

# T. Surveys and Certificates of Survey

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## T.1 General

This section applies to all vessels operating under the governing authority and are required to be surveyed at set intervals and store evidence of compliance of the survey on the vessel.

## T.2 Survey requirements

### T.2.1 Initial Survey

All new vessels constructed, and all existing vessels being bought into survey are required to undergo an initial survey. The initial survey shall show that the vessel complies with all rules and regulations of AUSCLASS and the relevant governing authority.

The owner of a new vessel being constructed, or an existing vessel being bought into survey shall provide AUSCLASS with an application for initial survey.

The application for initial survey shall include:

- Vessel type and purpose
- Area of operation
- Whether the vessel is intended to be classed and the name of the classification society
- Where the vessel is or is planned to be classed
- Detailed plans of the vessels hull, machinery and equipment, as required
- Any other relevant details that AUSCLASS may request for the vessel
- New vessel builds shall provide relevant information prior to the construction, once the plans have been approved by AUSCLASS commencement of work may begin
- Existing vessels shall provide requested information prior to the date of the initial survey

The initial survey shall be conducted by an accredited AUSCLASS surveyor and provide a detailed report of the condition of the vessel. After the survey is conducted, the surveyor shall make a formal declaration on the condition of the vessel and state any deformities found during the survey.

When a survey is being conducted on glass reinforced plastic (GRP) the survey shall follow in accordance to appendix 3.

### T.2.2 Periodic Surveys and Inspections

All vessels that have been bought under survey, require periodic surveys and inspections to ensure that they continue to comply with the rules and regulations of AUSCLASS. The vessel shall have its equipment surveyed at intervals no more than one year apart. The vessel hull, machinery and fittings shall be surveyed at intervals in an approved survey plan or specified in appendix 2. A vessel may require more frequent surveys due to the vessels age, material used, operational area, type of vessel and other reasons.

An owner may submit a survey program to AUSCLASS for its approval. When constructing such, considerations should be given to following appendix 2 or the periods required by AUSCLASS.

A vessel must follow an approved survey plan of any particulars of the vessel unless granted special considerations to alter, cancel or postpone the survey plan.

It is the owner's responsibility to make an application to AUSCLASS for a periodic survey and provide all required information in advance to the survey date. The owner shall ensure that the vessel will be available for survey at the agreed place and time. AUSCLASS is not responsible if the vessel is not ready for survey at the agreed location and time.

When a survey requires the vessel to be inspected out of the water, the owner shall be responsible to have the vessel out of the water in a suitable position to allow inspection of the hull, rudder, propeller and shaft or any other parts required. The vessel must be washed and cleaned but not painted prior to the inspection.

During the survey, the appointed AUSCLASS surveyor has the authority to request the opening of a part or parts with the inclusion of the removal of linings and permeant ballast where applicable.

After a survey has been conducted, the surveyor shall create a duplicate list of all deficiencies and repairs required that shall be signed by owner and surveyor. This shall be handed to the owner to retain and the survey shall not be completed until all deficiencies and repairs have been amended to the standards and satisfactions of the surveyor.

On completion of the survey or inspection, the surveyor shall submit their declaration and report. This shall include the signatures of the owner and surveyor.

A surveyor, when conducting a survey or inspection shall be accompanied by vessels owner or by another on the behalf of the owner.

T.2.3 Surveys and Inspections other than initial and periodic  
AUSCLASS surveyors and other authorised persons can board any vessel and execute a random or occasional inspection at all reasonable times as part of their duties.

It is the owner's responsibility to disclose any alterations to a vessel that may affect the survey requirements that have taken place between surveys, alterations shall include change of operational area, installation of machinery or structural alterations.

In the case of an accident or damage to the vessel and/or injuring or death of a person onboard the vessel, the owner shall submit an official report to AUSCLASS concerning the incident. The report shall be submitted within 48 hours after the incident if the vessel is in port or within 48 hours after the vessel first arrives at port if the incident occurred whilst the vessel was at sea. The owner shall contact AUSCLASS when any part of the vessel is open for routine maintenance or substantial repairs so that a survey may occur if required.

## T.3 Certificates

### T.3.1 Issue of Certificate

Upon completion of a satisfactory report and declaration from a surveyor, AUSCLASS shall issue a certificate of survey. The certificate shall include:

- Identifying number of the vessel
- Date of keel-laying or similar stage
- Number of passengers
- Number of crew
- Class of vessel
- Limits of operations
- Measured length and/or gross tonnage
- Title of issuing authority
- Signature of authorised surveyor
- Period of validations. Starting and end date
- Statement that the vessel complies with survey requirements

The original certificate of survey shall be issued to the vessel owner

Any vessel under survey is required to carry evidence supporting the vessel complies with the appropriate survey requirements. This evidence may either be the original or a copy of the certificate of survey or if neither of the previous options, it must contain the following details:

- Name of vessel
- Identifying number of the vessel
- Date of keel-laying of similar stage of construction
- Class of vessel
- Measured length and/or gross tonnage
- Maximum no of persons it can carry
- Operational limits
- Issuing authority and signature of issuing surveyor
- Date of expiry

### T.3.2 Renewal or Revalidation of Certificate of Survey

After the completion of any subsequent vessel survey, including the satisfactory completion the cycle of an approved survey program, with the declaration by the surveyor and receipt of report, the vessel shall be issued either:

- A new copy of evidence required to be carried on board, subclause A.3.1
- A statement of revalidation in a suitable form. That the evidence carried on the vessel shall remain valid until the new expiry date indicated subclause A.3.1

### T.3.3 Extension, Suspension or Cancellation

The vessel owner may in writing apply for an extension of survey, which shall be accompanied by the appropriate information and fees as determined by AUSCLASS.

Terms of extension may include:

- If AUSCLASS states that an immediate survey of the vessel is impracticable, unreasonable or requires excessive expense. The extension of re-survey, not exceeding 3 months after the intended survey, may be approved. Extensions shall not be granted if the certificate has expired prior to application of extension.
- AUSCLASS may require that the vessel is inspected, and a report produced on the vessel's condition before granting an extension.
- If an extension is granted, the vessel owner shall be issued a notice of extension.

If by reason of a survey report, AUSCLASS deems a vessel unsatisfactory with the conditions of survey, it may suspend the vessel's certificate of survey, the owner will be advised of the suspension and shall not operate the vessel without the approval of AUSCLASS.

Where a certificate of survey has been cancelled or suspended AUSCLASS may require that the certificate and the evidence of the survey be surrendered.

## T.4 Change of Ownership or Authority

The vessel owner shall be required to inform AUSCLASS for the purpose of co-ordination of survey and organisation when, a vessel has been sold to a new owner, there is an intention to withdraw the vessel from commercial operations, the vessel has moved jurisdiction for a prolonged period of time or any proposed change in operations.

When a vessel transfers from another authority to AUSCLASS the previous certificate of survey shall remain valid until the expiry date. At such time the vessel shall be required to carry an AUSCLASS accredited certificate of survey. The vessel may continue to follow an approved survey program if AUSCLASS deems such program satisfactory.

## T.5 Single Voyage Towing Permit

This shall apply to vessels in tow or being towed during a seagoing voyage but excludes regular towage vessels or towage-assistance of oil exploration structures.

Prior to the voyage, all involved vessels shall be inspected to ensure that they are fit to be towed or to tow as relevant for the proposed voyage. Vessels shall only commence such voyage once AUSCLASS has authorised a permit for towage.

The vessel owner is responsible for applying for a permit to tow allowing the vessel to be towed between two destination points accompanied by the required inspection fees. The application form must include:

- Nature of tow
- Name, official number of vessel and port of register
- Details on any current certificates in relation to the tow
- Point of departure and point of arrival
- Details of towing operations, dates, manning, speed, et al
- Any specific required information by AUSCLASS

The application shall also require the information from the vessel being used to tow:

- Name, official number and port of registry
- Type of vessel
- Details on any current certificates
- Propulsion power and bollard pull
- Any specific required information by AUSCLASS

When the vessel is being inspected to determine whether it is fit to tow, general considerations shall include the vessels hull and structural conditions, the vessels ability to prevent water from entering the hull and adequate means of closing all openings. The stability of the vessel for the intended voyage, the towing arrangements and the compliance with the Collision Regulations Section.

**Appendix I  
SURVEY FORMS**

The following survey forms are examples to assist Authorities in designing their own survey documents:

1. Application for Initial Survey
2. Application for Periodic Survey
3. Certificate of Survey
4. Survey Plate, Revalidation Plate
5. Renewal Permit
6. Application for Extension of Certificate of Survey
7. Extension of Certificate of Survey
8. Notice of Expiry of Certificate of Survey
9. Notice of Suspension/Cancellation
10. Report of Accident or Other Occurrence
11. Application for examination of plans for construction or alteration of a vessel
12. Application for Towage Permit
13. Towage Permit

Form 1

**NAME OF AUTHORITY  
APPLICATION FOR INITIAL SURVEY  
Marine Act**

To:

**PARTICULARS OF VESSEL**

Official use  
Only

Intended Name of Vessel		
Intended Port of Registry		
Measured Length		
Type of Vessel		
Construction of Vessel		
Intended Area(s) of Operation		
Number of Crew		
Number of Passengers		
If vessel is to be classed		
Name of Society		

Name and Address of Owner(s) .....

Nature of Survey Required .....

Place, date and time where vessel will be available for survey .....

Date when Construction commences .....

or

Date of Construction (for existing vessel) .....

.....  
Owner/Agent  
Date / /19

**OFFICIAL USE ONLY**

Date Application Received	Fee Received
Date Survey Commenced	Date Survey Completed
Surveyor's Report Received	Issue of Certificate recommended
Certificate Issued: No.	Licence of Fishing No. of Vessel



**NAME OF AUTHORITY  
APPLICATION FOR INITIAL SURVEY  
Marine Act  
PARTICULARS OF VESSEL**

Name of Vessel .....

Identifying Number of Vessel .....

Registered Number of Vessel .....

Name and Address of Owner(s) .....

Nature of Survey Required .....

Place, Date and Time where vessel  
will be available for survey .....

Any alterations or proposed  
alterations .....

Remarks .....

.....  
Owner/Agent  
Date / /19

**OFFICIAL USE ONLY**

Date Application Received	Fee Received
Date Survey Commenced	Date Survey Completed
Surveyors' reports received	Revalidation recommended
Revalidation issued: No.	Type of revalidation



**NAME OF AUTHORITY  
CERTIFICATE OF SURVEY  
Marine Act**

Name of Vessel \_\_\_\_\_  
 Identifying Number of Vessel \_\_\_\_\_  
 Registered Number of Vessel \_\_\_\_\_  
 Port of Registry \_\_\_\_\_  
 Measured Length \_\_\_\_\_  
 Type of Vessel \_\_\_\_\_  
 Construction of Vessel \_\_\_\_\_  
 If vessel classed, Name of Society \_\_\_\_\_  
 Name and Address of Owners \_\_\_\_\_

Limits of Operation	Class of Vessel	Persons on Board		
		Crew	Passengers	Total

This is to certify that the provisions of the 'Marine Act 19 ' with respect to the survey of the vessel described above, and the making of Declarations thereof have been complied with.

Period of Validity from \_\_\_\_\_ to \_\_\_\_\_

-----  
 Chairman

**SURVEY PLATE CARD OR TRANSFER**

<b>MARINE ACT</b>	
No. _____	Class _____
Meas. L _____	Material _____
Max. No. _____	
Persons Carried _____	
Limits _____	
Secretary _____	

**8**

Number of month  
in which periodic  
surveys fall due

<b>MARINE ACT</b>
REVALIDATION OF SURVEY PLATE 1974

**RENEWAL PERMIT**

NAME OF AUTHORITY NO. XXXXXX  <b>19 8 75</b>
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**NAME OF AUTHORITY  
 CERTIFICATE OF SURVEY  
 RENEWAL NOTICE NO. XXXX**

This is to Certify that Certificate of Survey No. ...., unless suspended or cancelled shall remain valid until .....

Dated at ..... this ..... day of ..... 19 .....

(Signature)

**APPLICATION FOR EXTENSION OF CERTIFICATE OF SURVEY**

To:  
 Name of Vessel ..... Identifying No. of Vessel .....  
 Port of Registry ..... Registered No. of Vessel .....  
 Type of Vessel .....

**Declaration Prior to the Extension of a Certificate**

I/We, the undersigned, hereby declare that the above vessel has not been subject to any accident or other occurrence which would raise any doubt as to the vessel continuing to be seaworthy and properly equipped to operate in the limits prescribed by the Certificate of Survey, and that there is not, to my/our best knowledge, any reason why an extension, as permitted under the Marine Act, should not be granted.

Signed at ..... this ..... day of ....., 19.....

\_\_\_\_\_  
 Master  
 \_\_\_\_\_  
 Owner

**Marine Act  
 EXTENSION OF CERTIFICATE OF SURVEY**

Name of Vessel ..... Identifying No. of Vessel .....  
 Port of Registry ..... Registered No. of Vessel .....  
 Class of Vessel .....

Under Section ..... of the Marine Act, 19..... the currency of this Certificate is extended for a period not exceeding . ..... month(s) from the expiration date of the certificate.

Port ..... Signed .....  
 Date ..... Secretary etc .....

**THIS DOCUMENT IS TO BE ATTACHED TO THE CERTIFICATE OF SURVEY**

**Marine Act**  
**NOTICE OF EXPIRY OF CERTIFICATE OF SURVEY**

Name of Vessel ..... Identifying No. of Vessel .....  
 Port of Registry ..... Registered No. of Vessel .....  
 Class of Vessel .....

Under Section ..... of the Marine Act, 19....., you, ..... owner of the above vessel are hereby reminded that the Certificate of Survey of the vessel expires on .....

If no application for extension of the above Certificate of Survey or no application for survey is received by this Authority before such date, the vessel will be declared 'out of survey' and shall not be taken to sea or remain at sea.

Issued at ..... this ..... day of ....., 19.....

\_\_\_\_\_  
Secretary

**Marine Act**  
**NOTICE OF SUSPENSION \* CANCELLATION**

Name of Vessel ..... Identifying No. of Vessel .....  
 Port of Registry ..... Registered No. of Vessel .....  
 Class of Vessel .....

Under Section ..... of the Marine Act, ....., you, ..... owner of the above vessel are hereby advised that:

- 1.\* the validity of the Certificate of Survey of the vessel is suspended until such time that the vessel is again reported to comply with survey requirements.
- 2.\* The Certificate of Survey of the vessel is cancelled.

Issued at ..... this ..... day of ....., 19.....

\_\_\_\_\_  
Secretary

\* Indicate which term is applicable.

**Marine Act**  
**REPORT OF ACCIDENT OR OTHER OCCURRENCE**

To:

**PARTICULARS OF VESSEL**

Name of Vessel \_\_\_\_\_  
 Identifying No. of Vessel \_\_\_\_\_  
 Registered No. of Vessel \_\_\_\_\_  
 Port of Registry \_\_\_\_\_  
 Measured Length \_\_\_\_\_  
 Type of Vessel \_\_\_\_\_  
 Construction of Vessel \_\_\_\_\_  
 If vessel classed, \_\_\_\_\_  
 Name of Society \_\_\_\_\_  
 Name and Address of Owner(s) \_\_\_\_\_

---

Date of Occurrence \_\_\_\_\_ Place of Occurrence \_\_\_\_\_  
 Number of Persons on Board \_\_\_\_\_ Crew \_\_\_\_\_ Passengers on a Voyage from \_\_\_\_\_ to \_\_\_\_\_  
 Master's Name \_\_\_\_\_  
 Master's Address \_\_\_\_\_

**NATURE AND PARTICULARS OF ACCIDENT OR OTHER OCCURRENCE**

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\_\_\_\_\_  
Master

Date    /    /    19

Form 11

**NAME OF AUTHORITY  
APPLICATION FOR EXAMINATION OF PLANS FOR CONSTRUCTION OR ALTERATION OF A VESSEL**

To: The Secretary

Date: \_\_\_\_\_ 19\_\_\_\_

\*I

\*WE

of \_\_\_\_\_ Post Code: \_\_\_\_\_

hereby submit to the Authority for examination, plans and/or specifications in respect of the

- \* construction
  - \* alteration
- of the undermentioned vessel

Name of Vessel: \_\_\_\_\_

(if any)

Length: \_\_\_\_\_

Type of Construction of Alteration: \_\_\_\_\_

Intended Use: \_\_\_\_\_

Intended Limits of Operation: \_\_\_\_\_

Name of Owner: \_\_\_\_\_

Address of Owner: \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
\*Owner, Agent

\* Strike out whichever is not applicable.

Drawing No.	Title	No. of Copies

APPLICATION FOR TOWAGE PERMIT

To .....

PARTICULARS OF VESSEL TO BE TOWED

Name and Port of Registry .....

Registered or Identifying No. ....

Type of Vessel .....

Name and Address of Owners .....

Details of any Certificates in Force .....

Place, Date and Time where vessel will be available for inspection .....

Date when vessel last slipped .....

PARTICULARS OF TOWING VESSEL

Name and Port of Registry .....

Type of Vessel .....

Name and Address of Owners .....

Details of any Certificates in Force .....

Propulsion power or bollard pull .....

DETAILS OF TOW

Point of Departure, Date and Time .....

Destination .....

Estimated Towing Speed .....

Estimated Date of Arrival .....

Manning .....

Owner

Date

OFFICE USE ONLY

Date Application Received ..... Fee Received .....

Date of Inspection ..... Surveyors Report received .....

Date Towage Permit Issued ..... Conditions .....

Date Tow Departed ..... Date Tow Arrived .....

Form 13

NAME OF AUTHORITY

Marine Act

TOWAGE PERMIT

Name of Vessel and Port of Registry .....

Registered or Identifying Number .....

Type of Vessel .....

Name and Address of Owner/s .....

Details of Certificates in Force .....

This is to certify that the above vessel is permitted to be towed on a sea-going voyage from ..... to ..... by the vessel ....., departing on or about ..... and arriving on or about ..... subject to the following conditions.

Chairman

Date / /19

## T.6 Appendix 2

List of items that shall be subject to survey unless otherwise indicated.

### T.7 Vessels under 35m

#### T.7.1 Annual survey

- Equipment
- Running trial of each main engine and associated gear box
- Operational test of bilge pumps, bilge alarms and bilge valves
- Operational test of all valves in the fire main systems
- Operational tests of all sea injections and overboard discharge valves and cocks
- Operational test of main machinery essential to the safe operation of the vessel
- Running trial of all machinery essential to the safe operation of the vessel
- Inspection of all pipe arrangements
- General examination of machinery installations and electrical installation
- All safety and relief valves associated with the safe operation of the vessel to be set at the required working pressure
- Pressure vessels, and associated mountings used for the generation of steam pressure or the heating of water to a temperature exceeding 99°C
- Inspection of the liquified petroleum gas installation
- Inspection of cargo handling, fishing and trawling gear
- Inspection of escapes from engine room and accommodation spaces
- Inspection of personnel protection arrangements in machinery spaces
- Inspection of casings, superstructures, skylights, hatchways, companionways, bulwarks and guard rails, ventilation and air pipes, together with all closing devices
- Inspection of ground tackle

#### T.7.2 Two yearly survey

- Hull externally and internally except in way of tanks forming part of the structure
- Sea injection and overboard discharge valves and cocks
- Inspection of propellers, rudders and under water fittings
- Pressure vessel and associated mountings of an air pressure/saltwater system having a working pressure of more than 275 kPa

#### T.7.3 Four yearly surveys

- Each screw and tube shafts
- Anchors and cables to range
- Chain locker internally
- Tanks forming part of the hull, other than oil tank, internally
- Void spaces internally
- Pressure vessel and associated mountings of an air pressure/freshwater system having a working pressure of more than 275 kPa
- Cargo handling, fishing and trawling gear
- Insulation tests of all electrical installations above 32V A.C. or D.C.

- T.7.4 Eight yearly survey
- Each rudder stock and rudder stock bearing
  - Steering gear
  - Hull in way of removable ballast
  - Selected sections of internal structure in way of refrigerated space
- T.7.5 Twelve yearly survey
- Fuel oil tanks internally
- T.7.6 Other survey periods
- The survey period for an item not specified in this part shall be that period determined by AUSCLASS

## T.8 Vessels 35m and over

- T.8.1 Annual survey
- Equipment
  - Running trial of each main engine and associated gear box
  - Operational test of bilge pumps, bilge alarms and bilge valves
  - Operational tests of all sea injections and overboard discharge valves and cocks
  - Operational test of main machinery essential to the safe operation of the vessel
  - Running trial of all machinery essential to the safe operation of the vessel
  - Inspection of all pipe arrangements
  - General examination of machinery installations and electrical installation
  - All safety and relief valves associated with the safe operation of the vessel to be set at the required working pressure
  - Pressure vessels, and associated mountings used for the generation of steam pressure or the heating of water to a temperature exceeding 99°C
  - Inspection of the liquified petroleum gas installation
  - Inspection of cargo handling, fishing and trawling gear
  - Inspection of escapes from engine room and accommodation spaces
  - Inspection of personnel protection arrangements in machinery spaces
  - Inspection of casings, superstructures, skylights, hatchways, companionways, bulwarks and guard rails, ventilation and air pipes, together with all closing devices
  - A boiler and its mountings where the boiler has been in service for more than eight years (not being a pressure vessel)
  - An evaporator and its mounting which has been in service for more than eight years, and in which the operating pressure is above atmospheric



#### T.8.2 Two yearly survey

- Hull externally and internally except in way of tanks forming part of the structure
- Sea cocks and valves, bilge injection valves and overboard discharge valve, of ferrous construction
- Inspection of propellers, rudders and under water fittings
- Operational test of bilge pumps, bilge valve and bilge alarms
- Pressure vessel and associate's mountings of an air pressure/saltwater system having a working pressure of more than 275 kPa
- A boiler and its mountings if the boiler has been in service for less than eight years (not being a pressure vessel referred to as above)
- An evaporator and its mountings, which has been in service for less than eight year, and in which the operating pressure is above atmospheric

#### T.8.3 Four yearly surveys

- Sea cocks and valves, bilge injection valves and overboard discharge valves, of non-ferrous construction.
- Bilge pumps
- Independent pumps used for pumping sea water, fresh water, fuel oil, condensate and boiler feed
- Air receivers and mountings, selected sections of air piping and explosion protection devices
- Main propulsion intermediate shafting
- Evaporators and mountings in which the operating pressure is at or below atmospheric pressure
- Anchors and cables and all links and joining shackles
- Windlass
- Condenser, lubrication oil coolers, jacket water coolers, drain coolers, distillers and air ejectors
- Boiler feed water heaters
- Oil fuel heaters
- Gearboxes to such extent necessary to ensure satisfactory condition
- Screw and tube shafts
- Internal combustion engine auxiliary generators other than emergency generator
- Turbogenerators
- Main engine, steam turbines
- Main engine, internal combustion engines
- Selected length of steel steam pipes having bolted joints and carrying steam at a temperature exceeding 455°C. also hydraulic test of those lengths
- Steel pipes having welded joints carrying steam at a temperature exceeding 455°C. Also, hydraulic test of those lengths
- Pressure vessel and associated mountings off an air pressure/freshwater system having a working pressure of more than 275 kPa
- After the twelfth year in service all solid drawn copper steam pipes having an internal diameter exceeding 75mm are to be annealed and hydraulically tested
- After the twelfth year in service selected lengths of steel steam pipes having an internal diameter exceeding 75mm and carrying steam not exceeding 455°C are to be hydraulically tested

#### T.8.4 Five yearly survey

- Peak tanks internally. Peak tanks are to be tested to a head sufficient to give the maximum pressure that can be experienced in service
- Deep tanks (except those tanks used exclusively for oil fuel) internally. All deep tanks are to be tested to a head sufficient to give the maximum pressure that can be experienced in service. Deep tanks used exclusively for oil fuel need not to be examined internally subject to satisfactory external survey and hydraulic test
- Double bottom tanks (except those tanks used exclusively for oil fuel) internally. All double bottom tanks are to be tested to a head sufficient to give the maximum pressure that can be experienced in service. Double bottom tanks used exclusively for oil fuel need to be examined internally subject to satisfactory external survey and hydraulic test
- Ballast tanks and tanks forming part of the ship's main structure internally. Ballast tanks and tanks forming part of the ships structure are to be hydraulically tested to a head sufficient to give the maximum pressure that can be experienced in service.

#### T.8.5 Six yearly survey

- Independent pumps used solely for pumping lubricating oil (except those pumps used for the supply of oil under pressure to hydraulically operated machinery).

#### T.8.6 Eight yearly survey

- Independent pumps used for the supply of lubricating oil under hydraulically operated machinery
- Electrically operated or hydraulically operated steering gear
- All solid drawn copper steam pipes having an internal diameter exceeding 75mm are to be annealed and hydraulically tested
- Selected lengths of steel steam pipe having an internal diameter exceeding 75mm and carrying steam at a temperature not exceeding 455°C are to be hydraulically tested.

#### T.8.7 Other survey periods

- Emergency generator (generators used normally for emergency purposes) shall be surveyed once in the first 12 years and there after once in every subsequent period of eight years.
- One deep tank that is used exclusively for fuel oil to be surveyed internally every five years starting when the ship is 10 years old and all such deep tanks to be surveyed by the time the ship is 25 years old.
- At least on double bottom tank that is used exclusively for fuel oil to be surveyed internally every 5 years starting when the sip is 10 years old and all such double bottom tanks to be surveyed by the time the ship is 25 years old
- The survey period for an item not specific in this part shall be that period determined by AUSCLASS.

## T.9 Appendix 3, Recommended Procedure for the Survey of FRP Hulls During Manufacture

T.9.1 This procedure shall be read in conjunction with sub-section FIBRE REINFORCED PLASTIC (FRP)

T.9.2 The recommended procedure for the survey of FRP hulls:

- Each vessel shall be inspected at the stage of lay up
- The manufacture of the vessel shall record all masses of all reinforcement and resin used in the lamination of the hull, deck and the superstructure. The quantities shall be recorded in the FRP Construction Survey Report.
- Once the vessel has been removed from the mould a thickness gauge shall be taken at minimum at the centre of each panel and where additional reinforcement has been added, e.g. chine, bottom, keel. The gauge reading shall be recorded in the FRP Construction Survey Report.

T.9.3 The surveyor shall inspect the hull at each stage of fabrication to ensure that:

- The reinforcement has been uniformly impregnated and thoroughly wetted throughout and contains no resin rich areas
- The reinforcement is in intimate contact with the gel coat or preceding plies
- The resin is correctly catalysed
- There are no significant air inclusions
- There is no foreign material in the laminate
- There is no uneven distribution of the reinforcement due to excessive pressure being used while rolling-out
- The appropriate overlap is used at joins between plies of reinforcement

Any deficiency shall be recorded, and action taken to fix deficiency

T.9.4 FRP Construction Survey Report

The vessel builder shall complete this report in duplicate, the builder shall retain one copy and submit the other to AUSCLASS at the completion of laminating. The builder shall notify AUSCLASS when an inspection is required, at the completion of inspection the surveyor shall sign the appropriate section of the construction survey report, and the builder countersign. The next lamination stage may then commence. To determine that the quantity of reinforcement is sufficient, the builder must record the number of coils of roving and the area of woven roving mat used in square metres. The drum of resin may be placed on a weighing machine at commencement and weighed before commencing and after finishing the lamination, these shall be recorded in the report.

#### T.9.5 FRP Hull Thickness Report

This report shall be completed by AUSCLASS in duplicate. One copy shall be provided to the builder and the other retained by AUSCLASS. Any areas of laminate which are less than the required thickness shall be fixed to meet standards.

T.9.6 The glass content and the mass/m<sup>2</sup> reinforcement of the laminate shall be determined using the following equations:

$$\text{Glass content} = \frac{\text{total mass of glass}}{(\text{Total mass of resin} * 0.93) + \text{total mass of glass}}$$

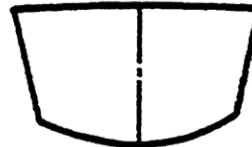
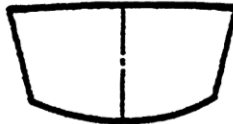
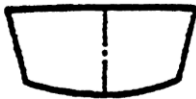
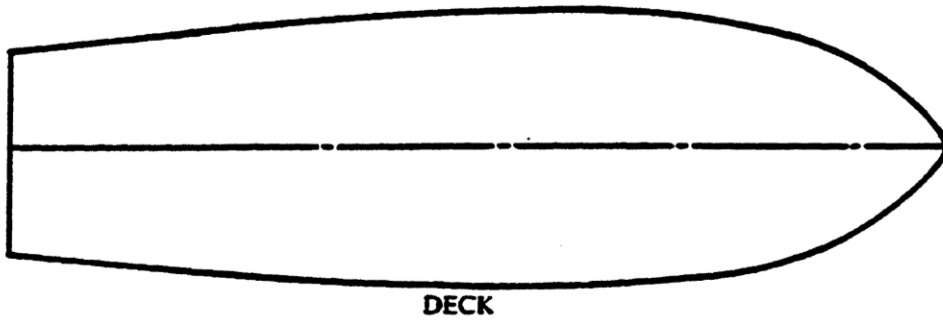
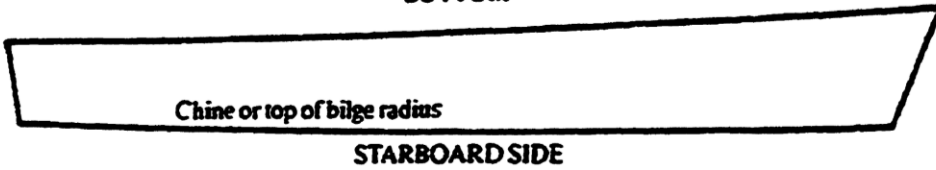
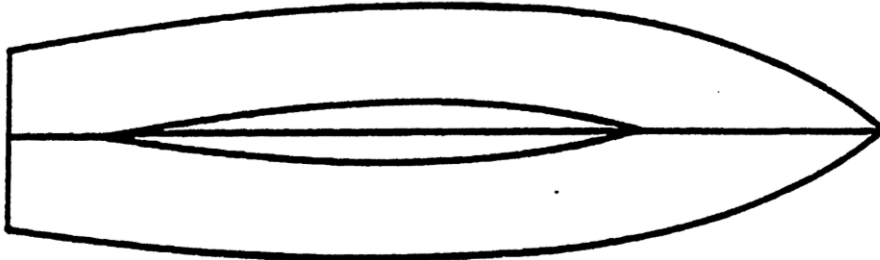
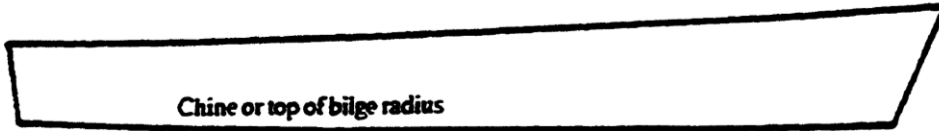
$$\text{Laminate reinforcement} = \frac{3000 * \text{glass content}}{2.55 - (1.35 * \text{glass content})} \text{ g/m}^2$$

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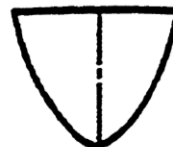
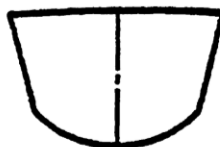
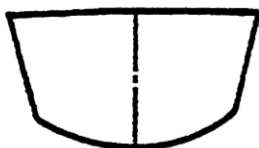
NAME OF VESSEL				
OWNER				
BUILDER				
HULL LAY-UP	BOTTOM			
	SIDE			
	DECK			
	SUPERSTRUCTURE			
FRAME LAY-UP	WEB FRAMES		LONGITUDINAL FRAMES/GIRDERS	
	BOTTOM	SIDE	BOTTOM	SIDE
HEIGHT (mm)				
FACE AREA (mm)				
WEB THICKNESS (mm)				
MATERIALS	TYPE	MANUFACTURER	WEIGHT USED (kg)	
			HULL	DECK AND S/STRUCTURE
GELCOAT				
RESIN				
CS MAT				
WOVEN ROVINGS				
CHOPPED ROVINGS				

**INSPECTION OF HULL DECK SUPERSTRUCTURE LAY-UP**

ON COMPLETION OF:	DATE	TEMP(°C)	HUMID(%)	SATIS-FACTORY	SURVEYOR	BUILDER
HULL						
GELCOAT & 1ST CSM/CR						
1ST CR-WR-CR						
2ND CR-WR-CR						
3RD CR-WR-CR						
WEB FRAMES						
LONGITUDINAL FRAMES						
TRANSVERSE FRAMES						
LONGITUDINAL GIRDERS						
DECK						
GELCOAT & 1ST CSM/CR						
1ST CR-WR-CR						
2ND CR-WR-CR						
3RD CR-WR-CR						
DECK GIRDERS						
BEAMS & BEAM SHELF						
SUPERSTRUCTURE						
GELCOAT & 1ST CSM/CR						
1ST CR-WR-CR						
2ND CR-WR-CR						
BEAMS & KNEES						



Location: TRANSOM



TRANSOM BULKHEAD

Approved thicknesses (mm)		
BOTTOM	CHINE BOTTOM	NAME/IDENT. PLAN No. BUILDER OWNER SURVEYOR DATE SIGNED
TOPSIDE		
TRANSOM		
KEEL		
STEM		

## T.10 Appendix 4, Alternative Survey Procedures for FRP Vessels

T.10.1 This procedure shall be read in conjunction with sub-section FIBRE REINFORCED PLASTIC (FRP)

T.10.2 Vessels holding a valid certificate of class

A vessel to holds a valid AUSCLASS certificate of class, may require all approved plans and certificates that the vessel holds to be submitted to AUSCLASS and have the vessel surveyed by AUSCLASS to ensure that the vessel is in compliance.

T.10.3 Vessels originally constructed to class

Where a vessel was originally constructed to class and has held a valid certificate of class that has lapsed, to have the certificate of class reinstated, the owner may follow the procedure set out in 2 of this appendix or alternatively may elect to have the vessel surveyed in accordance with the procedures in 4 of this appendix.

T.10.4 Vessels that have not held a valid certification of class

An owner shall submit plans and specification including details of the lay-up and requirements in sub-section 1 (14.2.2) to AUSCLASS for review. The vessel will undergo sample testing off the hull in accordance with the procedure in part C.5 of this appendix if AUSCLASS determines that the scantlings are of adequate strength and construction. Where the vessel hull is deemed acceptable, AUSCLASS shall survey the vessel to ensure that it complies with the rules.

T.10.5 Samples of laminate for quality assessment

Each laminate sample should be as flat as possible for practical purposes and be able to contain a 260mm by 65mm rectangle, the sample shall be of only basic laminate and not include any gelcoat.

In the case where a vessel is constructed to AUSCLASS approved plans prior to construction and an application for survey has been received by AUSCLASS, but no inspections have been conducted as required by appendix 1. The builder may produce sample laminates that are laid up to the same specifications as the bottom laminate during the same period of the vessels moulding. If a sample laminate is not available, samples shall be from the vessel in accordance to C.5.3. The builder shall provide an affidavit stating that the sample laminate was laid up in accordance with approved plans.

Where a vessel is constructed to plans that were neither submitted nor approved prior to construction by AUSCLASS, the vessel shall require a number of samples to be removed from its hull. The required number of samples shall be no less than three and can be determined by dividing the measured length by 5 and rounding down to the nearest non decimal number. At least one sample shall be taken from bottom and each side shell laminate, with the locations of the samples to be determined by the surveyor, who shall inspect each sample.

#### T.10.6 Laminate quality assessment

A vessel that has not previously held a valid certification of class shall require the hull thickness to be gauged. For reinforced hulls the thickness shall be gauged at the centre of each panel and for vessels with unstiffened hulls, the surveyor shall nominate the sections, areas of where additional reinforcement are required under the sub-section Fibre Reinforced Plastic, to be gauged. The gauged thicknesses shall be recorded in the FRP hull thickness report as required in appendix 1.

The samples as required by this appendix shall be tested in accordance with the following:

- Tensile strength and modulus of elasticity ( $E_s$ ) established in accordance with ISO/RR 527-1966
- Bending strength and modulus of elasticity ( $E_b$ ) established in accordance with ISO 178-1975
- Glass reinforcement content in cured laminate measured in accordance with ISO 1172-1975, except that, upon approval by AUSCLASS, the number of tests may be reduced to two.

Where the shell of the vessel's hull is constructed of isotropic glass reinforced plastic, the mechanical properties measured according to 6.2, based on a mass of reinforcement material of 430 g/m<sup>2</sup> per mm of laminate thickness, shall be at least:

- Tensile strength of 80 MPa and modulus of elasticity ( $E_s$ ) of 7000 MPa
- Bending strength of 120 MPa and modulus of elasticity ( $E_b$ ) of 7000 MPa
- Glass content of between 28.5% and 40% by mass, with variation between individual samples as far as possible not to vary by more than 4%.

Where the shell material used in construction of the vessels hull differs from that previously stated, there shall be evidence provided to AUSCLASS in which confirms that the material used has at minimum the same strength as that required in C.6.3.

The testing of material shall be in accordance with the sub-section Fibre Reinforced Plastics and the laminates mechanical properties shall meet the requirements set out in the same sub-section.

#### T.10.7 Repairs on hull where samples are removed

Samples may be removed from a vessel hull as required in C.5.3, information shall be submitted to AUSCLASS in relation to the repair of the vessel, all repairs shall be undertaken to the satisfactory of a surveyor.

#### T.10.8 Inspections

Where a vessel is not constructed under the survey of AUSCLASS or another Classification Society, the vessel shall require inspections to be carried out during the first five years of survey. These inspections shall take place as follows:

- Out of water after 3 months
- In the water after 6 months
- Out of water after 12 months
- And thereafter at intervals specified by AUSCLASS.

#### T.10.9 Vessels failing to meet survey requirements

A vessel that fails to meet the survey requirements of AUSCLASS in regard to the hull moulding shall prevent the vessel being considered for commercial service by AUSCLASS and other Authorities. Where a vessel fails survey, the relevant information shall be forwarded to the Governing State.