Roles & Responsibilities

Classification Societies

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Why Classification?

- Second Half 18th Century: Marine Insurers required independent technical assessment of ships for Insurance Cover at Lloyd's Coffee House, London!
- 1760: Committee formed for this purpose
- 1764/65/66: Earliest existing *Lloyd's Register Book developed & attempt made to 'Classify' ship condition on Annual Basis*
Class Societies – Purpose and Objective

- Class societies make a unique contribution to maritime safety and regulation through technical support, compliance verification and research and development. More than 90% of the world's cargo carrying tonnage is covered by the classification design, construction and through-life compliance Rules and standards set by the Member Societies of IACS.

- The purpose of a Classification Society is to provide classification and statutory services and assistance to the maritime industry and regulatory bodies as regards maritime safety and pollution prevention, based on the accumulation of maritime knowledge and technology.

- The objective of ship classification is to verify the structural strength and integrity of essential parts of the ship’s hull and its appendages, and the reliability and function of the propulsion and steering systems, power generation and those other features and auxiliary systems which have been built into the ship in order to maintain essential services on board.
Class Societies – Purpose and Objective

- Maritime Safety
- Pollution Prevention
- Regulatory Compliance
- Structural Integrity & Integrity
- Essential Systems:
  - Steering
  - Propulsion
  - Power Generation

90% Cargo carrying tonnage covered by Classification Rules by IACS:
- Design
- Operation
IACS Defining Classification Society & its Role...

- Publishes classification Rules in terms of Design, Construction and Survey
- Capacity to apply, maintain and update
- Verifies compliance during construction and periodically during operation throughout ship's service life
- Publishes a register of Classed Ships
- Independent 3rd party
- Authorised by Flag Administration (SOLAS Ch. XI-1, Regulation 1) & listed IMO database
- Global Integrated Shipping Information System (GISIS)
Class Notations – What does it indicate?

- Main Class symbol
- Construction marks
- Service notation
- Navigational
- Geographic

History of “A1”
- Condition of Hull: A, E, I, O or U
- Equipment: G, M or B
  - Replaced by 1, 2 or 3
- A1 (1st or Highest Class)
**100A1** DOUBLE HULL OIL AND CHEMICAL TANKER TYPE 2, ESP, *IWS, SPM, LI

- **×**: New ships constructed under LR special survey in compliance with the LR Rules
- **100**: Suitable for sea-going service
- **A**: Built or accepted into class in accordance with LR’s Rules and Regulations & maintained in good and efficient condition
- **1**: Good and Efficient condition of anchoring and/or mooring equipment in accordance with the Rules
**LMC, UMS**

- **LMC**: Propelling and essential auxiliary machinery constructed, installed and tested under LR’s Special Survey and in accordance with LR’s Rules and Regulations.

- **UMS**: Ship can be operated with the machinery spaces unattended & control engineering equipment has been arranged, installed and tested in accordance with LR’s Rules, or equivalent.
Conditions for Classification (COC)

- Any damage, defect, breakdown grounding, serious deficiency, detention, arrest or refusal of access…to be reported to Class
- Vessels continue to be classed as long as they are found to be maintained in accordance with the requirements of the Rules for Hull and Machinery
- Ships suitable for the geographical or other limits or conditions of the service contemplated
- Loading conditions and any other preparations required to permit a ship with a Class notation specifying some service limitation to undertake a sea-going voyage (port of build to service area OR one service area to other service area ) to be in accordance with arrangements agreed by Class, prior voyage
- Ships will be properly loaded and handled
- Exceptional loaded or ballast conditions to be submitted for consideration
Conditions for Classification (COC)

- Operation in environmental conditions more severe than those agreed
- Detained by Port State Control
- Applicable Convention Certificates issued by a National Administration, or by an IACS Member.
- SOLAS
- MARPOL
- LOADLINE
- IBC / IGC Code
How do vessel enter Classification?

- Technical review of the design
- Attendance during construction of the vessel
- Attendance at the relevant production facilities that provide key components
- Attendance at sea trials and other trials relating to the vessel
- Upon satisfactory completion, Assignment of class may be approved
- Once in service, periodical class and statutory surveys, carried out on board
Classification – What is covered

- Structural strength and integrity of essential parts of the ship’s hull and its appendages,
- Reliability and function of the propulsion and steering systems,
- Power generation and those other features and auxiliary systems which have been built into the ship in order to maintain essential services on board
Classification – What is not covered

- Design and manufacturing processes;
- Type and power of machinery and certain equipment (e.g. winches);
- Number and qualification of crew or operating personnel;
- Form and cargo carrying capacity of the ship and manoeuvring performance;
- Spare parts;
- Life-saving appliances and maintenance equipment.

Several items covered by consulting unit.
Classification Surveys

- Classification survey a “Visual Examination”:
  - Overall examination of the items identified in the Rules for survey;
  - Detailed checks of selected parts, on a sampling basis;
  - Witnessing tests, measurements and trials where applicable

- Each classed vessel subject to a specified programme of periodic surveys after delivery based on a five-year cycle:
  - Annual survey (Every 12 months, with window of +/- 3 months)
  - Periodical/Intermediate survey (Instead of the 2nd or 3rd Annual survey)
  - Class Renewal / Special survey (every 5 years)

- Rigour of each specified survey increases with the age of the vessel
Findings: Classification Surveys

- Corrosion
- Structural defects or damage to hull
- Structural defects or damage to machinery
- Structural defects or damage to other piece of equipment (Based on Class Rules)

- ‘Recommendation’ and ‘COC’ different terms used by IACS Societies for the same thing
- ‘Memoranda’ or a similar term: Assistance to owners
Assignment, Maintenance, Suspension & Class Withdrawal

- Owner's responsibility to maintain the ship in the period between surveys

- Owner, or its representative, to inform the Society of any events or circumstances that may affect the continued conformance of the ship with the Society’s Rules

- Where the conditions not complied with, class may be suspended, withdrawn or revised to a different notation
Under the auspices of the IMO, International Conventions have been agreed which set out uniform requirements.

Referred to as ‘Statutory’ requirements:

- Ship’s design and its structural integrity in the intact and damaged condition, essential propulsion, steering equipment;
- Pollution control;
- Accident prevention, including navigational aids and pollution and fire prevention;
- Situation after an accident (fire, flooding) including containment & escape.

May be covered by Class Society Rules.

Class Societies carry out “Statutory” surveys on behalf of Administration.
‘PSC’ System of harmonized inspection-procedures designed to target sub-standard vessels

March 1978, grounding of “Amoco Cadiz” off French coast resulted in a massive oil spill

Memorandum of Understanding signed in Paris in 1982 (Paris MOU) which covered:
- Safety of life at sea; Prevention of pollution by v/l; Living & working conditions on board

Current MoU’s:
- Paris MoU (Europe and North Atlantic region); Vina Del Mar (Latin American region);
- Tokyo MOU (Asia-Pacific region); Caribbean MOU (Caribbean region);
- Mediterranean MOU (Mediterranean region); Indian Ocean MOU (Indian Ocean region);
- Abuja MOU (West and Central African region); Black Sea MOU (Black Sea region);
- United States
Port State Control (PSC) MOU

‘PSC’ System of harmonized inspection-procedures designed to target sub-standard vessels

Amoco Cadiz disaster brought about stringent Safety, Environmental Regulations & PSC regime...
Hull Damage and Defects

- Overload
- Inappropriate design
- Poor workmanship
- Wear and tear
  - Corrosion,
  - Fatigue & vibration,
  - Stress concentration
Damage Surveys

OVERLOAD:
- Contact
- Collision
- Allison
- Grounding
- Heavy Weather
Damage Survey

GROUNDING

BRAER - Aground
Damage Survey

COLLISION

Lloyd's Register Marine – Class Societies Roles & Responsibilities
Damage Survey

COLLISION
Damage Survey

COLLISION
Damage Survey

CONTACT
DAMAGE

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Damage Survey

OPERATIONAL
FAILURE &
MISHANDLING
Damage Survey

OPERATIONAL
FAILURE &
MISHANDLING
Damage Survey

FORECASTLE
WITH HEAVY
WEATHER
DAMAGE
Damage Survey

HEAVY WEATHER DAMAGE REPAIRED
Damage Survey – Class Approach

- When does Class Surveyor attend for damage survey?
  - At the request of Owner / Operator / Owner’s agent / Vessel Master

- What ‘time of the day’ the attendance made:
  - At earliest opportunity after receiving request from the Owners
  - Damages relating to ship’s Hull - In daylight hours
What do Class look for...

- Weather conditions at the time of the damage
- Account of the occurrence, if possible from witnesses
- Particulars of voyage, position, course and speed of vessel at time of casualty, dates of sailing and arrival...
- Details of loading, with sketch showing disposition of cargo and/or stores, oil fuel, water ballast
- Draughts forward and aft at departure and arrival
- Ascertain the extent of the damage and compliance Rule Requirements
Assessment and Recommendations:

- Wastage (including buckling, grooving, detachment or fracture)
- Extensive areas of wastage over the allowable limits, affecting the vessel’s structural, watertight or weather tight integrity, is to be promptly and thoroughly repaired
- Damages and partial or temporary repairs considered acceptable by the surveyor for a limited period of time are covered by the issuance of an appropriate recommendation/condition of class.
- Damages or repairs required by the surveyor to be re-examined after a certain period of time are also covered by an appropriate recommendation/condition of class.
Damage Survey – Class Approach

Reports and Certificates issued after Damage Survey:

- Recommendations in form of a ‘Interim Certificate’
- Any ‘Condition of Class’ or ‘Memorandum’ with ‘due by’ date recorded in the ‘Interim Certificate’
- If requested by the Owners or Port State Authorities – a Statement of fact’ can be issued along with the ‘Interim Certificate’.
- Lloyd’s Register do not issue any ‘Seaworthiness Certificate’.
- Classification Societies are not guarantors of safety of life or property at sea or the seaworthiness of a vessel - Why
  - Classification Society has no control over how a vessel is manned, operated and maintained between the periodical surveys