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

DIVISION 5: REMOTE AND AUTONOMOUS SYSTEMS

SECTION 4: LARGE UNCREWED SURFACE VESSELS

CHAPTER 13: COMBAT SYSTEMS

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'.

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

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Division 5: Remote and Autonomous Systems, Section 4: Large Uncrewed Surface Vessels, Chapter 13: Combat Systems, Part 1: ANC Rules, May 2024 Edition

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

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

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

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

AUSTRALIAN NAVAL CLASSIFICATION RULES

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⁵ <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:

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

Chapter 13: Combat Systems

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Australian Naval Classification Rules

Rule 0. Goal

- 0.1 The arrangement for Combat Systems shall be designed, constructed, and maintained for all foreseeable operating conditions to:
 - 0.1.1 Provide a safe and effective operating platform for all Combat System components; and
 - 0.1.2 Provide a safe and effective means of controlling and maintaining combat operations.

Rule 1. General

Functional Objective

- 1.1 The purpose of this Rule is to outline the principles and framework of Chapter 13 *Combat Systems* and applications.

Scope

- 1.2 The rules of this chapter apply to all Large Uncrewed Surface Vessels (L-USV) that operate with Combat Systems to support:
 - 1.2.1 Peacetime Military Engagement;
 - 1.2.2 Security;
 - 1.2.3 Peace Support; and
 - 1.2.4 Combat.
- 1.3 The context of this chapter covers support to operations in all domains including surface, subsurface, air, cyber, and space.
- 1.4 Division 2 *General Requirements* 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 13 *Combat Systems* goal, the requirements of both this chapter and Division 2 *General Requirements* Chapter 01 *Core Design Rules* shall be met.
- 1.5 Chapter 01 *Integrated Platform Survivability* contains the overarching requirements for Survivability that apply to the Combat Systems.
- 1.6 Division 3 *Ship Rules* Chapter 13 *Combat Systems* goal applies to all Naval Vessels greater than 24m length overall that carry persons. Therefore, to meet the Chapter 13 *Combat Systems* goal, a L-USV that requires embarked persons, shall meet the requirements of both this chapter and the requirements of Division 3 *Ship Rules* Chapter 13 *Combat Systems* as applicable to the design.
 - 1.6.1 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:
 - 1.6.1.1 'Ship' as 'L-USV';
 - 1.6.1.2 'Crew' or 'Operator' or 'Embarked Persons' as 'End User';

- 1.6.1.3 'Primary, 'Main' or 'Damage Control Station' as 'Remote Command Unit (RCU)';
- 1.6.1.4 'Bridge' or 'conning position' as RCU; and
- 1.6.1.5 'Signature Reduction' as 'Signature Management'.
- 1.7 The Combat System 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 Operating and Support Intent (OSI).
- 1.8 The ANC Rules exclude training requirements. Division 3 *Ship Rules* Chapter 13 *Combat Systems* assumes all End Users have an appropriate level of competence for the operation of the installed systems.

Performance Requirements

- 1.9 The OSI defines how Combat System capability is to be employed and sustained throughout the life of the L-USV. The L-USV OSI shall be used to define the scope of Combat Operations required for the L-USV.
- 1.10 Common Combat Systems Requirements (CCSR) in Rule 2 are common elements of Combat Systems that apply in addition to all rules outlined in this chapter.

Rule 2. Common Combat System Requirements

- 2.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 2 *Common Combat System Requirements* as amended in Table 1.1 below:

Table 1.1: Division 3 Chapter 13 Rule 2 Amendments

Rule Number	Amendment
2.3.3	Not used.

Rule 3. Command & Control and Tactical Awareness

- 3.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 3 *Command & Control and Tactical Awareness*.

Rule 4. Sensors, Detectors and Tracking Systems

- 4.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 4 *Sensors, Detectors and Tracking Systems*.

Rule 5. Underwater Systems

- 5.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 5 *Underwater Systems*.

Rule 6. Above Water Sensor Systems

- 6.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 6 *Above Water Sensor Systems*.

Rule 7. Armament Systems

- 7.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 7 *Armament Systems*.

Rule 8. Embarked Mission Systems

- 8.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 8 *Embarked Mission Systems* as amended in Table 1.2 below:

Table 1.2: Division 3 Chapter 13 Rule 8 Amendments

Rule Number	Amendment
8.3	Not used.
8.4	Not used.
8.4.1	Not used.
8.4.2	Not used.
8.4.3	Not used.

Rule 9. Internal Communications Systems

- 9.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 13 *Combat Systems* Rule 9 *Internal Communications Systems* as amended in Table 1.3 below:

Table 1.3: Division 3 Chapter 13 Rule 9 Amendments

Rule Number	Amendment
9.1	All Internal Communications Systems and Equipment in the RCU shall maximise operation capability and minimise risk to safety under all Foreseeable Operating Conditions as specified by the OSI.
9.2	A CCTV System shall monitor, store, and playback real time video of safety critical areas and operations of the L-USV as specified by the OSI;
9.3	Intercom System shall be installed at the RCU according to OSI requirements.
9.4	Not used.
9.5	Not used.
9.7	Not used.

Rule 10. Remote Monitoring

Functional Objective

- 10.1 The L-USV shall have Remote Monitoring capabilities to ensure effective combat system functionality.

Scope

- 10.2 This rule is applicable for L-USV with a Remote Monitoring level of RM1 or greater, and operate with a Combat Systems.

Performance Requirements

- 10.3 L-USV with a Remote Monitoring level of RM1 or greater shall have the ability to monitor the state of the combat system.
- 10.4 L-USV with w Remote Monitoring level of RM2 or greater shall have the ability to monitor the data typically provided or required by the combat system interface.

Rule 11. Remote Control

Functional Objective

- 11.1 The L-USV shall have Remote Control capabilities to ensure effective combat system functionality.

Scope

- 11.2 This rule is applicable for L-USV with a Remote Control level of RC3 or greater, and operate with a Combat Systems.

Performance Requirements

- 11.3 L-USV with a Remote Control level of RC3 or greater shall provide the End Users the ability to remotely interact and control the combat systems.

Rule 12. Autonomy

Functional Objective

- 12.1 The L-USV shall have autonomy control and decision-making capabilities to ensure effective combat system functionality.

Scope

- 12.2 This rule is applicable for L-USV with an Autonomy level of A3 or greater, and operate with a Combat Systems.

Performance Requirements

- 12.3 L-USV with an Autonomy level of A3 or greater shall be able to interact with the combat system to achieve OSI requirements.