

**OFFICIAL**  
**Uncontrolled If Printed**



**Australian Government**

**Defence**

**AUSTRALIAN NAVAL CLASSIFICATION AUTHORITY  
MANUAL (VOLUME 2)**

**DIVISION 5: REMOTE AND AUTONOMOUS SYSTEMS**

**SECTION 4: LARGE UNCREWED SURFACE VESSELS**

**CHAPTER 02: STRUCTURE**

**PART 1: ANC RULES**



This document is issued for use by Defence and Defence Industry personnel and is effective forthwith.

A handwritten signature in black ink, appearing to read 'CN Dagg, CSC'.

**CN Dagg, CSC**  
Assistant Secretary  
Australian Naval Classification Authority  
Department of Defence  
CANBERRA ACT 2600  
May 2024 Edition

**OFFICIAL**  
**Uncontrolled If Printed**

© Commonwealth of Australia 2024

This work is copyright. Apart from any use as permitted under the [Copyright Act 1968](#)<sup>1</sup>, no part may be reproduced by any process without prior written permission from the Department of Defence.

All classified Defence information is protected from unauthorised disclosure and it is an offence to release classified information under the [Criminal Code Act 1995](#)<sup>2</sup> and the [Privacy Act 1988](#)<sup>3</sup>. Information contained in Defence publications may only be released in accordance with the [Defence Security Principles Framework](#)<sup>4</sup>.

## **ANCA Manual (Volume 2)**

Division 5: Remote and Autonomous Systems, Section 4: Large Uncrewed Surface Vessels, Chapter 02: Structure, Part 1: ANC Rules, May 2024 Edition

### **Developer:**

Australian Naval Classification Authority

---

<sup>1</sup> <https://www.legislation.gov.au/Series/C1968A00063>

<sup>2</sup> <https://www.legislation.gov.au/Series/C2004A04868>

<sup>3</sup> <https://www.legislation.gov.au/Series/C2004A03712>

<sup>4</sup> <http://drnet/AssociateSecretary/security/policy/Pages/dspf.aspx>

## AUSTRALIAN NAVAL CLASSIFICATION RULES

First issued	May 2024
Reissue date	N/A
Issued by	CN Dagg, CSC, AS ANCA
Document management	This volume will be reviewed periodically from the date of issue, but sooner if necessitated by business requirements, and to ensure it continues to meet the intent of Defence policy.
Availability	The latest version of this volume is only available from the Defence Australia website. Its currency cannot be guaranteed if sourced from other locations. It is available for public release.
Policy domain	Defence Seaworthiness
Accountable Officer	Australian Naval Classification Authority
Publication Owner	Defence Seaworthiness Authority (DSwA)
Policy contact	<a href="mailto:anca.communications@defence.gov.au">anca.communications@defence.gov.au</a>
Structure	see <a href="#">Contents</a> <sup>5</sup>
Cancellation	N/A
Definitions	Definitions that apply to this volume are located in the Division 1, Part 1 Annex A.

---

<sup>5</sup> <https://www.defence.gov.au/business-industry/industry-governance/australian-naval-classification-authority/australian-naval-classification-rules>

## **AMENDMENTS**

Proposals for amendments to the ANCA Manual (Volume 2) may be sent to:

Australian Naval Classification Authority

Mail to: [anca.correspondence@defence.gov.au](mailto:anca.correspondence@defence.gov.au)

## **EDITIONS**

<b>Edition</b>	<b>Edition</b>	<b>Amendment type</b>	<b>Effective</b>
May 2024	Original issue		May 2024

Division 5: Remote and Autonomous Systems (RAS) Rules  
Section 4: Large Uncrewed Surface Vessel (L-USV)  
Part 1: ANC Rules

**Chapter 02: Structure**

**Contents**

Rule 0.	Goal .....	2
Rule 1.	General .....	2
Rule 2.	Not Used .....	3
Rule 3.	Structural Design .....	3
Rule 4.	Construction .....	3
Rule 5.	Ships in Service .....	3
Rule 6.	Preservation Systems .....	4
Rule 7.	Additional Requirements for Large USV with the Special Function of Bulk Fuel Carriage ..	4
Rule 8.	Provision of Operational Information .....	4
Rule 9.	Military Features .....	4
Rule 10.	Hull Marks .....	4

## Australian Naval Classification Rules

### Rule 0. Goal

- 0.1 For the design life of the Large Uncrewed Surface Vessel (L-USV), the structure shall be designed, constructed, and maintained to:
  - 0.1.1 Provide weathertight and watertight integrity.
  - 0.1.2 Permit End Users to safely achieve L-USV's missions, including:
    - 0.1.2.1 Carry all foreseeable loads;
    - 0.1.2.2 Protect essential safety functions in the event of foreseeable emergencies and accidents as required by the Operating and Support Intent (OSI);
    - 0.1.2.3 Minimise the risk of loss of the L-USV; and
    - 0.1.2.4 Provide post-damage capability as required by the OSI.

### Rule 1. General

#### Functional Objective

- 1.1 The purpose of this Rule is to outline the principles and framework of Chapter 02 *Structure*.
- 1.2 Chapter 02 *Structure* is written as a standard for the selection of standards rather than a standard for direct application in a design office or construction/repair facility. As a consequence, the primary target audience for this Chapter is the Naval Vessel Operator (NVO).

#### Scope

- 1.3 This Chapter defines the requirements for the structure of L-USV. This is applicable to:
  - 1.3.1 Hull structure and all structure required to meet the goal of this Chapter.
  - 1.3.2 The structure when the L-USV is afloat, or when the L-USV is intentionally beached or aground; and
  - 1.3.3 All strength related issues. Strength shall not be considered as being synonymous with failure to carry load. The structure shall not present a hazard and may be limited by other criteria such as deflection (e.g., structural misalignment leading to premature buckling, mast deflection, etc.).

---

Note: Some structural materials may present a hazard during manufacture, repair or when they degrade due to age.

---

- 1.4 Division 2 *Core Design Rules* Chapter 01 *General Requirements* applies to all chapters of the ANC Rules, as applicable to the design, and therefore in order to meet the Chapter 02 *Structure* goal, the requirements of both this chapter and Division 2 *Core Design Rules* Chapter 01 *General Requirements* shall be met.
  - 1.4.1 Division 3 *Ship Rules* Chapter 02 *Structure* goal applies to all Naval Vessels greater than 24m length overall that carry persons. Therefore, to meet the Chapter 02 goal *Structure*, a

L-USV that requires embarked persons shall meet the requirements of both this chapter and the requirements of Division 3 *Ship Rules* Chapter 02 *Structure* as applicable to the design.

1.4.2 The Rules listed in this Chapter are based on those in the corresponding Chapter within Division 3 *Ship Rules* and have been adapted for L-USV. When referring to Division 2 or 3, the following terms may be interchanged:

1.4.2.1 'Ship' as 'L-USV';

1.4.2.2 'Crew' or "Operator" or "Embarked Person" as 'End User';

1.4.2.3 'Primary, Main or Damage Control Station' as 'Remote Command Unit (RCU)';

1.4.2.4 'Bridge' or 'conning position' as RCU; and

1.4.2.5 'Signature Reduction' as 'Signature Management'.

1.5 The Structural arrangements of the L-USV shall match its RAS Maturity Level to allow End Users to safely operate the L-USV to achieve missions listed in the OSI.

#### **General Performance Requirements**

1.6 The structural boundaries shall meet the watertight integrity requirements defined by Chapter 03 *Buoyancy and Stability*.

### **Rule 2. Not Used**

### **Rule 3. Structural Design**

3.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 3 *Structural Design* as amended in Table 1.1 below:

**Table 1.1: Division 3 Chapter 02 Rule 3 Amendments**

<b>Rule Number</b>	<b>Amendment</b>
3.29	Not used.
3.32	Disregarded demand: The L-USV may suffer critical damage, but the safety risk for the environment is minimised so far as reasonably practicable, even if the demand is disregarded. In such cases, there is no requirement to quantify the demand (though there may be a requirement to assess and document the hazard, or its credibility, under Division 2 Chapter 01 <i>General Requirements</i> .

### **Rule 4. Construction**

4.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 4 *Construction*.

### **Rule 5. Ships in Service**

5.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 5 *Ships in Service*.

## Rule 6. Preservation Systems

- 6.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 6 *Preservation Systems* as amended in Table 1.2 below:

**Table 1.2: Division 3 Chapter 02 Rule 6 Amendments**

Rule Number	Amendment
6.6	Not used.

## Rule 7. Additional Requirements for Large USV with the Special Function of Bulk Fuel Carriage

- 7.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 7 *Additional Requirements for Large USV with the Special Function of Bulk Fuel Carriage*.

## Rule 8. Provision of Operational Information

- 8.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 8 *Provision of Operational Information* as amended in Table 1.3 below:

**Table 1.3: Division 3 Chapter 02 Rule 8 Amendments**

Rule Number	Amendment
8.2	The End User shall be provided with information to maintain structural integrity of the L-USV. The content of this information shall contain, as a minimum, where applicable to the OSI:

## Rule 9. Military Features

- 9.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 9 *Military Features*.

## Rule 10. Hull Marks

- 10.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 02 *Structure* Rule 10 *Hull Marks*.