



Report on the Investigation of the Collision  
Between M/V “Han Jin Gothenburg”  
and M/V “Chang Tong”



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OF PEOPLE’S REPUBLIC OF CHINA

27 December 2007

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# **Glossary of Abbreviations and Acronyms**

AIS - Automatic Identification System

COLREG - International Regulations for Prevention Collisions at Sea

GPS - Global Positioning System

IMO - International Maritime Organization

SOLAS - Safety of Life at Sea Convention

VHF - Very High Frequency

STCW- International Convention on Standards of Training, Certification and

Watch-keeping for Seafarers

## **1. Summary**

At 1940 hours LT September 15 2007, the Panama flag vessel M/V CHANGTONG , sailing from South Korea bound for Qinhuangdao China, collided with the Germany flag container vessel M/V “HANJIN GOTHENBURG”(shorten H below) sailing from Tianjin China bound for South Korea at 38° 18' .8N 121° 29' E. The collision caused the sinking of M/V CHANG TONG.

### **1.1 Prophase investigation**

After the casualty, an investigation team came into existence by SDMSA of P. R. C. and took charge the investigation work.

In order to get the relevant data at early time, on 16 September, the investigation team arrived at the scene by helicopter which belongs to The First Flying Rescue Team of North Sea of MOC. Investigators came on board “H ” and C respectively, got the statement material from masters and duty crewmembers, collected relevant recorded data on bridge. On 17 September, the crewmembers on C were transferred to rescue tug,

investigation team inquired the crewmembers from *C*. After that, they carried out several complementary interviews on the key crewmembers and key problems as the requirements of investigation. On 23 September, the investigators took a complementary investigation on the master and duty officer of *H*.

The investigators also interviewed the company's management of Qingdao Datong shipping Co. Ltd.

## **1.2 combined investigation**

Under the resolution of IMO A.849 (20), Maritime Safety Administration of P.R. China (CHINA MSA) notified the maritime authorities which concerned vessels registered to about the casualty conditions after the casualty. The in charge authorities of PANAMA clearly state that they will give up this combined investigation, GERMAN Authorities state that they will participate in this combined investigation. Under the higher-up instruction, SDMSA as the delegate of CHINA MSA carried out the combined investigation work together with investigation members dispatched by GERMAN BSU.

Two investigators which dispatched by GERMAN BSU

arrived at YANTAI on 22 September, both sides ascertained combined investigation tenet on the casualty investigation harmonize meeting on 24 September, China-Germany combined investigation started all round. On 25-26 September, investigators from GERMANY came on board *H*, they heard the master and duty officer's statement, complementary collected relevant recorded data on bridge, testimony of witness and other relevant information.

### **1.3 Subscription of combined memo**

China-Germany combined investigation team worked out from vindicating CHINA-GERMANY good relationship, promoting the consanguineous cooperation and carried out combined investigation impersonal, fair, justly and got consummation based on trust and cooperation one another.

On 27-28 September, the combined investigation team held a meeting, they communicated investigating conditions one another, exchanged investigating material, deeply discussed the reason, defect of both vessels and responsibilities, they exchanged the opinion about the reason of casualty, they came to a

agreement for key factor such as time, location, collision situation, collision angle and defect activity etc. and formed combined investigation conclusion. They subscribed the CHINA-GERMANY combined investigation memo at QINDAO on 29 September.

## **2 Ship's particulars**

### **2.1 Vessel *H***

Ship's name: HANJIN GOTHENBURG

Nationality: GERMANY

Port of registry: HAMBURG

IMO Number: 9235103

Signal Letters: DAXJ

Type of vessel: Container vessel

L. O. A: 274.67m

Breadth: 40.12m

Moulded Depth: 20.16m

Gross Tonnage: 65131

Net Tonnage: 34078

Dead Weight: 88113MT

Main Engine power: 57100kw

Trading permit: A1+A2+A3

Year and Place Built: 2002, ULSAN, KOREA, HYUNDAI HEAVY  
IND. CO. LTD.

Date of Delivery: September 2002

Ship' owner: CONTI GOTHENBURG (M. I. ) SHIPPING LTD.

Ship' operator: NSB NIEDERELBE CHIFFAHRITSGESELLSCHAFT  
MBH & Co. KG

The vessel carried container 1672TEU sailed from  
TIANJIN XINGANG and bound for KWANGYANG.

All ship's current legal certificates and  
documents are complete and valid.

The manning numbers of crew were 22, it accorded  
with the requirement of minimum safe manning  
certificate, and the eligibility certificates of  
crewmembers are all valid.

## **2.2 vessel C**

Ship's Name: CHANG TONG

Nationality: PANAMA

Port of registry: PANAMA

IMO Number: 7709320

Signal Letters: H9KD

Type of vessel: Bulk carrier

L. O. A: 182.3m

Moulded Breadth: 26.0m

Moulded Depth: 15.7m

Gross Tonnage: 20700

Net Tonnage: 12583

Dead Weight: 36303MT

Main Engine power: 8496kw

Trading Area: A1+A2+A3

Year and Place built: 1977 JAPAN

Ship' owner: SHUNTONG SHIPPING S. A. C/O OFFICE A. SF.

ETON BLDG 288 DES VOUX ROAD CENTRAL. HONGKONG.

Ship's operator: DATONG SHIPPING S. A.

Ship's manager: Qingdao datong shipping co.ltd

All ship's legal certificates and documents are valid. The manning of vessel were 26 crewmembers, it accorded with the requirement of minimum safe manning certificate, the PANAMA eligibility certificate of crewmembers are all valid.

### **3. Weather and sea condition**

Weather and sea condition on the scene: wind: westerly 3-4/BF scale, sea: slight, visibility: 6-8 nautical miles.

## **4.Narrative**

The process narrative below are based on the statement of the duty members and AIS recorded information, the time in this report is BEIJING Time unless additional explanation, the time, ship's position and course are all from AIS recorded data.

### **4.1 Vessel *H***

At 1042 hrs On 15 September 2007, *H* carried 1672TEU (Total 28786MT) sailed from TIANJIN XINGANG and bound for KWANGYANG, the departure draft being 11.9m fore and aft. At 1600 hrs, ship's position 38° 45' .0N, 119° 42' .0E, course about 102°. The chief officer took over the watch, no other sailors were arranged to assist looking out. There were 2 ARPA RADARS working on bridge and set at 6 and 12 nautical miles separately, both VHF were kept listening on channel 16, navigation lights had been switched on.

At around 1910 hrs, position 38° 23.0' N, 121° 16.7' E, course 122°, speed 26.1kts, chief officer on duty saw the fishing vessel's lights along its starboard bow and the lights seen were getting more.

At around 1927hrs, position  $38^{\circ} 19.5'$  N,  $121^{\circ} 24.4'$  E, course  $117^{\circ}$  , speed 26.2kts.

At around 1930 hrs, position  $38^{\circ} 18.9'$  N,  $121^{\circ} 25.9'$  E, course  $116^{\circ}$  , speed 25.9kts, chief officer determined to alter course to port side after checking relevant charts , he want to leave the fishing boat which on her starboard bow to her starboard and passed.

At around 1932 hrs, chief officer adjusted the course to  $090^{\circ}$  and kept the speed. Chief Officer saw all the targets displayed on her starboard side.

After that ( about 10 more second before collision ) ,chief officer suddenly saw the accommodation lights from other ship (vessel C) on the direction of her head.

At around 1935hrs, position  $38^{\circ} 18.7'$  N,  $121^{\circ} 29.3'$  E, course  $091^{\circ}$  , speed 25.8kts, collision happened between vessel H and C with the ship's head of H collided the cargo hold 4-5 on port side of vessel C and collision angle is about  $40^{\circ}$  , the ship's head firmly inserted the body of vessel C and maintained firm occlude condition, H stopped her main engine urgently, kept inserting condition, pushed C moving forward, ship's speed decreased continuously, finally, they

were floating with the wind.



#### **4.2 vessel C**

At around 2000 hrs on 12 September 2007, *C* with no cargo on board sailed from South Korea for QINHUANGDAO harbor, departure draft were 3.5m fore and 6.5m aft.

At around 1535 hrs on 15 September, position  $37^{\circ} 48.0' N$ ,  $122^{\circ} 23.5' E$ , course about  $305^{\circ}$ , speed about 12.4 kts. Chief officer and duty sailor took over the watch on bridge. There are two RADARS on bridge, one with APRA and was on, 3' and 6' range scale were used alternatively. Two VHF sets were kept listening with one on channel 08 and the other on channel 16. Navigation lights displayed normally.

At around 1927 hrs, position  $38^{\circ} 17.7' N$ ,  $121^{\circ} 30.6'$  E, course  $297^{\circ}$ , speed 12.6 kts. Chief officer saw a red side light on her port bow about  $15^{\circ} - 20^{\circ}$  from head by eyesight, then he checked on radar that the speed of coming ship was faster with the course in opposition and the echo trails of both vessel were almost parallel. The distance of two vessels was 4.9 nautical miles at the moment. Chief Officer judged that he can safely pass with the side light red to red.

At around 1930 hrs, position  $38^{\circ} 18.0' N$ ,  $121^{\circ} 30.0'$  E, course  $306^{\circ}$ , speed 12.5 kts, chief Officer altered her course  $5^{\circ}$  to starboard and kept her speed to avoid the fishing boat on her port bow. Then he observed the side light of coming vessel changed to red-green from red and then to green, the distance of two vessels decreased to 2.1 nautical mile.

At around 1933hrs, after checking AIS, he knew the name of the approaching vessel, he called through VHF16: "HANJIN, HARD PORT", after twice calling and with no response, chief officer gave the rudder order "hard starboard" immediately to avoid the approaching vessel.

At around 1935hrs, position  $38^{\circ} 18.7' N$ ,  $121^{\circ} 29.4'$

' E, course 077° , collision happened between H and C . the ship's head of H collided the cargo hold 4-5 on port side of vessel C and inserted in with a collision angle of 40° ,after that, the both vessel were in firmly occlude condition. C stopped her engine and kept inserting condition with H. C was pushed by H and moving forward, speed decreased continuously, finally, they were floating with the wind.

### **4.3 Evidence checking and ratify**

According to AIS record data and relevant information record of both vessels, referring the statement of duty persons and scene survey report, the key factor of this collision casualty checked and ratified as follows:

#### **4.3.1 Collision time.**

According to AIS track, at 19: 34: 54, the position of both vessel were almost superposition, Due to the distance displayed on AIS is the distance between two point(two vessel's antenna positions ), considering the two vessel's dimensions and the speed of C increased from 9.1kts to 19.1kts suddenly, there was a reason to

believe that this result was caused by H pushing C after collision, the time was same with the collision time recorded by H . Therefore we determined that the collision time should be at 1935hrs on 15 September 2007.

#### **4.3.2 Collision position.**

The position recorded in log book of H was 38° 18.8 ' N, 121° 30.9' E, the position in <collision report at sea> submitted by H was 38° 18.8' N, 121° 29.7' E; the position in log book recorded by C and in <collision report at sea> submitted by C was same as 38° 18.8' N, 121° 31.5' E, the lat. of three positions above mentioned was same but long different. Vessel's track displayed on AIS showed that the three position above mentioned were all superposition with the movement track produced by H pushing C after collision, so the three position above mentioned were the position records after collision but not actual collision position. Considering all round the collision time and position data on AIS, the collision position determined in this report is 38 ° 18.7' N, 121° 29.3' E.

#### **4.3.3 Situation of Involving Risk of Collision.**

According to investigation, there were 10 minutes

difference compared the time stated by crew from C with other related recorded time, the ultimate reason was unknown. Considering all round the related records data and other related evidence materials, the time that crew from C saw H at first time should be at 1927hrs. The distance between two vessels was 4.9' , the position of C 38° 17.7' N, 121° 30.6' E, course 297° , speed 12.6kts; the position of H 38° 19.5' N, 121° 24.4' E, course 117° , speed 26.2kts at that time , the situation between two vessels was head-on situation.

#### **4.3.4 Action to avoid a collision.**

##### 1 ) Vessel C

At around 1930 hrs, C altered her course 5° to starboard to avoid fishing vessel, then chief officer from C gave a immediate order “stop engine, hard starboard” to avoid the approaching vessel after observing side lights of H changed from red to red-green and then to green. According to AIS record, the speed of C started to decrease, course changed from 311° to 322° at that time, so determined that the time of action to avoid the collision -stop engine, hard starboard taken by C was at 1933hrs.

##### 2 ) Vessel H

According to the statement of chief officer from

H: before 10 more seconds of collision, he did not observed vessel C at all times and didn't took any actions against C to avoid collision until the collision occurred.

#### 2.4.5 Collision angle.

According to moving track displayed on AIS and external fact of occluded condition one another after collision, combining the statement of crew concerned, we determined that H collided C abaft her beam with a angle of  $40^{\circ}$  .



## **5. Consequence**

### **5.1 Vessel C**

According to scene survey, the ship hull, upper side tank, lower side tank on port side at hold No.4, 5 cargo hold of C were collided to damage; oil tank under cargo hold No. 5 damaged to broken, bulkhead plate between hold No.3,4 was deformed and split; hold No. 2, 3, 4, 5 was all flooded; main mast and platform of No.3 crane was completely damaged; No.5 crane distorted.

### **5.2 Vessel H**

There was a crack at starboard side of fore peak tank of H. side plate on both sides of ship's head frictional to distort.

## **6. Analysis**

### **6.1 Cause of casualty**

#### **6.1.1 The direct cause**

According to the relative movement situation of both vessel at 1930hrs: the CPA of both vessel was

about 0.79' before H altered her course to port; the CPA of both vessel was about 0.08' after H altered her course to port; the safety passing distance was obviously not enough for two vessels of length 182m and 274m respectively. H altered her course to port large enough and resulted in both ran into immediate collision danger situation.

At the same time, when H occupied westbound route and stemmed against at high traffic density area, chief officer was the only person on watch on bridge, watchman was severe insufficiency , till the chief officer did neither observed vessel C and nor took any avoiding actions against C before 10 more seconds of collision.

The direct cause resulted in collision were the severe default actions what H had done in maintaining proper look-out, in determining the situation if risk of collision exists, in taking action to avoid collision in ample time, etc.

### **6.1.2 Indirect cause**

When Both vessel sailing in high traffic density area, they didn't maintain proper precaution to safety

hidden trouble which the large number of fishing vessel in vicinity may affect the safe navigating of others and didn't use safe speed, H was proceeding with speed of 25kts more all the time. The risk of collision had been already existed when C saw approaching vessel at first time, duty chief officer didn't pay high attention to it, he didn't take any effective actions to avoid a collision appropriate in the prevailing circumstances and conditions and best aid to avoid collision when he observed the side lights of H changed from red to red and green and to green. So it was the indirect cause resulted in collision that H didn't use safe speed and didn't take such action in an ample time and best aid to avoid collision.

## **7. Conclusions**

It was a casualty by two power driven vessels in good visibility. So it applies to the COLREG 1972: Rule 5 (look out), Rule 6 (safe speed), Rule 7 (risk of collision), Rule 8 (action to avoid a collision), Rule 14 (head-on situation), Rule 34 (maneuvering and warning signals) and <STCW78/95>: Chapter VIII, Section A-VIII/2, Part 3 (Watch Keeping at Sea).

## **7.1 Vessel H**

1) Chief Officer was the only person on duty on bridge; he didn't see C until 10 more seconds before collision. Chief officer didn't maintain proper look out by all available means appropriate in the prevailing circumstances and conditions, he had severely neglected in respect of maintaining proper look out, his action violated the COLREG 1972 Rule 5 and Rule 7 article 1,2,3.

2) Chief officer of H blindly took action of altering course to port with large angle without completely familiarizing the vessel's situation nearby and made correct evaluation to the apparent situation and risk of collision and resulted in close-quarters situation , his actions violated <THE INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA 1972> Rule 14 article 1.

3) Chief Officer didn't use safe speed appropriate to the prevailing circumstances and conditions while proceeding in high traffic density area. His actions violated the COLREG 1972 Rule 6.

4) Master of H did not assure the safe proceeding

by watch arrangement in the light of regulation of ship navigate and watch standard in 《STCW78/95》. When ship proceeded in high traffic density area at night, there was only chief officer on bridge to maintain look out, no sailor was arranged. Look out person was serious insufficient, his action violated regulations of watch standard in 《STCW78/95》.

5) Chief Officer didn't sound maneuvering signals in the light of regulations when altered course to port large enough. His actions violated the COLREG 1972 Rule 34 articles 1 and 2.

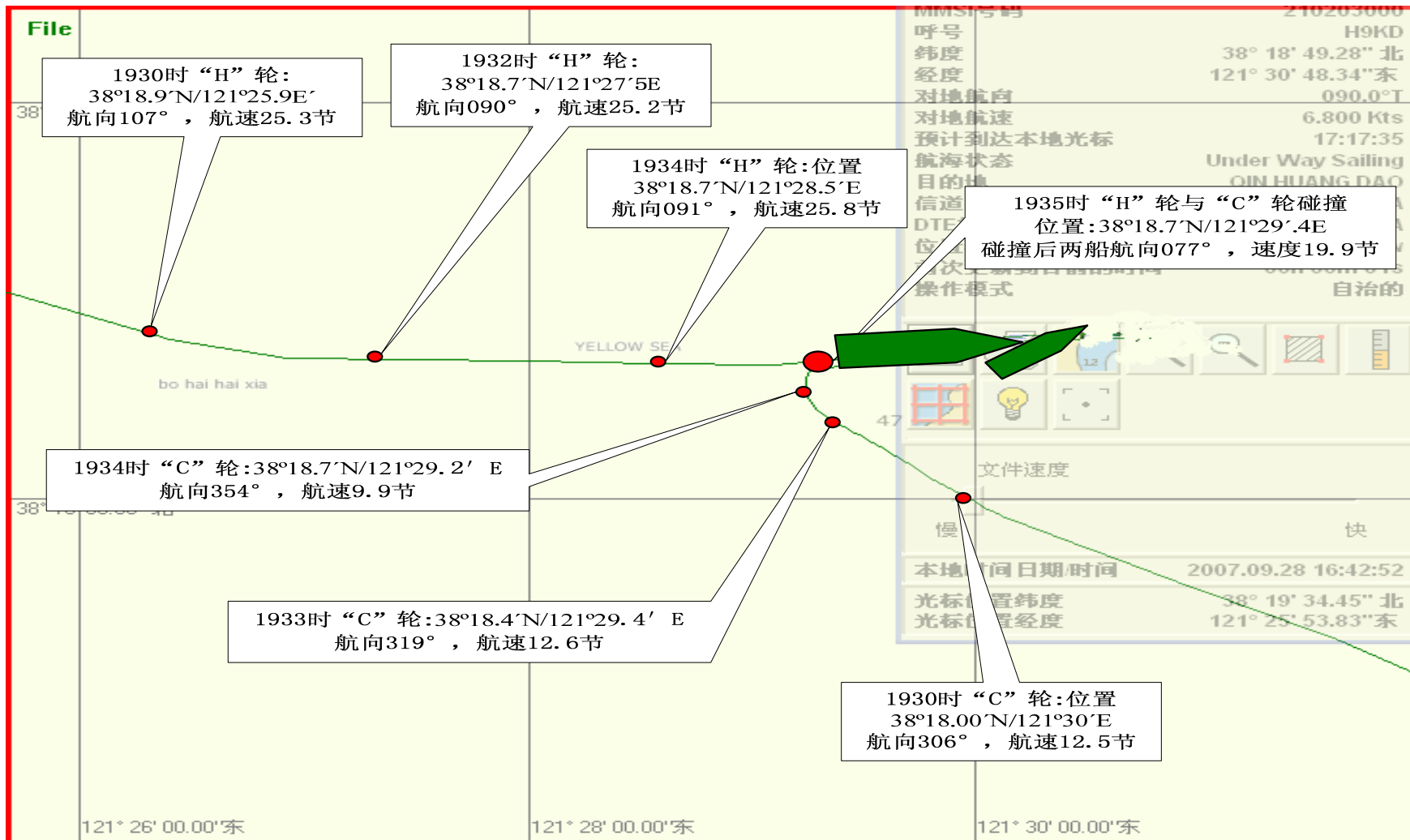
## **7.2 Vessel C**

1) The distance between C and H was 4.9' when C saw H at first time, chief officer didn't make a full appraisal of the situation and positive took action to avoid a collision in ample time and with due regard to the observance of good seamanship. He also didn't take all way off by stopping or reversing means of propulsion when saw the changeable of side lights of H. the above actions violated the COLREG 1972 Rule 7 articles 1 and Rule 8 article 1 and 5.

2) When two power-driven vessels were crossing

one another and chief officer of C doubted the intention or action of H, The chief officer of C didn't sound at least 5 short and quick blasts immediately or flashed at least 5 short and quick flash lights as supplement to show the doubt. This actions violated the COLREG 1972 Rule 34 article

## **8. Appendix Diagram of collision**



“HANJIN GOTHENBURG” 轮与 “CHANG TONG” 轮碰撞态势图