

# 目 录

## 一. 名词部分

(一) 船舶	
1. 船舶与海上设施的种类.....	P.3-6
2. 数据与资料.....	P.6-8
3. 舱室处所.....	P.8-11
4. 高级船员和船员.....	P.11-12
5. 船级.....	P.12-13
(二) 船体	
1. 船体结构.....	P.13-23
2. 舾装.....	P.23-26
3. 甲板机械.....	P.26-28
(三) 轮机	
1. 操舵装置.....	P.28
2. 锅炉与压力容器.....	P.28-31
3. 汽轮机和燃气轮机.....	P.31-32
4. 柴油机.....	P.32-37
5. 轴、轴承以及螺旋桨.....	P.37-39
6. 泵、阀、柜、管和舱底附件.....	P.39-44
7. 齿轮箱及其它装置.....	P.44-48
(四) 电气	
1. 电力推进装置及配套设备和辅助电气设备.....	P.48-50
2. 无线电设备.....	P.50-52
3. 发电机与电动机.....	P.52-54
4. 配电系统.....	P.54-56
5. 变流机、变压器等装置以及开关等.....	P.56-62
6. 电缆与照明系统.....	P.63-68
7. 报警系统和信号设备.....	P.68-69
(五) 消防.....	P.69-71
(六) 救生设备.....	P.71-72
(七) 焊接.....	P.73

## 二. 动词部分

(一) 船舶处于或遭遇的状态或情况.....	P.74-86
(二) 缺陷与损坏的类别与原因.....	P.86-104
(三) 修理方法.....	P.104-109
(四) 检查与试验.....	P.109-111

三.	短语句子部分	
	(一) 短语 (1-133)	P.111-120
	(二) 句子 (134-444)	
	1. 有关船舶以及证书报告等方面的叙述	P.120-124
	2. 有关各种原因、目的、条件等的叙述	P.124-135
	3. 有关船舶及船、机、电等状况的叙述	P.136-149
	4. 有关检查、试验与修理等情况的叙述	P.149-158

#### 四. 报告部分

全况检验	P.158-165
制造中缺陷	P.165-178
火灾事故	P.178-180
遭遇坏天气	P.180-184
遭遇大雾	P.184-186
碰撞损坏(螺旋桨被灯船锚链缠绕继而发生碰撞)	P.186-192
碰撞损坏(机动货驳碰撞后沉没,已无修理价值)	P.192-196
碰撞损坏(渔船船首被碰撞)	P.196-199
搁浅损坏	P.199-204
腐蚀	P.205-208
进水损坏	P.208-211
锚损坏	P.211-213
货舱损坏	P.213-219
舱盖损坏	P.219-221
浪击损坏	P.221-223
浪损	P.223-226
螺旋桨损坏	P.226-232
可调节螺旋桨轴联轴器安装缺陷	P.232-233
主机损坏(连杆轴承下盖的潜在缺陷所致)	P.233-238
主机损坏(推力轴承没有起到止推作用曲轴前移所致)	P.238-247
主机损坏(主机飞车曲轴后臂红套移动所致)	P.247-252
主机损坏(缸套裂缝所致)	P.252-253
付机损坏(柴油发电机爆炸,已无修理价值)	P.253-256
付机损坏(活塞、缸套长期在高温应力中运转而产生裂缝所致)	P.256-258
缸套、活塞损坏	P.258-259
增压器损坏	P.259-261
尾轴油封装置渗漏	P.261-264
离合器损坏	P.264
起重机损坏	P.265-266
门式起重机损坏	P.266-269
履带式起重机回转支索损坏	P.269-270
垃圾箱损坏	P.270-272
码头损坏	P.272-273
钻井平台远洋拖航	P.274-275

## 一. 名词部分

### (一) 船舶

#### 1. 船舶与海上设施的类型 Type of Ships and Offshore Installations

##### 货船 Cargo Ship

i 杂货船	General cargo ship
i 干货船	Dry cargo ship
i 散货船	Bulk carrier
i 矿沙船	Ore carrier
i 运煤船	Coal carrier
i 集装箱船	Container ship
i 滚装货船	Ro/Ro ship
i 冷藏船	Refrigerated ship
i 运畜船	Cattle carrier
i 运木船	Timber carrier
i 近海供应船	Offshore supply ship
i 散装矿砂船	Bulk Ore carrier
i 混装船	Combination carrier
i 载驳母船	Barge Carrier
i 汽车运输船	Car carrier

##### 液货船 Liquid Cargo Carrier

i 油船	Oil tanker
i 化学品液货船	Chemical tanker
i 液化气体船	Liquefied gas carrier
i 油矿两用船	Oil/ore carrier
i 油散两用船	Oil/bulk carrier
i 油散矿三用船	Oil/bulk/ore carrier

##### 客船 Passenger Ship

i 客船	Passenger ship
i 豪华旅游客船	Cruise ship
i 旅游船	Tourist ship
i 高速客船	High speed passenger craft
i 双体客船	Passenger catamaran
i 客货船	Passenger-cargo ship
i 客箱船	Passenger container ship
i 客滚船	Ro/Ro Passenger Ship

##### 高速船 High Speed Craft

i 全垫升气垫船	Air-cushion Vehicle
i 水面效应船	Surface Effect Ship
i 双体气垫船	Air-cushion Catamaran
i 侧壁气垫船	Side-wall Hovercraft
i 高速双体船	High Speed Catamaran

i 高速单体船	High Speed Monohull Craft
i 地效翼船	Wing-in Ground Craft
i 水翼船	Hydrofoil Craft
i 动力支承船	Dynamically Supported Craft
i 两栖船	Amphibious Craft
i 小水面单体船	Small Waterplane Area Single Hull Ship
i 小水面双体船	Small Waterplane Area Twin Hull Ship
<b>驳船 Barge</b>	
i 客驳	Passenger Barge
i 货驳	Cargo Barge
i 敞口驳	Open Barge
i 甲板驳	Deck Barge
i 集装箱驳	Container Barge
i 分节驳	Integrated Barge
i 开底驳	Hopper Barge
i 油驳	Oil Barge
i 趸船（箱形驳）	Pontoon
<b>拖船 Tug</b>	
i 港作拖船	Harbour Tug
i 打捞拖船	Salvage Tug
i 顶推船	Pusher
i 近海供应拖船	Offshore tug/supply ship
<b>工程船 Engineering Ship</b>	
i 挖泥船	Dredger
耙吸式挖泥船	Trailing suction dredger
绞吸式挖泥船	Cutter suction dredger
链斗式挖泥船	Bucket dredger
抓斗式挖泥船	Grab dredger
铲斗式挖泥船	Dipper dredger
吹泥船	Reclamation craft
开底泥驳	Hopper Barge
对开泥驳	Split Hopper Barge
i 起重船	Floating Crane
i 浮船坞	Floating Dock
i 打桩船	Floating Pile Driver
i 布缆船	Cable Layer
i 潜水工作船	Diving Boat
<b>港区工作船 Harbour Operating Ship</b>	
i 破冰船	Ice breaker
i 消防船	Fire Boat
i 救护船/救助船	Rescue Ship
i 引水船	Pilot Vessel
i 海关船	Customs Boat
i 巡逻船	Patrol Boat

i 布标船	Buoy Layer
i 灯标船	Beacon Boat
i 交通艇	Traffic Boat
i 垃圾船	Garbage Boat
i 浮油回收船	Oil Recovery Ship
i 污水处理船	Sewage Disposal Vessel
i 海水淡化船	Distilling Ship
<b>渡船 Ferry</b>	
i 乘客渡船	Passenger Ferry
i 火车渡船	Train Ferry
i 车客渡船	Vehicle Passenger Ferry
i 海峡渡船	Channel Ferry
<b>渔船 Fishing Vessel</b>	
i 渔品加工船	Fish-Factory Ship
i 拖网渔船	Trawler
i 围网渔船	Netter
i 捕鲸船	Whaling Ship
i 活鱼运输船	Live Fish Carrier
<b>其他船舶</b>	
i 科学调查船	Research ship
i 训练船	Training Ship
i 特殊用途船	Special purpose ship
i 内河船	Inland Waterways Ship
<b>海上设施 Offshore Installations</b>	
i 海上移动平台	Mobile Offshore Unit
i 海上移动钻井平台	Mobile Offshore Drilling Unit
i 水面式平台	Surface Unit
i 船式平台	Ship-type Unit
i 驳船平台	Barge-type Unit
i 自升式平台	Self-elevating Unit
i 柱稳式平台	Column-stabilized Unit
i 半潜式平台	Semi-submersible Unit
i 坐底式平台	Submersible Unit
i 采油平台	Production Unit
i 储油平台	Storage Unit
i 生活平台	Accommodation Unit
i 修理平台	Repair Unit
i 海上固定平台	Fixed Offshore Platform
i 海底管道	Submarine Pipeline
i 潜水系统和潜水器	Diving System and Submersible
i 单点系泊	Single Point Mooring (SPM)
i 浮式生产与储油装置	Floating Production and Storage Unit (FSUs)
i 浮式生产、储存及卸载系统	Floating Production, Storage and

## 2. 数据与资料      Data and Information

### 数据

总长	Length overall(L <sub>OA</sub> )
垂线间长	Length between perpendiculars (L <sub>BP</sub> )
首、尾垂线	Forward and after perpendiculars
型宽	Moulded breadth
型深	Moulded depth
建造日期	Date of build
签订建造合同日期	Date of building contract
龙骨安放日期	Date of keel laid
交船日期	Date of delivery
下水日期	Launching date
重大改建	Major conversion
安放龙骨或船舶处于相似建造阶段的日期	Date on which keel was laid or ship was at a similar stage of construction
签订改建合同日期	Date of conversion contract
改建完工日期	Date of completion of conversion
船舶所有人	Owner
经营人	Operator
承租人	Charterer
船舶编号或呼号	Distinctive number or letters
航行区域	Navigation area/Service area/Trade area
曾用过的船名	Former Name
姐妹船	Sister Ship
总吨位	Gross tonnage
净吨位	Net tonnage
排水量	Displacement
载货量	Cargo weight
载重量	Deadweight
空船重量	Light(-ship) weight
吃水(首、尾、平均)	Draft ( fwd, aft, mean)
稳性	Stability
完整稳性	Intact stability
破舱稳性	Damaged stability
分舱(抗沉性)	Subdivision
初稳性高度	Metacentric height
衡准数	Criterion numeral
剖面模数	Section modulus
惯性矩	Moment of inertia
纵总强度	Longitudinal strength

局部强度	Local strength
方形系数	Block coefficient
静水弯矩	Still water bending moment
重心垂直高度	Vertical height of centre of gravity
屈服应力	Yield stress
标准舷弧	Standard sheer
防火分隔	Fire division
航区限制	Navigation area restriction
海况限制	Sea state restriction
天气限制	Weather restriction
最大抗风暴能力	Max. weatherliness
储备浮力	Reserve buoyancy
续航力	Endurance
渗透率	Permeability
盲区	Blind area
共振区域	Resonance region
容许载荷	Permissible load
核定载客数	Number of persons certified to carry
干舷:	Freeboard
热带干舷	Tropical freeboard
夏季干舷	Summer freeboard
冬季干舷	Winter freeboard
北大西洋冬季干舷	Winter North Atlantic freeboard
热带木材干舷	Timber tropical
夏季木材干舷	Timber summer
冬季木材干舷	Timber winter
北大西洋冬季木材干舷	Timber winter North Atlantic freeboard
淡水宽限	Allowance for fresh water
减少干舷的 B 型船舶	Type B with reduced freeboard
增加干舷的 B 型船舶	Type B with increased freeboard
载重线:	Load line
载重线标志	Loadline marks

## 资料

防火控制图	Fire control plans
海图	( up-to-date 最新) Charts
航路指南	Sailing direction
灯塔表	Lists of lights
航行通告	Notices to mariners
潮汐表	Tide tables
航海出版物	Nautical publications
应变部署表	Muster list
国际信号规则	International Code of Signals

航海日志	Deck log book
机舱日志	Engine room log book
无线电日志	Radio log book
线型图	Lines
稳性资料	Stability information
装载手册	Loading manual
干舷计算书	Freeboard calculations
配载图	Stowage plan
操作说明书	Operation instructions
维修计划	Maintenance plan
训练手册	Training manual
船上维修保养指南	Instructions for on-board maintenance
弃船训练演习手册	Abandon ship training and drill manual

### 3. 舱室处所 Compartments or Spaces

#### 舱室

#### 工作和设备舱室:

驾驶室	Wheel house
海图室	Chart room
报务室	Radio room
雷达室	Radar room
声纳室	Sonar room
主机舱	Main engine room
主机操纵室	Main engine control room
辅机舱	Auxiliary engine room
锅炉舱	Boiler room
机炉舱	Engine and boiler room
减速器舱	Reduction gear room
舵机舱	Steering gear room
通风机室	Fan room
变流机室	Commutator room
空调室	Air-conditioner room
应急发电机室	Emergency generator room
冷冻机室	Refrigerator room
灭火装置室	Fire control room
蓄电池室	Battery room
陀螺罗经室	Gyro-compass room
方位水平仪室	Azimuth level room
计程仪舱	Log room
导弹舱	Missile room
弹药舱	Magazine
深弹舱	Depth charge room
弹药转运舱	Ammunition lobby

声纳舱	Sonacelle, sonar nacelle
机修间	Workshop
电工间	Electrician's store
木工间	Carpenter's store
锚链舱	Chain locker
桅屋	Mast house
洗消室	Decontamination room
<b>居住舱室:</b>	
居住舱室	Accommodation, living accommodation
客舱	Cabin
船员舱室	Crew's cabin
墙壁	wall
天花板	top ceiling
侧壁板	side ceiling
里子板	lining
装饰	decoration
家具	furniture
书桌	desk
衣橱	wardrobe
梳妆台	dressing table
书柜	bureaux
餐具柜	dresser
椅子	chair
沙发	sofa
桌子	table
帷幔	drapery
窗帘	curtain
地毯	carpet
<b>货舱:</b>	
货舱	Cargo hold (详见船体部分的货舱)
货油舱	Cargo oil tank, cargo tank
集装箱舱	Container hold
冷藏货舱	Refrigerated cargo hold
液化天然气舱	Liquefied natural gas tank
邮件舱	Mail room
行李舱	Luggage room
汽车舱	Vehicle hold
液舱	Liquid tank
燃油舱	Fuel oil tank
滑油舱	Lubricating oil tank
压载水舱	Ballast tank
淡水舱	Fresh water tank
污水舱	Bilge tank
储藏室	Store, store room

帆缆间	Hawser store
油漆间	Paint room
粮食库	Provision store
冷藏库	Refrigerating chamber
<b>其他:</b>	
首尖舱	Fore peak tank
尾尖舱	Aft peak tank
顶边舱:	Topside tank
甲板强横梁	deck transverse
舱口垂向列板(与舱口一 直线的垂直边板)	vertical side plating ( in line with hatch)
船壳板	shell plating
斜板	sloping plating
底边舱:	Hopper tank
斜板	sloping plating
双层底舱	Double bottom tank
翼舱	Wing tank
边舱	Side tank
平衡舱	Heeling tank
深舱	Deep tank
残油舱	Sludge/oil residue tank
隔离舱	Cofferdam
空舱	Void tank
<b>处所</b>	
<b>货物处所:</b>	Cargo spaces
货舱	Cargo hold
货油舱	Cargo tank
液货舱	Liquid cargo tank
围壁通道	Trunk
<b>起居处所:</b>	Accommodation spaces
公共处所	Public space
走廊	Corridor
盥洗室	Lavatory
住所	Cabin
办公室	Office
医务室	Hospital
放映室	Cinema
游戏室	Game room
娱乐室	Hobby room
理发室	Barber shop
配膳室(无烹调设备)	Pantry(containing no cooking appliances)
<b>公共处所:</b>	Public spaces:
大厅	Hall

餐室	Dining room
休息室	Lounge
类似的固定围闭处所	Similar permanently enclosed spaces
<b>服务处所:</b>	<b>Service spaces:</b>
厨房	Galley
配膳室(设有烹调设备的)	Pantry (containing cooking appliances)
储物间	Locker
邮件舱	Mail room
贵重物品室	Specie room
储藏室	Store room
工作间	Workshop
围壁通道	Trunk
<b>特种处所:</b>	<b>Special category spaces:</b>
舱壁甲板以上或以下围闭的车辆处所	Enclosed vehicle spaces above and below the bulkhead deck
<b>机器处所:</b>	<b>Machinery spaces:</b>
A 类机器处所	Machinery space of category A
装有下列机械的处所	Spaces containing:
推进机械;	Propulsion machinery,
锅炉;	Boilers,
燃油装置;	Oil fuel units,
蒸汽机和内燃机;	Steam and internal combustion engines,
发电机和主要电动机;	Generators and major electrical machinery,
加油站;	Oil filling station,
冷藏机;	Refrigerating installation,
防摇装置;	Stabilizing installation,
通风机;	Ventilation installation,
空气调节机械。	Air conditioning machinery.
围壁通道	Trunk
<b>控制站:</b>	<b>Control stations:</b>
下列设备所在/集中的处所:	Spaces in which the following located/centralized:
船舶无线电设备;	Ship's radio equipment,
主要航行设备;	Main navigating equipment,
应急电源。/	Emergency source of power./
火警指示器或失火控制设备。	Fire recording and fire control equipment.

#### 4. 高级船员和船员

船长	Master (商船船长的正式称谓)
	Captain (商船船长的尊称)
小船驾长	Skipper
大付	Chief officer
二付	Second officer

三付	Third officer
驾助	Assistant officer
轮机长	Chief engineer
大管轮	First engineer
二管轮	Second engineer
三管轮	Third engineer
轮机员	Engineer
轮助	Assistant engineer
电机长	Chief electrician
电机员	Electrician
电助	Assistant electrician
水手长	Boatswain
付水手长	Cassab
一等水手	Able seaman
水手	(original) seaman
实习生	Apprentice
见习生	Cadet
机工长	Chief motorman
机工	Motorman
加油	Greaser
铜匠	Fitter
大厨	Chief cook
厨师	Cook
事务长	Chief steward
服务员	Steward
报务主任	Chief radio operator/officer
报务员	Radio operator/officer
甲板部	Deck department
轮机部	Machinery department

## 5. 船级

入级条件	Condition of classification
保持船级条件	Condition of class maintenance
入级	Classification
	Classed with the Society
转级	Transfer of class
重新入级	Reclassification
恢复入级	Reinstatement of class
暂停船级	Suspension of class
取消船级	Withdrawal or cancel of class
失去船级	Losing class
<b>船级符号</b>	<b>Characters of classification</b>
船体船级符号	Characters of classification for hull

轮机船级符号	Characters of classification for machinery
<b>附加标志</b>	<b>Class notations</b>
船体附加标志	Class notations for hull of ships
加强检验附加标志	Enhanced survey programme (ESP) notations
特种任务附加标志	Special duty notations
航区限制附加标志	Service restriction notations
特定航线附加标志	Special route service notations
冰区加强附加标志	Ice strengthening notations
水下检验附加标志	In-water survey notations
装载仪附加标志	Loading computer notations
船体循环检验附加标志	Continuous hull survey notations
船舶安全管理附加标志	Safety management system of ships notations
轮机附加标志	Machinery notations
<i>授予船级符号</i>	<i>to be assigned</i>
<i>授予附加标志</i>	<i>to be assigned</i>
<i>在船级符号后加注附加标志</i>	<i>to be affixed to</i>

## (二) 船体

### 1. 船体结构

船体结构	hull structure
船体构件	structural members
船体骨架	structural framing
舷侧骨架	side framing
船底骨架	bottom framing
甲板骨架	deck framing
主要构件	primary members
次要构件	secondary members
构件带板	attached plating of members
横骨架式	transversely framed
纵骨架式	longitudinally framed
分段	block
分段装配 (大合拢)	block assembly
胎架	jig

### 上层建筑、甲板室等

#### 上层建筑: Superstructure

首楼	forecastle
长首楼 (大于 20% 船长)	long forecastle
短首楼 (小于 20% 船长)	Short forecastle

桥楼	bridge
长桥楼（舳部长上层建筑，占船长 15% 以上）	long bridge
短桥楼（舳部短上层建筑）	short bridge
尾楼	poop
长尾楼	long poop
短尾楼	short poop
甲板室：	Deckhouse (roundhouse)
最下层甲板室	the lowest deckhouse
第一层甲板室	first tier deckhouse
上层甲板室	upper deckhouse
第二层、第三层等甲板室	second tier, third tier, etc. deckhouse
甲板室顶	deckhouse top
甲板室甲板	deckhouse deck
围壁	boundary bulkhead, deckhouse casing
前端壁	front bulkhead
后端壁	aft end bulkhead
侧壁	side bulkhead
平台、台：	Platform
平台板	platform plating
檐板	curtain plate
平面、平台、舱内甲板	Flat
穿孔平台	Perforated flat
天桥：	Connecting bridge

### 船首与船尾

船首、首柱	stem
首柱板	stem plate
船首部	bow
球鼻首	bulb(ous) bow
船尾	stern
尾柱	stern frame(post)
船尾部	quarter
<b>没有艉柱板 “stern plate”</b>	
船首壳板	shell plating at bow
船尾壳板	shell plating at quarter
船尾板	shell plating at stern
方形船尾板	transom plate
舵柱	rudder post
尾轴架	propeller shaft bracket
挂舵臂	rudder horn

尾鳍、呆木	skeg
	deadwood (小船)
艉门	stern door
艉跳板(舌门)	stern ramp

## 船底

船底: Ship's bottom

外底板	outer bottom plating
内底板	inner bottom plating
双层底舱舱顶板(内底板)	tank top
双层船壳	double skin
单层船壳	single skin
内壳板	Inner shell plating
内侧	inner skin (为 bulkhead)
外侧	outer skin (为 shell plating)
单层底	single bottom
双层底	double bottom
龙骨	keel
平板龙骨	plate keel
龙骨翼板	garboard strake
舳列板	bilge strake
实肋板	plate floor
中桁材	centre girder
箱形中桁材	duct keel
管隧	pipe tunnel
旁桁材	side girder
实肋板	plate floor
水密肋板	watertight floor
组合肋板	bracket floor
轻型肋板	lightened floor
船底桁材	bottom girder
船底纵骨	bottom longitudinal
内底纵骨	inner bottom longitudinal
内龙骨	keelson
中内龙骨	centre keelson
旁内龙骨	side keelson
内底边板	margin plate
舳部	bilge
舳肘板	bilge bracket
舳龙骨	bilge keel
污水井	bilge well
污水沟	bilge
船底塞	bottom plug

## 船侧

船壳板: Shell plating

左(右)舷肋位 xx-xx 间的/肋位 xx 处的 X 列船壳板:

Port (std) side shell plating, strake X, between frm Nos. xx-xx/ at frm No. xx

或, Strake X of port (std) side shell plating between frm Nos. xx-xx/ at frm No. xx

或, Port (std) side shell strake X between frm Nos. xx-xx/ at frm No. xx

舷侧顶列板: Sheer strake

舷侧顶列板下第一(第二、第三等)列船壳板:

the 1<sup>st</sup> (2<sup>nd</sup>, 3<sup>rd</sup>, etc.) shell strake under sheer strake

或, 1<sup>st</sup> (2<sup>nd</sup>, 3<sup>rd</sup>, etc.) strake of shell plating under sheer strake

圆弧舷顶列板 rounded sheer strake

肋骨: Frame

强肋骨 web frame

side transverse (舷侧为纵骨架式时)

主肋骨 main frame

甲板间肋骨 tween deck frame

中间肋骨 intermediate frame

强肋骨间距 bay

肋骨间距 frame spacing

舷侧纵骨: Side longitudinal

舷侧纵桁: Side stringer

护舷材: Fender, bumper

舷边: Gunwale

## 舷墙和栏杆

舷墙: Bulwark

舷墙板 bulwark plating

舷墙顶板 bulwark capping

舷墙撑柱 bulwark stay(stanchion)

舷墙吊攀 bulwark hoisting ring

可放倒舷墙 collapsible bulwark

可拆舷墙 movable bulwark

固定舷墙 fixed bulwark

连续舷墙 continuous bulwark

(舷墙上的)吊杆稳索 cargo gear shroud

(舷墙上的)桅侧稳索 mast shroud

眼板 eye plate

栏杆: Guardrail ( rails/railing)

栏杆撑柱 rail stanchion

栏杆横档 course

栏杆横档最上面一档 top course (main rail/rail capping)

栏杆的一段 section  
安全绳 Life line

### 货舱、舱口和舱口盖

#### 货舱: **Cargo hold**

甲板间舱 (二层舱) tween deck space  
甲板间舱口 tween deck hatch  
甲板间舱口盖 tween deck hatchcover  
二层甲板 tween deck  
上层甲板间舱 upper tween deck space  
中层甲板间舱 mid tween deck space  
下层甲板间舱 lower tween deck space  
下层舱 lower hold  
肋骨 frame  
货舱出入口 access  
护舷木条 cargo batten, spar ceiling

#### 舱口和舱口盖: **Hatchways and covers**

舱口 hatchway, hatch  
舱口活动横梁 portable beam  
舱口围板 hatch(hatchway) coaming  
舱口围板扶强材 stiffener  
舱口盖 hatch cover  
机械舱口盖 mechanical hatchcover  
绞链舱口盖 swinging hatch cover  
液压折叠式舱口盖 hydraulic-folding hatchcover  
多板滚动式舱口盖 multipanel hatchcover  
麦克格雷戈(滚动式)舱口盖 MacGreger hatchcover  
滚动式舱口盖 rolling hatchcover  
滑动式舱口盖 sliding hatchcover  
箱形舱口盖 pontoon hatchcover  
舱盖板 hatch cover plate(/panel)  
夹紧装置 clamping device  
托架 carrier  
承座 socket  
楔耳 cleat  
压条 batten, retaining bar, compressor bar  
楔子 wedge  
导轨 guide rail  
轨道轮子 track wheel  
绞车付卷筒 gypsy  
舱口盖密封胶带 hatchcover seal tape  
帆布 tarpaulin, canvas

舱口盖轮子架板	hatchcover roller holder
舱口盖板连接绞链销 (连接绞链销的)开口销	hinge pintle for connecting hatch covers split pin
(连接绞链销的)止动板	stop plate
舱口盖把手	hatch dog
货舱前后封舱大螺栓	heavy bolt for enclosing opening at No. X cargo hold fwd and aft

## 甲板和支柱、立柱

甲板: Deck (在下面的舱室内称为 overhead deck)

甲板板	deck plating
甲板开口	deck opening
甲板边板	deck stringer
地令	deck ring
用以支撑甲板的构件:	
甲板骨架	deck framing
甲板纵桁	deck girder
甲板纵骨	deck longitudinal
甲板强横梁	deck transverse
甲板横梁	deck beam
悬臂梁 (指从舷边延伸到其所支持的舱口甲板纵桁的甲板强横梁)	cantilever
主甲板	main deck
上甲板	upper deck
前甲板	fore deck
后甲板	after deck
第二甲板	second deck
下层甲板	lower deck
居住甲板	accommodation deck
上层建筑甲板	superstructure deck
艏楼甲板	forecastle deck
艉楼甲板	poop deck
桥楼甲板	bridge deck
驾驶甲板	navigation deck
舱壁甲板	bulkhead deck
甲板室甲板	deckhouse deck
平台甲板	platform deck
罗经甲板	compass deck
干舷甲板	freeboard deck
分舱甲板	subdivision deck
量吨甲板	tonnage deck
强力甲板	strength deck
局部甲板	partial deck
开敞甲板	open deck

露天甲板		exposed (weather) deck
遮蔽甲板		shelter deck
游步甲板		promenade deck
旅客甲板		passenger deck
直升飞机甲板		helicopter deck
升高甲板		raised deck
前升高甲板		raised fore deck
后升高甲板		raised quarter deck
主拖甲板		main trailer deck
车辆甲板		vehicle deck
花铁板甲板		checkered deck
甲板覆层:	Deck covering	
化学敷料 (上)		composition
绝缘层 (下)		insulation
木铺板		wood sheathing
支柱:	Pillar	
管形支柱		tubular pillar
组合支柱		built up pillar
装载木材甲板货的设备:	Timber stowage arrangement	
立柱		upright
立柱插座		socket
系索眼板		eyeplate

## 舱壁、轴隧和围阱

舱壁:	Bulkhead	
(非)水密舱壁		(non-) watertight bulkhead
横向舱壁		transverse bulkhead
纵向舱壁		longitudinal bulkhead
纵中舱壁		central longitudinal bulkhead
防撞舱壁		collision bulkhead
制荡舱壁		wash bulkhead
平面舱壁		plane bulkhead
槽形舱壁		corrugated bulkhead
槽形		corrugation
凸面		convex surface
凹面		concave surface
斜面部分		sloping part
平面部分		plane part
顶凳		upper stool
底凳		lower stool
凳底		stool bottom
风雨密舱壁		weathertight bulkhead
压筋舱壁		swedged bulkhead

舱壁扶强材	bulkhead stiffener
舱壁龕	bulkhead recess
舱壁贯穿孔	penetration
轴隧: Shaft tunnel	
轴隧端室	tunnel recess
围阱: Trunk	
货舱围阱	cargo hatch trunk
应急围阱	escape trunk
升降通道、起重阱	hoist trunk
<b>肘板</b>	
肘板:	Bracket
货舱内肋骨上端肘板(梁肘)	beam knee
货舱内肋骨下端肘板	lower bracket
首、尾尖舱内下肘板(在舳部)	bilge bracket
除首、尾尖舱外的下肘板	tank side bracket
上肘板	upper bracket
艏柱肘板, 又叫首尖蹼板	breast hook
防倾肘板	tripping bracket
<b>通风筒、空气管以及开口等</b>	
通风筒:	Ventilator
通风筒围板	ventilator coaming
通风筒盖	ventilator cover
通风筒帽	ventilator cap
通风斗	ventilator cowl
通风斗罩	ventilator hood
通风筒开口	ventilator opening
防火挡板	damper
防火网	flame screen
风雨密关闭装置	weathertight closing appliance
	means for securing weathertightness
菌形通风筒	mushroom ventilator
鹅颈形通风筒	gooseneck ventilator
喇叭式(通)风斗	cowl (head) ventilator
叶片式通风筒	fan ventilator
百叶式通风筒	venetian ventilator
空气管:	Air pipe
空气管头	air pipe head
空气管管口	air pipe opening
空气管接头	air pipe connection

开口:	Opening
甲板开口	Deck opening
量吨开口	Tonnage opening
货舱开口	Hatch opening
机舱开口	Machinery space opening
机炉舱棚开口	Fiddley opening
人孔:	Manhole
人孔盖	Manhole cover
人孔盖围槛	Ring
平舱口:	Flush scuttle
平舱口盖	Flush scuttle cover
减轻孔	Lightening hole
泄水孔	Scupper
排水孔	Discharge
进水孔	Inlet
流水孔	Drain hole
透气孔	Air hole
吸口	Suction
排水舷口:	Freeing port
盖板	Shutter
货舱舷门	Cargo port
舷门	Side door
尾门	Stern door
水密门	Watertight door
门开口	Door opening
门框	Door framing
门扶强材	Door stiffener
门固定装置	Securing device
门关闭装置	Closing device
门吊臂/转动臂	Lifting/maneuvering arms
门槛	Sill
舷窗:	Side scuttle
风暴盖	Deadlight
窗:	Window
矩形窗	Rectangular window
窗槛	Sill
天窗:	Skylight
天窗盖	Flap
升降口:	Companionway
<b>梯子和通道</b>	
梯:	Ladder
舷梯	Accommodation ladder/gangway
舷梯吊索	Guy rope

舷梯吊臂架	Accommodation ladder davit
舷外支架	Outrigger
横担	Yoke
引水员软梯	Pilot ladder
出入口梯子	Access ladder
货舱直梯	Vertical ladder
舱壁上斜梯	Sloping ladder
货舱斜梯	Australian ladder
货舱斜梯 (Australian ladder) 的组成:	
上垂直部分	vertical upper section
上平台	upper platform
倾斜部分	sloping section
下平台	lower platform
下垂直部分	vertical lower section
框架	framing
梯阶	Step, rung
扶手	Handrail
通道、步桥	Gangway
走廊、通道	Corridor, passage, passageway, alley, alleyway
甲板下走道	Underdeck passage
房间走廊	Accommodation alleyway
门厅、廊室	Lobby
通道	Walkway
门道	Doorway
梯道	Stairway
扶梯	Stair
扶梯间	Staircase
<b>烟囱、百叶窗</b>	
烟囱:	Funnel
环形开口	Annular space
关闭装置	Closing means
百叶窗:	活动的      Shutter
	固定的      Louver
<b>其他</b>	
封板	Closing plate
防浪板	Wash plate
防磨板	Wearing plate
挡水板	Dash plate
防鼠板	Rat guard
牵条板	Tie plate

斜支撑、拉条	Brace (横拉筋 horizontal brace;斜拉筋 diagonal brace)
颊板	Cheek plate
面板	Face plate
腹板	Web plate
折边	Flange
扶强材、加强筋	Stiffener
隔板	Diaphragm plate
锌板	Zinc slab
花铁板	Checkered(/chequered) plate
白铁皮	Galvanized iron
流线型板、装饰板	Fashion plate
镶板	Panelling
软木	Cork
格栅	Lattice, grating
天棚	Awning
锻件	Forging
铸件	Cast, casting
铸铁	Cast iron
铸钢	Cast steel
合金钢	Alloy steel
铝合金	Aluminum alloy
角钢	Angles
槽钢	Channels
棒材	Bars
圆材	Rolled sections
组合型材	Built-up sections
扁材	Flat bar
塑料	Plastic
货盘	Cargo tray
货板	Pallet
填舱板	Dunnage
草席	Mat

## 2. 舾装 Equipment and Outfits

### 舵 Rudder

舵设备	rudder arrangement
舵杆	rudder stock
舵轴	rudder axle
舵扇	rudder quadrant

舵柄	rudder tiller
舵承(舵托)	rudder carrier
舵柱	rudder post
舵销	rudder pintle
平衡舵	balanced rudder
半平衡舵	semi-balanced rudder
平板舵	flat plate rudder
整流舵	contra guide rudder
悬挂舵	spade rudder
舵角指示器	rudder (angle) indicator
舵叶和舵杆的连接法兰面	coupling flange surfaces of rudder & rudder stock

### 锚、锚链和锚机

锚:	Anchor
锚泊及系泊设备	anchoring and mooring equipment
锚索	anchor rope
锚杆	anchor shank
锚横杆	anchor stock
锚爪	anchor fluke
锚冠	anchor crown
锚块	anchor block
销	pin
锚穴板	anchor recess (anchor pocket plate)
锚灯柱	anchor light post
锚钟杆	anchor bell stock
有杆锚	Stocked anchor
无杆锚	Stockless anchor
首锚	Bower anchor
尾锚	Stern anchor
备用锚	Spare anchor
双抓锚	Double-fluked anchor
三抓锚	Triple fluke anchor
大抓力锚	High holding power anchor
山字锚, 霍尔锚	Hall's anchor
斯贝克锚	Speke anchor
重力锚	Gravity anchor
海军锚	Admiralty anchor
铲形抓锚	Spade anchor
锚链:	Chain cables
锚卸口	anchor shackle
端链环	end link
大链环	large link

普通链环	ordinary link
转环	swivel
连接卸口	connecting shackle
链环横档	link stud
左舷 X 节锚链	
X lengths (或 shackle lengths) of port side chain cables	
右舷第 X 节锚链	
No. X length (或 shackle lengths) of std side chain cables	
锚链舱	chain locker
锚链舱出入口	access
锚链舱的锚链卷筒/锚链轮	wildcat
锚链管(直的, 从甲板到锚链舱)	chain pipe
锚链筒(斜的, 从甲板到外板)	hawse pipe
锚链筒甲板凸缘	deck flange
锚链筒外板凸缘	shell flange
锚链孔(防磨)唇口	(hawse) bolster
锚链水阀	wash chain valve/cable washing valve
锚链冲水管	hose pipe for washing chains
锚链导槽	guide bed
锚链解脱器	cable reliever
止链器	chain stopper
锚机:	Windlass
电动锚机	Electric windlass
电动液压锚机	Electric-hydraulic windlass
带棘轮装置人力锚机	Handspike windlass
蒸汽锚机	Steam windlass
左绞盘	port capstan
右绞盘	std capstan
锚机滚筒	gypsy
<b>导缆器、带缆桩和绳索</b>	
导缆器:	Fairlead
滚轮	roller
导缆孔	mooring pipe
带缆桩:	Bollard, bitt
绳:	Rope, line
索具	rigging
吊索、升降索	halyard
钢丝绳:	steel wire rope
股	strand
丝	wire
尼龙绳	nylon rope

聚丙烯绳	polypropylene rope
系船索	mooring line
拖索	tow line
开锚绳	steel wire rope for fixing anchor

## 桅

桅:	Mast
前桅	fore mast
后桅	after mast
主桅	main mast
桅屋	mast house
桅顶	masthead
桅杆稳索	shroud
支索	stay

### 3. 甲板机械 Deck Machinery

起货设备	cargo handling gear
固定零部件	permanent attachments
活动零部件	loose gear

起重机:	Crane
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起重机的起货索	上面一根: ruffing wire
	下面一根: hoisting wire
吊臂	crane jib
基座	crane pedestal
岸吊	shore crane
浮吊	floating crane
起重机	hoist
	(如: 浮吊上部起重机 floating crane upper hoist)
门式起重机	gantry crane
履带式起重机	caterpillar crane
高架移动式起重机 (行车)	overhead travelling crane

将军柱	King post
将军柱梯	king post ladder

吊杆:	Derrick
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重型吊杆	heavy derrick
吊杆	derrick boom
吊杆台	boom platform

吊杆搁架	derrick rest
吊杆承皿	derrick shoe
起货索	cargo runner
起货索滑车	cargo runner block
起货索滚筒	cargo runner drum
稳索(定位索)	preventer guy
有节定位索	preventer guy with pitched clip
定位索套筒	preventer guy socket
定位索夹头	holder for preventer guy
千斤索	topping lift
钢丝绳	steel wire rope
差动滑车(神仙葫芦)	differential pulley
攀头	eye band
攀头板	eye plate
琵琶头	eye splice
鹅颈	gooseneck
鹅颈座	gooseneck seat
鹅颈横销	gooseneck horizontal pin

滑车:

Block

滑车轮	sheave
滑车壳	shell
滑车夹板	cheek
绳扣	becket
上千斤滑车	upper span block
下千斤滑车	lower span block
双轮滑车	double sheave block
单轮滑车	single sheave block
起货滑车	cargo block
导向滑车	guide block
导索滑车	leading block
起货滑车组	cargo tackles
千斤索滑车组	span tackles

吊货钩:

Cargo hook

能转的钩子	swivel hook
固定的钩子	fixed hook

绞车:

Winch

起货绞车	cargo winch
系泊绞车	mooring winch

千斤索绞车	topping winch
拖缆绞车	towing winch
绞车滚筒	drum
卷车:	Reel
钢索卷车	wire reel
系缆卷车	hawser reel
升降机:	Elevator, hoist, lift(er)
车辆	vehicle
抓斗	grab
叉车	fork lift, fork lift truck
拖车	trailer
卡车	truck, lorry

### (三) 轮机

#### 轮机装置 Machinery installations

机器处所(机舱)	Machinery space
机舱	Engine room

#### 1. 操舵装置 Steering gear

主操舵机	Main steering gear
付操舵机	Auxiliary steering gear
电动液压操舵机	Electro-hydraulic steering gear
转翼式操舵机	Rotary vane steering gear
手操舵机	Hand-power steering gear
蒸汽操舵机	Steam steering gear
动力油缸	hydraulic power cylinder
柱塞	plunger

#### 2. 锅炉和受压容器 Boilers and Pressure Vessels

<b>锅炉:</b>	<b>Boiler:</b>
锅炉舱	Boiler room
炉舱棚	Boiler room casing
锅炉座	Boiler bearer

主锅炉	Main boiler
辅助锅炉	Auxiliary boiler

燃油付锅炉	Oil-fired aux. boiler
燃油废气混合式锅炉	Oil-fired and exhaust gas composite boiler
水管锅炉	Water tube boiler
卧式烟管锅炉	Horizontal smoke tube boiler
立式辅助锅炉	Vertical auxiliary boiler
废气锅炉	Exhaust gas boiler
蒸汽锅炉	Steam boiler
混合式锅炉	Combined boiler
立式横烟管锅炉	Vertical-type horizontal smoke tube boiler
立式竖烟管锅炉	Vertical-type vertical smoke tube boiler
热油锅炉	Thermal oil heater
废气热油锅炉	Exhaust gas thermal oil boiler
	Exhaust gas thermal oil heater
筒体	Cylindrical shell
管孔	Tube hole
短管	Tube stub
燃烧室	Combustion chamber
燃烧室顶板	Crown plate
顶板支梁	Girder
凸形封头	Dished end plate
平顶板	Flat crown
烟道	Boiler uptake
烟道调节器、烟气调节挡板	Damper; Bypass damper
炉衣	Insulation, lagging
汽鼓	Steam drum
水鼓	Water drum
联箱	Header
泥箱	Mud box
过热器	Superheater
经济器	Economizer
再热器	Reheater
空气预热器	Air preheater, Air heater
减温器	Desuperheater
水管	Water tube
烟管	Smoke tube
牵条管	Stay tube
上升管	Riser
下降管	Down comer
看火孔	Peep hole, Periscope hole
吹灰器	Soot blower
壳板	Shell plate
管板	Tube plate
端板	End plate
管板水平架	Horizontal shelves

炉胆	Furnace
炉门	Fire door
炉胆底环	Ogee rings
锅炉底脚及支撑	Foundations and stays
锅炉附件:	Boiler mountings and fittings
给水阀	Feed check valve
给水接管	Feed standpipe
给水内管	Feed internal pipe
水位指示器	Water level indicator
水位表	Water gauge
安全阀	Safety valve
截止阀	Stop valve
上、下排污阀	Blow-off and scum valves
压力表	Pressure gauge
锅炉取样阀或旋塞	Sampling valve or cock
空气阀	Air valve/cock
过热器附件	Superheater mountings
泄水阀	Drain valve
温度计	Thermometer
锅炉燃烧装置:	Oil burning unit
压力泵	Pressure pump
吸入滤器	Suction filter
排出滤器	Discharge filter
加热器	Heater
双联滤器	Duplex filter
初始升汽设施	Starting-up oil fuel unit
锅炉燃烧器	Boiler burner
蒸汽吹洗设施	Steam purging connection
蒸汽雾化设施	Steam atomizing connection
集汽包	Steam receiver
供油总管	Boiler manifold
速闭总阀	Quick-closing master valve
声光报警	Audible and visual warnings
回油系统	Spill system
隔断装置	Isolating device
联锁装置	Interlocking arrangement
其他锅炉附件:	Other mountings
主停汽阀	Main steam stop valve
主蒸汽管	Main steam pipe
给水管路	Feed water piping
自动控制系统	Auto-control system
安全系统	Safety system
报警系统	Alarm system
燃烧系统	Oil burning system

锅炉给水泵	Boiler feed pump
锅炉循环泵	Boiler circulating pump
主凝水泵	Main condensate pump
付凝水泵	Aux. condensate pump
热交换器	Heat exchanger
主冷凝器	Main condenser
付冷凝器	Aux. condenser
大气冷凝器	Atmospheric condenser
蒸发量	<i>Evaporation rate</i>
受热面积	<i>Heating surface</i>
换热面积	<i>Cooling surface</i>
点火	<i>Ignition</i>
炉膛风压失	<i>Furnace draught loss</i>
炉膛熄	<i>Furnace flame extinguishing</i>

### 受压容器:

### Pressure Vessel:

筒体	Cylindrical shell
封头	End plate
进出口	Inlet and outlet
隔离阀	Stop valve
泄放设备	Drain device
安全设施	Safety device
空气瓶	Air receiver
易熔塞	Fusible plug
介质压力	<i>Medium pressure</i>
介质工作位置	<i>Working level of medium</i>

## 3. 汽轮机和燃汽轮机

### 汽轮机

### Steam Turbine

高压气缸	High-pressure cylinder
低压气缸	Low-pressure cylinder
汽轮机管路	Steam turbine piping
倒车机构	Reversing gear
安全装置	Safety arrangements
转子:	Rotor
叶轮	Disc
扭力轴	Quill shaft
套环	Shrink ring
动叶片	Moving blade
齿形联轴器	Toothed coupling
静子:	Stator

汽缸  
隔板  
喷嘴  
喷嘴箱  
导向叶片  
汽缸螺栓  
汽缸底座  
轴承座  
无损试验  
液压试验

#### **燃气轮机**

涡轮机  
压气机  
转子  
燃烧室  
热交换器  
燃油系统  
滑油系统  
平衡试验  
液压试验  
超速试验  
工厂试验

#### **4. 柴油机**

机舱  
机舱棚

主机  
付机  
机座  
机架  
贯穿螺栓  
转车机  
自由端  
飞轮端

机件  
运动部件  
部件、零件  
附件  
紧固件

Casing  
Diaphragm  
Nozzle  
Nozzle box  
Guide vane  
Turbine casing bolts  
Bed frame  
Bearing seat  
*Non-destructive test*  
*Hydraulic test*

#### **Gas turbine**

Turbine  
Compressor  
Rotor  
Combustion chamber  
Heat exchanger  
Fuel oil system  
Lubricating oil system  
*Balance test*  
*Hydraulic test*  
*Overspeed test*  
*Shop trial*

#### **Diesel Engine**

Engine room  
Machinery casing, engine room casing

Main engine  
Auxiliary engine  
Bedplate  
Engine frame  
Tie rod  
Turning gear  
Free end  
Fly wheel end

Machinery components  
Moving parts  
Parts  
Fittings, mountings  
Fixture

气缸:	Cylinder	
	A 列缸组第 X 组:	A bank No.3 cylinder unit
气缸体		Cylinder block
气缸盖		Cylinder cover
缸套冷却腔		Cylinder jacket
缸套(衬)		Cylinder liner
气缸壁		Cylinder wall
活塞:	Piston	
活塞顶		Piston crown
活塞头		Piston head
活塞杆		Piston rod
活塞杆填料函		Piston rod stuffing box
活塞环		Piston ring
活塞环槽		Piston ring groove
活塞销		Piston pin, gudgeon pin
活塞销轴承		Piston pin bush
活塞裙边		Piston skirt
耐磨环		Wear ring
活塞阀		Piston valve
活塞泵		Piston pump
二冲程; 四冲程		Two-stroke; four-stroke
上死点; 下死点		Top dead centre; bottom dead centre
曲轴:	Crankshaft	
曲轴轴承		Crankshaft bearing
曲轴联轴器法兰		Crankshaft coupling flange
曲柄箱		Crankcase
曲柄箱防爆门		Crankcase explosion relief valve
曲柄、曲拐		Crank
曲柄销		Crankpin
曲柄臂		Crankweb
曲柄箱门		Crankcase door
观察孔		Sight hole
曲轴箱安全阀		Relief valve of crankcase
曲柄弯程		Crank throw
连杆		Connecting rod
连杆大端轴承		Bearing at bottom end of connecting rod; Bottom end bearing
连杆小端轴承		Bearing at top end of connecting rod; Top end bearing
十字头		Crosshead
凸轮轴		Camshaft
驱动凸轮轴的钢质大齿轮		Steel gear wheel for camshaft drive
示功阀		Indicator valve

气缸安全阀  
进气阀  
排气阀  
摇臂  
导板  
滑板  
滑块  
顶杆

Safety valve  
Inlet valve  
Exhaust valve  
Rocker arm  
Guide  
Slide guide  
Sliding block  
Push rod

#### **燃油供给系统:**

燃油增压泵  
主供给泵  
备用泵  
燃油过滤器  
重油沉淀柜  
重油日用柜  
柴油柜  
分离机  
加热器  
粘度调节器  
压力调节阀  
三通阀  
平衡阀  
输送泵

#### **Fuel (oil) supply system:**

Fuel oil boost pump  
Main supply pump  
Standby pump  
Fuel oil filter  
Heavy fuel oil settling tank  
Heavy fuel oil service tank  
Diesel oil tank  
Centrifuge  
Heater  
Viscosity regulator  
Pressure regulating valve  
Three-way valve  
Balance valve  
Transfer pump

#### **燃油喷射系统:**

高压油泵（油头阀）  
  
喷射泵  
燃油喷射器（油头）  
喷嘴  
止回阀  
针阀  
正时调节阀  
溢流阀  
节流阀  
柱塞  
小(付)齿轮装置  
中间轴  
弹簧  
压紧螺母  
凸轮  
凸轮轴  
齿条:

#### **Fuel (oil) injection system:**

Fuel oil injection pump, injection fuel valve,  
High pressure oil pump  
Injection pump  
Fuel injector  
Nozzle  
Non-return valve  
Needle valve  
Timing valve  
Spill valve  
Throttle valve  
Plunger  
Pinion arrangement  
Intermediate spindle  
Spring  
Compression nut  
Cam  
Camshaft  
Rack

齿条复板	Rack chord
齿条挡板	Shield of rack
增压器:	Supercharger
涡轮增压器	Turbocharger
废气涡轮增压器	Exhaust gas turbocharger
增压器蜗壳	Spiral casing of the supercharger
透平叶轮	Turbine impeller
(透平增压器)废气出口接头	Exhaust connection
涡轮端	Turbine end
空压机端	Air compressor end
应急鼓风机	Emergency blower
蒸汽轮机	Steam turbine
鼓风机:	Blower
涡轮鼓风机	Turbo-blower
扫气:	Scavenging
	横流扫气 cross-flow scavenging
	回流扫气 loop scavenging
	直流扫气 uniflow scavenging
扫气口	Scavenge port
扫气道	Scavenge trunk
扫气防爆装置	Scavenge relief device
进气口	Inlet port
排气口	Exhaust port
<b>润滑系统:</b>	<b>Lubricating (oil) system:</b>
储油槽	Oil sump
泄油柜	Drain tank
滤器	Filter, strainer
冷却器	Cooler
液位指示器	Level gauge
贮存柜	Storage tank
<b>冷却系统:</b>	<b>Cooling system:</b>
主机淡水冷却泵	M.E. fresh water cooling pump
备用淡水冷却泵	Reverse fresh water cooling pump
主机海水冷却泵	M.E. sea water cooling pump
备用海水冷却泵	Reverse sea water cooling pump
缸套冷却水泵	Jacket cooling pump
活塞冷却水(油)系统	Piston cooling system (oil/water)
油头冷却泵	Fuel valve cooling pump
付机淡水冷却泵	Aux. E. fresh water cooling pump
付机海水冷却泵	Aux. E. sea water cooling pump

**热交换器:**

主机淡水冷却器  
 活塞水冷却器  
 主机油头冷却器  
 缸套水冷却器  
 付机淡水冷却器  
 海水循环冷却器

**压缩空气系统:**

空气压缩机  
 空气瓶  
 易熔塞  
 高压空气管  
 空气起动阀  
 隔离止回阀  
 释放阀  
 空气分配器  
 阻火器  
 爆炸(保险)膜片  
 操纵装置  
 安全装置  
 调速器:  
   机械调速器  
   电动调速器  
 速度传感装置  
 液压机构  
 惯性配重装置  
 齿轮  
 速度选择器  
 油雾探测器  
 联轴节:

**离合器:**

操纵手柄  
 手柄定位插销  
 支架  
 驱动机构

***Heat exchanger:***

M.E. fresh water cooler  
 Piston water cooler  
 M.E. fuel valve cooler  
 Jacket water cooler  
 Aux. E. fresh water cooler  
 Sea water circulated cooler

***Compressed air system:***

Air compressor  
 Air receiver  
 Fusible plug  
 High-pressure air pipe  
 Air starting valve  
 Isolating non-return valve  
 Relief valve  
 Air distributor  
 Flame trap  
 Bursting disc(k)  
 Control device  
 Safety device  
 Governor  
   Mechanical governor  
   Electric governor  
 Speed sensing arrangement  
 Hydraulic unit  
 Flyweight assembly  
 Gear wheel  
 Speed selector  
 Oil mist detector  
 Coupling:  
   弹性 Elastic coupling  
   挠性 Flexible coupling  
   机械 Mechanical coupling  
   电动 Electrical coupling  
   液力 Hydraulic coupling  
   液压 Fluid coupling  
   气动 Pneumatic coupling  
   电磁 Electromagnetic coupling  
 Clutch  
 Control handle  
 Set pin  
 Support  
 Driving unit

传动机构	Driven unit
驱动叶轮	Driving impeller
传动叶轮	Driven runner
传动装置	Gearing arrangement
大齿轮	Gearwheel
小齿轮	Pinion
齿轮箱	Gearbox
倒车齿轮	Reversing gear
倒车齿轮箱	Reversing gearbox
转动叶片	Rotating vane

## 5. 轴、轴承及螺旋桨

## Shaft, Bearing and Propeller

### 轴系 轴

### Shafting

### Shaft (指机械传动轴)

推力轴	Thrust shaft
推力环	Thrust collar
推力块	Thrust block
中间轴	Intermediate shaft
螺旋桨轴	Propeller/screw shaft
尾轴	Tail shaft
尾管轴	Tube shaft
曲轴	Crank shaft
曲轴臂	Crank web
<i>甩档, 曲轴臂挠曲</i>	<i>Crankshaft deflection</i>
凸轮轴	Camshaft
蜗杆轴	Worm shaft
链轮轴	Sprocket shaft
实心轴	Solid shaft
空心轴	Hollow shaft
轴套	Shaft liner
轴衬	Shaft bush
固定法兰	Fixed flange
联轴节	Shaft coupling
弹性联轴节	Flexible coupling
液压联轴节(液压法兰)	Fluid coupling
液力偶合器	Hydraulic coupling
磨擦离合器	Friction clutch
电磁离合器	Electric coupling
法兰螺栓	Flange bolt

键槽: Keyway:

汤匙形	round-ended
雪撬形	sled runner
普通键槽	keyed
无键	keyless

尾轴管 Stern tube:

铸钢与钢板焊接式	cast steel and steel plate welded
锻钢与钢板焊接式	forged steel and steel plate welded

尾轴承 stern bearing:

铁梨木	lignum vitae
合成橡胶	synthetic rubber
塑料	plastic
白合金 (巴氏合金)	white-metal

油封装置

Oil gland

轴 (相当于定位肖)

Axis; spindle

下沉量

Wear-down

对中

Alignment

顶举系数

Jack factor

偏移

Sag

曲折

Gap

扭转振动

Torsional vibration

单节; 双节

Single node; Two node

共振

Resonance

转速禁区范围

Restricted speed range

扭转振动许用应力

Allowable vibration stress

瞬时许用应力

Allowable transient vibration stress

**轴承**

**Bearing**

主轴承

Main bearing

中间轴轴承

Intermediate bearing

推力轴承

Thrust bearing

曲轴轴承

Crank (shaft) bearing

滚柱轴承

Roller bearing

滚珠轴承

Ball bearing

铁梨木轴承

Lignum vitae bearing

尾轴管轴承

Stern tube bearing

轴瓦

bush

轴承支架

bearing support

轴承承窝

bearing socket

轴承垫片

bearing shim

轴承壳

bearing shell

轴承座

bearing seat (pedestal)

轴承盖

bearing cap (cover)

轴承块	bearing block
轴承环	bearing collar (ring)
保持圈	Retaining ring

## 螺旋桨

## Propeller

整体式螺旋桨	Solid propeller
组合式螺旋桨	Built-up propeller
可调节螺距螺旋桨	Controllable pitch propeller
全方位式螺旋桨	Directional propeller

材料 material:

锰铁黄铜	Manganese iron brass
高铝高强度黄铜	High aluminum high strength brass
高锰铝青铜	High manganese aluminum bronze
铸铁	Cast iron
铸钢	Cast steel
塑料	Plastic

螺旋桨轴:	Propeller shaft
(螺旋桨轴)圆锥体	cone
桨毂	propeller boss(hub)
螺旋桨叶片	propeller blade
叶尖	blade tip
导边	leading edge
随边	following edge
	trailing edge
螺距	<i>Pitch</i>
旋向	<i>Direction of rotating</i>
推进器与推进器轴的配合	<i>Fitting of propeller to screwshaft</i>
螺旋桨液压装配	<i>Hydraulic fitting of propeller</i>
压入行程	<i>Pull-up distance</i>
压入压力	<i>Pressing pressure:</i>
	<i>径向压力 radial pressure;</i>
	<i>轴向压力 axial pressure</i>

## 6. 泵、阀、柜、管及舱底附件

泵	Pump
泵间	Pump room
泵底座	Pump foundation
货油泵	Cargo pump
压载泵	Ballast pump
舱底泵	Bilge pump
固定式潜水舱底泵	Permanently-installed submersible bilge pump

增压泵	Boost pump
离心泵	Centrifugal pump
循环泵	Circulating pump
冷却泵	Cooling pump
缸套冷却水泵	Cylinder jacket cooling pump
给水泵	Feed (water) pump
灌注泵	Filling pump
消防泵	Fire (service) pump
淡水泵	Fresh water pump
燃油泵	Fuel (oil) pump
燃油喷射泵	Fuel injection pump
油头冷却泵	Fuel valve cooling pump
日用油泵	Fuel oil daily service pump
燃油驳运泵	Fuel oil transfer pump
通用泵	General purpose [general service] pump
液压泵	Hydraulic pump
泥浆泵	Mud pump
压力泵	Pressure pump
往复泵	Reciprocating pump
盐水泵	Salt water pump, brine pump
海水泵	Sea water pump
扫气泵	Scavenging pump
污油泵	Sludge pump
污物泵	Sewage pump
喷淋系统泵	Spray (sprinkler) pump
蒸汽泵	Steam pump
清舱泵、扫舱泵	Stripping pump
真空泵	Vacuum pump
油舱清洗泵	Tank cleaning pump
甲板清洗泵	Wash deck pump
制冷剂泵	Refrigerant pump

## 阀

空气启动阀	Air starting valve
给水阀	Feed (check) valve
进、排气阀	Inlet and exhaust valves; air inlet and exhaust gas valves
排气阀顶杆	exhaust valve push rod
排气阀摇臂	exhaust valve rocking arm
应急舱底水吸口阀	Emergency bilge suction valve
排出阀	Discharge valve
舷外排出阀	Overboard discharge valve
海底阀	Sea inlet valve

## Valve

舷旁阀	Ship-side valve
舷旁截止阀	Ship-side screw-down valve
锅炉排污阀	Blow-off valve
止回阀	Non-return valve, check valve
截止阀	Stop valve, screw down valve
释放阀	Relief valve
主停汽阀	Main stop valve
遥控速闭阀	Remote quick closing valve
溢流阀	Spill valve
针阀	Needle valve
泄水阀	Draining valve
扫气阀	Scavenging gas valve
油头阀	Fuel oil injection valve
(主机)换向阀	Reversing gear valve
排气旋转阀	Exhaust rotary valve
安全阀	Safety valve
卫生水排出阀	Sanitary discharge valve
阀箱	Chest
阀杆	Valve spindle
(阀杆的)导向支架	Guide stanchion
阀盘	Valve disc(disk)
阀盖	Cover
阀瓣	Valve flap
旋塞	Cock

## 柜

日用柜  
 沉淀柜  
 贮存柜  
 重力柜  
 给水柜  
 补给水柜  
 气缸套冷却水柜  
 淡水冷却水的膨胀水柜  
 泄水收集柜  
 滑油净油柜  
 日用油净油柜  
 卫生水柜  
 污水柜  
 污油水柜  
 污油柜  
 压力柜  
 油池、油底壳

## Tank

Service tank  
 Settling tank  
 Storage tank  
 Gravity tank  
 Feed (water) tank  
 Make-up tank  
 Jacket water tank  
 Fresh cooling water expansion tank  
 Drain connecting tank  
 Purified (lubricating) oil tank  
 Purified oil service tank  
 Sanitary tank  
 Sewage (retention) tank  
 Slop tank  
 Sludge tank; dirty oil tank  
 Header tank  
 Oil sump

漏油孔	Flow hole
<b>管系</b>	<b>Piping</b>
管系	Piping system
管系	Piping
管路	Pipeline
总管	Main
支管	Branch pipe
（汽锅）锅管	Tube
盘管	Coil
水龙软管	Hose
导管、输送管	Duct
动力管系	Machinery piping system
燃油管系	Oil fuel system, fuel oil piping
蒸汽管系	Steam piping system, steam piping
锅炉给水、排污与凝水管系	Feed, blow-off and condensate system
冷却水管系	Cooling water system
滑油管系	Lubricating oil system
液压传动管系	Hydraulic transmission piping system
热油管系	Thermal oil system
甲板冲洗管	Wash deck pipe
排水管	Discharge pipe
空气管	Air pipe
压载水管	Ballast pipe
舱底水管	Bilge pipe
旁通管	By-pass pipe
冷却水管	Cooling pipe
泄水管	Drain pipe
排气管	Exhaust pipe
进气管, 进口管	Inlet pipe
出口管	Outlet pipe
逸气管	Escape pipe
注入管	Filling pipe
喷射管	Injection /ejection pipe
分配管	Distributing pipe
给水管	Feed (water) pipe
测量管	Sounding pipe
溢流管	Overflow pipe
蒸汽管	Steam pipe
加热管	Heating pipe
三通管	Three-way pipe

通风管、通风管道	Ventilating pipe, ventilating duct
火管	Fire tube
烟管	Smoke tube
蒸气加热管	Steam heating coils
消防水带	Fire hose
管接头	Pipe connection
管件接头	Pipe coupling
膨胀接头	Expansion joint
管子护板	Pipe guard
管子支架	Pipe support

### 通风

人工通风	Artificial ventilation
机械通风	Mechanical ventilation
强制通风	Forced ventilation
自然通风	Natural ventilation
动力通风	Power ventilation
压力通风	Pressure ventilation
进气通风	Supply ventilation
排气通风	Exhaust ventilation
通风管	Ventilating duct, ventilating pipe
通风筒	Ventilator (详见船体)

### 舱底附件

吸管	Suction
	舱底水支吸管    branch bilge suction;
	舱底水直通吸管    direct bilge suction;
	应急吸管    emergency suction
泥箱	Mud box
(滤网箱)	(Strum box)
污水井	Bilge well
污水沟	Bilge
机器处所舱底污水和燃油舱排放油类的控制设备	Equipment for control of oil discharge from machinery space bilges and oil fuel tanks
滤油设备	Oil filtering equipment
有报警和自动停止装置的 15ppm 滤油设备	Oil filtering (15ppm) equipment with alarm and automatic stopping device
油水分离/滤油设备	Separating/filtering equipment
处理装置	Process unit
油份计	Oil content meter
储存柜	Holding tank

残油（油渣）的留存和处理措施

Means for retention and disposed of oil residues (sludge) and bilge water holding tanks

残油舱	Oil residue (sludge) tank
焚烧炉	Incinerator
标准排放接头	Standard discharge connection
残留物接收设备	Reception facilities for residues
油水分离设备	Oily-water separating equipment

## 7. 齿轮箱、压缩机、分离器、净化器及其它装置

### 齿轮箱

### Gear Box

#### 减速齿轮箱

#### Reduction gear box

单级减速齿轮箱

Single-reduction gear box

二级减速齿轮箱

Double-reduction gear box

多级减速齿轮箱

Multi-reduction gear box

同心式减速齿轮箱

Centric reduction gear box

偏位式减速齿轮箱

Eccentric reduction gear box

并车减速齿轮箱

Reduction gear box of combined output of the engines

差动式齿轮箱

Differential gear box

串联式齿轮箱

Tandem gear box

平行轴传动减速齿轮箱

Parallel-axis gear box

内齿轮

Annular gear

外齿轮

External gear

小齿轮

Pinion

大齿轮

Gear wheel

主动齿轮

Drive gear, driving gear

被动齿轮

Driven gear

中间齿轮

Cog

(防齿轮倒转的)爪、掣子

Pawl

### 压缩机

### Compressor

空气压缩机

Air compressor

空调压缩机

Air-conditioning compressor

往复式压缩机

Reciprocating compressor

螺旋式压缩机

Screw-type compressor

轴流式压气机

Axial-flow compressor; axial compressor

离心式压气机

Centrifugal compressor

辐流式压气机

Radial-flow compressor; radial compressor

超音速压气机

Supersonic compressor

高压压气机

High-pressure compressor

低压压气机

Low-pressure compressor

### 分离器

### Separator

空气分离器	Air separator
油-气分离器	Air-oil separator
气-水分离器	Air-water separator
舱底水分离器	Bilge water separator
燃油分离器	Fuel separator
滑油分离器	Lubricant separator
油分离器、分油器	Oil separator
油水分离器	Oily water separator
蒸汽分离器	Steam separator; vapour separator

## 净化器

## Purifier

空气净化装置	<b>Air purifier</b>
燃油净化器	Fuel oil purifier
气体净化器	Gas purifier
滑油净化器	Lubricating oil purifier
净油器	Oil purifier
蒸汽净化器	Steam purifier
净水器	Water purifier
净油机室	Purifier room
(净油机室)油水挡板	Drip tray
托盘	Tray

操纵装置	Control device
应急切断装置	Emergency cutting device
遥控操纵和关断装置	Remote operating and shutdown device
启动及换向装置	Starting and reversing gear
连锁装置	Interlocking device
传动装置	Driving (driven) mechanism
速闭装置	Quick-closing device
安全装置	Safety device
保护装置	Protecting device
紧固装置	Securing arrangements
测温装置	Temperature measuring device

风机	Fan
制淡机	Desalinator
励磁机	Exciter
泥泵机	Dredging engine
皮带机	Belt conveyer
装船机	Shiploader

冷凝器	Condenser
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壳管式冷凝器	Shell-and-tube type condenser
双管式冷凝器	Double-pipe type condenser
蒸发器	Evaporator
壳管式蒸发器	Shell-and-tube type evaporator
双管式蒸发器	Double-pipe type evaporator
壳内盘管式蒸发器	Coil-in-casing type evaporator
蒸馏器	Distiller
传感器	Sensor
除霜器	Defroster
燃烧器	Burner
冷却器	Cooler
洗涤器, 洗涤塔	Scrubber
减热器	Desuperheater
过滤器	Filter
加油器	Feeder
热水器	Calorifier
温度控制器	Temperature controller
接触器	Contactor
加热器	Heater
干燥器	Drier
雾化器	Atomizer
蜂鸣器	Buzzer
贮液器	Receiver
油分计	Oil content meter
盐量计	Salinometer
温度计	Temperature gauge, thermometer
速度计	Velocity meter
热流量计	Thermal flow meter
重力计	Gravity meter
液位计	Level indicator
压力表	Pressure gauge(meter)
流量表	Flow meter(gauge)
蜗轮:	Worm gear (wheel)
蜗壳	Volute casing
蜗杆	Worm (screw)
蜗杆轴	Worm shaft
蜗杆罩	Worm case (casing)
涡轮:	Turbine
涡轮罩	Turbine cover
叶轮:	Impeller
轴流式叶轮	Axial-flow impeller

离心式叶轮	Centrifugal impeller
径流式叶轮	Radial flow impeller
滚轮/滑轮:	Pulley
偏心滑轮	Eccentric pulley
张力滚轮	Tension pulley
棘轮:	Ratchet
制动棘轮	Brake ratchet
端棘轮	End ratchet
棘轮	Wheel ratchet
惰轮:	Idle gear, idling gear
填料	Packing
橡皮填料	Rubber packing
填料箱	Stuff box
填料函、盖	Packing gland
密封压盖	Sealing gland
密封环	Seal ring
密封装置	Sealing arrangement
油封装置	Oil gland
油封	Oil seal
轴封	Shaft seal
螺栓:	Bolt
基座螺栓	Foundation bolt
底脚(压紧)螺栓	Holding down bolt
螺柱	Stud
螺母	Nut
螺丝	Screw
螺纹	Thread
弯头	Elbow, bend
肖子	Pintle
制动块	Chock
绞链	Hinge
缩节	Taper joint
耳轴、耳套	Trunnion
漏斗	Hopper
垫圈	Washer
承滴盘	Saveall
平衡块	Balance weight
导向环	Guide ring
刹车带	Brake band (lining)
磨擦片	Friction block, friction disk

驱动轮	Driving wheel gear
传动链	Driven chain
操纵螺杆	Control screw rod
板手	Spanner
钢丝钳	Vice
旋诺	Screwdriver
2 磅榔头	2-pound hammer
试验机	(大) testing machine (小) testing device

特性	<i>Characteristic</i>
特征、特点	<i>Feature</i>
功能	<i>Function</i>
程序、方法	<i>Procedure</i>
过程、工序	<i>Process</i>
工艺	<i>Workmanship</i>
动态平衡	<i>Dynamical balance</i>
静态平衡	<i>Static balance</i>
扭矩	<i>Torque</i>
拉力	<i>Tensile</i>
应力	<i>Stress</i>
屈服点	<i>Yield point</i>
比重	<i>Specific gravity</i>
粘度	<i>Viscosity</i>
速度	<i>Velocity</i>
额定功率	<i>Rated output</i>
额定转速	<i>Rated speed</i>
额定转数	<i>Rated revolution</i>
灰份	<i>Ash content</i>
水份	<i>Water content</i>
流量	<i>Flow</i>
内径	<i>Internal diameter</i>
外径	<i>External diameter</i>
孔(内)径	<i>Bore</i>
半径	<i>Radius</i>

#### (四) 电气

### 电气设备 **Electrical Equipment**

#### 1. 电力推进装置及配套设备和辅助电气设备

电力推进装置 Electrical propelling machinery  
为推进装置服务的配套设备和对船舶安全必不可少的辅助电气设备  
Associated equipment together with auxiliary services essential for the safety of the ship

### 动力系统

### Power system

电动机 Motor  
变压器 Transformer  
蓄电池 Battery  
电力设备 Electrical power equipment  
电子设备 Electronic equipment  
馈电线 Feeder  
区配电板 Section board  
分配电板 Distribution board  
电缆 Cable  
断路器 Breaker  
熔断器 Fuse

### 电力设备

### Electrical power equipment

主发电机 Main generator  
应急发电机 Emergency generator  
主配电板 Main switchboard  
应急配电板 Emergency switchboard  
应急蓄电池充放电板 Emergency accumulator battery charging and discharging board  
应急蓄电池组 Emergency accumulator battery  
重要用途电气设备 Electrical equipment for essential services

### 照明系统

### Lighting system

主照明系统 Main lighting system  
应急照明系统 Emergency lighting system  
临时应急照明系统 Temporary emergency lighting system

### 船内通讯系统

### Internal communication system

广播系统 Command broadcasting system  
传令钟系统 Telegraph system  
电话系统 Commanding telephone system  
轮机员呼叫系统 Engineer's alarm system

### 船内报警系统

### Internal alarm system

探火和失火报警系统	Fire detection and fire alarm systems
灭火剂施放预告报警	Pre-warnings for the release of extinguishing media
通用应急报警系统	General emergency alarm system
水密门关闭报警	Watertight doors closing alarm
<b>重要用途电气设备</b>	<b>Electrical equipment for essential services</b>
空压机	Air compressor
空气泵	Air pump
循环和冷却水泵	Circulating and cooling water pump
油头冷却泵	Fuel valve cooling pump
滑油泵	Lubricating oil pump
冷凝器循环泵	Condenser circulating pump
抽吸泵	Extraction pump
增压风机	Scavenge blower
分油机	Oil separator
燃油泵	Oil fuel pump
燃油燃烧装置	oil fuel burning unit
给水泵	Feed water pump
舵机	Steering gear
锚机	Windlass
消防泵	Fire pump
舱底泵	Bilge pump
压载泵	Ballast pump
冷藏机械	Refrigerating machinery
机炉舱通风机	Ventilating fans for engine and boiler rooms
锅炉强迫通风机	Fans for forced draught to boilers
自动喷水系统	Automatic water sprinkler system
压力水雾灭火系统	Water-spraying fire-extinguishing system
探火和失火报警系统	Fire detection and fire alarm system
法定航行设备	Navigational aids (required by statutory regulations)
法定通讯设备	Communication equipment (required by statutory regulations)
航行灯	Navigation light
特殊用途灯	Special purpose lights
<b>2. 无线电设备</b>	<b>Radio Equipment</b>
无线电台	Radio station
无线电台（救生艇手提式）	Radio apparatus
<b>无线电通信设备</b>	<b>Equipment for radiocommunication</b>
无线电装置	Radio installation

甚高频无线电装置	VHF radio installation (very high frequency radio installation)
中频无线电装置	MF radio installation (medium frequency radio installation)
中/高频无线电装置	MF/HF radio installation (medium/high frequency radio installation)
国际海事卫星组织船舶地面站	INMARSAT SES (International Maritime Satellite Organization ship earth station)
遇险报警辅助设施	Secondary means of distress alerting
接收海上安全信息的设备	Facilities for reception of maritime safety information
应急无线电示位标	EPIRB (emergency position-indicating radio beacon)
极轨道卫星	COSPAS-SARSAT
国际海事卫星	INMARSAT
甚高频数字选择呼叫	VHF DSC
卫星应急无线电示位标	Satellite EPIRB
甚高频应急无线电示位标	VHF EPIRB
救生用无线电通信设备	Life-saving radio communication apparatus
双向甚高频无线电话设备	Two-way VHF radiotelephone apparatus
甚高频无线电话	VHF radiotelephone
声力电话	Sound powered telephone
对讲电话	Walkie talkie
数字选择性呼叫编码器	DSC encoder (digital selective calling encoder)
数字选择性呼叫值班接收机	DSC watch receiver (digital selective calling watch receiver)
窄带印字电报	NBDP radiotelegraphy (narrow band direct printing radiotelegraphy)
高频窄带印字电报	HF NBDP radiotelegraphy
直接印字电报	Direct-printing radiotelegraphy
航行警告电传接收机	NAVTEX receiver
加强群呼接收机	EGC receiver
高频直接印字无线电报接收机	HF direct-printing radiotelegraphy receiver
船用雷达应答器	Ship's radar transponder
<b>无线电导航设备</b>	<b>Radio navigational equipment</b>
雷达	Radar
环视雷达	All-round looking radar
(海上)避碰雷达	Anticollision radar
自动跟踪雷达	Automatic-tracking radar
信标雷达	Beacon radar
探测雷达	Detection radar

搜索雷达  
警戒雷达  
罗经  
主罗经  
磁罗经  
电罗经  
操舵罗经、驾驶罗经

Search radar  
Warning radar  
Compass  
Master compass  
Magnetic compass  
Gyro compass  
Steering compass

灵敏度  
谐振

*Sensitivity*  
*Resonance*

## 天线

## Antenna

仿真天线  
定向天线  
环状天线  
鞭状天线  
室外天线  
雷达天线  
无线电天线  
接收天线  
发射天线

Artificial antenna  
Directional antenna  
Loop antenna  
Whip antenna  
Outdoor antenna  
Radar antenna  
Radio antenna  
Receiving antenna  
Transmitting antenna

## 3. 发电机和电动机

### 发电机

### Generator

原动机  
发电机组  
主发电机  
辅助发电机  
应急发电机  
备用发电机  
直流发电机  
交流发电机  
无刷发电机  
轴带发电机  
柴油(机驱动)发电机  
燃气轮机(驱动)发电机  
防滴式发电机  
电动发电机  
三相发电机  
多相发电机  
单极发电机

Prime mover  
Generating set  
Main generator  
Auxiliary generator  
Emergency generator  
Reserve (stand-by) generator  
D.C. (Direct current) generator  
A.C. (Alternating current) generator  
Brushless generator  
Shaft-driven generator  
Diesel (-driven) generator  
Gas turbine (driven) generator  
Drip-proof generator  
Electric motor generator  
Three-phase generator  
Polyphase generator  
Unipolar generator

串励发电机	Series generator
并励发电机	Shunt generator
复励发电机	Compound wound generator
自励发电机	Exciterless generator
恒流发电机	Constant current generator
恒速发电机	Constant speed generator
恒功率发电机	Constant power generator
恒压发电机	Constant voltage generator
自励恒压式交流发电机	Self-regulated type A.C. generator
并联运行直流发电机	D.C. generator running in parallel

### 发生器

### Generator

泡沫发生器	Froth (foam) generator
惰性气体发生器	Inert gas generator
脉冲发生器	Pulse generator
信号发生器	Signal generator
涡流发生器	Vortex generator
造波机	Wave generator

### 电动机

### Motor,

交流电动机	Electric motor
直流电动机	A.C. (alternating-current) motor
多相异步电动机	D.C. (direct-current) motor
多相凸极同步电动机	Polyphase asynchronous motor
多相隐极同步电动机	Polyphase salient synchronous motor
多相异步结构同步电动机	Polyphase non-salient synchronous motor
	Pylyphase asynchronous construction synchronous motor
自动同步电动机	Auto-synchronous motor
电容式电动机	Capacitor motor
整流子电动机	Commutator motor
变极电动机	Change-pole motor
变速电动机	Change-speed motor
复励电动机	Compound motor
差励电动机	Differential motor
排斥电动机	Repulsion motor
可逆电动机	Reversible motor
感应电动机	Induction motor
伺服电动机	Servo motor
通用电动机	Universal motor
全封闭式电动机	Totally-enclosed motor
分相电动机	Split-phase motor
调速电动机	Varying-speed motor

驱动电动机	Drive (driving) motor
控制电动机	Control motor
电动机架	Motor frame
电动机壳	Motor casing(shell)
<b>换向器</b>	<b>Commutator</b>
整流子片	Commutator segment

#### **4. 配电系统                      Distributing system**

直流双线绝缘系统	
D.C. two wire insulated system	
直流负极接地的双线系统	
D.C. two wire system with negative pole earthed	
直流利用船体作负极回路的单线系统	
D.C. single wire system with negative to hull return	
交流单相双线绝缘系统	
A.C. single phase two wire insulated system	
交流单相一线接地的双线系统	
A.C. two wire system with one pole earthed	
交流单相一线利用船体作回路的单线系统	
A.C. single wire system with hull return	
交流三相三线绝缘系统	
three phase A.C. three wire insulated system	
交流三相中性点接地的四线系统	
three phase A.C. four wire system with neutral earthed	
交流三相利用船体作中性线回路的三线系统	
three phase A.C. three wire system with neutral earthed and the hull serving as neutral wire	

主电源	Main source of power
应急电源	Emergency source of power
蓄电池组	Accumulator battery
应急蓄电池组	Emergency accumulator battery
临时应急蓄电池组	Temporary accumulator battery
蓄电池	Accumulator, battery
充电	<i>charge</i>
放电	<i>discharge</i>
电压	Voltage
电压降	Voltage drop
电流	Current
满载电流	Full load current
起动电流	Starting current
频率	Frequency

绝缘电阻	Insulation resistance
电容	Capacity
电极	Polarity
电枢	Armature
电位、电势（差）	Potential (difference)
电耦合	Electric coupling
电平	Level
电键	Key
电刷	Brush
电网	Electrical network
负荷	Load
矽钢片	Silicon steel sheet
电瓶车	Electromobile
<b>汇流排</b>	<b>Busbar</b>
主汇流排	Main busbar
分区配电板汇流排	Sub-switchboard busbar
裸主汇流排	Bare main busbar
均压汇流排	Phase (pole) busbar
中性线汇流排	Equalizer busbar
相（极）汇流排	Neutral busbar
直流汇流排	D.C. busbar
交流汇流排	A.C. busbar
裸线	Bare conductor
接地线	Earth connection
中性线	Neutral wire
正极	Positive pole
负极	Negative pole
<b>配电板</b>	Switchboard
主配电板	Main switchboard
电力推进装置配电板	Switchboard for electric propulsion installation
应急配电板	Emergency switchboard
蓄电池充放电板	Battery charging and discharging board (panel)
分配电板	Distribution board
区配电板	Section board
控制屏	Control panel
<b>绕组</b>	Winding
定子绕组	Stator winding
转子绕组	Rotor winding
整流绕组	Commutating winding

励磁绕组	Exciting winding
补偿绕组	Compensating winding
复激绕组	Compound winding
同心绕组	Concentric winding
合成绕组	Concentrated winding
阻尼绕组	Damping winding
差动绕组	Differential winding
磁场绕组	Field winding
多层绕组	Multi-layer winding
低压绕组	Low-voltage winding
前进绕组	Progressive winding
后退绕组	Retrogressive winding
串激绕组	Series winding
并激绕组	Shunt winding
并联绕组	Parallel winding
分级绕组	Step winding
电枢绕组	Armature winding
重迭绕组	Cumulative winding

### 保护

过载保护	Overload protection
逆功率保护	Reverse power protection
欠压保护	Under voltage protection
断路保护	Short circuit protection
过电流保护	Protection against excess current
阴极电流保护装置	Cathodic current protection

### 振荡

电振荡	Oscillation
电磁振荡	Electric oscillation
强迫振荡	Electromagnetic oscillation
自由振荡	Forced oscillation
谐波振荡	Free oscillation
弛张振荡	Harmonic oscillation
高频振荡	Relaxation oscillation
	High frequency oscillation

## 5. 变流机、变压器、收发送机等以及开关

### 变流机

变流机组	Converter
充电变流机	Converter set
探照灯变流机	Charging converter
透平变流机	Searchlight converter
	Turbo converter

## 变压器

风冷式变压器  
气冷式变压器  
耦合变压器  
升压变压器  
级联变压器  
恒流变压器  
配电变压器  
三相变压器  
三(芯)柱变压器  
三绕组变压器  
灯丝变压器  
仪量变压器  
调节变压器  
串联变压器  
静电变压器  
抽头(多节)变压器  
降压变压器  
增压变压器

## 发射机、发送机

雷达发射机  
无线电发送机  
舵角发送机  
液压(功率)发送机  
自差确定信号发送机  
方位发送机  
差动式同步发送机  
距离及偏差发送机  
定向发送机  
调频发送机  
干扰发射机  
转数发送机  
激光发射机  
声纳发射机  
主发射机  
备用发送机  
视频发射机  
发报机  
中短波发信机

## 接收机

交流接收机  
自差式接收机

## Transformer

Air blast transformer  
Air-cooled transformer  
Couple transformer  
Booster transformer  
Cascade transformer  
Constant-current transformer  
Distribution transformer  
Three-phase transformer  
Three-column transformer  
Three-winding transformer  
Filament transformer  
Potential transformer  
Regulating transformer  
Series transformer  
Static transformer  
Tapped transformer  
Step-down transformer  
Step-up transformer

## Transmitter

Radar transmitter  
Radio transmitter  
Rudder angle transmitter  
Hydraulic (power) transmitter  
Calibration transmitter  
Bearing transmitter  
Selsyn differential transmitter  
Range and deflection transmitter  
Directional transmitter  
Frequency modulation transmitter  
Jamming transmitter  
Revolution transmitter  
Laser transmitter  
Sonar transmitter  
Main transmitter  
Reserve transmitter  
Video transmitter  
Telegraph transmitter  
Medium-short wave transmitter

## Receiver

A.C. (alternating current) receiver  
Autodyne receiver

声接收机	Acoustic receiver
全波接收机	All-wave receiver
无线电接收机	Radio receiver
无线电信标接收机	Radio beacon receiver
罗经接收机	Compass receiver
雷达接收机	Radar receiver
舵角接收机	Rudder angle receiver
跟踪接收机	Track receiver
自动同步接收机	Selsyn receiver
目标方位接收机	Target bearing receiver
超外差接收机	Superheterodyne receiver
单通道接收机	Single-channel receiver
单频收音机	Single-frequency receiver
单回路接收机	Single-circuit receiver
单边带接收机	Single-sideband receiver
脉冲压缩接收机	Pulse compressive receiver
气象传真接收机	Radio weather facilities

## 收发器 **Transreceiver**

### 调整器

电压调整器	Voltage regulator
自励恒压装置	Self-excitation voltage regulator
自动调整器	Automatic regulator
供水调整器	Feed water regulator
电流调整器	Current regulator
励磁调整器	Field regulator
相位调整器	Phase regulator
电位调整器	Potential regulator
分级调整器	Step voltage regulator
温度调整器	Temperature regulator

### Regulator

### 整流器

铝整流器	Aluminum rectifier
固体整流器	Dry rectifier
全波整流器	Full-wave rectifier
半波整流器	Half-wave rectifier
汞(水银)整流器	Mercury rectifier
汞弧整流器	Mercury-arc rectifier
硒整流器	Selenium rectifier
可控硅整流器	Silicon-controlled rectifier
硅整流器	Silicon rectifier
硫化物整流器	Sulphide rectifier
振动整流器	Vibrating rectifier

### Rectifier

## 继电器

辅助继电器  
闭(联)锁继电器  
离心继电器  
闭合(合闸)继电器  
控制继电器  
电流继电器  
定时限继电器  
隔离继电器  
吸持继电器  
阻抗继电器  
脉冲继电器  
感应式继电器  
瞬动继电器  
联锁继电器  
中和继电器  
失压继电器  
速动继电器  
速放继电器  
逆电流继电器  
逆功率继电器  
反相继电器  
短路继电器  
热继电器  
热电子继电器  
限时(延时)继电器  
定时继电器  
脱扣(切断)继电器

## 开关

自动开关  
辅助开关  
转换开关  
万能转换开关  
整步开关  
接触开关  
控制开关  
延迟开关  
双联开关  
双极开关  
双投开关  
接地开关

## Relay

Auxiliary relay  
Block relay  
Centrifugal relay  
Closing relay  
Control relay  
Current relay  
Definite time relay  
Disconnecting relay  
Holding relay  
Impedance relay  
Impulse relay  
Induction relay  
Instantaneous relay  
Interlocking relay  
Neutral relay  
No-volt relay  
Quick-acting relay  
Quick-releasing relay  
Reverse current relay  
Reverse power relay  
Reverse-phase relay  
Short-circuit relay  
Thermal relay  
Thermionic relay  
Time-lag relay  
Timing relay  
Trip relay

## Switch

Automatic switch  
Auxiliary switch  
Change-over switch  
Universal change-over switch  
Synchronizing switch  
Contact switch  
Control switch  
Delay switch  
Coupled twin switch  
Double-pole switch  
Double-throw switch  
Grounding switch

拍动开关	Flap switch
浮动开关	Float switch
平板开关	Flush switch
闸刀开关	Knife switch
闭合开关	Closing switch
隔离开关	Isolating switch
限位开关	Limit switch
舵角限位开关	Rudder limit switch
横向限位开关	Trolley limit switch
联锁开关	Interlocking switch
行程开关	Position switch
总开关	Main switch
主令开关	Master switch
常开(闭)按钮开关	Normally opened(closed) push switch
电源开关	Power switch
速断开关	Quick break switch
保险开关	Safety switch
串并联开关	Series-parallel switch
手捺开关	Snap switch
同步开关	Synchro switch
制动开关	Tappet switch
终点开关	Terminal switch
三向开关	Three-way switch
反向开关	Reversing switch
旋转开关	Rotary switch
摇控开关	Remote switch
音量控制开关	Volume control switch
多极联动开关	Multipole linked switch

### **断路器**

空气断路器, 空气断路开关
断路器
主开关
自动开关
自动空气开关
油断路器、油开关
快断路器

### **Breaker**

Air circuit breaker
Circuit breaker
Main circuit breaker
Automatic circuit breaker
Automatic air circuit breaker
Oil circuit breaker
Quick-break circuit breaker

### **熔断器**

封闭式熔断器
插入式熔断器
螺旋式熔断器
快速熔断器
管式熔断器

### **Fuse**

Enclosed-type fuse
Push-in fuse
Screw-plug fuse, screw-in type fuse
Quick-acting fuse
Cartridge fuse

### 制动器

圆盘制动器  
涡流制动器  
电动制动器  
电磁制动器  
紧急制动器  
磨擦制动器  
脚踏制动器、脚刹车  
手刹车  
液位(水力)制动器  
磁铁制动器  
气压制动器  
螺线管制动器

### 接触器

主接触器  
辅助接触器  
时间接触器  
加速接触器  
线路接触器  
制动接触器  
电磁接触器  
继电器接触器  
起动接触器  
正反转(方向)接触器  
触头

### 控制器

自动控制器  
鼓形控制器  
电控气压控制器  
手动控制器  
磁控制器  
速度控制器  
主(总)控制器  
主令控制器  
通用控制器  
凸轮控制器

### 放大器

声频放大器  
级联放大器  
扼流圈耦合放大器

### Brake

Disk (disc) brake  
Eddy-current brake  
Electric brake  
Electromagnetic brake  
Emergency brake  
Friction brake  
Foot brake  
Hand brake  
Hydraulic brake  
Magnetic brake  
Pneumatic brake  
Solenoid brake

### Contactator

Main contactor  
Auxiliary contactor  
Timing contactor  
Accelerating contactor  
Line contactor  
Brake contactor, damping contactor  
Magnetic contactor  
Relay contactor  
Starting contactor  
Reversing contactor  
Contact

### Controller

Automatic controller  
Drum controller  
Electro-pneumatic controller  
Hand controller  
Magnetic controller  
Speed controller  
Main controller  
Master controller  
Universal controller  
Cam-operated controller

### Amplifier

Audio-frequency amplifier  
Cascade amplifier  
Choke-coupled amplifier

(直)线性放大器	Linear amplifier
光电(流)放大器	Photoelectric cell amplifier
光电管放大器	Photo-electric tube amplifier
功率放大器	Power amplifier
推挽式放大器	Push-pull amplifier
射频、高频放大器	Radio-frequency amplifier
谐振放大器	Turned amplifier
半导体放大器	Semi-conductor amplifier
电子管放大器	Valve (electronic) amplifier

### 电容器

电解电容器	Chemical capacitor
云母电容器	Mica capacitor
纸质电容器	Paper capacitor
腊质电容器	Paraffined capacitor
瓷电容器	Porcelain capacitor
可变电容器	Variable capacitor

消音器	Silencer
电抗器	Reactance (并车电抗器 Paralleling reactance)
电位器	Potentiometer
调速器	Governor
变流器、倒换器	Inverter (倒相器 Phase inverter)
可控硅逆变器	Thyristor inverter
自动拍发器	Auto keying device
离子传感器	Ion fire detection
频率合成器	Frequency synthesizer
扬声器	Loudspeaker
对时喇叭	Timing loudspeaker
耳机	Headphones
分股耳机	Split headphones
播音机	broadcaster

无线电测向仪	Radio direction finder
测深仪	Echo sounder
计程仪	Log

相序表	Phase meter
万用表	Multimeter
电流表	Ampere meter
电压表	Voltmeter
兆欧表	Megohmmeter

## 6. 电缆、电路、电线以及照明装置

电缆	Cable
船用电缆	Marine cable
充电电缆	Charging cable
混合电缆	Compound (composite) cable
同轴电缆	Concentric cable
连接电缆	Connecting cable
配电电缆	Distribution cable
馈电电缆	Feeder cable
照明电缆	Lighting cable
主干电缆	Trunk cable
均压线电缆	Equalizer cable
石棉电缆	Asbestos cable
铠装电缆	Armoured cable
成束电缆	Bunched cable
编包电缆	Braided cable
薄膜电缆	Grout cable
铜质(护套)电缆	Copper-sheathed cable
铅包电缆	Lead-covered cable
塑料电缆	Plastic cable
橡胶电缆	Rubber cable
多芯电缆	Multiple core cable;
	Multiple conductor cable
三芯电缆	Triple-core (three core)cable
动力电缆	Power cable
海底电缆	Submarine cable
软花线	Plaited cable
导电线芯	Conductor
电缆槽	Cable trunk, cable channel
连接箱	Connection box
联接箱	Coupling
导板	Cable tray
管道	Cable conduit
管子	Cable pipe
护套	Sheath
铅合金护套	Lead-alloy sheath
铜质护套	Copper sheath
非金属护套	Non-metallic sheath
防护覆盖层	Protective covering
钢丝铠装防护覆盖层	Steel-wire armour protective covering
钢带铠装防护覆盖层	Steel-tape armour protective covering
金属编织层铠装防护覆盖层	Metal-braid armour protective covering

纤维编织防护覆盖层	Fibrous braid protective covering
电缆敷设路线	Cable runs
电压降	Voltage drop
阻抗	Impedance
机械应力	Mechanical effect
热效应	Thermal effect
绝缘带	Insulating tape
黄腊带	Yellow varnished cambric tape

### 电路

交流电路  
 直流电路  
 电路  
 线路  
 主电路  
 分电路  
 次级(副边)电路  
 初级(原边)电路  
 电源(动力)电路  
 推进电路  
 操纵电路  
 控制电路  
 供电电路  
 输入电路  
 输出电路  
 天线电路  
 接收电路  
 通讯电路  
 信号电路  
 照明电路  
 集成电路  
 闭合电路  
 补偿电路  
 线路板  
 印刷线路板

### Circuit

Alternating current circuit  
 Direct current circuit  
 Electric circuit  
 Line circuit  
 Main circuit  
 Branch circuit, sub-circuit  
 Secondary circuit  
 Primary circuit  
 Power circuit  
 Propulsion circuit  
 Maneuvering circuit  
 Control circuit  
 Supply circuit  
 Input circuit  
 Outlet circuit  
 Antenna circuit  
 Receiving circuit  
 Communication circuit  
 Signal circuit  
 Lighting circuit  
 Integrated circuit  
 Close circuit  
 Compensating circuit  
 Circuit panel  
 Printed circuit board

### 线路 (/线)

分支线  
 馈电线路  
 高压线  
 电源线  
 单线线路  
 架空线路  
 实线

### Line

Branch line  
 Feeder line  
 High tension line  
 Power line  
 Single-wire line  
 Overhead line  
 Solid line

## 电线

铝线  
铜皮皮线  
石棉包线  
铅皮包线  
胶皮线  
丝包线  
引入线  
背接线  
裸线  
裸铜线  
电池接线  
编包线  
铬镍合金线  
纱包线  
双芯塑料线  
漆包线  
地线  
接地导线  
绝缘线  
耐燃线  
焊锡线  
镀锡线  
多股绞合线  
中性线  
馈电线  
保险丝  
电热丝  
电话线网

## Wire (Electric wire)

Aluminum wire  
Armoured wire  
Asbestos-covered wire  
Lead covered wire  
Rubber-covered wire  
Silk-covered wire  
Lead-in wire  
Back-connector wire  
Bare wire  
Bare copper wire  
Battery wire  
Braided wire  
Chrome-nickeline wire  
Cotton-covered wire  
Double core plastic wire  
Enamel insulated/Enameled wire  
Earth wire; grounding wire  
Grounded transmitting wire  
Insulated wire  
Slow-burning wire  
Soldering wire  
Tinned wire  
Stranded wire (cable)  
Neutral wire  
Feeder  
Fuse  
Heating resistance wire  
Telephone wire

## 线圈

工作线圈  
空心线圈  
合闸线圈  
阻尼线圈  
复合线圈  
扁平线圈  
励磁线圈  
环状线圈  
屏蔽线圈  
灭弧线圈  
空载扼流线圈  
接触线圈

## Coil

Actuating coil  
Air-core coil  
Closing coil  
Damping coil  
Compound coil  
Disc coil  
Exciting coil  
Encirclement coil  
Shielding coil  
Blow-out coil  
No-load choke coil  
Contactor's coil

**接线端**

入端  
分路线头  
引入端  
引出端  
接线盒

**Terminal**

Input terminal  
Tapping (branch) terminal  
Leading-in terminal  
Leading-out terminal  
Terminal box

**照明系统**

照明装置  
照明灯具

**Lighting system**

Light (lighting) installation  
Lighting fittings  
Lighting fixtures,  
Lamps and lanterns  
Lighting, illumination  
Cargo lighting  
Electric lighting  
Emergency lighting  
Engine room lighting  
Local lighting  
Fixed lighting  
Cornice lighting  
Panel lighting

**照明**

装货甲板照明  
电气照明  
应急照明  
机舱照明  
局部照明  
固定照明  
檐板照明  
壁灯

Lighting, illumination  
Cargo lighting  
Electric lighting  
Emergency lighting  
Engine room lighting  
Local lighting  
Fixed lighting  
Cornice lighting  
Panel lighting

**灯**

尾（航行）灯  
船首灯、旗杆灯  
航行灯  
桅灯  
锚灯  
右舷灯  
左舷灯  
失控灯  
拖带灯  
艇甲板灯  
航标灯  
浮标灯  
固定灯  
装货灯  
闪光灯  
探照灯（用于货舱照明）  
探照灯  
信号灯  
防爆灯

**Light**

After light, Stern light  
Bow light, Stem light  
Navigation light  
Mast(head) light  
Anchor light  
Green side light, Starboard (side) light  
Red side light, Port (side) light  
Not under command light  
Towing light  
Boat deck light  
Beacon light  
Buoy light  
Fixed light  
Cargo light  
Flashing light  
Flood light  
Search light  
Signal light  
Explosion proof light

遇险信号灯  
警告灯  
白炽灯  
荧光灯  
可携照明灯  
电标志

Distress light  
Warning light  
Incandescent light  
Fluorescent light  
Portable luminaire  
Electrical signs

## 灯

弧光灯  
气体放电灯  
蓄电池灯  
(小)艇甲板灯  
桥楼信号灯  
篷顶灯  
白昼信号灯  
指示灯  
日光灯  
荧光灯  
白炽灯  
防爆灯  
火警指示灯  
风暴灯  
聚光灯  
防水灯  
壁灯  
吊灯  
台灯  
手提灯  
床头灯  
镇流器  
手电筒

## Lamp

Arc lamp  
Gas discharge lamp  
Battery lamp  
Boat deck lamp  
Bridge lamp  
Ceiling lamp  
Daylight signaling lamp  
Indicating lamp, pilot lamp  
Daylight lamp  
Fluorescent lamp  
Incandescent lamp  
Explosion-proof lamp  
Fire lamp  
Hurricane lamp  
Projector lamp  
Waterproof lamp  
Wall lamp  
Pendent lamp  
Desk lamp  
Portable lamp  
Bed lamp  
Ballast coils (for daylight lamp)  
Electric torch, flashlight

## (电子)管

放大管  
绝缘套管  
检波管  
电子管  
离子管  
功率管  
整流管  
弯瓷管  
二极管  
波导管

## Tube

Amplifier tube  
Insulating tube  
Detector tube  
Electronic tube  
Ionic tube  
Power tube  
Rectifying [Rectifier] tube  
Angle porcelain tube  
Two-electrode tube, diode  
Wave guide tube

灯泡	Bulb
灯丝	Filament
灯杆	Post
灯头、灯座	Holder
灯罩	Shade
灯台	Stand
插头	Plug
插座	Socket

## 7. 报警系统与信号设备

### 报警系统

### Alarm system

报警器	Alarm
声响报警器	Acoustic alarm
声光报警装置	Audible and visual alarm
自动报警器	Auto(automatic) alarm
火灾报警器	Fire alarm
施放 CO <sub>2</sub> 报警器	CO <sub>2</sub> releasing alarm
烟气报警器	Smoke alarm
过载报警装置	Overload alarm
紧急警铃	Emergency-alarm

### 信号设备

### Signaling equipment

白昼信号灯	Daylight signaling lamp
号钟	Bell
号灯	Light
号笛	Whistle, siren
号角	Horn
号锣	Gong
号钟	Bell
号型	Shape
烟雾信号	Buoyant smoke signal
引航信号	Pilot signal
检疫信号	Quarantine signal
遇险信号	Distress signal
降落伞信号	Parachute signal
火箭信号	Rocket signal
海上(通信)信号	Nautical signal
通行(要求让路)信号	Right-of-way signal
遇难(求救)信号	Distress signal
灯光信号	Light signal

警告信号  
Warning signal  
航行灯发生故障时能发出声响和视觉信号的自动指示器  
Automatic indicator giving an audible and visual indication of failure of the navigation light

自动拍发器  
Auto keying device

### 闪光信号、照明弹

手把火焰信号  
Hand flare  
红火号  
Red hand flare  
救生圈烟火信号  
Life buoy flare  
火箭照明弹  
Rocket flare  
火箭降落伞照明信号  
Rocket parachute flare

### 火箭

抛绳火箭  
Line throwing rocket

### 警报

避碰警报  
Collision-avoidance warning  
强(烈)风警报  
Gale warning  
寒潮警报  
Cold wave warning  
冰情警报  
Ice warning  
无线电航行预告  
Wireless navigational warning  
欠压报警  
Under-voltage warning  
CO<sub>2</sub> 预施放报警  
Pre-warning device for releasing of CO<sub>2</sub>  
CO<sub>2</sub> 施放预告信号  
Preliminary warning of discharging of CO<sub>2</sub>  
手动失火报警按钮  
Manually operated call points

### 灯标

灯塔  
Lighthouse  
灯船  
Light vessel  
灯浮  
Light buoy  
筒体 body  
灯座 light support  
护身圈 round guard  
灯器 light apparatus  
顶标球 light beacon ball  
浮体压铁 ballast iron

## (五) 消防

## Fire protection, detection and extinction

### 控制站

控制站  
Control station  
A 级分隔围蔽防火区域  
Fire sections enclosed by “A” class divisions  
B 级分隔围蔽防火区域  
Fire sections enclosed by “B” class divisions

水灭火系统	Water fire main system
压力水雾系统	Pressure water spraying system
固定式气体灭火系统	Fixed gas fire-extinguishing system
二氧化碳灭火系统	CO <sub>2</sub> fire-extinguishing system
卤代烃灭火系统	Halogenated hydrocarbon fire-extinguishing system
蒸汽系统	Steam system
固定式低倍泡沫灭火系统(机器处所)	Fixed low-expansion foam fire-extinguishing system (in machinery space)
固定式高膨胀泡沫灭火系统(机器处所)	Fixed high-expansion foam fire-extinguishing system (in machinery space)
固定式甲板泡沫灭火系统	Fixed deck foam system
船舶固体式灭火系统	Fixed fire extinguishing system (in ship)
惰性气体系统	Inert gas system
自动喷水系统	Automatic sprinkler system
自动喷水器	Automatic sprinkler
固定式气体灭火系统	Fixed gas fire-extinguishing system
固定式泡沫灭火系统	Fixed froth fire-extinguishing system
固定式高膨胀泡沫灭火系统	Fixed high expansion froth fire-extinguishing system
固定式压力水雾灭火系统	Fixed pressure water-spraying fire-extinguishing system

固定式探火和失火报警系统	Fixed fire detection and fire alarm system
抽烟式探火系统	Extraction smoke detection system
感烟探测器	Smoke detector
火灾探测器	Fire detector
感温探测器	Heat detector
火焰探测器	Flame detector
聚烟器	Accumulator

## **消防设备    Fire-fighting appliances**

消防泵	Fire pump
消防总管	Fire main
消防栓	Fire hydrant
消防水带	Fire hose
消防水带箱	Fire hose box
水枪	Nozzle
水雾枪	Water fog applicator
泡沫枪	Froth applicator
太平斧	Fire axe
国际通岸接头	International shore connection

## **灭火器    Fire extinguisher**

液体灭火器	Liquid fire extinguisher
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二氧化碳灭火器	Carbon dioxide (CO <sub>2</sub> ) fire extinguisher
干粉灭火器	Dry powder fire extinguisher
泡沫灭火器	Foam [froth] fire extinguisher
手提式灭火器	Portable fire extinguisher
半手提式灭火器	Semi-portable fire extinguisher
舟车式灭火器	Wheelbarrow fire extinguisher
轻水泡沫灭火器	Light water foam fire extinguisher
水成膜泡沫灭火器	Aqueous film foam fire extinguisher
起动氮气瓶	Starting nitrogen bottle
起动空气瓶	Starting air bottle
泡沫发生器	Foam generator
灭火剂	Extinguishing medium, extinguishant
泡沫液	Foam concentrate

### **消防员装备**

防护服	Protective clothing
(硬) 头盔	(rigid) Helmet
面罩	Mask
靴	Boots
手套	Gloves

呼吸装置	Breathing apparatus
呼吸器	Breathing device
应急逃生呼吸器	Emergency escape breathing device

### **(六) 救生设备**

### **Life-saving appliances**

登乘站	Embarkation station
救生艇筏	Survival craft
脱险通道	Escape route

### **救生艇**

### **Lifeboat**

全封闭式玻璃钢救生艇	Totally-enclosed glassreinforced plastic lifeboat
机械推进救生艇	Mechanically propelled lifeboat
机动救生艇	Motor lifeboat
摇桨式救生艇	Rowing type lifeboat
自(动)扶正救生艇	Self-righting lifeboat
救生艇属具	Boat equipment
放艇属具	Boat releasing device
固定属具	Boat securing means
艇首缆	Forward painter
横座板	Thwarts
边座板	Side-seats

艇机	Boat engine
吊艇架	Davit
滑车	Block
吊钩	Hook
连接环	Link
绞车	Winch
吊艇索	Falls
调头	<i>Turning end to end</i>
降落装置	Launching appliance
脱钩装置	Release unit
限位器	Limit switch
自亮灯	Self-igniting lamp
浸水保温服	Immersion suit
抗暴露服	Anti-exposure suit
保温用具	Thermal protective aids
登艇	<i>to embark</i>
扬出	<i>to turn out</i>
下水	<i>to lower to water</i>
降落试验	<i>Lowering test</i>
回收试验	<i>Recovering test</i>
脱钩试验	<i>Release gear test</i>
喷淋系统试验	<i>Spray water system test</i>
自供空气支持系统	<i>Self-contained air support system</i>
倒顺车运转试验	<i>Reversing test</i>
<b>救生筏</b>	<b>Liferaft</b>
玻璃钢救生筏	Glassreinforced plastic liferaft
气胀式救生筏	Inflatable liferaft
可翻转救生筏、双面救生筏	Reversible liferaft
刚性救生筏	Rigid liferaft
救生筏壳	Liferaft container
降落设备	Launching devices
救生筏架	Liferaft stage
蓬柱	Arches
充气泵	Topping-up pump
静水压力释放器	Hydrostatic release unit
校验	<i>to service</i>
救生圈	Lifebuoy
救生衣	Lifejacket

## (七) 焊接

## Welding

焊接方法	Welding processes
手工电弧焊	Manual arc welding
埋弧焊	Submerged arc welding
气体保护焊	Gas shielded arc welding
电渣焊	Electro-slag welding
焊接材料	Welding consumables
焊条	Electrode
焊丝	Wire
焊剂	Flux
保护气体	Shielding gas
焊接工艺	Welding procedures
母材的钢种、钢级和厚度	Type, grade and thickness of the parent metal
焊接材料的型号、等级和规格	Designation, grade and size of the welding consumables
焊接设备的型号和特征参数	Type and model of welding equipment
坡口设计和加工要求	Form of bevel and requirements of edge preparation
焊道布置	Number and order of welding metal disposition
焊接顺序	Welding sequence
焊接位置(平、立、横、仰焊)	Welding positions (downhand, horizontal, vertical and overhead)
焊接系数	Welding parameters
焊接电流	Amperage
电弧电压	Arc voltage
焊接速度	Travel speed
焊前预热	Pre-warming
道间温度	Interpass temperature
焊后热处理	Post-weld heat treatment
焊后消除应力	Post-weld stress-relieving
焊件	Welded piece
焊缝	welds
弧坑	crater
引弧板	Run-on plate
熄弧板	Run-off plate
定位焊	Tack welding
自动焊	Automatic welding
多道焊	Multi-run welding
对接焊	Butt welding
填角焊	Fillet welding
全焊透	Full-penetration
未焊透	Incomplete penetration

## 二. 动词部分

### (一) 船舶所处于或遭遇的状态或情况

**接船** take (took/taken) over

如：为适应接船人员赴日本接船的需要，准予在上海至日本航线临时搭载接船人员 20 人。

In order to meet the requirement of taking over ship in Japan, the said ship is temporarily granted to sail on the Sino-Japanese Lines with accommodation of persons for taking over ships.

**交船** deliver

如：为了交船给新船东，该轮空载前吃水 2' 后吃水 20' 从新加坡航行至上海。

The ship sailed in ballast condition with draft 2' F, 20' A from Singapore to Shanghai in order to be delivered to new owner.

**租船** charter

如：航次租船

voyage charter

定期租船

time charter

包运租船

contract of affrayment

光船租船

bare boat chartering

航次期租船（日租租船）

time charter on trip basis

如：该轮已开始 British Steel PLC 的定期租船。

The vessel had commenced a time charter to British Steel PLC.

**拆船** scrap (scrapped)

如：据告之该油轮易船东后将被拆，上述损坏免除修理。

It was reported that the tanker would be scrapped after the tanker's owner being changed and the above-mentioned damage was exempted from repair.

**扣船**

船舶被扣留 the ship was detained by ...

扣留撤消 detention raised

**退役**

船舶退役 be suspended from service

船舶永久性退役 be permanently taken out of service

装货	load
卸货	discharge, unload
满载...吨货物	laden with cargo of ... tons, loading ... tons of cargo
驳货:	
(发给)	transfer cargo to M.V.“XXX” deliver cargo from M.V. “XXX”
(接收)	lighten cargo receive cargo
满载状态	in full load condition
空载状态	in light condition
压载状态	in ballast condition
空放	(船) in ballast (condition); (驳船) in light condition
重新调整压载水	re-trim ballast water
水线	waterline
轻重水线间	between light & load waterlines, between boot topping
吃水	draft (draught)
吃水标尺	draft (draught) scale
吃水差	trim
首尾等吃水、平吃水	trim on (an) even keel
船位	position
如: 船位: 东经 122°36', 北纬 34°06'	
at position: 122°36'E, 34°06'N	
at lat. 34°06'N by long. 122°36'E,	
纬度 latitude: 南(北)纬 north (south) latitude	
经度 longitude: 东(西)经 east (west) longitude	
定位	positioned, fix location
复位	re-positioned
交换位置	interchange location with
方位	bearing
如: 航向方位	course bearing
锚泊方位	anchor bearing

位于上(下)游 be situated up (down) stream  
上(下)游江边 on the river side of upstream(downstream) end  
长江上(中、下)游 the upper (middle, lower) reaches of the Changjiang River

**航区** service area, navigation area, trade area

近海航区 Greater Coastal Service

沿海航区 Coastal Service

遮蔽航区 Sheltered Water Service

无限航区 Unrestricted Service

如：航区改变

The trade area was altered from unrestricted service to great coastal service.

**航道** channel, fairway, waterway

如：确保水道无障碍

ensure no obstacles existing in the fairway

**航向** course

如：当左右主机同转速全速前进，并当右操舵装置的操纵指示为偏右约 7°时，才能使船保持定向航行。

When both the port & std main engines ran full speed ahead at the same r.p.m. with the maneuvering indicator for the std steering gear pointed to the position of about 7° std, the ship could keep a straight course.

如：在航向上

on the course

如：保持航向

hold course

如：改变航向

altered course to

**航线** route

如：在航途中

en route (to)

**航次** voyage

多航次 multi voyages

来回航次 return voyage

单航次(单程一水) single voyage

如：同意该轮单程一水从上海港到 XXX。

The ship is granted to sail for a single voyage from Shanghai Harbor to XXX.

如：本报告所作结论适用于该轮多航次/单航次装运上述危险货物。

The conclusion given in this report is applicable to the said ship carrying goods listed above for multi/single voyages.

**廻转**

如：船向左廻转。

The ship turned to port.

如：廻转 360° 约五分钟

The ship made one complete turning circle within about 5 minutes.

### 调头

调头出港 turn (swing) for departure/leaving

正调头出港 while turning round for departure/leaving

### 航行 sail, navigate, proceed

开航前 before the ship starting voyage

before the ship's departure

开始航行 start voyage

开往... to be bound for ...; to be underway

开往外地的、开往国外的 outbound

### 自航 sail by her own power

### 护航 escort, convoy

如：护航

conduct escort operation

under the escort of

under the convoy of

### 偏航 deviate

如：为了保护该轮及其所载货物，该轮必须偏离规定的航向，有时必须减慢航速。

To protect the ship and her cargo, the ship had to deviate from the prescribed course and sometimes the ship's speed was reduced.

顺流航行 sail down stream

逆流航行 sail up stream

顶流 against the current

顺流 with the current

逆流而上 go up stream

顺流淌下 flow down stream

如：“XXXX”轮在上海港黄浦江第 30 号浮筒附近顺流而下时与逆流而上的该驳发生了碰撞。

The M.V. “XXXX” sailing down stream collided with the said barge sailing up stream near No.30 buoy of Huangpu River in Shanghai Harbor.

航行中 during this voyage, on the voyage,

while sailing, while proceeding

during navigation, ,

如：1999 年第 45 航次从大阪到上海

on the voyage No.45 of 1999 from Osaka to Shanghai

如：在该轮离开 XX 港去上海港的航行途中

on the voyage from XX to Shanghai Harbor

如：该轮至上海的航行途中

while the ship proceeding to Shanghai

**继续航行** continuously sail,

continue on voyage, continue her service

proceed to sea

如：同意该轮继续航行

The ship is granted to continue her service

**经过** pass

如：该轮经过长江口 65#浮筒附近时

while the ship passing in vicinity of No.65 buoy of Changjiangkou

**途经** via

如：从上海途经秦皇岛赴香港

from Shanghai to Hong Kong via Qinhuangdao

**绕经** round

如：该轮绕经好望角。

The ship rounded the Cape of Good Hope.

**中途停靠** call at

**到达某地** arrive at (in)

**离开某地** depart from, leave

**离开某地赴某地** depart from... for....

leave... for...

如：该轮航行出港赴 XXX

The ship departed from Shanghai Harbor for XXX

**入口** entrance

如：长江口

Changjiang Entrance

**港口**

(一般用语，指天然或人工的港均可，特指商业上用的港) harbo(u)r,

(指人工的港，指有国家的或商业的关系的 harbo(u)r; 又指有港的市) port

harbo(u)r 通常用在专有名词后面

port 通常用在专有名词前面

出发港 port of departure

停靠港 port of call

目的港 port of destination  
到达港 port of arrival  
卸货港 port of discharge  
自由港 free port  
对外贸易港 open port  
不冻港 ice-free port  
避难港 port of distress

码头（一般用语） wharf  
（特指与海岸成直角形而突出的码头） pier  
（特指与海岸相平行的码头） quay  
浮码头 pontoon  
集装箱、油品等码头 terminal

装卸区 stevedoring area

泊位 berth  
如：没有空泊位  
There is no vacant berth.

避开 to be kept well clear of ; to be arranged clear of ; to be clear from  
如：该轮变更航向以便远离危险区。

The ship altered his course so as to keep well clear of the damage zone.

要求主动避让 keep away  
避开风头行驶 keep away  
安全出港 clear out, clear the port

浮筒 buoy  
浮筒沉锤 sunken cement block

防波堤 breakwater  
海岸 shore  
海岸线 coast  
海峡 strait, channel  
海湾 bay, gulf（比 bay 大的海湾）  
海滩 beach  
礁石 reef; rock, submerged rock（暗礁）

抛锚 cast anchor,  
drop anchor,  
stream anchor  
抛（锚）牢 hold down

如：该轮在长江口灯船附近抛锚用的是右舷首锚及其锚链。

The ship anchored near the Changjiangkou light vessel with the std bower anchor and its chain cables.

如：此时，抛下右锚（约抛出 40 米锚链）以增加阻力防漂至岸，等待救助

At that time, the ship dropped std anchor with about 40m of chain cables for increasing resistance with a hope to prevent her from drifting ashore and grounding and to wait assistance.

如：左锚抛锚时，当锚链落水 1-2 节后，有时发生锚抛不出去的情况。

The port anchor sometimes could not further run out after dropping anchor with a length of 1 to 2 lengths of chain cables into water.

**起锚** weigh anchor,  
heave anchor

**收锚** fish anchor,  
stow anchor

**走锚**

如：The ship dragged her anchor.

The ship's anchor was dragging.

**靠泊** lying alongside（静态）  
being maneuvered to berth alongside（动态）  
going alongside（动态）

如：该轮正在靠泊高阳码头时，突遇漂近来的两艘驳船。

While the ship going alongside Gaoyang Wharf, two barges were drifting towards her.

**靠泊在该轮外档** mooring outboard the ship

如：当“XXXX”轮调头出港时，碰撞了靠泊在该轮外档的驳船。

While the M.V. “XXXX” turning round for departure from Shanghai Harbor, the ship collided with the barge, which was mooring outboard the said ship.

**并行靠泊** lying/berthing abreast alongside

如：该轮螺旋桨激起巨大的水流使得航标工作船激烈地上下摇晃，并与其它平行靠泊的船舶发生碰撞。

The ship's propeller stirred strong current to make the beacon service ship “B-251” heave and roll severely and collide with other ships lying abreast alongside.

**停靠在码头第三挡** lying/berthing thirdly alongside the wharf

**系泊** be moored at（静）

moor to (动)

解缆 unmoor

移泊 shift (动)

如：该轮在移泊系浮筒时

while the ship shifting to moor to the buoy

如：移动锚位

shift anchor position

锚泊 be anchored at

锚地 anchorage

检疫锚地 quarantine anchorage

锚地底质 holding ground

拖航 tow

如：在打捞船救助下，渔船被拖至并搁在吴淞口 A-12 浮筒附近的浦东侧浅滩上。

Under the rescue by the salvage ship “XXX”, the fishing boat was towed to ground at shallow water area on Pudong side near the buoy No.A-12 at Wusongkou

绑拖 tow alongside

如：xxxx 年 6 月 1 日该轮在该二艘渔船的绑拖下安全返回。

Under being towed alongside by the two fishing ships, the fishing ship “XXXX” safely returned to Jushandao on June 1, xxxx.

搁置 be laid up

如：船舶完工后没立即投入使用，而是被搁置了一段时期。

When a ship upon completion is not immediately put into commission, but is laid up for a period.

进坞 dock

出坞 undock

上排 be laid on slipway

顶推 push

如：该轮卸货后离开上海港时，在 12 时 8 分与正在黄浦江顶推四条甲板驳的“XXX”拖轮发生碰撞。

While leaving Shanghai Harbour on completion of discharging, the ship collided with the tugboat “XXX” pushing four deck barges in Huangpu River at 1208 hours on (date) and thus damage was sustained.

涨潮 the tide was on the flow

退潮 the tide was on the ebb

潮水 tide, tide current

等潮水 waiting for the tide

## 碰撞

### 船舶与船舶的碰撞

collide (collided) with (不及物动词, 只用主动语态)

collision

船舶的某部与另一船舶或另一船舶的某部发生碰撞:

come into collision with

如: 该轮靠泊在上海港张华浜码头卸货时, 被航行出港的希腊籍轮碰撞。

While the said ship mooring and discharging at Zhanghuabang Wharf in Shanghai Harbor, the M.V. "XXXXX" of Greek Flag, which was departing from Shanghai Harbor, collided with the said ship.

如: 同日 2240 时当该轮锚泊在 30°35'N 122°43'E 时, 被"XXXXXX"轮的左舷碰撞了该轮的船艏, 致使部分船艏遭受损坏。

While the said ship was anchored at position 30°35'N 122°43'E, the M.V. "XXXXXX" collided with the bow of the said ship on her port side at 2240 hrs on the same day, thus partial bow of the said ship was sustained damage.

如: 该轮船首与 "XXXX" 轮的船尾发生碰撞。

The bow of the said ship came into collision with the stern of the M.V. "XXXX".

### 船舶与码头、浮筒等的碰撞

strike (struck, struck/stricken)

contact (contacted)

如: 该轮左舷碰撞了灯浮。

The ship contacted the lightbuoy on her port side.

如: 利比亚籍 "XXXX" 轮碰撞了该灯船并把该灯船从原位 31°06'01" N 122°17'01"E 推出 6.5 哩至 31°05'07"N 122°08'09"E 的 JINDUAN 浅滩。

The Liberian M.V. "XXXX" struck and pulled the light vessel on Aug. 1, XXXX about 6.5 nautical miles away from her original position 31°06'01" N 122°17'01"E to the shallow water of Jinduan, 31°05'07"N 122°08'09"E.

### 挤压 pressed

如: 该驳挤压该轮船壳造成损坏。

The barge pressed against the shell plating of the said ship, thus, the damage was sustained.

### 搁浅 ground, run aground, take aground

搁浅 ground 系指船舶在正常航道中航行, 由于潮水不够而搁浅, 或船舶正常靠泊在码头装卸货物时而发生搁浅。Strand 系指船舶在不正常航道中发生的搁浅; 船舶在锚地由于受漂浮物的冲击而发生的搁浅; 以及船舶在非正常航道上船底和

水下障碍物的（河床或海底）撞击等。

**脱浅** refloat

如：搁浅后，该轮采取了措施，如用主机、抛左锚等，力图脱浅，但无效。

After grounding, different measures were taken, such as using the main engine and dropping the port anchor, to refloat the ship, but without any success.

**触礁** strike (struck)

礁石 rock, reef

如：为了防止船舶漂流和触礁，船长命令抛右锚。。

In order to prevent the ship from drifting and striking rocks, the Master ordered to drop the std anchor.

**倾覆** capsize

如：该渔船在风暴的袭击下倾覆了。

The fishing ship was capsized under the attack of storm.

**沉没** sink [sank/sunk, sunk/sunken]

如：船沉了

The ship was sunk.

如：船沉入江底

The ship sank to the bottom of the river.

**倾斜** list (listed)

如：该舱海水面与二层甲板舱口围板之间的间隙测量为 3.70 米，船向右倾斜 7.5 度。

The space between the surface of the sea water in the said hold and the hatch coaming of the tween deck was measured to be 3.70 M, and the ship listed about 7.5° to the std side.

如：船舶向左倾斜大于 16°。

The ship listed to the port side at an angle of more than 16°

如：发现该挖泥船严重向左倾斜。

The dredger was found seriously (/severely) listing to port.

**遇险** be in distress

**不可抗力**（如风暴、地震等） an act of God, force majeure

**海损** sea damage, average（保险）

**海况** sea condition, sea state

**风浪影响** owing to wind and current  
under the influence of heavy sea

浪损 pitching & rolling damaged  
swell damage

浪击 assault of waves

如：该轮被路过的“XXXX”轮的浪花击坏。

The ship was sustained damage owing to the hit of waves surged by passing M.V. “XXXX”.

遭遇坏天气 encountered bad weather (adverse weather)

遭遇大风浪 encountered heavy sea

遇到（ ）级大风 encountered with strong wind force of ( )

如：遇到蒲氏风力 9-10 级的大风浪

The ship encountered heavy sea with strong wind of Beaufort scale 9-10

遇到第 8 号台风边缘 encountered the verge of No.8 typhoon

遭到寒流袭击 The ship was beaten by cold current.

风暴 storm

如：该油轮遭遇热带风暴，大浪涌上该轮甲板，致使甲板设备遭受损坏。

The tanker encountered tropical storm and heavy sea surged over the deck and thus the deck equipment was sustained damage.

季风 monsoon

雾 fog

厚雾 thick fog

浓雾 dense fog

如：该轮遇到浓雾

The ship encountered dense fog.

如：雾已消散。

The fog was lifted.

能见度好（差） in good (poor) visibility

如：天气晴朗，微风，能见度好

The weather was fine with gentle breeze and good visibility.

如：能见度变差。

The visibility became poor.

纵倾 trim

横倾 list

纵摇 pitch

横摇 roll

船倾：因装载，船舶本身状态（静止）

船摇：因风浪

首（纵）倾、前倾 the trim by bow {head, stem}

尾（纵）倾、后倾 the trim by stern

纵倾 trim fore-and-aft

如：在该轮纵倾的状态下

under the trim by stem

前后颠簸 pitched

左右摇晃 rolled

激烈地上下颠簸、左右摇晃 under heavy pitching and rolling condition

如：拖轮船队遇“XXXX”轮，被该轮溅起的波浪导致前后颠簸、左右摇晃，互相碰撞。

The fleet consisting of 1 motor tug and 9 barges encountered the M.V. “XX” and thus the tug and barges pitched and rolled owing to the waves splashed by the ship and collided with each other between bows and quarters.

漂浮 drift, go (or get) adrift

如：拖轮和挖泥船队随风向西漂流。

Group of the tug & the dredge drifted towards west with wind.

如：船向附近岛屿漂去。

The ship drifted towards a vicinity island.

如：灯船从停泊处漂离并消失。

The light vessel drifted away from the berth and disappeared.

如：该轮漂浮 XX 度。

The ship drifted at an angle of XX°

控制漂浮 control drifting

振动 vibrated

如：因受风浪影响，船体剧烈振动造成第六缸气缸滑油注入管振脱。

The ship was subjected to strong vibration owing to the heavy sea, causing the lub. oil feed pipe to No.6 cylinder unit disconnected.

爆炸 exploded

如：该轮在长江逆流而上于当日 15 点 42 分途经上海石洞口发电厂附近时发生爆炸。

While passing up stream in Changjiang River in the vicinity of Shidongkou Power Plant, Shanghai, at 1542 hrs on the same day, the oil tanker exploded.

火灾 fire

着火 caught fire

如： 火灾发生了。火势迅速蔓延到全船。  
A fire occurred. The fire rapidly developed and spread all over the ship.

如： 火势得到控制。  
The fire was under control

如： 火扑灭。  
The fire was put out.

**船只失事** wreck, wreckage

如： 营救失事船  
save a ship from wreck

**人员失踪** disappear

**人员受伤** injured

**扫海** bottom area clearing  
sweeping & clearing up

**营救、打捞** salvage

救助 rescue

抢救 first aid

打捞 pick up (something)

如： 该灯船船东派遣二艘航标船赴浅滩将灯船的锚和锚链从水中打捞出来。

On the same date, the light vessel's Owner dispatched two special beacon ships to the said shallow water area for picking up the light vessel's mooring anchor and anchor chain cables out of the water.

## (二) 缺陷与损坏的类别与原因

**缺陷** defects, deficiencies

**制造中缺陷** defects in(during) manufacturing

**潜在缺陷** latent (potential 可能的) defects

**金属分层** lamination

**金属疲劳** fatigue

**金属疏松** porosity

如： 汽缸套内表面发现金属疏松。

The inner surface of cylinder liner was found porous about XX x XX in area.

如： 条状疏松  
found to have porosity in strips.

如： 气孔

gas porosity

**空泡 cavity**

气孔 gas cavity

疏松 slag(熔渣) cavity

砂眼 sand cavity

如：螺旋桨有严重的空泡腐蚀

Propeller blades pitted seriously due to cavitation erosion.

**缩孔 shrinkage hole**

如：断口表面的材料进行了外观检查，发现有七处疏松和二处直径 10 毫米缩孔的缺陷。

The material at the broken surface was visually examined and found with defects of 7 slag cavities and 2  $\Phi$ 10mm shrinkage holes.

**冷隔 cold shuts**

**结疤 scabs**

**误差 error**

**未装 not fitted**

如：由于主润滑油泵出口至各分路管上没有调节阀各分路润滑油压力不能调节  
L.O. pressure in branch pipes was incapable of being regulated due to no regulating valves being fitted in branch pipes from the output side of main L.O. pump.

**未备有 not provided, not available**

如：由空气瓶至各柴油发电机组的分路管路上没有截止阀

No stop valve was provided in branch pipes from air vessels to each diesel generating set.

**不齐全、不完整 incomplete**

**不足 insufficient**

**不足、缺少 deficient**

如：冰箱冷量不足

One refrigerator in the Chief Engineer's cabin was deficient in cool capacity.

如：冷藏舱的绝缘有缺陷，以致后舱壁上有冷凝水出现

The insulation of the refrigerating chamber in No.4 cargo hold was deficient so that much condensed water appeared on the aft bulkhead of No.3 cargo hold

**缺少 short of**

- 如：起货柱扶梯上端的工作平台未装有保险活动盖板  
The working platform at the upper ends of the 4 kingpost ladders was short of hinged covers.
- 如：重型吊杆的钢索卷车其刹车装置缺少加滑油孔  
Two wire reels for the heavy derrick, their brake devices were short of lub. oil filling holes.
- 如：碱性蓄电池组缺少一节应予以配齐。  
The alkaline battery, which was short of one unit, should be completely provided.

**遗漏、省去            omitted**

- 如：驾驶室和船长舱室内的部分航海仪器在安装部位处的镶边遗漏。  
The inserts of the partial navigation instruments in the wheelhouse and the Captain's cabin omitted in way of the fitting parts.

**遗漏、疏忽            neglected**

**遗失                    missing, lost**

- 如：离合器操纵杆的锁销遗失，已用螺栓代替。  
The locking pin for the control lever of clutch was missing and had been replaced with one bolt.
- 如：右锚链第一节拉断，右锚失落。  
The std side chain cables were broken at its 1<sup>st</sup> length and the std side anchor lost.

**冲走                    washed overboard**

**易于                    liable to, apt to**

- 如：轻型吊杆 24 只起货滑车及导向滑车，因滑轮与外壳间隙太大，使用时经常夹在里面  
Cargo blocks and guide blocks for the light derricks, 24 pcs in total, the steel wire rope is liable to be caught due to excessive play between the sheave and the cheeks.
- 如：左、右两付吊艇架在救生艇降艇时，均产生卡住情况  
Port & std lifeboat davits, 2 pairs in total, are all liable to be caught while the lifeboats being launched.
- 如：铁易生锈  
Iron is apt to rust.

**不便**

- 如：钢索滚筒离合器的离合操作不便。  
The clutch of the wire drum was **inconvenient** to operate.
- 如：右舷舷梯钢索滑车油嘴在外侧，加油不方便。

The nipple for std gangway lifting block was located outside and was **not liable** to be used for greasing.

如：外档滚筒油嘴的方向不便加油。

The nipple for greasing the outside roller was **inaccessible** to grease.

**堵塞 blocked**

如：舱底水管路被散装锌矿砂堵塞

The bilge pipeline of the said hold was blocked by the zinc ores in bulk.

如：经拆检，发现该增压器的轴承壳裂开，冷却水渗漏，轴承及其密封为冷却水结垢物充塞。

After dismantling, the bearing casing of the turbo-charger was found cracked and leaky and a large amount of chemical crystal deposit from cooling water blocking the bearing and its sealing arrangements.

如：卡在 1 螺旋处

blocked at No.1 screw

**卡住 caught**

如：第 2 货舱口左侧重型吊杆的升降机，起 8 吨重用的传动小齿轮铜衬裂缝，换挡时经常卡住

The lifter of the heavy derrick at the port side of the No.2 cargo hatch, the brass bush of the pinion for lifting weight of 8 tons cracked and always caught while revolution stage being shifted.

**封没 blanked**

如：所有位于上甲板舱口间的货舱通风筒都拆下，然后用钢板作永久性封闭。

All ventilators for cargo hold situated bet. hatches on upper deck were removed, and blanked permanently with steel plates.

**闷塞 plugged**

**脱出 slipped out**

如：离合器手柄的定位插销经常脱出。

The set pins of the handles for the clutch often slipped out.

**跌落 dropped (down)**

如：在吊好第三块舱盖板后，空杆落至甲板。

After the 3<sup>rd</sup> hatch cover being heaved up, the derrick without sling of cargo dropped down to the deck.

**失灵 out of order**

如：付食冷藏用的第一和第三号压缩机的控制系统失灵

Control systems of Nos.1 and 3 compressors for the refrigeration of food provisions were out of order.

不活络

不活络 unmovable, badly movable, not freely

活络 movable, making free

如：轻型吊杆的吊货滑车和导向滑车的滑轮不活络，滑轮槽太窄，以致起货索经常滑出，许多滑车和起货索因此而损坏

Cargo blocks and guide blocks of the light derricks, of which the sheaves ran not freely and grooves of sheaves were too shallow, so that the cargo runners slipped out very often and thus many blocks and cargo runners were damaged.

润滑欠佳 poorly greased

badly lubricated

(缺乏 be devoid of)

不润滑 devoid of lubrication

不整齐 **untidy**

杂乱 **in a mess**

安装不正确（指小型的装置设备） **fitted incorrectly**

安装不正确（指较大的装置设备） **installed incorrectly**

如：三台发电机组的手动滑油泵因装置不当，无法使用

Lub. oil manual pumps for three generating sets were unfit for use because of being fitted incorrectly.

不能工作 **not working**

指本身不能工作，在损坏状况判断中不能工作 **unworkable, inoperable**

如：主机已不能工作。

The main engine was already in unworkable condition.

不能工作，失去作用，不起作用 **out of function**

不能工作(失效) **inoperative**

不能使用（指必须换新的损坏部件） **unserviceable (useless)**

停止工作（作用） **out of action**

失效 **in failure**

故障 **out of order, in trouble**

功能失常 **malfunction**

间隙过大            **excess clearance**  
齿隙过大            **excess backlash**  
噪音过大            **excess noise level**

失圆                 **out of roundness**

拉线不直            **out of alignment**

**漏                    leaky**

如：测向仪的天线装置在穿过驾驶室顶甲板处漏水造成该引入电缆的接线盒积水并生锈

The antenna of the direction finder was leaky in way of the top of the wheel house where the cable led in, causing the connecting box of the said cable rusty and water to be accumulated therein.

滴漏                 **dripped**  
泪滴                 **weeping**  
汗滴                 **sweating**

**不水密              non-watertight**

如：锚链筒封闭不水密。

The hawse pipe was not blanked watertightly.

如：工具备品间通风筒的水密挡板没有关闭，出入口人孔盖关闭不水密。

The watertight flaps of ventilators of tool & spare rooms were not in close position and the access manhole cover not closed watertightly;

如：Nos.1,2,3,4 & 5 人员出入水密舱口盖不能确保水密

The watertight covers of the compassion hatches for the Nos.1,2,3,4 & 5 cargo holds failed to be closed to ensure watertightness.

**粘、轧住            stick (stuck)**

如：沾满尿素颗粒

fully sticking urea granules on the surface

如：齿轮轧住了

The gear was stuck.

**使沉淀、使淤积    deposited**

如：充满油污

fully deposited with oil dirt

如：阀杆严重结碳。

The valve spindles were seriously deposited with carbon.

如：过滤器内淤积了铁屑和铁粉。

There were iron filings and iron powders deposited in the filters.

如：整流子表面全部呈黑色且积碳。

The commutator surface showed black and was found with carbon deposit.

**混有 mixed**

如：大量海水混入左舷淡水舱，以致其水平面已达到 4.7 米。

A large quantities of sea water mixed into the port side fresh water tank so that its water level already reached to 4.7m.

如：混有空气的油气是一种爆炸性气体。

Oil vapour therein mixed with air is an explosive gas.

如：混有杂质

mixed with impurity

**沾污、污染 contaminated**

如：润滑油内含水

The lubricating oil contaminated with water

如：发现有柴油味

found to be contaminated with diesel oil vapour

**污染 polluted**

油污染 oil polluted

**沾上、沾污 stained**

油渍 stained by oil/oil stained

水渍 water stained

湿渍 wet stained

霉渍 mould stained

脏渍 dirt stained

**裂缝、裂纹 cracked**

发裂 hair crack

穿透裂缝 through crack

未穿透裂缝 non-through crack

冰裂 crack by icing

如：螺旋桨叶片的推力面发现与该桨叶根部间有一处长约 140 毫米的裂纹。

The ahead surface of the propeller blade was found cracked at one place between the surface and the blade root about 140mm in length.

**穿透性裂纹**

如：立式燃油辅锅炉炉胆下部弯边处在燃烧器对面发现穿透性裂纹五条，此次挖 V 型槽后用电焊焊妥。

The U-shaped ring of the inner side shell plate of the boiler, opposite the burner, was found to have 5 penetrating cracks, and the cracks were chiseled out with V groove and then covered by welding.

**垂向裂纹**

如：有一条长约 150 毫米的明显垂向裂纹贯穿全部 20 牙。裂缝深至螺牙根部

There was a vertical crack extending through the whole 20 teeth about 150mm in length, with the depth to the bottom of thread.

**裂纹成 45°**

如：裂纹成 45° 从活塞肖孔两端到裙部顶端贯穿整个裙部  
cracked at 45° upward from the both sides of the piston pin hole to the skirt top with the depth extending through the whole piston skirt.

**网状（辐射状）裂纹** cracked in form of network

如：气缸套右侧从顶端起至从下 300mm 间周长 800mm 的区域内有大量网状(辐射状) 裂纹。

A lot of net-like(radial) cracks were found from the top downward to 300mm within 800mm in std circumference on the cylinder liner.

**龟裂** **chapped**

如：该缸组的活塞的第二道减磨环在右侧有一段长度约为 100 毫米磨损已与活塞裙部平齐，且在此附近的活塞上有磨损和一块面积约为 10 毫 X 30 毫米的网上裂纹。

The std side of the 2<sup>nd</sup> guide copper ring of piston, about 100mm in length, was entirely worn out to a flush surface with the piston skirt and the piston worn off near the said place and chapped one place over an area of 10mmx30mm.

**刺破** **pierced**

如：在用蒸汽清洗的过程中，发现机舱内的蒸汽管的旁通阀侧的旁通管被蒸汽刺穿。

During the period of steaming, the bypass pipe on the std side of bypass valve of the steam pipe in the engine room was found pierced by the steam.

**折裂** **fractured**

如：第 2 缸发动机机架与凸轮箱之间的隔板折裂。

The engine frame plate forming one side of cam box in way of No.2 cylinder was fractured.

**划裂** **punctured**

如：在吊平第二货舱二层舱口盖板时，由于摆动，故将第二货舱低层舱后舱壁板划一个裂口，面积约 00x00。

The aft bulkhead of No.2 lower hold was punctured about 00x00 in area due to the swing during the lifting of tween deck hatch pontoons from No.2 hold.

**断裂、破裂** **broken**

**破掉（破裂后跌落）** **broken off**

如：右锚链第一节断裂，右锚失落，并与 3 月 12 日打捞起。

The std side chain cables were broken at its 1<sup>st</sup> length and the std side anchor lost.

**焊缝裂开**

如：右舷 66 肋位处舷墙立柱的焊缝裂开

The welded seam of one stiffener on bulwark in way of std frame No.66 broken.  
如：连接甲板与舵角限制器三角板的焊缝断裂。

The welded seam for connecting the bracket of the deck stops with the deck plating broken about 200mm in length.

(绳子) 断裂      **parted**

碎裂      **broken into pieces**

如：最后，阀头碎裂、撞入缸内

Finally, the valve head was broken into pieces and fell into the cylinder under impact force.

撕裂      **torn (off)**

如：螺纹撕裂

The screw threads torn off.

如：条撬状撕裂

ski-lining torn

穿洞      **holed**

如：经船员打开塑料薄膜后，发现一个管子上有多处烂洞面积共 30mmx180mm，并有油气气味。

After the plastic film being taken off by the crew, one pipe was found corroded and holed at numerous places about 30mmx180mm in total area, from which, oil vapour was smelled.

中拱      **hogged**

中垂      **sagged**

凹陷

船壳板肋位间凹陷 **indented (dented)**

船壳板大面积凹陷 **set in**

船底板大面积凹陷 **set up**

甲板大面积凹陷 **set down**

变形      **deformed**

如：在一个肋位长度内变形

deformed about one frame space in length

如：三付舱室长方形窗塑料框架变形

One plastic framing of the rectangular window in the Third Officer's cabin deformed.

如：离合器手柄均有不同程度的变形。

The handles of the clutches deformed in different degrees



**倾斜**                    **inclined**  
（桅杆等的）倾斜：incline downward  
（舷墙等的）倾斜：collapse inward  
（船的）倾斜：list

**倒塌**                    **collapsed**  
如：尾部上甲板上的左舷天幕倒塌。  
The awning on the port side of upper deck at the ship's stern was collapsed.

**悬挂**                    **hanged**  
如：右舷尾部舷墙板悬挂在水中。  
The aft std bulwark plating hanged overboard into water.

**毁损**                    **destroyed, ruptured**

**挤扁**                    **pressed**

**压扁**                    **flattened**  
**压碎**                    **crushed**  
**压榨**                    **squashed**

**脱落**                    **disconnected**  
如：绞缆机的电动机的控制箱内电阻脱落  
Resistors in the motor control box for warping winch were disconnected.

**脱出**                    **detached**  
如：卸扣横肖脱出 V 形体  
The shackle bolt detached from the yoke.

**移位**                    **dislocated**  
如：开启舱盖的液压绞车与其底座脱位。  
The hydraulic winch for opening hatch covers was dislocated from its seat

**连根拔、根除**        **uprooted**

**折断（齿轮）的齿，磨掉（螺钉、螺栓）的螺纹**        **stripped**

**穿透**                    **penetrated**  
如：裂纹槽从圆角处以 30° 角穿透曲柄臂  
The crack groove penetrated into the crankweb at an angle of about 30° from the round corner and intersected at the oil hole of the crankweb

**覆盖**                    **covered**

如：普遍覆盖着以前装运货物的块状或粉状残余物  
generally covered with agglomerated or powdery remnants from the cargo previously carried.

如：积满厚厚的锈垢  
covered in thick rust scales

### 进水 **flooded**

进水 ingress of water

如：水从船壳板烂洞处进入第一货舱  
No.1 hold was flooded through the holed shell plating in way.

如：第三货舱大量进水  
A large quantity of water entered into the No.3 cargo hold.

### 浸水 **soaked**

如：左舷车床间和备品间进水以致里面的备品与工具长期浸在海水中。

The port side lathe room and spare room flooded so that the spares & tools therein **soaked in sea water** for a long time.

如：机舱内的轮机装置和电气设备均浸水损坏。艙楼和后甲板室的木铺板、家具、装饰、绝缘均浸水损坏。

The machinery installation and electrical equipment in the machinery space all **soaked and damaged**. The wooden ceiling, furniture, decoration & insulation in poop and aft deckhouses all soaked and damaged.

### 积水 **accumulated**

如：第二货舱污水井内的积水深达 2.4 米。

The bilge well of No.2 cargo hold was sounded to be accumulated with water of 2.4m in depth.

如：该储藏室内积水 0.35 米深，应予清除积水后清洁。

Water was accumulated in the store room about 0.35m in depth. The said room should be cleared away accumulated water and then cleaned.

### 弄湿 **moistened, wetted**

#### 油漆擦去、剥落、脱落、铲掉

如：右舷船壳板在吃水 6' 和离艏柱 2 米处的油漆被擦去 1 米长 0.1 米高。

The paint on the std side shell plating at draft scale 6' and 2m away from the plate stem was **scratched** 1m in length and 0.1m in height.

如：第 1-3 货舱间和吃水标志 5-8 米间左、右舷船壳板上的油漆多处分散、不规则地擦去。

The paint on the port & std side shell plating bet. Nos.1 & 3 cargo holds and bet. draft scales of 5m & 8m **rubbed off** at numerous places in scattering and irregular manner.

如：船壳板上的油漆在原擦去处又新擦去至船尾。

The paint on the shell plating was newly **scraped** in extension to the stern.

如：上面的油漆除两舷外全部剥落。

The paint thereon was peeled off all over except on both sides.

如：少量油漆成条状点状脱落

Minor paint on XXX was **detached** in strips or spots

如：铲掉油漆

to **chip off**

**生锈**                      **rusted**

如：大面积锈蚀

rusted in large areas

如：小点状锈蚀

rusted in minor & very minor spots

如：条状锈蚀

rusted in strips

如：锈垢

rust scale

如：锈斑    rusted flaws, rust in patches

**锈死、咬牢**              **seized**

如：部分油舱空气管口锈死，机舱通风筒关闭锈死，菌形帽锈穿，应在（日期）前予以修复。

The seized closing appliances of air pipes of partial oil tanks and seized closing appliances & corroded mushroom heads of ventilators on E.R. casing top should be repaired by (date).

如：由于润滑器没有及时加入润滑油，汽缸内没有形成润滑油膜，故而造成汽缸套与活塞相互咬牢。

The cylinder liner and piston were seized each other because lub. oil was not fed into lubricator in time and no lub. oil filmed in the cylinder.

如：The shank housing of the anchor crown to be cut off at its edge, where the anchor shank was seized about 250mmx80mm in area.

**腐蚀**                      **corroded (eroded)**

corrosion (erosion)

如：发现有蚀痕

found showing signs of corrosion

如：腐蚀程度相同

corroded in similar degree

如：锈蚀情况相同

corroded and rusted in similar condition

如：腐蚀最大深度为 10%

corroded to the maximum about 10% of its original thickness

如：大面积烂穿



老化                      **aged**

变薄                      **thinned**

如：叶片变薄看上去像刀刃。

The blade edges thinned and seemed as knife-edge

磨损                      **worn**

如：该活塞的第二道减磨环在右侧有一段长度约为 100 毫米磨损，已与活塞裙部平齐，且在此附近的活塞上有磨损和一块面积约为 10 毫 X 30 毫米的网上裂纹。

The 2<sup>nd</sup> side of the guide copper ring of the piston, about 100mm in length, was entirely worn out to a flush surface with the piston skirt and the piston worn off near the said place and chapped one place over an area of 10mmx30mm.

如：气缸壁严重磨损，缸颈扩大至 94.5 毫米。

The cylinder wall was seriously worn out and the cylinder bore enlarged up to 94.5mm.

磨损凹痕                **have traces of wearing**

自然损耗                **in wear and tear condition**

乳化                      **emulsified**

风化（如木质门）    **weathered**

（木、橡胶）腐烂、腐坏    **rotten**

（电缆）腐烂、腐坏        **decayed**

（橡胶、电缆）腐烂、腐坏   **perished**

分裂（如橡皮垫料）        **disintegrated**

拉毛（仅从反光上可观察到） **scuffed**

擦痕                      **chafed**

拉痕（痕较 chafed 深）      **scored**

抓痕（硬拉过的痕）        **scratched**

刮痕（长期运行刮的痕）    **scraped**

凸起雷治痕（环状的痕）    **ridged**

起肩、（呈有）凸肩        **ridged**

缺口                      **notched**

如：两片车叶的导边（随边）各有一缺口，尺寸为 4x2cm, 8x4cm.  
The leading edges (following edges) of two propeller blades notched at each one place about 4x2cm & 8x4cm respectively.

**断落 notched off**

如：一丹螺旋桨的导边在 0.8-0.9R 处断落约 1.2m 长 4”宽。  
The leading edge of one propeller blade notched off about 1’2” in length and about 4” in width at 0.8-0.9R approx.

**成锯齿状 serrated**

如：发现一号叶片的叶尖处成锯齿状，长约 150 毫米。  
The No.1 blade was found serrated at its tip about 150mm in length.

如：螺旋桨四丹叶片的导边均有锯齿状的缺口。  
A few of saw-tooth-like notches were on the leading edges of all 4 propeller blades.

**锯齿形的 zigzag**

**敲缸 knocked**

如：听到敲缸声。  
Knocking noise was heard at the main engine.

**缠 fouled, entangled, tangled**

如：螺旋桨叶片缠有很多鱼网丝。  
The propeller blades were fouled with many threads of fishing nets.  
如：该轮遇到海上漂流物，鱼网把螺旋桨缠住。  
The ship met with a sea drift and the fishing nets fouled the ship’s propeller.  
如：护板被锚链缠绕。清除锚链。  
The chain cables tangled the protective guard and should be cleared away.

**使（线等）纠结 snarled**

**把一物放在另一物的上面、添加上 superimposed**

如：剩下的油漆可以发现还有约 3-4 层  
The remaining paint could be found superimposed with approx. 3-4 coating.

**散失 scattered**

如：油漆散失。  
The paint was scattered.

**扭转 twisted**

如：舵杆向右扭转 24.5 度。（中偏右）  
The rudder stock twisted 24.5° to the std side. (center by std).

(轴承白合金) 脱壳 **detached**  
开裂 **cracked**  
挤压 **squeezed**  
铺铅 **wiped**

如：经将第九道（从尾数起）主轴承下瓦转出检查白合金已铺铅，后由修理厂将船上备件换上。

The No.9 main bearing lower half bush (counted from afterward) was turned out for inspection and it was found that the white metal thereof was wiped and then replaced with the spare on board by the repairing factory.

过热 **overheated**

熔化 **melted**

如：尾轴抽出后，发现尾轴轴承有严重拉痕，其上面的白合金熔化。

After the tailshaft being withdrawn, the tailshaft bearing seriously scored and the babbitt thereon melted.

(白合金 white metal, 巴氏白合金 babbitt)

烧毁 **burnt**

如：日光灯镇流器线圈烧坏

The ballast coils for daylight lamps burnt out

烧焦、焦痕 **scorched**

发黑 **blackened**

烟熏 **smoked, sooted**

(绝缘层) 擦损、(绳子) 磨损 **frayed**

脱开 **disengaged**

如：当起货机的离合器的操纵杆在啮合位置时，离合器的牙齿处于脱开状态。

While the control lever of clutch of cargo winch being at engaged position, the clutch dentals were under disengaged condition, and the locking pin for the control lever of clutch was missing and had been replaced with one bolt.

超速、飞车 **overspeeded**

如：主机飞车

The main engine overspeeded.

振动 **vibrated**

摆动 **swing(/swung)**

移动                    **moved**

跳动                    **jumped**

如：起货机在吊货时钢索滚筒有轴向移动及跳动

The cargo winch at port side of No.4 cargo hatch, the wire drum axially moved and jumped while lifting cargo.

跳动（主轴承中的曲轴） **jerked**

松动                    **loose, loosened**

啮合太松                loose engagement

接头松动                loose connection

（铆钉）松动            **started**

滑牙                    **loose-screwed**

如：餐厅椅子固定升降的螺栓滑牙

The threaded rods for adjusting the chairs in the mess room were found loose-screwed.

（接缝）松裂            **started**

红套松动

如：进气阀摇臂轴红套松动。

The shrinkage integrating rocker arm with shaft for air inlet valve loosed.

配合松动                **fitted loose**

偏心                    **off-centering**

偏斜                    **deflected**

如：蜗轮轴中心线偏斜

The centerline of worm wheel shaft was caused to deflect.

如：轻微上挠

slightly deflected upwards

偏差                    **deviated**

轧煞                    **jammed**

变弱                    **weakened**

减少                    **decreased**

干扰	<b>(radio) interference</b>
失谐	<b>detuned</b>
抛锚、故障	<b>broken down</b>
断开、中断 短路	<b>broken short-circuited</b>
接地（接于船体）	<b>earthed (grounded)</b>
漏电	<b>in a state of electric leakage, electrical fault</b>
失电、熄灭	<b>blacked out</b>
触电	<b>shocked</b>
（电缆）挤压	<b>(cable) extruded</b>
接触明火	<b>contact naked fire</b>
走火	<b>fired</b>
跳闸	<b>tripped</b>
恶化	<b>worsened</b>
如：该液压马达所存在的问题日趋严重。 The operation of this hydraulic motor was found worse.	
断面	<b>broken section</b>
热影响面	<b>heat affected zone</b>

### （三）修理方法

永久性修理 **permanently repaired**

临时性修理 **temporarily repaired**

如：该驳应上排或进坞进行永久性修理。

The barge should be permanently repaired on slipway or in dock.

如：已在裂纹处作设置水泥箱的临时性修理。

A temporary repair by fitting a cement box on the cracked place has been carried out.

如：船壳板洞穿处用复板及水泥箱作了临时性修理。

The shell plating, where holed, was temporarily repaired by means of covering a doubler and building up a cement box.

更正	<b>rectified</b>
如：缺陷改正	
The defects should be rectified.	
矫正、补救	<b>remedied</b>
修理、修复、修整	<b>reconditioned</b>
换新	<b>renewed</b>
更换	<b>replaced (by, with)</b>
割换	<b>cropped &amp; renewed</b>
部分割换	<b>partly cropped &amp; renewed</b>
焊接修理	<b>repaired by welding</b>
焊接	<b>welded</b>
堆焊	<b>built up by welding</b>
堆铜焊后磨光	<b>built up by brazing and then ground</b>
批清重焊	<b>chiseled out and re-welded</b>
就地红火校正	<b>heated &amp; faired in place</b>
红火校直	<b>heated &amp; straightened</b>
拆检	<b>overhauled</b> <b>serviced (如:气胀式救生筏)</b>
拆下	<b>removed (down)</b>
拆送车间修理	<b>removed to the workshop for repair</b>
装复	<b>refitted</b>
按原样装复	<b>refitted as original, newly fitted as original</b>
拆卸（某一另件）	<b>dismantled</b>

拆散（解体） **disassembled**  
装复 **re-assembled**

拆除（某一部件） **stripped**

钻止裂孔 **stop hole drilled**  
研磨 **(grind) ground**

拂磨 **fitted & ground**

拂刮 **fitted & scraped**

刮磨 **scraped & ground**

拂合（装配好） **made to fit**

捻缝 **caulked**

退火 **annealed**

淬火 **hardened**

热轧 **hot rolled**

正火 **normalized**

复补 **covered with a doubler, doubled**

贴补 **patched**

修补 **mended**

如：裂缝用环氧树脂修补

The crack was mended with epoxy resin.

抬升、举起 **lifted**

顶起（用千斤顶顶起） **jacked**

检查、核对 **checked**

如：校核气缸中心线。

The alignments of the cylinders were checked.

调整、校准 **adjusted**

如：压力调整

The pressure of each safety valve was re-adjusted.

校中 **aligned**

如：右轴系经校中，偏差 0.13m。

The std propulsion shafting has been aligned and found to be 0.13m in deflection.

校准 **calibrated**

如：自差校准

The deviation was calibrated.

镀 **plated**

在金属外包上另一种金属，包层 **clad, cladding**

除锈 **derusted**

喷沙除垢 **de-scale by sand blast**

拷铲出白 **chipped to bare metal**

(用油漆等) 重新涂、再涂 **re-coated**

消除油气 **gas freed**

驱气 **purging**

清舱 **stripping**

光车 **machined** (on lathe 车床加工)

精加工 **finished, finish machining**

削边 **edge cut**

匹配 **matched**

重浇白合金 **re-metalled** (重浇 (巴氏) 白合金 re-babbitted)

排放 **drained off**

抽空 **pumped out, emptied**

补充 **replenished**



免除修理

to be free from repair,  
to be exempted from repair

无修理价值

It is not worth repairing.

#### (四) 检查与试验

检查	inspected, examined, checked
一般检查、总体检查	subjected to a general inspection (examination)
一般状况检查	subjected to a general condition inspection
外观检查、目视检查	visual inspected (examined)
内部检查	internally inspected (examined)
外部检查	externally inspected (examined)
常规检查	subjected to a routine inspection
进一步检查	further inspected, thoroughly examined
X射线检查	X-ray inspected
超声波检查	subjected to ultrasonic detection
组织检查	subjected to structure examination
吊缸检查	(piston) drawn out for inspection.
用塞规检查	checked with feeler gauge
航行试验	subjected to sea trial
系泊试验	subjected to mooring trial
码头试验	subjected to dock trial
倾斜试验	inclining tested
操舵试验	steering tested
运转试验	running tested
併车试验、并联运行试验	parallel running tested
	running tested in paralleled condition
效用试验	operating tested
操纵试验	maneuvering tested
实效试验	practical tested
调速试验	governing tested
冲水试验	hose tested
水压试验	hydraulic tested (管子等); water head tested (货舱等)
水密试验	tested for watertightness, watertight tested
密性试验	tested for tightness
密封试验	leak(age) tested
浸水试验	flood(ing) tested
畅通试验	blown through tested
振动试验	vibration tested
结构试验	structural tested
机械试验	mechanical tested

性能试验	performance tested
拉力试验	tensile(tension)tested
破断试验	breaking tested
强度试验	strength tested
硬度试验	hardness tested
弯曲试验	bending tested
动力试验	dynamic tested
动平衡试验	dynamic balance tested
静态试验	static tested
压力试验	pressure tested
拉伸试验	pulling tested
疲劳试验	fatigue tested
膨胀试验	expansion tested
热试验	thermal tested
打冷试验	cooling down tested
冷却试验	cooling tested
煤油试验	kerosene tested
穿孔试验	drill tested
温升试验	temperature-rise tested
过电流试验	overcurrent tested
转矩试验	excess torque tested
短路试验	short-circuit tested
换向试验	commutation tested
耐压试验	high voltage tested
电压调整率试验	voltage regulation tested
举重试验	proof load tested
认可试验	approval tested
安装试验	tested for installation
超声波试验	supersonic tested
金相试验	metallographic tested
放射线照相试验	radiographic tested
测爆	gas free tested
着色探伤	examined by dye-penetration detection, subjected to dye penetrant examination
无损探伤	non-destructive tested
超声波探伤	ultrasonic detected
磁粉探伤	magnetic particle detected
水下探摸	underwater-detected
潜水员探摸	detected by diver
热处理	subjected to heat treatment
化学成分分析	subjected to chemical composition analysis
测厚	thickness-measured, gauged
测深	sounded
称重	weighed

用桥规测量了下沉量

The wear down of the crankshaft was measured with bridge gauge.

### 三. 短语与句子部分

#### (一) 短语

1. 悬挂...国旗的船舶  
the ship under the flag of (国名全称)  
the ship under the (国名形容词) flag
2. 从事国际(国内)航行的船舶  
the ship intended for (/engaged in) international (domestic) voyages
3. 从事预定用途的船舶  
the ship of the service for which it is intended
4. 航区受限制的船舶  
the ship whose navigation area is restricted
5. 入本社船级的船舶  
the ship classed with the Society
6. 新建船舶  
newbuilding ship
7. 机械自航货船  
mechanically self-propelled cargo ship  
非自航货船  
non-propulsion(/non-self-propelled/non-propelled) cargo ship
8. 艉机型的船舶  
ship having machinery aft
9. 投入营运  
be put in commission  
be put into service
10. 船舶在正浮位置时  
with the ship upright
11. 船舶在浮于水面的情况下  
when the ship being afloat

12. 船舶在吃水 12 米时  
when the ship being at the draft of 12m,
13. 在艉部吃水为 16 尺的情况下  
with a draft of 16 ft at the stern
14. 采取艏纵倾的状况下进行  
carried out by making her head heavy
15. 离 XX 东北约 11.5 海里处  
at about 11.5 nautical miles northeast off XX
16. 近海 200 海里内  
within 200 nautical miles off shore
17. 尾随（另一艘船舶）  
in the wake of another ship
18. 避风处  
at a place of refuge from wind
19. 下风、背风处  
at leeward
20. 公正检验（无偏见）  
a survey with prejudice
21. 公证检验  
a notarial survey
22. 全面检验  
an overall survey
23. 近观检验  
a close-up survey
24. 到期或六个月内即将到期的项目  
the items overdue or falling due within the next 6 months
25. 可在规定日期前后三个月内进行  
carried out within three months either way of the schedule date
26. 以循环检验方式进行特别检验

- the special survey carried out on continuous survey basis
27. 船级检验与法定检验结合进行  
the classification survey carried out in conjunction with statutory surveys
28. 修理检验与坞内检验同时进行  
the repair survey carried out concurrently with docking survey
29. 生效  
come into force  
enter into force  
be brought into force  
be put into effect
30. 依旧有效  
remain in force
31. 继续有效至  
remain to be valid until
32. 停止生效  
cease to be in force
33. 生效前  
prior to the entry into force
34. 到期日  
expiry date  
due date
35. 期满时  
at the expiration of the validity
36. 有效期不超过六个月  
with a validity not exceeding 6 months
37. 周年日  
anniversary date
38. 前一年度内  
during the previous calendar year
39. 每隔一年检验一次  
at every other annual survey

40. 定期  
at fixed period
41. 每周一次  
once every week
42. 每（三）年一次  
at intervals of (3) years,  
at 3-yearly intervals
43. 间隔期不超过一年  
at intervals not exceeding one year
44. 从星期一到星期五并包括星期一和星期五  
from Monday to Friday inclusive
45. 在整个航行时间内  
at all times during the voyage
46. 搁置期内  
during laying-up period
47. 退租还船时  
at the time of re-delivery
48. 累计运转时间约 20 小时后  
after an aggregate running time of about 20 hours
49. 应急时  
in case of emergency
50. 修理完工后  
on (after) the completion of repair
51. 保修期一年内  
in the period of one-year guarantee repair
52. 因航期限制  
owing to the limit of voyage schedule
53. 根据原定计划  
according to (the original) schedule

54. 经（非经）主管机关的许可  
with (without) the sanction of the Administration
55. 经（非经）本社验船师的同意  
with (without) the consent of the surveyor to this Society
56. 由船长自行决定  
at the discretion of the ship's Master
57. 经水下探摸  
upon underwater detecting
58. 不论任何吨位  
irrespective of tonnage
59. 不管尺寸大小  
regardless of size
60. 船舦 0.5L 范围内  
within 0.5L amidships
61. 约位于 0.8-0.9R 处  
At 0.8-0.9R approx..
62. 结构完好  
structurally sound
63. 正常维护  
properly maintained
64. 处于可使用状态  
in serviceable condition
65. 处于工作状态  
in good working (workable) condition
66. 处于正常状态  
in good working order
67. 处于良好状态  
in good condition
68. 处于有效状态  
in efficient condition

69. 无不正常现象  
without any abnormalities
70. 无堵塞  
free from obstruction
71. 无油气  
free from odour
72. 处于无人管理的状态  
in a state of neglect
73. 遇险  
in distress
74. 有（无）轻微过热现象。  
with (without) a phenomenon of having been slightly overheated.
75. 易产生高温  
likely to cause high temperature
76. 在没有任何干扰的情况下  
In the absence of interference of any kind
77. 发电机组在停止工作时  
in the event of generating set being stopped
78. 接近磨损极限  
come (approach) to the allowance of wear
79. 超过允许极限  
exceed the allowable limit
80. 尽可能地  
as far as possible,  
as far as practicable
81. 防止触电  
protect against electric shock  
防止工作人员灼伤  
protect the operators from being burnt
82. 把...与...连接 connect ... with ...

- 把...接入...上 connect ... to ...
83. 与...相通  
communicate with ...
84. 穿过...  
passing through...,  
penetrating through...
85. 与...在一个平面上  
in line with ...
86. 与...错开  
do not line up with...
87. 同时使用  
operated simultaneously
88. 与...一并使用  
be used in conjunction with...
89. 禁止使用明火  
Naked fire is forbidden ( prohibit...)
90. 便于携带  
readily portable
91. 易于到达  
easily accessible
92. 供随时随地取用  
be available and accessible at all times
93. 应保持其随时处于可用状态  
be kept at hand ready for use if required
94. 保持可用状态，并可随时使用  
be kept in working order and available for immediate use
95. 显而易见之处  
in a conspicuous place
96. 显而易见到的地方  
in a prominent and accessible place

97. 明显标示  
plainly indicated
98. 清晰标志  
clearly marked (labeled)
99. 代替...  
in lieu of ...
100. 与...有关连的  
associated with
101. 与...相邻的  
adjacent to
102. 在...附近  
in the vicinity of
103. 依此向下设置  
fitted serially downward
104. 从上（下）向下（上）数  
counted downward (upward) from the top (bottom)
105. 能（不能）二面操作  
capable (incapable) of being operated from both sides
106. 双推进器船与船身组成一起的舵柱  
the rudder post which is built integral with the hull of twin screw ship.
107. 无效  
without effect,  
without success
108. 徒劳  
in vain
109. 弄颠倒  
set upside down
110. 反穿  
wear inside out

111. 因缺乏经验  
for lack of experience
112. 质量不良  
inferior quality
113. 结构设计不合理  
unreasonable design of the construction
114. 船员疏忽  
crew's negligence
115. 操作不慎  
careless handling
116. 选择不当  
inadequate choice
117. 除另有明文规定外  
unless expressly provided otherwise
118. 除另有说明外  
unless otherwise stated  
except as otherwise stated
119. 除特殊情况外  
other than special cases
120. 在个别情况下  
in particular cases
121. 在个别特殊情况下  
in exceptional cases
122. 认为必要时  
as deemed necessary
123. 一般来说  
Generally speaking
124. 总而言之  
To sum up
125. 反之

vice versa

126. 暂时  
for the time being
127. 同时  
meanwhile (meantime)  
at the same time
128. 与...一样  
the same as...
129. 相当于...  
equivalent to ...
130. 以下简称  
hereinafter referred to as  
hereinafter called
131. 说明请见背页。  
For explanations, please look overleaf.
132. 请详见报告。  
For further particulars (/details), please refer to (/see) the report.
133. 仅供参考  
for reference only  
供检验时参考  
be taken for reference in surveys

## (二) 句子

### 1. 有关船舶以及证书报告等方面的叙述

134. 该轮是一艘具有艏楼、艙楼的干货船，船侧为横骨架式、甲板与船底为纵骨架式，二层甲板从第一货舱一直延伸到船尾。  
The ship is a dry cargo ship having forecastle and poop with side shell framed transversely, deck & bottom shell framed longitudinally and the tweendeck extending from the No.1 cargo hold to aft.
135. 该轮是一艘钢质焊接结构对开抛石船，具有纵中贯通舱壁，机舱和居住处所设在艙楼。  
The ship is a steel split stone dumper of welded construction having central longitudinal through bulkheads with machinery and accommodation spaces at

poop.

136. 艏楼和艮楼间有三个货舱，第二和第三货舱口间有一个六层甲板室。  
There are 3 cargo holds between the forecastle and the poop and 1 six-tiered deckhouse bet. the Nos.2 & 3 cargo hatches.
137. 该轮已配备 45 名船员，其中，甲板部 24 名，轮机部 21 名。  
The ship has been manned with 45 crew members, among which, 24 members for deck department and 21 members for machinery department.  
(为一艘船配备人员 to man a ship, 无人的 unmanned)
138. 该轮高级船员与普通船员齐全，共 43 人。  
The vessel has a full complement of officers and crew, 43 persons in total.  
(齐全 to have a full complement of, to be completely provided)
139. 从某年 12 月 10 日起，该轮船东取得了该轮的所有权，该轮国籍已改为中国，并已签发编号为 XXXXXX 的、有效期至某年 2 月 26 日的国籍证书。  
Since Dec. 10, (year), the ship's Owner has obtained the ownership of the ship, the ship's nationality has been changed to be China and the ship registered with Certificate of Nationality, No.XXXXXX, valid until Feb. 26, (year).
140. 该轮船长持有总吨位 1600 以上船舶的 A 类船长资格证书，该轮轮机长持有主机功率大于 2941kW (4000HP) 船舶的 A 类轮机长资格证书。  
The ship's Master holds a qualification certificate of Class A captain for ships of over gross tonnage 1600. The ship's Chief Engineer holds a qualification certificate of Class A chief engineer for ships with M.E. power of over 2941 kW (4000 HP).
141. 建议保持原船级  
It is recommended that the ship be maintained with the original class.
142. 建议在确认该轮无重大改建并经现场验船师检验合格的条件下可授予下列船级符号和附加标志。  
It is recommended that the following characters of classification and class notations be assigned provided that the ship is confirmed without major alteration and surveyed satisfactorily by the field surveyor.
143. 根据检验结果，同意该轮保持原授予的船级。  
With reference to the result of the present survey, the maintenance of the classification assigned to the said ship is granted.
144. 冷藏装置要保持本社的冷藏级应符合本社钢质海船入级与建造规范有关保持冷藏级的规定。  
In order to retain the class assigned by this Society, the refrigerated cargo

installation should comply with the provisions concerning the retention of class as specified in the Rules and Regulations for the Construction and Classification of Sea-going Steel Ships of this Society.

145. 该证书有效期展期三个月至某年 8 月 4 日  
The validity of this certificate is extended for three months until Aug. 4, (year).
146. 给该证书宽限期一个月至某年 10 月 8 日。  
This certificate is extended for a period of grace up to one month till Oct. 8, (year).
147. 本证书自某年 5 月 25 日起重新有效。  
This certificate has been revalidated since May 25, (year).
148. 下列署名的验船师建议签发为期五年的全期货船构造安全证书。  
The undersigned surveyor recommends that a full term Cargo Ship Safety Construction Certificate, valid for a period of five years, be issued.
149. 此记录应保存在船上，并于检验时提供给验船师使用。  
This record should be kept on board and be available for inspection by a surveyor.
150. 船上未见该报告。  
This report was not sighted on board.
151. 船级证书上作了相应的签署。  
The classification certificate was endorsed accordingly.  
The corresponding endorsement was made on the classification certificate.
152. 船东声明锅炉已停止使用，收回原轮机入级证书，锅炉内容取消，发临时轮机入级证书。  
As stated by the ship's Owner, the ship's boiler was already suspended from service. The original Classification Certificate for Machinery was withdrawn and the content of the boiler therein was cancelled and therefore a new interim Classification Certificate for Machinery was issued.
153. 如果变动压载，打开管道，阀件或者由于任何其他原因使可燃气体或易燃物质进入被测检的舱室时，本证书即行失效。  
This certificate would not remain valid, should the combustible gases or inflammable materials enter the tested spaces due to the change of ballast, opening of piping and valves or other causes.
154. 技术条件或已核定的拖航准备工作状况发生变化或更改，则本证书即失效。  
This certificate shall become invalid if any alteration or modification to

technical condition or preparation work for this towage occur without the sanction of the Society.

155. 本证书仅为本次拖航的认可而签发，有关各方的利益不受本证书的影响。  
This Certificate is issued only for the approval of this towage and on interest of any party concerned will be affected by it.
156. 本证书仅涉及上述拖轮和平台在本次远洋拖航中的适航性。  
This Certificate is related only to the seaworthiness of the above-mentioned tugboat and platform for this ocean towage.
157. 验船师检验合格后，船舶的技术状况必须保持上述交通部规定对其适用的要求。如果船舶的技术状况下降，不符合上述规定要求时，本报告所做的结论自动失效。  
Upon satisfactory survey, the technical conditions of the ship must be maintained to the applicable requirements of the a.m. Regulations promulgated by the Ministry of Communications of the People's Republic of China. Any changes in technical conditions of the ship that does not comply with the a.m. requirements will result in the cease in force of the present report.
158. 至今为止，尚未收到有关永久性修理帐单。如果收到此帐单，我们将以补充报告的方式对该帐单进行审核和评价。  
Up to date, no accounts of permanent repairs have been received yet. If and when such accounts are available, we will comment in the form of an Addendum to this report.
159. 本报告所作结论适用于该轮多航次/单航次装运上述危险货物。  
The conclusion given in this report is applicable to the said ship carrying goods listed above for multi/single voyages.
160. 本报告写作严谨，对本人及相关人士均不会带来任何法律上的约束和/或其它义务的承担。  
The report has strictly been made with any legal binding and/or other commitments, neither to whom it may concern nor to myself.
161. 本报告之完成已竭尽本人最大才干、技能和知识。  
The report has been made to the best of my ability, technical skill and knowledge.
162. 英译本无照片  
Photos are omitted from the English version.
163. 如有疑义，以中文本为准。  
In case of divergence, the Chinese text shall be regarded as authentic.

164. 如对本社规范的英文版有不同理解时，应以中文版为准。  
If there is divergent interpretation between the English version and Chinese one of the Rules, the Chinese version is to be considered as authoritative.
165. 如本社颁布的导则和须知与规范要求不一致，应以规范要求为准。  
Where there is disagreement of the guidelines and instructions by the Society with the Rules, the requirements in the Rules are to prevail.
166. 非经总部批准，不得更改。  
No alterations should be made without the sanction of the Head Office.
167. 本规则未涉及的入级事项，由本社另行决定。  
Any matters in connection with classification not covered by these regulations are to be decided by this Society in each separate case.

## 2. 有关各种原因、目的和条件等的叙述

168. 该吊杆的损坏是由于该轮船员在将吊杆放低时因操作不慎而造成千斤索越过棘轮，缠绕在千斤索绞车卷筒轴上。接着，千斤索被棘轮爪切断，吊杆失控跌落并撞上舷墙顶部，致使吊杆严重弯曲，装卸工受伤。  
The damage of the derrick was **due to** the careless handling of the ship's crew in lowering the derrick, causing the topper to override the ratchet wheel and foul onto the topping winch drum shaft. Consequently, the topper was cut broken by the pawl of the ratchet wheel and the derrick fell freely and struck onto the bulwark top, resulting into serious bending of derrick and also wounding of stevedores.
169. 该 38 级右舷铝质舷梯发生松脱跌落的原因是由于上转动平台的形槽角铁存在缺陷，在稍受外力的影响下造成转动平台从固定平台处脱开而跌落。  
The dropping-down of the said 38-step std side aluminum accommodation ladder was **due to** the defects of the type slot lugs on the turning platform, causing the said upper turning platform departed from the fixed platform under the minor influence of the external force.
170. 上述电动机的烧毁原因主要是由于电动机的制造质量较差，在开关冲击时引起的瞬变过电压，使低速定子绕组引出线连接处的绝缘击穿，造成绕组短路而烧毁。  
The burning out of the above-mentioned electric motor was **mainly due to** inferior quality in manufacturing. An instantaneous over-voltage produced by the impact of switching broke down the insulation in way of the connection of the outlet load of the low speed static winding and in consequence, the said winding was short-circuited and burnt.

171. 主机发生故障的主要原因是飞车。  
The cause of the main engine trouble was **mainly due to** overspeeding
172. 该缸套的损坏主要是由于该缸套较长时间处于排气温度较高工况下工作，热应力较高。  
The damage to the cylinder liner was **most possibly due to** the excess thermal stress resulting from higher gas temperature for a long period of working.
173. 船壳板破裂的原因是由于该轮在装货过程中停靠在轮左舷舷旁的装有原木的驳船，由于坏天气，发生碰撞所致。  
The ship's shell plating was broken during loading in bad weather **due to** the collision with the large steel barges, laden with logs, staying alongside the port side of the ship.
174. 在上海港卸货作业中，因岸上装卸工的野蛮操作造成第一甲板起重机的损坏。  
During the discharging work in Shanghai Harbor, No.1 deck crane was damaged **due to** rough handling of shore stevedores.
175. 因滑轮与外壳间隙太大，使用时钢索经常夹在里面。  
The steel wire rope was liable to be caught **due to** excessive play between the sheave and the cheeks.
176. 由于主润滑油泵出口至各分路管上没有调节阀各分路润滑油压力不能调节。  
L.O. pressure in branch pipes is incapable of being regulated **due to** no regulating valves being installed in branch pipes from the output side of main L.O. pump.
177. 因时间急促，船壳板撕裂处建议作临时性修理  
**Due to** the ship's urgent schedule, it is recommended that the torn part of the shell plating be temporarily repaired.
178. 因长期缺乏润滑终致彻底毁坏。  
**Due to** the lack of greasing prolonged for a long period it culminated in complete breakdown.
179. 该轮锚泊于吴淞锚地时，“XXXX”轮移动锚位，因风浪影响与该轮左舷碰撞，造成损坏。  
While shifting anchor position at Wusong Anchorage, the M.V. “XXXX” collided with the ship's port side **owing to** wind and current and thus the said ship was sustained damage.
180. 该轮满载靠泊朝鲜釜山和台湾基隆期间因低潮时吃水不够造成多次搁浅。  
The ship grounded several times during berthed alongside wharf in Pusan, Korea

and Keelung, Taiwan in full load condition **owing to** not enough draft when low tide.

181. 该三驳并靠于上海港#71-#72 浮筒期间，由于系泊在#70-#71 浮筒间的巴拿马籍“XXXX”轮解缆开航时用车不当，引起三驳波动。

While mooring abreast at the buoys Nos.71-72, the said three barges heaved and dipped **owing to** the improper operation of the propeller of the Panamanian vessel “XXXX”, which moored at the buoys Nos.70-71, at the time of her departure.

182. 在引水员的指挥下和拖轮的帮助下“KIN WAI”轮前来靠泊该轮左舷进行驳货时，由于其驾驶台右下部的挤压，使该轮左舷舷梯受到严重损坏。

The port side accommodation ladder got seriously damaged **owing to** the pressing by the std lower part of the navigation bridge of the M.V. “KIN WAI” which was going to moor alongside the ship’s port side for lightening cargo under the direction of the pilot and with the assistance of tugs.

183. 锚链轮刹车并开始绞缆，在绞缆过程中，刹车装置突然失控，锚链急速滑出。由于滑出速度太快，止链器也失控。

The wildcat was braked at 1846 hrs and the bow mooring rope began to be heaved in. During heaving, the brake device was suddenly out of order so that the cable chains speedily slipped out. **Owing to** rapid slipping of the cable chains, the chain stopper was out of efficiency.

184. 由于冷却水控制不当，水泡极易产生，造成汽缸外表面间断冷却，同时内表面加热，最终导致金属疏松。

**Owing to** improper control of cooling water, bubble easily occurred at the outer surfaces of the cylinders and thus the outer surfaces of the cylinders were interruptedly cooled and meanwhile the inner surfaces were heated and consequently the surface of metal was caused porous.

185. 舵扇舵角指示器的损坏和舵杆的严重扭曲是当该轮在拖轮的帮助下离开上海港时，由于主机倒车时向右操舵舵角过大，舵板受到来自该轮倒车及其系于该轮艏部的拖轮的螺旋桨所产生的水流压力，这种联合水流的扭矩大于舵杆的抗扭强度，致使舵杆扭曲。

The damages to the rudder quadrant deck stops and the serious twist of the rudder stock were sustained **owing to the fact that** when the said ship leaving Shanghai Harbor with the help of the tugboat, the rudder was put over to std at a considerably large helm angle while the main engine was running astern, the rudder plate was then subject to a combined pressure coming from the suction current of the tugboat tied on her stern, the torsion moment resulting from the combined current was greater than the torsion strength of the rudder stock, thus caused the rudder stock to twist.

186. 该轮螺旋桨损坏的主要原因是由于在螺旋桨叶片根部区域内部潜在着疏松和缩孔等缺陷，在螺旋桨工作时，由于应力内部缺陷附近应力的过度集中，且该螺旋桨使用日久而过度疲劳，造成断落。

The cause of damage of the propeller of the M.V. “XXXX” was sustained **mainly owing to that** there were the latent defects of slag cavities and shrinkage holes within the area of blade root, causing the stress over-concentrated near the defects while the propeller working, thus, after being used for a long time, the propeller was broken by overfatigue.

187. 众所周知，螺旋桨叶片根部是受力最大的区域。然而，在第一个叶片根部约 0.2R 处内部存在着 7 处以上疏松和 2 处缩孔，在工作中，应力必然集中在缺陷的附近，而且，在工作到一段时间后，叶片根部由于应力集中加剧，断落是很难避免的。

Generally, the propeller blade root is the part that can bear the greatest force. But **owing to that** there were more than 7 slag cavities and 2 shrinkage holes inside No.1 blade root at 0.2R, causing the stress concentrated near the defects of the blade root while the propeller working, it was unavoidable that the blade root was broken as a result of the intensifying of the stress concentration after the propeller working for a period of time.

188. 由于该驳沉没在主航道中，为了确保航道安全，自某年 12 月 6 日起上海向上海申请进行打捞。直至 12 月 7 日下午，该沉驳被打捞出水。

**Owing to that** the said barge sank in main waterway, in order to ensure the safety of the waterway, Shanghai Maritime Safety Administration requested Shanghai Salvage Company for salvaging from Dec. 6, (year). Until the afternoon of Dec. 7, the sunken barge was salvaged out of water.

189. 鉴于 No.1 起货马达刹车片固定件根部断裂面不规则但刹车片接触面较为完好，固定件根部断裂可能是由于起货机在作业过程中起货马达过载而引起。

The broken sections of the bolts on the brake disk of the No.1 crane electrical hoisting motor appeared irregular but the contact surface of the brake disk was comparatively sound. So, the breaking of the bolts could be sustained probably **owing to that** the electrical motor of the cargo winch was overloaded during discharging.

190. 由于明火不能进行，采用了临时性修理。

**Owing to that** the naked fire operation was impossible to be taken, temporary repair was adopted at present. 下列签署的验船师认为上述损坏可合理地归咎于“XXXX”轮船长所述的原因。

191. The undersigned surveyor considers that the above-mentioned damage **could reasonably be attributed to** the cause as alleged by the Master of the M.V. “XXXX”.

192. 上述损坏可合理地归咎于触礁搁浅所引起的。

The cause of the above-mentioned damage found **could reasonably be attributed to** striking rocks and stranding.

193. 本验船师认为，由于右燃油日用油柜的空气管在第四货舱二层舱顶有烂洞，航行中加热的燃油舱的油气会通过空气管的烂洞进入第四货舱二层舱内，可能造成该处装载的大米有油味。

The undersigned surveyor considers that the damage of the rice stowed in the No.4 cargo hold **could be reasonably attributed to** contamination by the oil vapour escaping from the holed air pipe of the std F.O. daily service tank heated during voyage.

194. 从损坏的情况来看，下列署名的验船师认为该机损坏的原因可能是由于第2道主轴承的支撑螺栓断裂。主轴颈偏离而产生巨大弯曲应力，使曲轴在第2缸首侧曲臂中部断掉。使第1缸和第2缸的曲柄肖和轴承脱离运转轨道而与机体相碰。在很短时间内，使机体打破，连杆弯曲，活塞和缸套下部打坏，并造成机带空气压缩机损坏。

With reference to the damage condition, the undersigned considers that the damage to the said engine **could reasonably be attributed to** the breaking of the supporting bolts of the No.2 main bearing. The deflection of main journals from axis line and great bending stress occurred so that the crankshaft was caused broken at the middle of the crank web in way of No.2 cylinder. In consequence, the crank pins and bearings of the No.1 & No.2 cylinders departed from the running orbit and contacted with the engine body. And in very short time, the engine body was broken, connecting rod were bent, pistons and lower parts of cylinder liners damaged, and air compressor driven by the said engine damaged as well.

195. 汽缸套内表面金属疏松因冷却水不能控制而引起。

The material porosity in the inner surfaces of cylinder liners is generally **attributed to** cylinder liner cooling water not being well controlled.

196. 很可能尾轴管的注油阀在前个航次匆忙进行开航准备时由于疏忽没有打开以致尾轴管的供油停止，而尾轴继续运转，尾轴轴承和油封装置的橡皮垫圈磨损，造成橡皮垫圈不能密封，滑油漏进海里，海水进入尾轴管内。以致尾轴的润滑状况更加恶化。

**It was very probable that** the feed oil valve of the stern tube was not opened due to negligence for a certain period of time in hurried preparation for sailing in the last voyage so that the oil supply to the stern tube was stopped. However, the tail shaft was running continuously, the tail shaft bearing and the rubber rings of oil glands were worn and in consequence, the rubber rings could not seal, the lubricating oil could leak into sea and water could enter the stern tube. Thus, the lubricating condition of the tail shaft was worsened.

197. 这就是尾轴轴承等更加严重磨损，其上面的白合金熔化和严重拉痕的原因。  
This was **why** the tail shaft bearing, etc. worn more seriously and the white metal thereon melted and badly scored.
198. 由于近日来连续高温和阵雨的影响，使断裂面的锈蚀加剧。  
**Under the influence of** continuous high temperature and shower in the recent days, the broken section was acceleratively rusted.
199. 上述缺陷系制造缺陷，严重影响主机的使用。  
The above-mentioned defects were **those** occurred in manufacturing and will badly affect the service of the main engine.
200. 船厂所述的损坏原因是可以接受并符合逻辑的。  
The cause of damage as stated by the shipyard is acceptable and logical.
201. 燃油舱前舱壁的折裂是在某年7月遇到的恶劣天气中产生的。  
Regarding the fractures on the forward bulkhead of the fuel oil tanks, they were created during heavy weather encountered in July (year).
202. 上述第4项损坏产生的原因是由于吊杆本身的质量问题，而不是船员操作不当所引起的。  
The damage as shown in the above-mentioned item No.4 was sustained owing to the inferior quality of the said derrick, and was **not in connection with** the improper operation of the ship's crew.
203. 油封装置拆下检查后，发现该装置渗漏与破鱼网的缠绕无关。  
Upon the oil glands being removed for inspection, it was found that the oil gland leakage was **not in connection with** fouling with broken fishing net.
204. 天气似乎不是造成碰撞的因素  
Weather did not appear to be a factor in the collision.
205. 因人孔盖的垫片失效，螺帽拧得过紧造成上述损坏。  
The damages were **caused by** the failure of manhole door liner and excessive torque applied on nuts.
206. 经检查，吊臂的皱折和折裂部分没有任何因外来碰撞或不正常搁置而引起损坏的迹象。  
Upon examination, the buckled and fractured part of the jib was found without any sign indicating damage **caused by** outside contact or abnormal lay-aside.
207. 据该轮船长告称上述损坏是在上海港卸货时由装卸工造成的。但下列署名的验船师认为尽管使用抓斗卸货但第四项中所述的损坏不是抓斗引起的。因为如果有共识的话，任何抓斗的轮廓和重量都不可能引起这样的事故发生。

The ship's Master alleged that the above-mentioned damages were **caused by** the stevedore during discharge in Shanghai Harbor, but the undersigned surveyor deemed that the damage as shown in the No.4 item was not caused by grab nevertheless grabs were used for discharging **because** the contour and weight of any grab could not caused such an incident if considered with common sense.

208. 由于受潮汐的影响，每日可供施工的时间受限，施工周期为此延长。  
The repair duration could be prolonged **because** daily repair time is limited by tide.
209. 三台发电机组的手动滑油泵因装置不当，无法使用  
Lubricating oil manual pumps for three generating sets were unfit for use **because of** improper arrangement.
210. 主机透平增压器的润滑油过滤器祇有一只单联滤器，航行时不能清洗  
L.O. filter for main engine turbo-superchargers was incapable of being cleaned during navigation **because** only one set was fitted.
211. 由于主机发生故障，该轮由“海港 2 号”和“海港 15 号”在左舷，“宝钢拖三号”和“海港 7 号”在右舷拖带进黄浦江。  
**Because** the main engine of the M.V. “XXXX” being out of order, the said ship was towed by the motor tugs “HAI GANG 2” & “HAI GANG 15” at her port side and “BAO GANG TUO SAN” & “HAI GANG 7” at her std side into Shanghai harbor
212. 为了保护该轮及其所载货物，该轮必须偏离规定的航向，有时必须减慢航速。  
**In order to** protect the ship and her cargo, the ship had to deviate from the prescribed course and sometimes the ship's speed had to slow down.
213. 为了加快冷却，结构设计成促使冷却水加速流动。  
**In order to** accelerate cooling in upper chamber, the construction was designed to promote cooling water in the upper chamber to accelerate running.
214. 当该轮系泊在黄浦江第 6-7 号浮筒间的系船索断裂后为了控制漂流在 4 艘航标船靠泊的码头附近操纵时，在某年 8 月 15 日 0020 时，该轮螺旋桨激起的强大水流使得航标船互相碰撞，以致造成损坏。  
While the said ship being maneuvered in the vicinity of the wharf where 4 beacon service ships were berthing alongside **in order to** control drifting after the breaking of her mooring ropes bet. Nos.6-7 buoys in Huangpu River at 0020 hrs on Aug. 15, (year), her propeller stirred strong current to make the said beacon service ships collide with each other, and thus damage was sustained.
215. 为了避让，该轮悬挂着的右锚钩住了靠泊在高阳路码头的巴拿马籍“XXX”

轮已抛下的左锚链。

**In order to** avoid colliding with the barges, the ship's originally suspended std anchor caught the underwater port chain cables of Panamanian vessel "XXXX" which was lying at Gaoyanglu Wharf.

216. 为了防止船舶漂流和触礁，船长命令抛右锚。

**In order to** prevent the ship from drifting and striking rocks, the Master ordered to drop the std anchor.

217. 为机舱设备拆修需要，在第 2、3、3、4 间的横舱壁上临时性开孔。

**For the purpose of** transferring machinery equipment from the engine room, access openings were temporarily cut in the transverse bulkheads bet. 2 & 3 and 3 & 4 cargo holds.

218. 同意该轮增加吃水进行大型起重机装卸作业或内河，湖泊或无风浪的平静区域内短距离航行。

It is granted that the draft of the said ship can be increased to 12m **for the purpose of** loading & discharging giant cranes or sailing for short voyages in inland water, lakes or calm water area.

219. 该轮特地从长江口返回上海港是为了对主机第 2 号增压器进行修理，修妥后，该轮继续从上海开往湛江。

The ship returned to Shanghai Harbor from Changjiangkou **for the special purpose of** repairing the M.E. No.2 supercharger, and after it being repaired, the ship sailed continuously from Shanghai to Zhanjiang.

220. 为临时搭载接船人员，现已增加气胀式救生筏 3 只，每只能载 10 人和救生衣 20 件。

**For the sake of** receiving members for taking over ship temporarily, the said ship is provided with 1 inflatable liferafts capable of accommodating 10 persons each and 20 lifejackets in addition.

221. 本咨询验船师在查阅了船上自接船以来 4 个航次配载资料及有关的操作手册及装载手册后，未发现船员有未按操作手册与装载手册进行操作和装载的现象，因此认为上述第 1 项损坏产生的原因是舱盖本身的质量问题所引起的。

Upon examining the information on stowage for the ship's 4 voyages since delivery and the relevant operating booklet & loading manual on board the ship, it wasn't found that the crew had undertaken operating and loading **other than according to** the operating booklet and loading manual. Hence, the undersigned considers that the damage in the above-mentioned item No.1 could be reasonably attributed to the manufacturing quality of the hatch cover.

222. 该吊杆分别在安全工作负荷为 5 吨和 3 吨作了单杆和联合操作，并根据上

述安全工作负荷进行了负荷试验，情况正常。

The derricks were operated with safety working loads of 5 tons and 3 tons for single derrick and in union purchase respectively and proof load tested **according to the above-mentioned safety working loads to satisfaction.**

(在单杆和联合使用情况下 in single and parallel working condition)

223. 根据 IMO 决议的规定，该轮海上移动业务的识别符号须尽快输入卫星应急无线电示位表。

**In accordance with** the IMO resolution, the identification code No. (MMID) of maritime mobile service of the said ship is to be put into the satellite EPIRB as soon as possible.

224. 按照上海港惯例，毫无疑义，有关非中国籍的船舶的检验事宜应由船长或船东申请上海外轮代理公司办理。

**According to** the usual practice in Shanghai Harbor, it is understood that the matter relevant to the ship survey for non-Chinese vessels within the port should be arranged by Shanghai Ocean Shipping Agency at the request of the ship's Master or Owner.

225. 根据当地市场现在行情，该废旧船舶的价值估计为

**According to** the local current prevailing market, the scrap price of this ship is estimated to be

226. 当船舶不按上述的要求进行装载时，必须向主管当局提交必要的计算，以证明其所提出的装载条件的正确性。主管当局有权以书面允准上述装载条件。

Where it is required to load the ship **other than in accordance with** the above instruction then the necessary calculations to justify the proposed loading conditions should be communicated to the certificate administration who may authorize in writing the adoption of the proposed loading condition.

227. 如该轮完整稳性资料未经船旗国主管机关认可，应提交该轮线型图以便有关方根据 IMO 的有关标准对该轮稳性进行查核。

The ship's Lines intact should be submitted if the stability information hasn't been approved by the Administration of the state whose flag the ship is entitled to fly so that the party concerned can check the stability **in accordance with** the relevant standard of IMO.

228. 该轮应在某年 10 月 8 日前根据 MSC. 47 (66) 中的规定适当配备一个或一个以上能够从任一船侧下水并能载乘船上全部定员的救生筏或已经认可的等效物。

One or more liferafts capable of being launched on either side of the ship and of accommodating the total number of persons on board or approved equivalents shall be properly fitted on board the ship by Oct. 8, (year) **in accordance with** MSC. 47(66).

229. 该轮在平静水域作业或航行时的总纵强度和局部强度符合中国船级社颁布的钢质海船入级与建造规范的有关要求。

The longitudinal strength and local strength of the ship while loading & discharging or sailing within calm water area were found to **be in compliance with** the relevant requirements of the “Rules and Regulations for the Construction and Classification of Sea-going Steel Ships” promulgated by the China Classification Society.

230. 艉部上甲板第一层甲板室应上船查核其开口，门窗等是否符合按载重线公约(1966)“位置 1”要求。

The openings, doors, windows, etc. of the 1<sup>st</sup>-tier deckhouse on the aft upper deck should be checked on board whether to **comply with** the requirement on “Position 1” in the “International Convention on Load Lines, 1966” or not.

231. 上述舱室处所内可燃气体已清除，可以按表列结果指明的工况进行工作。

The above-mentioned compartments or spaces therein have been free from combustible gas and the type of work may be carried out **as per** indication in the table.

232. 鉴于上述陈述及其事实，认为船底的损坏可能是由于几次搁浅引起的，并非出于一次偶尔事故。

**Based on** the above-mentioned statement and fact, it is considered the damage found on the bottom may be caused by grounding in several times, and not caused by one accident.

233. 根据上述情况，导致该轮主机右 No.4 缸曲柄肖及轴承于某年 12 月 16 日被烧坏有可能是在某年 8 月 6 日在朝鲜釜山进行修理时，没有对不平行度进行测量所致。下列署名的验船师认为曲柄肖不平行度超过允许值时会导致曲柄肖和轴承烧坏。

**On the basis of** the above-mentioned condition, the std No.4 cylinder crank pin and bearing were burnt on Dec. 16, (year) probably due to their non-parallelism not being measured when being repaired on Aug. 6, (year) in Pusan, Korea. The undersigned did deem that if the non-parallelism of the crank pin exceeds permissible limitation, crank pin and bearing were caused burnt.

234. 鉴于上述情况，尽管船员采取了一切良好的航海技术措施，该轮或该轮的属具，或船上货物，或一些财产仍有可能因为恶劣的天气条件、内部表面受潮、船舶的潜在缺陷等原因造成损失或损坏。

**In view of** the above, notwithstanding all measures of good seamanship were taken by the ship’s crew, some loss or damage might be caused to the ship or the ship’s appurtenances, or cargo, or some property on board by reasons of bad weather conditions, wetting inside surfaces, ship’s latent defects.

235. 因左舷船壳板在 No.1 和 No.2 货舱处大面积烂穿，为了对损坏的程度和范

围作进一步的检查并为该轮的永久性修理做好准备，该轮应首次进坞排除积水，并用复板进行临时性修理。

**Since** the std side shell plating in way of No.1 & No.2 holds was holed at large scale, the ship should be firstly docked for draining accumulated water therein and temporarily repaired by covering with doublers for further inspecting the nature and extent of damage and for preparation of permanent repair.

236. 当下列署名的验船师赶到“XXXX”停泊地，被告知该轮正移泊至 Nos.1-2 浮筒间，因此那天他不能登该轮进行检验对该轮所遭受的损坏做出调查。

When the undersigned surveyor got to the berthage of the M.V. “XXXX”, he was informed that the ship was shifting to berth bet. buoys Nos.1-2 **so that** he could not attend on board the ship for carrying out a survey to investigate the condition of damage sustained on the ship on that day.

237. 阀杆严重结碳、潤滑欠佳以致使阀体龟裂。

The valve spindles were seriously deposited with carbon and badly lubricated **so that** the valve spindles chafed the valve bodies.

238. 连杆小端轴承换新及膛孔，使小端轴承与大端轴承中心线平行。

The connecting rod top end bearing bush should be renewed and bored **so that** the centerline of the top end bearing parallel to that of the bottom end bearing.

239. 后桅高，可以用来避雷。

The after mast had **such** a sufficient height **that** it could be used as a protection against lightning.

240. 第二、第四片叶片导边，都有些小缺口。这些小缺口是由于螺旋桨碰到小障碍物所造成的，即使如此，由于这些小缺口对该螺旋桨来说是轻微的损伤，也就是说，螺旋桨所碰到的小障碍物是不足以造成叶片断落的。

No.2 & No.4 propeller blades were found several slightly notched in way of their leading edges. The notches sustained due to touching small obstacles were **such** a slight damage for the propeller **that** the breaking of the propeller blade couldn't be caused by the small obstacles.

241. 当该平台的运动接近临界曲线的界限时，必须改变速度和航向或采取其它有效措施来保持该平台的安全。

Should the motion of the platform approach the limit of the critical curve, the speed and course are to be altered or other effective measures taken **so as to** remain the safety of the platform.

242. 锚链受力的部分应作拉力试验。

The lengths of chain cables, **which** had been exerted the unexpected pulling force, should be tensile-tested.

243. 起吊的货物重量约为 2.2 吨，未超过其允许的安全工作负荷量  
The weight of the sling was about 2.2 tons, **which** did not exceed the allowable S.W.L. of the derrick.
244. 碱性蓄电池组缺少一节需在最近期予以配齐。  
The alkaline battery, **which** was short of one unit, should be completely provided.
245. 断裂面的金属表面发现有不同程度的锈蚀，其中，有的光洁如新，有的看上去锈蚀已久。  
The metallic surface of the broken section was found rusted in various degrees, **among which**, some looked as bright as new and some seemed to be rusted for a long time. 0.5m & 0.3m in length respectively.
246. 左舷#171-#164 肋骨在主甲板与第一平台甲板间严重弯曲，其中#169 及#170 肋骨在与外板连接处裂开长约各一米。  
Nos.171-164 port frames, **among which** the Nos.170 & 169 cracked at the connection with the shell plating about 1m in length, seriously bent between the main deck and No.1 platform.
247. 设置在舷梯上转动平台与固定平台相连接处的防止脱落的四块形槽角铁，其中两块是铝合金的情况正常，另两块是铁质的，由于严重腐蚀厚度仅只 3-4 毫米，且其中一块在边缘处已卷曲，故转动平台已不能可靠地安置在固定平台上。  
4 pcs of type slot lugs for protecting the accommodation ladder upper turning platform from being disconnected with the fixed platform were fitted at the joint place of the said two platforms, **among which**, 2 pcs, made of aluminum alloy, were found normal and another 2 pcs, made of iron, were corroded seriously and were only 3-4mm in thickness each, and one of them warped at its edge, thus, the turning platform could not be installed properly on the fixed platform.
248. 360-370 呎间的“米”字型混凝土结构支撑部分断裂及毁损，其中水平撑及上面斜支撑毁损的长度分别为 0.5 米和 0.3 米长。  
The concrete braces of 米 type structure at wharf mark 360'-370', **of which**, a horizontal brace and an upper slant brace partly fractured and destroyed about
249. 锚柄和锚冠卡住处，将锚冠上的锚杆孔边缘割去一小部分，面积约 250mmx80mm。  
The shank housing of the anchor crown should be cut off at its edge, **where** the anchor shank was seized, about 250mmx80mm in area.
250. 鱼肉冷藏间 F-12 进出管在通过蔬菜间一段均无绝缘材料敷设。  
The insulation lagging was omitted from the F-12 inlet and outlet pipes for fish and meat refrigerating room, **where** passing through the vegetable room.

### 3. 有关船舶及船、机、电等状况的叙述

251. 在航行中，该轮经过了不同的气候地带。空气和水的温度变化相当大。空气温度分别从摄氏+03 到+32 水温分别从摄氏 +05 到+30。  
During the voyage, the ship passed different climate zones. Air and water temperatures were changed considerably: air temperature from +03 to +32 and water temperature from +05 to +30 degrees Centigrade respectively.
252. 该轮发出一声中长汽笛声。  
The ship sounded a prolonged blast on the siren.
253. 航行中，每天消耗燃油 18-20 吨，柴油 1.5 吨，淡水 10 吨。  
While sailing, the daily consumption of fuel oil, diesel oil and fresh water is 18-20, 1.5 and 10 tons respectively.
254. 该轮从某年 12 月 21 日 2230 时至 12 月 22 日 0200 时在新加坡加了 410.150 公吨柴油和 69.978 公吨燃油。  
The ship was bunkered with fuel oil of 410.150 M/T and diesel oil of 69.978 M/T in Singapore from 2230 hrs on Dec. 21 to 0200 hrs on Dec. 22, (year).
255. 该港内油驳将 150 公吨燃油供给第一油舱，将 260 公吨燃油供给第二油舱。该轮开航后，第二油舱中的 70 公吨燃油被驳入第一油舱直至其装满，第二油舱中剩下的燃油被驳到位于肋位 36-44 间的左、右翼舱内。加油后，各翼舱的总燃油量约为 150 公吨。  
The oil lighter delivered fuel oil of 150 M/T into No.1 tank and 260 M/T into No.2 tank. After the ship sailing, the fuel oil in No.2 tank was transferred about 70 M/T into No.1 tank until full. The remaining quantity of fuel oil in No.2 tank was transferred into the port & std wing tanks located bet. Fr. Nos.36-44. The total quantity of fuel oil in each wing tank after being fed was about 150 M/T.
256. 位于肋位 27-37 间的燃油沉淀柜剩有原残燃油。  
The fuel oil settling tank located bet. Fr. Nos.27-37 remained with originally residual fuel oil.
257. 日用柜内的油为原残燃油和在新加坡加的燃油的混合物。  
The oil in the service tanks was the mixture of the original residual fuel oil with the fuel oil bunkered in Singapore.
258. 正前方 0.5' 远处有二艘渔船正在航行，轮机长赶紧跑进驾驶室，将操纵盘拨至右满舵。  
There were 2 fishing boats sailing at about 0.5' dead ahead so the Chief Officer rushed into the wheelhouse and put the wheel hard over to starboard.

259. 艏柱与渔船右舷的角度估计为 60 度。  
The angle subtended between the ship's plate stem and the std side of fishing boat was estimated to be about 60°.
260. 该轮因船首和机舱进水不能自航。  
The said ship was unable to sail by her own power with her bow and engine room flooded.
261. 船尾线型突变  
The lines of the ship's aft part changed sharply
262. 首柱中心线右偏约 400 毫米  
The axis of stem plate inclined to std about 400mm.
263. 甲板上浪严重  
Waves swept over the deck. (上浪、卷到甲板上的海浪、使甲板面积水的巨浪 green sea, ship green seas)
264. 0111 时整，在该轮上层建筑区域左后侧听见金属物体撞击声。  
At exactly 0111 hrs a stroke of metal object was heard on the port side aft within the superstructure area.
265. 第二天的 1430 时，该轮另外加缚了二只同样容量的浮箱被“DE YI”和“DE PING”拖轮拖航至外高桥。此时，该轮向左倾斜 7.5 度。  
At 1430 hrs on the following day, the ship additionally bound with two buoyant tanks with same capacity was towed by the tugs “DE YI” & “DE PING” of 4411 kW to the Waigaoqiao Wharf and at that time the ship listed towards port side about 7.5o.
266. 某年 4 月 27 日 0340 时，“XXXX”轮系泊于黄浦江 33#-34#浮筒时艏缆松脱，因潮流影响船舶右转，并带动系泊在该轮右舷过驳作业的“XX”货驳一起右转，与系泊于 34#-35#浮筒的“XXX”轮发生碰撞。  
While the M.V. “XXXX” was moored bet. Nos.33-34 buoys of Huangpu River, the ship's forward mooring ropes were slacked at 0340 hrs on April 27, (year). Thus, owing to tide current, the ship swung to std together with the barge “XX” which was staying alongside her std side for the purpose of transferring cargo from her, and collided with the M.V. “XXX” which was mooring bet. Nos.34-35 buoys.
267. 该轮锚泊在长江口锚地时着火。尽管对该轮进行迅速抢救，但是徒劳，火势蔓延全船，使该轮船体、轮机、设备以及货物遭到严重损害。  
The said ship was on fire while anchoring at the Anchorage of Changjiang River Estuary. Although first aid was quickly rendered to the ship, it was in vain and the fire spread all over the ship, therefore, serious damages were sustained to the

said ship's hull, machinery, equipment, cargo, etc

268. 主甲板从第 5 货舱到船首部分全部浸没在水中，船舶向左倾斜 16 度。  
The main deck from No.5 cargo hold to the bow all submerged in water and the ship listed to the port side at an angle of more than 16°.

269. 因该驳不能重浮，故一直由浮吊将其吊着，其下部沉在水中。该驳于十月十日移至 WUJIN 码头，用 4 只救助浮筒支撑住。现该驳半沉地搁在 WUJIN 码头的浅滩上。

The said barge failed to refloat so she was being hung with the floating crane all the time with her lower part submerging in water. On Dec. 10, the barge was removed to Wujin Wharf and was supported with 4 salvaging buoys. At present, the said barge was laid on the shallows of Wujin Wharf and semi-submerging.

270. 该轮在航行中，于某年 4 月 28 日 0418 时在北纬 30°26' 东经 123°15'15" 与“XXXX”轮发生碰撞，致使该轮右舷第一和第二货舱处的舷墙、甲板板和船壳板严重损坏洞穿，水大量进入第一和第二货舱，造成该轮向左 20 度倾斜，艏楼因该轮首倾而浸没在水中。同日 0520 时，该轮船长宣布弃船。船员全部乘救生艇离开。

During the voyage, at 0418 hrs on April 28, (year), the ship collided with the M.V. "XXXX" at the position 30°26' N 123°15'15" E, thus her std side bulwark, deck plating and shell plating in way of Nos.1 & 2 holds were seriously damaged and holed, hence large quantities of water flooded the Nos.1 & 2 holds, causing the ship listed towards port side about 20o and her forecastle submerged into water due to the ship's trim by the stem. At 0520 hrs on the same day, the ship's Master declared to abandon the ship and all crew members left the ship by means of lifeboat.

271. 油轮爆炸着火后，船舫桥楼前的向船首的上甲板烧毁，甲板桥楼和桅倒塌、船舫桥楼严重烧毁，船舫桥楼后的二根桅倾倒，船体炸毁、变形、破裂，以致海水进入空的货油舱，造成油轮下沉并搁浅。事故中，4 名船员受伤，4 名船员失踪。

After the oil tanker exploded and caught fire, the upper deck in front of midship bridge towards the bow burst; long walk (deck) bridge and mast collapsed, midship bridge seriously burnt, 2 masts behind midship bridge inclined downwards, the hull exploded, deformed and broken. Water entered into the empty cargo oil tanks so that the oil tanker sank and stranded. In the accident, 4 crew members were injured and 4 crew members disappeared.

272. 调查船“XX”及浮吊“XX”并排靠泊在该厂码头，某年 10 月 24 日 1515 时，英籍轮“XXXX”在四艘拖轮绑拖下进黄浦江，其中一拖轮与浮吊“XX”碰撞，该浮吊碰撞并靠的调查船，造成该调查船系泊码头上的缆绳断裂，船身移动而撞击码头，以致使码头损坏。

While the research ship "XX" and floating crane "XX" being berthed shoulder

to shoulder alongside the wharf of the said shipyard, the outside berthing floating crane was struck at 1515 hrs on Oct. 24, (year) by one of the motor tugs towing the British motor vessel "XXXX" aside into Huangpu River and consequently the floating crane struck the inside berthing research ship, the mooring ropes of the research ship were broken and the research ship that was moved hit the wharf and thus the wharf was sustained damage.

273. 船体从船首起约 1/3 处折裂破断，该处船壳板、上甲板、内底板、内部构件在约 10 米范围内撕裂或损毁；其余船壳板、上甲板、内底板、内部构件严重凹陷、皱折或不同程度上弯曲变形。

The hull body fractured and broken at about 1/3 of the length from the stem and in way, the shell plating, upper deck plating, inner bottom plating and internal structural members within the scope of about 10m torn or destroyed; the remaining shell plating, upper deck plating, inner bottom plating and internal structural members seriously indented and buckled or bent and deformed in different degrees.

274. 上甲板上艙楼处的船壳板多处凹陷；艙楼二层甲板室的右舷舱壁板向内倾倒并撕裂长约 5 米；其余舱壁板、罗经甲板板及构架严重皱折、凹陷、或弯曲；前、后桅在根部处折裂并丢失。

The shell plating in way of poop above the upper deck was indented at numerous places; the std side bulkhead plating of the two tiers of deckhouses on poop seriously inclined inwards and torn about 5m in length; the remaining bulkhead plating, compass deck plating and framing seriously buckled, indented or bent; fore & aft masts fractured at their roots and lost.

275. 水从船壳板烂洞处进入第一货舱

No.1 hold was flooded through the holed shell plating in way.

276. 左舷#166-#171 肋位间外板局部变形，并有两处向内凹陷，凹陷深度约为 60 毫米。

Port side shell plating was locally deformed between Fr. Nos.166-171 with two indents of about 60mm in depth.

277. 该挖泥船施工时，挖至距离#7 码头约 200 米处，其右舷井耙与水下不明障碍物碰撞。

While the dredger being under operation about 200m off No.7 wharf, her std drag suction pipe touched with unknown obstacle in water.

278. 左锚抛锚时，当锚链落水 1-2 节后，有时发生锚抛不出去的情况。

The port anchor sometimes could not further run out after dropping anchor with a length of 1 to 2 lengths of chain cables into water.

279. 锚链冲水位置不妥，冲不掉泥沙。

The chain cables were not properly located so it was unable to wash off sludge from them.

280. 该锚不能被收进锚链筒。  
The anchor failed to be heaved into the hawse pipe.
281. 右锚在收妥后，进行抛锚时经常发生卡住。  
After the std anchor has been hauled taut in its housing position, it is liable to be caught in the hawse pipe during re-dropping.
282. 起锚设备的双锚速度为每链长 2'15"。  
The speed for weighing the double anchors of the anchoring arrangement was to be 2'15" per cable.
283. 舵角指示器误差较大，左满舵时，指示器为 22°，实际舵叶为 26°；右满舵时，指示器为 28°，实际舵叶为 26°。  
The error of the rudder indicator is significant. At hard-port helm, the reading on the indicator shows 22°, yet the accurate position of the rudder is 26° and at hard-std helm, the reading on the indicator shows 28°, yet the accurate position of the rudder is 26°.
284. 第三货舱内底板在位于纵中剖面 42-43 和 51-52 肋位间用以支撑绞链式二层甲板舱盖板的的活动支柱的插座四周开裂的焊缝处漏水。  
The inner bottom plating in way of No.3 cargo hold was found leaky from the broken welding seams round the sockets situated at fore & aft line between Fr. Nos.42-43 & 51-52 for movable pillars used for supporting hinged tweendeck hatch covers.
285. 第二货舱污水井内的水深达 2.4 米。  
The bilge well of No.2 cargo hold was sounded to be accumulated with water of 2.4m in depth.
286. 一号甲板吊的箱形吊臂发现在离根部 6.5 米处严重弯曲并裂开约 0.8 米。  
The duct type jib of No.1 deck crane was found heavily bent and broken at the position of about 6.5m away from (off) its heel about 0.8m in length.
287. 正在起吊的一吊货物部分落入江中。  
Part of cargo in a hoisted sling fell down into the river.
288. 工具间和备品间的通风筒的水密挡板没有关上，出入口人孔盖的关闭不水密。  
The watertight flaps of ventilators of tool & spare rooms were not in close position and the access manhole cover not closed watertightly.

289. 在吊好第三块舱盖板后，空杆落至甲板。  
After the 3<sup>rd</sup> hatch cover being heaved up, the derrick without sling of cargo dropped down to the deck.
290. 第二舱吊杆摆幅及升举绞车的排挡手柄误置于空挡位置。  
The clutch control lever of winch for swinging and lifting derrick at No.2 hatch was wrongly put in neutral position.
291. 吊杆向右后呈约 25 度倾斜。  
The derrick inclined to std aft at an angle of about 25° from normal.
292. 起重机在运转试验中，发现有不正常的磨擦声响。  
Abnormal sound of chafing was heard from the crane during running test.
293. 当操纵杆拉向相应于升起臂架的位置时，臂架不能升起，反而滑动下降。  
When the control lever being pulled towards the position, at which the hoisting operation of the jib was appropriately effected, the jib failed to hoist, on the contrary, it slipped down.
294. 该轮#1 货舱左起货机的操纵手柄在下降第 1 档（上升和下降各 5 档）位置时，起货机电动机刹车已脱开，但马达未运转，其余各档情况正常。  
All steps, 5 each in the hoisting and lowering ranges, of the control wheel of the port side cargo winch at No.1 cargo hatch were found in good working order except that at the 1<sup>st</sup> step in the lowering range, although the winch motor brake disengaged, yet the motor failed to run.  
(除了...此外: except(for)+名词, except (that)+句子, other than +名词;  
除了...此外, 还有...: besides +名词, in addition to +名词)
295. 舳龙骨与船壳板的焊缝裂开二处长度分别约为 350 毫米和 130 毫米。  
The weld seam for connecting the bilge keel with the shell plating was broken at two places about 350mm & 130mm in length respectively.
296. 第一和第三货舱间以及吃水标志 5-8 米间的左、右舷船壳板上的油漆被多处分散、不规则地擦去。  
The paint on the port & std side shell plating bet. Nos.1 & 3 cargo holds and bet. draft scales of 5m & 8m was rubbed off at numerous places in scattering and irregular manner.
297. 该船壳板上有少量油漆成条状或点状脱落。  
Minor paint on the said shell plating was peeled off in strips or spots.
298. 除两舷外油漆全部脱落。  
The paint thereon was peeled off all over except on both sides.

299. 备车  
The main engine was on stand-by.
300. 主机盘车。  
The main engine was turned.
301. 主机空车运转  
The main engine ran idly. (/ran in idle condition)
302. 主机有不正常声响  
An abnormal noise was heard at the main engine
303. 主机自动停车  
The main engine stopped working by itself
304. 主机已不能工作。  
The main engine was already in unworkable condition.
305. 左、右主机同转速全速前进  
Both the port & std main engines ran full speed ahead at the same revolution.
306. 主机全速倒车以求脱浅。  
The main engine ran full speed astern to try re-floating.
307. 后主机继续运转，主机使用了倒车，后主机改为顺车运转，这时即发现左舵失去舵效  
After that the main engine continued to run at ahead-astern-ahead engines successively, and at that time, the rudder was found to fail to response at port helm. (舵效 Rudder effectiveness)
308. 当左右主机同转速全速前进，并当右操舵装置的操纵指示为零位时，才能使船舶向左廻转。  
When both the port & std main engines ran full speed ahead at the same rpm. with the maneuvering indicator for the std steering gear pointed to zero position, the ship could turn to port.
309. 主机修理后经顺车转速 109 r.p.m.4 小时倒车转速 98 r.p.m.15 分钟的航行试验，一切发现正常  
After being repaired, the main engine was subject to sea trial with the revolution of 109 rpm ahead for 4 hours and 98 rpm astern for 15 minutes and all found in normal condition.
310. 主机动车后，离合器第一次合上时间需要 18-21 秒，连续操作后合上时间渐短，但最短时间仍为 5-6 秒。

When the main engine ran after starting, the time for engaging the clutch needed 18-21 seconds, and thereafter followed by a number of consecutive operation of engaging & disengaging the clutch, the time for engaging became shorter, the shortest once needed 5-6 seconds.

311. 双联式主机的滑油过滤器经拆检, 发现仍无法使用。  
The lub. oil strainer for main engine of duplex type was overhauled and found still unable to be used separately. (增设一只与原滤器并联的滤器 To fit one more filter in parallel with the original)
312. 舵机经从左满舵至右满舵操舵时间为 14.4 秒从右满舵至左满舵操舵时间为 14 秒试验后发现正常  
The steering gear was tested in operating condition with the rudder from hard port to hard starboard for 14.4 seconds and from hard starboard to hard port for 14 seconds and found in normal
313. 螺旋桨顶装  
The propeller was mounted hydraulically.
314. 螺旋桨轴抽出检查和探伤。  
The propeller shaft was drawn out for visual inspection and crack detection.
315. 吊缸检查  
The piston was drawn out for inspection.
316. 在艏部吃水为 16 呎的情况下, 用转车机转动螺旋桨 (叶尖高出水面 2 呎), 发现一螺旋桨叶的导边在约 0.8-0.9R 处断落约 1'2"长 5"宽; 第二桨叶的导边在约 0.8R 处轻度捲边约 5"长; 第三桨叶在叶尖处轻度捲边约 4"长。  
With a draft of 16 ft at the stern, the propeller was turned by turning gear (blade tip exposed about 2' above the water) and found that the leading edge of one propeller blade was notched off about 1'2" in length and about 4" in width at 0.8-0.9R approx.; the leading edge of the second blade slightly warped about 5" in length at 0.8R approx.; and the third blade slightly warped about 4" in length at the tip.
317. 气缸套右侧从顶端起至从下 300mm 间周长 800mm 的区域内有大量网状裂纹。  
A lot of net-like cracks were found from the top downward to 300mm within 800mm in std circumference on the cylinder liner.
318. 主机第 6 缸排气阀头破裂, 跌落到汽缸内, 造成汽缸头 (包括汽缸头附件、一只进气阀、一只排气阀、一只安全阀、一只起动阀和一只燃油喷射阀) 严重损坏, 汽缸套顶部呈凹坑, 活塞顶部被刺穿。  
The M.E. No.6 cyl. exhaust valve head was found broken and fell into the

cylinder and thus the cylinder head (including cyl. head fittings, 1 inlet valve, 1 exhaust valve, 1 safety valve, 1 starting valve and 1 fuel injection valve) was seriously damaged, the cyl. liner top pitted and the piston top pierced.

319. 该型号冷却水腔与其他型号的在结构上截然不同。  
The construction of the upper cooling water chamber (space) of such type of main engine is quite different from others.
320. 阀头碎裂、撞入缸内  
The valve head was broken and fell into the cylinder under impact force.
321. 凸轮轴前端处弯曲变形，跳动量为 0.50mm/M。  
The camshaft was bent and deformed at its fore end, at which the eccentric deviation approaching to 0.50mm/M.
322. 该段曲轴已弹性变形，以致主轴颈的跳动量超过轴承的间隙，造成曲轴轴颈挤压撞击轴承，最后，第 2、3 主轴承及其紧固螺栓因遭受外加的强应力而损坏。  
This section of crankshaft was elastically deformed so that the value of the eccentric deviation of No.3 main journal exceeded the clearance in the bearing and therefore the crank journal pressed and hit the bearing and finally the Nos.2 & 3 main bearings and their securing bolts suffered additionally strong stress and damaged.
323. 右推进轴系经校中，偏差 0.13m。  
The std propulsion shafting has been aligned and found to be 0.13m in deflection
324. 第 2、3 道主轴承座与机架右侧隔板相接处各有二条长约 260 毫米的裂纹。  
The cross girders for Nos.2 & 3 main bearings cracked about 260mm in length each on the std side in way of the engine frame plate.
325. 经将第九道（从尾数起）主轴承下瓦转出检查白合金已铺铅，后由修理厂将船上备件换上，经航行试验后又发生铺铅情况，这时对第 8 缸曲轴的臂距差进行测量，为 0.21mm，后对主轴承第 7，8 及 10 道下瓦进行检查，发现白合金也存在不同程度的缺陷。  
The No.9 main bearing lower half bush (counted from afterward) was turned out for inspection and it was found that the white metal thereof was wiped, and then replaced with the spare on board by the repairing factory. After sea trial, the white metal of the said lower half bush was wiped again. At that time, the web deflection of the crank shaft of the No.8 cylinder was measured to be 0.21mm, then the No.7, No.8 & No.10 main bearing lower half bushes were inspected and the white metal thereof was also found to have defects in different degrees.

326. 该缸组的活塞的第二道减磨环在右侧有一段长度约为 100 毫米磨损已与活塞裙部平齐，且在此附近的活塞上有磨损和一块面积约为 10 毫米 X 30 毫米的网上裂纹。  
The std side of the 2<sup>nd</sup> guide copper ring of piston, about 100mm in length, was entirely worn out to a flush surface with the piston skirt and the piston worn off near the said place and chapped one place over an area of 10mmx30mm.
327. 活塞杆的整个工作面上还有分散的小斑点。  
There were also scattered small spots on the whole working surface of the piston rod.
328. 主机第 3 缸组活塞杆离下端 1400mm 处，同一个圆周平面上有四处密集的斑点。  
M.E. No.3 cylinder unit, spots in 4 patches about xx, xx, xx & xx in area respectively were found at the same level 1400mm from the bottom end and on the circumferential surface.
329. 曲柄臂与曲柄肖的红套松动，使得曲柄肖移位 40°。  
The shrinkage integrating the crank web with journal pin loosed, causing the crank pin turned to an angle of 40°.  
(曲柄肖 solid: journal pin; combined: crank pin)
330. 主机曲轴的套合部位无位移现象。  
The shrinkage of the main engine crankshaft kept in proper position.  
(重置红套 re-positioning of the shrinkage)
331. 千斤绞车离合器控制杆跳出原位，千斤索松脱。  
The clutch control rod of the topping lift winch suddenly jumped out from its original position and the topping lift wire rope freely ran out.
332. 前、后端所有曲轴的表面均发现有周向锈蚀点。  
The rusted and corroded flaws scattered circumferentially were found on the surfaces of each crank pin at fore & aft ends.
333. 右轴系经校中，偏差 0.13m。  
The std propulsion shafting has been aligned and found to be 0.13m in deflection.
334. 试车至 25 分钟时，发现非轴伸端的轴承温度较高。  
The temperature of the bearing at the end without the shaft extension is found higher at the time of testing for 25 minutes.
335. 立式燃油辅锅炉炉胆下部弯边处在燃烧器对面发现穿透性裂纹五条，此次挖 V 型槽后用电焊焊妥。

The U-shaped ring of the inner side shell plate of the boiler, opposite the burner, was found to have 5 penetrating cracks, and the cracks were chiseled out with V groove and then covered by welding.

336. 裂口处管壁较薄裂口稍向外鼓。  
The pipe was found somewhat thinner in way of the crack and the crack presented slightly outward.
337. 检查时发现第四货舱二层舱后舱壁右侧有二根管子在近上甲板的弯头处(也靠近连接法兰)用塑料薄膜包着。  
Upon inspection, two pipes fitted on the std side of the aft bulkhead of the No.4 tweendeck space were found wrapped with plastic film at their elbows adjacent to the upper deck (also nearby coupling flanges).
338. 经船员打开后,发现一个管子上有多处烂洞面积共 30mmx180mm,并有油气气味。另一个管子尚无洞,但轻轻一击即有烂洞但无明显气味放出。  
After the plastic film being taken off by the crew, one pipe was found corroded and holed at numerous places about 30mmx180mm in total area, from which, oil vapor was smelled. The other pipe was not found holed but a hole occurred at once after being slightly hammered, but from which, no odor vapor was smelled.
339. 三台发电机单机工作及并联运行情况均正常。  
3 generators were running-tested separately and in parallel and found in normal. (淘汰型发电机组 generator set of an obsolete type)
340. 发电机作耐压 2000V1 分钟试验  
The generator was high-voltage tested under 2000V for 1 minute.
341. 发电机组进行并联运转试验。  
The generating set was running tested under parallel condition
342. 对电机或电器的金属外壳以其电缆的金属护套和铠装的接地情况应加以注意。  
Attention should be paid to the condition of the earthing of the metallic casings of motors or electric appliances and metallic sheathing and armour of cables
343. 在将 1 号发电机并入电网运行时,发现并车电抗器烧毁。  
When No.1 generator was put into the bus bar for work, the paralleling reactance was found burnt down.
344. 柴油发电机原动机的淡水冷却系统没有配备泄水旋塞。  
No drain cock was fitted to the fresh water cooling system for diesel generator prime mover. (配备: (小) fitted to (大); (大) fitted with (小))

345. 由空气瓶至各柴油发电机组的分路管路上没有截止阀  
No stop valves installed in branch pipes from air vessels to each diesel generating set.
346. 第一号柴油发电机的原动机的第四缸组的曲柄箱刀门发现有穿孔砂眼  
Crank case door of No.4 cylinder unit of No.1 diesel generator prime mover was found to have through sand holes.
347. No.3 发电机的空气断路器在车间重新进行了过载及逆功率整定值的试验, 过载整定在 850A 延时 16 秒动作, 逆功率整定在-50kW, 延时 5 秒动作, 情况均合格。  
The air circuit breaker of No.3 generator was tested in the workshop for overload & reverse power protection setting, when the overload protection was set at 850A, the breaker was found to have a delayed tripping of 16 seconds, and when the reverse power protection was set at -50kW, the breaker was found to have a delayed tripping of 5 seconds. Both results were satisfactory.
348. 液压马达经试车发现有转速慢、响声大和温度高等问题。  
The test of the hydraulic motor showed that it could not run up to its rated speed and meanwhile heavy noise and high temperature occurred.
349. 主发信机调谐不佳。  
The main transmitter was incapable of being properly turned to main antenna.
350. 驾驶室及船长房间部分仪表在安装部位处的镶边遗漏。  
The inserts of the partial navigation instruments in the wheel house and the Captain's cabin were omitted in way of the fitting parts.
351. 该轮配电系统为交流三相利用船体作中性线回路的三线系统  
The ship's distribution system is three phase A.C., three wire system with neutral earthed and the hull serving as neutral wire.
352. 对地的冷态绝缘电阻值为 1 兆欧左右。  
The insulation resistance to the earth under cool condition is to be about 1 Megohms.
353. 载荷指示器的读数比相应的转速要高。  
The load indicator gave higher readings to the corresponding speeds.  
(指示清晰 show clear indication  
指示不准 didn't indicate correct  
指示数误差过大 give high error)
354. 上甲板照明、货舱出入口处照明均为防水式。在货舱出入口处设有货舱可移式照明电源插座。

The lighting fittings outside the upper deckhouse and in way of the hold accesses were of waterproof type. The socket-outlets of power source for the movable cargo lighting were fitter in way of the hold accesses.

355. 在 No.2 舱甲板上装载危险物品应在桅顶加装避雷针时，该针必须高出雷达天线 300mm。

Should the dangerous cargo be loaded on No.2 hatch deck, a lightning conductor, 300mm above the radar antenna, is to be fitted at masthead.

356. 如在 No.2 装载桶装汽油，所有通过该桶的电缆均应切断供电电源，必须的用电设备应另在上甲板上敷设临时供电电源。

Should No.2 hold be loaded with gasoline in barrel, all cables passing through the hold are to stop supplying power and the temporarily cables for the power supply are to be laid on the upper deck for the necessary electric equipment.

357. 应具备有足够的天线和绝缘子，使能架设适当的天线。

Sufficient antenna wire and insulators shall be provided to enable a suitable antenna to be erected on board.

358. 将电池充足

The battery should be brought up to full charge.

359. 灯标支架在顶部 1 米高范围内整体损坏。

The light beacon bracket damaged within the height of 1m from the top.

360. 刹车圈与刹车带有不贴合之处长约 700 毫米。

The brake wheel and brake band linings had some places losing contact with a length of about 700mm.

361. 本设备从正常工作位置向任何平面倾斜 22.5 度都能可靠地工作。

This equipment is capable of reliable operation at angles of up to 22.5° in any plane from normal operational position.

362. 自动控制系统能在高水位自动关闭在低水位自动开启

The automatic control system has the capability of stopping the feed water pump at high water level and starting the feed water pump at lower water level.

363. 发送的水量能供应 4 只喷嘴，并能对准装货处所在空载时的任何部位。

The quantity of water delivered was capable of supplying four nozzles and being trained on any part of the cargo space when empty.

364. 防火控制图应永久地储存在标记显著的风雨密围壁内。

A duplicate set of fire control plans should be permanently stored in a prominently marked weathertight enclosure outside the deckhouse.

365. 新增加的临时搭乘船员一人, 以添设容量为 5 人的气胀式救生筏 1 只及救生衣 1 件, 作为所需的救生工具。  
One inflatable liferaft, capable of accommodating 5 persons, and one lifejacket are to be provided for the temporarily personnel on board, i.e. one crew member is going to take over another ship.
366. 应配备总重量不少于 12kg 的干粉或等效的手提式灭火器。  
Portable dry powder fire extinguisher at least 12kg in total weight or other extinguisher of equivalent properties should be provided.
367. 应配备至少 12kg 总容量干粉的手提式灭火器。  
Portable fire extinguishers with a total capacity of at least 12kg of dry powder should be provided.
368. 4 套防化学品侵蚀的保护服和 2 套自持式呼吸器已配备。  
Four suits of full protective clothing resistant to chemical attack and two self-contained breathing apparatuses were provided.

#### 4. 有关检查、试验与修理等情况的叙述

369. 下列署名的验船师检查了所有的中间检验附加项目并认为满意。其余的年度检验项目应尽快处理不得迟于某年 5 月 9 日。  
All the additional items of intermediate survey were examined to satisfaction by the undersigned, and the remaining annual survey items should be dealt with as soon as possible but not later than May 9, (year).
370. 对其它由于此次海损有可能损坏的部件如艉轴后轴封、螺旋桨等应在下次进坞或用其它方式尽早作进一步检查。  
The other possible damaged components such as the outboard stern tube oil gland, propeller, etc. consequent on this sea damage should be further examined at next docking or by other means to be arranged as early as possible.
371. 当该轮前吃水为 5 呎及后吃水为 23 呎时, 船首两舷壳板和球鼻首均露出水面进行检查并发现正常。  
While the ship's draft being 5 ft forward and 25 ft aft, the both side shell plating at bow and bulbous bow all out of water were inspected and found in normal condition.
372. 凹陷处在水线下, 前吃水为 1.8 米以致不能作进一步检查。  
The indented part was below the waterline while the fore draft was 1.8m so that it was impossible to be further examined.
373. 舵板、螺旋桨以及右尾船壳板的水线以下部分应作进一步检查

The under waterline parts of the rudder plate, propeller and std aft shell plating should be thoroughly examined

374. 下列署名的咨询验船师仔细地对该轮船壳板进行了外观检查，发现无明显的碰撞痕迹。

The undersigned consulting surveyor carefully carried out a visual inspection to the ship's shell plating, and no apparent sign of collision was found.

375. 没有条件对全部锚链进行检查。

No condition provided for inspecting the all lengths of chain cables.

376. 机舱应上船查核是否 A 级分隔（即是否是钢结构）。

The machinery space should be checked on board whether to be separated with "A" class or not (i.e. whether to be of steel construction or not).

377. 该吊杆在原认可的安全工作负荷 3 吨下进行吊重试验时，刹车力量不够。

While the said derrick being subjected to a lifting test with the original approved S.W.L. of 3 tons, the brake of the winch had without effect.

378. 在吊重试验中存在操纵手柄在零位时，起货绞车屏不住。

The cargo winches could not be kept to stop the lifted weight to lower when the operating handle being at the position "0" in lifting test.

379. 在吊重试验中，发现第 1, 2, 5, 6, 7, 8, 9, 10 和 13 起货机在操纵杆处于“0”位时吊起的重物都在非常缓慢地下降。

In lifting test, when the operating handle being at the position "0", the heavy weight lifted by each of the Nos.1, 2, 5, 6, 7, 8, 9, 10 & 13 cargo winches was found lowering very slowly.

380. 该增压器主要部件的材料、装配和出厂试验经检验合格，同意与柴油机配套使用。

The material of the main parts, fitting and delivery test of the turbocharger have been inspected and found to satisfaction so the said turbocharger is granted to be used in combination with the marine diesel engine.

381. 该轮第三舱底层舱做压载水舱使用前应作水压试验，水柱高度至该舱空气管顶。

The ship's No.3 lower hold, before being used as ballast tank, should be subjected to a water head test with the height of the water column up to the top of the air pipe of the said tank.

382. 该工作压力为  $5.0 \text{ kg/cm}^2$  的锅炉约有 1/3 的烟管的下端管口在管板的轱管处泄漏，锅炉的全部烟管管口与管板烧焊，作压力为  $6 \text{ kg/cm}^2$  的水压试验，经检验，情况均正常。

The lower ends of one-third smoke tubes of the said boiler with working pressure of 5.0 kg/cm<sup>2</sup> at their expended places were leaky, so all smoke tube ends with their tube plates of the said boiler have been welded and hydraulically tested with pressure of 6 kg/cm<sup>2</sup>, inspected and all found in normal condition.

383. 对舵机分别在单泵工作和双泵并联工作情况下进行操舵和应急操舵试验  
The steering gear has been subjected to ordinary & emergency operating tests under single pump working condition and double-pump parallel working condition

384. 螺旋桨叶片进行边缘切割试验  
The blades of the ship's propeller were edge-cutting tested.

385. 不同厂家生产的救生筏使用自动释放钩应在提交主管当局认可之前对不同  
类型、规格的救生筏作匹配操作试验。  
Where automatic release hooks are supplied for use with liferafts of different manufacturers, operation tests with each type, size and manufacture of liferaft should be carried out before the particular combination of liferaft and release hook is accepted by the Administration.

386. 立即采取临时堵漏措施  
The first-aid blocking measure was taken for the time being.

387. 建议采取适当的水密措施。  
It is recommended that suitable watertight measure be taken.

388. 由于第四货舱甲板间舱内有人居住, 通往该舱的 CO<sub>2</sub> 管路已采取隔离措施。  
The distribution pipes of CO<sub>2</sub> fire extinguishing system leading to No.4 hold has been blinded because No.4 cargo hold tween deck space becomes accommodation space.

389. 采取系缆于浮筒和增加船首吃水等紧急措施, 想使船舶与装货机分开并防止触底, 但无效。  
The vessel had taken emergency measures such as sending lines to the buoys and deepening the fore draft, with a hope to bring herself away from the transporter and to prevent her from touching the bottom, but without effect.

390. 进行热工工作前, 以及在工作过程中, 应由施工单位专人负责对施工区域  
处所及时进行复测。  
Before the hot work is commenced and while it is proceeding the work areas including the heat-influenced adjacent spaces are to be re-tested in due time by competent persons of the working unit.

391. 为上述第 4 和 5 项进行热工修理前与其有关的燃油舱内的燃油、油渣需要

驳出、舱需要清洁、通风和测爆。

Fuel oil transferring, sludge removal, cleaning, ventilating and gas free of the relevant fuel tanks are required before hot work for repair on the above-mentioned items Nos.4 & 5.

392. 所有货油舱已排空无油并已排除了油气。  
All cargo tanks are empty of oil and gas freed.
393. 防火、水、电等工作应配备。  
Necessary general services such as fire-fighting watch, water and electricity, etc. should be provided.
394. 机舱通风筒和烟囱的环形开口的外部关闭装置应在最近一次修船时装妥。  
The closing means for ventilators and funnel annular spaces leading to ER should be fitted from outside such spaces at next ship's repairing.
395. 上述损坏的螺旋桨叶片可在该轮最近一次进坞时予以修理。  
The above-mentioned damaged blades of the propeller may be repaired at the nearest (/next) docking repair of the ship.
396. 在条件允许时应尽早修复  
It should be repaired as early as possible at the ship's convenience.
397. 立即进行用修补方法止漏的临时性修理。  
A temporary repair by using patched method to cease leakage was immediately effected
398. 已在裂纹处作设置水泥箱的临时性修理。  
A temporary repair by fitting a cement box on the cracked place has been carried out.
399. 用锚链卸扣将第一节端链及原右锚临时装妥作为临时使用。  
A temporary repair was taken by using a joining shackle in lieu of a broken link to connect the broken length of chain cables.
400. 用在烂洞的两边各复盖一块直径为 80 毫米的钢质圆板的方法进行了临时性修理。并用橡皮垫料和螺丝固紧。  
The temporary repair by covering two steel round plates, about 80mm in dia., each at both sides of the corroded plate and fastening with rubber packing and screws has been carried out.
401. 锚柄与锚冠连接处, 用 300mmx250mmx100mm 的钢板二块用电焊的方法焊在锚冠孔的两侧, 作为锚柄在锚冠孔中的定位块。  
Two steel plates, 300mmx250mmx100mm in size each, to be fitted by electric

welding on the both sides of the shank housing of the anchor crown in lieu of the securing steel blocks of the anchor shank.

402. 上述第 1,2,3 项损坏部分, 按照该轮完工图图号 H-3110-0, 图号 H-8231 及图号 H-1120 在中华船厂胎架上预制 4 个分段。

4 blocks of the damaged parts in the above-mentioned items 1,2 & 3 were prefabricated on jigs in accordance with the finish plans of Shell Expansion & Framing Plan Drawing No.H-3110-0, Bow Construction Drawing No.H-8231 & Construction profile & Deck plan No.H-1120 by Zhonghua Shipyard.

403. 该驳应上排或进坞进行永久性修理。

The barge should be permanently repaired on slipway or in dock.

404. 在此修理工作的同时, 船东同时进行了一些维修工作, 如外板喷沙油漆、海底阀拆检等, 并同时进行了坞内检验, 特别检验的开始检验。如若损坏单独在坞内进行。下述验船师认为需 27 个工作日。

The above-mentioned damage items were permanently repaired in Huangshan Floating Dock of Shanghai Lifeng Shipyard, and inspected by the surveyor to the classification society to satisfaction. The Owner's maintenance work such as sand blasting & painting of the shell plating, overhauling of sea valves, etc. and docking survey 7 commencement of special survey were carried out concurrently with the permanent repair. The undersigned surveyor considers that 27 working days be required for the permanent repair is effected alone in dry dock.

405. 船东同时进行的自修工程如单独进行需要 4 个工作日。

Owner's work carried out concurrently would have required 4 working days if effected alone.

406. 船东在进行损坏修理同时, 进行了一些自修工程, 这些自修工程不影响该船舶的适航性。

During the damaged parts being repaired, the ship's Owner arranged to conduct some maintenance work in dock, which wouldn't affect the vessel's seaworthiness.

407. 该码头的上述损坏项目延迟至明年整个码头维修时一并进行永久性修理。

The said damage items of the said wharf are deferred to be permanently repaired at the scheduled maintenance of the whole wharf next year.

408. 吊钩梁由 XXX 港第二装卸区进行了修理, 但船长认为无法接受这样的临时性修理。

The hoisting beam of the No.1 crane was repaired by the No.2 Stevedoring Area of Port of XXX on May 17, (year) but the ship's Master could not accept such a temporary

409. 该机曲轴和机体已无法修复，修理价格将已超过一台新机价格的 50%以上。如再加上一只凸轮轴、四只缸套、四只活塞和两根连杆的修理费用将超过一个新机的价格。因此，该机已无修理价值。

The crankshaft and engine body are unfeasible to be repaired. If they being repaired, the cost will exceed 50% of that of a new engine and if being repaired together with 1 camshaft, 4 cylinder liners, 4 pistons and 2 connecting rods, the total cost of repair will surely exceed the price of a new engine. Therefore, the said engine is unworthy to be repaired.

410. 由于该轮在上海港修理上述损坏所花的时间长并由于该轮的船期，船级验船师同意该损坏可在该轮到达朝鲜后进行，但不得迟于某年 1 月 31 日。

Due to taking a long period of time to repair the above-said damage in Shanghai and due to the ship's schedule, the said damage is granted to be repaired after the ship arriving at Pusan, Korea but not later than Jan. 31, (year) by Class surveyor.

411. 为了减少间接损失在空闲时机进行修理

The repair was effected at idle occasion in order to reduce indirect loss.

412. 该螺旋桨应拆检以便进一步检查确证详细的损坏项目

The propeller should be overhauled for further inspection to confirmation of the detailed extent of damage

413. 该轮船首 10 米范围内发现有明显的修理痕迹。船舯部左、右船壳板发现有明显的修理痕迹。

The apparent signs of repair were discovered within the range of 10m at the ship's bow. The port & std side shell plating amidships was discovered to have obvious signs of being repaired.

414. 上述损坏部分的修理可以推迟至船东方便时进行，但必须服从船级社所规定的任何限制条件。

The repair of the above-mentioned damaged parts could be deferred to suit the Owner's convenience subject to any limitations imposed by the classification society.

415. 同意延期永久性修理

It is granted that the permanent repair for the above-mentioned damage be deferred.

416. 该轮延迟到 1 月 11 日才离上海去南京

The ship was delayed departing from Shanghai for Nanjing till Jan. 11.

417. 同意该锅炉继续使用三个月至某年 6 月 3 日。

It is granted that the said boiler be put in continuous use for three months, ending up to June 3, (year).

418. 可以装船使用  
It is fit for use on board ships.
419. 维修保养工作超过期限。  
The maintenance work was overtime
420. 使用时间超过常规维修保养期限。  
The operating period exceeded the regular maintenance limit.
421. 必要时需整台换新  
It should be subjected to the renewal of whole assembly as necessary.
422. 引水员软梯的长板条应为整根硬木或其他等效材料制成，每根长度不小于 1.8 米，边绳应由白棕绳组成，拼接的长板条应予换新。  
Battens of pilot ladder should be made of hardwood or other material of equivalent properties in one piece and not less than 1.80m long, and side ropes of ladder should consist of Manila ropes. The jointed battens should be renewed.
423. 虽经光车，但锈斑仍未消除  
The corroded flaws thereon still could not be eliminated, although the pins were machined.
424. 水平肋板应延伸到邻近的一根肋骨并与其用电焊连接。  
The horizontal brackets should be extended and connected to the adjacent frame by electrical welding.
425. 该损坏项目的修理费用估计为人民币 50,000 元，包括钢质立柱需用打桩船施工。  
The cost of repair to the said damage items is estimated to be RMB 50,000 Yuan, including the fee for the operation of floating pile driver.
426. 永久性修理在上海进行时修理费和修理时间估计如下：  
The cost & duration of the permanent repair, if effected in Shanghai, are estimated as follows:  
修理费 Cost of Repair: RMB 1,400,000.00  
修理时间 Duration of Repair: 45 working days
427. 下列署名的验船师认为需 60 个工作日修理上述损坏项目，包括 40 天在排上修理，估计修理费用为 US\$35,000 元。  
The undersigned surveyor considers that it requires about 60 working days to repair the above-mentioned damage items including 40 working days for repair

on slipway and the estimated cost of repair is to be US\$35,000.

428. 有关坞修及总服务费共计人名币经审核其费用是公平合理的，建议根据 Form XXX No. SHXXXXXX 所述分摊 20% 给船主。

The costs of docking repair and general services in sum of RMB which are considered fair and reasonable shall be suggested its 20% to be prorated to the ship's Owner as already stated in the Survey Report Form XXX No. SHXXXXXX.

429. 在国内市场购买同样的旧船需人民币 850,000-900,000 元。

It will spend about RMB 850,000-900,000 Yuan to purchase the above-mentioned similar secondhand boat at domestic market.

430. 所有焊接程序和焊接材料及更换的板材均应根据原船批准图纸和船级社的规定。焊接完成后，全部焊缝 100% 进行无损探伤。

All the welding procedure, consumables and replacement materials are to be equivalent to or according to the approved original drawings, and to the Rules promulgated by this Society. All weld seams are to be 100% non-destructive tested after the completion of welding.

431. 对该轮的吨位进行了丈量 and 核算。

The ship's tonnage has been measured and calculated.

432. 稳性计算书业经审查，符合中国船级社海船法定检验技术规则（1992）的有关要求。

The Stability Calculation of the M.V. "XXXX" has been examined and found in compliance with the relevant requirement of the Technical Regulation for Statutory Surveys of Sea-going ships (1992).

433. 根据公约第三章第二十七条第七款要求，该轮舱盖需有足够强度，并应满足任何一舱（不包括机舱）浸水后的抗沉性要求。

In accordance with the requirements in Regulation 27 (7) Chapter III of the SOLAS, the hatch covers of the said ship should be provided with sufficient strength and requirement of subdivision when the sea water is leaking into each one of the cargo holds (without engine room).

434. 该轮处于与其船龄相应状况，除下列缺陷外：

The said ship was in the condition corresponding to the age of the ship other than the following apparent defects:

435. 认为除第三项外，上述项目损坏的原因与船东和拖轮船长所述的是一致的。

The cause of damage as mentioned in the above-said items except the item 3 is considered to be coincident with what the Owner and the tug's Master stated.

436. 损坏修理项目与碰撞损坏的范围基本吻合  
The damage repair items submitted by the Owner generally tally with the extent of collision damage.
437. 与搁浅前无明显变化  
No apparent damage was found as compared with the condition before grounding.
438. 上甲板及货舱的情况与该轮交船时的情况相同，在此次租船期间发现无进一步损坏。  
The upper deck and cargo holds were in the like condition as when the ship was delivered and no further damage was found during the present chartering.
439. 除 1-7 项外，其余情况与起租检验时情况相同。  
The remaining conditions other than those shown in items Nos.1-7 were found the same as that at the time of on-hire survey. (除...之外 except, other than; 除...之外，还有 besides, in addition to)
440. 在该轮轮机长在场下，对货舱口、船舷栏杆等进行了检验，发现与（日期）：该轮交船时签发的编号为 SHXXXXXX 的起租检验报告中所述的情况相同，下列项目除外  
In the presence of the ship's Chief Officer, the hatches, shipside rails, etc. were inspected and found to be in the like condition as described in the on-hire survey report No. issued on (date) when the ship was delivered except those as follows:
441. 如测量时间与退租还船时间不一致，燃料存量必须根据在港内燃油日消耗量 XX 吨和柴油日消耗量 XX 吨以及从上海到青岛油消耗量 XX 吨和柴油消耗量 XX 吨计算。  
If the time of sounding does not agree with that of re-delivery, the remaining quantities of bunkers are to be worked out by calculation based on the daily consumption of XX tons of fuel oil and XX tons of diesel oil in harbor and the consumption about XX tons of fuel oil and about XX tons of diesel oil from Shanghai to Qingdao.
442. 该阀经制造商拆开校验，这些问题仍未彻底解决。  
The said valve was re-adjusted under dismantled condition by the manufacturer, but these deficiencies still remained outstanding.
443. 本社认为该船厂具备生产船用铸锻件的能力，特予认可。  
This Society deems that the said shipyard has the ability to manufacture forgings and castings for marine purpose. The works approval is granted thereof.
444. 内底列板从坐到右用阿拉伯数字“1-7”表示，从前到后用字母表示。  
The strakes of the inner bottom plating are numbered from port to std in

Arabic numbers “1-7” and afterwards from the fore in alphabet.

#### 四. 报告部分

##### 全况检验

兹应中船保上海分公司委托，下列署名的验船师代表 OCEAN P & I SERVICES LTD.于某年 8 月 8 日及 9 日，在上海港东昌装卸公司码头对“XXXX”轮进行了全况检验。THIS IS TO CERTIFY that the undersigned surveyor did, at the request of the Shanghai Branch of China Shipowners Mutual Assurance Co. on behalf of Ocean P & I Services Ltd., attend on board the M.V. “XXXX” at the wharf of Dongchang Stevedoring Company of Shanghai Harbor on Aug. 8 & 9, (year) for the purpose of carrying out a full condition survey to the ship.

全况检验分别于某年 8 月 8 日 0900 至 1530 时,某年 8 月 9 日 0930 至 1330 时进行。The full condition survey was carried out in the period of 0900-1530 hrs on Aug. 8, (year) and 0930-1330 hrs on Aug. 9, (year).

##### 船舶概况

##### SHIP'S PARTICULARS

船名 Name of Ship:  
船籍港 Port of Registry:  
船舶呼号 Official Number:  
龙骨安放日 Date on which keel was laid:  
制造日期 Built in:  
制造厂 Built by:  
船东 Owner:  
全长 L.O.A.:  
垂线间长 L.B.P.:  
型宽 Molded Breadth:  
型深 Molded Depth:  
载重量 Deadweight:  
主机 Main engine:

#### A. 船舶证书及船级状况 DOCUMENTATION

1. 该轮船主于某年 5 月 21 日取得该轮所有权，加入中国籍。国籍证书编号为：HU 00000000。有效期至某年 5 月 20 日。Since May 21, (year), the ship's Owner has obtained the ownership of the ship, the ship's nationality has been changed to be China and the ship registered with Certificate of Nationality No.HU 00000000, valid until May 20, (year).
2. 某年 6 月，中国船级社对该轮完成了特别检验、坞内检验、尾轴检验、锅炉和蒸汽管检验。同时，按照 SOLAS、载重线公约、防污染公约的要求，对各

有关公约的证书进行了换证检验。The ship's special survey, docking survey, screwshaft survey, boiler & steam pipe survey were carried out by CCS in June (year). In the meantime, the new statutory certificates were issued under the provisions of the International Convention for the Safety of Life at Sea, the International Convention of Load Lines, 1966 and the International Convention for the Prevention of Pollution from Ships, 1973.

经查阅该轮的证书及检验报告等资料, 该轮在进行了上述各项检验后未存船级条件遗留问题。Upon examination of the ship's certificates, survey reports, etc. No outstanding recommendations were given after completion of the above-mentioned surveys.

3. 下列短期证书均于某年 6 月 15 日签发, 有效期均为某年 11 月 14 日, 全期证书尚待总部签发, 全期证书的有效期为某年 6 月 14 日。The following short term certificates valid until Nov. 14, (year) were all issued and the full term certificates are until June 14, (year) are recommended to be issued by Head Office.

货船构造安全证书 Cargo Ship Safety Construction Certificate (Form CSC(CHN)) No.SH000000;

货船设备安全证书 Cargo Ship Safety Equipment Certificate (Form CSE(CHN)) No.SH000000;

货船无线电安全证书 Cargo Ship Safety Radio Certificate (Form CSR(CHN)) No.SH000000;

国际载重线证书 International Load Line Certificate (Form CLL(CHN)) No.SH000000;

国际防止油污证书 International Oil Pollution Prevention Certificate (Form COP(CHN)) No.SH000000

4. 起货设备 Cargo handing gear:

下次年度检验日期为某年 12 月,

Date of next annual inspection: Dec. (year)

下次四年度全面检验日期为某年 12 月。

Date of next quadrennial thorough examination: Dec. (year)

5. 船级状况 Class condition:

- 1) 船级符号 Characters of classification and class notations:

船体 For hull H ZCA Strengthened for heavy cargo, Ice Class B

轮机 For machinery H ZCM

- 2) 上次特别检验日期 Date of last special survey: June 15, (year)

下次特别检验日期 Date of next special survey: June 14, (year)

- 3) 上次坞内检验及螺旋桨轴检验日期

Date of last docking survey/screwshaft survey: June (year)/June (year)

下次坞内检验及螺旋桨轴检验日期

Date of next docking survey/screwshaft survey: June (year)/June (year)

- 4) 上次锅炉及蒸发管检验日期

Date of last boiler & steam pipe survey: June (year)

下次锅炉及蒸发管检验日期

Date of next boiler & steam pipe survey: June (year)

6. 该轮油类记录簿、已认可的稳性/装载资料均保留在船上。安全图、应变部署表、训练记录均使用了中文，并张贴在合理的位置上。The ship's Oil Record Book and approved stability/loading information were kept on board. The safety Plan, Muster Lists and Record of Drills, all expressed in Chinese language, were posted in proper places.

B. 检验查明

GENERAL CONDITION INSPECTED

1. 轻载水线以上的船壳板的外表面，70%面积分布有较严重的疤状锈蚀。轻、重载水线间的 G、H 列板最大锈蚀达 24.1%，一般锈蚀为 14%；The both side shell plating above light waterline was found to have serious rust scales covering about 70% of total area. The shell plating, strakes G & H bet. Light & load waterlines were found corroded to the maximum about 24.1% of the original thickness, generally about 14%；

56-57 肋位间及 136-137 肋位间的二条环带区域测厚结果显示部分范围舷侧板与船底板锈蚀严重，最大锈蚀达 26.4%；The shell plating and bottom plating in the belts bet. Frm Nos.56-57 & 136-137 were gauged and some of them found corroded to the maximum about 26.4% of the original thickness.

上甲板呈现严重锈蚀，最大锈蚀达 25.2%，平均锈蚀达 20%；The upper deck plating was found seriously corroded to the maximum about 25.2% of the original thickness and average about 20%.

所有防腐锌块于某年 6 月在坞内换新；All anticorrosive zinc slabs were renewed in dock in June (year).

船壳板及上甲板内侧面防腐涂层处于较好养护状态。The inside anticorrosive coatings of shell plating and upper deck plating were found in fair maintenance condition.

2. 货舱内所有主肋骨及其上、下端连接肘板未见明显的变形及损坏。油漆涂层 90%有效。各水密横舱壁的根部呈现较严重锈蚀，其中第三、四货舱间横舱壁右舷根部穿孔，现设置水泥箱。All main frames with upper & lower brackets in all holds were found without apparent deformation & damage, and 90% of pain coating thereon in order. All watertight transverse bulkheads were found seriously corroded at their bottom, among which the tweendeck bulkhead bet. Nos.3 & 4 cargo holds corroded through at the std bottom and fitted with cement box.

第三冷藏货舱已改作一般货舱使用，舷侧及前后横舱壁的冷藏绝缘层仍完整。No.3 refrigerated cargo chamber was converted into a general cargo hold and the insulation fitting on the side shell plating and fore & aft transverse bulkheads still sound.

3. 各货舱钢质内底板仅有轻度凹陷，油漆涂层基本失效。各货舱内的污水井，包括盖板、滤网处于正常状况，抽吸效用试验正常。各货舱内的垂直扶梯，二层甲板开口处的安全防护装置均处于有效状态。舷侧木质自动护舷材基本完好。手提式货舱照明灯存放在桅屋。The steel inner bottom plating in all cargo holds was slightly indented and paint coating thereon generally missing. The bilge wells with covers & rose boxes in all cargo holds were found in normal condition,

and operating tested to satisfaction. The vertical ladders in all cargo holds and the safety railing devices around tweendeck opening were found in efficient condition. The wooden spar ceiling generally sound. The portable hold lights were stored in the masthouses.

4. 船级社验船师已于某年 6 月在对该轮进行特别检验时, 对所有压载水舱、燃油舱等进行了内部检查及水压试验。本次检验对第一压载舱(左、右)、第二压载舱(左、右)、第三压载舱(左、中、右)、首尖舱进行了水压试验, 情况正常。各压载水舱的空气管、测深管及其护罩, 水密门均处于正常水密状态。All ballast water tanks, fuel oil tanks, etc. Were internally inspected and water head tested by classification society surveyor in June (year) during the ship's special survey. At the time of this survey, No.1 D.B.B.W.T. (P & S), No.2 D.B.B.W.T. (P & S), No.3 D.B.B.W.T. (P,C & S) and forepeak tank were water head tested and found satisfactory. The air pipes, sounding pipes with protective guards and watertight manhole covers of all ballast water tanks were found in normal watertightness.
5. 第 1,2,3,4,5 钢质自动舱盖与(year) 年 6 月进厂进行过全面整修。橡胶水密封条全面换新, 压紧装置、行走导轮大部分换新。本次经外观检查及冲水试验, 情况正常。The Mac Gregor type of hatchcovers of Nos.1,2,3,4 & 5 holds were thoroughly repaired in the shipyard in June (year) and their rubber packing all renewed, the securing devices and running rollers mostly renewed. They were visually inspected and hose tested and found satisfactory.
6. 各货舱菌型机械通风筒普遍呈中等程度锈蚀, 前桅屋顶部通风筒距桅屋顶 0.5 米处锈蚀穿孔。各通风筒防火挡板均处于正常关闭状态。All mechanical mushroom ventilators for cargo holds were found generally and moderately corroded. The ventilator on the top of the fore mast house was found corroded through at 0.5m off the roof of the mast house. The fire dampers of all ventilators were found in efficient condition.
7. 电动锚机、尾绞缆机、起货机绞车处于一般维护状态。安全护罩及基座情况正常。起重桅及吊货杆油漆涂层完好, 情况正常。The electric windlass, aft mooring winch and cargo winches were found in general maintenance condition, the safe covers & seats in normal condition and the paint coatings of derrick posts & derrick booms in good condition.
8. 艏楼甲板及上甲板上的小舱口、吨位开口, 艏楼后端壁、桅屋及艏楼前端壁上的水密门处均有效水密关闭状态。Small hatches on the forecastle deck & tonnage well on the upper deck and watertight doors on the aft end bulkhead of forecastle, mast house and fore end bulkhead of poop were in efficient condition.
9. 全船消防栓、皮龙、喷嘴均按防火控制图配置, 处于正常使用状态。国际通岸接头设置在驾驶室内。All fire hydrants, hoses and nozzles were arranged according to the fire control plan and found satisfactory. The international shore connection was stored in the wheel house.
10. CO<sub>2</sub> 固定灭火系统服务于机舱及货舱, 使用说明张贴在 CO<sub>2</sub> 站室及驾驶台, 下次 CO<sub>2</sub> 重量的称重日期某年 2 月, 下次系统畅通试验日期为某年 2 月。The fixed CO<sub>2</sub> fire extinguishing installation for engine room and cargo holds were provided and the operating instructions were posted in CO<sub>2</sub> station and wheel

house. Date of next CO<sub>2</sub> weighing and blowing thorough of system piping: Feb. (year).

11. 应急消防泵设置在泵间, 效用试验情况正常。The emergency fire pump fitted in pump room was operating tested and found satisfactory.
12. 左、右舷开敞式机动玻璃钢救生艇处于良好维护状态, 救生艇收放试验情况正常。吊艇钢丝某年 5 月换新。气胀式救生筏 4 只定额总数为 40 人, 最近检查日期为某年 6 月。其余救生设备均完整无损。The port & starboard open motor glassreinforced plastic lifeboats were found in good maintenance condition and lowering tested to satisfaction, the falls were renewed in May (year). 4 inflatable liferafts, capable of accommodating 40 persons in total, were serviced in June (year). The other life-saving appliances were found in good condition.
13. 泵舱内的机械及电气设备需进行整理、清洁, 去除无关杂物。  
The machinery installation & electric equipment in the pump room need to be tidied, cleaned and useless things removed.
14. 急救及医疗设施和设备情况正常。First aid and medical facilities and equipment appeared in order.
15. 主机为一台 FIAT C75BS 型柴油机。某年 6 月第三、五缸组进行了吊缸检查, 且十字头轴颈进行了喷镀, 轴承换新, 第一至六缸缸头及缸套检查情况正常。主机油泵凸轮轴磨损严重。其余主机及为主机服务的各系统运转情况正常。现使用的服务转速为 98 转/分 (额定转速 125 转/分)。主机排水阀绝热护套完整无损。查无完整的轮机日志。The main engine was one set of Type FIAT C756S diesel engine. In June (year), No.3 & No.5 cylinder units were overhauled, and the crossheads metallized and bearings renewed. Nos. 1-6 cyl. covers and liners were inspected and found satisfactory. The camshaft of M.E. oil pump was found seriously worn. The remaining parts of the main engine and all systems serving the main engine were found in normal running condition. The working revolution was 98 rpm (the rated revolution: 125 rpm). The M.E. exhaust pipe was well lagged. No complete set of machinery log book was kept.
16. “SCOTCH” 辅锅炉一台, 工作压力 7kg/cm<sup>2</sup>, 未设置高低水位报警, 无自动停风安全装置。人工点火。某年 6 月曾进行过水压试验和内部检查, 现保护及绝缘外套, 玻璃管水位计外观检查情况正常。废气锅炉已停止使用。  
“SCOTCH” aux. boiler, one set, working pressure: 7 bar  
No high & low water level alarm system, no furnace draught loss safety system were fitted. The boiler was ignited by hand.  
In June (year), the boiler was hydraulically tested and internally inspected. The lagging and the water level glass gauge were visually inspected and found satisfactory.  
The boiler was externally inspected in normal working condition.  
The exhaust gas boiler was suspended from service.
17. 电动液压舵机效用试验情况正常。锚机间机旁操舵装置及尾楼艇甲板上的操舵装置均处于正常使用状态。舵机间与驾驶台的通信及舵机间内的罗经装置均处于正常状态。The electro-hydraulic steering gear was operating tested and found satisfactory. The auxiliary steering gear in the steering gear room and hand wheel on poop deck were both found in normal working condition. The

- communication bet. steering gear room and bridge and the gyro compass repeater in the said steering gear room were found satisfactory.
18. BV6M536 型辅机二台，V6M536 型辅机一台。二号辅机于某年拆检，同时，整个辅机系统经调速性能试验合格，现系统运转正常。  
Auxiliary engines, Type BV6M536, 2 sets; Type V6M536, 1 set  
No.2 aux. engine was overhauled in (year) and meanwhile the governors of all auxiliary engines were functionally tested and found satisfactory. Now, the said installation was found in normal running condition. No spare nozzle of prime mover was provided.
19. 总配电板、应急配电板及各分区配电板外观检查情况正常。查全船绝缘电阻记录，居住舱室照明电话绝缘电阻值在某些部位低于 0.1Mr。Main & emergency switchboards and distribution boards were visually inspected and found satisfactory. Upon examining the records on the insulation resistances of the whole ship, the insulation resistances of the lighting system in the accommodation spaces were lower than 0.1 Megohm at certain locations.
20. 分油机共五台，其中：Purifiers, 5 sets in total:  
#1、#2 为 DZY-50 型，排量 5000 升/时  
Nos.1 & 2 purifiers, Type DZY-50, output capacity 5000 L/hr;  
#3、#4 为 DELAVAL PX309-25F 型，排量 6000 升 / 时  
Nos.3 & 4 purifiers, Type DELAVAL PX309-25F, output capacity 6000 L/hr;  
#5 为 DELAVAL 型，排量 1500 升 / 时。  
No.5 purifier, Type DELAVAL, output capacity 1500 L/hr.  
上述#3,#4 分油机待修理，现停止使用。机舱油污水分离装置于某年 6 月进行了检查及水样检查。现处于正常工作状态。The above-mentioned Nos.3 & 4 purifiers were suspended from service for waiting repair. Oily-water separating equipment for machinery space bilge was inspected and sample examined in June (year). Now, the said equipment was found in normal working condition.
21. 海水进出口阀共 61 只，于某年 6 月在坞内进行了检查，拂磨，现处于正常工作状态。Sea water inlet & outlet valves, 61 pcs in total, were inspected and repaired by means of grinding in dock in June (year). Now, the valves were found in normal working condition.
22. 机舱风、油紧急切断装置，机舱棚烟囱、通风筒关闭装置效用试验正常。The emergency shutting off devices of E.R. ventilating fan & fuel oil system and the closing appliances for ventilators and funnel annular spaces leading to E.R. were functionally tested and found satisfactory.
23. 机舱清洁状况一般。污油水的淤积处于正常状态。The engine room looked in general fine condition and the bilge was accumulated in satisfactory condition.
24. 机舱 CO<sub>2</sub> 固定灭火系统，46 升大型泡沫灭火器及小型手提式灭火器均处于正常状况，符合防火控制图的配备要求。In E.R., CO<sub>2</sub> fixed fire-extinguishing installation, 46-ltr large froth fire extinguisher and portable fire extinguishers were all found satisfactory and fitted in places in compliance with the fire control plan.
25. 食品冷冻机组工作状态欠佳。船东已计划在近期内换新。冷库内应急求援装

置经实效试验情况合格。The provision refrigerating installation was found in poor working condition and the Owner has intended to renew it soon. The emergency warning device in reefer space was functionally tested and found satisfactory.

26. 驾驶室整洁。航行设备包括: The wheelhouse was clean. The navigational equipment includes:

- 1) KGP-911 卫星定位仪, 一台。KGP-911 satellite locator, 1 set;
- 2) ADF-2200 测向仪, 一台, 某年 3 月 16 日经误差校准。ADF-2200 direction finder, 1 set; Its calibration was checked on March 16, (year).
- 3) 磁罗经, 某年 3 月 16 日经误差校准。Magnetic compass, 1 set, its deviation was checked on March 16, (year).
- 4) ANSCHUTZ-KIEC 电罗经一台。ANSCHUTS-KIEC gyro compass, 1 set;
- 5) JMA-8253-7 及 MR-1200E 雷达各一台。JMA-8253-7 & MR-1200E radars, 1 set each;
- 6) TF-733 气象传真一台。TF-733 weather facsimile, 1 set;
- 7) ITT STR-65 VHF 电话一台。ITT STR-65 VHF radiotelephone, 1 set;
- 8) SZS-3 测深仪一台。SZS-3 echo sounder, 1 set;
- 9) XZC2-2 数字气象仪一台。XZC2-2 digital meteorograph, 1 set;
- 10) 应急示位标。SARSET E.P.I.R.B., 1 set.

适用该轮航班区的海图、94 年版潮汐表及最新版的航路指南、航行通告均已配备。The charts fit for the ship's sailing area, tide tables, up-to-date sailing directions and notices to marines were all provided.

27. 无线电报设备处于正常使用状态, 包括:

The radiotelegraph station including the following installations was found satisfactory:

- 1) ELETROMEKANO S1250 主发信机 ELETROMEKANO S1250 main transmitter;
- 2) ITT ST86B 应急发信机 ITT ST86B emergency transmitter;
- 3) AK5023 自动拍发器 AK5023 automatic alarm signal keying device;
- 4) R5001 主受信机 R5001 main receiver;
- 5) M125 应急收信机 M125 emergency receiver;
- 6) 单边带 Single sideband;
- 7) CB-1B 自动报警(500KHz) CB-1B auto alarm (500KHz);
- 8) DC-300D 自动报警(2182KHz) DC-300D auto alarm (2182 KHz);
- 9) TRP-5001 备用发信机 TRP-5001 reserve transmitter.

此外, 蓄电池组处已正常维护状态, 有关出版物已配备。Besides, the batteries were found in satisfactory maintenance condition. The relevant publications were provided.

28. 厨房、食品库清洁整齐, 完整无损。The galley and the provision locker were found clean and in good condition.

### C. 综述

#### GENERAL CONDITION

该轮船年龄已达 33 年。船体，尤其是上甲板锈蚀状况严重，局部范围已超出 CCS 船级社的规定。据了解，该轮某年 6 月完成船级特别检验项目，下次特别检验间隔期已定为二年。The ship is 33 years old. The ship's hull, especially upper deck plating, was found seriously corroded and partial locations corroded over the allowance limits set forth by the China Classification Society. Upon investigation, the last class special survey items were completed in June (year), and later on 2-yearly interval special survey will be undertaken.

在全况检验期间，下列缺陷被发现，并以备忘录通知船长：During the full condition survey, the following defects were found and advised in a memorandum to the ship's Master:

1. 艏楼甲板上右侧空空气管在根部烂穿应予割换；Std side air pipe on forecastle deck corroded & holed at heel to be cropped & renewed.
2. 前桅屋平台中部的通风筒从根部烂穿 0.5 米高应予割换；Ventilator on the center of platform of fore mast house corroded & holed at height of 0.5m from bottom to be cropped & renewed.
3. 艏楼前舱壁左、右水密门上的水密盖严重腐蚀应予换新；Watertight covers above the port & std watertight doors at fore bulkhead of poop seriously corroded and detached to be renewed.
4. 第四、五货舱与艏楼间桅屋处的左舷舷墙严重倾斜应予开航前修妥；Port bulwark in way of the mast house bet. No.4 & No.5 holds and poop seriously inclined to be repaired before the ship's departure.
5. 泵间内的机器和电气设备应予整洁。Machinery & electrical equipment in pump room to be cleaned & tidied and useless things to be cleared off.

在整个检验过程中，船长、轮机长及有关船员均给予良好的合作，且上述书面通知的缺陷第一至四项船东已作永久性修理。During the whole period of this survey, the ship's Master, Chief Engineer and the crew members concerned all gave very kind co-operation. And the defects in the above-mentioned items 1-4, which were advised in a memorandum, were permanently repaired by the Owner.

## 制造中缺陷

应“XXXX”轮船东申请，于某年 5 月 5 日及以后诸日在上海港对该轮船体及设备、轮机及电器设备等的损坏项目及制造中的缺陷进行了检验，情况如下：

THIS IS TO CERTIFY that, at the request of the Owner of the M.V. “XXXX”, the undersigned surveyor did attend on board the said ship in Shanghai Harbor on May 8, (year) and subsequent dates, for the purpose of carrying out a survey to the damaged items and the defects in manufacturing of the ship's hull, outfits, machinery and electrical equipment.

### 检验查明

#### Found:

I. 船体及设备部分 HULL AND OUTFITS

### 要求/建议

#### Requirements/Recommendations:

- |   |   |
|---|---|
| <p>1. 所有露天甲板货舱盖在未扣紧的情况下，舱盖的钢板已和舱口围板水平桁相接触，这样已无法将舱盖的密封橡皮压紧。All steel hatch covers on weather deck, the edge of cover plates would come into contact with the horizontal flats even with the clamping devices being nor tightened, thus preventing the rubber gaskets from being tightly pressed.</p> | <p>应修妥 To be remedied.</p>  |
| <p>2. 露天甲板货舱盖的油路胶管太长，有碍货舱盖的顺利启闭。All steel hatch covers on weather deck, the hydro-pressure rubber oil pipes excessive in length, hindering the hatch covers from being easily opened or closed.</p>   | <p>应修妥 To be remedied.</p>  |
| <p>3. 艏左、右淡水柜的注水管和空气管现合用一根管子，不妥。Port and std stern F.W. tanks, a common pipe was found to be used both for filling and air-relieving.</p>   | <p>应各加装注入管。To make and fit separate filling pipe to each tank.</p>      |
| <p>4. 室内走廊楼梯踏步胶皮五处脱落。Stair in the interior alleyway, rubber mats of 5 steps detached.</p>   | <p>应修复 To be repaired.</p>  |
| <p>5. 餐厅地板塑料贴面约 3 平方米脱落。Plastic flooring in saloon detached over an area about 3 m2.</p>  | <p>应修复 To be repaired.</p>  |
| <p>6. 桅室门挂钩漏装四处，位置不妥三处。Mast house door hooks, 4 omitted from A38, A37, A35 and A27; and 3 improperly positioned in A28, A29 and KK-7.</p>   | <p>四处补装，三处修复 4 new hooks to be fitted; 3 hooks to be re-positioned.</p> |
| <p>7. 厕所围壁漏水。The boundary plating of lavatory A-11 leaky.</p>   | <p>应检查修复 To locate leakage and repair.</p>                              |
| <p>8. 艏楼及端壁一水密门和邻近的货舱通风管道门不能同时开启。The opening of one W.T. door in the aft bulkhead of forecastle would interfere with the opening of one adjacent cover plate for the ventilating port.</p>  | <p>应改装 To be re-arranged.</p>   |
| <p>9. 艏部导缆孔的圆钢端部焊缝裂开。Stiffening bar of one mooring pipe on forecastle, end welds broken.</p>  | <p>应焊补 To be re-welded.</p>   |
| <p>10. 乒乓球室内地板敷料裂开。Deck coverings in Ping Pong room badly cracked.</p>  | <p>应敲去重敷 To be chipped off and re-laid.</p>                             |
| <p>11. 所有起货设备地令选用型式不当，有下列缺陷：All deck eyeplate of cargo lifting gear unfit for service due to inadequate choice of type. The existing type was found</p>   | <p>应全部换新 All to be replaced by a suitable type.</p>                     |

to have the following deficiencies:

- 1) 该型式的地令和甲板的焊缝无法作封闭的周围焊, 焊缝端部有应力集中, 易裂开。welds connecting the eyeplates to deck plating could not be carries around and closed at ends, and ends of welds liable to be subject to concentrated stress and cracked;
- 2) 地令和甲板间有空隙, 内部易积水且无法保养。Excessive clearances left between the eyeplates and deck plating, hindering normal maintenance, and water is liable to accumulate.
12. 所有起货设备羊角选用型式不当, 强度不符合要求, 现已有四只断裂。All cleats of cargo lifting gear deficient in strength due to inadequate choice of type, 4 were found broken. 应全部换用合适规格羊角。All to be replaced by a type of suitable dimensions.
13. No.10 起货机变速器手柄不能在原设计位置固定, 且手柄已变形。Clutch gear control handle on No.10 cargo winch bent, and the handle could not be fixed at designed positions. 应检查并按设计要求修复 To be examined and repaired to meet the design requirements.
14. 驾驶甲板左舷红灯的灯座挡水板太低, 致使积水溢出, 污染外板油漆。Port side sidelight housing on bridge deck, the shipside flange bar insufficient in height; accumulated water would easily overflow, liable to stain the paintwork down below. 应适当提高。To be raised to a suitable height.
15. 部分甲板流水孔位置不妥, 致使甲板有积水, 具体部位如下: Part deck scuppers improperly positioned, causing water to accumulate on decks: 应解决 To be remedied.
  - 1) 主甲板 No.4 舱后左右两边 Port and std sides abreast No.4 hatch aft on main deck;
  - 2) B 层后甲板前部左右两边 Port and std sides forward on B aft deck;
  - 3) 驾驶台左右两边 Port and std sides on bridge.
16. 部分甲板流水孔位置不妥, 致使甲板有积水, 具体部位如下: Part scuppers at the inside of compartments improperly positioned. 应解决 To be remedied.

- 1) 1 scupper in A20 port forward;
  - 2) 1 scupper in A-11 port forward;
  - 3) 1 scupper in A10 port forward;
  - 4) 1 scupper in bath room on A aft deck;
  - 5) 1 scupper in lavatory on A aft deck;
  - 6) 1 scupper in Rm.B23;
  - 7) 1 scupper in Rm.B23;
  - 8) 1 scupper in bath room B17.
17. 所有二层舱盖滚轮油嘴位置不妥。All grease nipples on the rollers of tweendeck steel hatch covers improperly positioned. 需改进 To be remedied.
18. Nos.1,2,3,4 大舱的通风管道出口水密盖的橡皮填料损坏。Rubber gaskets on the covers of ventilating ports for Nos.1,2,3 & 4 holds deteriorated. 应换新 To be renewed.
19. 水密门橡皮损坏总长约 20 米。Rubber gaskets on the W.T. doors deteriorated over an aggregate length about 20m. 应换新 To be renewed.
20. 舱盖水密橡皮损坏约 50 米。Rubber gaskets on the steel hatch covers deteriorated over an aggregate length about 50m. 应换新 To be renewed.
21. 舷窗水密橡皮损坏约 50 米。Rubber gaskets on the side scuttles deteriorated over an aggregate length about 50m. 应换新 To be renewed.
22. 由拉手拉气笛的钢丝转弯太多，经常卡住。Hauling wire for operating the whistle seized frequently due to excessive bends in the line. 应改进 To be remedied.
23. A20 室内通风管有漏水情况。The ventilating duct in room A20 leaky. 应检查修妥 To locate leakage and repair.
24. B9 室内天花板漏水。Overhead ceiling in room B9 leaky. 应检查修妥 To locate leakage and repair.
25. A20 室内壁板（在方窗角处）裂缝。Partition plating in room A20 cracked in way of the corner of one square window. 应焊妥 To be welded.
26. 第四舱处舵右舷墙有 10 米处焊缝裂开。Welds in both port and std side bulwarks abreast No.4 hatch cracked at 10 locations. 应焊补 To be re-welded.
27. 第五舱测量管弯头太大，量水尺放不下。No.5 hold bilge sounding pipe improperly arranged and unfit for taking soundings. 应改装 To be remedied.
28. 艉双层底水柜测深管位置不妥。Sounding pipes of aft D.B. tanks 应改装 To be remedied.

- improperly arranged, and unfit for taking soundings.
29. 消防皮龙箱玻璃破碎共八块。8 pcs of window glass of the hose boxes broken. 应换新 To be renewed.
30. B25, B26, B27 室内天花板漏水。Overhead ceiling in rooms B25, B26 and B27 leaky. 应检查修妥 To locate leakage and repair.
31. 驾驶两边的移门和门框相擦, 开启困难, 门挂钩损坏。Port and std side doors (sliding type) of wheel house seized by doorframes, difficult to operate, and door hooks damaged. 门修妥, 挂钩换新 Doors to be repaired to ensure free moving, door hooks to be renewed.
32. 驾驶室后门挂钩座因固定在隔热物上, 致使固着强度不足而脱落, 此外, 尚有 D12, E1, E4, C1, B38, A1, A10, A11, A20 及 A21 左右走廊门的挂钩有类似缺陷。Aft door of bridge house, the door hook dropped due to the hook being attached to the insulation on boundary plating; similar defects were found to door hooks of rooms D12, E1, E4, C1, B30, A1, A10, A-11, A20 and A21. 挂钩座应移位至门的框架处 Hooks to be re-positioned and attached directly to door frames.
33. C22 右, D19 左右, B43 左, A21 右后走廊门的自动开闭失灵。Self-closing devices of the following alleyway doors out of order: C22 std, D19 port and std, B43 port, A21 std aft. 应修复 To be repaired to ensure proper function.
34. 第二舱前吊杆架处, 固定吊钩用的令圈位置不妥。One deck ring plate for securing the cargo hook in way of No.2 forward derrick strut improperly positioned. 应移位 To be re-positioned.
35. A 层甲板左走廊后门损坏。Aft door of port alleyway on A deck damaged. 应修复 To be repaired.
36. D11 厕所及 D 层左厕所的马桶坐圈各一只损坏。W.C. seats broken, one each in lavatory D11 and in port side lavatory on D deck. 应换新 To be renewed.
37. 驾驶台前方固定式的窗在室外一面擦洗不便。The fixed type windows at the front side of bridge inconvenient for cleaning from outside. 建议改装为可开启的窗 To be converted into open/close type.
38. D 层甲板走廊左后门打开后不能固定。Aft door of std alleyway on D deck could not be secured in opened position. 应改装门钩 Door hook to be converted into a suitable type.
39. 尾垃圾箱底盖活页损坏。Bottom flap of 应修复 To be repaired.

- refuse container at stern of ship damaged.
40. 第一、二舱右边舷墙及艏楼右前部舷墙内陷,局部焊缝裂开(据该轮船长告称系受浪击所致。) Std side bulwark plating abreast Nos.1 and 2 hatches and std forward bulwark plating on forecastle deck set in, and part welds broken. (attributed to sea damage as stated by the Captain). 应修复 To be repaired.
41. A19 室窗口下的内壁板损坏。Inside panelling underneath the window in room A19 damaged. 应换新 To be renewed.
42. B41 室洗脸盆破损。One wash basin in room B41 broken. 应换新 To be renewed.
43. C9, D11, D9. E3, B31 室内镜子水银脱落。The tinfoil paper of mirrors in rooms C9, D11, D9 E3 and B31 deteriorated. 应换新 To be renewed.
44. C 层甲板客厅门外楼梯踏步防滑橡皮条一处脱落。Rubber mat of one step of the stair outside the saloon on C deck detached. 应修复 To be repaired.
45. C1 室内椅子的两个挂钩和五只凳脚垫套损坏。2 securing hooks and 5 leg shoes of the chairs in room C1 damaged. 应修复 To be repaired.
46. C1 室内拉门的下面滑轮脱落。Bottom rollers of the sliding door of room C1 dropped. 应修复 To be repaired.
47. A1 室内移动把手损坏。Sliding door handle of room A1 damaged. 应换新 To be renewed.
48. DP2, DP3。DP4 室内的冷藏管路未包绝缘物。Insulation lagging of cooling pipes in room DP2, DP3 and DP4 omitted. 应加包 To be properly lagged with insulation.
49. 物料间五个木柜损坏。5 wooden boxes in store room damaged. 应修复 To be repaired.
50. C1 室内船钟不走。One clock in room C1 out of order. 应修理 To be repaired.
51. 30 室内桌腿和椅子腿裂开。Legs of the table and chair in room B30 cracked. 应修理 To be repaired.
52. A10 室的门损坏。Door of room A10 damaged. 应修理 To be repaired.
53. 救生艇物料箱盖无水密橡皮圈。Rubber gaskets omitted from the covers of all boat-equipment boxes. 应加装 To make and fit complete with gaskets.
54. 机舱棚内在靠近 C13 室处有一根污水管子漏水。One scupper pipe in engine room 应检查修复 To locate leakage and repair.

- casing adjacent to room C13 leaky.
55. 罗经甲板上通风道室顶部漏装落水管。 One compass deck, one scupper pipe leading from the top of ventilator room omitted. 应补装 To make and fit one scupper pipe.
56. No.4 舱右后通风筒和主甲板的焊缝裂开。 Welds connecting the ventilator to main deck at std aft side of No.4 hatch broken. 应焊补并适当加强 To be re-welded and suitably strengthened.
57. 各露天甲板舱口盖渗水及内部凝水导致甲板上出口处（每舱口后端左右个一只）无防止海水倒灌设施。 All drain pipe outlets fitted on the aft ends of horizontal flats (one pipe each on port and std sides for each hatch) for draining off the condensed and infiltrated water from the hatch covers, unprotected from ingress of water. 每一出口处应加装止回阀 To fit non-return valve to each drain outlet.
58. 驾驶台的右门塑料贴面板及 C 甲板走廊塑料贴面板裂开。 Plastic facings on the bridge house std door and on the side bulkheads in alleyway on C deck cracked. 约 10 平方米需换新 To renew about 10m2.
59. No.2, No.3, No.4 舱舱盖的开关箱变形（据该轮船长告称系受浪击所致）。 Covers of control boxes used for operating Nos.2,3 & 4 hatch covers deformed. (Attributed to sea damage as stated by the Captain). 应校正，并作适当加强 To be faired and suitably strengthened.
60. No.4 舱左舷带缆孔损坏。 Port side mooring pipe abreast No.4 hatch cracked. 应修补 To be repaired.
61. 厨房间抽风筒在下雨或甲板上浪时要积水。 Ventilating port for galley liable to be subject to ingress of water during raining or shipping water on deck. 应改进 To be remedied.
62. 艉部导缆滚轮位置不妥，带缆时缆绳需经过方角的船尾部分，缆绳极易损坏。 Aft mooring checks improperly positioned, causing the mooring lines to pass around the sharp corner of stern, thus the mooring lines would be most likely to be subject to chafing damages. 应改进 To be remedied.
63. 室外甲板敷料有些地方有锈水泛出。计有：B 层约 4 平方米，C 层约 9 平方米，D 层约 12 平方米，E 层约 4 平方米，顶层约 62 平方米。 Exterior deck coverings were found to show signs of rusting, about: 应将甲板敷料除去后重敷甲板敷料 Deck coverings to be removed where rusted, and to be re-lain after removing rusts from decks.

4m<sup>2</sup> on B deck, 9m<sup>2</sup> on C deck, 12m<sup>2</sup> on D deck, 4m<sup>2</sup> on E deck and 62m<sup>2</sup> on top deck.

64. C19 室内抬子抽屉损坏。One table drawer in room C19 damaged.

应修妥 To be repaired.

## II. 轮机部分 MACHINERY

1. 主机透平增压器的润滑油过滤器只有一只单联滤器，航行时不能清洗。Lub. oil filter for main engine turbo-superchargers incapable of being cleaned during navigation because only one set was fitted.

应增设一只与原滤器并联的滤器  
To fit one more filter in parallel with the original.

2. 主润滑油泵出口至各分路管上没有调节各分路润滑油压力的调节阀。Lub. oil pressure in branch pipes incapable of being regulated due to no regulating valves being installed in branch pipes from the output side of main lub. oil pump.

应在各分路管上设一调节阀 To install one regulating valve in each branch pipe.

3. 第 1,2,3,4,5,6 道中间轴承座漏油严重。Nos.1,2,3,4,5 & 6 intermediate shaft bearing seats seriously oil-leaky.

应修妥 To be repaired.

4. 主机第二号透平增压空气冷却器盖板的垫片破裂。Air cooler for main engine No.2 turbo-supercharger, the cover gasket broken.

应换新 To be renewed.

5. 螺旋桨经潜水员探摸有严重的空泡腐蚀（详见潜水员探摸报告）。Propeller blades pitted seriously due to cavitation erosion. (see diver's report)

应找出螺旋桨引起空泡腐蚀的原因并加以纠正（包括备用螺旋桨）To find out the cause of pittings from blades and remedied (including spare propeller).

6. 由空气瓶至各柴油发电机组的分路管路上没有截止阀。No stop valves installed in branch pipes from air vessels to each diesel generating set.

应在各分路上个设一截止阀 One stop valve to be installed in each branch pipe.

7. 三座柴油发电机的原动机的淡水冷却系统均无放水旋塞。Fresh water cooling systems for three diesel-generating prime movers, no drain cocks being fitted.

应在各原动机的淡水冷却器系统最低处设一放水旋塞 One drain cock to be fitted at the lowest position in each fresh water cooling system.

8. 第一号柴油发电机的原动机的空气启动操纵阀杆断裂。Air starting control valve spindle of No.1 diesel generator prime mover broken.

应予换新 To be renewed.

9. 第一号柴油发电机的原动机第四缸组曲柄箱刀门有穿孔砂眼。Crank case door of No.4 cylinder unit of No.1 diesel generator

应予换新 To be renewed.

- prime mover was found to have through sand holes.
- |   |                                      |
|---|--------------------------------------|
| 10. 三座柴油发电机的原动机的喷油嘴 7 只损坏。7 pcs of fuel injector of three diesel generator prime movers damaged.  | 应予换新 To be renewed                   |
| 11. 燃油副锅炉和废气锅炉的安全阀均漏气。All safety valves of oil-fired aux. boiler and exhaust gas boiler leaky.  | 应进行研磨 To be fitted and ground.       |
| 12. 付食冷藏用的第一和第三号压缩机的控制系统失灵。Control systems of Nos.1 & 3 compressors for the refrigeration of food provisions out of order.  | 应进行修理 To be repaired.                |
| 13. 三座发电机组的手摇润滑油泵因装置不当, 无法使用。Lub. oil manual pumps for three generating sets unfit for use because of unproper arrangement.   | 应进行合理布置 To be properly arranged.     |
| 14. 有下列各泵的轴封损坏: Following shaft seals damaged:<br>1) 主机第一号油水分离器 Main engine No.1 sea water pump;<br>2) 柴油发电机组第一号淡水冷却泵 No.1 fresh water cooling pump for diesel generating sets;<br>3) 废气锅炉的第一号和第二号循环水泵 Nos.1 & 2 circulating pumps for exhaust gas boiler;<br>4) 第一号卫生海水泵 No.1 sanitary sea water pump;<br>5) 空调用的海水冷却水泵 Sea water cooling pump for air conditioning;<br>6) 日用热水循环泵 Daily hot water circulating pump. | 应予换新 To be renewed.                  |
| 15. 淡水驳运泵至锅炉水舱管路上的截止阀失灵。Stop valve in the piping between fresh water transfer pump and boiler feed water tank out of order.   | 应予换新 To be renewed.                  |
| 16. 空调系统各阀均发现漏气。All valves of the air conditioning system leaky.  | 应进行研磨 To be fitted and ground.       |
| 17. 主机喷油嘴冷却水系统的自动控制系统失灵。Auto-control device for fuel injector cooling water system of main engine out of order.   | 应检查修复 To be overhauled and repaired. |
| 18. 主机曲轴箱的油雾探测器损坏。Oil mist detector for main engine crankcase   | 应予修复 To be repaired.                 |

- damaged.
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| 19. 2 台主空气压缩机的自动控制系统均失灵。Auto-control devices for two main air compressors all out of order.  | 应予修复 To be repaired.   |
| 20. 右主空气瓶至主机柴油发电机组的输出阀均发现漏气。All output valves on the std main air vessel to main engine and diesel generators leaky.   | 应进行研磨 To be fitted and ground.   |
| 21. 应急空气压缩机的离合器不能使用。Clutch of the emergency air compressor out of order.   | 应予修复 To be repaired.   |
| 22. 主机活塞冷却水柜里面油漆脱落。Inside paintwork of main engine piston cooling water tank peeled.   | 应对活塞冷却水系统进行检查和清洁 Piston cooling water systems to be overhauled and cleaned.  |
| 23. 主机淡水冷却水的膨胀水柜里面油漆脱落。Inside paintwork of fresh cooling water expansion tank for main engine peeled.  | 进行检查清洁 Main engine fresh cooling water systems to be overhauled and cleaned. |
| 24. 尾轴冷却水的回水管在焊接法兰处渗漏。Tail shaft cooling water return pipe leaking in way of the welded flange.  | 应重焊 To be re-welded.   |
| 25. 主机消音器的落水管有一段管子破裂。One section of drain pipe for main engine silencer broken.  | 管子割换一段 To crop and renew one section of pipe.                                |
| 26. 由废气锅炉至燃油副锅炉的蒸汽管在一焊接处渗漏。One steam pipe connecting the exhaust gas boiler to oil-fired aux. boiler leaky in way of the weldes flange.  | 应重焊 To be re-welded.   |
| 27. 前气笛的空气减压阀渗漏。Air reducing valve for fore whistle leaky.   | 应进行研磨 To be fitted and ground.   |
| 28. 鱼肉冷藏间 F12 进水管在通过蔬菜间一段均无绝缘材料敷设。The insulation laggings omitted from the F-12 inlet and outlet pipes for fish and meat refrigerating room, where passing through the vegetable room. | 应补敷绝缘材料 To be properly lagged with insulation.                               |
| 29. 左机舱门的绝缘材料脱落。Insulation on engine room port side door dropped.  | 重新敷设绝缘材料 To be relaid with insulation.                                       |
| 30. 舵机舱振动严重因引起下述项目损坏：<br>Following items damaged due to serious vibration in steering gear room:   | 应消除舵机间的异常振动。损坏项目按要求修复<br>Abnormal vibration to be removed, and:              |
| 1) 应急消防泵的原动机的排气管振裂<br>Exhaust pipe of the primer mover of emergency fire pump broken;  | 应予换新 To be renewed.  |

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| 2) 舵机油泵的补充油管振裂。<br>Supplementary oil pipe of steering gear oil pump broken;  | 应重新设计后换上 To be renewed but subject to new design.  |
| 3) 舵机控制系统的一根油管振裂。 One oil pipe in the control system of steering gear broken;  | 应换新 To be renewed.   |
| 4) 艏部左右淡水泵舱舱壁振裂漏水。 Plating of stern port and std fresh water tank cracked and leaky.   | 裂缝钢板应换新并作适当加强 Cracked steel plates to be renewed and strengthened appropriately, after repair, tanks to be tested for tightness. |
| 5) 绞缆机的电动机的控制箱内电阻脱落。 Resistors in the motor control box for warping winch disconnected.  | 修复后控制箱应重新布置 To be repaired, after that, the control box to be properly rearranged.   |
| <b>III. 电气设备部分 ELECTRICAL EQUIPMENT</b>  |  |
| 1. No.1, No.2, No.3 三台发电机激磁滑环接缝间隙太大, 最大约 2.5mm, 使发电机运转不正常。 Slip ring of Nos.1,2 & 3 generators excessive in clearnace, the max. clearance about 2.5mm. (see photo 1 ) and it caused the generators working abnormally. | 应换新 All to be renewed.   |
| 2. No.3 发电机激磁滑环有明显缺陷。 Slip rings of No.3 generator were found to have significant surface defects. (see photo 2)   | 应换新 To be renewed.   |
| 3. 主机 No.1 润滑油泵电动机接线盒内有锈斑。 No.1 lub. oil pump motor of main engine, the inside of terminal box rusted.   | 应查明原因并解决 To be checked and remedied.   |
| 4. 主机 No.2 润滑油泵电动机接线盒内有锈斑。 No.2 lub. oil pump motor of main engine, the inside of terminal box rusted.   | 应查明原因并解决 To be checked and remedied.   |
| 5. 主机盘车机电动机接线盒内有锈斑, 并其控制箱内指示灯不亮。 Turning gear motor of main engine, the inside of terminal box rusted and the pilot lamp of its control box failed.  | 应查明原因并解决 To be checked and repaired.   |
| 6. 付锅炉自动控制系统其燃油低温报警部分, 高低水位报警部分及蒸汽高压报警部分工作均不正常; 打风电动机的电缆损坏。 Auxiliary boiler auto-control systems, the alarms for fuel oil low-temperature, high and low-water levels and steam high pressure abnormal in operation;   | 应修复 To be repaired.  |

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| Feeding cables of the blower motor damaged.  | 应换新 To be renewed.                             |
| 7. 机舱通风机控制箱 (P2-1) 内主接触器线圈烧坏。Main contactor coil in the control box (P2-1) for engine room ventilating fan burnt.  | 应换新 To be renewed.                             |
| 8. No.1, No.2 伙食冷藏机润滑油低压开关工作不正常。Nos.1 & 2 provision refrigerating compressors, the lub. oil low-pressure switches out of order.                                  | 应修复 To be repaired.                            |
| 9. No.1 柴油发电机润滑油低压保护装置的电缆损坏。Cables of lub. oil low-pressure protective devices for No.1 diesel generator damaged.  | 应换新 To be renewed.                             |
| 10. 左右燃油沉淀舱液位发信器工作不正常。Port and std oil fuel settling tanks, the transmitters of oil level indicators abnormal in function.                                       | 应修复 To be repaired.                            |
| 11. 主机透平增压器的回油观察灯安装不合适。The lighting for lub. oil sight-flow glasses of main engine turbo-superchargers improperly positioned.                                    | 应改装 To be re-positioned.                       |
| 12. 第二舱双杆平行电动机的接线盒与机壳之间连接焊缝裂开。Cargo winch of starboard galleys type boom of No.2 hatch, the welded seams connecting the terminal box to the motor frame cracked. | 应修妥 To be repaired.                            |
| 13. 第二舱右双杆平行吊电动机的接线盒变形 (编号 067568)。Cargo winch of std galleys type boom of No.1 hatch, the terminal box cover of winch motor (serial No.067568) deformed.        | 应换新 To be renewed.                             |
| 14. 第二舱前右起货机电动机的接线盒内有积水。Terminal box of std forward cargo winch of No.2 hatch leaking, with water accumulated in the box.  | 应查明原因并检修 To check cause of leakage and remedy. |
| 15. 应急照明蓄电池上下排间距太小, 影响维修保养。Space between the top and low rows of emergency lighting batteries inaccessible for maintenance due to limited spacing.               | 应改装 To be re-arranged.                         |
| 16. 配膳室烧水炉电热丝烧断。Heating elements of water cooking boiler in pantry burnt out.  | 应换新 To be renewed.                             |

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|---|--|
| 17. 第五舱左前方将军柱上的一只甲板照明灯的灯架损坏。One flood lamp bracket on the post at port forward side of No.5 hatch fractured.  | 应修复 To be repaired.  |
| 18. 起货机的电动机控制箱室、锚机电动机控制箱室、通风机电动机控制箱室和冷藏机及空调控制箱室均没有铺设防滑和耐油的绝缘地毯。Oil and slip-resistant non-conducting mats omitted from the control box rooms of cargo winches, windlass, fan motors and refrigerating and air-conditioning machinery. | 建议铺设防滑和耐油的绝缘地毯 It is recommended that non-conducting mats be provided. |
| 19. 起货机的电动机控制继电器 U11 和 U12 损坏各二只。4 control relays for cargo winch motors damaged (2 each of U11 and U12).   | 应换新 To be renewed.   |
| 20. 日光灯镇流器共 22 只与该轮电站频率为 60Hz 不符。22 fluorescent lamp ballasts (50Hz, 220V, 20W) unfit for ship's net work frequency (60Hz).   | 应调换 To be replaced by ballasts of proper type.                         |
| 21. 主机盘车机的电动机移动控制器的电缆损坏。The flexible cable of portable remote control pushbutton for the motor of M.E. turing gear damaged.   | 应换新 To be renewed.   |
| 22. 移动抽水泵电动机其频率为 50Hz, 与该轮电站频率为 60Hz 不符。Motor (50Hz) of the portable bilge pump (V010, serial No.0212303/00333) unfit for the ship's net work frequency (60Hz).   | 应调换 Pump set to be replaced by proper type.                            |
| 23. 驾驶室自动电话及机舱控制间直通电话的铃声均太轻。The sound of telephone bells of the auto-telephone in wheel house and of the direct two-way telephone at the engine room control station inaudible.   | 应解决 To be remedied.  |
| 24. 冷藏机和起货机的电动机的控制箱内均无接线图或原理图。Wiring and schematic diagrams omitted from the control boxes for the refrigerating machinery and cargo winch motors.  | 应配齐 To be furnished by ship builder.                                   |
| 25. 厨房照明电缆一根损坏。One lighting feeding cable in galley damaged.  | 应换新 To be renewed.   |
| 26. 舵角指示器现从照明分电箱 L-9-19 供电, 不妥。Rudder angle indicator improperly fed from the lighting  | 建议从助航仪器分电箱供电 To be fed from the navigation aid distribution box.       |

- distribution box (L9-19).
27. 烟囱吸灰装置的电动机，现从照明分电箱供电，不妥。The motor of funnel soot blower improperly fed from lighting distribution box. 建议从动力分电箱供电 To be fed from power distribution box.
28. 主发信机的整流器 A3A1 损坏。Rectifier A3A1 of main radio transmitter (S 1250 serial No.71200-1) damaged. 应换新 To be renewed.
29. 无线电充电系统电源变压器烧坏一只。One power transformer (440/220V, AC, 60Hz) of charging facilities for radio equipment burnt out. 应换新 To be renewed.
30. 广播系统扩大机的功率放大管损坏一只。One power tube (RCA-40411) of the amplifier of broadcasting system damaged. 应换新 To be renewed.
31. 艏艙对讲机喇叭的罩壳均损坏。Both casings for the two-way loudspeakers on the forecabin and poop damaged. 应修复 To be repaired.
32. 报房工作椅没有固定在地板上的拉攀。Working chair in the radio room short of weather fastening fittings. 应加装 To be properly fitted.
33. 机舱内计程仪复示器指示不正确。The indication of log repeater in engine room incorrect. 应修妥 To be repaired.
34. 据船方告称并查阅航海日志，电磁式计程仪工作不正确。Electro-magnetic log abnormal in working. (Alleged by ship's Captain and confirmed with deck log book.) 应修妥 To be repaired.
35. 舵机房陀罗罗经复示器安装位置不妥，无法对复示器进行调整。One gyro repeater in steering gear room inaccessible for adjusting due to improper position. 应移位 To be re-positioned.
36. “B” 雷达工作失灵。“B”radar out of order 应修妥 To be repaired.

## 火灾事故 Fire Accident

某年 1 月 11 日，该轮载着 22000 吨原油从大连出发开始今年以来的第二次航行。该轮到达上海金山石化总厂陈山码头。15 日 12 点 20 分，该轮卸完原油，离开陈山。On Jan. 11, (year), the tanker laden with 22000 tons of crude oil departed from Dalian for her second voyage of this year. 某年 1 月 13 日 18 点 40 分，At 1840 hrs on Jan. 13, XXXX, the tanker arrived at Chenshan Wharf of Jinshan General Petrochemical Works, Shanghai. At 1220 hrs on the 15<sup>th</sup>, the ship completed

discharging crude oil and left Chenshan.

当日 22 点, 该轮锚泊于吴淞 2 号临时锚地等待加油。直到 18 日 11 点 14 分, 该轮由供油船供给 200 吨残油。At 2200 hrs on the same day, the ship anchored at Wusong No.2 temporary anchorage in order to wait for refreshing. Until 1114 hrs on the 18<sup>th</sup>, the tanker was supplied with 200 tons of residual fuel oil by the oil supply tanker “ GONG YOU X HAO ”.

该轮在长江逆流而上于当日 15 点 42 分途经上海石洞口发电厂附近时发生爆炸。While passing up stream in Changjiang River in the vicinity of Shidongkou Power Plant, Shanghai, at 1542 hrs on the same day, the oil tanker exploded.

### 火灾事故的经过和原因

#### Process and cause of fire accident

该轮于 1 月 18 日 11 点 45 分在吴淞 2 号临时锚地由供油船供给 200 吨残油后, 与当日 14 点 30 分起锚, 航行至杨林油污处理站。在作洗舱准备的航行中, 于 14 点 35 分, 货油舱开始用从蒸汽管系释放 6 巴蒸汽来清洗。在用蒸汽清洗的过程中, 发现机舱内的蒸汽管的旁通阀侧的旁通管被蒸汽刺穿。After the tanker was refreshed with 200 tons of residual fuel oil at Wusong No.2 temporary anchorage at 1145 hrs on Jan. 18, the tanker heaved her anchor at 1430 hrs on the same day and sailed to Yanglin Oily Sewage Treatment Station. While sailing for the purpose of making tank-washing preparation, the cargo oil tanks were begun to be steamed from 1435 hrs by means of 6-bar steam released through steam extinguishing piping system. During the period of steaming, the bypass pipe on the std side of bypass valve of the steam pipe in the engine room was found pierced by the steam.

轮机长对该管子进行检验, 发现上面有一个直径 1.5 厘米的洞。为了继续用蒸汽清洗油舱, 轮机舱用电焊将尺寸为 7cmx7cmx0.3cm 的钢板复在洞口上进行修理。当焊接到约 7 厘米长时, 轮机长拿起剩余焊条清除焊接残留物, 发现焊接处有一个直径为 3 毫米的小洞。然后, 他拿起另外一根焊条直接对该小洞进行焊补, 导致从蒸汽管系到货油舱相继爆炸和燃烧。The Chief Engineer Mr. Yan Yongchun was told to inspect the pipe and found a hole about 1.5cm in dia. in it. For the steaming tank to be continued, the Chief Engineer repaired the pipe with covering a steel plate, 7cmx7cmx0.3cm in size, against the hole by means of electric welding. When the welding approached 7cm in length, he took the residual electrode to clear welding residuum and found a small hold about 3mm in dia. at the place of welding. Then, he took another electrode to directly patch the small hole and in result, successive explosion and burning occurred from the steam piping to cargo oil tanks.

#### 经调查和技术分析, 事故发生的原因如下

Upon investigation and technical analysis, the cause of the accident could be attributed to the following:

从停止供应蒸汽到开始进行电焊约 50 分钟。在这一过程中, 蒸汽管逐渐冷却, 排空, 并处于负压状态。同时, 油舱中的蒸汽变成了水, 但是混有空气的油气是一种爆炸性气体, 它们中的一部分又回到了处于负压状态的蒸汽管内。当轮

机长用电焊对管子的破洞进行焊补时，明火与管内的爆炸性混合气体一经接触，爆炸和燃烧便发生了。It was about fifty minutes from stopping of steam supply to beginning of electric welding. In this period, the steam piping gradually cooled, emptied and under negative pressure condition, and meanwhile, the steam in the oil tanks changed to water but oil vapour therein mixed with air to be an explosive gas, part of which returned to steam piping under negative pressure condition. When Mr. Yan Yongchun patched the holed pipe with electric welding, the naked fire contacted with the explosive mixed gas in the pipe and thus, explosion and burning happened.

### 灭火与救助情况

#### Condition of fire-fighting & rescue

当日 15 点 42 分 119 接到火警。30 辆消防车和 1 艘消防艇迅速集合，271 名消防员赶赴事故发生地。上海港公安局外滩消防队派遣 1 艘消防艇，交通部上海港监、宝山钢铁总厂、崇明县运输公司等派遣共 12 条船参加灭火和救助。经过消防员的努力，大火于当晚 19 点 46 分扑灭。The station “119” of our Bureau received fire alarm at 1542 hrs on the same day. 30 fire vehicles and 1 fire boat were rapidly gathered, and 271 firemen rushed to the place where the casualty occurred. The Waterborne Fire Brigade of the Public Security Bureau of Shanghai Harbor dispatched 1 fire boat, and Shanghai Maritime Safety Administration of the Ministry of Communications, Baoshan General Iron & Steel Works, Shanghai Passenger Ship Company, Chongming County Shipping Company, etc. dispatched 12 boats in total to join fire-fighting and rescue. Through fireman’s endeavour, the tremendous fire was extinguished at 1946 hrs on the same date.

油轮爆炸着火后，船舫桥楼前的向船首的上甲板烧毁，甲板桥楼和桅倒塌、船舫桥楼严重烧毁，船舫桥楼后的二根桅倾倒，船体炸毁、变形、破裂，以致水进入空的货油舱，造成油轮下沉并搁浅。事故中，4 名船员受伤，4 名船员失踪。After the oil tanker “XXXXX” exploded and caught fire, the upper deck in front of midship bridge towards the bow burst; long walk (deck) bridge and mast collapsed; midship bridge seriously burnt; 2 masts behind midship bridge inclined downwards; the hull exploded, deformed and broken so that water entered the empty cargo oil tanks and the oil tanker sank and stranded. In the accident, 4 crew members were injured and 4 crew members disappeared.

### **遭遇坏天气 Encountering Bad Weather**

兹证明应中国人民保险公司上海分公司申请，下列署名的咨询验船师登

THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People’s Insurance Co. of China, attend on board

油轮 “XXXX” The motor tanker “XXXX”

船旗 Flag: China

船籍港 Port of Registry: Shanghai

总吨位 Gross Tonnage: 3335  
 全长 Length overall: 107.42m  
 宽 Breadth: 7.49m  
 登记号 Registered No.: XXXXXXXX  
 船东 Owner: XXXXXXXXXXXXXXXXXXXX

于某年 5 月 11 日及以后诸日在上海港进行了检验，以确定该轮损坏的性质、范围、原因及修理，情况如下：in Shanghai Harbor on Sept. 6, (year) and subsequently for the purpose of carrying out a survey to ascertain the extent, nature, cause and repair of the damage stated to have been sustained to the tanker in the following circumstance.

“XXXX” 轮于某年 7 月 9 日靠泊在菲律宾 LUCANIN 港时遭遇坏天气  
M.T. “XXXX” BERTHING ALONGSIDE THE JETTY IN PORT OF  
LUCANIN, PHILIPPINE ENCOUNTERED BAD WEATHER ON JULY 9, (year)

据该油轮的船长告称该轮于某年 7 月 9 日在菲律宾 XX 港靠码头卸原油时，遭遇热带风暴，大浪涌上该轮甲板，致使甲板设备遭受损坏。It was stated by the tanker’s Master that during discharging base oil alongside the jetty in the Port of LUCANIN, Philippine on the morning of July 9, (year), the tanker encountered tropical storm and heavy sea surged over the deck and thus the deck equipment was sustained damage.

损坏情况

CONDITION OF DAMAGE

检验查明 FOUND:

1. 左后扶梯栏杆拆断。The rails of the port aft ladder fractured.
2. 左后直径 2.5 米甲板泡沫平台及栏杆严重变形。The port aft deck foam monitor platform, dia. 2.5m, and its rails seriously deformed;

平台下部泡沫管子拆断。The foam pipe below the platform fractured;

修理要求 RECOMMENDED:

- 应予割换 To be cropped & renewed: dia.4.5cmx3.5m x 2 pcs.  
 应予割换 To be cropped & renewed:  
 平台 Platform – 钢网板 steel grating 3.5m2 x 8 mm, 钢板 steel plating 1.5m2 x 8mm, 角钢 angle bar L8mm x75mmx75mmx3m;  
 栏杆 Rails – dia.4.5cmx8m, dia.2cmx8m;  
 栏杆撑柱 Rail stanchions – 700mm x20mmx1.2m x 4 pcs.  
 割换 To be cropped & renewed dia.90mmx2.5m & dia.127mmx 1.8m;

- |  |  |
|--|--|
| 平台下支柱拆断。The platform pillar fractured.   | 割换 To be cropped & renewed dia. 137mmx3m.  |
| 3. 肋位 47#消防管、阀二只、法兰三对变形。The fire main pipe, 2 valves and 3 flanged at frm No.47 deformed.  | 管子割换 Pipe to be cropped & renewed dia. 65mmx3m x 2 pcs;<br>阀和法兰换新 Valves & flanges to be renewed.                                    |
| 4. 左舷甲板输油管严重变形; The oil transferring pipe on the port side upper deck between frm Nos.64-73 seriously deformed;  | 割换 To be cropped & renewed dia. 320mmx10.2m;   |
| 马脚三只、支架三只、法兰四对损坏。and its 3 lugs, 3 supports and 4 flanged damaged;   | 换新 To be renewed;  |
| 肋位 60#不锈钢伸缩节头变形损坏。The stainless steel expansion joint at frm No.60 deformed and damaged.   | 换新 To be renewed;  |
| 5. 左第四、五舱组合透气阀二只破损; Two combined vacuum valves of the port side Nos.4 & 5 tanks damaged;   | 换新 To be renewed;  |
| 左第四、五舱透气管严重变形 The air pipes bet. frm Nos.64-48 of the port side Nos.4 & 5 tanks seriously deformed;  | 割换 To be cropped & renewed dia. 160mmx2.5m x 2 pcs;  |
| 左第四、五舱透气管变形; The air pipe bte. Frm Nos.48-72 of the port side Nos.4 & 5 tanks deformed;  | 换新 To be renewed dia.240mmx25m;  |
| 马脚五只、法兰十二对变形。5 lugs and 12 pairs of flanges deformed.  | 换新 To be renewed.  |
| 6. 第四舱(左、右)液压控制阀管移位变形, 其中二根破断、其余 10 根弯曲。The pipes for hydraulic control valves of No.4 tanks, P & S, dislocated and deformed, among which, 2 pipes broken and the remaining 10 pipes bent. | 换新紫铜管 To be renewed copper pipe dia.14mmx2.3m x 2 pcs;<br>弯曲的管子校正后装复 The bent pipes to be faired & then refitted.                    |
| 7. 第四舱(左、右)高位报警系统电缆管折断损坏。The cable pipes for the high level alarm system of No.4 tank, P & S, fractured and damaged.   | 割换 To be cropped & renewed dia.45mmx3.2m x 2 pcs.  |
| 8. 天桥架从肋位 56#-72# 变形, 最大变形位置肋位 62#约 100 毫米。The cat walk between frm Nos.56-72 deformed about 100mm in max. deflection at frm No.62.  | 天桥架应予校正。The cat walk to be faired;<br>天桥下支撑应予割换。The lower supporting pillars to be cropped & renewed L100mmx100mmx8mm x2.5m x 8 pcs. |

9. 左后甲板油管小吊杆从底部拆断失落。 The hoisting device for oil pipe on the port aft upper deck broken and lost. 应予重新安装。 To be newly made & fitted.
10. 第四舱（左）小舱口舱围严重凹陷损坏。 The coaming of access hatch of No.4 tank (P) seriously dented. 应予割换 To be cropped & renewed dia.520mmx250mm; and 元宝螺丝二套换新。 2 sets of screws to be renewed.
11. 第四舱(左)甲板隔离阀拆断。The deck isolating valve of No.4 tank (P) fractured. 换新 To be renewed.
12. 后部左舷前装卸油管出口处二只阀损坏。 Two fore oil pipe outlet valves on the port side of quarter damaged. 换新 To be renewed.
13. 第四舱（左、右）温度测量管严重弯曲变形。 The temperature measuring pipe of No.4 tank, P & S, seriously bent and deformed. 割换 To be cropped & renewed dia.50mmx1.8m.
14. 第四舱（左）消防蒸汽灭火管弯曲变形。 The steam smothering pipe of No.4 tank (P) bent and deformed. 割换 To be cropped & renewed dia.15mmx2.5m x 2 pcs.
15. 左舷第一、三和五舱货舱口启盖盘及螺杆变形损坏。 The opening devices with spindles for the hatch covers of the port side Nos.1,3 & 5 tanks deformed. 换新 To be renewed,
16. 左舷甲板栏杆从肋位 43#-122# 全部损坏失落。 The port side deck rails bet. frm Nos.43-122 all damaged and lost. 应予重新安装: To be newly made & fitted:  
栏杆 Rails – dia.45mmx75m,  
Dia.20mmx150m;  
栏杆撑柱 Rail stanchions – 20mmx65mmx1100mm x 45 pcs.  
就地红火校正。 To be heated & faired in place.
17. 泵舱前围壁凹陷变形，最大凹陷40mm。 The fore bulkhead of the pump room dented about 1m<sup>2</sup> in area and about 40mm in max. depth. 换新 To be renewed:  
其围壁处压缩空气管及其它泄水管、法兰、马脚等拆断损坏。 The compressed air pipes, drain pipes, flanges, etc. In way of the bulkhead fractured and damaged. 泄水阀 Drain valves – dia.20mm x 2 pcs, dia.40mm x 13 pcs;  
Pipes – dia.32mmx16m x 1 pc,  
dia.80mmx1.5m x 1 pc,  
dia.120mmx1.2m x 1 pc,  
dia.80mmx3.5m x 1 pc;  
截止阀 Non-return valves –  
dia.25mm x 8 pcs,  
dia.50mm x 1 pc,  
dia.80mm x 1 pc.

接地箱 1 只损坏。1 earthing connection box damaged. 换新 To be renewed 200mmx250mmx100mm.

损坏原因

CAUSE OF DAMAGE

上述损坏可合理地归咎于该轮船长所述的原因。The above-mentioned damage could be reasonably attributed to the cause as stated by the tanker's Master.

永久性修理

PERMANENT REPAIR EFFECTED

上述损坏由上海外高桥海运工程公司在上海港进行了永久性修理，并经检验，发现正常。The above-mentioned damage was permanently repaired by Shanghai Waigaoqiao Marine Engineering Co. in Shanghai Harbor, and inspected and found to satisfaction.

**遭遇大雾 Encountering Heavy Fog**

兹证明应中国人民保险公司上海分公司理赔通讯代理服务部门的申请，下列署名的咨询验船师登 THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the P & I Correspondent Service of the Shanghai Branch of the People's Insurance Co. of China, attend on board

The M.V. "XXXX"

船旗国 Flag:	Panama
船籍港 Port of Registry:	Panama
总吨位 Gross Tonnage:	7422.66
登记号 Registered No.:	BV-XXXXXX

于某年 6 月 9 日及以后诸日在上海港进行了公正检验，以确定该轮损坏的性质、范围及原因，情况如下： on June 9, (year) in Shanghai Harbor for the purpose of carrying out a survey without prejudice to ascertain the cause, nature & extent of damage stated to have been sustained in the following circumstance:

该轮于某年 5 月 31 日在上海港外与一艘渔船发生碰撞  
THE CAPTIONED SHIP ALLEGED COLLISION WITH  
A FISHING SHIP OFF SHANGHAI HARBOR ON MAY 31, (year)

据该轮船长告称某年 6 月 9 日 9 时左右，上海港监来船调查，谓有渔船报告，该轮于某年 5 月 31 日晨约 5 时 30 分，途经 DONG TING 山附近海域，碰擦了一艘渔船“XX”。It was stated by the ship's Master that the Officers of Shanghai Harbor Superintendency attended on board the ship at about 0900 hrs on June 9, (year) for the

purpose of investigation and stated that a motor fishing ship reported that the ship touched motor fishing ship “XX” in the vicinity of Island Dong Ting Shan at about 0539 hrs on May 31, (year).

另据该轮船长告称该轮装载 3397.2 吨货物，艏吃水为 5.00 米，艮吃水为 6.1 米，于某年 5 月 30 日 1537 时离开上海开往香港的航行途中，于 5 月 31 日 0130 时遇大雾，在雾中航行时，值班驾驶员采用各种安全措施，如加强了望，手工操舵备车，打开自动雾笛，雷达搜索等，直至同日 0900 时雾散。该轮于某年 6 月 2 日 1254 时到达香港。整个航行途中未发生任何异常情况。It also was stated by the ship’s Master that the ship, laden with 3397.2 tons of cargo, draft F 5.00m, A 6.1m, left Shanghai at 1537 hrs on May 30, (year) for Hong Kong. In the voyage, the ship encountered heavy fog at 0130 hrs on May 31, (year), and thereafter safe measures were taken such as carefully watching on bridge and carefully maneuvering, operation of the automatic fog whistle, radar operation, etc. until the fog dispersed at 0900 hrs on the same date. The ship arrived in Hong Kong at 1245 hrs on June 2, (year). During the whole voyage, no abnormalities were found.

至今未提供海事报告及航行日志。So far, the Master’s Sea Protest and the extract of Log Book were not provided.

检验查明

#### UPON THE SURVEY FOUND

1. 右舷傍板在吃水 6 米处肋位 157-160 处有 2 条横向平行油漆擦痕，长约 3 米，宽约 10 毫米。The painting on the std side shell plating at draft scale of 6m and bet. frm Nos.157 & 160 horizontally and parallely rubbed off at two places about 3m in length and 10mm in width for each.
2. 右舷傍板在吃水 7.5 米处肋位 145-146 处有 2 条横向平行油漆擦痕，长约 0.3 米，宽约 10 毫米。The painting on the std side shell plating at draft scale of 7.5m and bet. frm Nos.145 & 146 horizontally and parallely rubbed off at two places about 0.3m in length and 10mm in width for each.
3. 第 1 至第 3 货舱间左、右舷傍板在吃水 5 米至 8 米范围内多处显示散乱的、无规则的波浪形油漆擦痕。The painting on the port & std side shell plating bet. Nos.1 & 3 cargo holds and bet. draft scales of 5m & 8m rubbed off at numerous places in scattering and irregular manner.

下列署名的验船师认为：上述油漆擦痕可能由于船舶在停泊或航行时，擦碰水上漂浮物体(如小型船舶、驳船、木材或者其它物体)所引起的。The undersigned surveyor considers that the above-mentioned painting was rubbed off probably owing to that the ship met with certain floating object (such as boat, barge, timber or other floating objects).

本检验报告无偏见。This survey report was made without prejudice.

检验时在场人员

PRESENT AT SURVEY

该轮二付 The ship's 2<sup>nd</sup> Officer

### 碰撞损坏 Collision Damage

(螺旋桨被灯船锚链缠绕继而发生碰撞)

兹应中国人民保险公司上海分公司申请,下列署名的高级咨询验船师于某年11月2日及以后诸日在上海港登

THIS IS TO CERTIFY that at the request of the Agency and P & I Correspondent Service of Shanghai Branch of the People's Insurance Co. of China, the undersigned senior consulting surveyor did attend on board the

M.V. 船名:

船旗国: Flag

船籍港: Port of Registry

总吨位: Gross Tonnage

净吨位: Net Tonnage

登记号: Registered No.

建造时间和地点: Where and when built

总长: Length overall

垂线间长: LBP

型宽: Moulded Breadth

型深: Moulded Depth

载重量: Deadweight

主机: Main engine

船东: Owner

对该轮损坏部分进行了无偏见检验,以确定损坏的范围、原因及估计修理费用。For the purpose of carrying out a survey without prejudice for ascertaining the extent, cause and cost of repair of damage stated to have been sustained on board the ship in the following circumstance:

“XXXX”轮在某年10月25日与长江口灯船碰撞  
THE M.V. “XXXX” COLLIDED WITH THE  
CHANGJIANGKOU LIGHT VESSEL ON OCT. 25,(year)

据该轮船长的事故报告及该轮的航海日志摘要告称该轮于某年10月25日0832进口时,在长江口碰撞了长江口进口灯船,固定的灯船锚链绕缠了该轮的螺旋桨。该轮先后抛双锚等待救助。在等待救助时,灯船与该轮在风浪中彼此撞击以致该轮左舷船体等部分损坏。10月28日,救助拖轮将灯船的锚链割除。10月30日,该轮双锚链互相绕缠,由救助拖轮先后割除并用备锚与剩留下的右锚链连接。10月31日在拖轮协助下,靠泊码头待修。

It was extracted from the Master's Note of protest and ship's Log Book that while entering Changjiangkou, the ship collided with the light vessel at 0832 hrs on Oct. 25, (year) and her propeller was fouled by the fixed anchor chain cables of the

light vessel and consequently the ship had to drop both anchors for waiting assistance. During the period of waiting, the two vessels touched each other in sea weather and thus the hull of the M.V. "XXXX" was sustained damage.

On Oct. 28, (year), the fouled anchor chain cables of the light vessel was cut by the salvage tug "XX".

On Oct. 30, (year), both chain cables of the said ship fouled with each other and were cut by the salvage tug "XX" and then the std anchor was replaced by the spare and connected with the residual std chain cables.

The said ship was finally berthed at the wharf for repair under the assistance of the tugs on Oct. 31, (year).

详情请见船长的事故报告及该轮的航海日志摘要。

有关长江口灯船的损坏情况另见检验报告。

For further particulars, please refer to the Master's Note of protest and ship's Log Book.

Regarding the damage condition of the light vessel, refer to another survey report.

#### 检验查明 DAMAGE FOUND

##### A. 船体部分 Hull part:

1. 右锚及其 3 节锚链丢失。  
左锚及其 2 1/2 节锚链丢失。  
Std anchor with 3 lengths of chain cables lost; port anchor with 2 1/2 lengths of chain cables lost.
2. 左舷铝合金舷梯扭曲。  
Port side aluminum alloy accommodation ladder twisted.
3. 左舷艇甲板在肋位 20-35 间宽度约 1.3 米上翘;  
Port side boat deck bet. frm Nos.20-35 warped about 1.3min width;  
横梁 6 根, 强横梁 2 根弯曲;  
6 beams and 2 web beams bent;  
救生艇绞机及舷梯升降机座, 救生筏架各一扭曲;  
seats for lifeboat winch, lifter of accommodation ladder and liferaft all twisted;  
舷边栏杆及落水管弯曲;  
Side railing and 2 scuppers in way bent;

#### 建议 RECOMMENDED

重新备妥 To be provided:

霍尔锚二只, 各重 3780kg, 其中一只作备锚。锚链共 6 节, 包括二个转环。2 Hall's anchors, 3780kg in weight each (one of which used for spare); 6 lengths of chain cables including 2 swivels.

铝合金舷梯一部, 38 级踏步, 包括上、下平台及附属部件换新。One aluminum alloy accommodation ladder with 38 steps including upper & lower platforms and fittings to be renewed.

割换: To be cropped & renewed:

艇甲板 boat deck plating -

10mmx11.0mx1.3m;

舷边挡水板 Curtain plating -

10mmx300mmx11.5m;

强横梁 web beams - 10x130/10x130 x 1.5m x 2 根;

横梁 beams - 150x1.3m x 6 根, 包括肘板 6 块 & 6 knees, 救生艇绞机拆装, 基座及加强复板换新。Lifeboat winch in way to be removed & refitted, its seat and doubler to be renewed; winch of accommodation ladder to be removed & refitted;

舷边栏杆红火校正 4 米, 立柱换新 7 根, 红火校正 3 根。落水管换新 7 pcs of

- 艇甲板下照明灯电缆断裂。  
2 deck lights with cables broken.
- stanchions of side railing to be renewed and 3 pcs to be heated & faired; side railing to be heated & faired 4m in length and scuppers in way to be renewed dia.50mm x 4m; dia.110mm x 2m。  
电缆管 0.7 米 6 根，接线盒二个，电缆 8 米换新，照明灯等拆装。6 pcs of electrical cable pipes 0.7m in length for each to be renewed; 2 connecting boxes to be renewed; 2 deck lights with cables, 8m in length, to be removed & refitted.
4. 左舷艙楼舷墙肋位 24-35 间撕裂并向内倾。Port side bulwark on poop deck bet. frm Nos.24-35 torn and inclined; one scupper broken.
- 割换 To be cropped & renewed:  
舷墙板 bulwark plating 10mmx1.0mx7.5m;  
舷墙面板 bulwark capping 150x7.5m;  
舷墙支撑 bulwark stays 120x1.10m x 4 pcs;  
10mmx130mmx130mmx1.3m x 2 pcs;  
舷梯搁架及落水管一根换新; rest for accommodation ladder and one scupper pipe in way to be renewed; dia.100mmx1.2m x 2 pcs;  
艙楼甲板下船员房间天花板拆装。Top ceiling in crew's cabin below the poop deck to be removed & refitted.
5. 左舷肋位 15-35 & 0-3 间主甲板以下第二列船壳外板凹陷变形;右舷第一列船壳外板在艙柱附近凹陷变形并洞穿。Port side shell plating, 2<sup>nd</sup> strake below upper deck bet. frm Nos.15-35 & 0-3 set in about 15.0mx0.5mx25mm & 2.0mx1.5mx30mm in size respectively; std side 1<sup>st</sup> strake indented in vicinity of stern post about 400mmx500mm in area and also holed.
- 割换 To be cropped & renewed:  
右舷外板 std side shell plating – 400mmx500mmx16mm.  
左舷外板免除修理 port side shell plating to be free from repair.
6. 左舷二层甲板间肋位 0-3,15-23,30,38 肋骨根部及肘板弯曲。Port side tween deck frames Nos.0-3, 15-23, 30 & 38 bent at their heels with brackets.
- 割换 To be cropped & renewed:  
肋骨 frames 180mmx600mm x 12 pcs;  
三角肘板 brackets 10mmx450mmx500mm x 12 pcs;  
强肋骨 web frame T16x160/16x330 x 1.0m。
7. 燃油沉淀柜前后肋位 19,25 舱壁褶皱。The fore & aft bulkheads of fuel oil settling tank at frm Nos.19 & 23
- 割换: To be cropped & renewed:  
前舱壁 Fore bulkhead – 8mmx800mmx1.2m;

- buckled. 8mmx450mmx1.2m;  
后舱壁 aft bulkhead – 8mmx350mmx2.2m;  
水平隔板 horizontal diaphragm –  
10mmx400mmx4.2m。
8. 二层甲板在肋位 19-32 间凹陷面积 tween deck plating bet. frm Nos.19-32 set down about 1.5mx250mmx20mm in size. 免除修理 To be free from repair.
- B. 螺旋桨及艉轴 Propeller and sternshaft**
1. 螺旋桨将军帽失落。Cap of propeller lost 重新配妥。To be re-fitted.
2. 铜质四叶螺旋桨直径 4350 毫米边缘有大小不等的缺口几卷曲。Blades of 4-blade bronze propeller (dia.4350mm) notched at different degrees on edges. 每叶焊补及校正如下：To be soldered and heated & faired as follows:  
No.1 叶片 No.1 blade:  
导边在 0.62-0.97R 处。leading edge at 0.62R-0.97R –  
540mmx56mmx25mm  
400mmx20mmx25mm  
No.2 叶片 No.2 blade:  
导边在 0.75-0.92R 处 –  
400mmx120mmx40mm  
随边在 0.37R 处 trailing edge at 0.37R –  
500mmx12mmx20mm  
No.3 叶片 No.3 blade:  
随边 – 250mmx35mmx12mm  
830mmx35mmx12mm  
在 0.9-0.97R 及 0.62-0.9R 处。  
No.4 叶片 No.4 blade:  
导边 – 700mmx65mmx14mm  
在 0.78-0.97R 处。  
随边 – 300mmx25mmx12mm  
400mmx36mmx14mm  
在 0.58-0.91R 处。  
修理完毕后作静平衡试验。On completion of repair, static balance test to be carried out.  
重新装妥。To be re-fitted.
3. 艉轴油封防护罩失落。Protection cover for oil sealing of sternshaft lost.
4. 艉轴后油封压盖橡皮填料损坏。Rubber packing of aft sealing gland of sternshaft deteriorated. 后油封换新。Aft oil sealing to be renewed.

### 永久性修理

#### PERMANENT REPAIR EFFECTED

上述 A 船体部分 3-8 项, B 轮机部分 1-4 项已按建议此次在上海港 XX 船厂进行了永久性修理, 并经 GL 船级验船师检验满意。The above-mentioned items A3-A8 and items B1-B4 were permanently repaired by XX Shipyard in Shanghai Harbor according to the 'RECOMMENDED', and inspected and found to satisfaction by GL surveyor.

### 临时性修理

#### TEMPRORY REPAIR EFFECTED

A 船体部分 1 项右锚失落已将备锚与原留的锚链连接。The std lost anchor in item A1 was replaced by spare and connected with the residual chain cables.

### 遗留项目

#### OUTSTANDING RECOMMENDATIONS

GL 船级验船师同意: it is advised by the GL Class surveyor that:

1. 所缺少的 3 节右锚链, 2 1/2 节左锚链 (包括转环各一只), 一只左锚和一只备锚应于某年 2 月 29 日前备妥。The lost 3 lengths of std chain cables, 2 1/2 lengths of port chain cables (each with one swivel), one port anchor and one spare anchor are to be provided by Feb. 29, (year).
2. 左舷舷梯一部应于某年 3 月 31 日前备妥。One port accommodation ladder is to be provided by March 31, (year).

### 损坏原因

#### CAUSE OF DAMAGE

上述各项损坏原因分别如下: The above-mentioned damage could be attributed to the following:

1. 船体部分第 1 项右锚及右锚链, 左锚及左锚链的失落是由于操作不当二锚链互相绕缠所致。The loss of the std anchor with 3 lengths of chain cables and port anchor with 2 1/2 lengths of chain cables as described in item A1 was due to the fouling of chain cables of 2 anchors in consequence of improper maneuvering.
2. 船体部分第 2-8 项由于该轮与长江口灯船相撞击所致。The damages in item A2-A8 were caused by the collision of the said ship with the light vessel.
3. 轮机部分第 1-4 项的损坏系长江口灯船的锚链绕缠该轮的螺旋桨所致。The damages in items B1-B4 were due to the fouling of the chain cables of the light vessel around the propeller of the said ship.

备注:

1. 该轮第一次坞内期间为某年 11 月 14 日-11 月 20 日。

第二次坞内期间为某年 12 月 5 日-12 月 8 日。

分二次进坞是由于尾轴后右封未及时运到上海所致。

The ship was docked first time from Nov.14, (year) to Nov. 20, (year) and second time from Dec. 5, (year) to Dec. 8, (year). The ship was twice docked because the aft oil sealing of the sternshaft could not be shipped to Shanghai in time.

2. 由于后油封损坏，艉轴管内有泥沙浸入因此艉轴拉出检查。Sternshaft was withdrawn for inspection because of the damage of the aft oil sealing and mud and sand deposited in sternshaft.
3. 由于拉艉轴，舵叶必须拆装。Rudder should be removed & refitted for withdrawing sternshaft.
4. 在坞内期间船东进行了船底检验并加装换新了船底锌块 81 块。如这些单独在坞内进行需要 2 个工作日。During period of docking, the ship's Owners undertook the ship's bottom inspection and renewal of 81 pcs of aluminum slabs which would take 2 working days if worked alone.
5. 上述 A 项船体部分工程可不必进坞进行修理。B 项螺旋桨部分工程必须进坞内进行。Item A was unnecessary to be effected in drydock, yet the propeller in item B should be repaired in drydock.
6. 据告知船方直接给立丰船厂工人总金额为二万美元的酬金，但下列署名的咨询验船师事先并不知道，也未接到过通知。It was noticed that the shipside directly gave special present in sum of USD 20,000.00 (TWENTY THOUSAND) to workmen of the Lifeng shipyard. But the undersigned consulting surveyor did not know and was now advised beforehand.

#### 修理费用

#### COST OF REPAIR

此次在上海港海损事故的船体部分修理工程由 China Marine & Seaman Service Corp. Shanghai Office 承修。该单位的修理帐单经审核总数为人民币 214,120 元，其中应扣除不属于此次海损修理费用第 14 项人民币 80 元，其余总数为人民币 214,040 元，认为是合理的。The repair work of the hull part of the M.V. "XXXX" as described in item A was contracted by China Marine & Seaman Service Corp. Shanghai Office and the invoice, in sum of RMB 214,120 Yuan, submitted by the said Corp. was checked, in which, the amount of RMB 80 Yuan for supplying 10 kg of electrodes as described in item 14 of the invoice was not counted in damage repair. Therefore, the cost of repair in total amount of RMB 214,040 Yuan is considered reasonable.

坞内修理由上海 XX 船厂承担。该船厂的修理帐单经审核，其中第 2 和第 3 页中第 I 1-20 项总数为 23,089.20 美元的服务费用需提请理算师注意并给予分摊。The docking repair was contracted by Shanghai XX Shipyard. The invoice submitted by the said shipyard was checked and the general service in items I 1-20 on Pages 2 & 3 of the said invoice in sum of USD 23,089.20 would require the attention of the adjuster and would be prorated.

下列项目不属于此次海损修理费用：The items which were found not belonging to the damage repair as follows:

第 3 页 On Page 3:

- 第 2 项 Item 2 船体清洁、油漆 Hull cleaning and painting  
第 3 项 Item 3 修理吃水和载重线标志 Repairing vessel's draft and Plimsoll's mark  
第 5 项 Item 5 换新 81 块铝块 Renewal of 81 pcs of aluminum slabs  
搭脚手架 Staging  
第 4 页 On Page 4:  
第 6 项 Item 6 20 吨黄沙 20 tons of sand  
第 7 项 Item 7 舵隙测量, 记录, 检查, 校正和重焊 Rudder clearances measured and recorded, inspected, corrected & rewelded  
第 9 项 Item 9 安排支架式起重机修理天线 Arrange crane with bracket for repair of vessel's antenna  
第 6 页 On Page 6:  
第 4 项 Item 4 交流电机 440V 60 Hz 12 kW 重绕 A.C. motor 440V 60 Hz speed 12 kW rewind  
第 5 项 Item 5 海底阀箱 3 根格栅 Sea chest 3 pcs grating  
拆下海底阀打开进行检验 Remove sea valves open up for survey  
第 7 页 On Page 7:  
第 10 项 Item 10 提供一只止回阀 1 pc of casting sheet non-return valve supplied to ship

#### 检验在场人员

#### PERSONS PRESENT AT THE SURVEY

该轮船长及轮机长 Ship's Master & Chief Engineer  
该轮机务监督 Ship's Engineering Superintendent  
GL 船级社验船师 GL Surveyor

#### **碰撞损坏 Collision Damage**

(机动货驳碰撞后沉没, 无修理价值)

兹应中国人民保险公司上海分公司申请, 下列署名的高级咨询验船师于某年 6 月 18 日及以后诸日在上海港登“XXXX”轮对该轮损坏部分进行了无偏见检验, 以确定损坏的范围、原因及修理要求, 情况如下:

THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China, attend on board the motor boat “XXXX” in Shanghai Harbor on June 18, (year) and subsequently for the purpose of carrying out a survey without prejudice to the extent, nature, cause and recommended repair of the damage stated to have been sustained in the following circumstance:

“XXXXXX”轮于某年 5 月 26 日在上海港  
与钢质机动船“XXXX”发生碰撞

M.V. “XXXXXX” COLLIDED WITH STEEL MOTOR BOAT“XXXX”  
ON MAY 26, (year) IN SHANGHAI HARBOR

概况

PARTICULARS

“XXXX”是一艘单螺旋桨桥楼和机舱设在尾部的钢质机动货船 The M.B. “XXXX” is a single screw steel cargo motor boat with bridge and engine room aft.

当该轮满载钢材靠泊在交通部港务监督吴淞码头时，前吃水为 2.6 米，后吃水为 3.00 米，于某年 5 月 27 日 1818 时，被“XXXXXX”轮碰撞，接着，该轮沉没。某年 5 月 28 日，上海吴淞打捞队开始进行救助。该轮于某年 6 月 9 日重浮。并被拖至吴淞码头对面的浦东海滩上。It was stated by the Skipper of the M.B. “XXXX” that while the boat laden with 230 M/T of steel, draft F 2.6m, A 3.00m, berthing alongside Wusong Wharf of Shanghai Maritime Safety Administration of the Ministry of Communications, the M.V. “XXXXXX” collided with the boat at 1818 hrs on May 27, (year), and consequently, the boat sank. Shanghai Wusong Salvage Team began salvaging on May 28, (year). The boat refloated on June 9, (year) and then was towed to the Pudong side beach opposite to Wusong Wharf.

损坏情况

DAMAGE FOUND

1. 船体从船首起约 1/3 处折裂破断，该处船壳板、上甲板、内底板、内部构件在约 10 米范围内撕裂或损毁；其余船壳板、上甲板、内底板、内部构件严重凹陷、皱折或不同程度上弯曲变形。The hull body fractured and broken at about 1/3 of the length from the stem and in way, the shell plating, upper deck plating, inner bottom plating and internal structural members within the scope of about 10m torn or destroyed; the remaining shell plating, upper deck plating, inner bottom plating and internal structural members seriously indented and buckled or bent and deformed in different degrees.
2. 上甲板上艉楼处的船壳板多处凹陷；艉楼二层甲板室的右舷舱壁板向内倾倒并撕裂长约 5 米；其余舱壁板、罗经甲板板及构架严重皱折、凹陷、或弯曲；前、后桅在根部处折裂并丢失。The shell plating in way of poop above the upper deck indented at numerous places; the std side bulkhead plating of the two tiers of deckhouses on poop seriously inclined inwards and torn about 5m in length; the remaining bulkhead plating, compass deck plating and framing seriously buckled, indented or bent; fore & aft masts fractured at their roots and lost.
3. 艉楼和后甲板室的木铺板、家具、装饰、绝缘均浸水损坏。The wooden ceiling, furniture, decoration & insulation in poop and aft deckhouses all soaked and damaged.
4. 机舱内的轮机装置和电气设备均浸水损坏。The machinery installation and electrical equipment in the machinery space all soaked and damaged.
5. 救生设备均丢失或损坏。All life-saving appliances lost or damaged.

## 损坏原因

### CAUSE OF DAMAGE

下列署名的验船师认为上述损坏可合理地归咎于所述的事故。The undersigned considers that the above-mentioned damage could be reasonably attributed to the casualty as stated.

## 下列署名的验船师的意见（无偏见）

### THE UNDERSIGNED'S OPINION WITHOUT PREJUDICE

永久性修理要求建议如下：

The permanent repair is recommended as follows:

1. 从船艏到船首的上甲板、船壳板、内底板等应予全部割换；二层甲板舱壁及扶强材应予全部割换；其它损坏部分应予局部割换，估计需要约 40 吨钢材用于换新。The upper deck plating, shell plating, inner bottom plating, etc. from amidships to fore end should be wholly cropped & renewed; the bulkhead with stiffeners, etc. of the two tiers of deckhouses should be wholly cropped & renewed; the other damage parts should be partly cropped & renewed and about 40 tons of steels are estimated to be required for renewal.
2. 船员居住舱室内的木铺板、家具、装饰、绝缘应予全部换新。The wooden ceiling, furniture, decoration and insulation in the crew's accommodation space should be all renewed.
3. 电气设备和助航设备应予全部修理或换新。The electrical equipment and navigational aids should be all repaired or renewed.
4. 机械装置如主机、辅机、锚机、舵机等应予拆检、清洁、装复，并作操作试验。The machinery such as main engine, aux. engine, windlass, steering gear, etc. should be overhauled, cleaned, refitted, then operating tested.
5. 该轮修理后须进行系泊试验和试航。Mooring trial and sea trial are necessary to be carried out after the boat being repaired.

## 永久性修理前的注意事项

### NOTES PRIOR TO PERMANENT REPAIR

1. 需租用 300 吨以上浮吊。More than 300T floating crane is necessary to be hired.
2. 需在适当的位置上设计有足够强度的眼板以用于吊举。For the purpose of lifting, the lifting eyeplates with enough strength at adequate locations are necessary to be designed.
3. 需配备拖航设备。Necessary towage facility is provided.
4. 需进坞或上排进行永久性修理。Necessary drydock or slipway is to be required for permanent repair.

下列署名的咨询验船师认为上述损坏的永久性修理费和其它必要的有关费用可能超过了该轮的市场价，所以建议该轮可以报废。The undersigned consulting surveyor considers that the costs of the permanent repair of the above-mentioned

damage and other necessary associated charges perhaps exceed the boat's market price and so recommends that the boat is probable to be scrapped.

### 有关该轮的评估

#### THE ESTIMATION OF THE BOAT

该轮的技术资料简要说明如下:

The boat's technical information is briefly described as follows:

#### 船体 Hull:

该轮系钢质机动杂货船, 设有艏楼、艉楼及横骨架式单层甲板 The boat is a steel general cargo motor boat which is fitted with forecastle, poop and transverse-framing single deck.

全船的钢材估计约为 90-95 吨。The estimated steel material of the whole boat is to be about 90-95 tons.

#### 系泊设备 Mooring arrangement:

锚机 Windlass: S195, Diesel Engine, 1 set, 55kW

霍尔锚“Hall” anchors: 360kg x 2 pcs

有挡环链 Stud-linked chain cables: dia.19mm x 250m

#### 轮机 Machinery:

主机 Main engine: 6160A-13, Diesel Engine, 1 set, 184kW

辅机 Aux. engines: 3 sets of DC generators, driven by M.E.

Model: ZEG1200, ZF24 & ZFH2.9

Power: 1-2kW, 2.4kW & 2.9kW

空气瓶 Air bottles: 2 bottles; capacity: 0.1m<sup>3</sup>; working pressure: 28 bar & 8 bar

#### 舵设备 Rudders:

手动舵机 Manual steering gear, 1 set

#### 消防设备 Fire-fighting appliances:

离心泵 Centrifugal pumps: 2 sets

手提式灭火器 Portable fire-extinguishers: “1211” x 4kg x 2 pcs;

Foam x 10 ltr x 6 pcs

#### 助航设备 Navigational aids:

LCL190 磁罗经 magnetic compass, 1 set;

回声测深仪 Echo sounder, 1 set

#### 信号设备 Signal equipment:

后桅灯、左、右舷灯、艉灯、操纵失灵信号灯和其它照明设备 Aft masthead light, port & starboard side lights, stern light, not under command lights and other lighting in compliance with the provisions of “Rules for Signal Equipment of Sea-going Ships” .

起货设备 Cargo handling gear:

1 single derrick with SWL of 1.5T

在国内市场购买同样的旧船需人民币 850,000 – 900,000 元, 而建造同样的新船需人民币 1,100,000 元。建造期为 200 天。The undersigned considers that it will spend about RMB 850,000 – 900,000 Yuan to purchase the above-mentioned similar secondhand boat at domestic market at present and will spend about RMB 1,100,000 yuan to build a similar new boat, and the period of building will be about 200 days.

检验时在场人员

PERSENT AT THE SURVEY

驾长 The boat's Skipper

承租人代表 The Representative of the boat's Charterer

### **碰撞损坏 Collision Damage**

(渔轮船首被撞)

兹应中国人民保险公司上海分公司代表 the North of England P & I Association Ltd. 申请, 下列署名的咨询验船师于某年 8 月 17 日在浙江省 Jushandao 登 “XXXX” 渔轮对该渔轮所遭受的碰撞损坏进行了调查, 情况如下

THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China on behalf of the North of England P & I Association Ltd., attend on board the fishing ship “XXXX” at Jushandao, Zhejiang Province on Aug. 17, (year) for the purpose of making an investigation on the collision damage stated to have been sustained to the said fishing ship in the following circumstance.

“XXXXXX” 轮于某年 5 月 30 日在东海渔区与 “XXXX” 渔轮发生碰撞  
M.V. “XXXXXX” COLLIDED WITH FISHING SHIP “XXXX  
ON MAY 30, (year) AT FISHING AREA OF THE EAST CHINA SEA

据该渔船驾长告称当该轮自某年 5 月 30 日 2130 时锚泊于东海 177 号渔场第 3 区域, 北纬 30°35' 东经 122°43', 同日 2240 时, 被 “XXXXXX” 轮的左舷碰撞了该轮的船艏, 致使部分船艏遭受损坏, 紧接着, 该渔船的货舱进水, 机舱漏水。为了该渔船的安全, 驾长向锚泊在附近的另外二艘渔船大声求救。在该二艘渔轮的绑拖下, 该轮回到 XX 港。为了减少损失, 某年 6 月 4 日该轮开始上排进行修理, 某年 7 月 4 日损坏修理完成。该轮于某年 7 月 6 日起投入营运。It was stated by the Skipper of the said fishing ship that while the fishing ship was anchored at No.3 region of No.177 fishing area of the East China Sea, i.e. at position 30°35'N 122°43'E from 2130 hrs on May 30, (year), the M.V. “XXXXXX” collided with the bow of the said fishing ship on her port side at 2240 hrs on the same day, thus partial bow of the said ship was sustained damage, consequently, the said ship's fishing hold flooded and

engine room leaked. For the sake of the safety of the fishing ship, her skipper uttered a shout of helping towards the two fishing ships “XXXXX” & “XXXXX” which were anchored in her vicinity. Under being towed alongside by the two fishing ships, the said fishing ship returned to port of Jushan. In order to reduce loss, the said fishing ship commenced to be repaired on a slipway of XX Shipyard on June 4, (year), the damage repair completed on July 4, (year) and the said fishing ship was put into service from July 6, (year).

### 救助 SALVATION

为了确保该轮的安全，并考虑到该轮船艙和机舱进水已不能自航，该轮驾长向附近的二艘渔船发出遇险报警，该二艘渔船迅速前来救助。某年 6 月 1 日该轮在该二艘渔船的绑拖下安全返回。该轮船东向二艘渔船支付人民币 9,000.00 元的救助费。In order to ensure the safety of the fishing ship “XXXX” and taking into consideration that the said fishing ship was unable to sail by her own power with her bow and engine room flooded, the ship’s skipper uttered distress alarm towards the fishing ship’s “XXXXX” & “XXXXX” in her vicinity and the two fishing ships promptly responded to help her. Under being towed alongside by the two fishing ships, the fishing ship “XXXX” safely returned to Jushandao on June 1, (year). For this purpose, the Owner of the fishing ship “XXXX” paid the salvage fee in sum of RMB 9,000.00 Yuan to the fishing ships “XXXXX” & “XXXXX”.

当地渔船市场价格行情 The quotations on the local fishing ship market are:

建造一艘新木质渔船需人民币 750,000.00 元 It will take RMB 750,000.00 Yuan to build one new 120HP 55T wooden fishing ship.

某年造的 120HP 55T 的木质渔船现开价为人民币 d at RMB 6 元 One 120HP 55T wooden fishing ship built in (year) now is quoted at RMB 680,000.00 Yuan.

### 永久性修理

### PERMANENT REPAIR

由于上述碰撞损坏的第一现场已恢复如前，下列署名的咨询验船师只能在该轮永久性修理后进行检验。Owing to that the ship’s first scene where the above-mentioned collision damage occurred had resumed as original, the undersigned consulting surveyor could only inspect the permanently repaired ship.

1. 右舷船壳板 10.5mx3.0mx70mm 和左舷船壳板 8.5mx3.0mx70mm 已换新。The std side shell planking, 10.5mx3.0mx70mm, and the port side shell planking, 8.5mx3.0mx70mm, were renewed.

右舷木质护舷木 11mx500mmx350mm 和左舷木质护舷木 9.0mx500mmx350mm 已换新。mx500mmx350mm The std side wooden fender, 11mx500mmx350mm, and the port side wooden fender, 9.0mx500mmx350mm, were renewed.

右舷钢质护舷木 11m x L500mmx350mmx10mm 和左舷钢质护舷木 9.0mxL500mmx350mmx10mm 已换新。The std side steel guard, 11mxL500mmx350mmx10mm, and the port side steel guard, 9.0mxL500mmx350mmx10mm,

- were renewed.
2. 船首木质内龙骨换新。The wooden stem keelson, 450mmx400mmx3.8m, was renewed.  
木质内龙骨换新。The wooden keelson, 450mmx400mmx17m, was renewed.
  3. 左舷木质肋骨换新。The port side wooden frames, 250mmx180mmx3.2m x 5 pcs, were renewed.  
右舷木质肋骨换新。The std side wooden frames, 250mmx180mmx3.2m x 6 pcs, were renewed.
  4. 甲板板 The deck planking at bow, 6.2mx3.8mx70mm, was renewed.
  5. Nos.1 & 2 木质舱壁(从首数起)换新。The Nos.1 & 2 wooden bulkheads (counted from fwd), 3.4mx3.8mx120mm & 3.6mx3.6mx120mm respectively, were renewed.  
No.3 木质舱壁校正。The No.3 wooden bulkhead, 3.8mx3.2mx120mm, was faired.
  6. 首部船壳板换新。The forward steel shell plates, 1.4mx3.2mx10mm x 1 pcs, were renewed.
  7. 已遗失的 300 公斤锚重新装妥。One 300kg anchor which had been lost was re-installed.  
已遗失的锚链重新配妥。Dia.18mmx200m anchor chain cables which had been lost were re-fitted.

该轮船首 10 米范围内发现有明显的修理痕迹。船艏部左、右船壳板发现有明显的修理痕迹, 捻缝用的油灰还是新鲜的。The apparent signs of repair were discovered within the range of 10m at the ship's bow. The port & std side shell planking amidship was discovered to have obvious signs of being repaired, the putty used for caulking was still fresh.

经向当地渔船监督人和船厂管理人员了解, 下列署名的咨询验船师认为船东提供的损坏修理项目与碰撞损坏的范围基本吻合。Upon investigation from the local fishing ship superintendent and the managerial personnel of the shipyard, the undersigned consulting surveyor considers that the damage repair items submitted by the Owner generally tally with the extent of collision damage.

#### 永久性修理费用和时间

#### COST AND TIME OF PERMANENT REPAIR

由于木质渔船的修理价还没有权威性的定价和木头价格波动幅度较大, 下列署名的验船师就修理费一事向 XX 地三家船厂作出调查, 并对 XX 船厂提供的修理帐单进行了核查如下: Owing to that the cost of repair for wooden fishing ship hasn't been authoritatively set yet and the wood price fluctuates within a larger range, the undersigned surveyor made an investigation on the repair cost from three repair yards at XX, and then checked the ship's repair invoice submitted by XX County XX Shipyard as follows:

交通 Travelling.....	RMB	Yuan
上排 Slipway.....	RMB	Yuan

堆装场地 Site for stowage of material.....	RMB	Yuan
拖该轮上、下排 Towing the fishing ship onto & out of slipway.....	RMB	Yuan
供电 Supply of electricity.....	RMB	Yuan
消防值班 Fire-watch.....	RMB	Yuan
木材 Timber.....	RMB	Yuan
钢材 Steels.....	RMB	Yuan
油灰 Putty.....	RMB	Yuan
油漆 Paint.....	RMB	Yuan
柴油 机 拆 检 Type 6135 diesel engine overhauled.....	RMB	Yuan
离合器拆检 Type 240 clutch overhauled	RMB	Yuan
管理 Administration.....	RMB	Yuan
共计 Total RMB Yuan		

上述修理费经审核,认为基本上是合理的。The above-mentioned cost of repair was checked and considered to be reasonable on the whole.

### 搁浅损坏 Grounding Damage

兹应中国人民保险公司上海分公司申请,下列署名的咨询验船师于某年 5 月 11 日及以后诸日在上海立丰船厂黄山浮船坞登“XXXX”轮为确定其触礁搁浅损坏的性质、范围、原因及损坏部分永久性修理进行了检验。

THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China, attend on board the M.V. "XXXX" at Huang Shan Floating Dock of Shanghai Lifeng Shipyard on May 11, (year) and subsequently for the purpose of carrying out a survey to ascertain the extent, nature, cause & permanent repair of the damage stated to have been sustained in the following circumstance.

中国籍“XXXX”轮于 000 年 3 月 17 日 0250 时  
在 20°10'.85N 113°47'.03E 位置触礁搁浅

THE CHINESE M.V. "XXXX" STRUCK ROSKS AND STRANDED  
AT POSITION OF 20°10.85'N 113°47.03'E AT 0250 HRS ON MAR.17,(year)

### 概况

#### PARTICULARS

船名: Name of Ship  
船旗国: Flag  
船籍港: Port of Registry  
总吨位: Gross Tonnage

净吨位: Net Tonnage  
登记号: Registered No.  
建造时间和地点: Where and when built  
总长: Length overall  
垂线间长: LBP  
型宽: Moulded Breadth  
型深: Moulded Depth  
载重量: Deadweight  
主机: Main engine  
船东: Owner

据该轮船长告称: 该轮装载木薯片 21487M/T, 艏吃水 7.71 米, 艙吃水 8.66 米, 于某年 3 月 16 日 2108 时离开广州黄埔洪圣沙#3 泊位, 驶往法国 Brest 港卸货。途中 3 月 17 日 0240 时遭遇大雾, 因避让渔船偏离航线, 于某年 3 月 17 日 0250 时在 20°10'85N 113°47'03E 处触礁搁浅, 艏尖舱进水, 当即采取倒车措施脱浅, 无效。涨潮后, 于某年 3 月 17 日 0612 时, 自动脱浅, 自航驶回桂山锚地待命。于某年 3 月 19-20 日经潜水员探摸和水下录像, 发现艏尖舱、球鼻艏多处破损。中国船级社广州分社于某年 4 月 2 日同意该轮在采取必要的安全措施情况下, 载货从黄埔引水区域单航次开往上海港进坞作进一步检查并修理。该轮于某年 4 月 22-30 日在上海港绿华山锚地过驳装卸货后, 于某年 5 月 9 日进上海 XX 船厂黄山浮船坞。

It was stated by the ship's Master that the ship laden with 21487 tons of cassava slices with draft F 7.71 m, A 8.66 m, left No.3 berth of Hongshengsha, Whampoa, Guangzhou at 2108 hrs on March 16, (year) for Brest Port, France on the way she suddenly encountered dense fog at 0240 hrs on March 17, (year). In order to avoid collision with fishing ships, the ship had to deviate her course and thus she struck rocks and stranded at position of 20°10'85N 113°47'03E at 0250 hrs on March 17, (year). The fore peak tank was found flooded and the ship immediately took means for refloating but in vain. At 0612 hrs on March 17, (year), the ship refloated herself after flood tide and sailed to Guishan Anchorage by her own power for waiting Owner's instruction. Upon the diver's detecting and underwater video recording on March 19-20, (year), the fore peak tank and the bulbous bow were found damaged at many places. On April 2, (year), the Guangzhou Office of the China Classification Society granted that the ship sailed from Whampoa Pilotage Area to Shanghai harbor for a single voyage with cargo for further examination and repair after appropriate measures were adopted. After the ship's cargo being transferred to another ship at Luhushan Anchorage of Shanghai Harbor in the period of 22<sup>nd</sup>-30<sup>th</sup> of April, (year), the ship entered Huang Shan Floating Dock of Shanghai XX Shipyard on May 9, (year).

#### 检验查明

#### UPON THE SURVEY FOUND

壳板板列从前端计起。

The strakes of shell plating were counted from fore end.

1. 球鼻艏前端自吃水约 4.0 米至船底凹陷，粉碎性撕裂毁损。

The fore end of bulbous bow from draft 4.0m downward indented and crushed.

2. 自肋位 225 1/2 至球鼻艏前端龙骨板 K1，左及右舷 A1 及 B1 外板不同程度凹陷变形，该范围内内部构件皱曲或裂开。

The keel plate K1 from frn No.225 1/2 to fore end of bulbous bow and both side shell plating, strakes A1 & B1 indented in different degrees and the internal structural members in way buckled or cracked.

3. 肋位 211 1/2 至 225 1/2 间右舷 A2 及 B2 外板严重凹陷；B2 板并在肋位 215-221 范围内洞穿，尺寸约 4.8 米 x 0.8 米；A2 板在肋位 217-221 范围内每挡肋位开裂高约 0.8 米；该范围内内部骨架不同程度皱曲或裂开。

The std side shell plating, strakes A2 & B2 bet. frn Nos.122 1/2-225 1/2 seriously indented; strake B2 bet. frn Nos.215-221 holed about 4.8m x 0.8m in area and strake A2 bet. frn Nos.217-221 cracked between frame space about 0.8m in width; the internal structural members in way buckled or cracked in different degrees.

4. 肋位 209 1/2-211 1/2 间右舷 A3 及 B3 外板分散地凹陷变形。

The std side shell plating, strakes A3 & B3 bet. frn Nos.209 1/2-211 1/2 scattedly indented and deformed.

5. 肋位 101-104 间右舷舭部 D 板严重凹陷，最大深度约 10 厘米，该范围内舭龙骨严重扭曲。

The std side shell plating, strake D at bilge bet. frn Nos.101-104 seriously indented about 10cm in max. depth and the bilge keel in way seriously distorted.

6. 左舷 B2 及 C2，B3 及 C3 于肋位 206-225 间接缝处外板，不同程度分散地凹陷变形，宽约 0.5 米，最大深度约 4 厘米。

The port side shell plating, strakes B2 & C2 and B3 & C3 bet. frn Nos.206-225 scatteredly indented in different degrees at their side welding seams about 0.5m in breadth and about 4cm in max. depth.

某年 5 月 9-13 日在立丰船厂进行的临时性修理

TEMPORARY REPAIR EFFECTED AT LIFENG SHIPYARD ON MAY 9-13,(year)

由于艏部搁浅触礁损坏严重，范围大，船东要求，并经有关各方面同意，为缩短坞内永久性修理时间，先在车间内预制艏部球鼻艏，及右舷艏部换新部分的分段。经船级社验船师同意，右舷 A2，B2 板破损处临时复板修理，艏尖舱 No.3 平台人孔封板后，同意该轮临时航行中国沿海 II 类航区至某年 7 月 15 日。

Owing to the bow damage sustained by striking rocks and stranding being serious and extensive and in order to shorten the time of permanent repair in drydock, a proposal was initiated by the ship's Owner and sanctioned by the parties concerned that the blocks of the damaged parts of the bulbous bow and the std side bow would be prefabricated in workshop. The ship was granted by the surveyor to the classification society to sail within China coastal navigation area until July 15, (year) subject to the damaged std side shell plating, strakes A2 & B2 being temporarily repaired by covering doublers and the manholed on No.3 platform in fore peak tank being blanked.

某年7月11日-8月4日在立丰船厂黄山浮坞进行的永久性修理  
PERMANENT REPAIR EFFECTED IN HUANGSHAN FLOATING DOCK OF  
LIFENG SHIPYARD IN THE PERIOD OF JULY 11-AUG. 4,(year)

1. 上述第 1,2,3 项损坏部分, 按照该轮完工图图号 H-3110-0, 图号 H-8231 及图号 H-1120 在中华船厂胎架上预制 4 个分段, 即:

4 blocks of the damaged parts in the above-mentioned items 1,2 & 3 were prefabricated on jigs in accordance with the finish plans of Shell Expansion & Framing Plan Drawing No.H-3110-0, Bow Construction Drawing No.H-8231 & Construction profile & Deck plan No.H-1120 by Zhonghua Shipyard, i.e.

- 肋位 211 1/2-218 1/2 右舷列板 A, B 至顶部间分段;  
The block from the std side shell plating, strakes A & B to floor top bet. frm Nos.211 1/2-218 1/2
- 肋位 218 1/2-228 1/2 右舷列板 A, B 至顶部间分段;  
The block from the std side shell plating, strakes A & B to floor top bet. frm Nos.218 1/2-228 1/2
- 肋位 228 1/2-前端船底至吃水 1.9 米球鼻艏底部分段;  
The block of the bottom of bulbous bow from the ship's bottom to draft 1.9 m and from frm Nos.228 1/2 to fore end
- 肋位 230 1/2-前端, 吃水 1.9 米-4.8 米球鼻艏中部分段。  
The block of the middle part of bulbous bow bet. draft 1.9m-4.8m and from frm No.230 1/2 to fore end.

4 个分段完工后, 运输至立丰船厂黄山浮船坞整体安装上船。

After being finished, the 4 blocks were transported to Huangshan Floating Dock of Lifeng Shipyard and assembled on board the ship.

肋位 225 1/2-228 1/2 间 K1 板, 在坞内割换约 1.8 米 x2.0 米 x24 毫米。

The keel plate K1 bet. frm Nos.225 1/2-228 1/2 was cropped & renewed about 1.8m x 2.0m x 24mm.

2. 肋位 209 1/2-211 1/2 间右舷 A3 及 B3 外板割换, 尺寸约 1.6 米 x5 米 x24 毫米。  
The std side shell plating, strakes A3 & B3 bet. frm Nos.209 1/2-211 1/2 were cropped & renewed about 1.6m x 5m x 24mm.

3. 肋位 101-104 间, 右舷舳部 D 板割换, 尺寸约 1.8 米 x2.4 米 x18 毫米。  
The std side shell plating, strake D at bilge bet. frm Nos.101-104 was cropped & renewed 1.8m x 2.4m x 18mm.

肋位 97-107 间, 右舷舳龙骨割换, 尺寸约 310 毫米 x12 毫米 x7 米; 75 毫米 x12 毫米 x7 米。

The std side bilge keel bet. frm Nos.97-107 was cropped & renewed flat bar, 310mm x 12mm x 7m & 75mm x 12mm x 7m.

4. 左舷肋位 212 1/2-225 1/2 间, B2 及 C2, B3 及 C3 接缝处 C 板割换尺寸约 8.0 米 x0.8 米 x16 毫米, B 板就地红火校正约 3 平方米。

The port side shell plating, strakes C, was cropped & renewed about 8.0m x 0.8m

x 16mm and strake B heated & faired in place about 3m<sup>2</sup>.

#### 损坏原因

#### CAUSE OF DAMAGE

上述损坏是由于触礁搁浅所引起的。

The above-mentioned damage found could reasonably be attributed to striking rocks and stranding.

#### 备注

#### GENERAL NOTE

1. 需进坞进行修理。  
Dock is necessary to effect the repair.
2. 应提供一般服务。  
General service to be supplied.
3. 应建胎架制作艏部各分段。  
Jigs are necessary to be made prior to fabrication of blocks of bow.
4. 应搭建脚手架和拆除。  
Staging to be erected and removed.
5. 应进行必需的拆除和更换。  
Necessary removals and replacement to be effected.
6. 应进行必要的清洁、试验和油漆。  
Necessary cleaning, testing and painting to be carried out.
7. 应提供必需的照明和通风。  
Necessary lighting and ventilation to be furnished.

#### 验船师意见

#### THE UNDERSIGNED' OPINION

损坏部分永久性修理已在上海立丰船厂黄山浮船坞永久性修妥。经船级社验船师检验并感到满意。在此修理工作的同时，船东同时进行了一些维修工作，如外板喷沙油漆、海底阀拆检等，并同时进行了坞内检验，特别检验的开始检验。如若损坏单独在坞内进行。下述验船师认为需 27 个工作日。

The above-mentioned damage items were permanently repaired in Huangshan Floating Dock of Shanghai Lifeng Shipyard, and inspected by the surveyor to the classification society to satisfaction. The Owner's maintenance work such as sand blasting & painting of the shell plating, overhauling of sea valves, etc. and docking survey 7 commencement of special survey were carried out concurrently with the permanent repair. The undersigned surveyor considers that 27 working days be required for the permanent repair is effected alone in dry dock.

至今为止，尚未收到有关临时性修理和永久性修理费用的帐单。如果收到此帐单，我们将以补充报告的方式对该帐单进行审核和评价。

So far, no Cost of Repair invoices of temporary repair & permanent repairs are

available. If and when such are made available, we will comment in the form of an Addendum to this report.

## 日记

### DIARY

船舶某年 4 月 9 日 1217 时离开广州桂山锚地；

The ship left Guishan Anchorage, Guangzhou at 1217 hrs on April 9, (year);

船舶某年 4 月 12 日 1603 时到达上海绿华山锚地；

The ship arrived at Luhushan Anchorage, Shanghai at 1603 hrs on April 12, (year);

船舶某年 4 月 22 日 0727 时在绿华山锚地开始过驳；船舶某年 4 月 30 日 0848 时在绿华山锚地完成过驳；

The ship's cargo transferred to the M.V. "XXXXX" commenced at Luhushan Anchorage at 0727 hrs on April 22, (year) and completed at 0848 hrs on April 30, (year);

船舶某年 5 月 2 日 1920 时到达上海港 134-135 浮筒；

The ship moored bet. the buoys Nos.134-135 of Shanghai Harbor at 1920 hrs on May 2, (year);

船舶某年 5 月 9 日 2030 时进上海立丰厂黄山浮船坞检查；

The ship docked in Huangshan Floating Dock of Shanghai Lifeng Shipyard at 2030 hrs on May 9, (year);

船舶某年 5 月 13 日 1800 时临时修理后出坞；

The ship undocked after completion of temporary repair at 1800 hrs on May 13, (year);

船舶某年 7 月 11 日 1500 时进上海立丰厂黄山浮船坞；

The ship docked in Huangshan Floating Dock of Shanghai Lifeng Shipyard at 1500 hrs on July 11, (year);

船舶某年 7 月 12 日 0800 时永久性修理开始；

Permanent repair commenced at 0800 hrs on July 12, (year);

船舶某年 8 月 5 日 1200 时永久性修理结束；

Permanent repair completed at 1200 hrs on Aug. 5, (year);

船舶某年 8 月 5 日 1500 时出坞；

The ship undocked at 1500 hrs on Aug. 5, (year);

船舶某年 8 月 6 日 1600 时离厂。

The ship left the shipyard at 1600 hrs on Aug. 6, (year).

## 检验在场人员

### PRESENT AT TIME OF SURVEY

船东代表 Owner's Representative

船级社验船师 Surveyor to the classification society

## 腐蚀 Corrosion

兹证明应“XXXX”轮承租人和船东联合申请，下列署名的验船师于某年 1 月 26 日在上海港登该轮进行了联合退租还船检验。THIS IS TO CERTIFY that the undersigned surveyor did, at the joint request of the Charterer and the Owner of the M.V. “XXXX”, attend on board the ship in Shanghai Harbor on Jan. 26, (year) for the purpose of carrying out a joint off-hire survey.

### 该轮船上燃料存量

#### QUANTITIES OF BUNKERS REMAINING ON BOARD THE SHIP

退租还船时，即某年 1 月 27 日 1630 时（北京时间），船上燃油和柴油的存量经测量，确定如下：At the time of re-delivery, i.e. at 1630 hrs on Jan. 27, (year) (Beijing time), the quantities of fuel oil and diesel oil remaining on board the ship were measured and ascertained as follows:

Fuel Oil.....	576.84 公吨 Metric Tons.
Diesel Oil .....	93.37 公吨 Metric Tons.

### 一般状况检验

#### GENERAL CONDITION SURVEY

在该轮大付在场的情况下进行了一般状况检验，除某年 7 月 25 日签发的起租检验报告 No.XXXXXX 中所述的外，未发现进一步的损坏。General condition survey was carried out in the presence of the ship's Chief Officer and no further damage was found except those described in on-hire survey report No.XXXXXX dated July 25, (year).

各货舱的腐蚀情况叙述如下：The details of corrosion condition in cargo holds were described as follows:

据该轮船长告称该轮于某年 11 月 25 日在 Banar Abbas 港卸下 34,696 公吨磷酸盐后，经货物检验师的同意，根据承租人的指示，各货舱仅作了清洁打扫。在某年 11 月 26 日至 12 月 14 日期间，该轮在 Banar Abbas 港装载钢块和钢筋。当该轮航行至上海并于某年 1 月 17 日至 27 日期间卸货后，船长发现所有货舱均有腐蚀痕迹，油漆大面积剥落。It was stated by the ship's Master that after the ship discharging 34,696 M/T of Diammonium phosphate at Banar Abbas on Nov. 25, (year), the cargo holds were only swept clean as instructed by the Charterer in consequence of the cargo surveyor's agreement. The ship loaded steel slabs & bars still at Banar Abbas during the period of Nov. 26 – Dec. 14, (year). After the ship sailed to Shanghai and discharged from Jan. 17 to 27, (year), the Master found all cargo holds showing signs of corrosion and large areas of paint peeled off.

### 检验查明 UPON THE SURVEY FOUND

在所有货舱内，两端横舱壁、两舷船壳板及肋骨、顶边舱和下底边舱斜板、舱口围板、内底板均有不同程度的腐蚀，特别是，油漆脱落或剥落都集中在所有货舱两端横舱壁的下部。除第 5 货舱后平面舱壁和第 1 货舱前平面舱壁外，其它横舱壁均为槽形舱壁。在平面舱壁上的油漆呈均匀剥落，槽形舱壁上的油漆仅在凸面剥落。In all cargo holds, both end transverse bulkheads, both side shell plating & frames, sloping platings of topside tanks & lower hopper tanks, hatch coamings and

inner bottom plating were corroded in various degrees, and especially detached or peeled paint concentrated at the lower parts of both end transverse bulkheads in all holds. Except the aft plane bulkhead in No.5 hold and fore plane bulkhead in No.1 hold the remaining transverse bulkheads are of corrugated type. The paint on plane bulkheads was uniformly peeled and paint on corrugated bulkheads peeled only on convex surfaces.

所有货舱均可以明显地发现以前装载的散装化肥的装货痕迹,即均在顶边舱斜板的下面。舱壁、船壳板以及肋骨的锈蚀的情况相同。In all cargo holds, the top loading marks of fertilizer in bulk previously carried could be obviously found, i.e. all below the sloping plating of topside tanks. The bulkheads, shell plating and frames were corroded and rusted in similar condition.

所有货舱的槽形舱壁凸面的下部和平面舱壁的下部大面积油漆剥落处,可以发现剩余的油漆约有 3-4 层并也已脱落,油漆铲除后,发现下面的钢板已腐蚀。槽形舱壁凹面的油漆没有剥落,但有小的和很小的锈点以及脱落。锈蚀遍及所有舱壁的上部。 On the lower parts of the convexities of the corrugated bulkheads and the plane bulkheads in all holds where large areas of paint were peeled off, the remaining paint could be found to be superimposed with approx. 3-4 coatings and also detached, and after the paint thereon being chopped off, the steel plates behind were found corroded. The paint on the concavities of the corrugated bulkheads wasn't peeled off, but rusted in minor & very minor spots and detached. Corrosion and rust spread all over the upper parts of the bulkheads.

油漆剥落情况 PAINT PEELING-OFF CONDITION:

#### 第一货舱 No.1 Cargo Hold

后槽形横舱壁在 10 米及以下范围内的凸面上的油漆大面积剥落约为总面积的 1/3。Large areas of paint on the convexities at and below the height of 10m of the aft corrugated transverse bulkhead were peeled off about 1/3 of total area.

前平面横舱壁下部的油漆少量成条状剥落。Very minor paint on the lower part of fore plane transverse bulkhead was peeled off in strips.

两舷底边舱的斜边板上的油漆成条状剥落并不大于总面积的 1/4 的油漆脱落。The paint on the sloping plating of both side hopper tanks was peeled off in strips and detached less than 1/4 of total area.

两舷肋骨面板上的油漆少量剥落。Minor paint on the face plates of both side frames was peeled off.

#### 第二货舱 No.2 Cargo Hold

前槽形横舱壁在 5 米及以下范围内的凸面上的油漆少量剥落。Minor paint on the lower parts of convexities at and below the height of 5m of the fore & aft corrugated bulkheads was peeled off.

两舷底边舱的斜边板上的油漆少量剥落。Minor paint on the sloping plating of both side hopper tanks was peeled off.

### 第三货舱 No.3 Cargo Hold

后槽形横舱壁在 4 米及以下范围内的凸面上的油漆呈大面积剥落, 约少于总面积的二分之一。在 4 米以上范围内的凸面上的油漆呈少量剥落。Large areas of paint on the convexities at and below the height of 4m of the aft corrugated bulkhead was peeled off less than 1/2 of total area and minor paint on convexities above the height of 4m was peeled off.

前槽形横舱壁在 5 米及以下范围内的凸面上的油漆呈大面积剥落, 在中部约船宽 1/3 处约为总面积的二分之一。Large area of paint on the convexities at and below the height of 5.0m of the fore corrugated transverse bulkhead and at middle about 1/3 of ship's breadth was peeled off approx. 1/2 of total area.

两舷底边舱的斜边板上的油漆呈大面积剥落, 约为总面积的二分之一。Large area of paint on sloping plating of both side hopper tanks was peeled off approx. 1/2 of total area.

肋骨面板上的油漆少量剥落。Minor paint on the face plates of frames was peeled off.

### 第四货舱 No.4 Cargo Hold

后槽形横舱壁在高为 1/2 及以下范围内的凸面上的油漆呈大面积剥落, 约为总面积的三分之一。Large area of paint on the convexities at and below the half height of the aft corrugated transverse bulkhead was peeled off approx. 1/3 of total area.

后槽形横舱壁在 5 米及以下范围内的凸面上的油漆呈大面积剥落, 约少于总面积的二分之一。Large area of paint on the convexities at and below the height of 5m of the fore corrugated transverse bulkhead was peeled off less than 1/2 of total area.

两舷底边舱的斜边板上的油漆少量剥落, 约为总面积的五分之一。Minor areas of paint on the sloping plating of both side hopper tanks was peeled off approx. 1/5 of total area.

两舷肋骨面板上的油漆少量剥落。Minor paint on the face plates of both side frames was peeled off.

### 第五货舱 No.5 Cargo Hold

后平面横舱壁在 3.5 米及以下处的油漆呈大面积剥落, 约为总面积的五分之一。Large area of paint at and below the height of 3.5m of the aft plane transverse bulkhead was peeled off approx. 1/5 of total area.

前槽形横舱壁在 4 米及以下范围内的凸面上的油漆除两舷外全部剥落。The paint on the convexities at and below the height of 4m of the fore corrugated transverse bulkhead was peeled off all over except on both sides.

两舷底边舱的斜边板上的油漆少量成条状或点状剥落。Minor paint on the sloping plating of both side hopper tanks was peeled off in strips or spots.

所有货舱内的内底板都被以前装运的货物的剩余物（块状或粉状的）覆盖，

仅发现少量部位处的油漆剥落。The inner bottom plating in all cargo holds was generally covered with remnants (agglomerated or powdery) from cargo previously carried and the paint thereon was found peeled off only at minor locations.

下列署名的验船师的意见(无偏见)THE UNDERSIGNED'S OPINION WITHOUT PREJUDICE

总之，所有货舱的内部构件均腐蚀，即油漆均有不同程度的锈蚀、脱落和剥落。In general, the interior structural members in all cargo holds were corroded, i.e. the paint was rusted, detached and peeled off in various degrees.

所有货舱内都能明显发现以前装运化肥的痕迹，它们均在顶边舱斜底板和船壳板的交接处。船壳板、肋骨和横舱壁在装运痕迹以上也有不同程度的腐蚀。船壳板、肋骨和横舱壁在装运痕迹的以上和以下的的腐蚀程度相似。The top loading marks of chemical fertilizer previously carried in all cargo holds could be obviously found, they were below the intersection of sloping bottom plating of topside tanks and shell plating. Above the top loading marks, the sloping bottom plating of topside tanks, shell plating, frames and transverse bulkheads also corroded in various degrees. Above and below the top loading marks, the shell plating, frames and transverse bulkheads were corroded in similar degree.

考虑到大面积油漆剥落主要集中在所有货舱内前、后横舱壁的下部和下底边舱斜板上，且本航次载运的货物是钢筋和钢块，下列署名的验船师认为油漆的次数相隔太长，并且多次油漆前都没有对钢板进行适当除锈是所有货舱内部构件的腐蚀及其油漆损坏的原因。舱壁和下底边舱斜板上大面积油漆剥落是由于其下面的钢板锈蚀，油漆不能粘牢，在装货和卸货时被货物特别是重货擦去所致。Considering that large areas of paint mainly concentrating on the lower parts of fore & aft transverse bulkheads and sloping plating of lower hopper tanks in all holds were peeled off and in this voyage steel bars and slabs were carried, the undersigned surveyor deems that the corrosion of interior structural members and the damage of paint thereon in all holds were sustained owing to that the interval of re-painting was too long and the steel plates weren't adequately derusted prior to painting for numerous times. Large areas of paint on the bulkheads and sloping plating of lower hopper tanks were peeled off owing to that the steel plates behind were corroded due to rust, the paint couldn't adhere closely and were scraped by cargoes, especially by heavy cargoes when being loaded & discharged.

### **进水损坏 Flooding Damage**

兹证明应中国人民保险公司上海分公司申请，下列署名的咨询验船师于某年3月23日及以后诸日在上海港登“XXXX”挖泥船对该挖泥船所遭受的海损进行了公正检验。

THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China, attend on board

the Dredger “XXXX”

Port of Registry:

L.O.A.:

Mould Breadth:

Mould Depth:

Gross Tonnage:

Net Tonnage:

, owned by Shanghai Dredging Bureau, in Shanghai Harbor on March 23, (year) and subsequently for the purpose of carrying out a survey without prejudice to the sea damage stated to have been sustained to the said dredger.

据船东代表告称该挖泥船于某年 2 月 26 日始从马来西亚被拖往上海。在拖航中, 某年 3 月 1 日, “XXXX” 拖轮来电报告知在越南 xxx 附近遭遇大风浪, 其主拖缆断裂。某年 3 月 21 日早上, 拖轮与其拖带的挖泥船到达上海港吴淞检疫锚地。同日 9 时该拖轮将该挖泥船交船时, 发现该挖泥船已严重向左倾斜。登上该挖泥船时, 发现挖泥船向左倾斜 3.5 度。It was stated by the Owner’s representative that the said dredger was towed from Malaysia to Shanghai from Feb. 26, (year). During towage, the tug “XXXX” reported by telegraph on March 1, (year) that she encountered strong wind in the vicinity of xxx, Vietnam and her main towing line was broken. On the morning of March 21, (year), the tug “XXXX” with the towed dredger “XXXX” arrived at Wusong quarantine anchorage of Shanghai Harbor. When the tug “XXXX”, owner by Shanghai Dredging Bureau, delivered the dredger “XXXX” at 0900 hrs on the same day, the said dredger was found seriously listing to port. Having attended on board the said dredger, the dredger was found listing to port at angle of 3.5°.

下列署名的咨询验船师于某年 3 月 25 日登“XXXX” 拖轮对其遭受的海损进行了调查。据该拖轮船长告称该拖轮将拖带“XXXX”挖泥船, 由 BV 验船师于某年 2 月 24 日对拖航准备进行检验, 并于某年 2 月 26 日签发了适拖证书。从某年 2 月 26 日起, 该拖轮将挖泥船从马来西亚拖往上海港。拖航中, 它们遭遇了大风浪, 拖轮的主拖缆断裂。当另一艘拖轮帮助该拖轮重系拖缆后, 该轮与其拖带的挖泥船到达上海港, 前来交船的人员发现该挖泥船已严重向左倾斜。The undersigned consulting surveyor attended on board the tug “XXXX” for making an investigation on the sea damage on March 25, (year). As stated by the tug’s Master, the said tug which would tow the dredger “XXXX” was inspected for towage preparation by BV surveyor on Feb. 24, (year) and the Certificate of Fitness for Towage No.XXXXXXX was issued. From Feb. 26, (year), the said tug towed the said dredger from Malaysia to Shanghai Harbor. During towage, they encountered heavy sea, thus causing the said tug’s towing line broken. After another tug helped the said tug refasten the towing line, the said tug with her towed dredger arrived in Shanghai Harbor, the personnel who were dispatched to deliver the dredger “XXXX” discovered that the said dredger was severely listing to port.

#### 损坏情况 CONDITION OF DAMAGE

检验查明 FOUND

修理要求 RECOMMENDED

- |   |   |
|---|---|
| <p>1. 左舷车床间和备品间进水以致里面的备品与工具长期浸在海水中。The port side lathe room and spare room flooded so that the spares &amp; tools therein soaked in sea water for a long time.</p>  | <p>除了可腐蚀的部分换新外，均应予清洁和拆检。To be cleaned and overhauled except that the corrodible parts to be renewed.</p>  |
| <p>2. 左舷淡水舱，在开始拖航时的水位为 1.6 米，现水位为 4.7 米，大量海水混进。The port side fresh water tank, its water level at time of starting towage was 1.6m and now, its water level was 4.7m and a large quantities of sea water mixed.</p>                             | <p>应予清洁。To be cleaned.</p>  |
| <p>3. 大量海水灌入左锚链舱。A large quantities of sea water poured into the port chain locker.</p>   | <p>应予清洁。To be cleaned.</p>  |
| <p>4. 储藏室处的右舷船壳板距离甲板 0.86 米处有一面积为 10mmx4mm 的洞，该储藏室内积水 0.35 米深。The std side shell plating in way of store room, at 0.86m off the deck, holed at one place 10mmx4mm in area, and water was accumulated in the said room about 0.35m in depth.</p> | <p>储藏室应予清除积水后清洁。The store room to be cleared away accumulated water and then cleaned.<br/>该船壳板应予修补。<br/>The shell plating to be patched.</p>            |
| <p>5. 左舷电焊机室进水，一台电焊机浸水。The port side welding machine room flooded so that the welding machine, one set, therein soaked.</p>   | <p>电焊机应予拆检或按原样换新。The welding machine to be overhauled or renewed as original.</p>   |
| <p>6. 液压泵间进水，液压钢桩控制屏部分浸水。The hydraulic pump room flooded so that the hydraulic steel pile control panel, Type YUKEN R-7548, partly soaked.</p>  | <p>整个系统应予检查。对不符合 CCS 规定的部分应予换新或拆检。The whole system to be checked. The parts which didn't satisfy with CCS requirements to be renewed or overhauled.</p> |

#### 损坏原因 CAUSE OF DAMAGE

经对该轮损坏部位及情况进行检查，损坏原因可归咎于：Upon examination on the ship's damage location and condition, the cause of damage could be attributed to:

1. 锚链筒封闭不水密。The hawse pipe not being blanked watertightly;
2. 工具备品间通风筒的水密挡板没有关闭，出入口人孔盖关闭不水密。The

- watertight flaps of ventilators of tool & spare rooms not being in close position and the access manhole cover not being closed watertightly;
3. 左淡水舱人孔底座严重腐蚀,人孔盖关闭水密不好。Serious corrosion of the port fresh water tank manhole base and the manhole cover not being closed well-watertightly;
  4. 水压泵间的通风筒关闭装置没有关闭。The closing appliance of ventilator of hydraulic pump room not being in close position;
  5. 左电焊机间的水密门关闭不水密。The watertight door of port welding machine room not being closed watertightly;
  6. 储藏室处洞穿的右舷船壳板的材料质量欠佳 Poor quality of material of the std side shell plating in way of the store room where holed.

认为除第三项外,上述项目损坏的原因与船东和拖轮船长所述的是一致的。The cause of damage as mentioned in the above-said items except the item 3 is considered to be coincident with what the Owner and the tug's Master stated.

#### 修理费用 COST OF REPAIR

下列署名的验船师对上海东方疏浚工程公司所提供的该挖泥船的修理单和价格表进行了查核,认为除备品更换费用外本次海损的修理费总金额为人民币叁拾叁万伍千壹百柒十元是合理的。The undersigned consulting surveyor checked the dredger's repair list and quotation of price submitted by Orient Dredging Engineering Corp., Shanghai and considers that the cost of repair on this sea damage, except the fee for replacement of spares, in sum of RMB 335,170.00 Yuan (RMB YUAN THREE HUNDRED AND THIRTY-FIVE THOUSAND ONE HUNDRED AND SEVENTY ONLY) is reasonable.

#### **锚损坏 Anchor Damage**

兹应“XXXX”轮船东委托,本公司聘请下列署名的高级工程师于某年1月24日及以后诸日在上海XX船厂车间内,对“XXXX”轮右锚的损坏进行了技术咨询机构。THIS IS TO CERTIFY that the undersigned senior engineer did, at the request of the Owner of the M.V. “XXXX”, XX Shipping (Liberia) Inc., carry out a technical consultation to the damaged std anchor at the workshop of Shanghai XX Shipyard on Jan. 24, (year) and subsequently.

据该轮船长告称:该轮于某年10月10日1120时(当地时间),在红海(24o23' N, 036o21' E)水深1166米处,船舶发生强烈振动和扭摆,主机转速突然升高。船长便指派二名船员(他们原来是潜水员)到水下检查螺旋桨,发现螺旋桨有一叶片已断落,叶片已丢失。该轮已无法自航,只好在红海漂流,等待救助。在这期间,由于风力和水流的作用,该轮数次漂至埃及和沙特阿拉伯沿岸,为防止船舶漂至礁滩而造成搁礁,船长决定把右锚放入水中,锚链约抛出40米。于某年10月21日中午,有一船名为“XX”的拖轮来到该轮旁,准备拖救该轮,该轮把右锚绞起,但锚无法与船体贴紧,经船员查看发现右锚已损坏。于某年11月25日,该轮被拖到新加坡停泊,为拖轮驳油时,便将锚吊上甲板来,把右锚锚

链割去一个链环，使该轮继续被拖航至日本川崎港。It was stated by the ship's Master that while sailing at the Red Sea, the ship severely shocked and laboured & strained, and the revolution of her main engine suddenly raised, at position: 24o23' N, 36o21' E, the depth of water: 1166m. The ship's Master dispatched two crew members (they used to divers) to dive for Examining the propeller and one propeller blade was found broken off and missing, thus, the ship couldn't sail by herself and had to drift at the Red Sea for waiting assistance. During this period, the ship drifted to the coasts of Egypt and Saudi Arabia for several times owing to wind and current. In order to prevent the ship from drifting and striking rocks, the Master ordered to drop the std anchor with about 40m of chain cables. At noon of Oct. 21, (year), the tug "XX" came alongside the ship so as to help her, the ship heaved her std anchor but it failed to be heaved into the anchor hawse pipe. Upon the crew's examination found, the std anchor was damaged. The ship was towed to Singapore on Nov. 25, (year). Temporary measure was taken, the said anchor was cut off and then let the anchor still put into use. Thus, the ship was continuously towed to port of Kawasaki, Japan.

检查发现

#### UPON THE SURVEY FOUND

该轮右锚的锚杆在锚冠孔中错位约 90 度，锚杆在该锚冠孔中卡住，但锚杆本身还平直。锚杆与锚爪的连接处，锚杆左右两边的定位钢块和定位肖均已丢失。The anchor shank of the ship's std anchor turned about 90o in the shank was still straight. The port & std steel blocks and pins for securing the anchor shank with the anchor crown all missing.

修理建议

#### RECOMMENDATION

1. 锚柄和锚冠卡住处，将锚冠上的锚杆孔边缘割去一小部分，面积约 250mmx80mm，将锚杆从锚冠孔中拉出，复位。The shank housing of the anchor crown to be cut off at its edge where the anchor shank was seized about 250mmx80mm in area. Then, the anchor shank to be drawn out from the housing and re-fitted as original.
2. 锚柄与锚冠连接处，用 300mmx250mmx100mm 的钢板二块用电焊的方法焊在锚冠孔的两侧，作为锚柄在锚冠孔中的定位块。Two steel plates, 300mmx250mmx100mm in size each, to be fitted by electric welding on the both sides of the shank housing of the anchor crown in lieu of the securing steel blocks of the anchor shank.

实际修理情况

#### REPAIR EFFECTED

上述损坏已按“修理建议”修妥，经检查，认为合格。The above-mentioned damage items were repaired according to the RECOMMENDATION, and inspected

and found satisfactory.

### 货舱损坏 Cargo Hold Damage

兹应中国人民保险公司上海分公司申请，下列署名的咨询验船师于某年 7 月 26 日及以后诸日在南通船厂锚地登“XXXX”轮对该轮因抓斗卸货造成货舱的损坏部分进行了修理检验。

THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China, attend on the M.V. "XXXX" on July 26, (year) and subsequently at the anchorage of Nantong Shipyard for the purpose of carrying out a repair survey to the damaged cargo hold bottoms in consequence of hitting by grabs.

#### 装卸损坏

#### STEVEDORE DAMAGE AT IMMINGHAM 1/6/00

#### 船舶资料

#### PARTICULARS OF M.V. "XXXX"

船旗 Flag:

船籍港 Port of Registry:

登记吨位 Registered Tonnage:

载重量 Deadweight:

主要尺寸 Principal Dimensions: 全长 L.O.A.

垂线间长 L.B.P.

型宽 Mould Breadth

型深 Mould Depth

建造时间和地点 When & Where Built:

船东 Owner:

某年 6 月 26 日在 IMMINGHAM 进行联合退租还船检验

A JOINT OFF HIRE SURVEY CARRIED OUT AT IMMINGHAM ON JUNE 26, (year)

据报告某年 4 月 23 日 0001 时（当地时间）即，海外引水员在中国大连登陆时，该轮已开始 British Steel PLC 的定期租船。该轮于某年 5 月 9-23 日期间在 Roberta Bank, Vancouver B.C. 装载了 54993 吨煤，全部运到 Immingham 卸货。It is reported that the vessel had commenced a time charter to British Steel PLC at 0001 hours on April 23, (year) (Local time), i.e. at the time of disembarkation of the outward pilot at Dalian, China. The vessel loaded coal of 54993 M/T at Roberta Bank, Vancouver B.C. in the period of May 9-23, (year), all of which was discharged at Immingham.

该轮于某年 6 月 25 日 1902 时到达并靠泊在 Immingham 散装码头。卸货作

业于当天 1923 时开始，使用二台门式起重机进行，每一台起重机均设有大容量散装货抓斗。卸货作业于某年 6 月 28 日 0400 时结束。The vessel arrived at and berthed alongside the Immingham Bulk Terminal at 1902 hrs on June 25, (year). Discharging operation commenced at 1923 hrs on that day by means of two gantry cranes, each fitted with large capacity bulk cargo grabs. Discharging operation completed at 0400 hrs on June 28, (year).

此次定期租船于卸货作业完成时结束，时间确定为某年 6 月 28 日 0400 时。The Time Charter was terminated at the time of completion of discharging operation which was confirmed to be 0400 hrs on June 28, (year).

某年 6 月 26 日 B.W. Smith 先生根据有关的起租检验报告进行联合退租还船检验，发现第 1-6 舱内的底边舱斜板、前、后横舱壁和内底板有在卸货中使用抓斗而引起的损坏。详情请见 B.W. Smith 先生某年 7 月 2 日签发的检验报告。A joint off-hire survey was carried out by Mr. B.W. Smith on June 26, (year) with the reference of the on-hire survey report, the damage caused by grabs during discharging were found at lower hopper sloping plating, forward & aft transverse bulkhead and tank top plating in Nos.1-4 cargo holds. For details, please refer to Report of Survey BWS/SG/IMM/00/574 dated July 2, (year) issued by Mr. B.W. Smith.

与此同时，ABS 验船师进行了临时检验，并对永久性修理延迟至下一次进坞时进行作了认可。At the same time, an occasional survey was carried out by ABS Surveyor, Mr. K. Kolmas and permanent repair was approved to be deferred till the next routine docking.

#### 部分永久性修理

#### PERMANENT REPAIR PARTLY EFFECTED

由南通船厂进行了部分永久性修理，并经验船师代表 ABS 进行了检验和试验，认为满意。The permanent repair was partly effected by Nantong Shipyard and inspected and tested by Surveyor on behalf of ABS to satisfaction.

此次永久性修理主要包括以下内容：The permanent repair consisted briefly of the followings:

注 NOTE: 除另有说明外，所有项目均从首、左和下数起。All items are counted from forward, port side & lower part unless otherwise stated.

#### 第一货舱 No.1 Cargo Hold

#### 左舷 Port side

底边舱斜板第 3 列板在离内底板 4200mm、No.12 舷肋骨间距处割换，尺寸为 740mmx400mmx14mm。The No.3 strake of the lower hopper sloping plating in way of shell frame space No.12 at a position 4200mm from the tank top was cropped & renewed about 740mmx400mmx14mm in size.

底边舱斜板第 2 列板在离内底板 2000mm、No.18 舷肋骨间距处割换，尺寸为 460mmx460mmx14mm。The No.2 strake of the lower hopper sloping plating in way of shell frame space No.18 at a position 2000mm from the tank top was cropped & renewed about 460mmx460mmx14mm in size.

No.3 舷肋骨（从尾数起）的底肘板割换 L1000mmx1750mmx10mm/100mmx10mm。 The foot bracket of shell frame No.3, numbered from aft was cropped & renewed, L1000mmx1750mmx10mm/100mmx10mm.

#### 右舷 Std side

底边舱斜板第 2 列板在离内底板 2200mm、No.4 舷肋骨间距处割换，尺寸为 320mmx500mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space No.4 at a position 2200mm from the tank top was cropped & renewed about 320mmx500mmx14mm in size.

底边舱斜板第 2 列板在离内底板 3000mm、No.10 舷肋骨间距处割换，尺寸为 970mmx520mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space No.10 at a position 3000mm from the tank top was cropped & renewed about 970mmx520mmx14mm in size.

底边舱斜板第 2 列板上缘在离内底板 4000mm、No.22 舷肋骨间距处割换，尺寸为 320mmx320mmx14mm。 The upper edge of No.2 strake of the lower hopper sloping plating in way of shell frame space No.22 at a position 4000mm from the tank top was cropped & renewed about 320mmx320mmx14mm in size.

#### 第二货舱 No.2 Cargo Hold

##### 左舷 Port side

底边舱斜板第 1 列板在离内底板 1100mm、No.5 舷肋骨间距处割换，尺寸为 400mmx400mmx14mm。 The No.1 strake of the lower hopper sloping plating in way of shell frame space No.5 at a position 1100mm from the tank top was cropped & renewed about 400mmx400mmx14mm in size.

No.4 舷肋骨的底肘板割换 L1000mmx1750mmx10mm/100mmx10mm。 The foot bracket of shell frame space No.4 was cropped & renewed L1000mmx1750mmx10mm/ 100mmx10mm.

底边舱斜板第 2 列板在离内底板 3400mm、No.19 舷肋骨间距处割换，尺寸为 400mmx450mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space No.19 at a position 3400mm from the tank top was cropped & renewed about 400mmx450mmx14mm in size.

##### 右舷 Std side

底边舱斜板第 2 列板在离内底板 3700mm、No.4 舷肋骨间距处割换，尺寸为 600mmx550mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space No.4 at a position 3700mm from the tank top was cropped & renewed about 600mmx550mmx14mm in size.

底边舱斜板第 2 列板在离内底板 2700mm、No.9 & 10 舷肋骨间距处割换，尺寸为 1200mmx800mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space Nos.9 & 10 at a position 2700mm from the tank top was cropped & renewed about 1200mmx800mmx14mm in size.

No.1 舷肋骨（从尾数起）的底肘板割换 L1000mmx1750mmx10mm/100mmx10mm。 The foot bracket of shell frame No.1, numbered from aft was cropped & renewed, L1000mmx1750mmx10mm/100mmx10mm.

#### 内底板 Tank top

第 1 列板（从左数起）在离底边舱 2600mm、No.18 舷肋骨间距处割换，尺寸为 1300mmx600mmx14mm。 The No.1 strake, numbered from the port side in way of shell frame space No.18 at a position 2600mm from the lower hopper tank was cropped & renewed about 1300mmx600mmx14mm in size.

第 1 列板（从右数起）在离底边舱 2300mm、从尾数起 No.5 舷肋骨间距处割换，尺寸为 650mmx650mmx14mm。 The No.1 strake, numbered from the std side in way of shell frame space No.5, numbered from aft, at a position 2300mm from the lower hopper tank was cropped & renewed about 650mmx650mmx14mm in size.

#### 第四货舱 No.4 Cargo Hold

##### 左舷 Port side

底边舱斜板第 2 列板在离内底板 3000mm、从尾数起 No.5 舷肋骨间距处割换，尺寸为 970mmx520mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space No.5, numbered from aft, at a position 2200mm from the tank top was cropped & renewed about 610mmx800mmx14mm in size.

##### 右舷 Std side

底边舱斜板第 2 列板在离内底板 2600mm、从尾数起 No.7 舷肋骨间距处割换，尺寸为 460mmx640mmx14mm。 The No.2 strake of the lower hopper sloping plating in way of shell frame space No.7, numbered from aft, at a position 2600mm from the tank top was cropped & renewed about 460mmx640mmx14mm in size.

#### 内底板 Tank top

第 1 列板（从左数起）位于 No.15 舷肋骨间距处，曾在 Immingham 用 500mmx400mmx17mm 钢质焊接套筒进行临时性修理，测厚并焊接。 The No.1 strake, numbered from the port side, in way of shell frame space No.15 temporarily repaired at Immingham by means of a welded steel insert, 500mmx400mmx17mm, was gauged and welded.

第 3 列板（从右数起）从中心线向右 2.2 米、No.7 舷肋骨间距处割换，尺寸约为 1200mmx840mmx18mm。 The No.3 strake, numbered from the std side, in way of shell frame space No.7 at a position 2.2m to std from the centreline was cropped & renewed about 1200mmx840mmx18mm in size.

#### 第六货舱 No.6 Cargo Hold

##### 左舷 Port side

底边舱斜板第 2 列板在离内底板 4000mm、No.7 舷肋骨间距处割换，尺寸为 500mmx500mmx14mm。The No.2 strake of the lower hopper sloping plating in way of shell frame space No.7 at a position 4000mm from the tank top was cropped & renewed about 500mmx500mmx14mm in size.

底边舱斜板第 2 列板在离内底板 3500mm、从尾数起 No.7 舷肋骨间距处割换，尺寸为 1300mmx800mmx14mm。The No.2 strake of the lower hopper sloping plating in way of shell frame space No.7, numbered from aft, at a position 3500mm from the tank top was cropped & renewed about 1300mmx800mmx14mm in size.

No.2 舷肋骨（从尾数起）的底肘板割换 L1000mmx1750mmx10mm/100mmx10mm。The foot bracket of shell frame No.2, numbered from aft, was cropped & renewed L1000mmx1750mmx10mm/100mmx10mm.

### 内底板 Tank Top

第 1 列板（从左数起）在离内底板 2000mm、No.6 舷肋骨间距处割换，尺寸为 620mmx1180mmx14mm。The No.1 strake, numbered from the port side, in way of shell frame space No.6 at a position 2000mm from the tank top was cropped & renewed about 620mmx1180mmx14mm in size.

下述损坏经船东代表和 ABS 验船师同意免除修理。

The following damages sanctioned by the Owners' Representatives, Mr. E. Koulis and Mr. S.Halikias and ABS Surveyor, Mr. H.Kinoshita are exempted from repair.

### 第一货舱 No.1 Cargo Hold

#### 右舷 Std side

底边舱斜板第 2 列板在离内底板 2000mm、No.6 舷肋骨间距处凹陷。The No.2 strake of the lower hopper sloping plating in way of shell frame space No.6 at a position 2000mm from the tank top set in about 400mmx400mm in area.

### 第二货舱 No.2 Cargo Hold

#### 左舷 Port side

底边舱斜板第 2 列板在离内底板 3400mm、No.19 舷肋骨间距处凹陷。The No.2 strake of the lower hopper sloping plating in way of shell frame space No.19 at a position 3400mm from the tank top was cropped & renewed about 400mmx400mm in area.

#### 右舷 Std side

底边舱斜板第 2 列板在离内底板 1700mm、No.7 舷肋骨间距处凹陷。The No.2 strake of the lower hopper sloping plating in way of shell frame space No.7, numbered from aft, at a position 1700mm from the tank top indented about

400mmx350mm in area.

#### 前横舱壁 Forward transverse bulkhead

Nos.4 & 5 槽形处底凳斜边板的第 2 列板在离内底板 2400mm 处凹陷。

The No.2 strake of the stool space sloping plating in way of protruding corrugations Nos.4 & 5 set in about 300mmx300mm in area at a position 2400mm from the tank top.

#### 后横舱壁 Aft transverse bulkhead

货舱直梯处 Nos.5 & 6 槽形间的横舱壁板局部凹陷二处，面积各约 100mmx50mm 。 The trimming plate bet. protruding corrugations Nos.5 & 6 in way of the access ladder locally set in at two places about 100mmx50mm in area each.

#### 内底板 Tank Top

第 2 列板（从右数起）在离内底板 1500mm、No.16 舷肋骨间距处凹陷。The No.1 strake, numbered from the std side, in way of shell frame space No.16 at a position 1500mm from the tank top set in about 400mmx400mm in area.

#### 第三货舱 No.3 Cargo Hold

#### 后横舱壁 Aft transverse bulkhead

No.10 槽形处的第三列板在离内底板 2000mm 处凹陷。The No.3 strake in way of protruding corrugation No.10 indented about 400mmx400mm in area at a position 2000mm from the tank top.

位于底凳板处的后货舱直梯的下面一级梯阶皱折。The lower rung of the aft access ladder, situated on the stool space trimming plate, buckled.

#### 第五货舱 No.5 Cargo Hold

#### 后横舱壁 Aft transverse bulkhead

货舱直梯安全固定环的上面一段全部皱折和破碎。The upper section of access ladder safety hoop, buckled and crushed over length.

#### 验船师意见（无偏见） THE UNDERSIGNED'S OPINION (WITHOUT PREJUDICE)

上述项目已与船东自修工程一起进行，即第 4 货舱，舱盖，船壳板作了喷沙，货舱内舷侧肋骨和肘板以及上甲板板部分割换等。The above-said items were permanently repaired concurrently with the Owner's maintenance work, i.e. sand blast

for No.4 cargo hold, hatch covers and shell plating; partly cropping & renewal of side shell frames & brackets in cargo holds and upper deck plating, etc.

如果上述损坏的永久性修理单独进行,下列署名的验船师认为要用4个工作日。If the above said damages being permanently repaired alone, the undersigned considers that it would take 4 working days.

至今为止,尚未收到有关修理费用的帐单。如果收到,我们将以补充报告的方式进行审核和评价。So far, no costs of repair are available, if and when such are made available, we will comment in the form of an addendum to this report.

## 舱盖损坏 Hatchcover Damage

液压折叠式舱盖板 Hydraulic folding type hatchcovers

### ALLEGATION 事故经过

据该轮船长告称:自6月份接船以来发现该轮舱盖存在下列缺陷及损坏: It was stated by the ship's Master that since the ship was delivered in June (year), the defects & damages of the ship's hatchcovers were found as follows:

1. 413-2#舱盖板后端密封橡皮脱胶,并从橡皮槽内脱落长约3米; The aft rubber packing of the No.413-1 panel unglued and detached from the packing groove about 3m in length.
2. 413-6#舱盖板右侧密封橡皮脱胶,并从橡皮槽内脱落长约2米; The std rubber packing of the No.413-6 panel unglued and detached from the packing groove about 2m in length.
3. 第二舱 413-3#与 413-4#舱盖开启时,舱盖轨道前端升高部分发生左右抖动,并且 413-4#舱盖右侧滚轮在接近端部时发生腾空现象; While the Nos.413-3 & 413-4 panels of No.2 hatchcover opening, the fore raised parts of their tracks swung, and the std roller of No.413-4 panel moving at the end of track run off.
4. 第三舱 413-9#舱盖变形,右后铰链处焊缝裂开,造成 413-9#与 413-10#舱盖之间不水密,且无法靠自身动力打开。The No.413-9 panel of No.3 hatchcover deformed and the welding seam at its std aft hinge broken, thus, the Nos.413-9 & 413-10 panels got non-watertight at their joint, and failed to open by their own power.

### 检验查明 UPON THE SURVEY FOUND

1. 413-2#舱盖板后端横向密封橡皮脱胶,从橡皮槽内脱落长度约3米。The aft transverse rubber packing of No.413-2 panel unglued and detached from the packing groove about 3m in length.
2. 413-6#舱盖板右侧纵向密封橡皮脱胶,从橡皮槽内脱落长度约2米。The std

### 修理要求 RECOMMENDED

脱落的密封橡皮按原样重新涂胶,装配至橡皮槽内。To be re-glued, then re-fitted in the groove as original.

脱落的密封橡皮按原样重新涂胶,装配至橡皮槽内。To be

longitudinal rubber packing of No.413-6 panel unglued and detached from the packing groove about 2m in length.

3. 第二舱左、右舱盖轨道前端升高部分（最大高度 440mm，厚度 20mm，长度 3100mm）无肘板加强，在 413-3#及 413-4#舱盖板开启时发生抖动，最大幅度约 10mm；The fore raised parts (max. height: 440mm, thickness: 20mm & length: 3100mm for each) of the port & std tracks for No.2 hatchcover not reinforced with brackets, and swung to the max. swing of about 10mm while the Nos.413-3 & 413-4 panels opening;  
另外，第二舱右侧轨道前端升高部分近端部处较左侧低约 20mm，长约 470mm，在开启时，413-4#舱盖右侧滚轮在近端部时发生腾空现象。Also, the end of the fore raised part, about 470mm in length, of the std track was about 20mm lower than that of the port track, while the above-mentioned panels opening, the std roller of No.413-4 panel moving at the end of the track run off.
4. 413-9#舱盖后端下垂变形，最大变形约 10mm；末端横梁上右侧绞链处已于上一航次进行了临时性修理：对两侧加强肘板进行了复补 200mmx200mmx10mm 各 1 块，纵向肘板与横梁面板的焊缝进行了补焊。The aft part of No.413-9 panel sagged about 10mm in max. depth; the end beam at its std hinge had been temporarily repaired during the last voyage:  
The both side brackets doubled with plates 200mmx200mmx10mm in size for each, the welding seam for connecting the longitudinal bracket with the face plate of the beam was re-welded.

re-glued, then re-fitted in the groove as original.

第二舱左右舱盖轨道前端升高部分外侧在距端部 30mm 处各加设加强肘板 320mmx100mm x10mm x 1 块。The fore raised parts of the port & std tracks for No.2 hatchcover to be reinforced with brackets 320mmx100mm x10mm in size at their outsides 30mm off ends;  
第二舱右侧轨道前端近端部加高 20mm，长度 470mm。The fore end of std track for No.1 hatchcover to be raised 20mm in height and about 470mm in length.

舱盖割换校正。

The cover panel to be cropped & renewed and faired.

割换 To be cropped & renewed:

末端横梁 End beam –

腹板 Web plate 1500mmx400mm x 10 pcs;

面板 Face plate 1700mmx200mm x 40 pcs.

加强肘板 Bracket –

300mmx300mmx10mm x 2 pcs;

300mmx10mm/160mmx10mm x0.5m x 1 pc.

#### 损坏原因

#### CAUSE OF DAMAGE

上述 1-3 项损坏或缺陷的产生原因，本咨询验船师认为显然是舱盖本身的质量问题所引起的，与船员操作无关。The undersigned consulting surveyor considers that the damages or defects in the above-mentioned items Nos.1-3 were caused obviously owing to the manufacturing quality of the ship's hatchcovers.

本咨询验船师在查阅了船上自接船以来 4 个航次配载资料及有关的操作手册及装载手册后，未发现船员有未按操作手册与装载手册进行操作和装载的现象，因此也认为上述第 4 项损坏产生的原因是舱盖本身的质量问题所引起的，而不是船员操作不当所引起的。Upon examining the information on stowage for the ship's 4 voyages since delivery and the relevant operating booklet & loading manual on board the ship, it wasn't found that the crew had undertaken operating and loading other than according to the operating booklet and loading manual. Hence, the undersigned considers that the damage in the above-mentioned item No.4 could also be reasonably attributed to the manufacturing quality of the hatchcover.

#### 永久性修理与修理费用

#### PERMANENT REPAIR & COST OF REPAIR

上述舱盖的损坏及缺陷部分已由上海 XX 船厂于某年 8 月 16 日至 20 日在该厂码头按修理要求进行了永久性修理。The above-mentioned damages & defects of the ship's hatchcovers were permanently repaired according to the "RECOMMENDED" at Shanghai XX Shipyard on Aug. 16-20, (year).

但至今为至未收到船厂有关的修理帐单。如果今后收到有关的帐单，我们将以补充报告的方式对该帐单进行审核和评价。But up to date, no account of repair has been received from the shipyard yet, and when it is available, we will comment it in form of an Addendum to this report.

#### **浪击损坏 Wash Damage**

THIS IS TO CERTIFY that the undersigned surveyor did, at the request of the Shanghai Branch of the China Ocean Shipping Agency on behalf of the Master of the M.V. "XXXX", attend on board the M.V. " B-251" on Aug. 20, (year) in Shanghai Harbor for the purpose of carrying out a survey without prejudice to ascertain the extent, nature and cause of the damage stated to have been sustained in the following circumstance:

"B-251" 于某年 8 月 15 日遭受 "XXXX" 轮浪击损坏  
M.V."B-251" WASH DAMAGED BY M.V. "XXXX"  
IN HUANGPU RIVER ON AUG. 15, (year)

#### 船舶资料 PARTICULARS

(略)

据“B-251”轮驾长告称“XXXX”轮因某年8月15日0020时其系泊在黄浦江 Nos.6-7 浮筒间的缆绳断裂，为了控制漂流，该轮在“B-251”轮与另外三条航标船靠泊的码头附近操纵时，该轮螺旋桨激起的强大潮流使得“B-251”轮剧烈摇晃，并与平行靠泊的其它三艘船舶互相碰撞，致使“B-251”轮遭受浪击损坏。It was stated by the Skipper of the M.V. “B-251” that while the M.V. “XXXX” being maneuvered in the vicinity of the wharf where M.V. “B-251” with other 3 beacon service ships were berthing alongside, in order to control drifting after the breaking of her mooring ropes between Nos.6-7 buoys in Huangpu River at 0020 hrs on Aug. 15, (year), her propeller stirred strong current to make the M.V. “B-251” heave and roll severely and collide with other ships lying parallelly alongside and thus the M.V. “B-251” was sustained wash damage.

#### 检验查明 UPON THE SURVEY FOUND

#### 修理要求 RECOMMENDED

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. 右后舷墙板及其撑柱撕裂6.5米长并悬挂在舷外水中。The aft std bulwark plating with its stays torn about 6.5m in length and hanged overboard into water.</li> <li>2. 上述舷墙处横截面为 250mmx200mm 的通风管断裂，该处甲板板撕裂。One ventilating duct, 250mmx200mm in sectional area, in way of the above-mentioned bulwark, broken and the deck plating in way torn.</li> <li>3. 肋位#12 处的舷墙撑柱根部的甲板板有一长约 120mm 的裂纹。The deck plating at the bottom of bulwark stay at frm No.12 cracked about 120mm in length.</li> <li>4. 2 根直径各为 40mm、长各为 40m 的聚丙烯绳断裂。2 polypropylene ropes, 40mm in dia. &amp; 40m in length each, broken.</li> <li>5. 一根岸电连接电缆在中部断裂。1 shore power connecting cable, 4x4mm<sup>2</sup> &amp; 100m in length, broken at the middle.</li> <li>6. 因为二台主机在该轮遭受浪击损坏后操作过，所以在某年8月19日由潜水员对螺旋桨进行水下探摸时发现右舷螺旋桨损坏如下：Because both main engines operated after wash damage, propellers detected by the diver on Aug.</li> </ol> | <p>舷墙板割换。The bulwark plating to be cropped &amp; renewed about 6.5mx0.7mx4mm.<br/>5 根舷墙撑柱割换。5 bulwark stays to be cropped &amp; renewed.<br/>通风管换新。The ventilating duct to be renewed 0.6m in height;<br/>甲板板割换。The deck plating to be cropped &amp; renewed 400mmx300mm x6mm.<br/>甲板板割换。The deck plating to be cropped &amp; renewed 250mmx200mm x6mm.<br/>油柜除气。The oil tank, 10m<sup>3</sup> in capacity, in way of items 2 &amp; 3 to be gas-freed.<br/>应予换新。To be renewed.<br/>应予换新。To be renewed.<br/>应予以上排检查。To be inspected on slipway.<br/>螺旋桨应予修理。The propeller to be repaired.</p> |
|--|--|

19, (year) and std propeller damaged as follows:

1 号叶片在叶尖处缺口; No.1 blade notched 150mmx30mm in area at tip;

No.2 blade notched 200mmx50mm in area at tip;

3 号叶片在叶尖处成锯齿状, 长约 150mm。 No.3 blade serrated about 150mm in length at tip.

右螺旋桨轴的防护罩损坏并被电缆缠住。 The protective guard of the std screwshaft damaged and fouled by cables.

### CAUSE OF DAMAGE

下列签署的验船师认为上述损坏可合理地归咎于“B-251”轮驾长所述的原因。 The undersigned surveyor considers that the above-mentioned damage could reasonably be attributed to the cause as alleged by the Skipper of the M.V. “B-251”.

### **浪损 Wash Damage**

事由: 九艘钢质货驳于某年 7 月 22 日在长江遭受“XXXX”轮浪损

SUBJ: 9 STEEL CARGO BARGES WASH DAMAGED BY M.V.”XXXX”  
IN CHANGJIANG RIVER ON JULY 17, (year)

某年 7 月 22 日在江苏省启东对受损的九艘钢质货驳进行了公正检验。 A damage survey without prejudice was carried out to 9 steel cargo barges in Qidong, Jiangsu Province on July 22, (year).

#### AA. 叙述 Alleged:

某年 7 月 17 日, 上述九艘驳船由拖轮“启东 35”拖带自江阴港载运石子至启东港。于同日 0920 时途经长江#27 浮筒时该拖带九艘驳船的船队于与“XXXX”轮相遇, 遭受该轮余浪影响, 致使货驳首尾相互间发生严重碰撞。 The above 9 barges laden with stones were towed by the tug “QI DONG 35” from Port Jiangyin to Port Qidong on July 17, (year). While passing by buoy No.27 of Changjiang River, the fleet consists of 1 motor tug & 9 barges encountered the M.V. “XXXX” at 0920 hrs on the same day and thus the barges heaved and rolled owing to wave splashed by the ship and collided with each other between bows and quarters.

#### BB. 损坏项目发现如下 The damage items were found as follows:

1. 驳 Barge “1-031”

- 1) 艏部舵销平台（悬伸尾甲板）扭曲变形，左舵边下陷约 300mm。The extended quarter deck distorted and set down about 300mm on the port side.
  - 2) 艏部右舷单柱带缆桩断裂。The aft std single-post bollard broken.
  - 3) 单板舵上、下舵承移位，操舵失灵。The upper & lower bearings of single-plate rudder dislocated and steering operation was out of function.
  - 4) 尾端壳板四处开裂，面积各约 200mmx200mm。The aft shell plating cracked at 4 places about 200mmx200mm in area each.
2. 驳 Barge “1-032”
- 1) 艏部舵销平台严重下塌变形，面积约 4.0mx2.0m，最大下塌约 350mm。The extended quarter deck seriously set down about 4.0mx2.0m in area and about 350mm in max. depth.
  - 2) 单板舵舵杆弯曲，上、下舵承移位及损坏。The single-plate rudder stock bent and the upper & lower rudder bearing dislocated and damaged.
  - 3) 尾端壳板四处开裂破损，面积各约 300mmx300mm。The aft shell plating cracked at 4 places about 300mmx300mm in area each.
  - 4) 首端壳板凹陷变形，面积约 3000mmx1500mm，最大凹陷约 90mm。The forward shell plating indented and deformed 3000mmx1500mm in area and 90mm in max. depth.
3. 驳 Barge “1-034”
- 1) 艏部舵销平台严重下塌变形，面积约 4.0mx2.0m，最大下塌约 700mm。The extended quarter deck seriously set down about 4.0mx2.0m in area and about 700mm in max. depth.
  - 2) 舵销平台上，带缆桩二处及舵扇护罩架部分断裂变形。On the extended quarter deck, 2 single-post bollard and rudder quadrant cover cracked and deformed.
  - 3) 尾端壳板四处开裂破损，面积各约 250mmx200mm。The aft shell plating cracked about 250mmx200mm in area each.
  - 4) 单板舵舵杆弯曲，上、下舵承移位及损坏。The single-plate rudder stock bent and its upper & lower bearings dislocated and damaged.
4. 驳 Barge “1-036”
- 1) 艏部舵销平台严重下塌变形，面积约 4.0mx2.0m，最大下塌约 200mm。The extended quarter deck seriously set down about 4.0mx2.0m in area and about 200mm in max. depth.
  - 2) 单板舵舵杆弯曲，上、下舵承移位及损坏。The single-plate rudder stock deformed and its upper & lower bearings dislocated and damaged.
  - 3) 首端壳板凹陷变形，面积约 2.0mx1.0m，最大凹陷约 120mm。The forward shell plating indented 2.0mx1.0m in area and about 120mm in max. depth.
5. 驳 Barge “1-039”
- 1) 艏部舵销平台扭曲变形，左舷最大下陷约 200mm。The extended quarter deck distorted and set down about 200mm in max. depth on the port side.
  - 2) 单板舵舵杆变形，上、下舵承移位及损坏。The single-plate rudder stock deformed and its upper & lower bearings dislocated and damaged.

3) 首端壳板凹陷变形, 面积约 2.0mx1.0m, 最大凹陷约 80mm。The forward shell plating indented 2.0mx1.0m in area and about 80mm in max. depth.

6. 驳 Barge “1-102”

- 1) 艏部舵销平台扭曲变形, 左舷最大下陷约 300mm。The extended quarter deck distorted about 300mm in max. depth on the port side.
- 2) 艏部左舷单柱带缆桩断裂。The aft port single-post bollard cracked.
- 3) 尾端壳板四处开裂破损, 面积各约 200mmx200mm。The aft shell plating cracked at 4 places about 200mmx200mm in area each.

7. 驳 Barges “1-033” & “1-037”

艏部舵销平台轻度下陷变形。Both extended quarter decks slightly set down and deformed.

8. 驳 Barge “1-035”

- 1) 艏部舵销平台轻度下陷变形。The extended quarter deck slightly set down and deformed.
- 2) 单板舵舵杆弯曲, 上、下舵承移位。舵失灵。The single-plate rudder stock bent and its upper & lower bearings dislocated and steering operation was out of function.

9. 据船东告称, 下述物品落水失落: As stated by the barges’Owner, the following articles fell down into water and missing:

- 1) 沙箱 4 sand boxes, 420mmx300mmx260mm in size;
- 2) 水箱 4 water tanks, 1200mmx600mmx520mm in size;
- 3) 带缆钢丝绳 10 mooring steel wire ropes, dia. 22x14mm.

CC. 货驳需上排进行修理。Necessary slipway to effect permanent repair for the cargo barges ‘1-031’, ‘1-032’, ‘1-034’, ‘1-036’, ‘1-039’ & ‘1-102’.

DD. 船东已安排进行了部分的永久性修理及临时性修理。为减少间接损失, 要求在适当的时候再完成所有永久性修理工程。Partial permanent repair temporary repair have been arranged by the barges’ Owner. In order to reduce the indirect loss, the permanent repair is suggested to be completed at adequate occasion.

EE. 永久性修理费用估计分别为: The estimated costs of permanent repair are as follows:

“1-031”	.....	US\$ 900.00
“1-032”	.....	US\$ 1,300.00
“1-033”	.....	US\$ 760.00
“1-034”	.....	US\$ 1,600.00
“1-035”	.....	US\$ 360.00
“1-036”	.....	US\$ 1,300.00
“1-037”	.....	US\$ 450.00
“1-039”	.....	US\$ 1,000.00

“1-102” ..... US\$ 830.00

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Total US\$ 8,500.00

谨此致候  
Best regards.

### 螺旋桨损坏 Propeller Damage

兹因平安保险公司委托, 下列署名的高级验船师于某年 2 月 2 日及以后诸日在上海港登 “XXXX” 轮对该轮的螺旋桨损坏进行了技术咨询。THIS IS TO CERTIFY that the undersigned senior engineer did, at the request of the Ping An Insurance Co., attend on board the M.V. “XXXX” in Shanghai Harbor on Feb. 2, (year) and subsequent dates for the purpose of carrying out a technical consultation to the damaged propeller.

#### 一. 船舶资料

##### SHIP'S PARTICULARS:

船名: Name of Ship  
船旗国: Flag  
船籍港: Port of Registry  
总吨位: Gross Tonnage  
净吨位: Net Tonnage  
船级: Class  
安放龙骨日: Date on which keel was laid  
船东: Owner:  
建造日期: When built  
建造厂: Where built  
总长: Length overall  
型宽: Molded breadth  
型深: Molded depth  
吃水: Draft  
载重量: Deadweight  
主机: Main engine  
    型号: Type  
    缸数: No. of Cyl.  
    缸径: Bore of Cyl.  
    冲程: Stroke  
    输出功率: Output  
    出厂编号: Serial No.  
    制造厂: Where built  
    制造日期: When built

## 二. 概况

### GENERAL CONDITION

据“XXXX”轮船长告称该轮于某年7月16日由现船东XX公司购进，在美国XX港接船。在开航前即对某年7月16日由船东申请，DNV验船师登该轮对水线以上船体部分进行了检验，情况正常，处于适航状态/It was stated by the Master of the M.V. “XXXX” that the said ship was purchased by the XX Company on July 16, (year) and taken over in XX, America. At the request of the ship’s Owner that, DNV Surveyor attended on board the ship for the purpose of carrying out an inspection to the hull above waterline before the ship starting voyage i.e. July 16, (year) and the survey showed that all were in normal condition.

该轮于某年9月27日（当地时间）在黑海的TUARS港装生铁，在1, 3,5,7货舱内共装22,000吨生铁（第2,4,6货舱为空舱）。于某年10月1日1350时（当地时间）从TUAPS港驶往日本川崎。于某年10月8日2020时，穿过苏伊士运河，驶入红海，于某年10月10日1120时（当地时间）该轮位于24°23’N 36°21’E，水深1166米的海面上，突然发生强烈振动和扭摆。而且主机转速也突然升高，有原来的104升高到114rpm。同日1130时，船长告诉机舱里的值班轮机员，把主机使用的燃油改为柴油。1215时，主机转速降为90rpm。1235时，该轮升起两只黑球。1255时，主机停车。The ship loaded in Port of TUARS, Black Sea on Sept. 27, (year) (Local Time) and Nos.1,3,5 & 7 cargo holds were loaded with 22,000 tons of pig iron in total (Nos.2,4 & 6 cargo holds were empty). At 1350 hrs (Local Time) on Oct. 1, (year), the ship sailed from Port of TUAPS for the destination port of Kawasaki, Japan. At 2020 hrs on Oct. 8, (year), the ship finished passing Suez Canal and sailed into the Red Sea. At 1120 hrs (Local Time) on Oct. 10, (year), the ship severely shocked and laboured & strained, at position: 24°23’N 36°21’E, the depth of water: 1166m. Meanwhile, the revolution of the main engine suddenly raised from 104 rpm to 114 rpm. At 1130 hrs on the same date, the ship’s Master told the watch engineer in the engine room that the preparations for fuel oil used for the main engine being replaced with diesel oil should be made. At 1202 hrs, diesel oil was used for the main engine, instead. At 1215 hrs, The ship raised two black balls. At 1255 hrs, the main engine was stopped.

经船员检查发现：尾轴前轴承漏水严重，使用毛毯和木块堵漏。此外，机舱内未发现其它异常。便认为该船严重振动和扭摆可能是螺旋桨有问题。于同日1330时，船长派二名船员（他们原来都是潜水员）潜入水下检查螺旋桨，发现螺旋桨的一个叶片已断落，并已遗失，螺旋桨其余的三片叶片完好。这时便抛下右锚（约抛出40米锚链）以增加阻力，防止船舶漂至岸去，并等待救助。Upon the crew’s examination found, the fore bearing of the tailshaft was seriously leaky, and the measure of blocking with blanket & pcs of wood was taken to cease leakage. Besides, no abnormality was found in the engine room. They considered that the ship was sustained severe shock and labouring & straining probably owing to that there was something wrong with the propeller owing to that there was something wrong with the propeller. At 1330 hrs on the same date, the Master dispatched two crew members (they used to divers) to dive for examining the propeller and it was found

that one blade was broken & missing and the remaining three blades were in good condition. At that time, the ship dropped std anchor with about 40m of chain cables for increasing resistance with a hope to prevent her from drifting ashore and grounding and to wait assistance.

直至某年 10 月 21 日中午才由船名为“XX”的拖轮把该轮拖往 DJIBOUTI 港,并于 10 月 27 日到达该港。此后,11 月 2 日由船名为“XXX”的拖轮拖航,于 11 月 15 日到达科伦坡。然后 11 月 16 日由“XXXX”拖轮拖航于 12 月 20 日到达日本川崎港外锚地,于 12 月 22 日进川崎港卸货。12 月 29 日卸完货,12 月 30 日由“XXXX”拖轮拖至上海。某年 1 月 6 日到达上海桂家村油轮航修站码头。At noon of Oct. 21, (year), the ship was towed to Port of DJIBOUTI by the tug “XX” and got there on Oct. 27. And on Nov. 2, the ship was towed by the tug “XXX”, and arrived at Port of Colombo on Nov. 15, and then the ship was towed by the tug “XXXX” on Nov. 16 and arrived at the anchorage outside of Port of Kawasaki, Japan on Dec. 20, and entered Port of Kawasaki on Dec. 22 for discharging. On Dec. 29, the ship completed discharging and on Dec. 30, the ship was towed to Shanghai by the tug “XXXX”. On Jan. 6, (year), the ship arrived at the wharf of the Guijiacun Oil Tanker Voyage Repair Station, Shanghai.

### 三. 检查情况 Inspection Condition

某年 1 月 17 日 1300 时,“XXXX”轮被拖到上海 XX 船厂第一次进黄山浮船坞,拆下舵、损坏的螺旋桨,拆去艉轴前端联轴节,拉出艉轴;并把船上的备用螺旋桨卸下,运送到车间,以便拂磨螺旋桨毂内孔。然后把该轮的尾轴管后部临时封闭,于某年 1 月 21 日 1400 时出坞,再被拖到桂家村油轮航修站码头。At 1300 hrs (Local Time) on Jan. 17, (year), the M.V. “XXXX” was towed to Shanghai XX Shipyard and lay at its Huangshan Floating Dock for the first time, the ship’s rudder, damaged propeller and the fore coupling of propeller shaft were removed down and the propeller shaft drawn out; the ship’s spare propeller was transferred to workshop so as to grind the bore of propeller boss. Upon the aft part of the ship’s stern tube being temporarily blanked, the ship undocked at 1400 hrs on Jan. 21, (year), and towed back to the wharf of the Guijiacun Oil Tanker Voyage Repair Station, Shanghai, waiting for installation of propeller shaft, propeller and rudder in floating dock.

下列署名的高级工程师于某年 1 月 24 日在上海 XX 船厂车间内对损坏的铜质螺旋桨进行了检查。在此期间,船厂按本人的要求,对该轮螺旋桨进行了清洁出白,并按指定的部位作了着色探伤。检查中发现,The undersigned senior engineer carried out an inspection to the damaged copper alloy propeller at the workshop of Shanghai XX Shipyard on Jan. 24, (year). During this period, the propeller was cleaned to bare metal and its designative parts were examined by dye-penetration detection according to the undersigned engineer’s recommendation to the Shipside. Upon the inspection found,

1. 螺旋桨的第一叶,约在 0.2R 处断落,叶片已丢失。断口目测可见原材料有 7 处疏松点和 2 处直径 10 毫米缩孔的缺陷。这些缺陷离桨叶表面(推力面)的最短距离约 10 毫米。缺陷周围金属晶粒较粗大。而且疏松点大多分布在桨叶的导边部位。此外,断口其余部分的金属晶粒尚细。The 1<sup>st</sup> propeller blade

broken off at 0.2R and missing. The material at the broken surface was visually examined and found with defects of 7 slag cavities and 2  $\Phi$ 10mm shrinkage holes. The material at the broken surface was visually examined and found with defects of 7 slag cavities and 2  $\phi$ 10mm shrinkage holes. The shortest distance from these defects to the ahead surface of the propeller blade was about 10mm. The metallic grains in way of the defects were found coarse. The slag cavities were found mostly scattered near the leading edge of the blade. Besides, the metallic grains in way of the remaining part of the broken surface were found still fine.

在断口与叶根之间，推力面一侧，还有一条裂纹，长度约 140 毫米。The ahead surface of the propeller blade was found cracked at one place between the broken surface and the blade root about 140mm in length.

2. 螺旋桨的第二叶，约在 0.2R 附近，推力面一侧，有裂纹多处，其中比较明显的有长度约为 100,60,60,32 毫米四处。另外，在离叶尖约 400mm 的导边处，有一小缺口，尺寸约为 50mmx25mm 。The ahead surface of the 2<sup>nd</sup> propeller blade, at 0.2R, was found cracked at many places, among which, apparently cracked at 4 places about 100mm, 60mm, 60mm & 32mm in length respectively. Besides, the leading edge about 400mm off the blade tip was found notched about 50mmx25mm in area.
3. 螺旋桨的第三叶，约在 0.2R 附近，推力面一侧，有裂纹多处，其中比较明显的有长度约为 100,60,60,32 毫米四处。The ahead surface of the 3<sup>rd</sup> propeller blade, at 0.2R, was found cracked at many places, among which, apparently cracked at 5 places about 460mm, 55mm, 55mm, 80mm & 35mm in length respectively.
4. 螺旋桨的第四叶，约在 0.2R 附近，推力面一侧，有一条裂纹，长度约 160 毫米。此外，在该裂纹与导边之间，还有长度为 15-30mm 的聚集性裂纹多处。The ahead surface of the 4<sup>th</sup> propeller blade, at 0.2R, was found cracked at one place about 160mm in length. And the ahead surface was found closely cracked between the crack and the leading edge at many places 15-30mm in length. 另外，在离叶尖约 600mm 和 800mm 的导边处，各有一处小缺口，尺寸分别约为 80mmx20mm 和 45mmx15mm。Besides, the leading edge about 600mm & 800mm off the blade tip was found notched about 80mmx20mm & 45mmx15mm in area respectively.
5. 损坏了的螺旋桨毂部有如下钢印标志：  
The damaged propeller boss was stamped with the following marks:

#### 四. 损坏原因分析 Analysis for Cause of Damage

##### 1. 螺旋桨损坏分析 Analysis for the damaged propeller:

该轮原船名为“XXXXX”，于某年建造于 Cia Euskalduna 船厂，入 XX 船级。某年 6 月 15 日在转入 XX 船级，船级符号为：xxxxxx。并作了坞内检验和第三次特别检验，尾轴承（铁梨木）换新。The ship's ex-name was “XXXXX”，she was built at Cia Euskalduna in (year), with XX class. From June 15, (year) the ship's class was transferred to XX and her class character was xxxxxx. At that

time, docking survey and No.3 special survey were carried out, the stern bush (lignum vitae) was renewed.

某年 3 月, 在马耳他作船底检验, 尾轴承 (铁梨木) 换新。In March (year), at Malta, bottom survey was carried out and the stern bush (lignum vitae) was renewed.

某年 4 月, 在 Gdansk 作船底检验。In April (year), bottom survey was carried out at Gdansk.

某年 2 月 3 日, 在 Rijeka 作第四次特别检验和船底检验。XX 船级社的检验清单记载“螺旋桨目视检验正常, 尾轴承间隙为 2.3 毫米”。无任何缺陷的记载。On Feb. 3, (year), No.4 special survey and bottom survey were carried out at Rijeka. As recorded in the survey check list by XX that “Propeller visually surveyed and found satisfactory, stern bush clearance was 2.3mm.” No defects were recorded in the list.

某年 6 月 1 日, 签发了船级证书, 当时的船名为“XXXXXX”。On June 1, (year), the Classification Certificate was issued, at that time, the ship's name was “XXXXXX”.

某年 7 月 16 日, 该轮的船名从“XXXXXX”改为“XXXX”, 船东由 Fortune Shipping Co. 改为 XX Shipping (Liberia) Inc。On July 16, (year), the ship's name was altered from “XXXXXX” to “XXXX” and the Owner was changed from Fortune Shipping Co. to XX Shipping (Liberia) Inc.

某年 7 月 17 日, 签发了有效期 5 个月至某年 12 月 16 日的短期货船安全构造证书。其余证书仍有效。详细情况请见“概况”。On July 17, (year), a short-term Cargo Ship Safety Construction Certificate was issued, valid for a period of five months until Dec. 16, (year). The remaining certificates were still in force, and for the further particulars, please see “General Condition”.

从螺旋桨毂部钢印标志知悉, 该螺旋桨是某年由 NAVALIPS 厂制造, 并经 XX 船级社检验。从现有可以查到的文件中均未发现有关螺旋桨缺陷的记载。It was known from the identification marks on the propeller boss that the propeller was built by NAVALIPS Factory in (year) (year), and surveyed by XX(classification society). Upon examination of the available documents, no records concerning the defects of the propeller were found.

以上说明, 该螺旋桨在某年 10 月 10 日以前的历次进坞时都经过有关船级社的检验。每次检验均没有遗留项目。To sum up, the propeller was inspected by the Classification Society concerned at the ship's each docking before Oct. 10, (year). And there was no outstanding recommendation in each survey.

## 2. 断口分析 Analysis for the broken surface:

- (1) 众所周知, 螺旋桨叶片根部是受力最大的区域。然而, 在第一个叶片根部约 0.2R 处, 内部存在着 7 处以上疏松和 2 处缩孔。在工作中, 在缺陷的附近, 必然应力集中, 而且, 在工作到一段时间后, 叶片根部由于应力集中加剧, 断落是很难避免的。Generally, the propeller blade root is the part that can bear the greatest force. But owing to that there were more than 7 slag cavities and 2 shrinkage holes inside No.1 blade root at 0.2R, causing the stress concentrated near the defects of the blade root while the propeller working, consequently, it was unavoidable that the blade root was broken due to the

intensifying of the stress concentration after the propeller working for a period of time.

- (2) 当然，螺旋桨叶片内部潜在缺陷，在一般的外部检查中不可能被发现的。因此，该螺旋桨叶片内部存着缺陷，而历次验船师作外部检验时都未被发现，都认为是合格的，这也是可以理解的。The latent defects of the propeller blade couldn't be found through a regularly external inspection, therefore, it was also comprehensible that the propeller blade was still considered in normal condition though externally inspected by surveyors.

5. 对螺旋桨残存的三个叶片的分析 Analysis for the remaining three propeller blades:

- (1) 该螺旋桨残存的三个叶片根部约 0.2R 处，推力面一侧，都有不同程度的裂纹，其中最长一条约为 460 毫米。这就说明，残存的三个叶片根部也已处在过度疲劳之中，随时都有断落的可能。The ahead surfaces of the remaining three propeller blades were cracked in various degrees in way of their roots at 0.2R, among which, the longest crack was about 460mm in length. The remaining three propeller blades were also remained serious defects and could be sustained breaking off at any time.
- (2) 第二、第四片叶片导边，都有些小缺口。这些小缺口是由于螺旋桨碰到小障碍物所造成的，即使如此，由于这些小缺口对该螺旋桨来说是轻微的损伤，也就是说，螺旋桨所碰到的小障碍物是不足以造成叶片断落的。No.2 & No.4 propeller blades were found several slightly notched in way of their leading edges. The notches sustained due to touching small obstacles were such a slight damage for the propeller that the breaking of the propeller blade couldn't be caused by the small obstacles.

该轮螺旋桨损坏的主要原因是由于在螺旋桨叶片根部区域内部潜在着疏松和缩孔等缺陷，在螺旋桨工作时，由于应力内部缺陷附近应力的过度集中，且该螺旋桨使用日久而过度疲劳，造成断落。The cause of damage of the propeller of the M.V. "XXXX" was sustained mainly owing to that there were the latent defects of slag cavities and shrinkage holes within the area of blade root, causing the stress over-concentrated near the defects while the propeller working, thus, after being used for a long time, the propeller was broken by overfatigue.

修理要求

Recommendation:

“XXXX” 轮损坏的螺旋桨应予换新。The damaged propeller of the M.V. “XXXX” should be renewed.

实际修理情况

Repair to be Effected:

上述螺旋桨现准备根据“修理要求”在该轮第二次进坞时用船上备用螺旋桨更换。The above-mentioned propeller will be replaced with the ship's spare one

according to the “Recommendation” at the 2<sup>nd</sup> docking.

#### 检验在场人员

#### Present at Survey:

船东代表 Owner’s Representative

船长 Master

轮机长 Chief Engineer

上海 XX 船厂代表 Representative of Shanghai XX Shipyard.

#### 附件 Attachment:

1. 24 张照片 24 photos.
2. 船长海事声明 Master’s Note of Sea protest.
3. 船级证书 Classification certificate
4. 原货船安全构造证书 Original Cargo Ship Safety Construction Certificate.
5. XX 船级社某年 2 月 3 日坞内检验报告 XX docking survey report dated Feb. 3, (year).

#### **可调节螺旋桨轴联轴器安装缺陷**

船厂在安装可调节螺旋桨轴的联轴器时,根据制造厂提供的指示中的规定压入套筒内的距离为 57.4 毫米, 并经 WARTSILA DIESEL CO 公司复核, 船厂安装的联轴器符合制造厂的要求。When the coupling for controllable pitch propeller shaft being fitted by the shipyard, the axial pull-up was 57.4mm in accordance with the requirement in instruction supplied by the manufacturer, and that confirmed by WARTSILA DIESEL CO., Shanghai Office , the coupling fitted by the shipyard was found to be in compliance with the manufacturer’s requirements.

轴系安装后主机进行码头试车 (系泊试验)。轴系上的离合器啮合后, 右主机的转速突然降低。螺距角指示器指在倒车 6 格。右主机螺旋桨轴发现向后位移约 60 毫米。The main engine was subjected to a mooring trial on the wharf after the shafting being assembled, and inspected according to the WARTSILA’s testing procedures such as starting, stopping, etc. After the clutch on shafting being engaged, the revolution of the std main engine suddenly dropped down. The propeller pitch angle indicator indicated the step 6 astern. The std M.E. propeller shaft was found dislocated afterward about 60mm.

原制造厂规定的为安装检查所使用的 T 字码格与套筒端面距离改为 110 毫米。The distance between the mark “T” in shaft for fitting inspection defined by the manufacturer and the end surface of sleeve was changed to be 110mm.

发现螺旋桨叶在极限倒车部位联轴器的安装套筒与螺旋桨轴有相对移动痕迹。最大倒车螺距角距离为 104 毫米, 超过制造厂在车叶上所打的钢印中的规定约 16 毫米。The propeller blade was found at the limited location of negative pitch angle to have traces of relatively dislocating between the sleeve and the propeller shaft. The max. astern pitch angle distance was 104mm, about 16mm.more than as

required in the mark of propeller blade made by the manufacturer.

右主机螺旋桨轴在套合处的直径经测量分别在 199.945-199.97 毫米范围内。比钢印要求多压入了 1.4 毫米，证明测量位置即安装位置，轴套内径为 200.04-200.03 毫米。The diameter of the std M.E. propeller shaft at the shrinkage area was measured to be within the range of 199.945-199.97mm respectively. The axial pull-up was about 1.4mm more than the required, which proved that the measuring location was the fitting location and the sleeve bore was 200.04-200.03mm.

根据中国船级社规范，对液压无键套合式有套筒套合在轴上的联轴器应具有传递 2.7 倍额定扭距的能力。According to the Rules of China Classification Society, the keyless couplings fitted with sleeve type by oil shrink method are to have a capacity of transmitting a torque which is 2.7 times the mean torque.

对一般液压套合的联轴器，根据计算，主机轴系的实际传递功率为 1600KW，轴转速为 180 转/分，联轴器外径为 80 毫米，轴套合处和锥度 1/25 处的直径为 200 毫米时，最小的安装套合允许值为 0.23 毫米。For general couplings, on calculation by the actual transmitting power of 1600 kW, the shaft revolution of 180 r/min, the coupling outside diameter of 380mm, the diameter of shaft at the shrinkage area of 200mm and the taper of 1/25 of the ship's M.E. shafting, the min. shrinkage allowance of fitting was 0.23mm.

根据测量结果，联轴器套筒与螺旋桨轴的间隙为 0.07 毫米。因此，这种配合松动的套筒式联轴器是不可能转足扭距的，最终，势必会在轴上滑动。In view of the measuring results, the clearance between the coupling sleeve and the propeller shaft was 0.07mm. Therefore, such a loosely fitted coupling has no capacity of transmitting torque, eventually, the sleeve would slip and move on shaft.

船厂所述的损坏原因是可以接受并符合逻辑的。The cause of damage as stated by the shipyard is acceptable and logical.

## 主机损坏 Main Engine Damage

(连杆轴承下盖的潜在缺陷所致)

兹应中国人民保险公司上海分公司申请，下列署名的咨询验船师于某年 11 月 13 日在上海港登“XXXX”轮进行了检验，以确定损坏原因、范围以及程度，情况如下：

THIS IS TO CERTIFY that at the request of the Shanghai Branch of the people's Insurance Co. of China, the undersigned consulting surveyor did attend on board the M.V. "XXXX"

Flag: China

Port of Registry: Shanghai

Registered No.: 0000000

Gross Tonnage: 0000

in Shanghai Harbor on Nov. 13, (year) for the purpose of carrying out a survey for ascertaining the extent, nature & cause of damage stated to have been sustained in the following circumstance:

主机于某年 6 月 14 日在海上损坏  
M.E. DAMAGED ON JUNE 14, (year) AT SEA

据该轮轮机长告称该轮在从日本航行于新西兰途中，船位：23°47'.0 S 165°56'6 E，在某年 6 月 14 日 1715 时（当地时间），突然机舱内一声尖叫，立即主机停止运转。轮机员们立刻跑进机舱，发现在主机 A5 和 B5 缸组外散落着大量主机的损坏部件。主机已不能修理。该轮漂泊了 73 个小时，直到某年 6 月 7 日“XXXXX”轮前来救助。某年 6 月 21 日 1500 时该轮由奥克兰拖轮拖带并于某年 6 月 26 日到达新西兰奥克兰。It was stated by the ship's Chief Engineer that while the ship sailing from Yokohama, Japan to Auckland at the position 23o47'.0 S 165o56'6 E, New Zealand at 1715 hrs on June 14, (year) (local time), a scream was suddenly heard in the engine room and the main engine stopped running immediately. Engineers went into the engine room at once and found a lot of damaged components of the main engine scattered outside the M.E. A5 & B5 units. The main engine could not be repaired so that the ship drifted for 73 hrs until M.V. “XXXXX” arrived for rescue at 1800 hrs on June 17, (year). The ship was towed by Auckland tug at 1500 hrs on June 21, (year) and arrived at Auckland, New Zealand on June 26, (year).

该轮轮机长又告称主机损坏可能是由于第五缸连杆轴承下盖裂纹并断落所致。事实上，该轮船员不可能发现第五缸连杆轴承下盖的潜在裂纹。It was added by the ship's Chief Engineer that the main engine was damaged probably owing to the interior lower bearing shell of the No.5 connecting rod being cracked and then broken down. In practice, the latent crack in the lower bearing shell of the No.5 connecting rod could not be discovered by the ship's crew.

检验查明 UPON THE SURVEY FOUND

修理要求 RECOMMENDED

主机 Main engine:

型号 Type: KAWASAKI-MAN 10V52/55A

额定功率 Rated power: 7745 kW

缸数 Number of cyl.: 10

缸径 Cyl. bore: 520mm

活塞冲程 Piston stroke: 550 mm

机号 Engine No.: 7308

制造商 Manufacturer: KAWASAKI HEAVY  
INDUSTRIES LTD.

制造日期 Manufactured in: July 30, (year)

额定转速 Rated revolution: 450 rpm

- |  |                     |
|--|---------------------|
| 1. A5 & B5 缸缸套打碎。Cylinder liners of A5 & B5 units broken.  | 应予换新 To be renewed. |
| 2. A5 & B5 缸活塞打碎（位于活塞销以下），活塞销及轴瓦打坏。Pistons of A5 & B5 units broken (below piston pin), piston pins and bearing shells damaged. | 应予换新 To be renewed  |
| 3. No.5 缸主、付连杆轻度变形，主连杆的曲柄  | 应予换新 To be renewed. |

- 销轴瓦严重变形, 固定下轴承盖的 2 根螺栓断掉, 2 根螺栓仍与残余的下轴承盖和上轴承盖固定在一起且该 2 根螺栓已变形。付连杆与上轴承盖连接的 2 根螺栓断掉。主连杆与上轴承盖连接的 4 根螺栓变形。Main & aux. connecting rods of No.5 unit slightly deformed, bearing shell of crankpin of main connecting rod seriously deformed, two bolts for securing lower bearing shell broken, two bolts connecting the remainder of the lower bearing shell with the upper bearing shell deformed; two bolts for connecting the aux. connecting rod with the upper bearing shell deformed; four bolts for connecting the main connecting rod with the upper bearing shell deformed.
4. B5 缸缸体右侧打碎(高 700mm,宽 500mm)。Std side cylinder body of B5 unit broken 700mm in height and 500mm in width. 应予换新 To be renewed.
5. B5 缸曲柄箱道门上部机架打碎脱落, 曲柄箱内部前上方机架裂纹(长 300mm)。A5 缸道门前上方机架裂纹(长 600mm)。A5 和 B5 曲柄箱道门打碎。Engine room in way of upper part of crankpin case port of B5 unit broken and detached and that at forward upper part of interior crankpin case cracked about 300mm in length. Engine frames in way of forward upper part of crankpin case port of A5 unit cracked about 600mm in length. Crankpin case ports of A5 & B5 units all broken. 应予换新 To be renewed.
6. B 侧凸轮轴(长 4.5m)严重弯曲变形。6 道凸轮轴轴承座(从 No.3 缸至 No.6 缸)断裂。B bank camshaft 4.5m in length seriously bent & deformed. 6 bearing seats of the camshaft (from No.3 unit to No.6 unit) broken. 应予换新 To be renewed
7. B 侧凸轮轴箱体及道门打碎(从 B3 缸至 B5 缸), 一及外围管系(滑油、燃油、蒸汽管)打断, 各长 5m。B bank camshaft casing and ports broken (from B3 unit to B5 unit) and lub. oil piping, fuel oil piping & steam piping in way all broken about 5m in length for each. 应予换新 To be renewed.
8. No.5 缸曲柄臂前后两块平衡块断裂, 前固定平衡块一根螺栓断掉, 一根弯曲变形。后固定平衡块一根打弯, 一根变形。No.4 缸曲柄臂前平衡块裂纹(长 75mm)。Two balance blocks 应予换新 To be renewed.

- on fore & aft crankpin web of No.5 unit broken, one bolt for securing fore balance block broken and the other deformed; one bolt for securing aft balance block bent and the other deformed; fore balance block on crankpin web of No.4 balance block on crankpin web of No.4 unit cracked about 75m in length.
9. No.5 缸曲柄销位于油孔处打了 4 个凹坑 (面积分别为: 25mmx25mm, 30mmx30mm, 35mmx35mm, 20mmx50mm, 深度为 5mm 左右)(原曲柄销已磨小直径 7.0mm)。Crankpin of No.5 unit in way of oil hole pitted at 4 places about 25mmx25mm, 30mmx30mm, 35mmx35mm & 20mmx50mm in area respectively and 5mm in depth for each. The diameter of the crankpin already worn by 7.0mm. 应予换新 To be renewed.
10. B5 和 B4 缸高压油泵底座及顶升装置打碎。High pressure oil pump seats and push rod units of B5 & B4 units broken. 应予换新 To be renewed.
11. B 侧主滑油管打断 (长 120cm), No.5 和 No.6 道主轴承进油管打断 (长各 2m), A5, B5 缸气缸油管打断 (长各为 2m)。B bank main lub. oil pipe broken about 120cm in length, No.5 & No.6 main bearing oil inlet pipes broken about 2m in length for each and cylinder oil pipes of A5 & B5 units broken about 2m in length for each. 应予换新 To be renewed.
12. A5, B5, B4 缸进排气阀阀杆 6 根打弯 (其中 B5 缸 2 根排气阀, 一根进气阀, A5 缸一根排气阀)。6 spindles of inlet & outlet valves of A5, B5 & B4 units bent (among which, 2 outlet and 1 inlet valves for B5 unit, 1 outlet valve & 1 inlet valve for A5 unit and 1 outlet valve for B4 unit. 应予换新 To be renewed.
13. B 侧高压油泵齿条传动杆打断 (长 4.5m)。Gear driving rod of B bank high pressure oil pump broken about 4.5m in length. 应予换新 To be renewed.
14. A5, B5, B4 缸 6 根进排气阀摇臂顶杆及护套弯曲变形。The push rods and sleeves of rocker arms of 6 inlet & outlet valves of A5, B5 & B4 units bent and deformed. 应予换新 To be renewed.
15. B4 和 B5 缸缸盖罩壳变形。Casings of cylinder covers of B4 & B5 units deformed. 应予换新 To be renewed.

- |  |                     |
|--|---------------------|
| 16. B 侧主机油门负荷发送器及 2 只限位开关打坏。Load transmitter of B bank main engine oil door with 2 limit switches broken.                                  | 应予换新 To be renewed. |
| 17. B5 缸缸组冷却追阀打坏。Cooling water valve of cylinder cover of B5 unit broken.  | 应予换新 To be renewed. |
| 18. B5 缸安全阀打坏, B5 及 B4 缸油头打坏。Safety valve of B5 unit broken and fuel injectors of B5 & B4 units broken.                                    | 应予换新 To be renewed. |
| 19. B5 及 B4 缸曲柄箱道门上 2 根油雾探测器软管打断。2 flexible pipes of oil mist detector on crankpin case ports of B5 & B4 units broken.                     | 应予换新 To be renewed. |
| 20. 主机油底壳循环油柜 12T 滑油渗入大量缸套冷却水。A large quantities of cylinder cooling water leaking to main engine sump and 12-T lub. oil circulating tank. | 应予换新 To be renewed. |
| 21. No.5 缸曲柄销下轴承盖断掉。Lower bearing shell of crankpin of No.5 unit broken.   | 应予换新 To be renewed. |

#### 损坏原因

#### CAUSE OF DAMAGE

经对该主机损坏部分现场检查和认真分析, 下列署名的验船师认为上述损坏的起因在于该主机第五缸连杆轴承下盖在主连杆一侧 (B 侧) 靠近连杆螺栓处首先断裂, 接着导致连接连杆轴承盖的螺栓整个脱落。由于摆动的主、付连杆的巨大惯性力, 脱落的轴承盖打坏 A5 及 B5 缸缸组、活塞、机架、凸轮轴及箱体和道门、曲柄箱等。经进一步分析, 下列署名的验船师认为上述损坏的主要原因可能是在上述第五缸连杆轴承下盖 B 侧靠近连杆螺栓处存在内部的潜在缺陷所致。Upon thorough inspection and serious analysis on the damage field, the undersigned surveyor considered that the above-said damage could be attributed to that the lower bearing shell of the M.E. No.5 cylinder connecting rod broken first in the vicinity of the securing bolt of the main connecting rod (B side) and consequently the bolt for connecting bearing shell of the connecting rod wholly detached. Owing to the great inertial force produced by the swing of the main & aux. connecting rods, the cylinder liner, pistons, engine framings, camshaft, cylinder bodies, crankcase doors, crankpin, etc. of A5 & B5 cylinders were damaged by the detached bearing shell. Through further analysis, the undersigned surveyor considered that the main cause of the above-mentioned damage was probably due to the latent defect in the interior of the lower bearing shell of No.5 unit in the vicinity of B bank securing bolts.

#### 修理情况

#### CONDITION OF REPAIR

没有对该损坏的主机进行修理的设备。该运输公司想对该主机进行整台换

新。There is no facility available for repairing the damaged main engine. The Shipping Co. is intending to renew the whole set of the main engine.

### 损坏修理报价意见

### COMMENTS ON THE QUOTATION OF DAMAGE REPAIR

上述损坏项目已不能进行修理。如非要修理，修理费可能比一台新主机的价格还要大。The above-mentioned damage items are unfeasible to be repaired. If they being repaired, the cost of repair may be greater or as same as that of a new main engine.

下列署名的咨询验船师同意船东的意见，对该损坏的主机进行更换。该损坏的主机的其它残余部件能否作为备件使用须由中国船级社船级验船师作进一步检查后决定。The undersigned consulting surveyor agrees with the Owner's idea, i.e., the damaged main engine will be renewed. The other residual components of the damaged main engine whether can be used as spares or not are to be decided by the Class surveyor to the China Classification Society after being further examined.

### **主机损坏 Main Engine Damage**

(推力轴承没有起到止推作用曲轴前移所致)

#### 1. 情况简述 Brief Description

##### 1.1 船舶和主机特征 Particulars of Vessel and Main Engine

船籍 Nationality	XXXXXX
船籍港 Port of Registry:	XXXXXXXXX
总吨位 Gross Tonnage:	3869
净吨位 Net Tonnage:	1160
船长 Ship's Length:	93.91m
船宽 Ship's Breadth:	15.20m
船深:Ship's Depth:	9.70m
主机型号 Type of Main Engine:	8Z 72/48A-1
缸径 Cylinder bore:	480mm
冲程 Stroke:	720mm
额定功率 Rated power:	2853kW (3880HP)
额定转速 Rated speed:	219 r/min
主机制造日期 Date of manufacture for M.E.:	xxxx
船舶制造日期 Date of manufacture for vessel:	xxxx

##### 1.2 主机机损过程 Course of Main Engine Damage

###### 1.2.1 修理 Repair

“XXXX”轮于某年 12 月 23 日进 S 上海船厂浦西分厂修理。据告称主机修理如下内容:The M.V. “XXXX” was repaired from 23<sup>rd</sup> Dec., (year) in Shanghai Shipyard Puxi branch. It was informed that the principal repair items of M.E.

were as follows:

- (1) 更换主轴承轴瓦 9 道。Nine (9) sets of main bearing shells renewed.
- (2) 更换连杆轴承轴瓦 4 付 (第 1、2、4、8 缸)。Four (4) sets of connecting rod bearing shells of cyl. Nos.1,2,4 & 8 renewed.
- (3) 气缸套 8 只密性检查。Eight (8) cylinder covers removed and tested for water tightness.
- (4) 缸套 8 只拉出, 橡皮水封圈全部换新。Eight (8) cylinder liners pulled out and all water seals renewed.
- (5) 活塞 8 只活塞环全部换新。Rings of eight (8) pistons all renewed.
- (6) 推力轴承正倒车推力块全部转出检查, 间隙调整。All the ahead and astern thrust segments of the thrust bearing turned out and inspected and clearance checked and reconditioned.
- (7) 高压燃油泵全部拆进车间检查。Oil fuel pumps removed to workshop and overhauled.
- (8) 调速器拆下进车间调试校正。The governor removed to workshop and adjusted.

#### 1.2.2 码头试车和试航 Mooring and sea trial

根据轮机长报告某年 2 月 16 日主机安装完毕。当天 1300 时初次动车, 转速 120rpm, 螺距角 0 度, 2200 时停车, 主机在无载荷下运转 9 小时, 在此期间工厂进行捉漏和调整工作。According to the Chief engineer's Report, the assembly of M.E. was completed on 16<sup>th</sup> Feb., (year), the M.E. started running at 1300hrs on the same day, at engine speed 120rpm and controllable propeller blade pitch angle 0 degree and stopped running at 2200 hrs. The shipyard personnel carried out some works for tightness and modifications during this period.

2 月 17 日 1000 时, 主机第二次动车, 转速 190rpm, 螺距角 0 度, 工厂对燃油系统进行调整, 2300 时停车, 码头试车结束。At 1000 hrs on 17<sup>th</sup> Feb., the M.E. ran again at engine speed 190 rpm and with blade pitch angle 0 degree, and stopped running at 2300 hrs. During this period, the shipyard personnel carried out some modifications for fuel oil system, and the mooring trial was thus accomplished.

2 月 22 日试航, 1245 时 (船上时间) 主机起动, 转速调整至 214rpm, 水压 2kg/cm<sup>2</sup>, 滑油压力 8kg/cm<sup>2</sup>, 排气温度 220-240 度。离开船厂后, 在黄浦江内航行时, 主机转速 214rpm, 螺距角 10-12 度之间。出吴淞口后 1300 时, 螺距角增加到 20 度, 此时主机转速下降到 160rpm。以后作了几次螺距角由 20 度-0 度-20 度试验, 发现螺距角为 10 度时, 主机转速能上升到 214rpm, 螺距角增加到 20 度时, 主机转速下降到 160rpm。根据厂方要求主机停车, 船抛锚, 此时为 1545 时。厂方人员打开调速器盖子进行调整 (调节调速器执行拉杆和高压油泵齿条轴的转动机构)。1710 时调整结束, 主机起动, 转速达到 214rpm, 船起锚继续试航。主机转速 214rpm, 螺距角 20 度, 冷却水压 2.0kg/cm<sup>2</sup>, 滑油压力 8kg/cm<sup>2</sup>, 排气温度 320 度, 主机作示功检查, 参数为: Sea trial was carried out on 22<sup>nd</sup> Feb., main engine started running at 1245 hrs (ship board time) at engine speed 214 rpm, cooling water pressure 2 kg/cm<sup>2</sup>, lub. oil pressure 8 kg/cm<sup>2</sup>, exhaust gas temperature 220o-240oC.ter departing from the shipyard, the ship navigated in Huangpu River at engine speed 214 rpm and the blade pitch angle 10-12 degrees and after the ship getting the exit of Wusong Entrance, the blade pitch angle was increased

to 20 degrees, and meanwhile, the engine speed dropped down from 214 rpm to 160 rpm. Afterwards, some tests of changing the blade pitch angle from 20-0-20 degrees had been made and that the engine speed could be increased up to and kept at 214 rpm, whilst operating the blade pitch angle at 10 degrees. However the engine speed dropped down to 160 rpm, whilst using the blade pitch angle of 20 degrees. Under the requirements of the shipyard, the main engine stopped running and the ship anchored at 1545 hrs. The shipyard personnel then opened the governor cover and adjusted the acting rod and the turning gear of fuel pump rock. The adjustment work ended at 1710 hrs and the main engine started running once more and reached the engine speed 214 rpm. The ship continued the sea trial after weighing anchor. The main engine ran at 214 rpm with the blade pitch angle 20 degrees, cooling water pressure 2.0 kg/cm<sup>2</sup>, lub. oil pressure 8 kg/cm<sup>2</sup>, exhaust temperature 320oC and the parameter of ignition pressure was recorded through indicator cock as follows:

缸号 Cyl. No.	1	2	3	4	5	6	7	8
爆压 Ignition pressure kg/cm <sup>2</sup>								
排温 Exhaust temperature °C								

滑油温度 46oC, 冷却水温 60oC。1935 时, 工厂认为试航时间已到, 对主机未作必要的交接检查, 未办试航结束文件手续, 2045 时工厂人员登艇离船, 场段试航时间为 2 小时 25 分。And with lub. oil temperature 46oC, cooling water temperature 60oC and the exhaust gas temperature given in the table above. At 1935 hrs, the shipyard personnel deemed that the time for sea trial was accomplished, they neither carried out any necessary hand over inspection nor prepared any document process indicating the completion of the sea trial. At 2045 hrs, they left the ship and embarked on the shipyard boat. This period of sea trial lasted two hours and twenty five minutes.

### 1.3 主机故障 Damage of Main Engine

2045 时工厂人员离船后, 起动主机转速 214rpm, 螺距角 0 度, 而后螺距角增加到 20 度, 主机参数如旧。2330 时, 主机第 1、2、3、4 缸排气管区域冒烟, 轮机长向驾驶室报告后, 螺距角改用 15 度。2337 时第 1-4 缸排气管区域冒火, 主机紧急停车, 当用操纵手轮操作到“0”位时, 主机仍以 50rpm 继续运转。此时轮机长将高压油泵齿杆的传动装置用手拉到“0”位才使主机停车。2350 时火被扑灭。灭火采用灭火器的消防水。After the shipyard personnel leaving the ship at 2045 hrs, the main engine was restarted to run at speed 214 rpm using blade pitch angle from 0 degree gradually increased to 20 degrees and the parameter of M.E. kept the same as before. At 2330 hrs, smoke took place in the area of exhaust pipes of cyl. Nos.1,2,3 & 4. After the Chief Engineer reporting it to the bridge, the blade pitch angle was altered to 15 degree. and at 2337 hrs, a local fire happened in the above said area. Emergency stop was applied to the main engine, however when operating the maneuvering wheel to “0” position, yet the engine continued to run at a speed of 50 rpm. The Chief Engineer then pulled the transmitting gear of fuel pump rock to “0” position, the main engine stopped running. At 2350 hrs, the local fire was

extinguished. Fire extinguishers and fire main were used for fire fighting purpose.

2月23日0030时打开曲柄箱观察孔进行检查,发现缸套漏水,以#6缸最为严重,曲柄箱底盘上有轴承合金痕迹并发现主机再也不能启动。At 0030 hrs on 23<sup>rd</sup> Feb., sight holes on the engine crank case were opened up for inspection. Water leakage was found on cylinder liners among which cylinder No.6 was most serious, traces of white babbitt of bearing metal were found as well on the bottom of bedplates, and thereafter, the main engine could never be restarted.

2月26日拖船将该轮于1230时拖回至船厂。At 1230 hrs on 26<sup>th</sup> Feb., the ship was towed back to the shipyard.

## 2. 主机损坏情况检查 Inspection of Damage of Main Engine

该轮拖回船厂后第二天,船厂、船方和XX公司三方会议商定就调查主机故障的方法和手段等取得一致意见,达成协议,就现状初步检查情况如下: On the next day after the ship being towed back to the shipyard, three (3) parties consisted of shipyard, ship's side and XX company held a meeting to discuss measure which should be taken for investigating the damage of engine and attained a consistent agreement adopted by the above three parties. The primary inspection carried out on the basis of the existing condition was as follows:

### 2.1 操纵系统检查 Inspection of maneuvering system

操纵系统没有回到停车正常位置,即操纵手柄处于停车位置,调速器输出端的摇臂位置量得33毫米,燃油泵的进油刻度分别为:(见表1,略),负荷指示器读数为110%。在此数据下,用人力转动调速器输出轴至最小位置,此时燃油泵的进油刻度为:(见表2,略),负荷指示器读数为15%。3月3日开动主机滑油泵,调速器处于有油压的正常工作状态,输出轴连接的摇臂处于正确位置,此时燃油泵的进油刻度为:(见表3,略),负荷指示器读数为20%。此种现象说明操纵系统包括调速器和高压燃油泵没有调整好,相对于操纵手轮的各种工况下均有过量燃油供应,留有隐患。The maneuvering system could not return to the normal position, i.e. when the maneuvering wheel reached "Stop" position, the rock arm connecting the governor output end rested at a position giving a gap of 33mm, at this time, the fuel metering readings per fuel pump were as follows: and the load indicator reading was 110%. At the foregoing data, when the governor output shaft was turned by manual power to the minimum position, the fuel metering readings per fuel pump were as follows: and the load indicator reading was 15%. On Mar. 3, the M.E. lub. oil pump was started, the governor was under the normal working condition with oil pressure and the rock arm connecting its outlet end was at correct position, at this time, the fuel metering readings per fuel pump were as follows: and the load indicator reading was 20%. This phenomenon indicates that the maneuvering system including the governor and fuel pumps were out of order and excessive fuel was supplied relative to the load as required by the order of the maneuvering wheel. Trouble will take place later on.

## 6. 打开曲柄箱刀门检查发如下情况 Inspection after opening the crankcase doors

(1) 第4和第5缸活塞连杆相互对调安装。No.4 and No.5 piston connecting rod units were alternately installed.

(2) 第4-8缸连杆大端轴承中心明显偏后,说明曲轴明显向前移位。The centers of connecting rod bearings of cyl. No.4 to 8 were evidently located

aft. This indicated that the crankshaft evidently moved forward.

- (3) 第 5、9 道主轴承断裂（前后向）。No.5 and No.9 main bearing covers fractured in fore and aft direction.
- (4) 除第 1、2 和 10 道主轴承盖的后端面与曲拐磨擦情况严重。轴瓦烧损。The crank web rubbed heavily against the after end of main bearing covers except Nos.1,2 and 10 and bearing shells burnt.
- (5) 第 7 道主轴承盖表面油漆已全部烧去，本体变形严重，轴瓦向前移位，并向左转动一角度，切断至该轴承的滑油通路，第 5 缸连杆轴瓦烧损，曲拐轴颈变色。The paint on the surface of No.7 main bearing cover fully burnt away and the cover seriously deformed. The bearing shell moved forward and turned an angle left, resulting the lub. oil passage to this main bearing blocked. Connecting rod bearing shell of cyl. No.5 burnt, crankpin coloured.
- (6) 第 8 缸曲拐臂前平面与机架左右贯穿螺栓孔外圆壁严重擦碰，表面变色，外圆壁已呈现平面。Cylinder No.8 crank web front end face heavily rubbed against the peripheries of both port and std tie bolt housings of which the surfaces coloured and planes revealed on the peripheries.
- (7) 拆出第 9 道主轴承盖，轴承盖螺栓已弯曲变形，轴承盖断成二块，盖内侧的定位销已陷入盖内。轴瓦已基本不存在，仅发现几块碎片；主轴颈上嵌有许多金属屑。No.9 main bearing cover was dismantled, bearing cover bolts bent, bearing cover fractured into two pieces, set pin for locating the bearing shell got in the cover, no bearing shell could be found except some broken pieces, much metal debris stuck on this journal surface.
- (8) 拆下第 3 道主轴承盖，在油槽区的内表有几条小裂纹，轴瓦定位销凸出表面 2.0 毫米，无机械损伤，轴瓦外表面有 70 毫米长拉槽，整块轴瓦向左转动 70 毫米.No.3 maneuvering cover was dismantled, several small cracks were found in the oil groove area, bearing shell locating pin protruded 2mm beyond the cover surface without mechanical damage and a seizure groove of 70mm in length was found on the outer surfaces of the bearing shell which was turned port by 70mm.
- (9) 第 8 缸活塞连杆组吊出，活塞、活塞环和缸套磨损正常；连杆大端曲拐轴颈无拉痕，轴承上瓦严重磨损，下瓦有线痕，磨损情况尚可。The piston connecting rod unit of cyl. No.8 was pulled out, the wear of piston and piston rings and the liner was in normal condition, the crank journal found without score. The wear in fair condition with only some light scores.
- (10) 油底壳内有大量金属粒子，还有铁屑及铁质刨花等。There were a lot of metal particles and iron debris and slices on the bottom of sump tank.

其它损坏情况，待打开后作进一步检查。Further inspection should be carried out for ascertaining other damage after dismantling of engine components.

#### 7. 推力轴承检查 Inspection of thrust bearing

- (1) 正倒车推力块已全部烧损熔化，推力块间隙已无法测量。Both ahead and astern thrust segments burnt, clearances couldn't be obtained between the segments and thrust collar.
- (2) 在上述情况下，在正倒车推力块的背面作了间隙测量。由于测量的地

位限制和正倒车推力块合金已全部烧毁熔化，这些数值仅能作为参考，某些数据尚不真实。Under above said condition, clearances were taken from the back of segments, due to the limitation of location and all the thrust segments burnt and jammed to the thrust collar, these values could be only for reference, individual value could not be deemed exact.

- (3) 倒车推力块后面，面对飞轮右侧热电偶处有明显合金熔化后的片渣。  
Obvious white metal melting slices in way of the thermal couple on the std side aft of the astern thrust segments
- (4) 倒车推力块面对飞轮左侧边明显咬死外部有明显合金熔化后的片渣。  
The astern thrust segments on port side obviously jammed with white metal melting slices
- (5) 就这次所测得的间隙计算，推力环轴向自由移动的平均值已达 2.40 毫米，大大超过极限值。According to these measured clearances, the average volume of the axial play of the thrust collar reached 2.4mm which greatly exceeds the limit.
- (6) 推力轴承左侧滑油管二根的接头均很松，仅旋入 2-3 牙。Two joints from the lub. oil supply pipe for the thrust block on the port side extremely slackened, screwed only 2-3 pitch of threads.

#### 8. 润滑油情况检查 Inspection of lub. oil

- (1) 在上海船厂浦西分厂主机修理时，主机滑油作了更换，新油牌号为 Mobil 412 共 80 桶 Batch No.6LOICHK12010187,粘度 CST 100°C 13.6-15.1。During the repair of main engine at Shanghai Ship-building & Repairing Yard Puxi Branch, all the sump tank lub. oil was renewed with 80 barrels new oil of Mobil grade 412, Batch No.6LOICHK 1201087, viscosity 100°C 13.6-15.1.
- (2) 三方拟定取样分析，根据化验报告，共有 6 份油样编号为 No.1-6，主机循环滑油油样编号为 No.2, No.5。Three (3) parties decided to take oil samples for analysis. According to the Report of Analysis, there were six (6) samples numbered 1 to 6, main engine sump tank lub. oil numbered 2 and 5.
- (3) 油样 No.1,2,4,5 的粘度均合格；油样 No.3,6 粘度均未测试，并含钠盐成份，系油污舱油样。The viscosity of oil sample Nos.1,2,4 and 5 are all satisfactory; the sample oil No.3 and No.6 of which the viscosity wasn't analyzed and contained water contaminated with NaCl, which was taken from slop tanks.
- (4) 总酸值(TAN)所有油样均符合使用要求。The total acid number (TAN) of six (6) oil samples were all satisfactory.
- (5) 6 份油样中除 No.1 和 No.4 不含水份外，其余油样均有不同程度水份，以 No.2 油样含水份最多，达 28.3%。Six oil samples except No.1 and No.4 contained different degrees of water, among which No.2 is the most, its water content reached 28.3%.
- (6) 化验报告对 No.2 油样要求研究水的来源和采取水份分离处理。对 No.3、No.6 油样因已沾有海水建议更换。The Report of Analysis suggested to investigate the cause and separate frequently for oil sample

No.2, and recommended oil sample No.3 and No.6 which contaminated with sea water to be renewed.

- (7) 油样 No.2、No.3、No.6 闪点为开杯闪点, No.1, No.4 油样闪点分别为 210°C 和 225°C (闭杯)。Flash point for oil samples Nos.2,3 and 6 was open cup, and for No.4 and No.5 were 210°C and 225°C respectively (closed cup).

#### 1.5 水渗漏进入曲柄箱情况检查 Inspection of crankcase

- (1) 此次主机修理 8 只缸套拉出, 各缸三道密封圈均换新。安装后工厂没有作过密性试验。从 2 月 16、17 日码头动车直至 22 日 2045 时厂方人员离船止, 未打开过曲柄箱刀门检查, 因此在此期间是否有缸套漏水等直接情况不明。During the repair of main engine, eight (8) cylinder liners were all pulled out, water seals per each cylinder were renewed. During the repair of main engine, eight (8) cylinder liners were all pulled out, water seals per each cylinder were renewed, but the tightness test has not been carried out after installing the cylinder liners, and furthermore, during the period from the mooring trial on 16<sup>th</sup> and 17<sup>th</sup> Feb., till the end of sea trial, the shipyard personnel left the ship at 2045 hrs on 22<sup>nd</sup> Feb., the crane doors had not been opened for carrying out an internal inspection. For instance, it was unknown whether the water leakage occurred on the cylinder liner side during the above said period.
- (2) 2 月 22 日 2350 时排气管区域失火扑灭后, 23 日 0030 时打开曲柄箱观察孔检查时发现汽缸漏水, 尤其#6 缸更为严重。At 2350 hrs on 22<sup>nd</sup> Feb., after the local fire in the area of exhaust gas pipes being extinguished, the sight holes on the crankcase were opened up at 0030 hrs on 23<sup>rd</sup> Feb., and an internal inspection was made and water leakage was found on the cylinder liners side, cylinder No.6 was most serious.
- (3) 2 月 26 日拖回船厂, 3 月 3 日主机冷却腔进行 2.5kg/cm<sup>2</sup> 密性试验, 第 2,5,6,8 缸套有少量渗水现象, 在 2.2kg/cm<sup>2</sup> 时无渗漏。A hydraulic test was carried out with a pressure of 2.5 kg/cm<sup>2</sup>, a small amount of water leakage was found on cylinder Nos.2,5,6 and 8, and no leakage was found while the pressure decreased to 2.2 kg/cm<sup>2</sup>.
- (4) 3 月 19 日再次检查缸套冷却水腔密性情况, 水压力在 2.5kg/cm<sup>2</sup> 时, 从扫气箱侧检查发现第 1,3,5,6,7 缸有明显原先漏水痕迹, 从曲柄箱侧检查发现第 1, 5, 6, 7, 8 缸有明显原先漏水痕迹, 其中第 1,6 缸最为明显。说明以上各缸在主机运转时, 上、下部位均有不同程度的漏水, 这与轮机长报告中所述情况基本一致。On 19<sup>th</sup> March, a further inspection was carried out for the water leakage on the cooling spaces of cylinder liners. Obvious traces of previous water leakage was found on the scavenging air side of Cyl. Nos.1,3,5,6,7 as well as on the crankcase side of cyl. Nos.1,5,6,7 & 8, among which cyl. No.1 and No.6 were most evident. This indicated that water leakage took place with different degrees both on the upper end lower positions of the above said liners while the main engine running and it was basically consistent with those as shown in the Report prepared by the Chief Engineer.

- (5) 其它可能水进入曲柄箱的情况 Other possible water entering the crankcase

主机排气管区域失火后，船员曾动用过消防水灭火，消防水有可能经防爆门进入曲柄箱，但应说明，此水进入曲柄箱已与主机故障无关，只会影响油样水份含量的真实性。After the local fire took place in the area of exhaust gas pipes, fire main had been applied by the crew for fire fighting purpose and water could get the way into crankcase through the safety valves against explosion. But it should be noticed that this had no concern with the damage of main engine and could affect the trueness of water content in oil sample, as if available.

#### 1.6 其它情况

- (1) 在中间轴承前端，发现中间轴轴向移位痕迹约为 4 毫米。The traces of line shaft moving forward about 4mm was found at the fore end of the line shaft bearing.
- (2) 飞轮传动转速信号发生器的传动皮带的位置也能反应轴系明显向前移位的问题。The position of transmitting belts for giving signals to the revolution signal generator from the flywheel could also show the problem of the shafting moving forward.

#### 2. 故障原因 Cause of Damage

就目前检查到的情况，主机故障原因分析如下：Under the present inspecting condition, the cause of main engine damage was analyzed as follows:

- 3.1 主轴承和推力轴承故障的直接原因是推力轴承没有起到止推作用，引起轴系向前移位所致。曲轴前移后，曲柄臂擦碰主轴承盖后端，也有个别擦碰机架贯穿螺孔外圆壁等，造成主轴承轴瓦烧损，轴承盖断裂，轴瓦转动，有的甚至成为碎片，切断滑油供应通道，进一步引起连杆轴承烧损等，使主机严重损坏。The direct cause of damage of main bearing and thrust bearing was that the thrust block didn't accomplish to take the function against the thrust action from the propeller. After the crankshaft moved forward, the crank was rubbed against the aft end of main bearing covers, and also individual web against the peripheries of the tie bolts housings causing a series of damage of main engine, such as the burning of main bearing shells, the fracture of main bearing covers, the turning of main bearing shells of which the individual one burnt into broken slices and furthermore some of the lub. oil passage were blocked causing further damage of connecting rod bearing, thus the main engine seriously damage.
- 3.2 曲轴前移早在试航初期已有迹象，在船出吴淞口后，螺距角从 12 度增加至 20 度时，主机转速从 214rpm 下降至 160rpm，而螺距角减小至 10 度时，主机转速又恢复至 214rpm，说明主机内耗增大。此种情况的出现似应先从主机运动部件着手检查。由于在此问题上考虑不周，而先在调速。从现象上看转速上升了，但主机存在的问题更趋恶化。The traces of crankshaft moving forward occurred in the early stage of sea trial. After the ship got exit of Wusongkou Entrance, the main engine speed reduced down from 214 to 160 rpm, whilst the propeller blade pitch angle was increased from 12 degrees to 20 degrees and the main engine speed recovered to 214 rpm when the blade pitch angle was reduced to 10 degrees. This phenomena possibly indicated the increasing of

internal consumption of main engine. At this condition, it seemed that the moving parts were to be firstly inspected. However had consideration was made and the governor was adjusted to increase the metering of fuel, the engine speed was raised up but the problems of main engine became worse.

3.3 曲轴前移的关键问题是在于推力轴承没有起止推作用。推力块拆检时，未测量间隙和推力环轴向总移动量，造成安装情况不明。另外在推力轴承左侧二根进油管接头松大量滑油外流，造成推力块冷却不足而发热而严重烧损熔化。这也是在试航中没有检查出来的问题。The key point of the crankshaft moving forward was that the thrust block didn't accomplish to take the function against the thrust action from the propeller. The axial play and the clearances between the thrust collar and the thrust segments hasn't been measured whilst the thrust segments being turned out for inspection, thus the assembling condition of thrust segments was unknown. And furthermore two joints of the pipe feeding the lub. oil flowed outside, the thrust segments and the collar were unable to obtain sufficient cooling and then hotted and burnt. This problem hadn't been found during the sea trial.

21.3 主机循环滑油此次主机修理时全部更换，新加 Mobil412 滑油 80 桶。该油完全符合主机使用要求。如果没有水漏入主机曲柄箱，该滑油不应存在有水份的问题，根据该轮加帐第 20 项，主机装复后作 4kg/cm<sup>2</sup> 压力密性试验。但根据了解此项试验未做。根据主机故障后的几次对漏水问题的检查确有漏水迹象。按目前情况判断厂方未按规定进行密性检查。The sump tank lub. oil was totally renewed during the repair with Mobil grade 412 of 80 barrels which fully satisfied the requirements for the main engine. For instance, should no water leaked into the crankcase, there is no event of water content in the lub. oil. Under the additional repair item No.20, after the reassembling of main engine water tightness test with a pressure of 4 kg/cm<sup>2</sup> should be carried out, however it is informed that this test had not been conducted. According to the recent inspection for the water leakage of cylinder liners, it can be sure that the traces of water leakage took place on the cylinder liner sides and the water tightness test had not been carried out in accordance with the Specification by the shipyard.

21.4 主机此次 9 道主轴承全部换新，试航结束理应打开曲柄箱和对主轴承、推力轴承等重要部分作例行交接检查，未作此项工作在程序上存在严重不足。船厂人员离船后，主机运转仍在原有基础，未闻及有超越工况等情况，实际航行时间只有 2 3/4 小时。至于排气管区域失火问题对主机出现的故障无关，其原因是厂方人员在试航中对调速器调整加大进油量，造成汽缸不完全燃烧，有残余的油和油气进入排气管，造成在排气管内引起燃烧，而导致排气管区域失火，经 13 分钟随即将火扑灭。没有引起其他损坏。During this repair, nine (9) sets of main bearing shells were renewed, the routine inspection for the acceptance of main engine shall be carried out to the main bearings, thrust block and other important components concerned after finishing the sea trial, it was the serious error on the procedure process. After the shipyard personnel leaving the ship, the main engine ran on the basis as before without any occurrence of over conditions, and the actual navigating time was only of 2 hours and 25 minutes. As regard the fire taking place in the area of exhaust gas pipes, there were no

concerns with damage of main engine. The cause of the local fire was to be attributed to the adjustment of governor to increase the metering of fuel by the shipyard during the sea trial site. This caused the incomplete combustion in the cylinders, and residual fuel and fuel/gas mixture entering the exhaust gas pipes in which after combustion took place and then the local fire occurred in the area of exhaust gas pipes and was extinguished within 18 minutes. No further damage took place.

### **主机损坏 Main Engine Damage**

(主机飞车曲轴后臂红套移动所致)

兹应中国人民保险公司上海分公司代表香港民安保险公司申请, 下列署名的高级咨询验船师于某年 10 月 25 日及以后诸日在上海港登“XXXX”轮对该轮主机损坏进行了检验, 确定损坏原因、范围、程度及修理。

THIS IS TO CERTIFY that the undersigned senior consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China on behalf of the Ming An Insurance Co., Hong Kong, attend on board the M.V. "XXXX" in Shanghai Harbor on Oct. 25, (year) and subsequently for the purpose of carrying out a survey for ascertaining the extent, nature, cause and repair of the damage stated to have been sustained to the ship's main engine in the following circumstance:

某年 8 月至 10 月从鹿特丹至上海途中“XXXX”轮主机遭受损坏

THE MAIN ENGINE OF M.V. "XXXX" SUSTAINED DAMAGE DURING  
THE VOYAGE FROM ROTTERDAM TO SHANGHAI IN AUG.-OCT. XXXX

#### 船舶资料

#### SHIP'S PARTICULARS:

(略)

#### ALLEGATION

据该轮船长告称该轮与某年 8 月 27 日从鹿特丹开航, 并于某年 10 月 11 日 0912 时到达上海 XX 锚地并抛锚。10 月 14 日该轮又开动主机并在二艘拖轮的帮助下靠泊“XXXXXX”轮进行减载过驳。在此期间, 轮机长打开主机曲柄箱导门检查各轴承的技术状况时, 发现第 2 道和第 3 道主轴承左侧的固定螺栓已断掉, 而右侧的固定螺栓已弯曲变形, 第 2 道和第 3 道主轴承上盖均抬起约 150 毫米。该主机已不能使用。该轮被“XX”拖轮从绿华山锚地拖至吴淞口锚地, 再由港务局的拖轮拖至民生路码头卸货。It was stated by the ship's Master that the ship sailed from Rotterdam on Aug. 27, (year) and arrived at XX Anchorage, Shanghai and anchored at 0912 hrs on Oct. 11, (year). On Oct. 14, (year), the ship was maneuvered to berth alongside the M.V. "XXXXXX" by her own power and with the assistance of two tugs for lightening cargo. During this period, when the M.E. crank case doors were opened by the ship's Chief Engineer in order to examine the technical condition

of all bearings, the securing bolts on the port side of Nos.2 & 3 main bearings were found broken, those on the std side bent and deformed and the covers for Nos.2 & 3 main bearings both raised about 150mm. The main engine was already in unworkable condition. The ship was towed from Luhushan Anchorage to Wusong Anchorage by the tug "XX" and then to Minshenglu Wharf for discharge by the tug owned by Shanghai Harbor Administration Bureau.

### DAMAGE FOUND

#### FOUND:检验查明

1. 第 2 道主轴承左侧的固定螺栓根部螺纹处拉断。右侧的固定螺栓弯曲而并断裂。  
Securing bolt on the port side of No.2 main bearing broken at bottom thread. Securing bolt on its std side bent and broken.
2. 第 3 道主轴承左侧的固定螺栓根部螺纹处拉断。右侧的固定螺栓弯曲变形约 20 度。  
Securing bolt on the port side of No.3 main bearing broken at bottom thread. Securing bolt on its std side bent about 20°.
3. 第 2 道和第 3 道主轴承下瓦的白合金均敲碎脱落。The babbitt of lower half bushes of Nos.2 & 3 main bearings broken into pieces and detached.
4. 第 2 缸后主曲柄臂与后付曲柄肖的红套松动移动约 5 毫米。The shrink integrating aft main crankweb with aft aux. crankpin of No.2 cylinder loosened and slipped about 5mm.
5. 在螺旋桨的一月叶片的叶尖处有一个打坏的缺口，尺寸约 65 毫米 X30 毫米。The tip of one propeller blade notched about 65mmx30mm in size.

#### RECOMMENDED:要求

二根固定螺栓应予换新。Two securing bolts to be renewed.

二根固定螺栓应予换新。Two securing bolts to be renewed.

第 2 道和第 3 道主轴承应予重浇白合金或换新。Nos.2 & 3 main bearings to be re-babbitted or renewed.

红套走动应予复原处理。The moved shrink to be dealt with.

应予补焊修复。To be repaired by soldering.

### 损坏原因

#### CAUSE OF DAMAGE

摘自该轮轮机长书面报告：“我从船长和二管轮处得知该轮于某年 9 月 28 日到达 XX 港锚地期间，他们发现主机曾在超过正常转速（145rpm）的情况下作了短暂的先倒车方向后顺车方向的运转但运转正常。轮机日志表明某年 9 月 28 日 1320 时主机飞车。在停泊前的 2120 时对该系统进行了检查和下述修理，并进行了试验。在此期间检查了主机曲柄箱，未发现明显变化。据了解下述修理已进行。调速器传动装置环形密封圈的导气阀已更换，溢流阀已校准。再次尝试起

主机未成，可能调速器传动装置对低空气压力信号没有响应。该传动装置调整决定主机油量的限时阀轴。据说是因为导气阀有缺陷。根据观察发现，当仅为 7 kg/cm<sup>2</sup> 时空气控制压力为 19 kg/cm<sup>2</sup>。使用高压空气可能会引起导气阀环形密封圈的损坏，由此而导致发生故障。同时还发现超速释放机械装置没有动作，假定将空气压力加到溢流阀，就会切断燃油进入主机内。据了解在正常运转时二只溢流阀都动作，这说明它们有缺陷并且不能在系统中起到保持燃油压力的作用。上述缺陷可能是主机飞车造成的。” It was extracted from the “DAMAGE TO NO.2 & 3 MAIN BEARING AND SHIFTING OF NO.2 UNIT AFTER CRANK WEB” written by the ship’s Chief Engineer as follows: “ I was made to understand by the Master and then Second Engineer that during the vessel’s arrival at the port of XX anchorage on the 28<sup>th</sup> Sept. (year), they did encounter the problem with main engine running well over the normal limits (145 rpm) for a brief period in both astern direction and later on the ahead direction. The engine log book indicates that on the 28<sup>th</sup> Sept. (year) at 1320 hours the engine did overspeed. The system was checked, repaired as stated below and tested at 2120 hrs prior to berthing. During this period main engine crankcase was inspected and nothing was apparent. I was made to understand the following repairs were carried out. The pilot air valve for governor actuator ‘O’ rings were replaced and the spill valve adjusted. An attempt was made to re-start the main engine but failed, which could have been due to the governor actuator not responding to the low air pressure signal. The actuator regulates the timing valve shaft which determines the quantity of fuel to the engine. As mentioned earlier it was due to defective pilot valve. On the observation made I found the control air pressure to be 19 kg/cm<sup>2</sup> while the recommended limits was only 7 kg/cm<sup>2</sup>. Using high pressure air could have caused the sealing ‘O’ rings damage on the pilot valve, thereby causing the actuator malfunction. It was also found the over speed trip mechanism was not operating which is supposed to dump the air pressure to the spill valve, which in effect cuts off the fuel to the main engine. I was made to understand that both spill valves were operated during normal running which indicates them as defective and being unable to maintain fuel pressure on the system. These above mentioned defects could have caused the main engine overspeeding.

“主机飞车可能造成曲轴臂的移动。这样的移动会由于第一和第二道轴颈的轴线不正而最终导致主轴承发生故障，并影响第三道轴颈的轴线而引起主轴承螺柱损坏。这些螺柱的损坏会由于上述轴线不正和由轴承上瓦转送并作用于螺柱上的巨大撞击力而使螺柱拉长所引起的。另一种可能是该轮到达或行驶在上海港浅滩时螺旋桨碰撞水下物体而造成的。螺柱肯定不会在海上断裂，因为这样会导致主机曲柄箱因主机转速超过 60rpm 产生异常振动和吵声。” It is my considered opinion that overspeeding could have caused the slip of the web on the side pin. This slip would have caused the eventual failure of the main bearings due to the misalignment of Nos.1 & 2 journals which in turn affected the alignment of No.3 journal, also the failure of the main bearing studs. The failure of the studs would have been due to elongation of the studs caused by the above mentioned misalignment and extra impact forces acting on the studs transmitted by the upper halves of the bearings, as this engine is opposed piston and eventual breaking of the studs. Another could have been when the propeller hitting an underwater object on arrival or steaming in

shallow waters in Shanghai. The studs could not have been broken definitely at sea as it could have resulted with abnormal vibration and noise from the main engine crankcase due to engine rpm being over 60.”

另据该轮轮机长告称发现螺旋桨一叶片叶尖处有一缺口 60mm 长 30mm 宽，这个肯定不会引起主机曲轴红套移动这样的损坏。该轮又没有遭到任何碰撞，所以从这些因素来考虑，主机曲轴红套移动这样的损坏不可能由外力而引起。It was added by the ship's Chief Engineer that the tip of one propeller blade was notched 60mm in length & 30mm in breadth, which definitely could not have caused the damage to the main engine crankshaft shrink slippage. The vessel also did not have any collision either, so taking these factors into account the external forces could not have caused this damage to the main engine crankshaft shrink slippage.

下列署名的验船师认为该轮轮机长所讲的主机第二缸曲轴后臂红套移动原因是有一定的道理的。该轮某年 7 月在 XX 船厂进行过坞内检验和对主、付机进行了检验，没有发现任何异常。因此，可以认为红套移动是由于某年 9 月 28 日主机飞车时造成的。主机第 2 缸后曲臂与后付曲柄肖的红套移动 5mm 而造成主机第 2 道和第 3 道主轴颈的跳动量增加，而超过安装间隙。因此在后来的航行中，第 2 道和第 3 道主轴颈必然不断挤压和敲击主轴承上、下瓦，不知不觉地形成第 2 道和第 3 道主轴承损坏和螺栓断裂 The undersigned surveyor considers that the aft crankshaft shrink slippage of the M.E. No.2 cylinder could be reasonably attributed to the cause as stated by the ship's Chief Engineer. In July (year), the ship's docking survey was carried out and her main & aux. engines were inspected in XX Shipyard, and no any abnormality was found. Therefore, the above-mentioned shrink slippage could be caused by main engine overspeeding on Sept. 28, (year). The mentioned shrink slippage made the eccentric deviation of M.E. Nos.2 & 3 main journals to increase and exceed fitting clearance. In the later sailing, Nos.2 & 3 main journals were continuously pressed and the upper and lower bushes of main bearings were hit, thus causing the Nos.1 & 3 main bearings damaged and bolts broken.

当上述红套位移约 5 毫米，则 No.2 主轴颈的跳动量接近 2 毫米，而曲轴在轴承中的最大间隙为 0.37-0.76 毫米，因而使此段曲轴弹性变形，形成 No.3 主轴颈产生跳动量，其值也超过主轴颈在轴承中的间隙量，形成轴颈挤压或敲击轴承，使第 2 道和第 3 道主轴承及其固定螺栓承受强大附加应力而损坏。As the above-mentioned shrink slippage was about 5mm, the eccentric deviation of No.2 main journal approached 2mm however the max. clearance between the crankshaft and the bearings was 0.37-0.76mm and hence this section of crankshaft was elastically deformed so that the value of the eccentric deviation of No.3 main journal exceeded the clearance in the bearing and therefore the crank journal pressed and hit the bearing and finally the Nos.2 & 3 main bearings and their securing bolts suffered additionally strong stress and damaged.

#### 修理情况

#### REPAIR CONDITION

某年 10 月 27 日，第 2 道和第 3 道主轴承的轴瓦已换用船上的备件，主轴承的 4 根固定螺栓已由 XXX 公司换新，新螺栓的材料已由 LR 验船师认可。On Oct.

27, (year), the bushes of Nos.2 & 3 main bearings were replaced with the ship's spare ones and 4 securing bolts of the main bearings were renewed by XXX company and the material of new bolts was approved by XX Surveyor.

据船东机务总管透露船东意见待主机第 1 和第 2 缸装复后准备试验一次。如果情况好,可考虑低转速开至香港再解决对主机曲轴红套移动问题。The Owner's attempt was revealed by the Owner's Superintendent that, the main engine would be going to sea trial on completion of reassembly of Nos.1 & 2 cylinders, and if satisfactory, the ship was considered to sail to Hong Kong at low speed for repairing the shrink slippage of the M.E. crankshaft.

但该轮在最低转速下开到吴淞口,当主机转速微升起时后,发现主机主轴承有振动声音发出,不敢再试验,于是转速拉回最低转速,主机主轴承振动声音没有了。于是该轮又开回黄浦江内浮筒,等待联系船厂修理。当联系好 XXX 船厂修理后该轮又开至外高桥三海码头,等待修理。同时船公司邀请英国专家到上海来现场指导,由 XX 船厂做好准备工作后进行主机曲轴红套移动的校正复位工作。该修理工程于某年 11 月 26 日完成。接着于 28 日试航,该轮经低转速和全转速试验,以及试验后检查主轴承 No.1,2,3,4 及复位的红套情况,情况均正常。经 LR 验船师检验合格。The ship reached Wusongkou at lowest speed. However, when the revolution of the M.E. was slightly increased, the M.E. main bearings were found to vibrate and when the revolution was decreased to the lowest, the vibration of main bearings were disappeared. Therefore, the ship had to return and moor between buoys in Huangpu River for waiting repair. Finally the ship sailed to Waigaoqiao Wharf after XXX Shipyard responding to repair. The British expert was invited by the said company to come to Shanghai for the purpose of giving advice to Donghai Shipyard for the adjustment of M.E. crankshaft shrink slippage. This repair work was completed on Nov. 26, (year). On the following 28<sup>th</sup> day, the ship sailed with both low revolution and full revolution of the main engine. After sea trial, Nos.1-4 main bearings and re-positioning of the shrink were all examined and found satisfactory by XX Surveyor.

#### 备注

#### NOTES

1. 由 XX 船厂提供的修理主机曲轴第 2 缸后曲臂红套移位复原的帐单共 164,148.00 美元认为是公平和合理的。The invoice for repairing shrink slippage rendered by the XX Shipyard in sum of USD 000,000.00 is considered to be fair and reasonable.
2. 由 XXX 公司对主机第 2 和 3 缸拆机检查,更换第 2 道和第 3 道主轴承的固定螺栓,和装复。Nos.1 & 2 cylinders of the M.E. were overhauled and the securing bolts of Nos.2 & 3 main bearings were renewed by XXX company.
3. 该轮被“XX”机动拖轮从“XXXXX”轮处拖至吴淞锚地,再被港务局机动拖轮从吴淞锚地拖至民生路码头。The ship was towed from M.V. “XXXXX” to Wusong Anchorage by motor tug “XX” and from Wusong Anchorage to Minshenglu Wharf by motor tugs of Shanghai Harbor Administration Bureau.
4. 迄今,未收到有关上述第 2 和 3 项的帐单。So far, the vouchers for the above-said

Nos.2 & 3 are not rendered.

## 主机损坏 Main Engine Damage

(因缸套裂缝所致)

该轮在发生主机机损事故前一个航次,即从青岛开往日本途中,主机 6 个缸中有一个缸套内部燃烧室面靠近主机启动阀处已裂开长约 20 厘米。由于当时海况比较好,因此立即在海上漂泊的情况下换上备用缸套。此备用缸套为以前因有裂缝而烧焊修补过的。During the voyage prior to the main engine damage casualty, i.e. from Qingdao to Japan, one of M.E. 6 cylinders was cracked at its inside (combustion chamber side) about 20cm in length, near the M.E. starting valve. Owing to good sea condition at that time, one spare cylinder cover was replaced on when the ship drifting at sea, but, the spare cylinder cover had been patched with welding due to previous crack.

据了解,该主机 No.1,4,5 缸缸套已连续烧焊修补过几次。有关规范中规定主机缸套内部是不允许烧焊的,并且该主机缸套又是铸铁的,更不能烧焊修补。这种烧焊修补过的缸套不能长期使用,只能作应急使用,待回到国内港后应立即换新。It was investigated that the ship's M.E. Nos.1,4 & 5 cyl. covers had been patched with welding for several times. In accordance with the relevant requirements of the Rules, no welding is permitted to adopt in way of the inside of the M.E. cylinder cover, furthermore, the M.E. cylinder cover is made of casting iron, it isn't allowed to be patched with welding. The cylinder cover which had been patched with welding could not be used for a long time, it only used in case of emergency, and must be renewed after the ship arriving at the domestic port.

在离开日本港后约一天后,主机 6 个缸套中又有一个裂开,该裂开的缸套也是经过烧焊修补过的。当时的海况有 8-9 级风浪。为了使船舶能顶着风浪继续航行,船员采取了封缸的办法,停止使用缸盖裂开的这一缸。这时候,主机的转速为 70-80rpm,船舶没有前进反而向后倒退了约 100 海里。在这种情况下,船方在得到船公司同意后,向日本救助公司发出救助信号,由日本救助公司将该轮拖回日本名古屋进行修理。Only about one day after the ship leaving Japan, another one of the M.E. 6 cylinder covers was cracked, the cracked cyl. cover had also been patched with welding. The sea condition at that time was approx. 8-9 scales of strong wind. In order to enable the ship to continuously sail against the wind, the emergency measure was taken by crew to stop using the cracked cyl. cover. At that time, the M.E. speed was 70-80 rpm., the ship did not sail ahead but sailed astern about 100 nautical miles. Under those circumstances, the ship sounded distress signal towards the Japanese salvage company to Nagoya, Japan for repair.

从电报员那儿了解到他掌握了全部真实资料,并用微型相机拍摄下来。船东有作假现象。Upon investigation, the radio operator grasped the whole practical information and it was found from the information microfilmed by him that the Owner had counterfeited.

建议保险公司从主机缸套裂缝烧焊修补这一技术情况进行调查和处理。It is recommended that the technical procedure on patching with welding of the cracked

M.E. cyl. cover be further investigated and dealt with.

## 付机损坏 Auxiliary Engine Damage

(柴油发电机发生爆炸, 已无修理价值)

兹应中国人民保险公司上海分公司委托, 下列署名的高级咨询验船师于某年 3 月 23 日几以后诸日, 在上海船厂浦西分厂码头, 对上海 XX 航运公司所属的“XXXX”轮第二号付机损坏进行了检查, 情况如下: THIS IS TO CERTIFY that at the request of the Shanghai Branch Insurance Co. of China, the undersigned senior consulting surveyor did attend on board the M.V. “XXXX” owned by Shanghai XX Shipping Co. at the wharf of Shanghai Shipyard, Puxi Branch on March 23, (year) and subsequently for the purpose of carrying out an inspection to the damage stated to have been sustained to the ship’s No.2 aux. engine in the following circumstance:

### 一. 船舶资料

#### SHIP’S PARTICULARS

船名 Name of Ship:  
船东 Owner:  
船旗 Flag:  
船籍港 Port of Registry:  
总吨位 Gross Tonnage:  
登记号 Registered No.:  
主机马力 M.E. power:  
第二号付机 No.2 aux. engine:  
    型号 Type:  
    马力 Power:  
    转速 Revolution:  
    缸径 Bore:  
    冲程 Stroke:

### 二. No.2 付机损坏经过

#### ALLEGATION ABOUT THE NO.2 AUX. ENGINE DAMAGED

据该轮轮机长告称: 该轮于某年 3 月 14 日 2243 时离开连云港准备开往香港使用两台发电机组 No.2 和 No.3 并车运转, 情况正常。次日 1142 时 No.2 发电柴油机在使用中突然爆炸。立即停车检查, 发现 No.2 发电柴油机损坏严重, 不能使用。根据公司指示该轮开进上海港靠上海船厂浦西分厂码头修船。It was stated by the ship’s Chief Engineer that the ship was ready for leaving Port of Lianyungang for Hong Kong at 2243 hrs on march 14, (year). During departure, the No.2 & No.3 generating sets were under parallel running condition and found normal, but at 1142 hrs on the next day, the No.2 aux. engine suddenly exploded during operation and was immediately stopped. Upon inspection, the said engine was found seriously damaged and could not work. According to the

instruction from the Co., the ship entered into Shanghai Harbor and berthed alongside the wharf of Shanghai Shipyard, Puxi Branch for repair.

### 三. 检查损坏情况

#### CONDITION OF DAMAGE

##### 检验查明 FOUND:

1. 第 1,2,3,4 缸缸套（从首数起）的下部分均被打碎。The lower parts of Nos.1,2,3 & 4 cylinder liners (counted from forward) all broken.
2. 第 1,2,3,4 缸活塞的裙部均被打碎。The piston aprons of Nos.1,2,3 & 4 cylinders all broken.
3. 曲轴的第 2 缸首部的曲臂断掉。The forward web of crankshaft in way of No.2 cylinder broken.
4. 第 1,2 缸连杆弯曲变形。The connecting rods of Nos.1 & 2 cylinders bent and deformed.
5. 凸轮轴弯曲变形。The camshaft bent and deformed.
6. 第 1,2 挡主轴承支撑座断掉。The seats for Nos.1 & 2 main bearings broken.
7. 7 道主轴承和 6 只连杆大端轴承严重拉毛和白合金熔化。1 main bearings and 6 connecting rod bottom end bearings seriously scuffed and white metal thereon melted.
8. 曲柄箱的两侧和前侧均打坏和裂开；曲柄箱右侧第 1 缸与第 2 缸间的导门框架和第 1 缸与第 2 缸导门下部机体外壳打碎；第 2 缸与第 3 缸间的导门框架和第 3 缸与第 4 缸间的导门框架及第 4 缸与第 5 缸间的导门框架均裂开。第 3,4,5 缸导门下边机体外壳有裂缝长约 1.8 米。曲柄箱的左侧第 1 缸至第 5 缸导门的下边机体外壳有一条裂缝长约 2.5 米。曲柄箱前侧主轴承周围的机体外壳打碎。The port, std and front sides of crankcase broken and cracked; the std side port framing of the crankcase bet. Nos.1 & 2 cylinders broken; engine body below Nos.1 & 2 cylinder ports broken; port framings bet. Nos.2 & 3 cylinders, bet. Nos.3 & 4 cylinders & bet. Nos.4 & 5 cylinders all broken. Engine body below Nos.3,4 & 5

##### 修理要求 RECOMMENDED:

- 4 只缸套换新。The said 4 cylinder liners to be renewed.
- 4 只活塞换新。The said 4 pistons to be renewed.
- 曲轴换新 The crankshaft to be renewed.。
- 2 根连杆换新。The said 2 connecting rods to be renewed.  
凸轮轴换新。To be renewed.
- 同机体一起换新。To be renewed together with engine body.
- 7 道主轴承和 6 只连杆轴承换新。The said 7 main bearings & 6 connecting rod bearings to be all renewed.
- 机体换新。Engine body to be renewed.

cylinder ports cracked about 1.8m in length.  
Engine body below port side Nos.1 –5  
cylinder ports cracked about 2.5m in length.  
Engine body around the main bearing at front  
side of crankcase broken.

9. No.2 付机带动的空气压缩机损坏：air compressor driven by the No.2 aux. engine damaged: 空压机换新。

(机型 Type: WH550, 容量 capacity: 1 m<sup>3</sup>/min.)

- 1) 空压机曲柄箱外壳裂开。Shell of crankcase of air compressor cracked.
- 2) 空压机曲轴两端轴承损坏。Bearings on both ends of crankshaft of air compressor damaged.
- 3) 空压机曲轴弯曲变形。Crankshaft of air compressor bent and deformed.
- 4) 活塞缸套等未拆开，无法检查。Piston and cylinder liner, etc. were not overhauled and could not be inspected.
- 5) 空压机与付机之间的连轴器损坏。Coupling bet. air compressor and aux. engine damaged.

#### 四. 修理情况

##### CONDITION OF REPAIR

该机无条件在上海修复，船公司准备购买新机更换。There is no facility available for repairing the said No.2 aux. engine. The Shipping Co. is intending to buy a new one for renewal.

#### 五. 损坏原因分析

##### ANALYSIS FOR CAUSE OF DAMAGE

该轮轮机长未提供损坏原因。从损坏的情况来看，本人认为该机的损坏原因可能是由于第 2 挡主轴承的支撑螺栓（主轴承倒挂式）断裂。主轴颈偏离而产生巨大弯曲应力，使曲轴在第 2 缸首侧曲臂中部断掉。使第 1 缸和第 2 缸的曲柄肖和轴承脱离运转轨道而与机体相碰。在很短时间内，使机体打破，连杆弯曲，活塞和缸套下部打坏，和造成上述另件损坏，和机带空气压缩机损坏。The ship's Chief Engineer did not allege the cause of damage. With reference to the damage condition, the undersigned considers that the damage to the said engine could reasonably be attributed to the breaking of the supporting bolts of the No.2 main bearing ( main bearings were overhanged). Deflection of main journals from axis line and great bending stress occurred so that the

crankshaft was caused broken at the middle of the crank web in way of No.2 cylinder and in consequence the crankpins and bearings of the No.1 & No.2 cylinders departed from the running orbit and contacted with the engine body and in very short time, the engine body was broken, connecting rod were bent, pistons and lower parts of cylinder liners, etc. damaged and air compressor driven by the said engine damaged as well.

#### 六. 机损修理价格评议

##### COMMENTS ON THE QUOTATION OF DAMAGE REPAIR

该机曲轴和机体已无法修复, 该修理价格已超过新机价格 50%以上。再加上一个凸轮轴、四只缸套、四只活塞和两根连杆的修理费用已超过一个新机的价格。因此, 该机已无修理价值。机带的空压机情况同柴油机。The crankshaft and engine body of the aux. engine are unfeasible to be repaired. If they being repaired, the cost will exceed 50% of that of a new engine and if being repaired together with a camshaft, 4 cylinder liners, 4 pistons and 2 connecting rods, the total cost of repair will surely exceed the cost of a new engine, therefore, the said engine is unworthy to be repaired and the air compressor driven by the said engine is dealt with as the said engine.

#### 七. 备注

##### REMARK

船公司尚未提供更新新机或二手机的价格单。The invoice of a new engine or secondhand one is not submitted by the Shipping Co. up to now.

此次该 No.2 付机未在该船厂修理。

The said No.2 aux. engine has not been repaired in the shipyard this time.

#### 付机损坏 Auxiliary Engine Damage

(活塞、缸套长期在高热应力中运转而产生裂纹所致)

据该轮轮机长告称某年 10 月 16 日 1 号付机经船员拆检后进行运转试验, 但是同日 1407 时该付机突然发出响亮的爆炸声并立即停止运转。该 1 号付机经拆检, 发现已损坏。It was stated by the ship's Chief Engineer that the No.1 aux. engine was running tested after being overhauled by the ship's crew, but it suddenly exploded with loud noise and was immediately stopped. The No.1 aux. engine was overhauled and found damaged.

又据该轮轮机长告称该付机于某年 9 月 17 日在日本拆检, 但是缸套和活塞都没有仔细检查过。该付机由于长期处在冷却水保持在摄氏 40 度中运转以致于造成缸套和活塞损坏。It was added by the ship's Chief Engineer that the said engine was running in a long period with the cooling water usually kept about 40°C so that the cylinder liners and pistons were caused damaged.

检验查明 FOUND:

修理要求 RECOMMENDED:

1 号付机 No.1 Aux. Engine:

Type: DEUTZ BAM 816

Rated power: 439 kW

- |   |                     |
|---|---------------------|
| 1. A 列第 2 缸活塞和缸套发现破碎。A bank No.2 cyl. piston & liner were found broken into pieces.                               | 应予换新 To be renewed. |
| 2. A 列第 2 缸连杆发现弯曲变形。A bank No.2 cyl. connecting rod was found bent and deformed.                                  | 应予换新 To be renewed. |
| 3. A 列第 2 缸进、排气阀臂发现破碎。A bank No.2 cyl., arms of the inlet and outlet valves were found broken into pieces.        | 应予换新 To be renewed. |
| 4. A 列第 2 缸进、排气阀的两根顶杆发现弯曲。A bank No.2 cyl., two push rods of inlet and outlet valves were found bent.             | 应予换新 To be renewed. |
| 5. B 列第 2 缸连杆轴承衬套发现变形。B bank No.2 cyl. connecting rod bearing shell was found deformed.                           | 应予换新 To be renewed. |
| 6. A 列第 2 缸活塞冷却滑油喷嘴发现破碎 A bank No.2 cyl., the cooling lub. oil nozzle of the piston was found broken into pieces. | 应予换新 To be renewed. |
| 7. A 列第 2 缸活塞冷却滑油喷嘴座发现刺穿。A bank No.2 cyl., the cooling lub. oil nozzle seat of the piston was found pierced.      | 应予换新 To be renewed. |
| 8. 该机主轴承滑油管发现断落 2 米长。the lub. oil pipe for main bearings of the engine was found broken down about 2m in length.  | 应予换新 To be renewed. |
| 9. A 列活塞的滑油冷却管发现断落 2 米长。The lub. oil cooling pipe for A bank pistons was found broken down about 2m in length.    | 应予换新 To be renewed. |
| 10. A 列曲轴发现在 1.3 米长内弯曲。A bank camshaft was found bent 1.3mm in length.  | 应予换新 To be renewed. |
| 11. 其它 11 只缸套用着色检查发现有裂纹。The other 11 cyl. liners were found cracked by means of dyeing inspection.                | 应予换新 To be renewed. |
| 12. 其它 11 只活塞用着色检查发现在活塞肖处有裂纹。The other 11 pistons found cracked at piston pins by means of dyeing inspection.     | 应予换新 To be renewed. |

损坏原因

CAUSE OF DAMAGE:

下列署名的验船师认为上述损坏项目可以合理地归咎于该轮轮机长所述的原因。The undersigned considers that the above-mentioned damage items could be

reasonably attributed to the cause as stated by the ship's Chief Engineer.

下面署名的验船师检查了轮机航海日志, 日志中记载了活塞冷却油和缸套冷却水的温度比说明书中所要求的低约 20°C。这就是活塞和缸套由于长期在高热应力中运转而产生裂纹的原因。The undersigned checked the engine room Log Book in which the temperatures of the piston cooling oil and liner cooling water were recorded about 20°C lower than that required in the instruction book. That is why the piston and liners cracked due to running in high thermal-stress for a long period.

## 缸套、活塞损坏

当该轮途经 XXXXXX 海峡时, 发现该轮主机的转速减慢, 第 7 缸观察孔有烟。立即停止主机进行检查, 发现第 7 缸套在扫气口处有裂纹, 经拆检发现活塞也有裂纹。此时, 缸套和活塞用船上的备件更换。When the ship passing XXXXXX Strait, the revolution of the ship's main engine was found reduced and smoke emerged from No.7 cyl. observing hole. The main engine was immediately stopped for inspection, and No.7 cyl. liner was found cracked at scavenging port and the piston also cracked after being overhauled. At that moment, the cyl. liner and piston were replaced with the ship's spares and the ship continued sailing.

### 损坏情况

#### Condition of Damage

#### 检验查明 FOUND:

1. 第 7 缸套内工作面发现有严重拉痕, 并发现第 7 缸套的构架在扫气口周围有 9 处裂纹。The inner working surface of No.7 cyl. liner was found seriously scored and the framing of the cyl. liner cracked at 9 places round scavenging port.
2. 第 7 缸活塞裙边外工作面发现有严重拉痕, 裙边下段有长约 300 毫米的轴向裂纹。The outer working surface of No.7 cyl. piston apron was found seriously scored and the lower section of the apron axially cracked about 300mm in length.

#### 修理要求 RECOMMENDED:

缸套应予换新。The cyl. liner to be renewed.

活塞应予换新。The piston to be renewed.

### 损坏原因

#### Cause of Damage

下列署名的验船师认为上述损坏可以合理地归咎于轮机长所述的原因, 即由于润滑器没有及时加入润滑油, 汽缸内没有形成润滑油膜, 故而造成汽缸套与活

塞相互咬牢。The undersigned surveyor considers that the above-mentioned damage could be reasonably attributed to the cause alleged by the Chief Engineer, i.e. the cylinder liner and piston were seized each other because lub. oil was not fed into lubricator in time and no lub. oil filmed in the cylinder.

修理情况

Condition of Repair

损坏的第7缸缸套和活塞由该轮轮机员用备件更换。The damaged No.7 cyl. liner and piston were replaced with the spares by the ship's engineer in XXXXXX Strait.

### 增压器损坏

该轮在高港卸货期间，从主机扫气箱对所有汽缸的技术状况进行了检查，发现第4缸一只活塞令断裂，一块小的断片不见了。第4缸活塞吊出，活塞令换新后，活塞装复。主机进行启动试验发现正常。5月17日0800时，该轮慢速离开高港赴湛江，并锚泊于宝钢锚地。该轮起锚，慢速航行至长江口。引水员离开后该轮开始高速航行，但是5分钟后，突然听见噪声，第2号增压器严重震动，紧接着主机转速立即减慢。同日1707时，该轮在绿华山锚地抛锚，对主机进行检查。发现第2号增压器损坏。后来，根据船东指示该轮在使用1号增压器、主机转速放慢的情况下返回上海港修理第2号增压器。While the ship discharging at Gaogang, the technical condition of all cylinders was examined from the M.E. scavenging case, and one ring of No.4 cyl. piston was found broken and one small broken piece disappeared. The No.4 piston was lifted out for renewal of the piston ring and then refitted, and the main engine was starting tested and found satisfactory. At 0800 hrs on May 17, the ship left Gaogang for Zhanjiang at slow speed and anchored at Baogang Anchorage. The ship weighed anchor and sailed to Changjiangkou at slow speed. The pilot disembarked and the ship began sailing at high speed, but 5 minutes later, a sudden noise was heard and No.2 supercharger severely shocked, and consequently the revolution of the main engine was immediately reduced. At 1707 hrs on the same date, the ship dropped anchor at Luhuashan Anchorage for inspecting the main engine. No.2 supercharger was found damaged. Afterwards, as instructed by the ship's Owner that No.2 supercharger be repaired after the ship returning to Shanghai Harbor with slow revolution of M.E. by means of No.1 supercharger.

损坏情况

CONDITION OF DAMAGE:

检验查明 UPON THE SURVEY FOUND:

修理要求 RECOMMENDED:

1. 第2号增压器转子的一根叶片发现从根部断

2 根叶片应予换新。

裂，附近另一根叶片在中部被击弯。One blade of the rotor of No.2 supercharger was found broken from its bottom, and another adjacent blade hit and bent at middle.

2. 该增压器的外侧导气圆环发现被飞出的转子叶片击坏面积约 6cmx8cm，并有两处长度分别为 30cm 和 40cm 的裂纹。The outside leading gas annular ring of the supercharger was found hit and damaged by the flying-off rotor blade about 6cmx8cm in area, and also cracked at two places about 30cm & 40cm in length respectively.

外侧导气圆环应予换新。

3. 增压器涡轮端的轴承烧毁。The bearing at turbine end of the supercharger was found burnt.

轴承应予换新。

#### 损坏原因

##### CAUSE OF DAMAGE:

下列署名的验船师认为上述损坏可以合理地归咎于轮机长告称的原因，即由于主机第 4 缸活塞令断裂，在主机高速运转时一小块断片被吹进了增压器，造成该增压器的外侧导气圆环损坏。The undersigned surveyor considers that the above-mentioned damage could be reasonably attributed to the cause alleged by the Chief Engineer, i.e. owing to that the M.E. No.4 cyl. piston ring was broken, one small broken piece was blown into the supercharger while the main engine running at high revolution, and thus the outside leading gas annular ring of the supercharger was sustained damage.

#### 修理情况

##### CONDITION OF REPAIR:

该增压器损坏的转子和轴承已用备件更换。该增压器损坏的外侧导气圆环已进行了临时性修理，同意使用六个月至新的外侧导气圆环安装妥。The damaged rotor and bearing of the supercharger were replaced with the spares. The damaged outside leading gas annular ring of the supercharger was temporarily repaired and permitted to be used until a new one being re-installed in six months.

#### 备注

##### Notes:

1. 该轮特地从长江口返回上海港是为了对主机第 2 号增压器进行修理，修妥后，该轮继续从上海开往湛江。The ship returned to Shanghai Harbor from Changjiangkou for the special purpose of repairing the M.E. No.2 supercharger, and after it being repaired, the ship sailed continuously from Shanghai to

Zhanjiang.

2. 船东尚未提供转子修理帐单，新外侧导气圆环和轴承帐单以及修理费。The invoice of repair of rotor, the invoice of new outside leading gas annular ring & bearing and the cost of repair haven't been submitted by the ship's Owner yet.

### 尾轴油封装置渗漏

兹应中国人民保险公司上海分公司申请，下列署名的咨询验船师于某年 3 月 7 日及以后诸日在上海立丰船厂浮船坞登“XXXX”轮进行了检验，确定其渗漏损坏的性质、范围、原因及修理，情况如下：

THIS IS TTO CERTIFY that the undersigned consulting surveyor did, at the request of the People's Insurance Co. of China, Shanghai Branch, attend on board the M.V. "XXXX" in the floating dock of Shanghai Lifeng Shipyard on March 7, (year) and subsequent dates for the purpose of carrying out a survey to ascertain the cause, nature and repair of leakage stated to have been sustained in the following circumstances:

某年标题船尾轴油封装置损漏  
OIL GLANDS OF THE CAPTIONED SHIP'S 2 月  
TAILSHAFT LEAKED IN FEB. (year)

船舶资料

Particulars:

(略)

有关尾轴油封装置损漏的经过情况

Allegation about Leakage of Tailshaft Oil Glands:

据该轮轮机长书面陈述该轮与某年 2 月 11 日 0900 时准备离开南朝鲜 CHUNG JIN 港赴上海时，发现尾轴润滑油重力柜的油位表处于零位，高位重力油柜已空。大管轮立即开启注油泵但是由于天气寒冷该泵无法将润滑油注如到该柜内。立即用人工提油桶将约十桶滑油注入该重力柜，但该油柜仍无油位。该轮于约 0950 时离开码头时，发现有大量油浮在船尾四周的水面上。轮机长赶到船尾，发现油从水中渗出，显然尾轴油封装置漏了。立即大管轮告知注油泵已开始将滑油注入该高位重力柜，直至油位表指向“60”格。但十分钟后该重力柜内的滑油迅速漏掉。又改用低位重力柜，但该柜中的滑油也在六分钟内漏掉。此后，用尾轴前端的加油杯每隔 15 分钟加油一次，每天约加入 100 公斤，一直到该轮到达上海港。It was stated in writing by the ship's Chief Engineer that while the ship was ready for leaving Port of CHUNG JIN, North Korea for Shanghai at 0900 hrs on Feb. 11, (year), the gauge of tailshaft lubricating oil gravity tank was found at zero level and the high position oil gravity tank already empty. The 1<sup>st</sup> Engineer immediately started feeding pump but the pump could not transfer lub. oil into the tank because of cold weather. About 10 buckets of lub. oil were immediately fed into

the gravity tank by hand but the oil tank still showed no oil level. When the ship left the wharf about at 0950 hrs, a great deal of floating oil was found at sea surface around the stern. The Chief engineer went to the stern and found oil oozing from water, i.e. obviously, the tailshaft oil glands were leaked. At that moment, the 1<sup>st</sup> Engineer told that the feeding pump started to feed oil into the lub. oil gravity tank until the oil gauge indicating “60”, but the lub. oil in the gravity tank leaked rapidly within 10 minutes. Although the low position gravity tank was alternately used, the lub. oil therein also leaked within 6 minutes. Thereafter, the oil cup at the fore end of the tailshaft was used to add lub. oil every 15 minutes and about 100kg in weight daily until the ship arrived at Shanghai Harbor.

另据大管轮和四管轮告称在重力柜至尾轴的润滑油管系设有一只截止阀。当主机不工作时，为了防止海上污染，该阀终是关着的。非常可能在前个航次匆忙进行开航准备时由于疏忽没有打开该阀，以致滑油不能进入到尾轴轴承内，造成该轴承过热并烧损。It was also alleged by the 1<sup>st</sup> Engineer and the 4<sup>th</sup> Engineer that there was a stop valve fitted in the lub. oil piping from oil gravity tank to tailshaft. When the main engine did not work, the valve was always closed in order to prevent pollution at sea. It was very probable that the valve was not opened due to negligence in hurried preparation for sailing in the previous voyage so that lub. oil could not penetrate into the tailshaft bearing and thus the bearing was consequently overheated and burnt.

#### 检验情况

##### Condition of Survey:

##### 检验查明 DAMAGE FOUND:

1. 尾轴抽出前，发现其后油封装置外侧的衬套已被破损的渔网和绳子缠住。  
Before the tailshaft being withdrawn, its liner outside the aft oil gland fouled with broken fishing net & ropes.
2. 尾轴抽出后，发现尾轴轴承有严重拉痕，其上面的白合金熔化。After the tailshaft being withdrawn, the tailshaft bearing seriously scored and the babbitt thereon melted.
3. 尾轴油封装置的五只橡皮垫圈（二只前、三只后）撕裂或内表面严重磨损  
5 pcs of rubber rings of tailshaft oil glands (2 pcs forward and 3 pcs aft) torn or heavily worn on the inner surfaces.

##### 修理要求 RECOMMENDED:

1. 应予清理和清洁。To be cleared & cleaned.
2. 尾轴轴承应予重浇白合金。The tailshaft bearing to be re-babbitted.
3. 应予全部换新。All to be renewed.

#### 损坏原因

### Cause of Damage:

根据损坏情况，下列署名的验船师认为该损坏可合理地归咎于尾轴管内缺乏滑油所致。With reference to the damage condition, the undersigned considers that the damage could be reasonably attributed to the lack of lub. oil in stern tube.

据该轮轮机长告称某年 2 月 11 日该轮正准备离开 CHUNG JIN 港时，发现尾轴重力油柜中的润滑油已全部漏光。重新注入后，该油柜迅速漏空。同时，发现船尾周围的海面上有一层浮油。他的陈述清晰地说明了那时尾轴后油封装置已经损坏和渗漏。该后油封装置很可能在该轮靠泊于 CHUNG JIN 港的码头时就已损坏。另据该轮二管轮和五管轮告称自从上次某年 11 月坞内检验以来，尾轴油封装置的情况一直尚可，后油封装置没有渗漏，滑油的消耗量非常少。很可能尾轴管的注油阀在前个航次匆忙进行开航准备时由于疏忽没有打开以致尾轴管的供油停止，而尾轴继续运转，尾轴轴承和油封装置的橡皮垫圈磨损，造成橡皮垫圈不能密封，滑油漏进海里，海水进入尾轴管内。以致尾轴的润滑状况更加恶化。As alleged by the ship's Chief Engineer that on Feb. 11, (year), while the ship being ready for leaving Port of CHUNG JIN, the lub. oil in tailshaft oil gravity tank was found wholly leaked. After being re-fed, the oil tank emptied rapidly. Meanwhile, a layer of floating oil was found at stern around the sea surface. His allegation was clear that at that moment the tailshaft aft oil gland had already damaged and leaked. The aft oil gland was damaged very probably prior to the ship lying alongside the wharf of Port of CHUNG JIN. As alleged by the ship's 2<sup>nd</sup> Engineer and 5<sup>th</sup> Engineer that since the last docking survey in Dec. (year), the tailshaft oil glands have been in a fair condition the aft oil gland has not leaked and the lub. oil has consumed very little. It was very probable that the feed oil valve of the stern tube was not opened due to negligence for a certain period of time in hurried preparation for sailing in the last voyage so that the oil supply to the stern tube was stopped but the tailshaft was running continuously, the tailshaft bearing and the rubber rings of oil glands were worn and in consequence the rubber rings could not seal, the lub. oil could leak into sea and sea water could enter the stern tube. Thus, the lubricating condition of the tailshaft was worsened. The condition that the oil tank emptied and after being re-fed, it emptied very rapidly again wasn't found in Port of CHUNG JIN until the ship leaving the wharf. 而且，当该轮继续开往上海时，轮机员仅对只为润滑前油封装置所用的前油杯加油，没有对尾轴轴承加油，重力油柜内也没有润滑油。这就是尾轴轴承等更加严重磨损，其上面的白合金熔化和严重拉痕的原因。该轮进坞后后油封装置拆下检查，发现尾轴管没有滑油。这表明尾轴在润滑状况很差的情况下运转，以致其轴承严重损坏。Furthermore, while the ship proceeding to Shanghai, the engineer fed oil into forward oil cup only used for lubricating forward oil gland and did not feed oil to the tailshaft bearing and no lub. oil in gravity tank as well. This was why the tailshaft bearing, etc. worn more seriously and the babbitt thereon melted and badly scored. Upon the aft oil gland being removed for inspection after the ship was docked, the stern tube was found no lub. oil. It indicated that the tailshaft ran in a very poor lubricating condition and therefore its bearing was seriously damaged. (Upon the oil glands being removed for inspection, it was found that the oil gland leakage was not in connection with fouling with broken fishing net).

## 永久性修理

### Permanent Repair Effected:

该轮尾轴轴承和油封装置已根据上述修理要求进行了永久性修理。尾轴轴承在上海江南船厂重浇白合金，并经船级验船师检验，发现满意。The ship's tailshaft bearing and oil glands were permanently repaired according to the above-mentioned "RECOMMENDED" in Shanghai Lifeng Shipyard. The tailshaft bearing was re-babbitted in Shanghai Jiangnan Shipyard, inspected and found satisfactory by Class Surveyor.

### 备注

#### Notes:

1. 该轮二次进坞修理尾轴轴承和油封装置 The ship docked twice for repairing tailshaft bearing and oil glands:  
第一次：从某年3月7日下午至3月10日下午。The first time: from the afternoon of March 7 to the afternoon of March 10, (year);  
第二次：从某年3月31日下午至4月4日下午。The second time: from the afternoon of March 31 to the afternoon of April 4, (year).  
二次进坞在坞内共7天。There were seven days in drydock for two dockings.  
在坞内未进行其它修理。No other repair was effected in the drydock.
2. 船东至今未提供帐单。帐单提供后，应进行审核。The following accounts haven't been submitted by the ship's Owner yet and should be checked if they being submitted:

## **离合器损坏 Clutch Damage**

下列署名的验船师透露当起货机的离合器的操纵杆在啮合位置时，离合器的牙齿处于脱开状态。The undersigned surveyor disclosed that while the control lever of clutch of cargo winch being at engaged position, the clutch dentals were under disengaged condition, and the locking pin for the control lever of clutch was missing and had been replaced with one bolt.

操纵杆的螺栓与锁销孔间的距离太大。当吊杆吊起叉车时，离合器的操纵杆偏离正常位置，这样，使离合器的牙齿从啮合转为脱开，以致起货机的钢丝卷车失控，造成叉车跌落而引起损坏。The clearance between the bolt & the locking pin hole of control lever was too large so that when the forklift being lifted with derrick, the control lever of clutch shifted from its normal position, thus, the clutch dentals were from engagement to disengagement, the wire reel of the cargo winch was out of control, consequently causing the forklift to drop down and sustain damage.

离合器操纵杆的锁销遗失，已用螺栓代替。The locking pin for the control lever of clutch was missing and had been replaced with one bolt.

## 起重机损坏 Crane Damage

兹证明应中国人民保险公司上海分公司申请，下列署名的验船师于某年 5 月 25 和 26 日登靠泊在上海港军工路装卸公司的“XXXX”轮对该轮的第一号起重机的损坏进行了公证检验。THIS IS TO CERTIFY that the undersigned consulting surveyor did, at the request of the Shanghai Branch of the People's Insurance Co. of China, attend on board the M.V. "XXXX" berthing the wharf of Jungonglu Stevedoring Co. of Shanghai Harbor on May 25 & 26, (year) for the purpose of carrying out a survey without prejudice to the damage stated to have been sustained to the ship's No.1 crane.

据该轮船长告称该轮于某年 5 月 15 日在中国 XXX 港卸货，于当日 1000 时 No.1 起重机所吊钢材与 No.1 货舱舱口围下端发生撞击，导致 No.1 起重机损坏。吊钩梁由 XXX 港第二装卸区进行了修理，但船长认为无法接受这样的临时性修理。为了不影响卸货，船方将 No.1 起重机吊钩梁与 No.4 的进行调换，并由船员利用船上的备件对在 XXX 港 No.1 起重机损坏案相关的起货马达刹车部件进行了更换，使 No.1 起重机投入了正常的工作。It was stated by the ship's Master that while the ship discharging at Port of XXX, China on May 15, (year), steel material in a hoisted sling of the ship's No.1 crane hit the lower part of the hatch coaming of No.1 cargo hold at 1000 hrs on the same day, and thus the No.1 crane was sustained damage. The hoisting beam of the No.1 crane was repaired by the No.2 Stevedoring Area of Port of XXX on May 17, (year) but the ship's Master could not accept such a temporary repair. During discharging in Shanghai Harbor on May 25, (year), in order to prevent suspension of discharging, the hoisting beam of the No.1 crane was replaced with that of No.4 crane and the brake assembly of the hoisting motor was replaced with a ship's spare, which had been sustained damage in the incident of the No.1 crane at Port of XXX, by the crew so that the No.1 crane could be continued in normal working.

### 损坏情况 CONDITION OF DAMAGE

#### 检验查明 FOUND

1. 原 No.1 起重机吊钩梁整体呈弯曲变形。The hoisting beam of the No.1 crane bodily bent.
2. No.1 起重机起货马达刹车片固定件根部断裂。The bolts on the brake disk of the electric hoisting motor of the No.1 crane broken from their roots.
3. No.1 货舱前舱口端横梁距坐舷舱口围板 3m 处凹陷变形局部撕裂长约 20cm。The forward hatch end beam of the No.1 cargo hatch indented and partly

#### 修理要求 RECOMMENDED

- 应予红火校正或换新。To be heated & faired or renewed.
- 应予换新。The bolts to be renewed.
- 应予割换。To be cropped & renewed 0.45mx 0.3mx14mm.

torn about 20cm in length at 3m away  
from the port side hatch coaming.

### 损坏原因 CAUSE OF DAMAGE

经对损坏现场及损坏部件的勘查，下列署名咨询验船师认为： Upon examination of the incident field and the damaged parts, the undersigned consulting surveyor considers that

1. No.1 起重机的吊钩梁已在 XXX 港作了红火校正但仍呈整体弯曲。根据这种状况，吊钩梁的损坏可能是由于在非正常作业过程中受到突然的冲击力所致。 The hoisting beam of the No.1 crane which had been heated & faired at Port of XXX, was still bent in entirety. In reference to this condition, the damage of the hoisting beam could be attributed to the sudden impact force suffered during abnormal operation.
2. 鉴于 No.1 起重机的起货马达刹车片固定件根部不规则断裂面及刹车片接触面较为完好，固定件根部断裂可能是由于起货机在作业过程中起货马达过载而引起。 The broken sections of the bolts on the brake disc of the electrical hoisting motor of the No.1 crane appeared irregular but the contact surface of the brake disk was comparatively sound, so the breaking of the bolts could be sustained probably owing to the electrical motor of the cargo winch was overloaded during discharging.

### NOTE

1. 原 No.1 起重机吊钩梁虽由当地港务局进行红火校正，但由于该吊钩梁仍呈整体变形且未得该轮船级验船师的认可，故该吊钩梁在未经船级验船师确认的情况下不能投入使用。 The hoisting beam of the No.1 crane, which was heated and faired by the Port Administration Bureau of Port of XXX, China on May 17, (year), wasn't accepted and confirmed by the ship's class surveyor because the deformation of the hoisting beam was still remaining, so the said hoisting beam can not be put into operation.
2. No.1 起重机的起货马达刹车的制动装置已更换船上备件，该刹车已投入正常运转。 The damaged brake assembly of the brake of the hoisting motor of the No.1 crane was replaced with the ship's spare by the crew and the brake was in normal running.
3. 由于没有可参照的修理价格，故对此损坏案所涉及的修理费用无法作确切的估算。 The estimation of the repair on the damage of the hoisting beam of the ship's No.1 crane can not be made in Shanghai Harbor, because no such an example may be sought in the repairing market.

### **门式起重机损坏 Gantry Crane Damage**

兹证明应上海蓝捷海上安全技术咨询服务公司申请，下列署名的验船师于某

年 9 月 1 日及以后诸日在上海港对上海港 XX 装卸区的 No.442 门式起重机进行了检验，以查明该门式起重机损坏的程度、范围和原因，并估计修理费用，情况如下。THIS IS TO CERTIFY that the undersigned surveyor did, at the request of Shanghai Lanjie Maritime Safety Technical Consultation & Service Ltd., carry out a survey in Shanghai Harbor on Sept. 1, (year) and subsequent dates to the No.442 gantry crane owned by Shanghai Harbor XX Stevedoring Corp. to ascertain the extent, nature, cause and estimated cost of repair of the damage stated to have been sustained in the following circumstance:

门机概况 PARTICULARS OF THE CRANE

编号 Serial No.:	442
型号 Type No.:	M10T-30M
制造厂 Manufacturer:	上海港机厂 Shanghai Port Machinery plant
制造年份 Year of Manufacture:	xxxx
最大高度 Max. Height:	51m
自重 Sole Weight:	259.3 tons
安全工作负荷 S.W.L.:	10T x 30m

事故经过 ALLEGATION

据上海港 XX 装卸公司代表告称“XXXX”轮在某年 8 月 21 日 1835 时靠泊开平码头时，碰撞了码头 442#门机，造成该门机损坏。It was stated by the Representative of Shanghai Harbor XX Stevedoring Corp. that while the M.V. “XXXX” being maneuvered to berth alongside Kaiping Wharf, at 1835 hrs on Aug. 21, (year), the cargo ship struck against the No.442 gantry crane of Kaiping Wharf, thus causing the crane damaged.

检验查明 UPON THE SURVEY FOUND

1. 整台门机被撞出行走轨道，向陆侧偏移约 1.5 米，4 套行走车架全部脱落，门架陆侧 1 根支腿在十字梁下侧转弯处严重弯曲变形，江侧 2 根支腿局部凹陷变形。The gantry crane struck away from the travelling rails 1.5m; 4 units of travelling bogies all dislocated with legs; 1 wharfside leg of the gantry seriously bent at the lower corner of the cross frame; and 2 riverside legs partly indented.

修理要求 RECOMMENDED

4 套行走车架包括驱动马达拆检 4 units of travelling bogies incl. drive motor to be dismantled & further inspected before refitting to the legs; the bent leg to be cropped & renewed; 二根凹陷的支腿应予校正。the 2 indented legs to be faired; 对门架的水平度、垂直度和对角间距校正 the horizontality, verticality & diagonal bet. 4 legs of the gantry to be checked & adjusted according to

- |   |   |
|---|---|
|   | relevant standards before located on the rails.       |
| 2. 长拉杆支座及变幅平衡梁支座严重变形，局部撕裂。The seats for the long pull rod and luffing rocker beam seriously deformed and partly torn. | 按原样割换 The seats to be cropped & renewed as original.  |
| 3. 门架海侧下游支腿上的电缆滑架严重变形。The cable sliding rack on the riverside leg of the gantry seriously deformed.                   | 按原样割换。The rack to be cropped & renewed as original.   |
| 4. 门架陆侧 2 条支腿间的撑柱 1 根严重弯曲变形。1 prop between the 2 wharfside legs of the gantry seriously bent.                         | 按原样割换。The prop to be cropped & renewed as original.   |
| 5. 门架十字梁下方的梯子扭转变形。The ladder below the cross frame of the gantry distorted.   | 按原样割换。The ladder to be cropped & renewed as original. |

#### 损坏原因 CAUSE OF DAMAGE

本验船师认为上海港 XX 港务公司代表对上述 442#门机损坏原因的陈述是合理可信的。The signed surveyor considers that the damage of the above-mentioned No.442 gantry crane could reasonably be attributed to the cause as stated by the representative of Shanghai Harbor XX Stevedoring Corp.

#### 临时性加固措施 TEMPORARY MEASURE OF REINFORCEMENT

XX 码头 442#门机被撞后，陆侧上游的支腿弯曲程度在逐渐加大，整台门机在逐渐向陆侧倾斜，随时有倾倒的可能。同时长拉杆与平衡梁也因支座变形，随时有脱离原位，从高空坠落的可能。因此上海港口机械制造厂修配分厂在上海港 XX 港务公司的请求下，于某年 8 月 21 日 2100 时至 8 月 2 日 0230 时对该门机进行了临时性加固：对陆侧上游已弯曲的支腿在十字梁处对其进行了支撑加固，对长拉杆及平衡梁变形的支座加焊了支撑肘板与加强槽钢。After the No.442 gantry crane at Kaiping Wharf was struck, the bending of the shoreside leg, at the upper reaches, of the gantry was progressively intensified, thus, the gantry crane was so inclined to the ground that it would probably collapse at any time. Also, the long pull rod and the rocket beam would probably detach from their original positions and drop down the sky at any time owing to that their seats had deformed. Hence, at the request of Shanghai harbor XX Stevedoring Corp., the gantry crane was temporarily reinforced by supporting with prop at the cross frame for the bent wharfside leg and by welding with supporting brackets & strengthening channels for the deformed seats of the long pull rod and the rocket beam by Shanghai Port Machinery Plant Repair branch from 2100 hrs on Aug. 21 to 0230 hrs on Aug. 22, (year).

## 修理费用与时间估算 ESTIMATION OF COST & DURATION OF REPAIR

上述损坏的 442#门机的永久性修理如果在上海进行，则修理费用及时间估算如下：For the above-mentioned damaged No.442 gantry crane, the cost & duration of the permanent repair, if effected in Shanghai, are estimated as follows:

修理费 Cost of Repair: RMB 1,400,000.00

修理时间 Duration of Repair: 45 working days

### 注 GENERAL NOTES

1. 该门机的修理需解体后运至修理厂进行，解体后不排除发现隐蔽损坏的可能性。The gantry crane is to be disassembled and then transported to the repair yard for repair. After disassembling, the probability that the latent damage would be found can not be excluded.
2. 解体后，人字架与机房、机房与门架连接用的所有高强度预紧螺栓按使用要求只能报废。After disassembling, all high strength pre-securing bolts for connecting the A-bracket with the engine cabin and the engine cabin with the gantry are to be renewed.
3. 解体过程中，巴杆、长鼻梁、长拉杆、短拉杆、变幅齿条、变幅平衡梁上的所有连接绞轴经切割后只能报废。All connecting hinge axes for the hinged boom, straight fly jib, long pull rod, short pull rod, luffing rack & luffing rocker beam, which had been cut down during disassembling, are to be renewed.
4. 解体、运输及安装过程中，需有浮吊、拖轮、方驳、铲车、汽车吊的配合。The floating crane, tugboat, pontoon barge, forklift & truck crane are necessary during disassembling, transportation & re-assembling.
5. 修理时损坏的油漆修复后须补作。All new & disturbed work is to be coated.
6. 修复后须进行必要的测试。Necessary inspection & testing are to be carried out after repair.

### 检验在场人员 PERSONS PRESENT AT THE SURVEY

上海港 XX 装卸公司代表 Representative of Shanghai Harbor XX Stevedoring Corp.  
上海震旦律师事务所律师 Lawyer of Shanghai Zhendai Lawyer Office  
上海港机厂修理分厂代表 Representative of Shanghai Port Machinery Plant Repair Branch

### **履带式起重机（回转支索）损坏 Caterpillar Crane (Slewing Guy) Damage**

据该轮船长告称该轮在上海港军工路码头卸货时，由于第一货舱后的吊杆的左侧回转支索破断，致使该吊杆由第一货舱甩向第二货舱，被吊货物的履带式起重机的履带撞到已卸到火车卡上的履带式起重机的本体上。It was stated by the ship's Master that while the ship discharging at Jungonglu Wharf of Shanghai Harbor, owing to the breaking of the port side slewing guy of the derrick abaft the No.1 cargo

hatch, the derrick boom swung, at 0345 hrs on April 9, (year), towards the No.2 cargo hatch, and thus the caterpillar (21.7T) of a caterpillar crane in a hoisting sling strake the crane body of the caterpillar crane which had been loaded on a freight train.

检验查明 UPON THE SURVEY FOUND:

1. 第一货舱后吊杆左侧回转支索的琵琶头插接拔出，致使吊杆甩向第二货舱位置。The eysplice of the port side slewing guy of the derrick abaft the No.1 cargo hatch loosened so that the derrick boom swung towards the No.2 cargo hatch.
2. 吊杆及其它未发现损坏。The derrick and the other attachments found without damage.

修理要求 RECOMMENDED:

第一货舱后吊杆左侧回转支索换新。The port side slewing guy of the derrick abaft the No.1 cargo hatch should be renewed.

该回装支索换新后，第一货舱后吊杆仍可按原安全工作负荷 80T 继续使用。After the slewing guy being renewed, the derrick abaft the No.1 cargo hatch can still be put in continuous service with the original S.W.L. of 80T.

### 垃圾箱损坏 Garbage Bin Damage

兹证明应新华装卸公司申请，下列署名的验船师于某年 3 月 31 日及以后诸日在上海港登“XXXX”轮进行了临时检验，当货驳旁靠在“XXXX”轮左尾处，正在装袋装尿素时，设置在该轮尾楼甲板左舷近船尾栏杆处的一只钢质垃圾箱突然坠落，击中正在案货驳上工作的一个装卸工人而致死亡。THIS IS TO CERTIFY that at the request of the Xin Hua Stevedoring Co., the undersigned surveyor did attend on board the M.V. “XXXX” in Shanghai Harbor on May 31, (year) and subsequently for the purpose of carrying out an occasional survey to the casualty about which the ship’s aft port side garbage bin fell down onto the cargo barge lying alongside the ship for loading bagged urea, hit and killed a stevedore working thereon.

据新华装卸公司代表告称当货驳旁靠在“XXXX”轮垃圾箱左侧装袋装尿素时，于某年 3 月 31 日 1130 时，设在该轮尾楼甲板左舷近船尾栏杆处的一只钢质垃圾箱突然坠落，击中正在案货驳上工作的一个装卸工人而致死亡。It was stated by the Representative of the Xin Hua Stevedoring Co. that while the cargo barge lying alongside the port side of the garbage of the M.V. “XXXX” for loading bagged urea from wharf, at 1130 hrs on May 31, (year), a steel garbage bin fitted at the aft port side railing on the poop deck suddenly fell down, hit and killed a stevedore working on the cargo barge.

事故发生后经检验查明

UPON THE SURVEY FOUND AFTER THE CASUALTY OCCURRED

在货驳和新华码头上：On the cargo barge and the Xin Hua Wharf,

1. 该垃圾箱的外形尺寸在上口处为 988mmx0.65mx1.05m 。钢板厚 6mm，垃圾箱和垃圾箱内垃圾总重 250kg 。The contour dimension at the upper opening of the said garbage bin was measured to be 988mmx0.65mx1.05m (LxBxH), the thickness of the steel plate to be 6mm and the total weight of the said bin and the garbage therein was about 250kg.  
该垃圾箱底中央设有与尾楼甲板系固装置，箱底释放装置处的钢板严重烂穿、折裂并与系固装置脱离。The eye plate of the releasing device was fitted at the center of the bottom of the garbage bin for connecting with the ship's poop deck, and the bottom steel plate where the eye plate was fitted was seriously corroded through, and fractured about 11cmx8cm in area and detached with the eye plate of the releasing device.
2. 该垃圾箱前后旋转轴经测量直径各为 28mm，长分别为 42mm 和 48mm。垃圾箱后端壁旋转轴处经测量凹陷 8mm。The fore & aft turning axles of the said garbage bin were measured to be 28mm in diameter each and 42mm & 48mm in length respectively. The aft end wall of the garbage bin at the turning axle was measured to be 8mm in indentation.
3. 该垃圾箱在前后转轴处的总长度为(988mm+42mm+48mm)-8mm=1070mm。  
The total length of the said garbage bin with the axles at the fore & aft turning axle line was (988mm+42mm+48mm)-8mm=1070mm.
4. 垃圾箱的重心在旋转轴的外侧。The volumetric center of the garbage bin was designed to be at the outboard side of the turning axle.

在“XXXX”轮上 On the M.V. “XXXX”，

5. 左舷垃圾箱转轴的悬挂搁架的自由跨距测量为 1050mm 。其前后上端叉口明显地向外膨胀。The free span between the hanging holders for the turning axles of the port side garbage bin was measured to be 1050mm. The forks at the top of the fore & aft hanging holders were found obviously expanded outwardly.
6. 后方搁架上端叉口上方的止动块的外侧系固螺栓的尾端连同螺帽被剪掉。The end of the outboard bolt with nut on the securing pad above the fork at the top of the aft holder was found sheared off.
7. 固定垃圾箱位置所用的释放装置情况正常。The releasing device for the garbage bin remaining on the poop deck was found in normal condition.
8. 垃圾箱外部及其前后栏杆未发现被货物及起货钢索擦碰的任何痕迹。The outside surfaces of the garbage bin and the adjacent fore & aft rails were found without any signs of being scratched by cargo or cargo runner.

#### 事故原因 CAUSE OF THE CASUALTY

倾倒该垃圾箱的原理是利用垃圾及垃圾箱的重心在悬挂转轴线的外侧，当箱底的释放装置的横肖拔出后，垃圾箱因静力矩向外侧倾倒垃圾。The garbage bin is designed to throw off garbage on the principle of the gravity centre of the garbage bin

and the garbage therein transversely locating at the outboard side of the hanging turning axles, i.e. after the pin of the releasing device on the bottom plate of the garbage bin is removed, the garbage bin will turn outboardly upside down due to its static moment and garbage therein will be thrown off.

事故发生前，垃圾箱内已经积存相当数量垃圾，其重量全部承受在渐将烂穿的固定箱底释放装置的眼板处。Before the casualty occurred, a considerable quantity of garbage had been collected in the garbage bin and such quantity of garbage bore on the gradually corroded through bottom plate of the bin, which was fractured and broken finally in way of the eye plate of the releasing device.

当眼板处箱底碎裂后，垃圾箱及其垃圾因其静力距自由地向外侧很快倾倒，同时箱的某一侧壁（很可能是前端侧壁）紧贴搁架，那么转轴的长度小于 1050 毫米，后端轴先逃出顶部叉口并剪掉螺栓尾端螺帽，然后垃圾箱自由坠落。所以，前后悬挂搁架的顶端叉口有明显向外膨胀现象。When the bottom plate at the eye plate was fractured and detached, the garbage bin with the garbage therein freely and quickly turned outboardly due to its static moment and meanwhile one side wall (most probably fore side wall) of the garbage bin touched closely on the holder, and so the actual length of the turning axle line in the free span was less than 1050mm, the aft end turning axle escaped from the fork and sheared the outboard bolt with nut, and consequently, the garbage bin freely fell down onto the cargo barge alongside and killed a stevedore working thereon. That was why the forks at the top of the fore & aft hanging holders were found obviously expanded outwardly.

## 码头损坏 Wharf Damage

该轮靠泊上海港张华滨装卸公司的张华滨码头第 5 泊位时，因潮流影响，其右舷船艏部与码头发生碰撞。While the ship being maneuvered to berth the No.5 Berth of Zhanghuabang Wharf of Shanghai Harbor Zhanghuabang Stevedoring Corp., owing to the strong ride current, her std side bow struck the said wharf and thus the wharf was damaged.

### 损坏情况 CONDITION OF DAMAGE

检验查明 Found:

修理要求 Recommended:

在码头编号 3030-3080 范围内(长约 15 米)排架前沿构件进行了水上、水下检查

The front structural members of the berth bents within the range of marks 3030-3080 (about 15m in length) of the wharf were inspected (including underwater part).

1. 第六排架前沿桩在离泥面有三条环向裂缝，该桩向岸倾斜 One front hollow pile of No.6 berth bent, at about 30cm

- 在该损坏桩附近打设二根予应力钢筋混凝土 400#方桩，尺寸为  
2 pre-stressed 400# reinforced

- upwards from the river mud, circumferentially cracked about 1-2mm in width at three places and the pile inclined shorewards.
2. 第 6 排架靠船构件在水平梁处粉碎性破裂并移位。The berthing beam of No.6 berth bent at the horizontal beam fractured and dislocated. concrete piles, 3700cmx50cm x50cm in size each, to be piled near by the damaged pile for strengthening. 损坏的靠船构件拆除，安装浇注 300# 混凝土靠船构件 The damaged berthing beam to be removed and then refitted with a pre-made 300# reinforced concrete berthing beam.
  3. 在第 5 和第 6 排架间的外边梁底部混凝土掉失，钢筋外露弯曲。The concrete at the bottom of the outward beam bet. No.5 & No.6 berth bents fractured and detached, the inside steel bones exposed. 浇注 300#钢筋混凝土约 7.2 立方米 To be mended with 300# reinforced concrete about 7.2m<sup>3</sup>
  4. 第 5 和第 6 排架间的钢筋混凝土水平梁丢失江中；第 6 和第 7 排架间钢筋混凝土水平梁两端的混凝土断裂损坏并位移。The horizontal reinforced concrete beam bet. No.5 & No.6 berth bents fell down into the river; the concrete at both ends of the horizontal reinforced concrete beam bet. No.6 & No.7 berth bents fractured and dislocated. 损坏的水平梁拆除，并换新 300# 钢筋混凝土水平梁。The damaged horizontal beam to be removed and then to be renewed with 300# reinforced concrete one.
  5. 码头 D 型橡胶护舷丢失及损坏共 17 根。The type-D rubber fenders, 17 pcs in total, lost or damaged. 换新 D 型橡胶护舷 1.5mx0.3mx17 pcs。To be refitted with new fenders 1.5mx0.3m x 17 pcs.
  6. 钢筋混凝土护轮坎损坏长约 15m。The reinforced concrete curb damaged about 15m in length. 破损护轮坎拆除，浇注护轮坎 15m。To be chipped & removed, then, to be re-cemented about 15m in length.

#### 损坏原因 CAUSE OF DAMAGE

上述损坏可合理地归咎于所述的事故。The above-mentioned damage found could be reasonably attributed to the casualty as stated.

#### ESTIMATION OF PERMANENT REPAIR

永久性修理估计费用为人民币 601,6000.00 元。(包括拆除损坏部位的费用) 修理时间约二个月。The estimated cost of permanent repair is to be in sum of RMB 601,6000.00 Yuan (including the cost of removal for the damaged parts). The duration of repair is about 2 months.

## 钻井平台远洋拖航 Ocean Towage of Drilling Platform

自升式钻井平台 Jack-up drilling platform

拖轮系柱拉力 Stationary pull (tugboat)

平台钻井架高度 Drilling derrick height (platform)

### 检验查明

#### Upon the survey found:

1. 该平台和拖轮配备了必需的船舶证书和足够的船员。The platform and tugboat were provided with necessary ship's certificates and enough qualified crew members onboard.
2. 该平台的桩腿、钻井架、海水塔、钻杆、吊机、防喷器以及甲板活动零部件均已固定好。The platform's legs, drilling derrick, sea water tower, drilling rods, cranes, blow-out preventer and loose gear on decks were fixed with satisfaction.
3. 该平台的甲板开口连同关闭装置及其它必要的水密措施经检验,发现正常。The openings in deck together with closing appliances and other necessary watertight measures to the platform were inspected with satisfaction.
4. 该平台和拖轮航行信号发射装置经检验,发现正常。The means of making navigation signals of the platform and tugboat were inspected with satisfaction.
5. 该平台的救生设备,消防设备和救助设备经检验,发现正常。The life-saving appliances, fire-fighting equipment and salvage means of the platform were inspected with satisfaction.
6. 该平台和拖轮的拖航设备经检验,发现正常。The towing fittings of the platform and tugboat were inspected and found in order.
7. 在此次拖航中配备了两套平台和拖轮间的通讯设备。There were two sets of means of communication between the platform and the tugboat during this towage.
8. 有关该平台移位的拖航计划已进行了审查和认可。The towage plan for the transit of location of the platform was examined and approved.
9. 除了装有燃油、淡水或压载水的舱外,其它压载舱、钻井水舱、空舱、泥舱均已清空,并经检验,发现正常。Except the tanks which were loaded with fuel oil, fresh water and ballast water respectively, the other ballast tanks, drilling water tanks, cofferdams and mud tanks were emptied, and inspected and found in order.
10. 有关该平台移位期间的装载、吃水和稳性资料已进行了审查,发现正常。The documents for towage loading, draft and stability of the platform during the transit of the location were examined and found in order.

在拖航条件下,该平台的排水量为:

Under towage conditions, the displacement of the platform:

吃水为: 前 , 后

the drafts : forward , aft ,

倾斜角度为:

list at angle:

查阅了在拖航条件下该平台的重心高度计算书，实际 KG= Upon examining the calculation to the height of gravity of the platform under towage conditions, the actual KG =

拖航中该平台的允许重心高度为 The allowable height of gravity of the platform during towage was

实际 KG<允许 KG，因此，拖航稳性符合规定。Actual KG < Allowable KG, therefore, the towage stability was in compliance with the requirement.

#### 拖航中观察项目

Items observed during towage:

1. 航行中拖轮的船长应对拖航计划进行观测。The master of the tugboat should observe the towage plan during navigation.
2. 考虑到平台的结构、桩脚等，拖航速度不宜超过每小时六海里。Considering the construction, legs, etc. of the platform, the towage speed is unfit to be over than 6 mile/hr.
3. 如风速大于 20 节，海浪高于 2 米，拖轮应减速航行。If the wind speed > 20 knots and the wave height > 2m, the tugboat should sail with the speed reduced.
4. 拖航中，应加强值班，并应定期对平台的水密关闭装置、拖航设备、桩脚固定设备进行检查。During towage, the duty on watch should be paid more attention, the watertight closing means, towing fittings and means for fixing legs of the platform should be examined at regular intervals.

该平台 and 拖轮已进行了拖航检验，发现正常。同意该拖轮单程一水将该平台从中国长江口台南山锚地拖至日本大阪。

The platform and the tugboat were subject to a towage survey and found in order, the tugboat is granted to tow the platform from Tainanshan Anchorage of Changjiang Entrance, China to Osaka, Japan for a single voyage.