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MODEL  
COURSE 3.18

# 货物运输单元内货的 安全积载——工作手册

SAFE PACKING OF CARGO TRANSPORT UNITS (CTUs) (2001) Workbook

中华人民共和国海事局 译



大连海事大学出版社  
DALIAN MARITIME UNIVERSITY PRESS



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《货物运输单元内货的安全积载——工作手册》

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## Foreword

Since its inception the International Maritime Organization has recognized the importance of human resources to the development of the maritime industry and has given the highest priority to assisting developing countries in enhancing their maritime training capabilities through the provision or improvement of maritime training facilities at national and regional levels. IMO has also responded to the needs of developing countries for postgraduate training for senior personnel in administration, ports, shipping companies and maritime training institutes by establishing the World Maritime University in Malmö, Sweden, in 1983.

Following the earlier adoption of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, a number of IMO Member Governments had suggested that IMO should develop model training courses to assist in the implementation of the Convention and in achieving a more rapid transfer of information and skills regarding new developments in maritime technology. IMO training advisers and consultants also subsequently determined from their visits to training establishments in developing countries that the provision of model courses could help instructors improve the quality of their existing courses and enhance their effectiveness in meeting the requirements of the Convention and implementing the associated Conference and IMO Assembly resolutions.

In addition, it was appreciated that a comprehensive set of short model courses in various fields of maritime training would supplement the instruction provided by maritime academies and allow administrators and technical specialists already employed in maritime administrations, ports and shipping companies to improve their knowledge and skills in certain specialized fields. IMO has therefore developed the current series of model courses in response to these generally identified needs and with the generous assistance of Norway.

These model courses may be used by any training institution and the Organization is prepared to assist developing countries in implementing any course when the requisite financing is available.

W. A. O'NEIL

*Secretary-General*

## 前 言

国际海事组织(IMO)自成立伊始就认识到人力资源在海运业发展中的重要性，并最优先考虑通过在国家和地区层面提供或改善培训设备来帮助发展中国家增强其海事培训能力。为应对发展中国家主管机关、港口、航运公司及海事培训机构高层人员对研究生培训的需求，IMO于1983年在瑞典的马尔默成立了世界海事大学。

在《1978年海员培训、发证和值班标准国际公约》通过的初期，一些IMO成员国政府就建议IMO应制定示范培训课程，以帮助对该公约的实施以及对航海技术新发展方面信息和技能的迅速转化。IMO培训顾问和咨询专家在对发展中国家的培训机构进行访问后确定，提供示范课程有助于教员改进现有课程的质量，提高其满足公约要求及实施相关会议和IMO大会决议的有效性。

此外，令人欣慰的是，海事培训诸多领域中一套综合性简短课程将对海事院校提供的授课加以补充，并使得已在海事行政机关、港口和航运公司工作的行政管理人员和技术专家可以提高其在某些专业领域中的知识和技能。为此，IMO在挪威的慷慨帮助下编写了当前的系列示范课程，以应对那些普遍发现的需求。

任何培训机构都可以使用这些示范课程，在筹措到必需的资金时本组织也准备帮助发展中国家实施任何课程。

W.A.奥尼尔

秘书长

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## 3.18 MODEL COURSE

## Chapter 1 Consequences of badly packed and secured Cargo Transport Units (CTUs)

The shifting of cargo on board a ship may be caused by one or more factors if:

- the ship has unsuitable stability
- the cargo is stowed in locations where large accelerations may occur
- the cargo is not sufficiently secured to the ship
- the CTU unit is not sufficiently secured to the ship
- the cargo is not sufficiently secured inside the cargo transport unit (CTU)
- the cargo is inappropriately packed

If a ship meets heavy weather or is operated inappropriately a series of heavy rolls may result. Such rolls cause great acceleration to the cargo. If the cargo is not sufficiently secured inside a CTU, it may not only cause damage to the cargo itself, but also be a hazard to the safety of the ship if the cargo falls out of the unit. Loose cargo may damage the lashing equipment of adjoining CTUs or essential parts of the ship. This problem has been highlighted by incidents associated with the transport of road vehicles on board ships.

If a cargo shifts, it can generate heeling angles of up to 40°. Attempts to save the ship, its passengers, crew and cargo in this situation is not always possible.

As shown in the figure on page 4 overleaf, RO/RO casualty type distribution, the shifting of cargo in RO/RO ships is the cause of many casualties. Cargo shifting, together with operational reasons, constitutes a larger part of the serious casualties than of all casualties in total.

Even if damage on ships and CTUs is spectacular, it is probably the small, frequent damage to the cargo which results in the greatest economic consequences in regard to loss of goodwill and delays. Injuries to people and damage to the environment are often hard to compensate.

## 第一章 货物运输单元(CTU)内货积载与系固不当的后果

船上货物的移动可能由以下一项或几项要素所致:

- 船舶稳性不适
- 货物积载在加速度大的区域
- 货物未能有效系固在船体上
- 货物运输单元(CTU)未能有效系固在船体上
- 货物在CTU内系固不当
- 货物包装不当

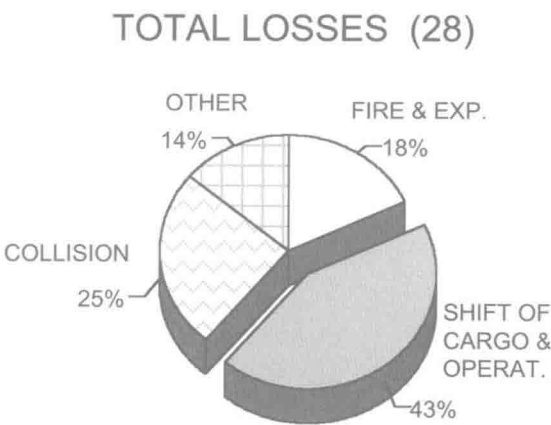
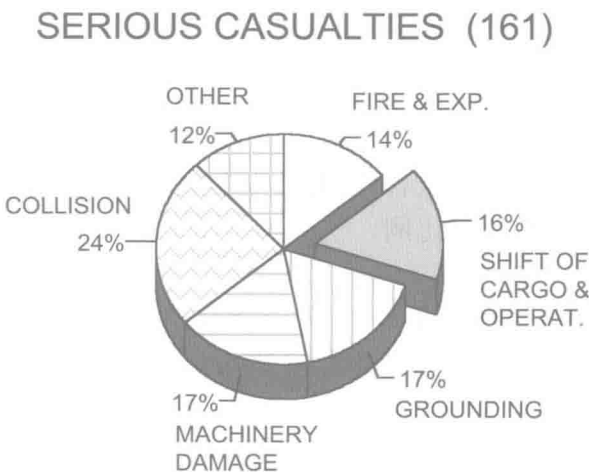
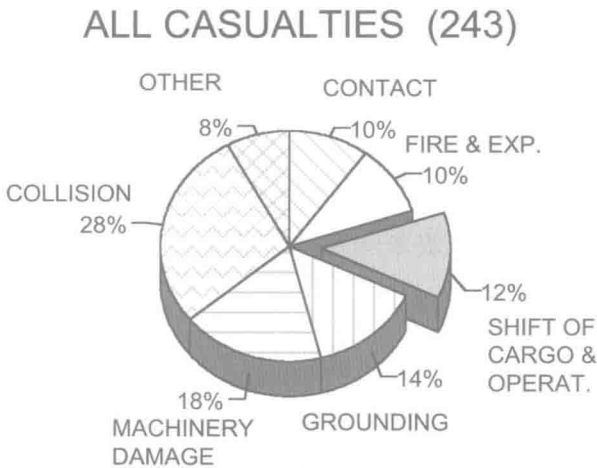
船舶遭遇大风浪或操纵不当,会产生一系列剧烈横摇。这种横摇会使船上货物产生很大的加速度。若CTU内货物系固不当,不仅会对货物本身造成损坏,还可能从运输单元中滑落而对船舶安全造成危害。松散的货物可能会损坏邻近CTU的绑扎设备,也可能对船体重要构件造成损坏。船舶运输车辆时,这类事故时有发生。

如果货物发生移位,船舶产生的横倾角可能达到40°。在此情况下,有时无法对船舶、乘客、船员和货物进行救助。

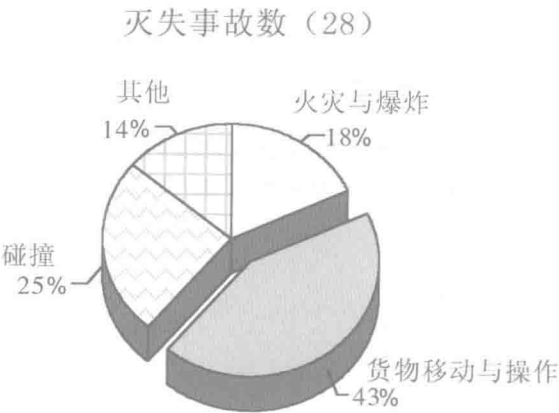
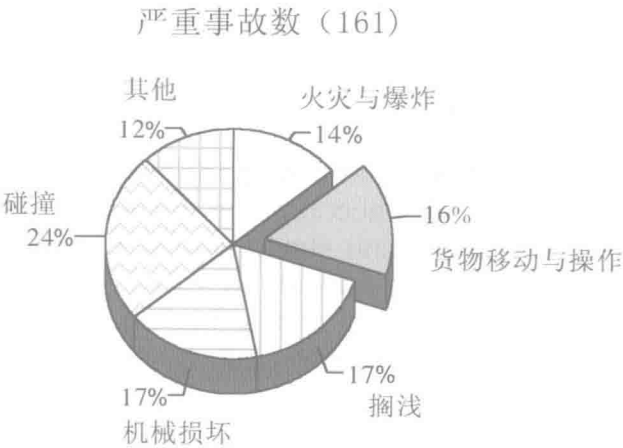
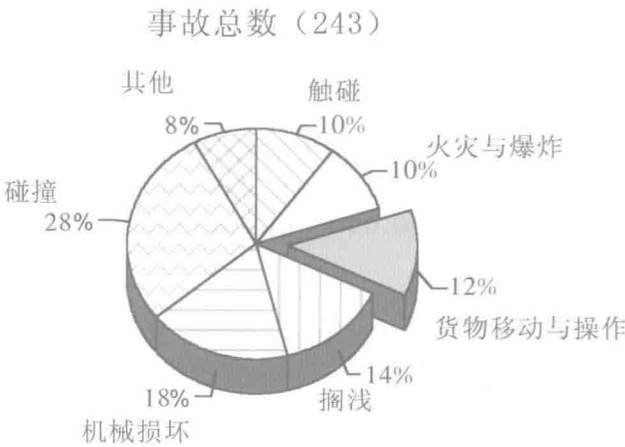
第5页是滚装船事故类别分布的统计图,船上货物的移位是大量事故发生的原因。货物移位与操作不当在严重事故中占有很大比例。

尽管船舶和CTU受到的损坏可能很严重,但对货物的损坏一般属较小、常见的损坏,然而因此导致的商誉损失和延误则可能会产生严重的经济后果。而且,人员的伤亡和环境的破坏往往难以补偿。

RO/RO Casualty type distribution



滚装船事故类别分布



## Chapter 2 Responsibilities

Legal responsibility for damages to cargo during transport is usually unclear and ambiguous. When a damage has occurred as a result of cargo being loaded or secured incorrectly, it is often a complicated matter to determine where the responsibility lies.

Many different parties can be involved in the transport operation of a particular cargo. Depending upon the mode of transport, the transport company may be a ship-owner, an air freight carrier, a railway administration, a haulier or a forwarding agent. Other parties included in the transport chain are the consignor and consignee, and also the stevedoring, terminal, or depot company.

As a general rule, as long as the cargo is packed, loaded, and secured satisfactorily in accordance with current trading practices, the transport company is responsible for any damages occurring during transport.

The law of damage deals with the preventive function of damage claims. This thesis is of importance to all work aimed at preventing damages.

It is important, therefore, that the party who has the legal responsibility for a transport operation is also held responsible when a damage or injury has occurred. So be sure to observe the applicable time limits to submitting claims. The transport company also has certain possibilities to limit its responsibility.

The consignor has a legal obligation and responsibility to make sure that all packing is performed satisfactorily, taking into account the forces to which the cargo normally is expected to be exposed. The packaging shall hold the cargo together and protect it during transport. It shall provide protection against pressure, impact and abrasion, both during transport and in connection with loading and unloading. The packaging shall also make it possible to stack or load the cargo together with other cargo without any risk of damage occurring.

It is important to note that normal forces arising during transport vary with the time of year, which means for example that gales in the North Atlantic during the winter months have to be regarded as being a normal condition.

It is up to the consignor to pack and secure the cargo on CTUs so that it will withstand all strains and stresses. If not, the consignor may be held responsible for any damages to the cargo, the CTU or the third party.

It should be stated that the consignor will be held responsible for any damage caused to the actual vehicle, rail wagon or ship by inadequate packing and securing of the cargo in or on CTUs.

## 第二章 责任

货物在运输途中发生损坏的法律责任并没有明确的规定。由于货物装载与系固不当造成货损,其责任的确定是一个非常复杂的问题。

某一具体货物的运输操作可涉及多个不同当事方。根据不同的运输模式,运输公司可以是船东、航空货物承运人、铁路管理公司、公路货运商或货运代理人。运输链中还可能涉及发货人和收货人,以及码头装卸公司、转运基地或仓库存储公司。

一般来说,只要货物包装、积载与系固符合现行的运输惯例,运输公司应对发生在运输过程中的任何损坏负责。

学习有关损坏的法律条文具有应对索赔的作用。本章对于防止损坏发生的所有工作都具有重要意义。

因此必须注意,对运输负有法律责任的当事方应对货物损坏或人员伤亡负责。应注意,必须在规定的时限之内提出索赔。运输公司当然也有限制其责任的可能性。

发货人有法律义务和责任确保所有货物包装充分,并应考虑到货物在运输中可能受到的作用力。在运输过程中,包装应能使货物固定在一起,并对货物具有保护作用。在运输和装卸过程中,包装应能对压力、冲击和摩擦具有防护作用。包装还应保证不同种类货物可以叠装和积载在一起而无发生损坏的风险。

应注意,运输中的正常受力随季节而变化,例如冬季在北大西洋航行,应将遭遇大风作为正常天气情况。

发货人应确保CTU内货物的积载与系固能够承受各种拉压应力。否则,发货人将对货损、CTU损坏以及第三方当事人的损失负责。

必须指出,由于CTU之内或之上货物积载与系固不当而导致运输车辆、火车车厢或船舶发生损坏,发货人应对此负责。

