies (or other frequencies), if necessary, may be used in accordance with the Radio Regulations;
 - (iii) Repeat at intervals, especially during silence periods, the distress message, preceded by the alarm signal, if necessary, and the distress call, until an answer is received;
 - (iv) If no answer is received to a distress message sent on a distress frequency, repeat the message on any other available frequency on which attention might be attracted;
 - (v) Use any means in order to attract attention;
 - (vi) Pass to the master all distress communications immediately on receipt;

- (vii) If the ship has to be abandoned before being located by other ships, set the radio apparatus for continuous emission, if considered necessary and circumstances permit.
- (b) In cases of distress affecting other ships, the radio operator should:
- (i) Copy the message and pass it to the bridge;
 - (ii) At the same time, if possible, ensure that a direction finder bearing is obtained; if the bearing is relative, the ship's heading should also be noted;
 - (iii) If, beyond any doubt, his ship is in the vicinity of the distress, immediately acknowledge receipt; in areas where reliable communications with coast stations are practicable, defer acknowledgement for a short interval so that a coast station may acknowledge receipt;
 - (iv) If, beyond any doubt, his ship is not in the vicinity of the distress, allow a short interval of time to elapse before acknowledging receipt of the message to permit nearer stations to acknowledge receipt without interference;
 - (v) Not acknowledge receipt:
 - (1) When his ship is a long distance away from the distress and not in a position to render assistance except when a distress message is heard which has not been acknowledged;
 - (2) Of a distress message transmitted by a coast station until the master has confirmed that the ship is in a position to render assistance;
 - (vi) In the case indicated in sub-paragraph (v)(1); and when:
 - (1) It has been learned that a ship in distress is not itself in a position to transmit a distress message; or
 - (2) The master considers that further help is necessary; or
 - (3) An emergency position-indicating radio beacon signal has been received while no distress or urgency traffic is being passed;transmit a distress message using the appropriate transmitter on full power, whenever possible preceded by the alarm signal, using the DDD procedures on 500 kHz or "May-day Relay" procedures on 2,182 kHz or 156.8 MHz, as appropriate, or on any other frequency which may be used in case of distress and take all other steps, as if it were own ship in distress, to notify authorities who may be able to render assistance;
 - (vii) On the order of the master, transmit as soon as possible own ship's name, position, speed and estimated time of arrival at the distress position, and, if the position of the ship in distress appears doubtful, the true bearing of the ship in distress preceded by the abbreviation QTE and classification of the bearing;
 - (viii) Record and pass to the bridge other acknowledgements, positions and times of arrival and other relevant distress traffic;
 - (ix) If control of distress traffic is taken over by a coast station or a ship more favourably placed to assist the one in distress, normally work with that control station;
 - (x) Remain on continuous watch until the distress ends; if adequate assistance is being provided by closer ships or contact has been made with coast stations and no possibility exists of being required to provide relay facilities or specialized advice, normal watch may be resumed.
13. *Urgency.* (a) In cases of urgency affecting own ship the radio operator should:
- (i) Using the radiotelegraph urgency procedure, send, only on the authority of the master, the urgency signal and message on 500 kHz or on any other frequency which may be used in case of distress. In the case of a long message, or a medical call, or when repeating the message in areas of heavy traffic, transmit the message on a working frequency. In such cases include in the call details of the frequency on which the urgency message will be transmitted;

- (ii) If the urgency message concerns the loss of a person or persons overboard, be permitted to precede the call by the alarm signal, only when the assistance of other ships is required and cannot be satisfactorily obtained by the use of the urgency signal;
 - (iii) If the message is addressed to a particular station, establish contact with that station before transferring to a working frequency;
 - (iv) If the message is addressed to all stations, allow a reasonable period before repeating the call and transmitting the message;
 - (v) When an urgency addressed to all stations is ended and action is no longer necessary, send a message of cancellation on the relevant frequency addressed to all stations.
- (b) In cases of urgency affecting other ships, the radio operator should:
- (i) As the urgency signal has priority over all other communications except distress, take care not to interfere with it or the transmission of the message that follows the urgency signal;
 - (ii) Copy the message and pass it to the bridge;
 - (iii) Continue to listen for at least three minutes; at the end of that period, if no urgency message has been heard, notify a coast station, if possible, of the receipt of the urgency signal; thereafter resume normal working;
 - (iv) If the urgency signal is addressed to a particular station, be permitted to continue working on frequencies other than that in use for the transmission of the urgency signal or urgency message; all assistance should be given, if required, in the clearance of the urgency message to the addressee, for example by re-transmission.

14. *Safety.* (a) When a safety message is to be transmitted, the radio operator should:

- (i) Send the safety signal towards the end of the first available silence period and call on one or more of the international distress frequencies (500 kHz, 2,182 kHz and 156.8 MHz where applicable) or on any other frequency which may be used in case of distress;
- (ii) Immediately after the end of the silence period send the safety message which follows the call on a working frequency making a suitable announcement to this effect at the end of the call; outside regions of heavy traffic short safety messages may be sent exceptionally on the frequency 500 kHz;
- (iii) Transmit safety calls and messages, which contain important meteorological and navigational warnings, as soon as possible and repeat them at the end of the first silence period that follows.

(b) On hearing the safety signal,* the radio operator should:

- (i) Not interfere with the signal or message;
- (ii) Copy the message and pass it to the bridge;
- (iii) Give every assistance in disseminating, as necessary, such messages when addressed to "all ships" and re-transmit to the addressee messages of a more limited nature, if so requested.

Other duties

15. *Log keeping.* (a) The radio log should be kept in compliance with the requirements of the Radio Regulations and Safety Convention.

(b) The radio log should be kept in the radio room and should be available for inspection by authorized officials of the Administration; the times of all entries should be recorded in GMT.

* A coast station may broadcast an urgent cyclone warning as a safety message preceded by the alarm signal and the safety signal.

(c) The radio log should at all times be available for inspection by the master and the radio operator should call his attention to any entry important to safety.

16. *Essential tests.* While the ship is at sea tests should be made by the radio operator in accordance with the Safety Convention. In addition, the following should be carried out to facilitate early detection of developing faults:

- (a) At least once a week check the automatic keying device for signal formation and timing;
- (b) At regular intervals check all metered test points in the radiocommunication equipment and record abnormalities;
- (c) When possible test the portable and fixed radio apparatus in a survival craft afloat; in any event every three months test the portable and fixed radio apparatus in a survival craft on board ship; when the tests are undertaken with the antenna rigged, efforts should be made to establish contact with other ships or coast stations provided no interference is caused to other transmissions; when non-chargeable batteries are used in the survival craft radio equipment they should be replaced at the intervals recommended by the manufacturers or earlier if performance on test is degraded;
- (d) At intervals, when within sight of a radio beacon, in co-operation with a navigating officer, check bearings should be taken to verify the accuracy of the direction finder calibration curve on as many ship's headings as possible; the results should be recorded and reported to the master; possible shipboard causes of errors, including alteration to wire rigging and unauthorized antennae should be sought and reported to the master.

17. *Demonstration of portable radio apparatus for survival craft.* Whenever possible, the operation of the portable radio apparatus for survival craft should be demonstrated to new crew members in order to familiarize them in its use. When the apparatus is tested in survival craft, the rigging and operation of it should be demonstrated to as many crew members as possible.

18. *Demonstration of reserve radiotelegraph equipment.* Where Administrations require an instruction chart and related numbering indicators on the reserve radiotelegraph equipment, including automatic keying devices, suitable persons designated by the master to use such equipment in an emergency when the radio operator is incapacitated for any reason, should be given demonstrations in such procedure at appropriate intervals.

19. *Maintenance.* Maintenance consists of simple repairs only.

ANNEX IV. RECOMMENDATION ON TRAINING FOR RADIO OPERATORS — MINIMUM LEVELS OF TRAINING IN MARITIME SAFETY RADIOCOMMUNICATIONS

General

1. Before training is commenced, the requirements of medical fitness, especially as to hearing, eyesight and speech should be met by the candidate.

2. The training should be relevant to the provisions of the Radio Regulations annexed to the International Telecommunication Convention* and International Convention for the Safety of Life at Sea,** then in force, with special attention to the most recent developments in maritime radiocommunications technology and radiocommunications systems. In developing the programme account should be taken of, but not limited to, the following items.

Theory

3. The outline syllabus is shown in the Appendix to this Recommendation.

* Hereinafter referred to as the Radio Regulations.

** Hereinafter referred to as the Safety Convention.

Practical

4. Practical training should be given in:

- (a) Basic understanding of circuit diagrams;
- (b) Use and care of those tools and test instruments required to be carried by the Safety Convention;
- (c) Soldering and de-soldering techniques, including those involving semi-conductor devices and modern circuits;
- (d) Operation and adjustment of shipborne radiocommunication equipment;
- (e) Operation and essential maintenance of portable radio apparatus for survival craft;
- (f) Logical location of elementary faults;
- (g) Remedying of simple faults;
- (h) Essential maintenance procedures;
- (i) Elementary direction finder calibration procedures and taking of direction finder bearings;
- (j) Elementary methods of shielding receivers from electrical and electromagnetic interference;
- (k) Antenna rigging, repair and maintenance considerations;
- (l) Safety procedures;
- (m) Operation and maintenance of sources of energy such as rotating machinery, inverters and accumulator batteries.

Radiocommunication techniques

5. Training should be given in:

- (a) Operational techniques, including the following:
 - (i) Sending and receiving Morse Code with the objective of achieving the requirements of the Radio Regulations;
 - (ii) Receiving Morse Code under typical interference conditions (real or recorded);
 - (iii) Use of filter circuits and adjustment of the beat frequency oscillator (BFO) to improve reception of a desired signal under conditions of severe interference;
 - (iv) Receiver tuning techniques for single side-band signals;
 - (v) Transmitter tuning and antenna adjustment techniques;
 - (vi) Receiver tuning techniques for reception of frequency shift signals including facsimile and selective calling;
- (b) Radiotelegraph watchkeeping, exchange of radiotelegraph traffic, particularly concerning distress, urgency and safety procedures and log-keeping, including use of service abbreviations and Q-code;
- (c) Radiotelephone watchkeeping, exchange of radiotelephone traffic, particularly concerning distress, urgency and safety procedures and log-keeping, including use of the international phonetic alphabet and figure code;
- (d) Use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
- (e) Communications procedures of the IMCO Merchant Ship Search and Rescue Manual (MERSAR), using radiotelegraphy and radiotelephony;
- (f) Ship position-reporting systems and procedures;
- (g) Radio medical systems and procedures;
- (h) Procedures to establish optimum frequencies for high frequency communications;
- (i) Use of high frequency calling frequencies;

- (j) Monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency.

Regulatory

6. Training should be based on the requirements of the Radio Regulations and the Safety Convention, in particular those sections which relate to:

- (a) Distress, urgency and safety radiocommunications;
- (b) Avoidance of causing harmful interference, particularly with distress traffic;
- (c) Documents to be carried by ship stations and their use.

Miscellaneous

7. It is recommended that:

- (a) The English language be taught to a suitable level within the limits necessary for exchange of radiotelephone and radiotelegraph communications relevant to the safety of life at sea;
- (b) Training be given in personal survival techniques and in the practical use of life-saving equipment;
- (c) Training include an approved fire-fighting course with emphasis on methods of extinguishing fires in the radio room and causing as little damage to the radio installation as possible.

APPENDIX. OUTLINE SYLLABUS COVERING THE THEORY OF MARITIME SAFETY RADIOCOMMUNICATION

1. *Elementary knowledge of electricity and radiocommunication*

- (a) Electricity, primary and secondary cells;
- (b) Electromagnetism, inductance;
- (c) Electrostatics, capacitance;
- (d) Alternating current, transformers and machines;
- (e) Function of thermionic valves and semi-conductor devices;
- (f) Meters and measurements;
- (g) Principles of radiocommunications.

2. *Maritime radiocommunication*

- (a) Elementary knowledge of power supplies;
- (b) Appreciation of the function of audio frequency and radio frequency amplifiers, oscillators, modulation methods, frequency changing and signal detection;
- (c) Elementary knowledge of propagation of radio waves, types of antennae;
- (d) Elementary block diagrams of transmitters, receivers, direction finders, auto alarms (radiotelegraph and radiotelephone) and portable radio apparatus for survival craft, including emergency position-indicating radio beacons (EPIRBs);
- (e) Knowledge of the function of automatic keying devices.

RESOLUTION 8. ADDITIONAL TRAINING FOR RATINGS FORMING PART OF A NAVIGATIONAL WATCH

The Conference,

Considering the need to enhance the proficiency of ratings forming part of a navigational watch,

Realizing that such enhancement should be brought about by training in subjects additional to those encompassed by Mandatory Minimum Requirements for Ratings Forming Part of a Navigational Watch of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Resolves to recommend that ratings forming part of a navigational watch be trained in:

- (a) Use and operation of bridge equipment appropriate to their duties, and
- (b) The basic requirements for prevention of pollution of the marine environment,

Urges all Governments concerned to give effect to the contents of this Resolution as soon as possible.

**RESOLUTION 9. MINIMUM REQUIREMENTS FOR A RATING NOMINATED
AS THE ASSISTANT TO THE ENGINEER OFFICER IN CHARGE OF THE WATCH**

The Conference,

Recognizing the importance and urgency of establishing requirements for ratings having special responsibilities when forming part of an engine room watch,

Recognizing that suitable arrangements for the training of ratings having special responsibility when forming part of an engine room watch are not widely available,

Resolves:

- (a) To adopt the Recommendation on Minimum Requirements for a Rating Nominated as the Assistant to the Engineer Officer in Charge of the Watch, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as practicable,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

**ANNEX. RECOMMENDATION ON MINIMUM REQUIREMENTS FOR A RATING NOMINATED
AS THE ASSISTANT TO THE ENGINEER OFFICER IN CHARGE OF THE WATCH**

1. Every rating who is nominated as the assistant to the engineer officer in charge of the watch on sea-going ships and having specific duties and responsibilities relating to these duties in connexion with the safe operation and servicing of machinery, should meet the following minimum requirements to the satisfaction of the Administration:

- (a) Be not less than 17 years of age;
- (b) Medical fitness, including eyesight and hearing;
- (c) Training regarding fire-fighting, basic first aid, personal survival, health hazards and personal safety;
- (d) Sea-going service in an engine room capacity for at least 12 months, half of which may be replaced by approved training;
- (e) Have met the requirements of Regulation III/6, "Mandatory Minimum Requirements for Ratings Forming Part of an Engine Room Watch", of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978.

2. Every such rating should possess:

- (a) Knowledge of the function, operation and servicing of main propulsion and auxiliary machinery;
- (b) Knowledge of engine room watchkeeping procedures and the ability to carry out a watch routine;
- (c) Knowledge of use of hand tools and portable power tools;
- (d) Ability to read indicating instruments related to his watchkeeping duties and understand the significance of the readings;
- (e) Knowledge of the function, operation and servicing of the various pumping systems;
- (f) Knowledge of safe working practices related to engine room operations;
- (g) Knowledge of technical terms used in the machinery spaces and names of all relevant machinery details and equipment.

3. Every such rating forming part of an engine room watch should be familiar with his watchkeeping duties in the machinery spaces. In particular, with respect to his duties on any ship the rating should have:

- (a) Knowledge of the use of appropriate internal communication systems;
- (b) Knowledge of escape routes from machinery spaces;
- (c) Knowledge of engine room alarm systems and ability to distinguish between the various alarms, with special reference to fire extinguishing gas alarms;
- (d) Familiarity with the location and use of fire-fighting equipment in the machinery spaces;
- (e) Familiarity with environmental protection equipment;
- (f) Ability to understand and make himself understood by the engineer officer in charge of the watch.

4. Administrations should ensure that authorized documents are issued to seafarers who are qualified in accordance with paragraphs 1 and 2 of this Recommendation or that their existing documents are duly endorsed.

5. A seafarer may be considered by the Administration to have met the requirements of this Recommendation, if he has served in a relevant capacity in the engine department for a period of not less than one year within the last five years preceding the implementation of this Recommendation by that Administration.

RESOLUTION 10. TRAINING AND QUALIFICATIONS OF OFFICERS AND RATINGS OF OIL TANKERS

The Conference,

Being aware of the possible dangers to human life and to the environment from accidents involving the handling of oil in bulk,

Recognizing the importance and urgency of establishing requirements for officers and key ratings having special responsibilities for the handling of oil in bulk,

Noting Resolution 8 of the International Conference on Tanker Safety and Pollution Prevention, 1978,

Recognizing that suitable arrangements are not widely available for the training of officers and ratings having special responsibility for handling such cargoes,

Resolves:

- (a) To adopt the Recommendation on Training and Qualifications of Officers and Ratings of Oil Tankers, annexed to this Resolution;

- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as practicable,
Invites the Inter-Governmental Maritime Consultative Organization:
- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON TRAINING AND QUALIFICATIONS
OF OFFICERS AND RATINGS OF OIL TANKERS

1. *Training of officers and ratings having specific duties and responsibilities in connexion with cargo and cargo equipment*

Training should be divided into two parts, a general part concerning principles involved, and a part on the application of those principles to ship operation. Any of this training may be given at sea or ashore. Such training should be supplemented by practical instruction at sea and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified personnel.

A. *Principles*

1. *Characteristics of oil cargoes.* An outline treatment including practical demonstration of the physical properties of oil carried in bulk; vapour pressure/temperature relationship. Influence of pressure on boiling temperature. Explanation of saturated vapour pressure, diffusion, partial pressure, flammability limit, explosive limits, petroleum vapour, vapour travel, flashpoint and auto-ignition temperature. Practical significance of flashpoint and lower flammable limit. Simple explanation of types of electrostatic charge generation.

2. *Toxicity.* Simple principles and explanations of basic concepts; toxicity limits, both acute and chronic effects of toxicity, systemic poisons and irritants.

3. *Hazards*

(a) *Explosion and flammability hazards.* Flammability limits. Sources of ignition and explosion. Danger from vapour cloud drift.

(b) *Health hazards.* Dangers of skin contact, inhalation and ingestion.

(c) *Hazards to the environment.* Effect on human and marine life from release of oil at sea. Effect of specific gravity and solubility. Effect of vapour pressure and atmospheric conditions.

(d) *Corrosion hazards*

4. *Hazard control.* Inerting, monitoring techniques, anti-static measures, ventilation, segregation and the importance of compatibility of materials.

5. *Safety equipment and protection of personnel.* The function and calibration of gas measuring instruments and similar equipment. Specialized fire extinguishing appliances, breathing apparatus and tank evacuating equipment. Safe use of protective clothing and equipment.

B. *Shipboard application*

1. *Regulations and codes of practice.* Importance of developing ships' emergency plans. Familiarization with:

(a) The appropriate provisions of relevant international conventions;

(b) International and national codes;

(c) IMCO Manual on Oil Pollution;

(d) Relevant tanker safety guides.*

2. *Ship design and equipment of oil tankers.* Familiarization with:

(a) Piping, pumping, tank and deck arrangements;

(b) Types of cargo pumps and their application to various types of cargo;

(c) Tank cleaning, gas freeing and inerting systems;

(d) Cargo tank venting and accommodation ventilation;

(e) Gauging systems and alarms;

(f) Cargo heating systems;

(g) Safety factors of electrical systems.

3. *Ship operations.* Cargo calculations. Loading and discharging plans. Loading and discharge procedure including ship-to-ship transfers. Check lists. Use of monitoring equipment. Importance of proper supervision of personnel. Gas freeing operations and tank cleaning operations. Where appropriate, crude oil washing procedures and the operation and maintenance of inert gas systems. Control of entry into pumprooms and enclosed spaces. Use of gas detecting and safety equipment. Load-on-top and proper ballasting and de-ballasting procedures. Air and water pollution prevention.

4. *Repair and maintenance.* Precautions to be taken before and during repair and maintenance work including that affecting pumping, piping, electrical and control systems. Safety factors necessary in the performance of hot work. Control of hot work and proper hot work procedures.

5. *Emergency operations.* Emergency plan. Cargo operations emergency shutdown. Action in the event of failure of services essential to cargo. Fire-fighting on oil tankers. Action following collision, stranding or spillages. First aid procedures and the use of resuscitation equipment. Use of breathing apparatus. Rescue from enclosed spaces.

Note. It is recommended that as great a use as possible should be made of shipboard operations and equipment manuals, films and suitable visual aids, and that the opportunity should be taken to introduce discussion of the part to be played by safety organization on board ship, and the role of safety officers and safety committees.

II. *Training of other personnel*

Such personnel should undergo training on board ship and, where appropriate, ashore, which should be given by qualified personnel experienced in the handling and characteristics of oil cargoes and safety procedures.

1. *Regulations.* Knowledge of the ship's rules and regulations governing the safety of personnel on board a tanker in port and at sea.

2. *Health hazards and precautions to be taken.* Dangers of skin contact. Inhalation and accidental swallowing of cargo. Oxygen deficiency with particular reference to inert gas systems. The harmful properties of cargoes carried. Personnel accidents and associated first aid. Lists of dos and don'ts.

3. *Fire prevention and fire-fighting.* Control of smoking and cooking restrictions. Sources of ignition. Fire and explosion prevention. Methods of fire-fighting. Outline of portable apparatus and fixed installations.

4. *Pollution prevention.* Procedures to be followed to prevent air and water pollution. Measures to be taken in the event of spillage.

5. *Safety equipment and its use.* The proper use of protective clothing and equipment, resuscitators, escape and rescue equipment.

* Reference is made to the joint ICS/OCIMF International Safety Guide for Oil Tankers and Terminals and the ICS Guide to Helicopter/Ship Operations.

6. *Emergency procedures.* Familiarization with emergency plan procedures.

7. *Cargo equipment and operations.* General description of cargo handling equipment. Safe loading and discharge procedures and precautions. Safe entry into enclosed spaces.

III. *Fire-fighting training*

All personnel should have attended an approved basic or advanced practical fire-fighting training course relevant to their duties and responsibilities.

RESOLUTION 11. TRAINING AND QUALIFICATIONS OF OFFICERS AND RATINGS OF CHEMICAL TANKERS

The Conference,

Being aware of the possible dangers to human life and to the environment from accidents involving the handling of chemicals in bulk,

Recognizing the importance and urgency of establishing requirements for officers and key ratings having special responsibilities for the handling of hazardous or noxious chemicals in bulk,

Having considered Resolution A.286(VIII)¹ adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization on this matter,

Noting that the subject matter of Resolution A.286(VIII) is closely related to the aims of the Conference,

Resolves:

- (a) To adopt the Recommendation on Training and Qualifications of Officers and Ratings of Chemical Tankers, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as practicable,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review and to bring any future amendments including provisions concerning the handling of hazardous or noxious dry chemicals in bulk, to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON TRAINING AND QUALIFICATIONS OF OFFICERS AND RATINGS OF CHEMICAL TANKERS

I. *Training of officers and ratings responsible for cargo handling and equipment*

Training should be divided into two parts, a general part on principles involved and a part on the application of the principles to ship operation. Any of this training may be given at sea or ashore. Such training should be supplemented by practical instruction at sea and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified personnel.

A. *Principles*

1. *Elementary physics.* An outline treatment including practical demonstration of the physical properties of chemicals carried in bulk; vapour pressure/temperature relationship.

¹ Inter-governmental Maritime Consultative Organization, *Resolutions and Other Decisions, Eighth Session, 13-23 November 1973*, p. 199.

Influence of pressure on boiling temperature. Explanation of saturated vapour pressure, diffusion, partial pressure, flammability limit, flashpoint and auto-ignition temperature. Practical significance of flashpoint and lower flammable limit. Simple explanation of types of electrostatic charge generation.

2. *Elementary chemistry.* Chemical symbols and structures, elements of the chemistry of acids and bases, structure and properties of well known chemicals carried, chemical reaction of well known groupings, sufficient to enable proper utilization of codes.

3. *Toxicity.* Simple principles and explanation of basic concepts; toxicity limits, both acute and chronic effects of toxicity, systemic poisons and irritants.

4. *Hazards*

(a) *Explosion and flammability hazards.* Flammability limits. Sources of ignition and explosion.

(b) *Health hazards.* Dangers of skin contact, inhalation and ingestion.

(c) *Hazards to the environment.* Effect on human and marine life of release of chemicals at sea. Effect of specific gravity and solubility. Danger from vapour cloud drift. Effect of vapour pressure and atmospheric conditions.

(d) *Reactivity hazards.* Self-reaction; polymerization, effects of temperature, impurities as catalysts. Reaction with air, water and other chemicals.

(e) *Corrosion hazards.* Dangers to personnel, attacks on constructional materials. Effects of concentration. Evolution of hydrogen.

5. *Hazard control.* Inerting, water padding, drying agents, monitoring techniques. Anti-static measures. Ventilation. Segregation. Cargo inhibition. The importance of compatibility of materials.

6. *Safety equipment and protection of personnel.* The function and calibration of measuring instruments and similar equipment. Specialized fire extinguishing appliances, breathing and escape apparatus. Safe use of protective clothing and equipment.

B. *Shipboard application*

1. *Regulations and codes of practice.* Familiarization with IMCO, national and relevant international codes* and port regulations. The importance of developing ships' emergency plans.

2. *Ship design and equipment of chemical tankers.* A brief description of specialized piping, pumping and tank arrangements, overflow control. Types of cargo pumps and their application to various types of cargo. Tank cleaning and gas freeing systems. Cargo tank venting and accommodation ventilation, airlocks. Gauging systems. Tank temperature control systems. The safety factors of electrical systems.

3. *Ship operations.* Cargo calculation. Loading and discharging plans. Loading and discharge procedure. Check lists. Use of monitoring equipment. Gas freeing operations and tank cleaning operations (proper use of absorption and wetting agents and detergents). Use and maintenance of inert atmospheres. Control of entry into pumprooms and enclosed spaces. Use of detecting and safety equipment. Disposal of waste and washings.

4. *Repair and maintenance.* Precautions to be taken before the repair and maintenance of pumping, piping, electrical and control systems.

5. *Emergency operations.* Emergency plan. Cargo operations emergency shutdown. Action in the event of failure of services essential to cargo. Fire-fighting on chemical tankers. Action following collision, stranding or spillages. First aid procedure and the use of resuscitation and decontamination equipment. Use of breathing apparatus. Rescue from enclosed spaces.

* Reference is made to the ICS Tanker Safety Guide (Chemicals) and ICS Guide to Helicopter/Ship Operations.

Note. It is recommended that as much use as possible should be made of shipboard operations and equipment manuals, films and suitable visual aids, and that the opportunity should be taken to introduce discussion of the part to be played by safety organization on board ship, and the role of safety officers and safety committees.

II. *Training of other personnel*

Such personnel should undergo training on board ship and, where appropriate, ashore, which should be given by qualified personnel who have attained the required standard and are experienced in the carriage of this type of cargo and safety procedures.

1. *Regulations.* Knowledge of the ship's rules and regulations governing the safety of personnel on board a tanker in port and at sea.

2. *Health hazard and precautions to be taken.* Dangers of skin contact. Inhalation and swallowing cargo. Oxygen deficiency with particular reference to inert gas systems. The toxic properties of cargoes carried. Personnel accidents and associated first aid. Lists of dos and don'ts.

3. *Fire prevention and fire-fighting.* Control of smoking and cooking restrictions. Sources of ignition. Fire and explosion prevention. Methods of fire-fighting. Outline of portable apparatus and fixed installations.

4. *Pollution prevention.* Procedures to be followed to prevent air and water pollution. Measures to be taken in the event of spillage.

5. *Safety equipment and its use.* The proper use of protective clothing and equipment, resuscitators, escape and rescue equipment.

6. *Emergency procedures.* Familiarization with emergency plan procedure.

7. *Cargo equipment and operations.* General description of cargo handling equipment. Safe loading and discharge procedures and precautions. Safe entry into enclosed spaces.

III. *Fire-fighting training*

All personnel should have attended an approved basic or advanced practical fire-fighting training course relevant to their duties and responsibilities.

RESOLUTION 12. TRAINING AND QUALIFICATIONS OF MASTERS, OFFICERS AND RATINGS OF LIQUEFIED GAS TANKERS

The Conference,

Being aware of the possible dangers to human life and to the environment from accidents involving the handling of liquefied gases in bulk,

Recognizing that suitable arrangements for the mandatory training of masters, officers and of ratings having special responsibility for the handling of such cargoes are not widely available,

Being of the opinion that mandatory minimum requirements should be implemented as soon as practicable,

Resolves to adopt the Recommendation on Training and Qualifications of Masters, Officers and Ratings of Liquefied Gas Tankers, annexed to this Resolution,

Recommends:

- (a) That all Governments concerned take account of the guidance contained in the Annex to this Resolution;
- (b) That all masters, officers and ratings aboard such ships should be required to complete approved basic training in safety, emergency procedures and fire-

- fighting. Such training should be of adequate scope and duration to ensure appreciation of not only the hazards involved, but also the safety features included in the design and construction of the ship in order to preclude indecision or panic in the handling of emergencies and small casualties;
- (c) That all masters, deck and engineer officers and those ratings having specific duties and responsibilities in connexion with the cargo and cargo equipment should be required to complete approved special training courses and that such courses should be of adequate duration and supplemented by shipboard training and experience;
 - (d) That all Governments concerned, in recognizing standards of proficiency, should either require separate assessment upon the conclusion of the prescribed training or accept successful completion of approved courses of training which are closely monitored and may include periodic assessment and an overall evaluation by the instructor of the performance and participation of the student;
 - (e) That all Governments concerned should satisfy themselves as to the standard of competency of the officer primarily responsible for cargo and should ensure that appropriate documentation is issued to those so qualified by training and experience,
- Invites the Inter-Governmental Maritime Consultative Organization:
- (a) To keep this Recommendation under review and to bring any future amendments to the attention of all Governments concerned;
 - (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON TRAINING AND QUALIFICATIONS OF MASTERS, OFFICERS
AND RATINGS OF LIQUEFIED GAS TANKERS

I. *Introduction*

1. Training should be divided into two parts:
 - (a) Supervised instruction, conducted in a shore-based facility or aboard a specially equipped ship having training facilities and special instructors for this purpose, dealing with the principles involved and the application of these principles to ship operation. In special situations Administrations may permit a junior officer or rating to be trained aboard liquefied gas tankers on which he is serving, provided that such service is for a limited period, as established by the Administration, and that such crew member does not have duties or responsibilities in connexion with cargo or cargo equipment and provided further that he is later trained in accordance with this Recommendation for any subsequent service;
 - (b) Supplementary shipboard training and experience wherein the principles learned are applied to a particular type of ship and cargo containment system.
2. In drawing up an Administration-approved syllabus of training, the IMCO Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk and relevant Tanker Safety Guides* should be taken into account.

The training should be at the following levels:

A. *Masters, all officers and all ratings*

1. *Basic safety training course for gas tankers.* This training should preferably be conducted at an approved shore training establishment prior to an assignment to a ship. Alter-

* Reference is made to the *ICS Tanker Safety Guide (Liquefied Gas)* and the *ICS Guide to Helicopter/Ship Operations*.

natively, the safety training could be given in organized approved shipboard training programmes conducted by qualified personnel under the supervision and direction of the master. Such safety training should include the following:

- (a) *General*
 - (i) Types of gases carried;
 - (ii) Hazards associated with those gases which are likely to be handled;
 - (iii) General description of cargo carrying systems;
 - (iv) Loading and unloading systems including cargo vent systems;
 - (v) Design safety features and special requirements.
- (b) *Fire prevention and fire-fighting.* Control of smoking and cooking restrictions. Sources of ignition. Fire and explosion prevention. Methods of fire-fighting. Outline of portable apparatus and fixed installations.
- (c) *Health hazards and personnel protection*
 - (i) Hazards of skin contact and inhalation of cargo vapours or inert gas. Types of antidotes and their effects;
 - (ii) Proper use of protective clothing and breathing apparatus, resuscitators and rescue equipment and escape sets;
 - (iii) Entry into enclosed spaces.
- (d) *Pollution prevention.* Procedures to be followed to prevent air and water pollution. Measures to be taken in the event of spillage.
- (e) *Emergency procedures.* Basic outline of emergency plan. Procedures in case of:
 - (i) Fire;
 - (ii) Collision and stranding;
 - (iii) Liquefied gas spills or leaks;
 - (iv) Personnel casualty.

2. *Fire-fighting course to include the specific characteristics of fires aboard gas tankers*

- (a) All personnel should have attended an approved basic or advanced practical fire-fighting training course relevant to their duties and responsibilities;
- (b) This training should be given at a shore establishment or aboard a specially equipped ship having training facilities and special instructors for this purpose.

3. As soon as new crew members have joined a ship, they should be made fully acquainted with all aspects of the emergency procedures listed.

B. *Masters, all deck and engineer officers and those ratings having specific duties and responsibilities in connexion with cargo and cargo equipment*

1. This part should apply in full to the master, chief mate, chief engineer officer, second engineer officer and officer primarily responsible for the cargo if he is not included in the preceding four designations.

2. The Administration may, however, permit variations in the depth of knowledge required in the following syllabus according to the duties and functions to be performed by other crew members.

3. Specific duties and responsibilities in connexion with cargo and cargo equipment are those concerned with cargo loading or discharging, cargo care, processing or supervisory duties for the on board use of cargo and operation or maintenance of equipment related thereto.

4. Such training should include but not necessarily be limited to:

- (a) *Chemistry and physics.* An introduction to basic chemistry and physics as it relates to the safe carriage of liquefied gases in bulk in ships.

- (i) Properties and characteristics of liquefied gases and their vapours
 - (1) Definition of gas;
 - (2) Simple gas laws;
 - (3) Gas equation;
 - (4) Density of gases;
 - (5) Diffusion and mixing in gases;
 - (6) Compression of gases;
 - (7) Liquefaction of gases;
 - (8) Refrigeration of gases;
 - (9) Critical temperature;
 - (10) Practical significance of flashpoint;
 - (11) Upper and lower explosive limits;
 - (12) Auto-ignition temperature;
 - (13) Compatibility of gases;
 - (14) Reactivity;
 - (15) Polymerization.
 - (ii) Properties of single liquids
 - (1) Densities of liquids;
 - (2) Variation with temperature;
 - (3) Vapour pressure and temperature;
 - (4) Vaporization and boiling liquids.
 - (iii) Nature and properties of solutions
 - (1) Solubility of gases in liquids;
 - (2) Miscibility between liquids and effects of temperature change;
 - (3) Densities of solutions and dependence on temperature and concentration;
 - (4) Effects of dissolved substances on melting and boiling points;
 - (5) Hydrates, formation and dispersion;
 - (6) Hygroscopicity;
 - (7) Drying of air and other gases.
- (b) *Health hazards*
- (i) Toxicity
 - (1) Modes by which liquefied gases and their vapours may be toxic;
 - (2) Toxic properties of inhibitors and of products of combustion of both materials of construction and the liquefied gases carried;
 - (3) Acute and chronic effects of toxicity, systemic poisons and irritants;
 - (4) Threshold Limiting Value (TLV).
 - (ii) Hazards of skin contact, inhalation and ingestion.
 - (iii) First aid and administering of antidotes.
- (c) *Cargo containment*
- (i) Principles of containment systems.
 - (ii) Rules.
 - (iii) Surveys.
 - (iv) Tank construction, materials, coatings, insulation.
 - (v) Compatibility.

- (d) *Operational procedures*
 - (i) Regulations and codes of practice.
 - (ii) Familiarization with IMCO, national and relevant international codes.*
 - (iii) Port regulations.
 - (iv) Importance of ship's emergency plan and allocation of responsibilities.
- (e) *Pollution*
 - (i) Hazards to human life and to the marine environment.
 - (ii) Effect of specific gravity and solubility.
 - (iii) Danger from vapour cloud drift.
 - (iv) Jettisoning of cryogenic liquids.
 - (v) National, international and local regulations.
- (f) *Cargo handling system*
 - (i) Description of main types of pumps and pumping arrangements and vapour return systems, piping systems and valves.
 - (ii) Explanation of pressure, vacuum, suction, flow, head.
 - (iii) Filters and strainers.
 - (iv) Expansion devices.
 - (v) Flame screens.
 - (vi) Commonly used inert gases.
 - (vii) Storage, generation, distribution systems.
 - (viii) Outline of different types of systems and their safe and efficient operation and service.
 - (ix) Temperature and pressure monitoring systems.
 - (x) Cargo vent systems.
 - (xi) Liquid re-circulation and re-liquefaction systems.
 - (xii) Cargo gauging and instrumentation systems.
 - (xiii) Gas detection and monitoring systems.
 - (xiv) CO₂ monitoring systems.
 - (xv) Cargo boil-off systems.
 - (xvi) Auxiliary systems.
- (g) *Ship operating procedures*
 - (i) Loading and discharging preparations and procedures.
 - (ii) Check lists.
 - (iii) Cargo condition maintenance on passage and in harbour.
 - (iv) Segregation of cargoes and procedures for cargo transfer.
 - (v) Changing cargoes, tank cleaning procedures.
 - (vi) Cargo sampling.
 - (vii) Ballasting and de-ballasting.
 - (viii) Warm up and cool down systems.
 - (ix) Warm up and gas freeing procedures.
 - (x) Procedures for cool down of gas free system from ambient temperature and safety precautions involved.

* Reference is made to the *ICS Tanker Safety Guide (Liquefied Gas)* and the *ICS Guide to Helicopter/Ship Operations*.

(h) *Safety practices and equipment*

- (i) Function, calibration and use of portable measuring instruments.
- (ii) Fire-fighting equipment and procedures.
- (iii) Breathing apparatus.
- (iv) Resuscitators.
- (v) Escape sets.
- (vi) Rescue equipment.
- (vii) Protective clothing and equipment.
- (viii) Entry into enclosed spaces.
- (ix) Precautions to be observed before and during repair and maintenance of cargo and control systems.
- (x) Supervision of personnel during potentially hazardous operations.
- (xi) Types and principles of certified safe electrical equipment.
- (xii) Sources of ignition.

(i) *Emergency procedures*

- (i) Emergency plan.
- (ii) Emergency shutdown of cargo operations.
- (iii) Emergency cargo valve closing systems.
- (iv) Action in the event of failure of systems or services essential to cargo.
- (v) Action in event of collisions or strandings, spillages, envelopment of ship in toxic or flammable vapour.

5. Supplementary shipboard training and experience based on the ship's operation manual should include the following systems as applicable:

(a) *Cargo handling system*

- (i) Piping systems, pumps, valves, expansion devices and vapour system.
- (ii) Service requirements and operating characteristics of the cargo handling system.
- (iii) Liquid re-circulation.

(b) *Instrumentation systems*

- (i) Cargo level indicators.
- (ii) Gas detection systems.
- (iii) Hull and cargo temperature monitoring systems.
- (iv) Various methods of transmitting a signal from a sensor to the monitoring station.
- (v) Automatic shutdown systems.

(c) *Boil-off disposal*

- (i) Use as fuel
 - (1) Compressors;
 - (2) Heat exchanger;
 - (3) Gas piping and ventilation in machinery and manned spaces.
- (ii) Principles of dual-fuel
 - (4) Boilers;
 - (5) Gas turbines;
 - (6) Diesel engines.
- (iii) Emergency venting.
- (iv) Re-liquefaction.

- (d) *Auxiliary systems*
- (i) Ventilation, inerting.
 - (ii) Valves
 - (1) Quick closing;
 - (2) Remote control;
 - (3) Pneumatic;
 - (4) Excess flow;
 - (5) Safety relief;
 - (6) Pressure/vacuum.
 - (iii) Steam systems for voids, ballast tanks, condenser.
- (e) *General principles of operating the cargo handling plant*
- (i) Inerting cargo tanks and void spaces.
 - (ii) Tank cool down, loading.
 - (iii) Operations during loaded and ballasted voyages.
 - (iv) Discharging and tank stripping.
 - (v) Emergency procedures, including pre-planned action in the event of leaks, fires, collision, stranding, emergency cargo discharge, personnel casualty.

Note. It is recommended that as much use as possible should be made of shipboard operations and equipment manuals, films, visual and other suitable aids and that there should be discussion on the part that is to be played by safety organization on board ship, and the role of safety officers and safety committees. Encouragement should be given to the provision of such suitable aids to carry out a continuing and effective on board training and safety programme.

6. The officer primarily responsible for cargo should:

- (a) Be directly responsible to the master;
- (b) Have successfully completed all the required training;
- (c) Have served aboard a ship carrying liquefied gases in bulk for at least two months, such service to have:
 - (i) Been performed under the direction, supervision and training of an officer primarily responsible for cargo;
 - (ii) Included cargo transfers, both loading and discharging;
- (d) Satisfy the master as to his overall qualifications and ability.

II. *General*

1. Administrations should ensure that an authorized document is issued to every person who is by training and experience qualified in accordance with this Annex to serve as an officer primarily responsible for the cargo.

2. Under appropriate approved standards, the master of each ship should ensure that the officer primarily responsible for the cargo possesses such document and has had recent adequate practical experience aboard the appropriate type of ship to permit him to perform his duties safely.

3. The Administration should, in consultation with all those concerned, formulate or promote the formulation of an appropriate structure of refresher and updating courses.

RESOLUTION 13. TRAINING AND QUALIFICATIONS OF OFFICERS AND RATINGS OF SHIPS CARRYING DANGEROUS AND HAZARDOUS CARGO OTHER THAN IN BULK

The Conference,

Having adopted Regulations and Resolutions concerning training and watch-keeping of masters, officers and ratings of tankers carrying potentially dangerous and hazardous cargoes in bulk,

Noting Chapter VII of the International Convention for the Safety of Life at Sea, 1974, and Annex III of the International Convention for the Prevention of Pollution from Ships,¹

Noting also the rapidly growing number of dangerous and hazardous substances being shipped by sea,

Recognizing the importance and urgency of establishing training requirements for officers and ratings having special responsibilities for handling dangerous cargoes,

Being of the opinion that there is an urgent need for internationally agreed arrangements for training and qualifications of officers and ratings of ships carrying dangerous and hazardous cargo other than in bulk,

Invites the Inter-Governmental Maritime Consultative Organization to study this problem as a matter of urgency.

RESOLUTION 14. TRAINING FOR RADIO OFFICERS

The Conference,

Noting the Mandatory Minimum Requirements for Certification of Radio Officers forming part of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Recognizing the need for additional requirements on training for radio officers,

Bearing in mind the provisions of the Radio Regulations annexed to the International Telecommunication Convention and of the International Convention for the Safety of Life at Sea,

Resolves:

- (a) To adopt the Recommendation on Training for Radio Officers, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of this Recommendation as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep this Recommendation under review, in consultation or association with other international organizations, as appropriate, particularly with the International Labour Organisation and the International Telecommunication Union, and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

¹ United Nations, *Treaty Series*, vol. 1340, p. 61.

ANNEX. RECOMMENDATION ON TRAINING FOR RADIO OFFICERS

*Part I. MINIMUM LEVELS OF TRAINING IN MARITIME SAFETY RADIOCOMMUNICATION**General*

1. Before training is commenced, the requirements of medical fitness, especially as to hearing, eyesight and speech should be met by the candidate.

2. The training should be relevant to the provisions of the Radio Regulations annexed to the International Telecommunication Convention* and International Convention for the Safety of Life at Sea,** then in force, with special attention to the most recent developments in maritime radiocommunications technology and radiocommunications systems. In developing the programme account should be taken of, but not limited to, the following items.

Theory

3. The outline syllabus shown in the Appendix to Part I of this Recommendation should be supported by relevant laboratory or practical work.

Practical

4. Practical training should be given in:

- (a) Reading and understanding of circuit diagrams;
- (b) Use and care of those tools and test instruments required to be carried by the Safety Convention;
- (c) Soldering and de-soldering techniques, including those involving semi-conductor devices and modern circuits;
- (d) Operation and adjustment of shipborne radiocommunication equipment;
- (e) Operation and maintenance of portable and fixed radio equipment in survival craft;
- (f) Logical location of faults, emphasizing a systems approach;
- (g) Remedying of faults, including recognition of conditions contributing to the fault;
- (h) Maintenance procedures;
- (i) Direction finder calibration procedure and taking of direction finder bearings;
- (j) Methods of alleviating electrical and electromagnetic interference such as bonding, shielding and bypassing;
- (k) Antenna rigging, repair and maintenance;
- (l) Preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment including electrical, radiation, chemical and mechanical hazards;
- (m) Operation and maintenance of sources of energy such as rotating machinery, inverters and accumulator batteries.

Radiocommunication techniques

5. Training should be given in:

- (a) Operational techniques, including the following:
 - (i) Sending and receiving Morse Code with the objective of achieving the requirements of the Radio Regulations;
 - (ii) Receiving Morse Code under typical interference conditions (real or recorded);
 - (iii) Use of filter circuits and adjustment of the beat frequency oscillator (BFO) to improve reception of a desired signal under conditions of severe interference;
 - (iv) Receiver tuning techniques for single side-band signals;

* Hereinafter referred to as the Radio Regulations.

** Hereinafter referred to as the Safety Convention.

- (v) Transmitter tuning and antenna adjustment techniques;
- (vi) Receiver tuning techniques for reception of frequency shift signals including facsimile, direct printing and selective calling;
- (b) Radiotelegraph watchkeeping, exchange of radiotelegraph traffic, particularly concerning distress, urgency and safety procedures and log-keeping, including use of service abbreviations and Q-Code;
- (c) Radiotelephone watchkeeping, exchange of radiotelephone traffic, particularly concerning distress, urgency and safety procedures and log-keeping, including use of the international phonetic alphabet and figure code;
- (d) Operational procedures for narrow band direct-printing systems;
- (e) Use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
- (f) Communications procedures of the IMCO Merchant Ship Search and Rescue Manual (MERSAR), using radiotelegraphy and radiotelephony;
- (g) Ship position-reporting systems and procedures;
- (h) Radio medical systems and procedures;
- (i) Use of propagation prediction tables and other procedures to establish optimum frequencies for high frequency communications;
- (j) Use of high frequency calling frequencies;
- (k) Monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency.

Regulatory

6. Training should be based on the requirements of the Radio Regulations and the Safety Convention, in particular those sections which relate to:

- (a) Distress, urgency and safety radiocommunications;
- (b) Avoidance of causing harmful interference, particularly with distress traffic;
- (c) Documents to be carried by ship stations and their use.

Miscellaneous

7. It is recommended that:

- (a) The English language be taught to a suitable level within the limits necessary for exchange of radiotelephone and radiotelegraph communications relevant to the safety of life at sea;
- (b) Training be given in personal survival and in the practical use of life-saving equipment;
- (c) Training include an approved fire-fighting course with emphasis on methods of extinguishing fires in the radio room and causing as little damage to the radio installation as possible;
- (d) Basic training be given in touch typing for use in transcribing messages.

On-board training

8. During the initial sea-going periods of service the radio officer, under the guidance of the radio officer in charge, should complete an appropriate programme of planned sea-going training. The programme should include:

- (a) Priority tasks, which provide basic awareness of emergency procedures and an appropriate reaction to shipboard emergencies;
- (b) Familiarization with radiocommunication equipment, communications and operational duties;
- (c) Routine maintenance of radiocommunication and auxiliary equipment;
- (d) Administrative radio work;
- (e) Familiarization with the ship and duties of others on board.

APPENDIX. OUTLINE SYLLABUS COVERING THE THEORY
OF MARITIME SAFETY RADIOCOMMUNICATION

1. *Fundamentals of electricity and radiocommunication*

- (a) Basic electricity and direct current;
- (b) Primary and secondary cells;
- (c) Electromagnetism, inductance;
- (d) Electrostatics, capacitance;
- (e) Alternating current, including non-sinusoidal wave shapes;
- (f) Single-phase and poly-phase power supplies;
- (g) Transformers and machines;
- (h) Transducers;
- (i) Thermionic valves and semi-conductor devices;
- (j) Meters and electronic measuring instruments;
- (k) Combinational and sequential logic;
- (l) Electronic read-out devices such as nixi-tube and Light Emitting Diode;
- (m) Integrated circuits;
- (n) Audio frequency amplifiers;
- (o) Radio frequency amplifiers;
- (p) Oscillators and frequency synthesizers;
- (q) Types of modulation, frequency changing and detection;
- (r) Pulso circuits, non-sinusoidal wave shapes;
- (s) Antennae;
- (t) Electromagnetic wave propagation;
- (u) Transmission lines and antennae matching.

2. *Maritime radiocommunication and equipment*

- (a) Ship power supplies;
- (b) Transmitters;
- (c) Receivers;
- (d) Marine antenna systems, radiation and propagation;
- (e) Direction-finders and calibration procedure;
- (f) Survival craft radio apparatus, including emergency position-indicating radio beacons;
- (g) Automatic keying devices;
- (h) Automatic alarms;
- (i) Other circuits, components and systems in common use in shipborne radiocommunication equipment including radio terminal equipment.

3. *General.* Basic principles of preventive and remedial maintenance.

Part II. OUTLINE OF SUPPLEMENTARY SYLLABUS COVERING RADIO ELECTRONIC
NAVIGATIONAL EQUIPMENT AND ADDITIONAL RADIOCOMMUNICATION EQUIPMENT

When an Administration requires radio officers to possess the appropriate training or qualifications to repair and maintain additional radiocommunication equipment or radio-electronic navigational equipment, the programme should include, as appropriate, the following items:

1. *Direct printing and data techniques*
 - (a) Fundamental principles;
 - (b) Power supplies;
 - (c) Methods of error protection including ARQ and forward error correcting;
 - (d) Effect of noise and propagation conditions;
 - (e) Auxiliary equipment such as tape reader, perforator, teleprinter, error correcting device and voice frequency telegraphy.
2. *Selective calling systems*
 - (a) Fundamental principles;
 - (b) Effect of noise and propagation conditions;
 - (c) Read-out devices;
 - (d) Auxiliary equipment.
3. *Facsimile*
 - (a) Fundamental principles;
 - (b) Transducers;
 - (c) Modulation systems;
 - (d) Reproduction;
 - (e) Recorder circuits;
 - (f) Synchronization;
 - (g) Picture faults.
4. *Satellite equipment*
 - (a) Radiocommunications:
 - (i) Fundamental principles;
 - (ii) Antennae;
 - (iii) Transmitters and receivers;
 - (iv) Modems and interfaces.
 - (b) Radiodetermination techniques:
 - (i) Fundamental principles;
 - (ii) Systems;
 - (iii) Equipment;
 - (iv) System errors.
5. *Radar*
 - (a) Fundamental principles;
 - (b) Power supplies;
 - (c) Initiation and synchronizing circuits;
 - (d) Cathode ray tubes;
 - (e) Time base circuits;
 - (f) Brightening and blanking circuits;
 - (g) Bearing transmission systems;
 - (h) Ranging circuits;
 - (i) Azimuth stabilization circuits;
 - (j) Waveguides;
 - (k) Microwave oscillators;
 - (l) Radar transmitters;

- (m) Radar receivers;
 - (n) Anti-clutter circuits;
 - (o) Radar antenna and propagation;
 - (p) Navigational aspects such as relative and true motion.
6. *Radio navigational computers*
- (a) Fundamental principles;
 - (b) Input, interfaces for speed and course;
 - (c) Data storage and retrieval;
 - (d) Displays;
 - (e) Programmes, including prediction.
7. *Hyperbolic systems*
- (a) Fundamental principles;
 - (b) Characteristics of different makes and systems;
 - (c) System errors.
8. *Echo sounding equipment*
- (a) Fundamental principles;
 - (b) Methods of displaying information;
 - (c) Transducers;
 - (d) Transmitter and receiver systems such as pulse and doppler;
 - (e) Factors affecting quality and accuracy of soundings.
9. *Television*
- (a) Fundamental principles;
 - (b) Camera systems;
 - (c) Scanning;
 - (d) Receiver-display units;
 - (e) Recording units.
10. Other systems in common use in shipborne radiocommunication and radio electronic navigational equipment.
11. With regard to the above, preventive and remedial maintenance techniques should involve the use of block diagrams, systems analysis, unit analysis and circuit analysis, using appropriate tools and test instruments, all leading to logical fault finding; performance checks should be included where appropriate.

RESOLUTION 15. TRAINING FOR RADIOTELEPHONE OPERATORS

The Conference,

Noting the Mandatory Minimum Requirements for Certification of Radiotelephone Operators forming part of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Recognizing the need for additional requirements on training for radiotelephone operators,

Bearing in mind the provisions of the Radio Regulations annexed to the International Telecommunication Convention and of the International Convention for the Safety of Life at Sea,

Resolves:

- (a) To adopt the Recommendations on Training for Radiotelephone Operators, annexed to this Resolution;
- (b) To urge all Governments concerned to give effect to the contents of these Recommendations as soon as possible,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To keep these Recommendations under review, in consultation or association with other international organizations, as appropriate, particularly with the International Labour Organisation and the International Telecommunication Union, and to bring any future amendments to the attention of all Governments concerned;
- (b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX 1. RECOMMENDATION ON TRAINING FOR RADIOTELEPHONE OPERATORS (RESTRICTED CERTIFICATE) — MINIMUM LEVELS OF TRAINING IN MARITIME SAFETY RADIOTELEPHONE COMMUNICATIONS

General

1. Before training is commenced, the requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate.

2. The training should be relevant to the provisions of the Radio Regulations annexed to the International Telecommunication Convention* and the International Convention for the Safety of Life at Sea,** then in force, with special attention to the most recent developments in maritime radiotelephone communications, and the need for a high standard of communication discipline to preserve the integrity of the international distress and safety frequencies. In developing the programme, account should be taken of, but not limited to, the following items:

Practical

3. Practical training should be given in:

- (a) Operation of shipborne radiotelephone communication equipment;
- (b) Operation of portable radio apparatus for survival craft;
- (c) Sending and receiving spoken messages by radiotelephone;
- (d) Maintenance of accumulator batteries.

Communication procedures

4. (a) Training should be given in:

- (i) Radiotelephone watchkeeping, including log-keeping;
 - (ii) Procedures concerning sending and receiving radiotelephone messages, particularly those concerning distress, urgency and safety;
 - (iii) The use of the international phonetic alphabet and figure code.
- (b) The operator should have a knowledge of:
- (i) Use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
 - (ii) Ship position-reporting systems and procedures;

* Hereinafter referred to as the Radio Regulations.

** Hereinafter referred to as the Safety Convention.

- (iii) Communications procedures of the IMCO Merchant Ship Search and Rescue Manual (MERSAR), using radiotelephony;
- (iv) Radio medical systems and procedures.

Regulatory

5. Training should be based on the requirements of the Radio Regulations and the Safety Convention, in particular those sections which relate to:

- (a) Distress, urgency and safety radiotelephone communications;
- (b) Avoidance of causing harmful interference, particularly with distress traffic;
- (c) Documents to be carried by radiotelephone ship stations and their use.

Miscellaneous

6. It is recommended that:

- (a) The English language be taught to a suitable level within the limits necessary for exchange of radiotelephone communications relevant to the safety of life at sea;
- (b) Training be given in personal survival and in the practical use of life-saving equipment;
- (c) Training include an approved fire-fighting course with emphasis on methods of extinguishing fires in the radio installation and causing as little damage to it as possible.

ANNEX II. RECOMMENDATION ON TRAINING FOR RADIOTELEPHONE OPERATORS (GENERAL CERTIFICATE) — MINIMUM LEVELS OF TRAINING IN MARITIME SAFETY RADIOTELEPHONE COMMUNICATIONS

General

1. Before training is commenced, the requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate.

2. The training should be relevant to the provisions of the Radio Regulations and the Safety Convention, then in force, with special attention to the most recent developments in maritime radiotelephone communications, and the need for a high standard of communication discipline to preserve the integrity of the international distress and safety frequencies. In developing the programme, account should be taken of, but not limited to, the following items.

Theory

3. A knowledge of the elementary principles of radiotelephony, in accordance with the outline syllabus in the Appendix to this Recommendation.

Practical

4. Practical training should be given in:

- (a) Operation and adjustment of shipborne radiotelephone communication equipment;
- (b) Use of instruments incorporated in the equipment;
- (c) Operation of portable radio apparatus for survival craft;
- (d) Tracing and remedying of simple faults, occurring with fuses, antennae and switches, and replacing valves, recognition of conditions contributing to the fault, with reference, as appropriate, to the relevant operator manuals;
- (e) Radio direction finding and homing, as appropriate;
- (f) Antenna rigging and maintenance considerations;
- (g) Preventive measures for the safety of ship and personnel in connexion with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;

- (h) Maintenance of sources of energy such as rotating machinery, inverters and accumulator batteries.

Radio communication techniques

5. Training should be given in:

- (a) Operational techniques, including the following:
- (i) Receiver tuning techniques for single side-band signals;
 - (ii) Receiving under typical interference conditions (real or recorded);
 - (iii) Transmitter tuning and antenna adjustment techniques;
- (b) Radiotelephone watchkeeping, exchange of radiotelephone traffic, particularly concerning distress, urgency and safety procedures and log-keeping, including use of the international phonetic alphabet and figure code;
- (c) Use of propagation prediction tables and other procedures to establish optimum frequencies for high frequency communications;
- (d) Monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency.

6. The operator should have knowledge of:

- (a) Use of the International Code of Signals and the IMCO Standard Marine Navigational Vocabulary;
- (b) Ship position-reporting systems and procedures;
- (c) Communications procedures of the IMCO Merchant Ship Search and Rescue Manual (MERSAR), using radiotelephony;
- (d) Radio medical systems and procedures.

Regulatory

7. Training should be based on the requirements of the Radio Regulations and the Safety Convention, in particular those sections which relate to:

- (a) Distress, urgency and safety radiotelephone communications;
- (b) Avoidance of causing harmful interference, particularly with distress traffic;
- (c) Documents to be carried by radiotelephone ship stations and their use.

Miscellaneous

8. It is recommended that:

- (a) The English language be taught to a suitable level within the limits necessary for exchange of radiotelephone communications relevant to the safety of life at sea;
- (b) Training be given in personal survival and in the practical use of life-saving equipment;
- (c) Training include an approved fire-fighting course with emphasis on methods of extinguishing fires in the radio installation and causing as little damage to it as possible.

APPENDIX. OUTLINE SYLLABUS OF ELEMENTARY KNOWLEDGE
OF THE PRINCIPLES OF RADIOTELEPHONY

1. *Transmitters*

- (a) Types of modulation;
- (b) Effects of under and over modulation;
- (c) Double side-band and single side-band transmissions;
- (d) Electromagnetic wave propagation;
- (e) Transmitter range.

2. *Receivers*

- (a) Superheterodyne; the function of each stage;
- (b) Frequency changing and detection;
- (c) Single side-band reception, including carrier reinsertion, frequency stability.

3. *Need for maintenance and care of*

- (a) Antennae: effect of dirty and cracked insulators; salt water spray;
- (b) Accumulator batteries: hydrometer readings, on/off load voltage readings, topping-up, terminal connexions;
- (c) Rotating machinery.

4. *Knowledge of the following would be desirable*

- (a) Thermionic valves and semi-conductor devices;
- (b) Audio frequency amplifiers;
- (c) Radio frequency amplifiers;
- (d) Oscillators;
- (e) Microphones and loudspeakers;
- (f) Antennae properties, including length, height and leakage resistance.

RESOLUTION 16. TECHNICAL ASSISTANCE FOR THE TRAINING AND QUALIFICATIONS OF MASTERS AND OTHER RESPONSIBLE PERSONNEL OF OIL, CHEMICAL AND LIQUEFIED GAS TANKERS

The Conference,

Recognizing the importance of adequate training for masters and other personnel serving on board oil, chemical and liquefied gas tankers,

Noting the requirements of paragraph 2 in each of Regulations V/1, V/2 and V/3 of the International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, 1978, which prescribe mandatory minimum requirements for the training and qualifications of masters, senior officers and any other person with the immediate responsibility for loading, discharging and care in transit or handling of cargo in oil, chemical and liquefied gas tankers,

Recognizing that in some cases there may be limited facilities for obtaining the required experience and providing specialized training programmes, particularly in developing countries,

Believing that the promotion of technical co-operation on an inter-governmental level will accelerate the implementation of the Convention by States not yet having available adequate expertise or facilities for providing such training and experience,

Strongly urges Governments in a position to do so to provide, or arrange to provide, in collaboration with the Inter-Governmental Maritime Consultative Organization, assistance to States which have difficulty in meeting those requirements and request such assistance,

Invites the Inter-Governmental Maritime Consultative Organization to use all its endeavours to provide those States with the required assistance and make suitable provisions within its technical assistance programme,

Further urges that Governments and the Inter-Governmental Maritime Consultative Organization initiate action in accordance with this Resolution without awaiting the entry into force of the Convention.

RESOLUTION 17. ADDITIONAL TRAINING FOR MASTERS AND CHIEF MATES OF LARGE SHIPS AND OF SHIPS WITH UNUSUAL MANOEUVRING CHARACTERISTICS

The Conference,

Recognizing the importance of relevant experience and training before assuming the duties of master or chief mate of large ships and ships having unusual handling and manoeuvring characteristics significantly different from those in which they have recently served,

Noting that such characteristics will generally be found in ships which are of considerable deadweight, length, special design or of high speed,

Recommends that:

- (a) Prior to appointment to one of such ships masters and chief mates should:
 - (i) Be informed of that ship's handling characteristics particularly in relation to the subjects listed in paragraph 7 of the Appendix to Regulation II/2, "Mandatory Minimum Requirements for Certification of Masters and Chief Mates of Ships of 200 Gross Register Tons or More", of the International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, 1978;
 - (ii) Be thoroughly familiar with the use of all navigational and manoeuvring aids fitted in the ship concerned, including their capabilities and limitations;
 - (b) Before initially assuming command of one of the ships referred to above, the prospective master should have sufficient and appropriate general experience as master or chief mate, and either:
 - (i) Have sufficient and appropriate manoeuvring experience as chief mate or supernumerary on the same ship or as master, chief mate or supernumerary on a ship having similar manoeuvring characteristics; or
 - (ii) Have attended an approved ship handling simulator course on an installation capable of simulating the manoeuvring characteristics of such a ship;
 - (c) The additional training and qualifications of masters and chief mates of dynamically supported craft should be in accordance with the relevant guidelines of the IMCO Code of Safety for Dynamically Supported Craft,
- Invites the Inter-Governmental Maritime Consultative Organization:
- (a) To keep the recommendation contained herein under review, in consultation or association with other international organizations, as appropriate, particularly with the International Labour Organisation, and to bring any future amendments to the attention of all Governments concerned;
 - (b) To communicate this Resolution to all Governments invited to the Conference.

RESOLUTION 18. RADAR SIMULATOR TRAINING

The Conference,

Recognizing the vital importance of adequate radar training with regard to the safety of life and property at sea and the protection of the environment,

Considering that some methods of instruction in the use of radar do not achieve the desired level of proficiency of masters and deck officers,

Noting that the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, requires such officers to possess an adequate level of proficiency in ship operations under all conditions of service,

Resolves to recommend that radar simulator training be given to all masters and deck officers,

Invites the Inter-Governmental Maritime Consultative Organization to communicate this Resolution to all Governments invited to the Conference,

Calls upon all Governments concerned to take due account of this Resolution as a matter of urgency.

RESOLUTION 19. TRAINING OF SEAFARERS IN PERSONAL SURVIVAL TECHNIQUES

The Conference,

Considering the need to train all seafarers in personal survival techniques,

Recognizing that such training would enhance their chance of survival at sea during emergency situations,

Resolves:

(a) To adopt the Recommendation on Training of Seafarers in Personal Survival Techniques, annexed to this Resolution;

(b) To urge all Governments concerned to give effect to the contents of the Recommendation as soon as practicable,

Invites the Inter-Governmental Maritime Consultative Organization:

(a) To keep this Recommendation under review, in consultation or association with other international organizations, as appropriate, particularly with the International Labour Organisation, and to bring any future amendments to the attention of all Governments concerned;

(b) To communicate this Resolution to all Governments invited to the Conference.

ANNEX. RECOMMENDATION ON TRAINING OF SEAFARERS
IN PERSONAL SURVIVAL TECHNIQUES

Every prospective seafarer should, before being employed in a sea-going ship, receive approved training in personal survival techniques. In respect of such training, the following recommendations are made.

1. Every prospective seafarer should be instructed in the following:

(a) Types of emergencies which may occur, such as collisions, fire and foundering;

(b) Types of life-saving appliances normally carried on ships;

(c) Need to adhere to the principles of survival;

- (d) Value of training and drills;
- (e) Need to be ready for any emergency and to be constantly aware of:
 - (i) The information in the muster list, in particular:
 - (1) His specific duties in any emergency;
 - (2) His own survival craft station;
 - (3) The signals calling all crew to their survival craft or fire stations;
 - (ii) Location of his own and spare life-jackets;
 - (iii) Location of fire alarm controls;
 - (iv) Means of escape;
 - (v) Consequences of panic;
- (f) Actions to be taken when called to survival craft stations, including:
 - (i) Putting on suitable clothing;
 - (ii) Donning a life-jacket;
 - (iii) Collecting additional protection such as blankets, time permitting;
- (g) Actions to be taken when required to abandon ship, such as:
 - (i) How to board survival craft from ship and water;
 - (ii) How to jump into the sea from a height and reduce the risk of injury when entering the water;
- (h) Actions to be taken when in the water, such as:
 - (i) How to survive in circumstances of:
 - (1) Fire or oil on the water;
 - (2) Cold conditions;
 - (3) Shark-infested waters;
 - (ii) How to right a capsized survival craft;
- (i) Actions to be taken when aboard a survival craft, such as:
 - (i) Getting the survival craft quickly clear of the ship;
 - (ii) Protection against cold or extreme heat;
 - (iii) Using a drogue or sea anchor;
 - (iv) Keeping a look-out;
 - (v) Recovering and caring for survivors;
 - (vi) Facilitating detection by others;
 - (vii) Checking equipment available for use in the survival craft and using it correctly;
 - (viii) Remaining, so far as possible, in the vicinity;
- (j) Main dangers to survivors and the general principles of survival, including:
 - (i) Precautions to be taken in cold climates;
 - (ii) Precautions to be taken in tropical climates;
 - (iii) Exposure to sun, wind, rain and sea;
 - (iv) Importance of wearing suitable clothing;
 - (v) Protective measures in survival craft;
 - (vi) Effects of immersion in water and of hypothermia;
 - (vii) Importance of preserving body fluids;
 - (viii) Protection against seasickness;
 - (ix) Proper use of fresh water and food;
 - (x) Effects of drinking sea water;

- (xi) Means available for facilitating detection by others;
 - (xii) Importance of maintaining morale.
2. Every prospective seafarer should be given practical instruction in at least the following:
- (a) Wearing a life-jacket correctly;
 - (b) Entering the water from a height wearing a life-jacket;
 - (c) Swimming while wearing a life-jacket;
 - (d) Keeping afloat without a life-jacket;
 - (e) Boarding liferafts from ship and water while wearing a life-jacket;
 - (f) Assisting others to board survival craft;
 - (g) Operation of survival craft equipment including basic operation of portable radio equipment;
 - (h) Streaming a drogue or sea anchor.

RESOLUTION 20. TRAINING IN THE USE OF COLLISION AVOIDANCE AIDS

The Conference,

Having adopted the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, which includes certification requirements for the training of masters and deck officers in the proper use of radar,

Noting that the International Conference on Tanker Safety and Pollution Prevention, 1978, adopted Resolution 13 which requested the Inter-Governmental Maritime Consultative Organization to develop performance standards and carriage requirements for collision avoidance aids on all ships of 10,000 tons gross tonnage and upwards not later than 1 July 1979, and also invited the attention of the Conference to the need for including appropriate provisions concerning the use of collision avoidance aids in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Recognizing that if such equipment is to be fitted on such ships, it is essential that masters and officers in charge of a navigational watch be properly trained in its use and fully aware of its capabilities and limitations,

Considering that before training requirements or recommendations can be prepared, operational performance standards and carriage requirements should first be defined,

Invites the Inter-Governmental Maritime Consultative Organization to prepare appropriate training requirements or recommendations on training in the use of collision avoidance aids when it has adopted international carriage requirements and operational performance standards for collision avoidance aids.

RESOLUTION 21. INTERNATIONAL CERTIFICATE OF COMPETENCY

The Conference,

Recognizing the importance and urgency of harmonizing the certification for masters and officers serving on board sea-going ships,

Realizing that suitable arrangements have already been made in relation to other international conventions,

Invites the Inter-Governmental Maritime Consultative Organization:

- (a) To develop a standard form and title for an international certificate of competency; and
- (b) To communicate this Resolution to all Governments invited to the Conference.

RESOLUTION 22. HUMAN RELATIONSHIPS

The Conference,

Having adopted the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978,

Recognizing that not only safe operation of the ship and its equipment but also good human relationships between the seafarers on board would greatly enhance the safety of life at sea,

Noting that the knowledge of personnel management, organization and training aboard ships is required for certification of supervisory personnel,

Recommends that this knowledge include knowledge of basic principles of human relationships and social responsibility,

Invites all Governments:

- (a) To establish or encourage the establishment of training programmes aimed at safeguarding good human relationships on board ships;
- (b) To take adequate measures to minimize any element of loneliness and isolation for crew members on board ships;
- (c) To ensure that crew members are sufficiently rested before commencing their duties.

RESOLUTION 23. PROMOTION OF TECHNICAL CO-OPERATION

The Conference,

Noting with satisfaction that the Inter-Governmental Maritime Consultative Organization has accorded, in its technical co-operation programme, the highest priority to maritime training,

Records its appreciation of the Organization's assistance to developing countries to establish maritime training facilities in conformity with global standards of training,

Invites the Organization to intensify its efforts with a view to promoting the universal acceptance and implementation of the provisions of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, in regard to maritime training,

Further invites the Organization to pursue the aforesaid efforts, in consultation or association with other international organizations, as appropriate, particularly the International Labour Organisation.

ANNEX A

***Ratifications, accessions, prorogations, etc.,
concerning treaties and international agreements
registered
with the Secretariat of the United Nations***

ANNEXE A

***Ratifications, adhésions, prorogations, etc.,
concernunt des traités et accords internationaux
enregistrés
au Secrétariat de l'Organisation des Nations Unies***

ANNEX A — ANNEXE A

No. 4789. AGREEMENT CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS. DONE AT GENEVA ON 20 MARCH 1958¹

ENTRY INTO FORCE of Regulation No. 60 (*Uniform provisions concerning the approval of two-wheeled motor cycles and mopeds with regard to driver-operated controls including the identification of controls, tell-tales and indicators*) as an annex to the above-mentioned Agreement of 20 March 1958

The said Regulation came into force on 1 July 1984 in respect of Czechoslovakia and Italy, in accordance with article I (5) of the Agreement.

I. SCOPE

This Regulation applies to two-wheeled motor cycles and two-wheeled mopeds with regard to driver-operated controls including the identification of controls, tell-tales and indicators.

2. DEFINITIONS

For the purposes of this Regulation:

- 2.1. "Approval of a vehicle" means the approval of a vehicle type with regard to driver-operated controls, where such controls are fitted and to their identification.
- 2.2. "Vehicle type" means a category of power-driven vehicles which do not differ in respect of the arrangements which may affect the function or position of the driver-operated controls.
- 2.3. "Vehicle" means a two-wheeled motor cycle as defined in article I (*n*) or a two-wheeled moped as defined in article I (*m*) of the United Nations Convention on Road Traffic, Vienna 1968.²
- 2.4. "Control" means any part of the vehicle or a device directly actuated by the driver which changes the state or functioning of the vehicle or any part thereof.
- 2.5. "Handlebars" means any part of the bar or bars connected to the head of the forks (steering head) by means of which the vehicle is steered.

¹ United Nations, *Treaty Series*, vol. 335, p. 211; for subsequent actions, see references in Cumulative Indexes Nos. 4 to 14, as well as annex A in volumes 915, 917, 926, 932, 940, 943, 945, 950, 951, 955, 958, 960, 961, 963, 966, 973, 974, 978, 981, 982, 985, 986, 993, 995, 997, 1003, 1006, 1010, 1015, 1019, 1020, 1021, 1024, 1026, 1031, 1035, 1037, 1038, 1039, 1040, 1046, 1048, 1050, 1051, 1055, 1059, 1060, 1065, 1066, 1073, 1078, 1079, 1088, 1092, 1095, 1097, 1098, 1106, 1110, 1111, 1112, 1122, 1126, 1130, 1135, 1136, 1138, 1139, 1143, 1144, 1145, 1146, 1147, 1150, 1153, 1156, 1157, 1162, 1177, 1181, 1196, 1197, 1198, 1199, 1205, 1211, 1213, 1214, 1216, 1218, 1222, 1223, 1224, 1225, 1235, 1237, 1240, 1242, 1247, 1248, 1249, 1252, 1253, 1254, 1255, 1256, 1259, 1261, 1271, 1273, 1275, 1276, 1277, 1279, 1284, 1286, 1287, 1291, 1293, 1294, 1295, 1299, 1300, 1301, 1302, 1308, 1310, 1312, 1314, 1316, 1317, 1321, 1323, 1324, 1327, 1328, 1330, 1331, 1333, 1335, 1336, 1342, 1347, 1348, 1349, 1350, 1352, 1355 and 1358.

² *Ibid.*, vol. 1042, p. 17.

- 2.5.1. "Handlebars: right side" means any part of the handlebars which, when facing the direction of forward movement, lies on the right side of the longitudinal median plane of the vehicle.
- 2.5.2. "Handlebars: left side" means any part of the handlebars which, when facing the direction of forward movement, lies on the left side of the longitudinal median plane of the vehicle.
- 2.5.3. "Handlebars: forward" means any part of the handlebars lying on the side farthest from the driver when seated in a driving position.
- 2.6. "Handgrip" means that part of the handlebars, furthest from the centre, by which the handlebars are held by the driver of the vehicle.
- 2.6.1. "Rotating handgrip" means a handgrip, operating some functional mechanism of the vehicle, which is free to rotate around the handlebar when so turned by the driver of the vehicle.
- 2.7. "Frame" means any part of the frame, chassis or cradle of the vehicle, to which is attached the engine and/or transmission unit, and/or the engine and transmission unit itself.
- 2.7.1. "Frame: right side" means any part of the frame which, when facing the direction of forward movement, lies on the right side of the longitudinal median plane of the vehicle.
- 2.7.2. "Frame: left side" means any part of the frame which, when facing in the direction of forward movement, lies on the left side of the longitudinal median plane of the vehicle.
- 2.8. "Lever" means any device consisting of an arm turning on a fulcrum, by means of which some functional mechanism of the vehicle is operated.
- 2.8.1. "Hand lever" means a lever operated by the hand of the driver.
Note. Unless otherwise stated, a hand lever is operated by compression, (that is, movement of the apex of the lever towards the supporting structure), e.g., to engage a brake mechanism or to disengage the clutch mechanism.
- 2.8.2. "Foot lever" means a lever operated by contact between the foot of the driver and a spur projecting from the arm of the lever.
- 2.8.3. "Pedal" means a lever operated by contact between the foot of the driver and a pad on the lever, so placed as to allow pressure to be applied to the arm of the lever.
Note. Unless otherwise stated, a pedal is operated by depression, for example to engage a brake mechanism.
- 2.8.4. "Riding pedals" means those devices which are linked to some form of transmission and may be used to propel a moped.
- 2.8.5. "Rocker arm" means a lever, pivoted at or near its centre and having a pad or spur at each end, operated by contact between the foot of the driver and the said pads or spurs (see annex 3, figure 3).
- 2.9. "Footrest" means the projections on either side of the vehicle on which the driver places his feet when seated in the driving position.
- 2.10. "Platform" means that part of the vehicle on which the driver places his feet, when seated in the normal driving position, in the case that the vehicle is not equipped with riding pedals or footrests for the driver.
- 2.11. "Clockwise" means the direction of rotation around the axis of the part considered, following the motion of the hands of a clock when viewed from the upper or the outer side of the part considered.
- 2.11.1. "Anticlockwise" has the inverse meaning.

- 2.12. "Combined service brake" means a system of operation (by hydraulic action or mechanical linkage, or both) whereby both the front and the rear brakes of the vehicle are brought into operation at least partially by the use of only one control.
 - 2.13. "Indicator" means a device which presents information on the functioning or situation of a system or a part of a system, for example a fluid level.
 - 2.14. "Tell-tale" means an optical signal which indicates the actuation of a device, correct or defective functioning or condition, or failure to function.
 - 2.15. "Symbol" means a diagram from which to identify a control, a tell-tale or an indicator.
3. APPLICATION FOR APPROVAL
 - 3.1. The application for approval of a vehicle type with regard to driver-operated controls shall be submitted by the vehicle manufacturer or by his duly accredited representative.
 - 3.2. It shall be accompanied by the undermentioned documents in triplicate and the following particulars:
 - 3.2.1. Drawings, on an appropriate scale and in sufficient detail, of the parts of the vehicle to which the requirements of this Regulation relate and, where necessary, of the vehicle itself.
 - 3.3. A vehicle representative of the vehicle type to be approved shall be submitted to the technical service responsible for conducting approval tests, for the checks referred to in paragraph 5 of this Regulation.
 4. APPROVAL
 - 4.1. If the vehicle type submitted for approval pursuant to this Regulation meets the requirements of paragraphs 5 and 6 below, approval of that vehicle type shall be granted.
 - 4.2. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another vehicle type.
 - 4.3. Notice of approval or of refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation, by means of a form conforming to the model in annex 1 to this Regulation and of drawings and diagrams supplied by the applicant for approval, in a format not exceeding A 4 (210 × 297 mm) or folded to that format and on an appropriate scale.
 - 4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation an international approval mark consisting of:
 - 4.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval;*

* 1 for the Federal Republic of Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for Czechoslovakia, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 for the German Democratic Republic, 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland and 21 for Portugal. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

- 4.4.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 4.4.1.
- 4.5. If the vehicle conforms to a vehicle type approved, under one or more other Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.4.1 need not be repeated; in such a case, the Regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.4.1.
- 4.6. The approval mark shall be clearly legible and shall be indelible.
- 4.7. The approval mark shall be readily accessible.
- 4.8. Annex 2 to this Regulation gives examples of arrangements of approval marks.
5. GENERAL REQUIREMENTS
 - 5.1. All the driver-operated controls specified in paragraphs 6.1, 6.2, 6.3, and 6.4 shall be within the reach of the driver when seated in the driving position.
 - 5.1.1. The driver's reach to the controls shall not be impeded by the intrusion of any other control or any part of the structure of the vehicle.
 - 5.1.2. The controls detailed in paragraphs 6.1 to 6.4 below shall be located in the positions or in the specified areas indicated in those paragraphs.
 - 5.1.3. The position of the controls on the handlebars specified in
 - Paragraph 6.2.1 (front brake);
 - Paragraph 6.2.2.2 (rear brake: mopeds);
 - Paragraph 6.3.1 (clutch);
 - Paragraph 6.4.1 (audible warning device);
 - Paragraph 6.4.2.2 (driving beam/passing beam control);
 - Paragraph 6.4.3 (direction indicators control)shall be such that they can be reached without the removal of the driver's hands from the respective handgrips.
 - 5.2. The controls detailed in paragraphs 6.2.1, 6.2.2, 6.2.3 and 6.3.1 shall be so designed as to comply with the requirements of annex 3, Part One (Hand Levers) or Part Two (Foot Levers, Rocker Arms and Pedals), respectively.
 - 5.3. *Identification*
 - 5.3.1. The controls, tell-tales and indicators, when fitted shall be identified in accordance with the provisions of annex 4.
6. SPECIAL REQUIREMENTS
 - 6.1. *Engine controls*
 - 6.1.1. *Starting*
 - 6.1.1.1. *Engine ignition switch.* In the case of a rotary switch, the direction of motion shall be clockwise from the ignition "OFF" position to the ignition "ON" position.
 - 6.1.1.2. *Starter switch.* No special requirement.
 - 6.1.1.3. *Combined ignition/starter switch.* In the case of a rotary switch, the direction of motion shall be clockwise, passing from the "OFF" position to the ignition "ON" position to the starter energizing position.

- 6.1.2. *Speed*
- 6.1.2.1. *Speed control.* The speed of the engine shall be controlled by a hand-operated control.
Position of control: on handlebars, right side.
Type of control: rotating handgrip on handlebars.
Direction of rotation: anticlockwise to increase speed.
- 6.1.3. *Stop*
- 6.1.3.1. *Engine cut-out.* As a means of stopping the engine, alternative to the main switch (paragraph 6.1.1.1) or a decompression valve control (paragraph 6.1.3.2 below), the vehicle may be equipped with an engine electrical power supply cut-out.
Position of control: on handlebars, right side.
- 6.1.3.2. *Manual decompression control*
Position of control: on handlebars.
Type of control: lever, or rotating handgrip, provided that it is combined with the speed control (right side).
- 6.2. *Brakes*
- 6.2.1. *Front (wheel) brake*
Position of control: on handlebars, right side forward.
Type of control: hand lever.
- 6.2.2. *Rear (wheel) brake*
- 6.2.2.1. Vehicles equipped with manually operated clutch.
Position of control: on frame, right side.
Type of control: pedal.
- 6.2.2.2. Vehicles having no manual clutch control.
- 6.2.2.2.1. Vehicles equipped with riding pedals must, and vehicles equipped with a platform or with footrests integrated into a platform which have a maximum design speed not exceeding 100 km/h may, conform to the requirement.
Position of control: on handlebars, left side forward.
Type of control: hand lever.
- 6.2.2.2.2. *All other vehicles*
Position of control: on frame, right side.
Type of control: pedal.
- 6.2.2.3. Nothing in the requirements set out in paragraphs 6.2.2.1 or 6.2.2.2.1 of this Regulation shall prohibit a moped equipped with riding pedals from being equipped with a rear (wheel) brake operated by a back-peddalling device actuated by those riding pedals.
- 6.2.3. *Combined service brake.* Nothing in the requirements set out in paragraphs 6.2.1 or 6.2.2 of this Regulation shall prohibit a vehicle from being equipped with a combined service brake (see paragraph 2.12).
Position and type of control: as specified in paragraphs 6.2.1 and 6.2.2.
- 6.2.4. *Parking brake.* No special requirement.
Type of control: hand lever or pedal.

6.3. *Transmission*

6.3.1. *Clutch: operating control.*

Position of control: on handlebars, left side forward.

Type of control: hand lever.

Note. The above-mentioned requirement shall not prohibit, as a device for operating the clutch, the use of a combined foot lever control for both clutch operation and gear selection.

6.3.2. *Gear selection control*

6.3.2.1. In the case of vehicles equipped with a gear selection control operated independently of the clutch operating control.

Position of control: on frame, left side.

Type of control: foot lever or rocker arm.

6.3.2.1.1. Movement of the foot lever or the forward part of the rocker arm in an upward direction shall, progressively, select gears giving an increased forward speed and conversely for the selection of gears giving a reduced speed. A separate, positive "neutral" position shall be provided.

6.3.2.2. In the case of vehicles equipped with a gear selection control operated in conjunction with the clutch operating control:

Position of control: on handlebars, left.

Type of control: rotating handgrip on handlebars.

6.3.2.2.1. Rotation of the handgrip anticlockwise shall, progressively, select gears giving an increased forward speed and conversely for the selection of gears giving a reduced speed. A separate, positive "neutral" position shall be provided.

6.4. *Lighting and signalling controls*

6.4.1. *Audible Warning Device*

6.4.1.1. In the case of vehicles equipped with a gear selection control operated independently of the clutch operating control.

Position of control: on handlebars, left side.

Type of control: button.

6.4.1.2. In the case of vehicles equipped with a gear selection control operated in conjunction with the clutch operating control.

Position of control: on handlebars, right side.

Type of control: button.

6.4.2. *Lighting*

6.4.2.1. *Light control switch*

In the case of a rotary switch, operation of the switch in a clockwise direction shall engage, progressively, the vehicle's position lights and then the vehicle's main lights. This shall not prevent the inclusion of additional switch positions provided that they are clearly indicated. The light control switch may be combined with the ignition switch if so desired.

6.4.2.2. *Driving Beam/Passing Beam Switch*

6.4.2.2.1. In the case of vehicles equipped with a gear selection control operated independently of the clutch operating control.

Position of control: on handlebars, left side.

6.4.2.2.2. In the case of vehicles equipped with a gear selection control operated in conjunction with the clutch operating control.

Position of control: on handlebars, right side.

- 6.4.2.3. *Optical Warning Device.* The control for this device shall be adjacent to the Driving Beam/Passing Beam Switch or shall be an additional function of the latter.
- 6.4.3. *Direction indicators switch*
Position of control: on handlebars.
The control shall be so designed that, when viewed from the rider's seat operation of the left hand portion, or movement to the left, of the control actuates the left side indicators and vice versa for the right side indicators.
The control shall be clearly marked in such a manner as to indicate the side of the vehicle on which the control actuates the indicators.
- 6.5. *Fuel supply controls*
- 6.5.1. *Cold starting device.* The control shall be so placed as to be reasonably and conveniently accessible to the rider.
- 6.5.2. *Manual fuel shut-off control.* The control shall have separate positive positions for "OFF", "ON" and "RESERVE" (where a reserve supply is provided).
The control shall be in the "ON" position when it is in the direction downstream of the flow of fuel from the tank to the engine: in the "OFF" position when it is in a direction perpendicular to the flow of fuel, and in the "RESERVE" position (where applicable) when it is in the direction upstream of the flow of fuel.
- 6.5.2.1. Where a machine is so equipped the rider must be able to switch to the reserve fuel supply when in the seated position.
7. MODIFICATIONS OF THE VEHICLE TYPE
- 7.1. Every modification of the vehicle type shall be notified to the administrative department which approved the vehicle type. The department may then either:
- 7.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that, in any case, the vehicle still complies with the requirements; or
- 7.1.2. Require a further test report from the technical service responsible for conducting the tests.
- 7.2. Confirmation or refusal of approval, specifying the alterations, shall be communicated by the procedure specified in paragraph 4.3 above to the Parties to the Agreement applying this Regulation.
8. CONFORMITY OF PRODUCTION
- 8.1. Every vehicle bearing an approval mark as prescribed under this Regulation shall conform to the vehicle type approved, particularly as regards the driver-operated controls.
- 8.2. In order to verify conformity as prescribed in paragraph 8.1 above, a sufficient number of random checks shall be made on serially-manufactured vehicles bearing the approval mark required by this Regulation.
9. PENALTIES FOR NON-CONFORMITY OF PRODUCTION
- 9.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 8.1 above are not complied with or if the vehicle or vehicles taken fail to pass the tests prescribed in paragraph 8.2 above.
- 9.2. If a Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "APPROVAL WITHDRAWN".

10. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a type of vehicle approved in accordance with this Regulation, he shall so inform the authority which granted the approval. Upon receiving the relevant communication that authority shall inform thereof the other Parties to the Agreement applying this Regulation by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "PRODUCTION DISCONTINUED".

11. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

The Parties to the Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or refusal or withdrawal of approval, issued in other countries, are to be sent.

12. TRANSITIONAL PROVISIONS

The use of symbols specified in annex 4 to this Regulation becomes mandatory as from 1 July 1986.

ANNEX 1

(Maximum format: A4 (210 × 297 mm))



NAME OF ADMINISTRATION

Communication concerning the approval (or refusal or withdrawal of approval or production definitely discontinued) of a vehicle type with regard to driver-operated controls pursuant to Regulation No. 60.

- Approval No.
1. Trade name or mark of the vehicle
 2. Vehicle type
 3. Manufacturer's name and address
 4. If applicable, name and address of manufacturer's representative
 5. Brief description of the vehicle as regards the driver-operated controls
 6. Vehicle submitted for approval on
 7. Technical service responsible for conducting approval inspection
 8. Date of report issued by that service
 9. Number of report issued by that service
 10. Approval granted/refused*
 11. Position of approval mark on the vehicle

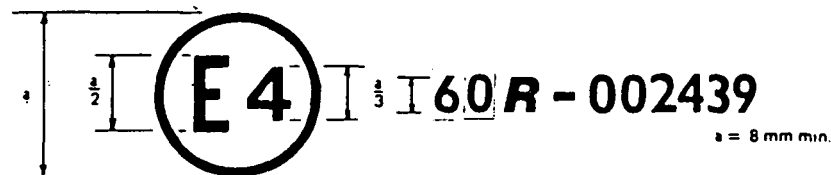
* Strike out what does not apply.

12. Place
13. Date
14. Signature
15. The following documents, bearing the approval number shown above, are annexed to this communication: drawings, diagrams and layout plans of the driver-operated controls and of the parts of the vehicle considered to be of importance for the purposes of this Regulation.

ANNEX 2. ARRANGEMENTS OF APPROVAL MARKS

MODEL A

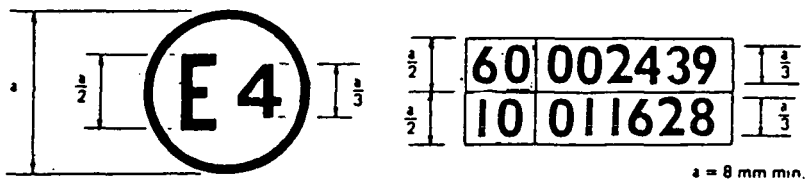
(See paragraph 4.4 of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to the driver-operated controls, been approved in the Netherlands (E 4) pursuant to Regulation No. 60 under approval number 002439. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 60 in its original form.

MODEL B

(See paragraph 4.5 of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E 4) pursuant to Regulations Nos. 60 and 10.*

The approval numbers indicate that, at the dates when the respective approvals were given, Regulation No. 60 had not been modified, and Regulation No. 10 already included the 01 series of amendments.

* The latter number is given as an example only.

ANNEX 3. SPECIAL PROVISIONS RELATING TO LEVERS

- I. Part One. HAND LEVERS
 - 1.1. The maximum dimension between the forward face of the hand lever and the rearward face of the handgrip shall not exceed 120 mm measured perpendicularly to the axis of the handgrip at any point between the mid-point and the end thereof nearest the fulcrum of the hand lever (see figure 1 (a)). In the case of vehicles equipped with a gear selection control operated in conjunction with the clutch operating control, the maximum dimension shall not exceed 135 mm.
 - 1.2. This dimension may increase beyond the mid-point of the handgrip and towards the open end of the hand lever.
 - 1.3. The minimum dimension (clearance) between the rearward face of the hand lever and the forward face of the handgrip shall not be less than 45 mm at any point between the outer end and the mid-point of the handgrip (see figure 1 (b)).
 - 1.4. This dimension may decrease beyond the mid-point of the handgrip and towards the fulcrum but must in no case be less than 25 mm.
 - 1.5. The outer end of the hand lever shall not project beyond the outer end of the handgrip by more than 30 mm when the hand lever is in its position of maximum compression (see figure 1 (c)).
2. Part Two. FOOT LEVERS, ROCKER ARMS AND PEDALS
 - 2.1. *Foot Levers*
 - 2.1.1. The maximum dimension between the rearward face of the spur of the foot lever and the rearward face of the corresponding footrest shall not exceed 200 mm at any point of the spur of the foot lever (see figure 2).
 - 2.1.2. The minimum dimension (clearance) between the rearward face of the spur of the foot lever and the forward face of the corresponding footrest shall not be less than 105 mm at any point on the spur of the foot lever (see figure 2).
 - 2.1.3. In case footrests are adjustable such dimensions shall be measured at the normal points of adjustment provided for the footrest, as stated in the instructions given by the manufacturer to the owner/user of the vehicle (the "Owner's Manual") and with the foot lever in the position prescribed by the manufacturer.
 - 2.2. *Rocker Arms*
 - 2.2.1. The dimension (K) between the rearward part of the pad, or the rearward face of the spur, situated at the front of the rocker arm and the rearward face of the footrest shall not be more than 200 mm nor less than 60 mm (see figure 3).
 - 2.2.2. The dimension (L) between the forward part of the pad, or the forward face of the spur, situated at the rear of the rocker arm and the rearward face of the footrest shall not be more than 100 mm nor less than 50 mm (see figure 3).
 - 2.2.3. In case footrests are adjustable such dimensions shall be measured at the normal points of adjustment provided for the footrest, as stated in the Owner's Manual, and with the rocker arm in the position prescribed by the manufacturer.
 - 2.3. *Pedals*
 - 2.3.1. Vehicles equipped with footrests
 - 2.3.1.1. The maximum dimension between the rearward part of the pad of the pedal and the rearward face of the corresponding footrest shall not exceed 170 mm at any point (see figure 4).
 - 2.3.1.2. The minimum dimension (clearance) between the rearward part of the pad of the pedal and the forward face of the corresponding footrest shall not be less than 50 mm at any point (see figure 4).

- 2.3.1.3. In case footrests are adjustable such dimensions shall be measured at the normal points of adjustment provided for the footrest, as stated in the Owner's Manual, and with the pedal in the position prescribed by the manufacturer.
- 2.3.2. Vehicles equipped with platforms
- 2.3.2.1. The maximum dimension between the surface of the platform and the highest point of the pad of the pedal, measured perpendicularly to the surface of the platform adjacent to the pedal, shall not exceed 105 mm (see figure 5).
- 2.3.2.2. The extreme outer edge of the pad of the pedal shall not project more than 25 mm beyond the outer edge of the platform (see figure 5).

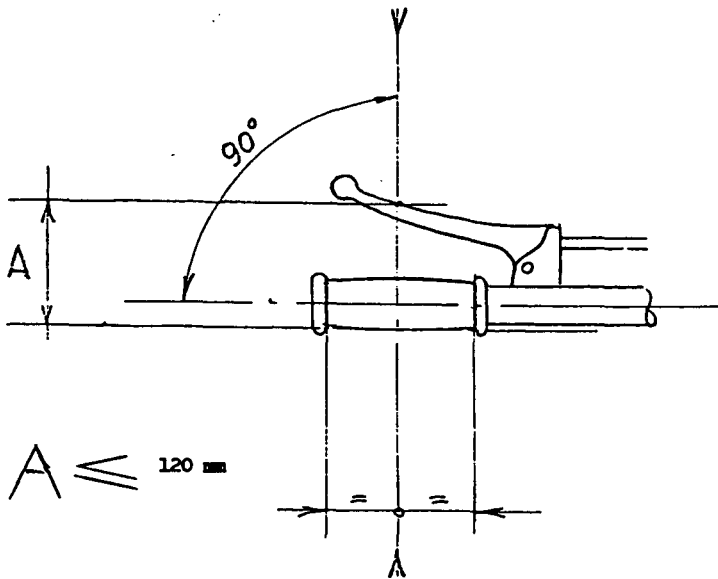


FIGURE 1 (a)

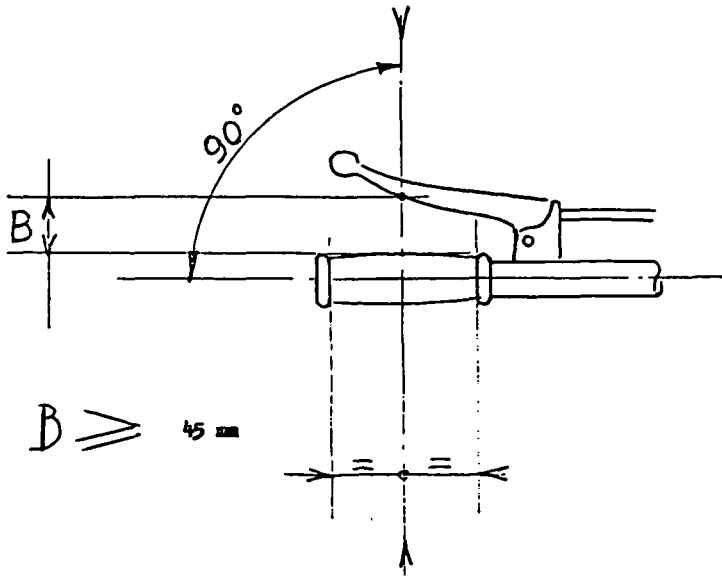


FIGURE 1 (b)

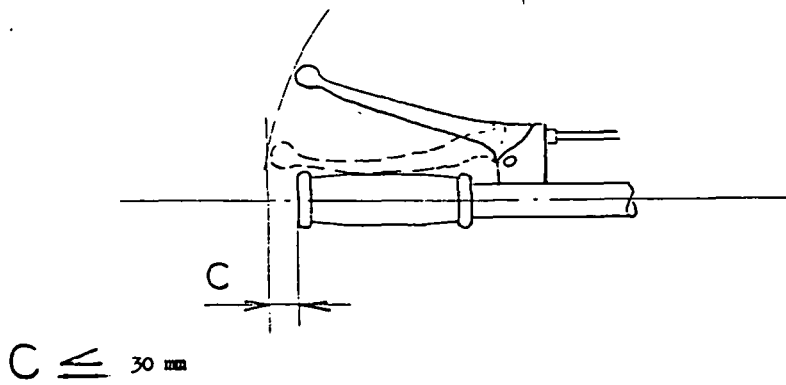


FIGURE 1 (c)

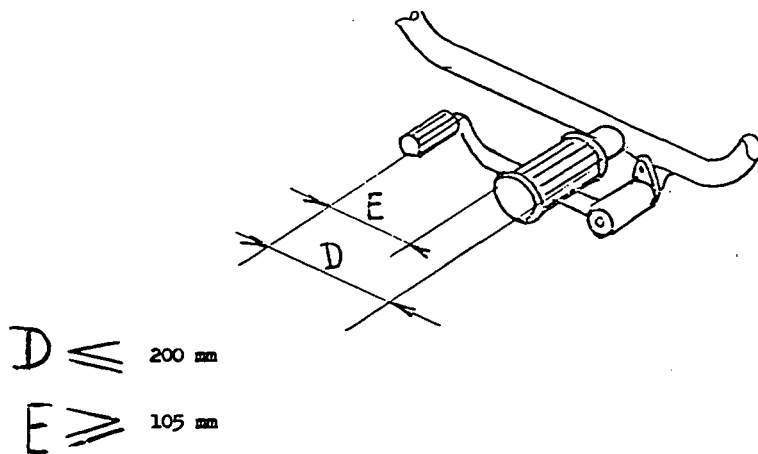


FIGURE 2

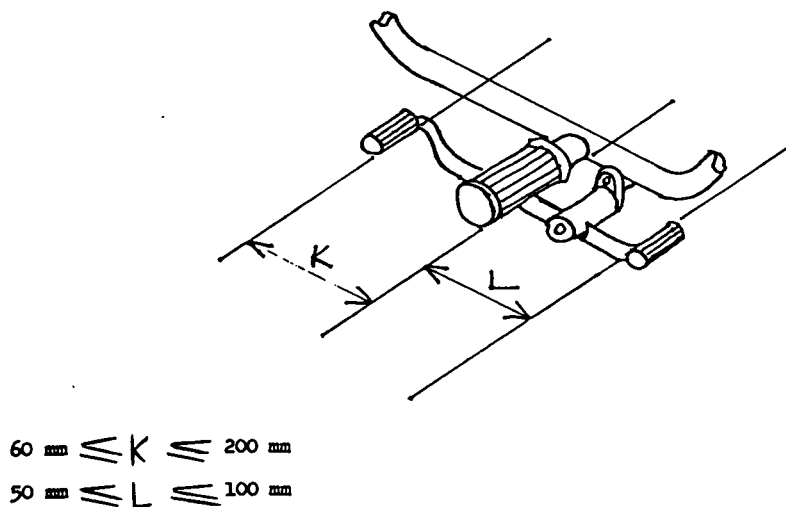


FIGURE 3

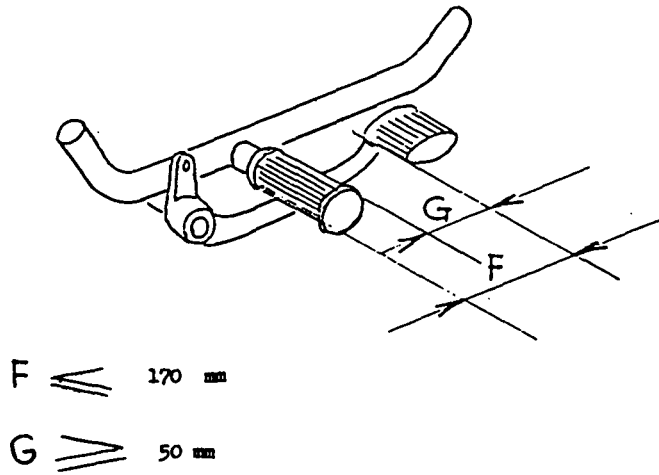


FIGURE 4

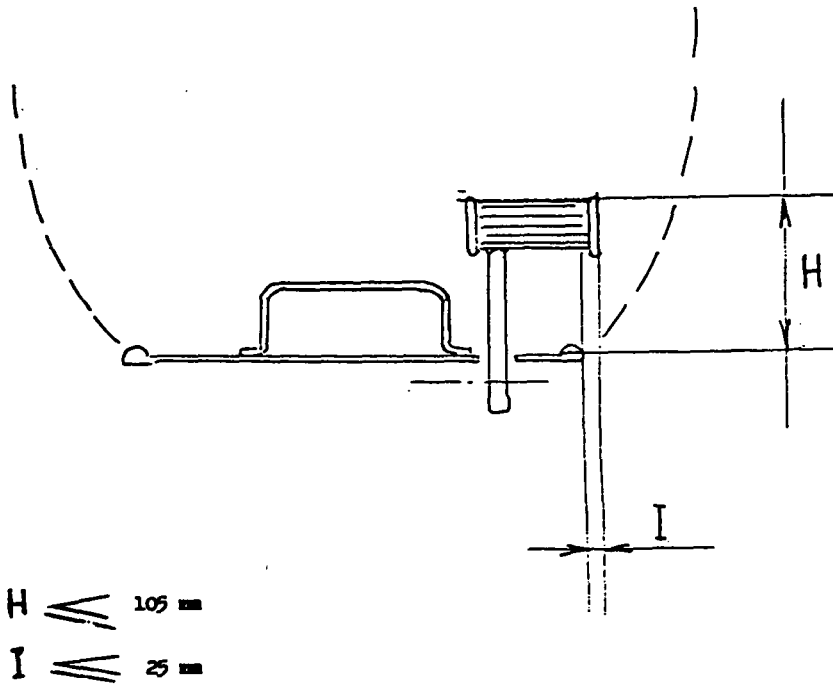
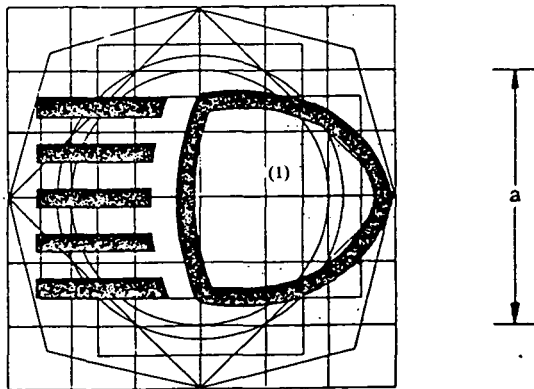


FIGURE 5

ANNEX 4. CONTROLS, TELL-TALES AND INDICATORS FOR WHICH, WHEN FITTED IDENTIFICATION IS MANDATORY, AND SYMBOLS TO BE USED FOR THAT PURPOSE*

1. This annex specifies the symbols, i. e., conventional signs, used to identify certain controls, indicators and tell-tales on a motor cycle or a moped and to facilitate their usage. It also indicates the colours of possible optical tell-tales which warn the driver of the operation or malfunctioning of the devices and equipment connected to the corresponding controls.
2. This annex is applicable to those controls which, when used, are fitted on the instrument panel or in the immediate vicinity of the motor cycle or the moped driver. This definition of application does not signify the mandatory presence of each and every control listed in this annex.
3. The symbols must be such that, when viewed by the driver, from the seated position, they are recognizable as shown in paragraph 5 below.
4. The symbols shall stand out clearly against the background, being either light on a dark background or dark on a light background.
5. The symbol must be placed on, or adjacent to, the control or tell-tale to be identified. Where this is not possible, the symbol and the control or tell-tale must be joined by a continuous line as short as possible.
6. If, in a symbol, a motor cycle/(a moped) or parts of a motor cycle/(a moped) are shown in a side view, a motor cycle/(a moped) driving from right to left shall be assumed.
7. Focused light shall be represented by parallel rays and diffuse light by divergent rays.
8. When the following colours are used on the optical tell-tales, they shall have the meaning indicated below:
 Red: Danger
 Yellow (Amber): Caution
 Green: Safe
 (Blue shall be used only for the headlamp driving beam tell-tale.)
9. *Designation and illustration of the symbols¹*

**FIGURE 1. HEADLAMP BEAM CONTROL;
 DRIVING BEAM**
 Colour of tell-tale light: blue



* In conformity with the International Standards ISO 6727-1981 and 4129-1978.
 In order to ensure correct graphic presentation and observance of the exact proportions, the symbols are reproduced in accordance with the ISO grid system (see also appendix to this annex).

¹ See foot-notes at the end of this annex.

FIGURE 2. HEADLAMP BEAM CONTROL;
PASSING BEAM

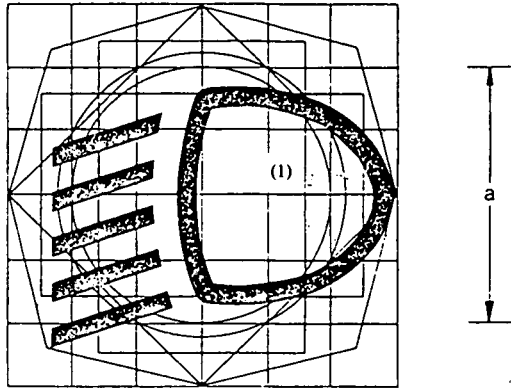


FIGURE 3. TURN SIGNAL
Colour of tell-tale light: green

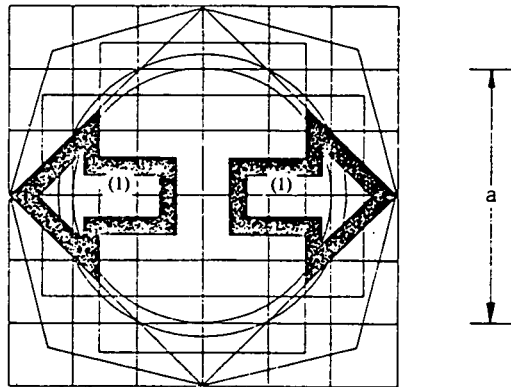


FIGURE 4. HAZARD WARNING (ALTERNATIVES)
Colour of tell-tale light: red
or
Simultaneous operation of both arrows of
figure 3

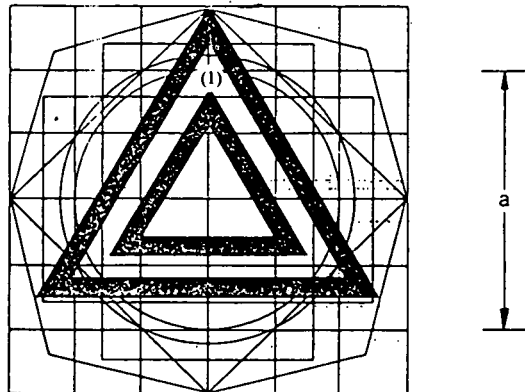


FIGURE 5. MANUAL CHOKE
Colour of tell-tale light: amber

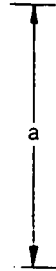
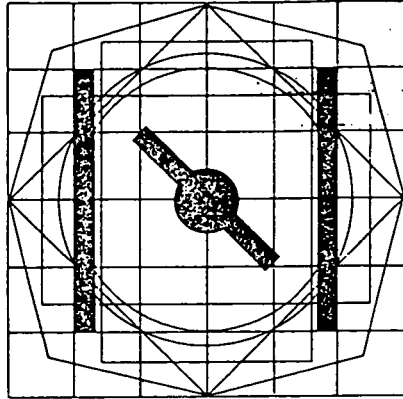


FIGURE 6. HORN

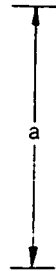
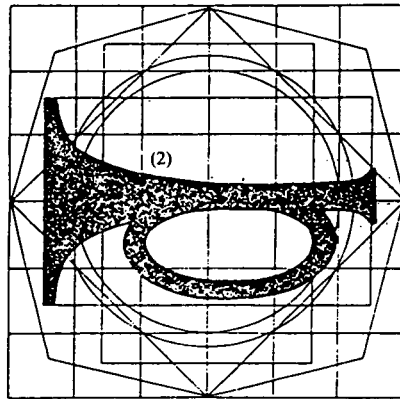


FIGURE 7. FUEL
Colour of tell-tale light: amber

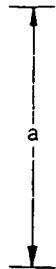
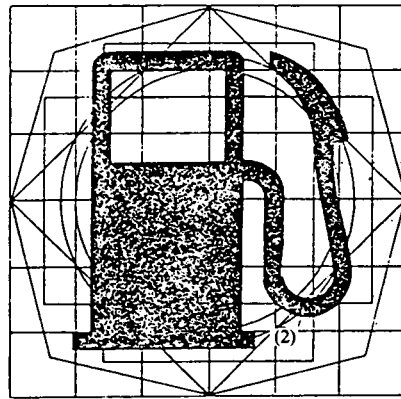


FIGURE 8. ENGINE COOLANT TEMPERATURE
Colour of tell-tale light: red

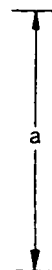
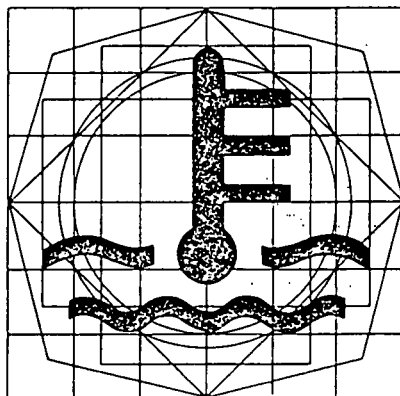


FIGURE 9. BATTERY CHARGING
Colour of tell-tale light: red

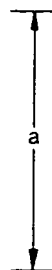
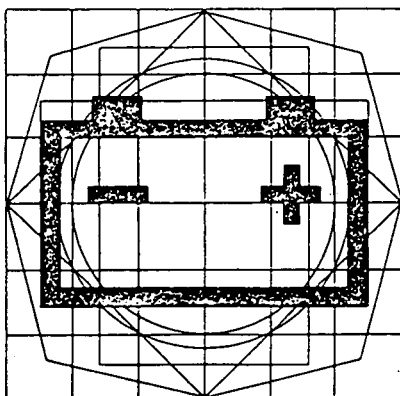


FIGURE 10. ENGINE OIL
Colour of tell-tale light: red

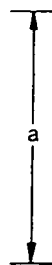
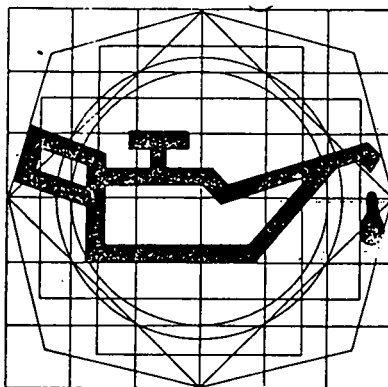


FIGURE 11. FRONT FOG LIGHT ⁽³⁾
Colour of tell-tale light: green

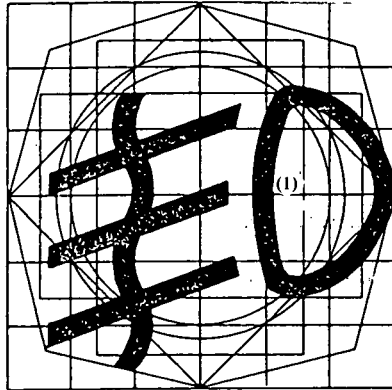


FIGURE 12. REAR FOG LIGHT ⁽³⁾
Colour of tell-tale light: amber

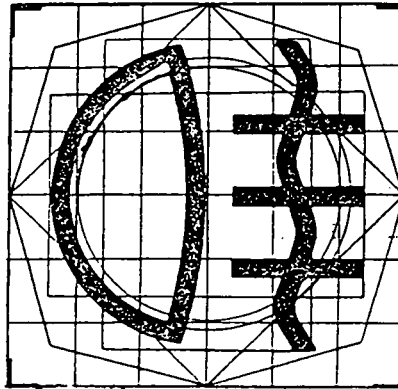
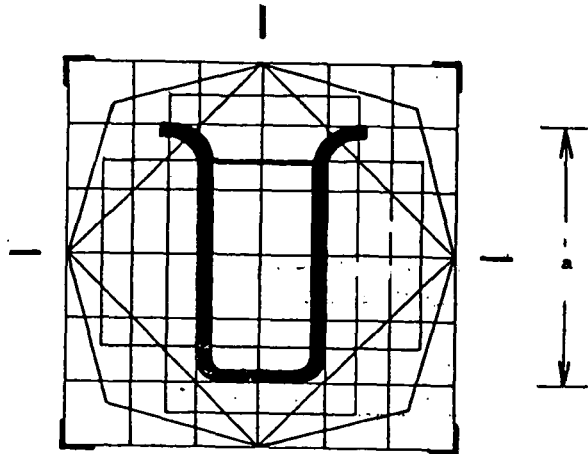


FIGURE 13. FUEL TANK SHUT OFF VALVE
— POSITION "OFF"



FUEL TANK SHUT OFF VALVE
— POSITION "ON"

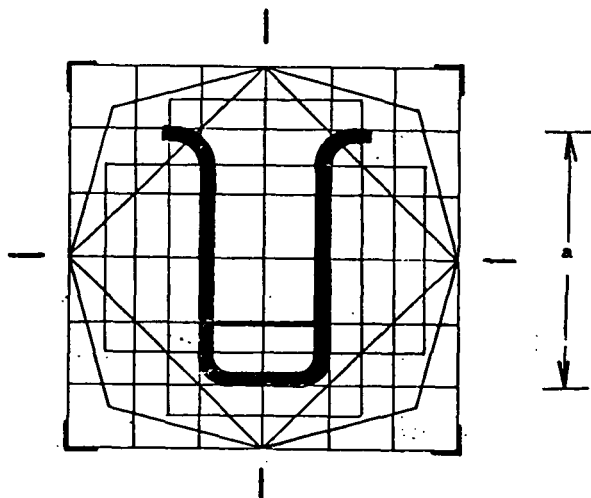


FIGURE 14. FUEL TANK SHUT OFF VALVE
— POSITION "RESERVE"

FIGURES 15A, B. IGNITION CONTROL OR
SUPPLEMENTAL ENGINE STOP

FIGURE 15A. POSITION "OFF"

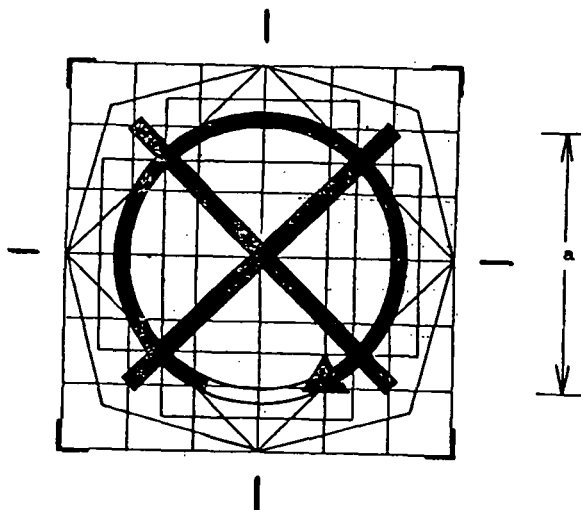
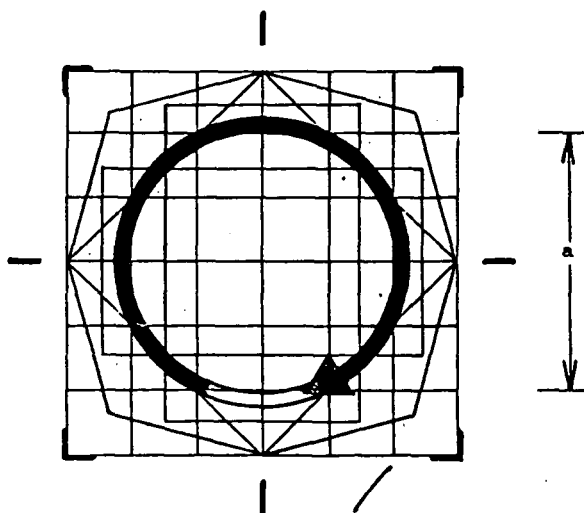


FIGURE 15B. POSITION "RUN"



FIGURES 16A, B, C. LIGHTING SWITCH
(may be combined with ignition control)

FIGURE 16A. POSITION LIGHT
Colour of tell-tale light: green

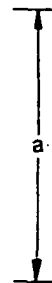
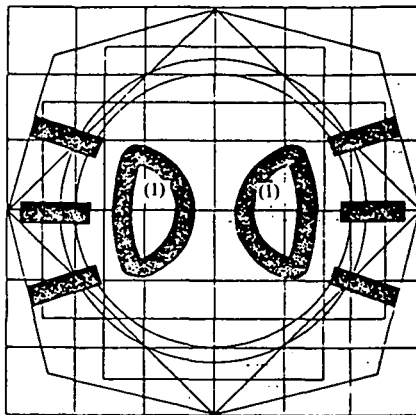


FIGURE 16B. MASTER LAMP SWITCH
Colour of tell-tale light: green

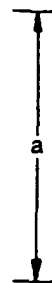
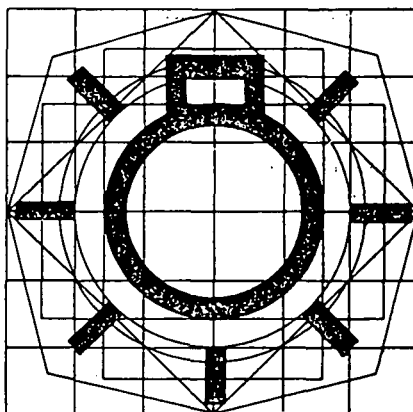


FIGURE 16C. PARKING LIGHT

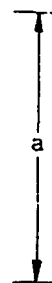
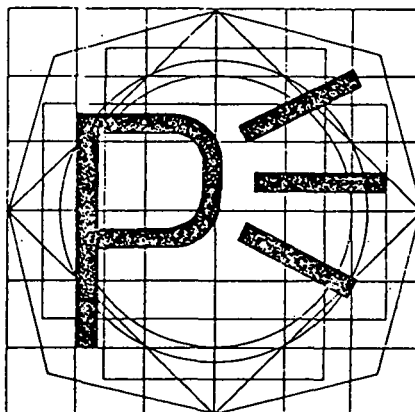


FIGURE 17. NEUTRAL INDICATOR
Colour of tell-tale light: green

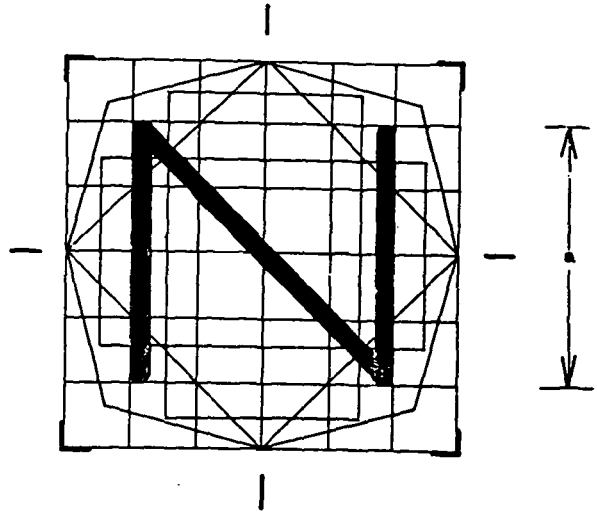
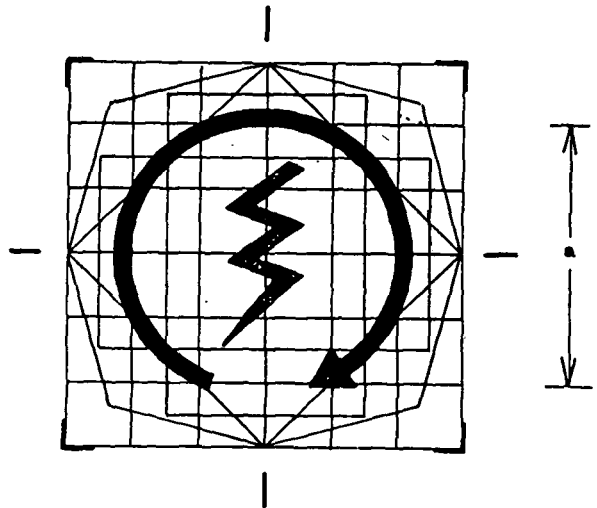


FIGURE 18. ELECTRIC STARTER



Notes

- (1) The interior of the symbol may be entirely in a dark colour.
- (2) The dark part of this symbol may be replaced by its outline, in which case the portion shown here as white must be entirely in a dark colour.
- (3) If one control is used for both front and rear fog lights, the symbol used shall be the one designated "FRONT FOG LIGHT".

ANNEX 4 — APPENDIX. CONSTRUCTION OF THE BASIC PATTERN
FOR THE SYMBOLS SHOWN IN ANNEX 4

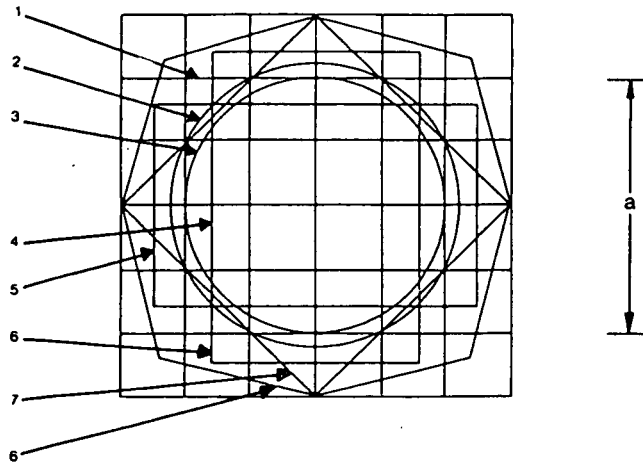


FIGURE 1. BASIC PATTERN

The basic pattern comprises:

1. A basic square of side 50 mm; this dimension is equal to the nominal dimension, "a", of the basic pattern;
2. A basic circle of 56 mm diameter having approximately the same area as the basic square (1);
3. A second circle of 50 mm diameter, being the inscribed circle of the basic square (1);
4. A second square whose corners touch the basic circle (2) and whose sides are parallel to those of the basic square (1);
5. and 6. Two rectangles having the same area as the basic square (1); they are mutually perpendicular, each being drawn to cross opposite sides of the basic square symmetrically;
7. A third square whose sides pass through the points of intersection of the basic square (1) and the basic circle (2) and are at an angle of 45°, giving the largest horizontal and vertical dimensions of the basic pattern;
8. An irregular octagon, formed by lines at an angle of 30° to the sides of the square (7).

The basic pattern is superimposed on a 12.5 mm grid which coincides with the basic square (1).

Authentic texts of the Regulation: English and French.

Registered ex officio on 1 July 1984.

APPLICATION of Regulation No. 60¹ annexed to the Agreement of 20 March 1958 concerning the uniform conditions of approval and reciprocal recognition of approval for motor vehicle equipment and parts

Notification received on:

2 July 1984

SWEDEN

(With effect from 31 August 1984.)

Registered ex officio on 2 July 1984.

¹ See p. 300 of this volume.

N° 4789. ACCORD CONCERNANT L'ADOPTION DE CONDITIONS UNIFORMES D'HOMOLOGATION ET LA RECONNAISSANCE RÉCIPROQUE DE L'HOMOLOGATION DES ÉQUIPEMENTS ET PIÈCES DE VÉHICULES À MOTEUR. FAIT À GENÈVE LE 20 MARS 1958¹

ENTRÉE EN VIGUEUR du Règlement n° 60 (*Prescriptions uniformes relatives à l'homologation des motocycles et cyclomoteurs (à deux roues) en ce qui concerne les commandes actionnées par le conducteur, y compris l'identification des commandes, témoins et indicateurs*) en tant qu'annexe à l'Accord susmentionné du 20 mars 1958

Ledit Règlement est entré en vigueur le 1^{er} juillet 1984 à l'égard de l'Italie et de la Tchécoslovaquie, conformément au paragraphe 3 de l'article 1.

1. DOMAINE D'APPLICATION

Le présent Règlement s'applique aux motocycles à deux roues et aux cyclomoteurs à deux roues en ce qui concerne les commandes actionnées par le conducteur, y compris l'identification des commandes, témoins et indicateurs.

2. DÉFINITIONS

Au sens du présent Règlement, on entend par :

- 2.1. «Homologation d'un véhicule», l'homologation d'un type de véhicule en ce qui concerne les commandes actionnées par le conducteur lorsque celles-ci sont montées et leur identification.
- 2.2. «Type de véhicule», des véhicules à moteur ne différant pas entre eux quant aux aménagements qui peuvent influencer sur la fonction ou la position des commandes actionnées par le conducteur.
- 2.3. «Véhicule», un motocycle à deux roues tel qu'il est défini à l'article 1 *n*) ou un cyclomoteur à deux roues tel qu'il est défini à l'article 1 *m*) de la Convention des Nations Unies sur la circulation routière, Vienne, 1968².
- 2.4. «Commande», toute partie du véhicule ou élément directement actionné par le conducteur qui provoque un changement dans l'état ou le fonctionnement du véhicule ou de l'une de ses parties.
- 2.5. «Guidon», toutes les parties de la ou des barres reliées à la tête de fourche, au moyen desquelles on dirige le véhicule.
 - 2.5.1. «Guidon, côté droit», toute partie du guidon qui, vue dans le sens de la marche avant, est située sur le côté droit du plan longitudinal médian du véhicule.
 - 2.5.2. «Guidon, côté gauche», toute partie du guidon qui, vue dans le sens de la marche avant, est située sur le côté gauche du plan longitudinal médian du véhicule.

¹ Nations Unies, *Recueil des Traités*, vol. 335, p. 211; pour les faits ultérieurs, voir les références données dans les Index cumulatifs nos 4 à 14, ainsi que l'annexe A des volumes 915, 917, 926, 932, 940, 943, 945, 950, 951, 955, 958, 960, 961, 963, 966, 973, 974, 978, 981, 982, 985, 986, 993, 995, 997, 1003, 1006, 1010, 1015, 1019, 1020, 1021, 1024, 1026, 1031, 1035, 1037, 1038, 1039, 1040, 1046, 1048, 1050, 1051, 1055, 1059, 1060, 1065, 1066, 1073, 1078, 1079, 1088, 1092, 1095, 1097, 1098, 1106, 1110, 1111, 1112, 1122, 1126, 1130, 1135, 1136, 1138, 1139, 1143, 1144, 1145, 1146, 1147, 1150, 1153, 1156, 1157, 1162, 1177, 1181, 1196, 1197, 1198, 1199, 1205, 1211, 1213, 1214, 1216, 1218, 1222, 1223, 1224, 1225, 1235, 1237, 1240, 1242, 1247, 1248, 1249, 1252, 1253, 1254, 1255, 1256, 1259, 1261, 1271, 1273, 1275, 1276, 1277, 1279, 1284, 1286, 1287, 1291, 1293, 1294, 1295, 1299, 1300, 1301, 1302, 1308, 1310, 1312, 1314, 1316, 1317, 1321, 1323, 1324, 1327, 1328, 1330, 1331, 1333, 1335, 1336, 1342, 1347, 1348, 1349, 1350, 1352, 1355 et 1358.

² *Ibid.*, vol. 1042, p. 17.

- 2.5.3. «Guidon, vers l'avant», toute les parties du guidon se trouvant du côté du guidon le plus éloigné du conducteur lorsqu'il est assis en position de conduite.
- 2.6. «Poignée», la partie du guidon la plus éloignée du centre par laquelle le conducteur du véhicule tient le guidon.
- 2.6.1. «Poignée tournante», une poignée actionnant un mécanisme fonctionnel du véhicule, qui est libre de tourner autour du guidon lorsque le conducteur du véhicule la manœuvre.
- 2.7. «Cadre», toutes parties du cadre, châssis ou berceau du véhicule auxquelles sont fixés le moteur et/ou la transmission, et/ou l'ensemble moteur-transmission lui-même.
- 2.7.1. «Cadre, côté droit», toute partie du cadre qui, vue dans le sens de la marche avant, est située sur le côté droit du plan longitudinal médian du véhicule.
- 2.7.2. «Cadre, côté gauche», toute partie du cadre qui, vue dans le sens de la marche avant, est située sur le côté gauche du plan longitudinal médian du véhicule.
- 2.8. «Lever», tout dispositif consistant en un bras articulé sur un pivot, au moyen duquel on actionne un mécanisme fonctionnel quelconque du véhicule.
- 2.8.1. «Lever à main», un levier manœuvré de la main par le conducteur.
- Note.* Sauf mention contraire, un levier à main s'actionne par compression (c'est-à-dire par déplacement de l'extrémité du levier vers le support) pour le freinage ou le débrayage, par exemple.
- 2.8.2. «Lever au pied», un levier actionné par contact entre le pied du conducteur et un éperon projetant le bras du levier.
- 2.8.3. «Pédale», un levier actionné par contact entre le pied du conducteur et un patin situé sur le levier, placé de telle sorte qu'une pression puisse être exercée sur le bras du levier.
- Note.* Sauf indication contraire, une pédale s'actionne par pression vers le bas, par exemple pour le freinage.
- 2.8.4. «Pédale de propulsion», des dispositifs qui sont reliés à une forme quelconque de transmission et qui peuvent être destinés à mouvoir un cyclomoteur.
- 2.8.5. «Culbuteur», un levier pivotant en son centre ou près de celui-ci et doté d'un patin ou d'un éperon à chaque extrémité, actionné par contact entre le pied du conducteur et lesdits patins ou éperons (voir l'annexe 3, figure 3).
- 2.9. «Repose-pied», les éléments faisant saillie de part et d'autre du véhicule, sur lesquels le conducteur pose les pieds lorsqu'il est assis en position de conduite.
- 2.10. «Tablier», la partie du véhicule sur laquelle le conducteur pose les pieds lorsqu'il est assis en position de conduite normale, sur un véhicule qui n'est pas muni de pédales de propulsion ou de repose-pied pour le conducteur.
- 2.11. «Sens des aiguilles d'un montre», le sens de rotation de l'élément considéré autour de son axe selon le mouvement des aiguilles d'une montre lorsqu'il est vu depuis le haut ou depuis l'extérieur.
- 2.11.1. «Sens contraire des aiguilles d'une montre», le sens inverse.
- 2.12. «Frein de service combiné», un système fonctionnel (hydraulique ou mécanique ou les deux) grâce auquel on met en action simultanément au moins partiellement le frein avant et le frein arrière du véhicule par manœuvre d'une seule commande.
- 2.13. «Indicateur», un dispositif donnant une information relative au fonctionnement ou à l'état d'un système ou d'une partie d'un système, par exemple le niveau d'un fluide.

- 2.14. «Témoin», un signal optique indiquant la mise en action d'un dispositif, un fonctionnement ou un état correct ou défectueux, ou une absence de fonctionnement.
- 2.15. «Symbole», un dessin permettant d'identifier une commande, un témoin ou un indicateur.
3. DEMANDE D'HOMOLOGATION
 - 3.1. La demande d'homologation d'une type de véhicule en ce qui concerne les commandes actionnées par le conducteur est présentée par le constructeur du véhicule ou par son représentant dûment accrédité.
 - 3.2. Elle doit être accompagnée des documents et informations ci-après, en triple exemplaire :
 - 3.2.1. Dessins, à une échelle appropriée et suffisamment détaillée, des éléments du véhicule auxquels s'appliquent les prescriptions du présent Règlement et, si besoin est, du véhicule lui-même.
 - 3.3. Un véhicule, représentatif du type à homologuer, doit être présenté au service technique chargé des essais d'homologation pour les vérifications mentionnées au paragraphe 5 du présent Règlement.
 4. HOMOLOGATION
 - 4.1. Si le véhicule présenté à l'homologation en application du présent Règlement satisfait aux prescriptions des paragraphes 5 et 6 ci-après, l'homologation de ce type de véhicule est accordée.
 - 4.2. Chaque homologation comporte l'attribution d'un numéro d'homologation dont les deux premiers chiffres (actuellement 00 pour le Règlement dans sa forme originale) indiquent la série d'amendements correspondant aux plus récentes modifications techniques majeures apportées au Règlement à la date de délivrance de l'homologation. Une même Partie contractante ne peut pas attribuer ce numéro à un autre type de véhicule.
 - 4.3. L'homologation ou le refus d'homologation d'un type de véhicule en application du présent Règlement est notifié aux Parties à l'Accord appliquant le présent Règlement, au moyen d'une fiche conforme au modèle visé à l'annexe 1 du présent Règlement et de dessins et schémas (fournis par le demandeur de l'homologation) au format maximal A4 (210 × 297 mm), ou pliés à ce format, et à une échelle appropriée.
 - 4.4. Sur tout véhicule conforme à un type de véhicule homologué en application du présent Règlement, il est apposé, de manière visible, en un endroit facilement accessible et indiqué sur la fiche d'homologation, une marque internationale d'homologation composée :
 - 4.4.1. D'un cercle à l'intérieur duquel est placée la lettre «E», suivie du numéro distinctif du pays qui a accordé l'homologation*;
 - 4.4.2. Du numéro du présent Règlement, suivi de la lettre «R», d'un tiret et du numéro d'homologation, placé à la droite du cercle prévu au paragraphe 4.4.1.

* 1 pour la République fédérale d'Allemagne, 2 pour la France, 3 pour l'Italie, 4 pour les Pays-Bas, 5 pour la Suède, 6 pour la Belgique, 7 pour la Hongrie, 8 pour la Tchécoslovaquie, 9 pour l'Espagne, 10 pour la Yougoslavie, 11 pour le Royaume-Uni, 12 pour l'Autriche, 13 pour le Luxembourg, 14 pour la Suisse, 15 pour la République démocratique allemande, 16 pour la Norvège, 17 pour la Finlande, 18 pour le Danemark, 19 pour la Roumanie, 20 pour la Pologne et 21 pour le Portugal. Les chiffres suivants sont attribués aux autres pays selon l'ordre chronologique de leur ratification de l'Accord concernant l'adoption de conditions uniformes d'homologation et la reconnaissance réciproque de l'homologation des équipements et pièces des véhicules à moteur ou de leur adhésion à cet Accord et les chiffres ainsi attribués sont communiqués par le Secrétaire général de l'Organisation des Nations Unies aux parties contractantes à l'Accord.

- 4.5. Si le véhicule est conforme à un type de véhicule homologué, en application d'un ou de plusieurs autres Règlements joints en annexe à l'Accord, dans le pays même qui a accordé l'homologation en application du présent Règlement, il n'est pas nécessaire de répéter le symbole prescrit au paragraphe 4.4.1; en pareil cas, les numéros de Règlements et d'homologation et les symboles additionnels pour tous les règlements pour lesquels l'homologation a été accordée dans le pays qui a accordé l'homologation en application du présent Règlement sont inscrits l'un au-dessous de l'autre, à droite du symbole prescrit au paragraphe 4.4.1.
- 4.6. La marque d'homologation doit être nettement lisible en indélébile.
- 4.7. La marque d'homologation doit être facilement accessible.
- 4.8. L'annexe 2 du présent Règlement donne des exemples de marques d'homologation.
5. PRESCRIPTIONS GÉNÉRALES
- 5.1. Toutes les commandes actionnées par le conducteur spécifiées aux paragraphes 6.1, 6.2, 6.3, et 6.4 doivent être à sa portée lorsqu'il est assis en position de conduite.
- 5.1.1. L'accès du conducteur aux commandes ne doit être entravé par l'interposition d'aucune autre commande ou partie de la structure du véhicule.
- 5.1.2. Les commandes spécifiées aux paragraphes 6.1 à 6.4 ci-dessous doivent être situées aux positions ou dans les zones prescrites dans ces paragraphes.
- 5.1.3. La position des commandes au guidon spécifiées aux
- Paragraphe 6.2.1 (frein avant);
 - Paragraphe 6.2.2.2 (frein arrière, pour les cyclomoteurs);
 - Paragraphe 6.3.1 (embrayage);
 - Paragraphe 6.4.1 (avertisseur sonore);
 - Paragraphe 6.4.2.2 (feux-route/croisement);
 - Paragraphe 6.4.3 (feux-indicateurs de direction)
- doit être telle que le conducteur puisse atteindre les commandes sans avoir à quitter des mains les poignées correspondantes.
- 5.2. Les commandes spécifiées aux paragraphes 6.2.1, 6.2.2, 6.2.3 et 6.3.1 doivent être conçues de façon à satisfaire aux prescriptions de l'annexe 3, première partie (leviers à main) ou deuxième partie (leviers au pied, culbuteurs et pédales), respectivement.
- 5.3. *Identification*
- 5.3.1. Les commandes, témoins et indicateurs lorsqu'ils sont montés sur le véhicule doivent être identifiés conformément aux dispositions de l'annexe 4.
6. PRESCRIPTIONS PARTICULIÈRES
- 6.1. *Commandes du moteur*
- 6.1.1. *Mise en marche*
- 6.1.1.1. *Interrupteur d'allumage.* S'il s'agit d'un interrupteur rotatif, il doit tourner dans le sens des aiguilles d'une montre, de la position «CONTACT COUPÉ» à la position «CONTACT».
- 6.1.1.2. *Interrupteur de démarreur.* Aucune prescription particulière.

- 6.1.1.3. *Interrupteur combiné allumage/démarrreur.* S'il s'agit d'un interrupteur rotatif, la commande doit s'actionner dans le sens des aiguilles d'une montre, de la position «CONTACT COUPÉ» à la position «CONTACT», puis à la position «CONTACT DÉMARRREUR».
- 6.1.2. *Régime du moteur*
- 6.1.2.1. *Commande de régime du moteur.* Le régime du moteur doit être réglé par une commande à main.
Position de la commande : au guidon, côté droit.
Type de commande : poignée tournante au guidon.
Sens de rotation : sens contraire des aiguilles d'une montre pour accélérer.
- 6.1.3. *Arrêt du moteur*
- 6.1.3.1. *Coupe-circuit d'allumage du moteur.* Pour l'arrêt du moteur, en remplacement de l'interrupteur principal (paragraphe 6.1.1.1) ou de la commande de décompresseur (paragraphe 6.1.3.2 ci-dessous), le véhicule peut être muni d'un coupe-circuit d'allumage du moteur.
Position de la commande : au guidon, côté droit.
- 6.1.3.2. *Commande du décompresseur*
Position de la commande : au guidon.
Type de commande : levier, ou poignée tournante, à condition qu'elle soit combinée avec la commande de régime du moteur (côté droit).
- 6.2. *Freins*
- 6.2.1. *Freins avant*
Position de la commande : au guidon, côté droit, vers l'avant.
Type de commande : levier à main.
- 6.2.2. *Frein arrière*
- 6.2.2.1. Véhicules munis d'un embrayage commandé manuellement.
Position de la commande : sur le cadre, côté droit.
Type de commande : pédale.
- 6.2.2.2. Véhicule n'ayant pas de commande d'embrayage manuelle.
- 6.2.2.2.1. Les véhicules munis de pédales de propulsion doivent, et les véhicules munis d'un tablier ou de repose-pieds intégrés à un tablier et dont la vitesse théorique maximale ne dépasse pas 100 km/h peuvent, se conformer à la prescription.
Position de la commande : au guidon, côté gauche, vers l'avant.
Type de commande : levier à main.
- 6.2.2.2.2. Tous autres véhicules
Position de commande : sur le cadre, côté droit.
Type de commande : pédale.
- 6.2.2.3. Rien, dans les prescriptions formulées aux paragraphes 6.2.2.1 ou 6.2.2.2.1 du présent Règlement, ne doit empêcher un cyclomoteur muni de pédales de propulsion d'être équipé d'un frein arrière mis en fonction par un dispositif de rétropédalage actionné par les pédales de propulsion.

- 6.2.3. *Frein de service combiné.* Rien dans les prescriptions exposées aux paragraphes 6.2.1 ou 6.2.2 du présent Règlement ne doit empêcher un véhicule d'être muni d'un frein de service combiné (voir paragraphe 2.12). Position et type de la commande : comme spécifié aux paragraphes 6.2.1 et 6.2.2.
- 6.2.4. *Frein de stationnement.* Aucune prescription particulière.
Type de commande : levier à main ou pédale.
- 6.3. *Transmission*
- 6.3.1. *Commande d'embrayage*
Position de la commande : au guidon, côté gauche, vers l'avant.
Type de commande : levier à main.
Note. Les prescriptions ci-dessus ne doivent pas être interprétées comme interdisant, comme système de commande de l'embrayage, l'utilisation d'une commande combinée par levier au pied pour l'embrayage et la boîte de vitesses.
- 6.3.2. *Commande des rapports*
- 6.3.2.1. Dans les cas de véhicules munis d'une commande de sélection des rapports fonctionnant indépendamment de la commande d'embrayage.
Position de la commande : sur le cadre, côté gauche.
Type de commande : levier au pied ou culbuteur.
- 6.3.2.1.1. Le déplacement du levier au pied ou de la partie avant du culbuteur vers le haut doit sélectionner dans l'ordre des rapports correspondant à une vitesse croissante en marche avant et, dans le sens inverse, des rapports correspondant à une vitesse décroissante. Une position distincte de «point mort» effectif doit exister.
- 6.3.2.2. Dans le cas de véhicules munis d'une commande de sélection des rapports fonctionnant en rapport avec la commande d'embrayage.
Position de la commande : au guidon, côté gauche.
Type de commande : poignée tournante au guidon.
- 6.3.2.2.1. La rotation de la poignée dans le sens contraire des aiguilles d'une montre doit sélectionner dans l'ordre des rapports correspondant à une vitesse croissante en marche avant et, dans le sens inverse, des rapports correspondant à une vitesse décroissante. Une position distincte de «point mort» effectif doit exister.
- 6.4. *Commandes d'éclairage et de signalisation*
- 6.4.1. *Avertisseur sonore*
- 6.4.1.1. Dans le cas de véhicules munis d'une commande de sélection des rapports fonctionnant indépendamment de la commande d'embrayage.
Position de la commande : au guidon, côté gauche.
Type de commande : bouton poussoir.
- 6.4.1.2. Dans le cas de véhicules munis d'une commande de sélection des rapports fonctionnant en rapport avec la commande d'embrayage.
Position de la commande : au guidon, côté droit.
Type de commande : bouton poussoir.
- 6.4.2. *Eclairage*
- 6.4.2.1. *Commande des feux* : s'il s'agit d'un interrupteur rotatif, la rotation de l'interrupteur dans le sens des aiguilles d'une montre doit allumer dans l'ordre les feux position, puis les feux principaux du véhicule. Cela ne doit pas empêcher d'ajouter de nouvelles positions d'interrupteur, à condition de les indiquer clairement. Le commutateur des feux peut être combiné au commutateur d'allumage si on le souhaite.

6.4.2.2. *Inverseur feu-route/croisement*

- 6.4.2.2.1. Dans le cas de véhicules munis d'une commande de sélection des rapports fonctionnant indépendamment de la commande d'embrayage.

Position de commande : au guidon, côté gauche.

- 6.4.2.2.2. Dans le cas de véhicules munis d'une commande de sélection des rapports fonctionnant en rapport avec la commande d'embrayage.

Position de la commande : au guidon, côté droit.

- 6.4.2.3. *Avertisseur optique* : la commande de cet avertisseur doit être adjacente à l'inverseur feu-route/croisement ou doit être une fonction supplémentaire de celui-ci.

6.4.3. *Commande des feux-indicateurs de direction*

Position de la commande : au guidon.

La commande doit être conçue de telle sorte que, lorsqu'on la voit du siège du conducteur, la mise en action de la partie gauche ou le déplacement vers la gauche de la commande met en action les indicateurs du côté gauche et vice versa pour les indicateurs du côté droit.

La commande doit être clairement marquée, de telle sorte qu'elle indique le côté du véhicule sur lequel la commande met en action les indicateurs.

6.5. *Alimentation en carburant*

- 6.5.1. *Volet de départ à froid*. La commande doit être placée de telle façon qu'elle soit raisonnablement et commodément accessible au conducteur.

- 6.5.2. *Robinet d'arrêt pour le carburant*. La commande doit avoir des positions distinctes pour les fonctions effectives « FERMÉ », « OUVERT » et « RÉSERVE » (lorsqu'il y en a une). La commande doit être sur la position « OUVERT » lorsqu'elle est dans la direction aval de l'écoulement du carburant depuis le réservoir jusqu'au moteur; dans la position « FERMÉ » lorsqu'elle est dans une direction perpendiculaire à l'écoulement de carburant, et dans la position « RÉSERVE » (lorsqu'il y en a) lorsqu'elle est dans la direction amont de l'écoulement de carburant.

- 6.5.2.1. Lorsque le véhicule dispose d'une réserve de carburant, le conducteur doit pouvoir brancher l'alimentation sur cette réserve tout en restant en position assise.

7. MODIFICATION DU TYPE DE VÉHICULE

- 7.1. Toute modification du type de véhicule est portée à la connaissance du service administratif accordant l'homologation du type de ce véhicule. Ce service peut alors :

- 7.1.1. Soit considérer que les modifications apportées ne risquent pas d'avoir une influence défavorable sensible, et qu'en tout cas ce véhicule satisfait encore aux prescriptions;

- 7.1.2. Soit demander un nouveau procès-verbal du service technique chargé des essais.

- 7.2. La confirmation de l'homologation ou le refus de l'homologation, avec l'indication des modifications, est notifié aux Parties à l'Accord appliquant le présent Règlement par la procédure indiquée au paragraphe 4.3 ci-dessus.

8. CONFORMITÉ DE LA PRODUCTION

- 8.1. Tout véhicule portant une marque d'homologation en application du présent Règlement doit être conforme au type de véhicule homologué, en particulier en ce qui concerne les commandes actionnées par le conducteur.

- 8.2. Afin de vérifier la conformité exigée au paragraphe 8.1 ci-dessus, on procède à un nombre suffisant de contrôles par sondage sur les véhicules de série portant la marque d'homologation en application du présent Règlement.

9. SANCTIONS POUR NON-CONFORMITÉ DE LA PRODUCTION
- 9.1. L'homologation délivrée pour un type de véhicule en application du présent Règlement peut être retirée si les conditions énoncées au paragraphe 8.1 ci-dessus ne sont pas respectées ou si ce véhicule ne subit pas avec succès les vérifications prévues au paragraphe 8.2 ci-dessus.
- 9.2. Si une Partie à l'Accord appliquant le présent Règlement retire une homologation qu'elle a précédemment accordée, elle en informe aussitôt les autres Parties contractantes appliquant le présent Règlement, au moyen d'une copie de la fiche d'homologation portant à la fin, en gros caractères, la mention signée et datée «HOMOLOGATION RETIRÉE».
10. ARRÊT DÉFINITIF DE LA PRODUCTION
- Si le titulaire d'une homologation cesse définitivement la fabrication d'un type de véhicule homologué conformément au présent Règlement, il en informe l'autorité qui a délivré l'homologation qui, à son tour, avise les autres Parties à l'Accord appliquant le présent Règlement au moyen d'une copie de la fiche d'homologation portant à la fin, en gros caractères, la mention signée et datée «PRODUCTION ARRÊTÉE».
11. NOMS ET ADRESSES DES SERVICES TECHNIQUES CHARGÉS DES ESSAIS D'HOMOLOGATION ET DES SERVICES ADMINISTRATIFS
- Les Parties à l'Accord appliquant le présent Règlement communiquent au Secrétariat de l'Organisation des Nations Unies les noms et adresses des services techniques chargés des essais d'homologation et ceux des services administratifs qui délivrent l'homologation et auxquels doivent être envoyées les fiches d'homologation et de refus ou de retrait d'homologation émises dans les autres pays.
12. DISPOSITIONS TRANSITOIRES
- L'utilisation de symboles figurant à l'annexe 4 du présent Règlement devient obligatoire à partir du 1^{er} juillet 1986.

ANNEXE I

(Format maximal : A4 (210 × 297 mm))



NOM DE L'ADMINISTRATION

Communication concernant l'homologation (ou le refus ou le retrait d'une homologation ou l'arrêt définitif de la production) d'un type de véhicule pour ce qui est des commandes actionnées par le conducteur en application du Règlement N° 60

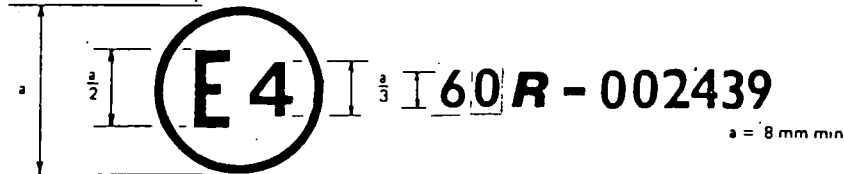
- N° d'homologation
1. Marque de fabrique ou de commerce du véhicule
 2. Type du véhicule
 3. Nom et adresse du constructeur
 4. Le cas échéant, nom et adresse de son représentant
 5. Description sommaire du véhicule en ce qui concerne les commandes actionnées par le conducteur
 6. Véhicule présenté à l'homologation le
 7. Service technique chargé des essais d'homologation
 8. Date du procès-verbal établi par ce service
 9. Numéro du procès-verbal établi par ce service
 10. L'homologation est accordée/refusée*
 11. Emplacement sur le véhicule de la marque d'homologation
 12. Lieu
 13. Date
 14. Signature
 15. Sont annexées à la présente communication les pièces suivantes, portant le numéro d'homologation indiqué ci-dessus : dessins, schémas et plans des commandes actionnées par le conducteur et des éléments du véhicule considérés comme importants aux fins du présent Règlement.

* Biffer la mention inutile.

ANNEXE 2. EXEMPLES DE MARQUES D'HOMOLOGATION

MODÈLE A

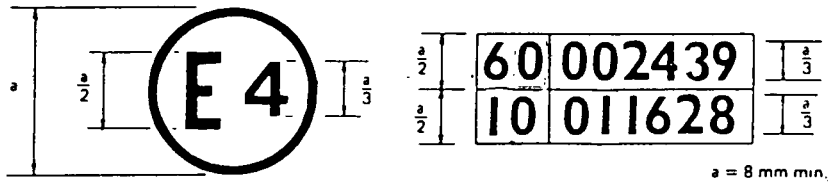
(Voir le paragraphe 4.4 du présent Règlement)



La marque d'homologation ci-dessus, apposée sur un véhicule, indique que le type de ce véhicule a été homologué aux Pays-Bas (E 4), en ce qui concerne les commandes actionnées par le conducteur, en application du Règlement N° 60 et sous le numéro d'homologation 002439. Le numéro d'homologation indique que l'homologation a été délivrée conformément aux prescriptions du Règlement N° 60 sous sa forme originale.

MODÈLE B

(Voir le paragraphe 4.5 du présent Règlement)



La marque d'homologation ci-dessus, apposée sur un véhicule, indique que le type de ce véhicule a été homologué aux Pays-Bas (E 4) en application des Règlements N°s 60 et 10*. Les numéros d'homologation indiquent qu'aux dates où les homologations respectives ont été délivrées, le Règlement N° 60 n'avait pas encore été modifié, alors que le Règlement N° 10 comprenait déjà la série 01 d'amendements.

ANNEXE 3. PRESCRIPTIONS PARTICULIÈRES RELATIVES AUX LEVIERS

1. Première partie. LEVIERS À MAIN

- 1.1. La distance maximale entre la face avant du levier à main et la face arrière de la poignée ne doit en aucun point excéder 120 mm, cette cote étant mesurée perpendiculairement à l'axe de la poignée, entre sa mi-longueur et son extrémité proche du pivot du levier (voir figure 1a). Dans le cas de véhicules munis d'une commande de sélection des rapports fonctionnant en rapport avec la commande d'embrayage, la distance maximale ne doit pas excéder 135 mm.
- 1.2. Cette cote peut être dépassée à partir de la mi-longueur de la poignée vers l'extrémité libre du levier.

* Ce dernier numéro n'est donné qu'à titre d'exemple.

- 1.3. La distance minimale (espace libre) entre la face arrière du levier à main et la face avant de la poignée ne doit en aucun point être inférieure à 45 mm, entre l'extrémité extérieure et la mi-longueur de la poignée (voir figure 1b).
 - 1.4. La distance peut tomber au-dessous de cette valeur à partir de la mi-longueur de la poignée, vers le pivot, mais elle ne doit en aucun cas être inférieure à 25 mm.
 - 1.5. L'extrémité du levier à main ne doit pas faire saillie au-delà de l'extrémité de la poignée de plus 30 mm lorsque le levier est dans sa position de serrage à fond (voir figure 1c).
2. Deuxième partie. LEVIERS AU PIED, CULBUTEURS ET PÉDALES
 - 2.1. *Leviers au pied*
 - 2.1.1. La distance maximale entre la face arrière de l'éperon du levier au pied et la face arrière du repose-pied correspondant ne doit excéder 200 mm en aucun point de la longueur de l'éperon du levier (voir figure 2).
 - 2.1.2. La distance minimale (espace libre) entre la face arrière de l'éperon du levier au pied et la face avant du repose-pied correspondant ne doit être inférieure à 105 mm en aucun point de la longueur de l'éperon du levier (voir figure 2).
 - 2.1.3. Quand les repose-pieds sont réglables, ces cotes doivent être mesurées aux points normaux de la plage de réglage prévue, comme précisé dans les instructions données par le constructeur au propriétaire/utilisateur du véhicule («Manuel de l'utilisateur»), le levier au pied étant dans la position spécifiée par le constructeur.
 - 2.2. *Culbuteurs*
 - 2.2.1. La dimension (K) entre la partie arrière du patin, ou la face arrière de l'éperon, située à l'avant du culbuteur, et la face arrière du repose-pied ne doit ni excéder 200 mm ni être inférieure à 60 mm (voir figure 3).
 - 2.2.2. La dimension (L) entre la partie avant du patin, ou la face avant de l'éperon, située à l'arrière du culbuteur, et la face arrière du repose-pied ne doit ni excéder 100 mm ni être inférieure à 50 mm (voir figure 3).
 - 2.2.3. Quand les repose-pieds sont réglables, ces cotes doivent être mesurées aux points normaux de la plage de réglage prévue, comme précisé dans le Manuel de l'utilisateur, le culbuteur étant dans la position spécifiée par le constructeur.
 - 2.3. *Pédales*
 - 2.3.1. Véhicules munis de repose-pieds
 - 2.3.1.1. La distance maximale entre la face arrière du patin de la pédale et la face arrière du repose-pied correspondant ne doit en aucun point excéder 170 mm (voir figure 4).
 - 2.3.1.2. La distance minimale (espace libre) entre la face arrière du patin de la pédale et la face avant du repose-pied correspondant ne doit en aucun point être inférieure à 50 mm (voir figure 4).
 - 2.3.1.3. Quand les repose-pieds sont réglables, ces cotes doivent être mesurées aux points normaux de la plage de réglage prévue, comme précisé dans le Manuel de l'utilisateur, la pédale étant dans la position spécifiée par le constructeur.
 - 2.3.2. Véhicules munis d'un tablier
 - 2.3.2.1. La distance maximale entre la surface du tablier et le point le plus haut du patin de la pédale, mesurée perpendiculairement à la surface du tablier adjacente à la pédale, ne doit pas excéder 105 mm (voir figure 5).
 - 2.3.2.2. Le point le plus à l'extérieur du patin de la pédale ne doit pas faire saillie de plus de 25 mm au-delà du bord du tablier (voir figure 5).

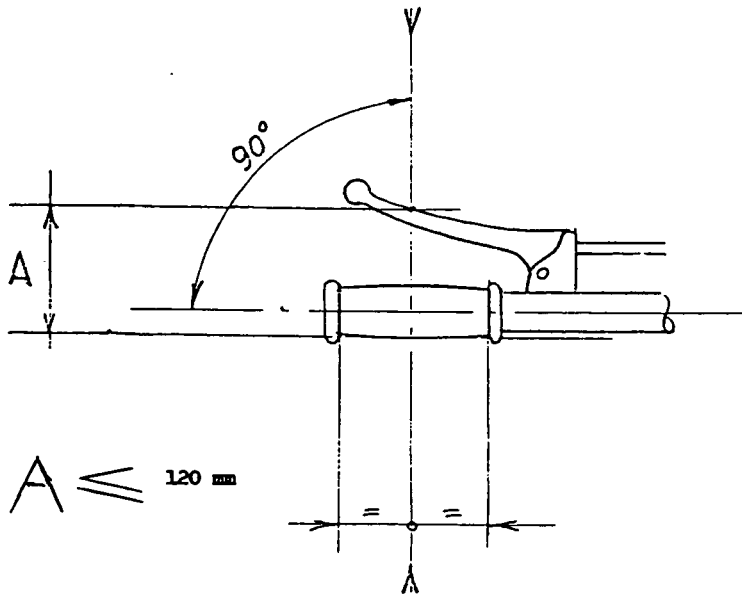


FIGURE 1a

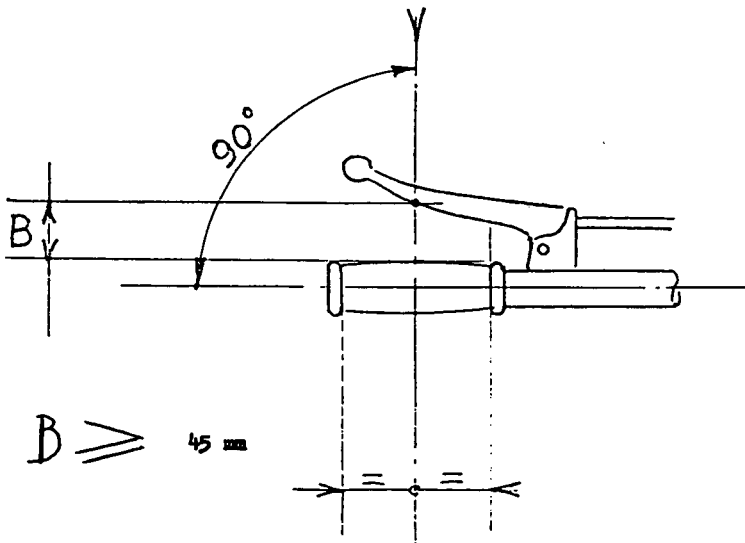


FIGURE 1b

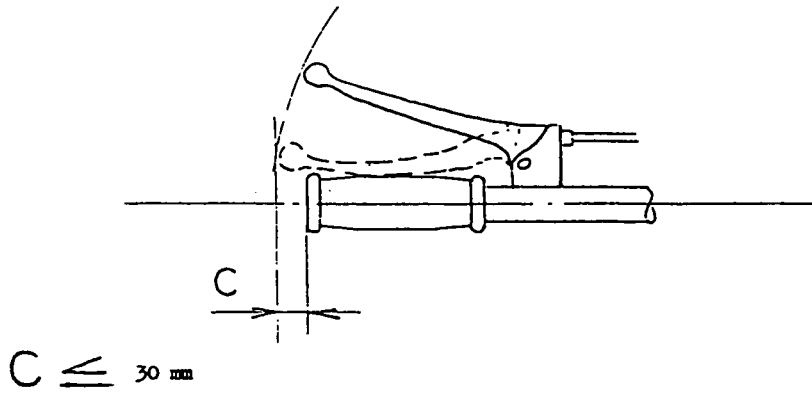


FIGURE 1c

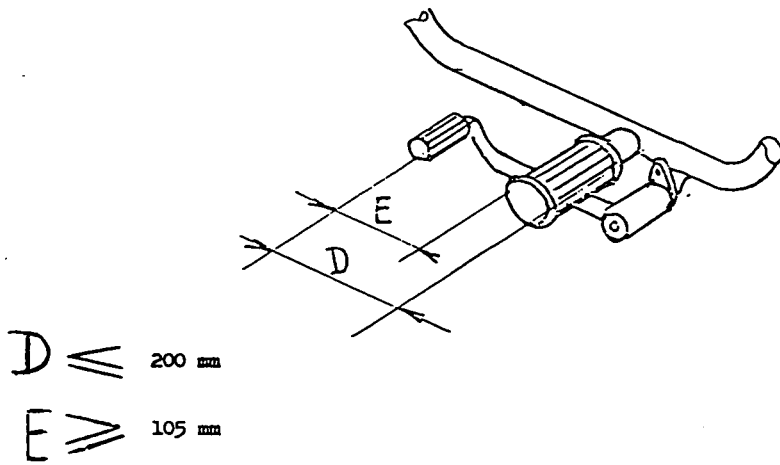


FIGURE 2

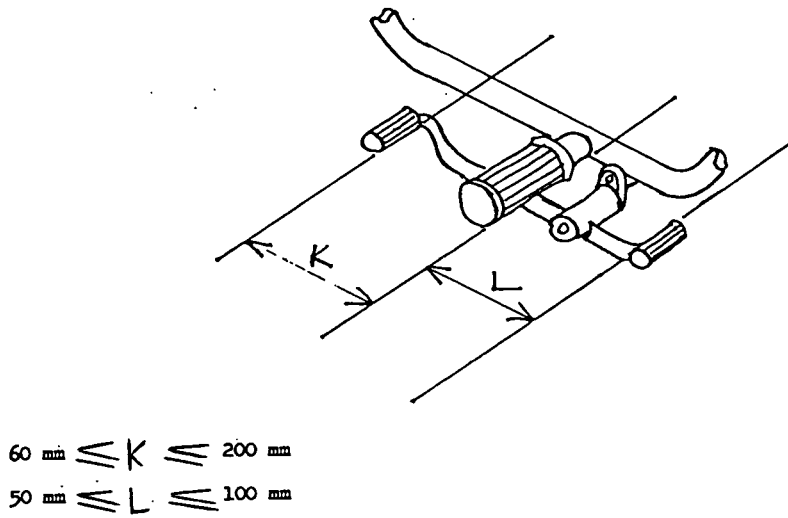


FIGURE 3

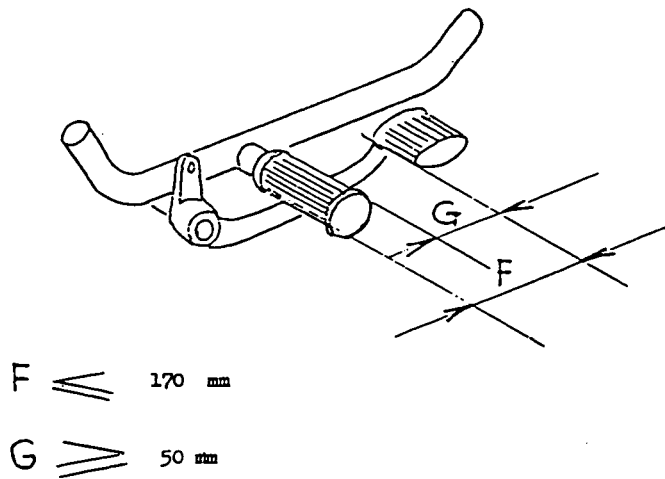


FIGURE 4

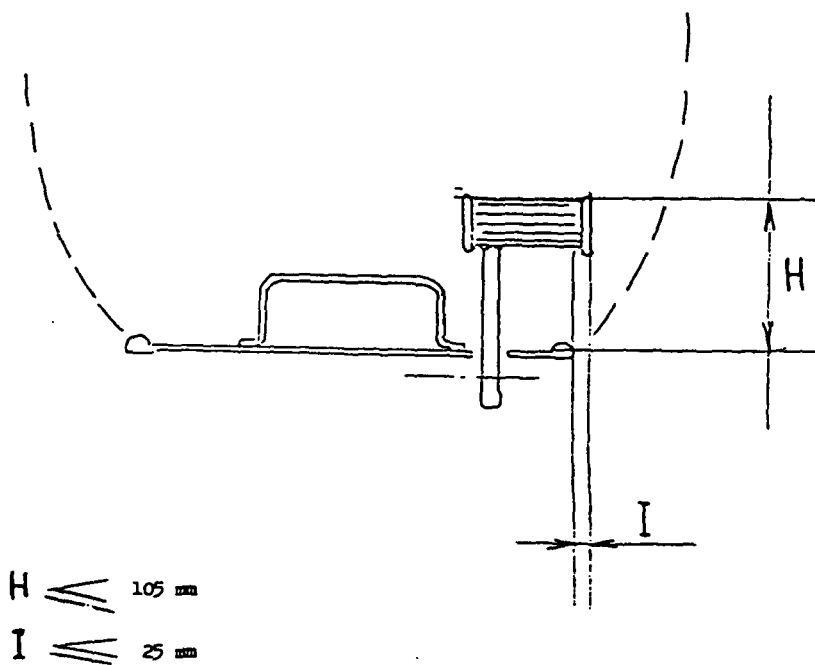


FIGURE 5

ANNEXE 4. COMMANDES, TÉMOINS ET INDICATEURS DONT L'IDENTIFICATION EST OBLIGATOIRE LORSQU'ILS SONT PRÉSENTS ET SYMBOLES À UTILISER À CET EFFET*

1. La présente annexe spécifie les symboles, c'est-à-dire les signes conventionnels, utilisés pour identifier certaines commandes et certains indicateurs et témoins d'un motocycle ou d'un cyclomoteur et pour en faciliter l'usage. Elle indique également les couleurs des témoins optiques éventuels qui avertissent le conducteur de la mise en fonctionnement réelle ou du mauvais fonctionnement des organes et équipements branchés sur les commandes correspondantes.
2. La présente annexe est applicable aux commandes qui, lorsqu'elles existent, sont montées sur le tableau de bord ou à portée immédiate du conducteur du motocycle ou du cyclomoteur. Une telle définition du domaine d'application ne rend pas obligatoire la présence de tous les symboles énumérés dans la présente annexe.
3. Les symboles, vus par le conducteur en position normale de conduite, doivent être tels qu'ils sont indiqués au paragraphe 5 ci-dessous.
4. Les symboles doivent ressortir nettement sur le fond, soit clair sur foncé, soit foncé sur clair.

* Conformément aux normes internationales ISO 6727-1981 et 4129-1978. Afin d'assurer une présentation graphique correcte ainsi que le respect des proportions exactes, les symboles sont reproduits conformément au système normalisé de grilles de l'ISO. Voir aussi l'appendice de la présente annexe.

5. Le symbole doit être placé sur la commande ou le témoin de commande à identifier ou à leur proximité immédiate. En cas d'impossibilité, le symbole et la commande, ou le témoin, doivent être reliés par un trait continu aussi court que possible.
6. Si, dans un symbole, un motocycle (un cyclomoteur) ou des parties de motocycle (ou d'un cyclomoteur) sont représentés vus de côté, il faut considérer que le motocycle (ou le cyclomoteur) se déplace de droite à gauche.
7. Les feux convergents sont représentés par des rayons lumineux parallèles et les feux diffus, par des rayons lumineux divergents.
8. Les couleurs suivantes, lorsqu'elles sont utilisées sur les témoins optiques, doivent avoir la signification ci-après :
 Rouge : Danger
 Jaune-rouge : Prudence
 Vert : Sécurité
 (Le bleu doit être réservé exclusivement aux témoins des feux-route).

9. *Désignation et illustration des symboles¹*

FIGURE 1. COMMANDE DES FEUX;
FEU-ROUTE
Couleur du témoin : bleu

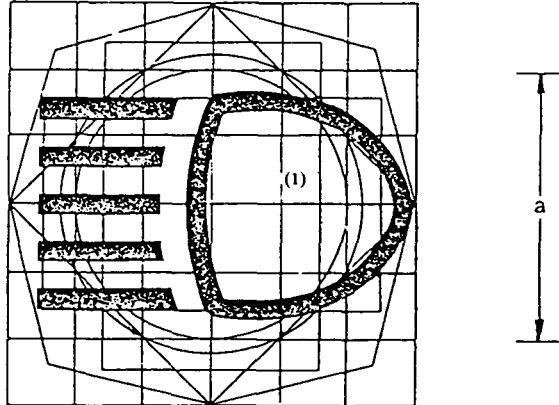
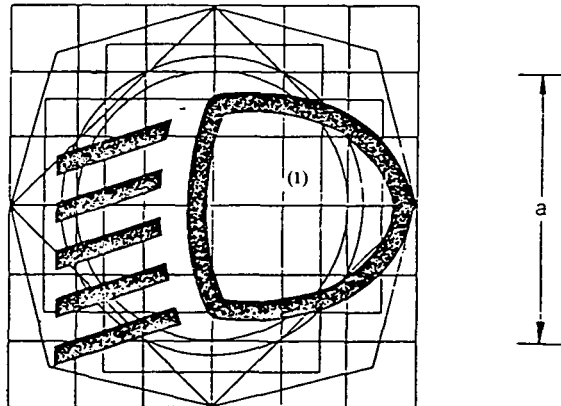


FIGURE 2. COMMANDE DES FEUX;
FEUX-CROISEMENT



¹ Pour les notes, voir à la fin de la présente annexe.

FIGURE 3. INDICATEUR DE DIRECTION
Couleur du témoin : vert

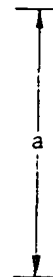
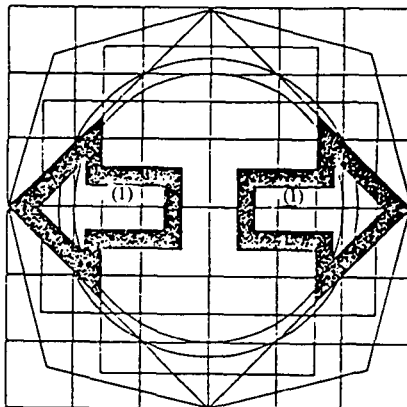


FIGURE 4. SIGNAL DE DANGER
(DEUX POSSIBILITÉS)
Couleur du témoin : rouge
ou
fonctionnement simultané des deux
flèches de la figure 3

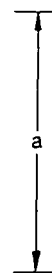
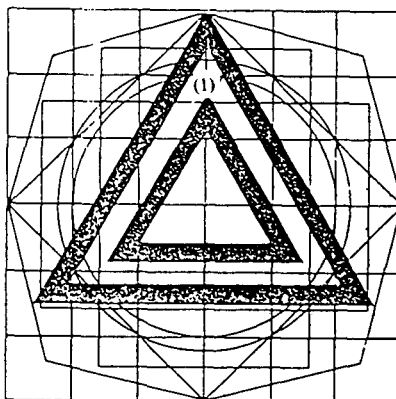


FIGURE 5. STARTER MANUEL
Couleur du témoin : jaune-auto

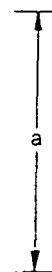
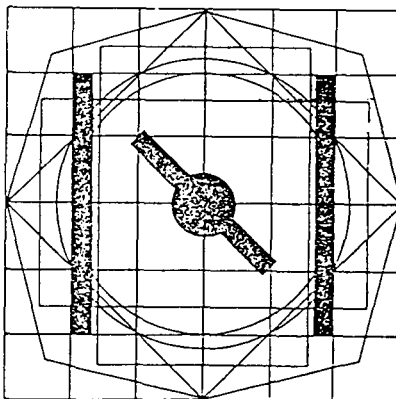


FIGURE 6. AVERTISSEUR SONORE

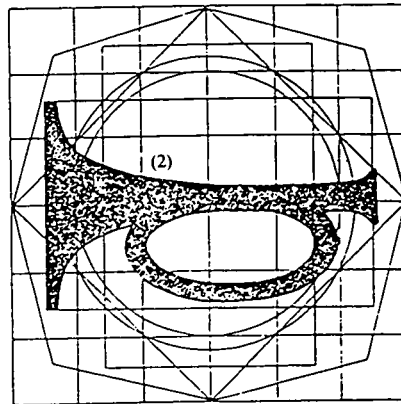
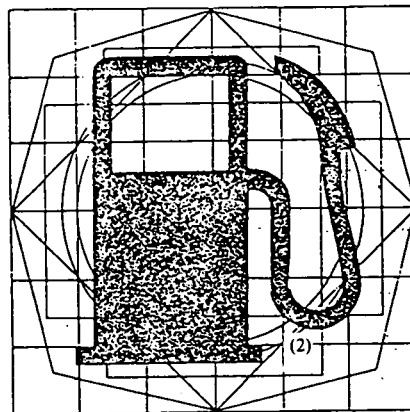
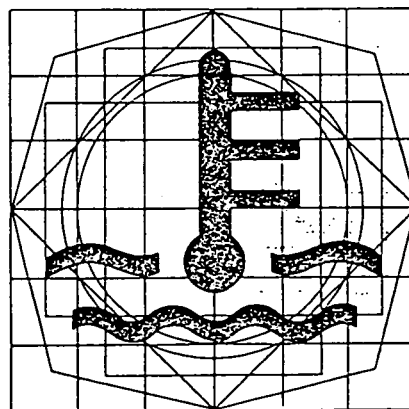
FIGURE 7. NIVEAU DU CARBURANT
Couleur du témoin : jaune-autoFIGURE 8. TEMPÉRATURE DU FLUIDE DE
REFROIDISSEMENT DU MOTEUR
Couleur du témoin : rouge

FIGURE 9. CHARGE DE BATTERIE
Couleur du témoin : rouge

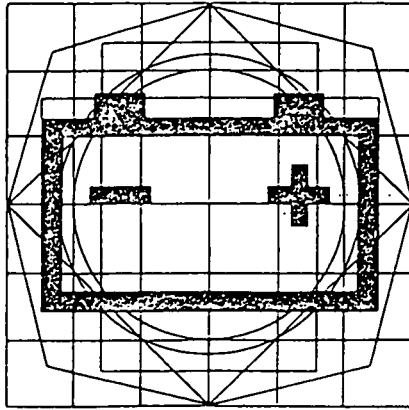


FIGURE 10. HUILE MOTEUR
Couleur du témoin : rouge

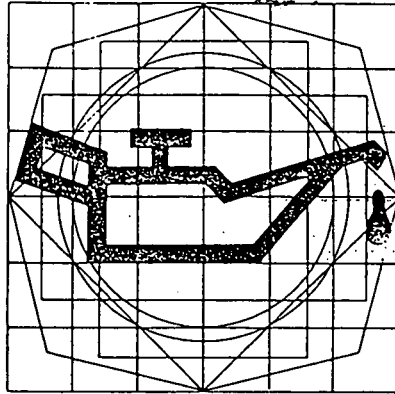


FIGURE 11. FEU-BROUILLARD AVANT⁽³⁾
Couleur du témoin : vert

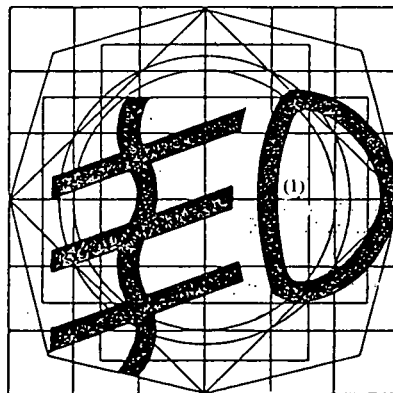


FIGURE 12. FEU-BROUILLARD ARRIÈRE⁽³⁾
Couleur du témoin : jaune-auto

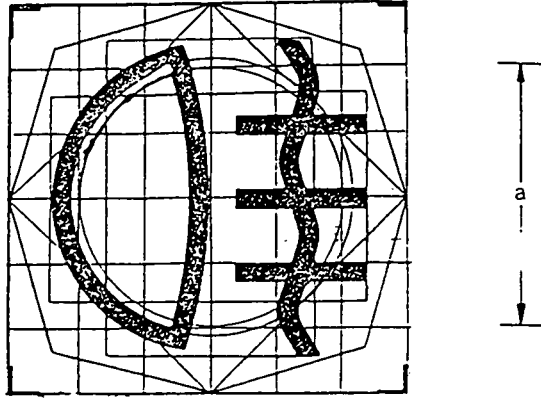
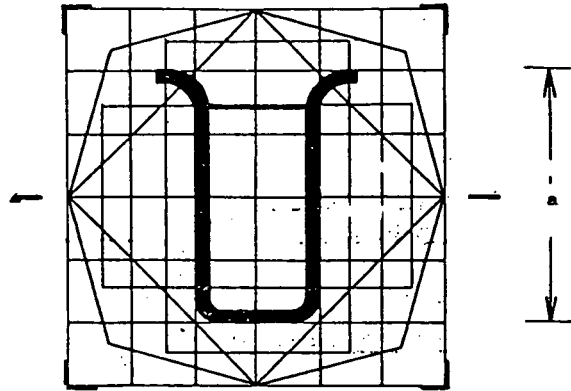


FIGURE 13. ROBINET DU RÉSERVOIR
DE CARBURANT
POSITION «FERMÉ»



ROBINET DU RÉSERVOIR DE CARBURANT
POSITION «ouvert»

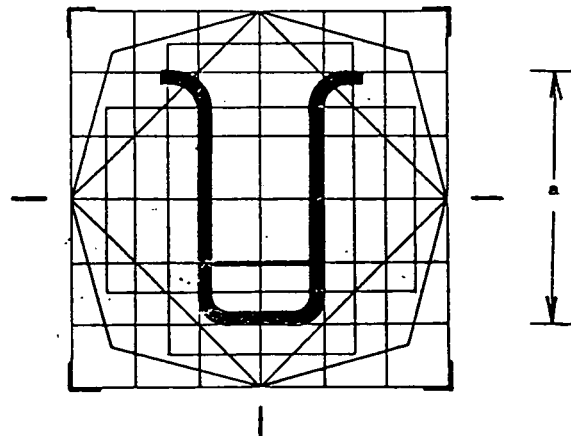


FIGURE 14. ROBINET DU RÉSERVOIR
DE CARBURANT
POSITION «RÉSERVE»

FIGURES 15A ET 15B. COMMANDE D'ALLUMAGE
OU ARRÊT DU MOTEUR
(*témoin supplémentaire*)

FIGURE 15A. COMMANDE EN POSITION
«HORS SERVICE»

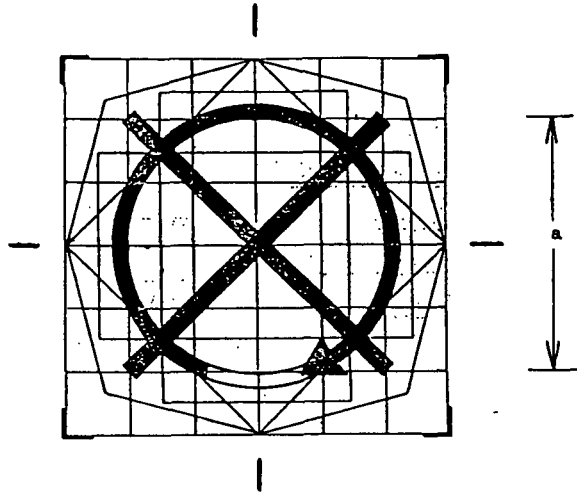
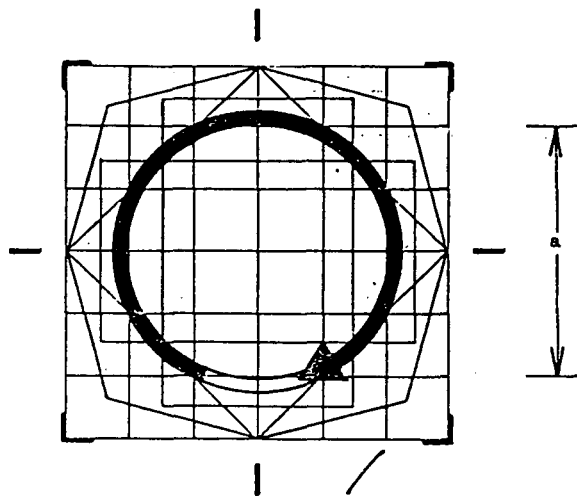


FIGURE 15B. COMMANDE EN POSITION
«EN SERVICE»



FIGURES 16A, 16B ET 16C. INTERRUPTEUR D'ÉCLAIRAGE
(peut être combiné avec la commande d'allumage)

FIGURE 16A. FEU-POSITION
Couleur du témoin : vert

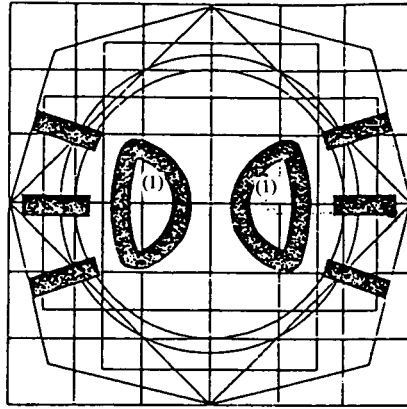


FIGURE 16B. PLEINS FEUX
Couleur du témoin : vert

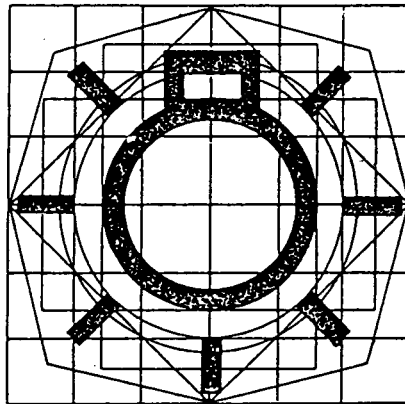


FIGURE 16C. FEU-STATIONNEMENT

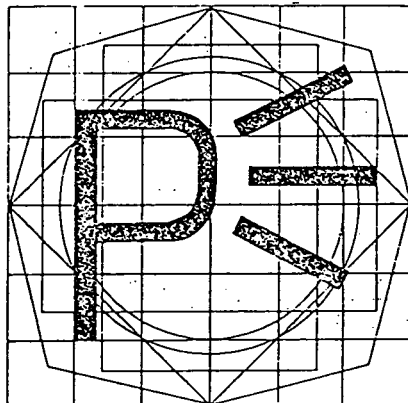


FIGURE 17. INDICATEUR DU POINT NEUTRE
Couleur du témoin : vert

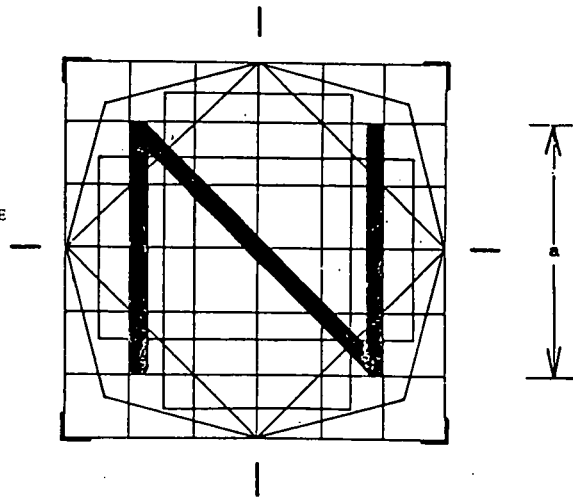
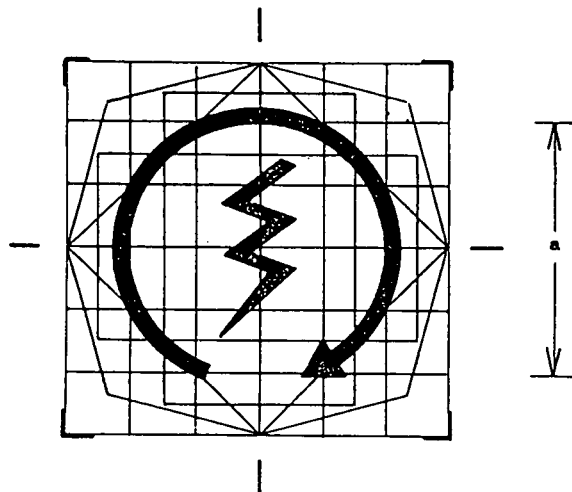


FIGURE 18. DÉMARREUR ÉLECTRIQUE



Notes

- (1) L'intérieur du symbole peut être entièrement de couleur foncée.
- (2) La partie foncée de ce symbole peut être remplacée par sa silhouette; la partie figurant en blanc dans ce dessin doit être alors entièrement de couleur foncée.
- (3) Si une seule commande est utilisée pour les feux-brouillard avant et arrière, le symbole utilisé doit être celui dénommé « feu-brouillard avant ».

ANNEXE 4 — APPENDICE. CONSTRUCTION DU MODÈLE DE BASE
DES SYMBOLES FIGURANT À L'ANNEXE 4

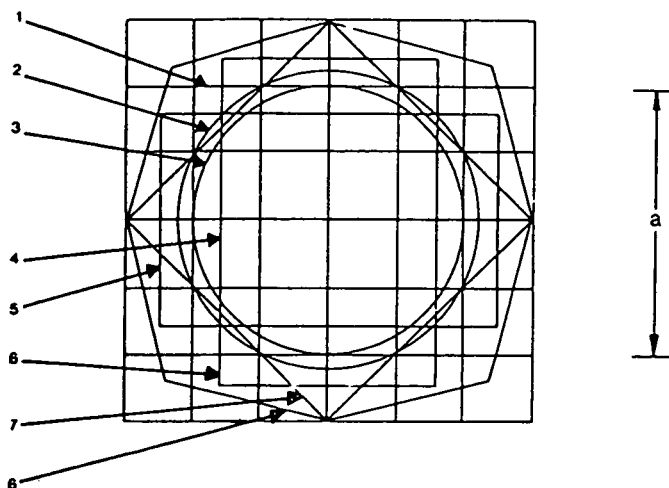


FIGURE 1. MODÈLE DE BASE

Le modèle de base comprend :

1. Un carré fondamental de 50 mm de côté, cette cote est égale à la dimension nominale «a» de l'original;
2. Un cercle fondamental de 56 mm de diamètre ayant approximativement la même surface que le carré fondamental (1);
3. Un second cercle de 50 mm de diamètre inscrit dans le carré fondamental (1);
4. Un second carré dont les sommets sont situés sur le cercle fondamental (2) et dont les côtés sont parallèles à ceux du carré fondamental (1);
5. et 6. Deux rectangles ayant la même surface que le carré fondamental (1), leurs côtés sont respectivement perpendiculaires et chacun d'eux est construit de manière à couper les côtés opposés du carré fondamental en des points symétriques;
7. Un troisième carré dont les côtés passent par les points d'intersection du carré fondamental (1) et du cercle fondamental (2) et sont inclinés à 45°, donnant les plus grandes dimensions horizontales et verticales du modèle de base;
8. Un octogone irrégulier, formé par des lignes inclinées à 30° par rapport aux côtés du carré (7).

Le modèle de base est appliqué sur une grille ayant un pas de 12,5 mm et qui coïncide avec le carré fondamental (1).

Textes authentiques du Règlement : anglais et français.

Enregistré d'office le 1^{er} juillet 1984.

APPLICATION du Règlement n° 60¹ annexé à l'Accord du 20 mars 1958 concernant l'adoption de conditions uniformes d'homologation et la reconnaissance réciproque de l'homologation des équipements et pièces de véhicules à moteur

Notification reçue le :

2 juillet 1984

SUÈDE

(Avec effet au 31 août 1984.)

Enregistré d'office le 2 juillet 1984.

¹ Voir p. 325 du présent volume.

No. 5715. CONVENTION CONCERNING THE EXCHANGE OF OFFICIAL PUBLICATIONS AND GOVERNMENT DOCUMENTS BETWEEN STATES. ADOPTED BY THE GENERAL CONFERENCE OF THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION AT ITS TENTH SESSION, PARIS, 3 DECEMBER 1958¹

N° 5715. CONVENTION CONCERNANT LES ÉCHANGES ENTRE ÉTATS DE PUBLICATIONS OFFICIELLES ET DOCUMENTS GOUVERNEMENTAUX. ADOPTÉE PAR LA CONFÉRENCE GÉNÉRALE DE L'ORGANISATION DES NATIONS UNIES POUR L'ÉDUCATION, LA SCIENCE ET LA CULTURE À SA DIXIÈME SESSION, PARIS, 3 DÉCEMBRE 1958¹

No. 5995. CONVENTION CONCERNING THE INTERNATIONAL EXCHANGE OF PUBLICATIONS. ADOPTED BY THE GENERAL CONFERENCE OF THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION AT ITS TENTH SESSION, PARIS, 3 DECEMBER 1958²

N° 5995. CONVENTION CONCERNANT LES ÉCHANGES INTERNATIONAUX DE PUBLICATIONS. ADOPTÉE PAR LA CONFÉRENCE GÉNÉRALE DE L'ORGANISATION DES NATIONS UNIES POUR L'ÉDUCATION, LA SCIENCE ET LA CULTURE À SA DIXIÈME SESSION, PARIS, 3 DÉCEMBRE 1958²

ACCEPTANCES

Instruments deposited with the Director-General of the United Nations Educational, Scientific and Cultural Organization on:

15 June 1984

AUSTRALIA

(With effect from 15 June 1985.)

Certified statements were registered by the United Nations Educational, Scientific and Cultural Organization on 2 July 1984.

ACCEPTATIONS

Instruments déposés auprès du Directeur général de l'Organisation des Nations Unies pour l'éducation, la science et la culture le :

15 juin 1984

AUSTRALIE

(Avec effet au 15 juin 1985.)

Les déclarations certifiées ont été enregistrées par l'Organisation des Nations Unies pour l'éducation, la science et la culture le 2 juillet 1984.

¹ United Nations, *Treaty Series*, vol. 398, p. 9; for subsequent actions, see references in Cumulative Indexes Nos. 5 to 11, 13 and 14, as well as Annex A in volumes 913, 962, 986, 990, 1183, 1256 and 1360.

² *Ibid.*, vol. 416, p. 51; for subsequent actions, see references in Cumulative Indexes Nos. 5 to 11, 13 and 14, as well as Annex A in volumes 962, 986, 990, 1183 and 1360.

¹ Nations Unies, *Recueil des Traités*, vol. 398, p. 9; pour les faits ultérieurs, voir les références données dans les Index cumulatifs nos 5 à 11, 13 et 14, ainsi que l'annexe A des volumes 913, 962, 986, 990, 1183, 1256 et 1360.

² *Ibid.*, vol. 416, p. 51; pour les faits ultérieurs, voir les références données dans les Index cumulatifs nos 5 à 11, 13 et 14, ainsi que l'Annexe A des volumes 962, 986, 990, 1183 et 1360.

No. 15410. CONVENTION ON THE PREVENTION AND PUNISHMENT OF CRIMES AGAINST INTERNATIONALLY PROTECTED PERSONS, INCLUDING DIPLOMATIC AGENTS. ADOPTED BY THE GENERAL ASSEMBLY OF THE UNITED NATIONS, AT NEW YORK, ON 14 DECEMBER 1973¹

N° 15410. CONVENTION SUR LA PRÉVENTION ET LA RÉPRESSION DES INFRACTIONS CONTRE LES PERSONNES JOUISSANT D'UNE PROTECTION INTERNATIONALE, Y COMPRIS LES AGENTS DIPLOMATIQUES. ADOPTÉE PAR L'ASSEMBLÉE GÉNÉRALE DES NATIONS UNIES, À NEW YORK, LE 14 DÉCEMBRE 1973¹

ACCESSION

Instrument deposited on:

3 July 1984

GREECE

(With effect from 2 August 1984.)

Registered ex officio on 3 July 1984.

ADHÉSION

Instrument déposé le :

3 juillet 1984

GRÈCE

(Avec effet au 2 août 1984.)

Enregistré d'office le 3 juillet 1984.

¹ United Nations, *Treaty Series*, vol. 1035, p. 167, and annex A in volumes 1037, 1046, 1048, 1049, 1050, 1058, 1059, 1060, 1076, 1078, 1080, 1081, 1092, 1095, 1102, 1106, 1110, 1120, 1135, 1136, 1137, 1138, 1146, 1147, 1150, 1151, 1155, 1161, 1172, 1177, 1182, 1197, 1207, 1208, 1218, 1234, 1252, 1259, 1263, 1271, 1272, 1281, 1295, 1298, 1314 and 1333.

¹ Nations Unies, *Recueil des Traités*, vol. 1035, p. 167, et annexe A des volumes 1037, 1046, 1048, 1049, 1050, 1058, 1059, 1060, 1076, 1078, 1080, 1081, 1092, 1095, 1102, 1106, 1110, 1120, 1135, 1136, 1137, 1138, 1146, 1147, 1150, 1151, 1155, 1161, 1172, 1177, 1182, 1197, 1207, 1208, 1218, 1234, 1252, 1259, 1263, 1271, 1272, 1281, 1295, 1298, 1314 et 1333.

No. 17119. CONVENTION ON THE PROHIBITION OF MILITARY OR ANY OTHER HOSTILE USE OF ENVIRONMENTAL MODIFICATION TECHNIQUES. ADOPTED BY THE GENERAL ASSEMBLY OF THE UNITED NATIONS ON 10 DECEMBER 1976¹

DECLARATION concerning the objections made by the Union of Soviet Socialist Republics² and the German Democratic Republic³ to the declaration concerning Berlin-West made by the Federal Republic of Germany upon ratification⁴

Received on:

2 July 1984

FRANCE
UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND
UNITED STATES OF AMERICA

The text of the declaration reads as follows:

“In a communication to the Government of the Union of Soviet Socialist Republics, which is an integral part (Annex IVA) of the Quadripartite Agreement of 3 September 1971,⁵ the Governments of France, the United Kingdom and the United States, without prejudice to the maintenance of their rights and responsibilities relating to the representation abroad of the interests of the western sectors of Berlin, confirmed that, provided that matters of security and status are not affected and provided that the extension is specified in each case, international agreements and arrangements entered into by the Federal Republic of Germany may be extended to the western sectors of Berlin in accordance with established procedures. For its part, the Government of the Union of Soviet Socialist Republics, in a communication to the Governments of the three powers which is similarly an integral part (Annex IVB) of the Quadripartite Agreement, affirmed that it would raise no objections to such extension.

“The established procedures referred to above, which were endorsed in the Quadripartite Agreement, are designed *inter alia* to afford the authorities of the three powers the opportunity to ensure that international agreements and arrangements entered into by the Federal Republic of Germany which are to be extended to the western sectors of Berlin are extended in such a way that matters of security and status are not affected.

“When authorizing the extension of the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques to the Western Sectors of Berlin, the authorities of the three powers took such steps as were necessary to ensure that matters of security and status were not affected. Accordingly, the Berlin declaration made by the Federal Republic of Germany in accordance with established procedures is valid and the Convention applies to the western sectors of Berlin, subject to Allied Rights and Responsibilities, including those in the Area of Disarmament and Demilitarization.

“The three Governments wish further to recall that Quadripartite Legislation on Demilitarization applies to the whole of Greater Berlin.

¹ United Nations, *Treaty Series*, vol. 1108, p. 151, and annex A in volumes 1120, 1127, 1138, 1146, 1155, 1197, 1202, 1234, 1235, 1256, 1272, 1279, 1284, 1295, 1310, 1314, 1329, 1342, 1347 and 1356.

² *Ibid.*, vol. 1342, p. 442.

³ *Ibid.*, vol. 1347, No. A-17119.

⁴ *Ibid.*, vol. 1314, p. 289.

⁵ *Ibid.*, vol. 880, p. 115.

“With reference to the communication received on 23 January 1984 from the Government of the German Democratic Republic, the three Governments wish to point out that States which are not parties to the Quadripartite Agreement of 3 September 1971 are not competent to comment authoritatively on its provisions. They do not consider it necessary, and do not intend, to respond to further communications on this matter from States which are not parties to the Quadripartite Agreement. This should not be taken to imply any change in the position of the three Governments in this matter.”

Registered ex officio on 2 July 1984.

N° 17119. CONVENTION SUR L'INTERDICTION D'UTILISER DES TECHNIQUES DE MODIFICATION DE L'ENVIRONNEMENT À DES FINS MILITAIRES OU TOUTES AUTRES FINS HOSTILES. ADOPTÉE PAR L'ASSEMBLÉE GÉNÉRALE DE L'ORGANISATION DES NATIONS UNIES LE 10 DÉCEMBRE 1976¹

DÉCLARATION concernant les objections formulées par l'Union des Républiques socialistes soviétiques² et par la République démocratique allemande³ à l'égard de la déclaration concernant Berlin (Ouest) faite par la République fédérale d'Allemagne lors de la ratification⁴

Reçue le :

2 juillet 1984

FRANCE
ROYAUME-UNI DE GRANDE-BRETAGNE ET D'IRLANDE DU NORD
ÉTATS-UNIS D'AMÉRIQUE

Le texte de la déclaration se lit comme suit :

« Dans une communication au Gouvernement de l'Union des Républiques socialistes soviétiques, qui est partie intégrante (annexe IVA) de l'Accord quadripartite du 3 septembre 1971⁵, les Gouvernements de la France, du Royaume-Uni et des États-Unis, sans préjudice du maintien de leurs droits et responsabilités en ce qui concerne la représentation à l'étranger des intérêts des secteurs occidentaux de Berlin, confirmaient que, sous réserve que les questions de sécurité et de statut n'en soient pas affectées et que l'extension soit précisée dans chaque cas, les accords et arrangements internationaux auxquels la République fédérale d'Allemagne devient partie pourraient être étendus aux secteurs occidentaux de Berlin conformément aux procédures établies. Pour sa part, le Gouvernement de l'Union des Républiques socialistes soviétiques, dans une communication adressée aux gouvernements des trois puissances, qui fait également partie intégrante (annexe IVB) de l'Accord quadripartite, affirmait qu'il n'élèverait pas d'objection à de telles extensions.

Les procédures établies ci-dessus mentionnées, qui ont été sanctionnées dans l'Accord quadripartite, sont destinées, *inter alia*, à donner aux autorités des trois puissances le moyen de s'assurer que les accords et arrangements internationaux auxquels la République fédérale d'Allemagne devient partie et qui doivent être étendus aux secteurs occidentaux de Berlin le soient de manière à ne pas affecter les questions de sécurité et de statut.

En autorisant l'extension aux secteurs occidentaux de Berlin de la Convention sur l'interdiction d'utiliser des techniques de modification de l'environnement à des fins militaires ou toutes autres fins hostiles, les autorités des trois puissances ont pris les mesures nécessaires pour s'assurer que les questions de sécurité et de statut ne soient pas affectées. En conséquence, la déclaration sur Berlin faite par la République fédérale d'Allemagne en conformité avec les procédures établies est valide et ladite convention s'applique aux secteurs occidentaux de Berlin, sous réserve des droits et des responsabilités des alliés, y compris dans le domaine du désarmement et de la démilitarisation.

¹ Nations Unies, *Recueil des Traités*, vol. 1108, p. 151, et annexe A des volumes 1120, 1127, 1138, 1146, 1155, 1197, 1202, 1234, 1235, 1256, 1272, 1279, 1284, 1295, 1310, 1314, 1329, 1342, 1347 et 1356.

² *Ibid.*, vol. 1342, p. 442.

³ *Ibid.*, vol. 1347, n° A-17119.

⁴ *Ibid.*, vol. 1314, p. 289.

⁵ *Ibid.*, vol. 880, p. 115.

Les trois Gouvernements souhaitent rappeler en outre que la législation quadripartite sur la démilitarisation s'applique à l'ensemble du Grand Berlin.

En ce qui concerne la communication du gouvernement de la République démocratique allemande reçue le 23 janvier 1984, les trois Gouvernements souhaitent souligner que les Etats qui ne sont pas parties à l'Accord quadripartite du 3 septembre 1971 ne sont pas compétents pour faire un commentaire autorisé de ses dispositions. Ils ne considèrent pas nécessaire, et ils n'ont pas l'intention, de répondre aux futures communications sur cette question d'Etats qui ne sont pas parties à l'Accord quadripartite. Cela ne doit pas être considéré comme impliquant un changement dans la position des trois Gouvernements sur la question.»

Enregistré d'office le 2 juillet 1984.

No. 20378. CONVENTION ON THE ELIMINATION OF ALL FORMS OF DISCRIMINATION AGAINST WOMEN. ADOPTED BY THE GENERAL ASSEMBLY OF THE UNITED NATIONS ON 18 DECEMBER 1979¹

N° 20378. CONVENTION SUR L'ÉLIMINATION DE TOUTES LES FORMES DE DISCRIMINATION À L'ÉGARD DES FEMMES. ADOPTÉE PAR L'ASSEMBLÉE GÉNÉRALE DES NATIONS UNIES LE 18 DÉCEMBRE 1979¹

ACCESSION

Instrument deposited on:

9 July 1984

MAURITIUS

(With effect from 8 August 1984.)

With the following reservations:

"The Government of Mauritius does not consider itself bound by sub-paragraph (b) and (d) of paragraph 1 of article 11 and sub-paragraph (g) of paragraph 1 of article 16.

"The Government of Mauritius does not consider itself bound by paragraph 1 of article 29 of the Convention, in pursuance of paragraph 2 of article 29."

Registered ex officio on 9 July 1984.

ADHÉSION

Instrument déposé le :

9 juillet 1984

MAURICE

(Avec effet au 8 août 1984.)

Avec les réserves suivantes :

[TRADUCTION — TRANSLATION]

Le Gouvernement mauricien ne se considère pas lié par les alinéas b et d du paragraphe 1 de l'article 11 et l'alinéa g du paragraphe 1 de l'article 16.

Le Gouvernement mauricien ne se considère pas lié par le paragraphe 1 de l'article 29 de la Convention, et ce en vertu du paragraphe 2 de l'article 29.

Enregistré d'office le 9 juillet 1984.

¹ United Nations, *Treaty Series*, vol. 1249, p. 13, and annex A in volumes 1252, 1253, 1254, 1256, 1257, 1259, 1261, 1262, 1265, 1272, 1284, 1286, 1287, 1288, 1291, 1299, 1302, 1312, 1314, 1316, 1325, 1332, 1343, 1346, 1348, 1350, 1351 and 1357.

¹ Nations Unies, *Recueil des Traités*, vol. 1249, p. 13, et annexe A des volumes 1252, 1253, 1254, 1256, 1257, 1259, 1261, 1262, 1265, 1272, 1284, 1286, 1287, 1288, 1291, 1299, 1302, 1312, 1314, 1316, 1325, 1332, 1343, 1346, 1348, 1350, 1351 et 1357.

No. 21931. INTERNATIONAL CONVENTION AGAINST THE TAKING OF HOSTAGES. ADOPTED BY THE GENERAL ASSEMBLY OF THE UNITED NATIONS ON 17 DECEMBER 1979¹

RATIFICATION

Instrument deposited on:

6 July 1984

PORTUGAL

(With effect from 5 August 1984.)

Registered ex officio on 6 July 1984.

N° 21931. CONVENTION INTERNATIONALE CONTRE LA PRISE D'OTAGES. ADOPTÉE PAR L'ASSEMBLÉE GÉNÉRALE DES NATIONS UNIES LE 17 DÉCEMBRE 1979¹

RATIFICATION

Instrument déposé le :

6 juillet 1984

PORTUGAL

(Avec effet au 5 août 1984.)

Enregistré d'office le 6 juillet 1984.

¹ United Nations, *Treaty Series*, vol. 1316, p. 205, and annex A in volume 1351.

¹ Nations Unies, *Recueil des Traités*, vol. 1316, p. 205, et annexe A du volume 1351.

[TRADUCTION — TRANSLATION]

No. 22718. PROJECT AGREEMENT (NATURAL RESOURCES EXPLORATION PROJECT) BETWEEN THE UNITED NATIONS (UNITED NATIONS REVOLVING FUND FOR NATURAL RESOURCES EXPLORATION) AND THE GOVERNMENT OF THE REPUBLIC OF SIERRA LEONE. SIGNED AT FREETOWN ON 11 NOVEMBER 1983¹

N° 22718. ACCORD RELATIF À UN PROJET (PROJET CONCERNANT L'EXPLORATION DES RESSOURCES NATURELLES) ENTRE L'ORGANISATION DES NATIONS UNIES (FONDS DE ROULEMENT DES NATIONS UNIES POUR L'EXPLORATION DES RESSOURCES NATURELLES) ET LE GOUVERNEMENT DE LA RÉPUBLIQUE DE SIERRA LEONE. SIGNÉ À FREETOWN LE 11 NOVEMBRE 1983¹

AGREEMENT² AMENDING THE ABOVE-MENTIONED AGREEMENT. SIGNED AT FREETOWN AND NEW YORK ON 5 JULY 1984

ACCORD² MODIFIANT L'ACCORD SUSMENTIONNÉ. SIGNÉ À FREETOWN ET NEW YORK LE 5 JUILLET 1984

Authentic text: English.

Texte authentique : anglais.

Registered ex officio on 5 July 1984.

Enregistré d'office le 5 juillet 1984.

Publication effected in accordance with article 12 (2) of the General Assembly regulations to give effect to Article 102 of the Charter of the United Nations as amended in the last instance by General Assembly resolution 33/141 A of 19 December 1978.

Publication effectuée conformément au paragraphe 2 de l'article 12 du règlement de l'Assemblée générale destiné à mettre en application l'Article 102 de la Charte des Nations Unies tel qu'amendé en dernier lieu par la résolution 33/141 A de l'Assemblée générale en date du 19 décembre 1978.

¹ United Nations, *Treaty Series*, vol. 1349, No. 1-22718.

¹ Nations Unies, *Recueil des Traités*, vol. 1349, n° 1-22718.

² Came into force on 5 July 1984 by signature, in accordance with section 4.

² Entré en vigueur le 5 juillet 1984 par la signature, conformément à la section 4.