



DIRETORIA DE  
PORTOS E COSTAS

## NORMAS DA AUTORIDADE MARÍTIMA PARA REGISTRO DE HELIDEQUES

NORMAM-223/DPC



MARINHA  
DO BRASIL

**MARITIME AUTHORITY REGULATIONS FOR REGISTRATION OF HELIDECKS**

**BRAZILIAN NAVY**

**DIRECTORATE OF PORTS AND COASTS**

**2023**

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MARITIME AUTHORITY REGULATIONS FOR REGISTRATION OF HELIDECKS

MODIFICATION RECORD SHEET

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## GLOSSARY

**AAFD** - Final Approach and Takeoff Area.

**ACC** - Area Control Center.

**AFFF** - Aqueous Film Forming Foam .

**AHTS** - *Anchor Handling and Tug Supply Vessel Supply*).

**AIS** - Aerodrome Traffic Room.

**AJB** - Brazilian Jurisdictional Waters.

**ALPH (HLO)** - Helicopter Landing Officer .

**ANAC** - National Civil Aviation Agency.

**ART** - Technical Responsibility Note.

**PITCH (Arf)** - is the vertical displacement of the center of the helideck.

**WINDSOCK** - wind direction indicator.

**BOMBAV** - Aviation Firefighters.

**CAA** - Civil Aviation Authority ( *UK*).

**CAP** - Project Approval Certificate.

**HELIDECK CATEGORY** - H1 - D less than 16 m; H2 - D between 16 and 24 m and H3 - D greater than 24 m.

**CBAer** - Brazilian Aeronautical Code.

**CENIPA** - Aeronautical Accident Investigation and Prevention Center.

**CFD** - Computational Fluid Dynamics.

**CHEVRON** - geometric figure painted in black, on the outside of the strip that defines the Limit of the AAFD, in a V shape, where its vertex defines the origin of the SLO.

**CHT** - technical qualification certificates.

**CINDACTA** - Integrated Center for Air Defense and Air Traffic Control.

**HELIDECK CLASS** - Class 1 - includes helidecks on semi-submersible platforms; of FPSO and other vessels of equivalent size, with good visual references; Class 2 - includes the helidecks of vessels that offer good visual references during landing and take-off operations, normally installed at the stern or amidships; and Class 3 -

includes the helidecks of vessels that offer few visual references during landing and takeoff operations, normally installed in the bow or above the superstructure.

**CMCTAP** - Certificate of Maintenance of Technical Conditions of the *Pick-up Area*.

**CMCTH** - Helideck Technical Conditions Maintenance Certificate.

**CTV** - Cargo Transfer Vessel .

**CREA** - Regional Council of Engineering and Agronomy.

**D** - maximum length of the helicopter.

**DECEA** - Department of Airspace Control.

**DOE** - Foreign Object Damage.

**DPC** - Directorate of Ports and Coasts.

**EMCIA** - Aviation Firefighting and Maneuver Team.

**ENTRY OVER THE HELIDECK** - It is the movement of the aircraft from the LDP to the touchdown area of the helideck. In this displacement, the helicopter must be entirely contained in the SLO.

**PPE** - personal protective equipment.

**EPTA** - Telecommunication and Air Traffic Service Provider Station.

**ETEX M** – Exclusive Telecommunications Station. M refers only to platform stations maritime.

**FPSO** - Stationary Production, Storage and Transfer Unit.

**FRH** - Helideck Registration Form.

**FSO** - Stationary Storage and Transfer Unit.

**GRO** - Operational Risk Management.

**HATCH COVER** - Cargo hold cover.

**HCA** - *Helideck Certification Agency*. It is the certification agency that acts on behalf of operators UK offshore helicopter surveyor who oversees and inspects all helidecks and helipads on board offshore installations and vessels operating in UK waters, in accordance with the standards established in CAP 437.

**HELICOPTER CATEGORY A** - Transport category, multi-engine rotary wing aircraft, designed with the insulation characteristics of motors and systems specified in RBAC 29, uses pre-defined take-off and landing operations that ensure an area and capacity of adequate performance to continue safe flight in the event of an engine failure.

**HELICOPTER CATEGORY B** - Transport category rotary wing aircraft, single engine or one multi-engine rotary wing aircraft that does not fully meet Category A standards, does not having assured ability to fly with one engine failure and in which the probability of landing in a non-pre-programmed and unsuitable location should be considered.

**HLL** - Helideck Limitations List , published and distributed by HCA in the UKCS or other bodies accepted by the National Authority in other European States.

**HELIDECK** - is a helipad located on a structure over water, fixed or floating. It is also called an *offshore helipad*.

**ADAPTED HELIDECK** - is an adapted landing area, located amidships, on the deck of the cargo hold (*hatch cover*), of General Cargo Ships or Bulk Carriers, or on the side of the deck main of other types of ships.

**HMS** - Helideck Monitoring System .

**HOVER** - Helicopter hovering (freed) from a helicopter.

**ICA** - Instruction from the Air Force Command.

**ICEA** - Institute for Airspace Control.

**ICAO** - International Civil Aviation Organization .

**ICS** - International Chamber of Shipping .

**IMC** - Instrument Meteorological Conditions .

**IMCO** - Intergovernmental Maritime Consultative Organization (Consultative Organization).

**IMO** - International Maritime Organization .

**INMETRO** - National Institute of Metrology, Quality and Technology.

**INCLINATION** - Inclination (*Inc*).

**AIR WORK** - This is the set of air operations that occur from sunrise to sunset.

**L** - Helideck Diameter.

**LDP - LANDING DECISION POINT** - Latest point on a landing approach at which a decision between going around or proceeding to landing must be made.

**LGE** - Foam generating liquid.

**LSA** - International Life- Saving Appliance Code.

**MCIA** - Aviation Maneuver and Firefighting.

**MTOM** - Maximum Take Off *Mass*.

**NDB** - Non-Directional Beacon .

**NS** - Drill Ship.

**OFFLOADING** - Product transfer operation between the storage vessel and the ship reliever.

**OR** - Recognized Organization.

**PITCH** - Caturro (C).

**DOE PATROL** - is the daily inspection carried out at the AAFD, before air operations, to clean it of objects and debris that could cause damage to the aircraft.

**PEA** - Aeronautical Emergency Plan.

**FIXED OFFSHORE PLATFORM** - construction permanently installed at sea or in waters interiors, intended for activities related to the prospecting and extraction of oil and gas. It is not considered a vessel.

**MOBILE OFFSHORE PLATFORM** - generic name for the vessels used directly in the activities of prospecting, extraction, production and/or storage of oil and gas.

**UNINCOMPATIBLE PLATFORM** - is a fixed maritime platform, remotely operated, equipped with helideck, with habitable facilities for a maximum of five people to stay overnight.

**PRE** - Aircraft Emergency Response Plan.

**PSV** - Platform Supply Vessel .

**PPI** - Pre-Investigation Plan.

**PULL IN** - maneuver between Maritime Units for the passage of equipment or fluids.

**QAV-1** - aviation kerosene.

**RAR** - Risk Analysis Report.

**RBAC** - Brazilian Civil Aviation Regulation.

**RBC** - Brazilian Calibration Network.

**RF** - Fire resistant.

**ROLL** - Balance (B).

**RVH** - Helideck Inspection Report.

**RPA** - Remotely Piloted Aircraft.

**RPM** - Radio Operator on Offshore Platform.

**SALVAMAR** - Brazilian Navy Search and Rescue Service.

**SALVAERO** - Brazilian Air Force Search and Rescue Service.

**SGSA** - Aviation Safety Management System.

**SGSO** - Operational Safety Management System.

**IDENTIFICATION SIGN H** - the letter H is the identification sign of a helideck installed on vessel/offshore platform. The longitudinal alignment with the H indicates the trajectory for the aircraft with greater separation from obstacles delimited by SOAL, for a landing within the touch area boundaries.

**SMA** - Aeronautical Mobile Service.

**SLO (OFS)** - Obstacle *Free Sector*.

**SOAL (LOS)** - Limited Obstacle Sector .

**SOLAS** - International Convention for the Safety of Life at Sea.

**SS** - Semi-Submersible Unit.

**PAR** - Deep Draft Units.

**SWL** - Safe working loads .

**TO** - Ocean Terminals.

**TLWP** - Tension *Leg Wellhead Platform*.

**SCREENING OF INJURIES** - classification of injuries; Category I - spinal cord injuries, major hemorrhages, severe inhalation of smoke and gases, thoracic asphyxia, cervico-maxillo-facial injuries, cranial trauma with coma and progressive shock, exposed and multiple fractures, extensive burns, impact injuries and any type of shock; Category II - trauma non-asphyxiating thoracic, simple fractures, limited burns, head trauma without coma or shock and soft tissue injuries and Category III - minor injuries.

**TRINCANIZ** - each of the pieces of wood or iron that run along the ship, at the foot of the scuppers, and are used to drain water. Scupper - opening in the side of the ship, next to the deck, for water drainage.

**STATIONARY UNITS** - are vessels operating in a fixed and determined location, carrying out drilling, exploration, exploitation, storage and distribution of oil and its derivatives.

**PITCHING SPEED (Varf)** - is the average speed of the center of the helideck, when it is moves between the maximum and minimum of the largest vertical oscillation.

**VMC** - Visual Meteorological Condition .

**WDL** - Wrong Deck *Landing*.

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**REFERENCES**

## INTRODUCTION

### 1. PURPOSE

Establish instructions for certification and registration of helidecks located in vessels or maritime platforms operating in Brazilian Jurisdictional Waters (AJB).

### 2. DESCRIPTION

This publication is divided into 13 (thirteen) chapters and 50 (fifty) appendices. Chapter 1 informs the procedures for registration and certification of helidecks; Chapter 2 guides the helideck design; Chapter 3 presents the physical characteristics of the helideck; Chapter 4 addresses the sectors and surfaces of a helideck; Chapter 5 presents the visual aids; Chapter 6 regulates some operational procedures; Chapter 7 addresses prevention and combat fire and rescue; Chapter 8 describes procedures for testing and supplying aviation fuel; Chapter 9 determines communication and navigation systems; Chapter 10 presents how operational management should be carried out, the analysis report risk and the aeronautical emergency plan; Chapter 11 describes what a helideck should look like on raft; Chapter 12 describes what a helideck fitted amidships and on the side should look like of ships; Chapter 13 presents the helicopter *pick-up* area on a vessel. The annexes complement the chapters.

### 3. MAIN CHANGES

- a) change of the name of NORMAM and its numbering.
- b) placement of a new cover with the inclusion of a title page.
- c) the glossary has incorporated new definitions.
- d) the list of characteristics of helicopters used in *offshore* operations was updated.
- e) inserted a clickable summary.
- f) modification of textual elements in accordance with VEGAMARINST no. 30-03. –
- g) throughout the standard, the term Service Provider Stations was changed

Telecommunications and Air Traffic (EPTA) for Exclusive Telecommunications Stations (ETEX), due to the update of ICA 63-10.

h) in chapter 1, article 1.4 was updated. The compensation amounts were placed in a separate annex on the DPC website.

i) in chapter 6, the standard maintained the requirement for a voice recorder and for the RPM to have 2 (two) equipment for transmission and reception in the Mobile Service frequency band Aeronautical (SMA), in VHF-AM, at the Exclusive Telecommunications Station (ETEX) M.

j) in chapter 7, articles 7.5 and 7.6, paragraph a, subparagraph VIII were changed to 3 (three) portable lanterns, two of which have red lights. It was included that portable fire extinguishers carbon dioxide can be replaced by portable extinguishers with a halogenated gas charge Fe-36.

k) in chapter 8, article 8.8 had its validity changed to 3 (three) years.

l) related legislation was removed from chapters 1 and 13 and included at the end of the NORMAM, in the attached references, all with hyperlink.

#### **4. CLASSIFICATION**

This publication is classified as: Uncontrolled Brazilian Navy Publication (PMB), ostensive, normative and norm.

#### **5. REPLACEMENT**

This publication replaces NORMAM-27/DPC - 3rd Revision, approved by Ordinance No. 77, on May 11, 2022 and published in the Official Gazette of the Union no. 101, section I, page 13, of 29 May 2023.

## CHARACTERISTICS OF HELICOPTERS USED OFFSHORE

Type	length D (m)	d value	rotor diameter (m)	max weight take-off (kg)	Cargo value maximum admissible (ton)
EC 135 T2+	12.20	12	10.20	2910	2.9
EC 155B1	14.30	14	12.60	4850	4.9
Sikorsky S76	16.00	16	13.40	5307	5.3
August/ Westland AW 139	16.66	17	13.80	6800	6.8
August/ Westland AW 189	17.60	18	14.60	8600	8.6
Airbus H175	18.06	18	14.80	7500	7.5
Super Puma AS332L	18.70	19	15.60	8599	8.6
Super Puma AS332L2	19.50	20	16.20	9300	9.3
EC 225 (H225)	19.50	20	16.20	11000	11.0
Sikorsky S92A	20.88	21	17.17	12565	12.6
Sikorsky S61N	22.20	22	18.90	9298	9.3
AW101	22.80	23	18.90	14600	14.6

## Observation:

All transportation of passengers/surveyors/inspectors to and from vessels/platforms with helidecks registered with the AJB, must be carried out by a multi-engine helicopter that meets to the *offshore* operation requirements , as set out in ANAC regulations, and its crew must be able to fly under instrument meteorological conditions (IMC).

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## CHAPTER 1

### HELIDECK REGISTRATION AND CERTIFICATIONS

#### 1.1. PURPOSE

Establish instructions for certification and registration of helidecks located in vessels or maritime platforms operating in Brazilian Jurisdictional Waters (AJB).

#### 1.2. ASSIGNMENT OF RESPONSIBILITY

The Interministerial Normative Ordinance node-1.422/MD/SAC-PR/2014, of June 5, 2014, assigns responsibilities to the Brazilian Navy to develop standards for registration and certification of helidecks in operation at AJB.

#### 1.3. DEFINITIONS

a) final approach and takeoff area (AAFD) - is the area in which entry over the helideck, the final phase of the maneuver for hovering or landing is completed and in which the maneuver of takeoff is initiated.

b) touch area - is the part of the AAFD, with dimensions defined by a circular band in the yellow color that contains the Identification Sign H, which is recommended for the helicopter to touch upon landing.

c) helicopter launch and landing agent (ALPH) - is the crew member responsible for coordination of air operations, by preparing the helideck and by leading the Air Operations Team Aviation Firefighting and Maneuvering (EMCIA).

d) Brazilian jurisdictional waters (AJB) - include inland waters and spaces maritime, in which Brazil exercises jurisdiction, to some degree, over activities, people, installations, vessels and living or non-living natural resources, found in the liquid mass, in the seabed or subsoil, for the purposes of control and inspection, within the limits of the legislation international and national. These maritime spaces comprise the strip of two hundred (200) miles maritime counted from the baselines, plus the waters overlying the extension of the Continental Shelf beyond two hundred (200) nautical miles, where it occurs.

e) certification - is the official act by which the Directorate of Ports and Coasts (DPC) certifies that a helideck presents satisfactory safety conditions for carrying out operations with helicopters in AJB.

f) maximum length of the helicopter (D) - D is the total length of the helicopter, considering the maximum projections forward and aft of the rotor blades or the aftmost end of the structure.

g) DOE - is the acronym for the expression "Damage by Foreign Object". It refers to damages caused by objects that may be sucked into the engines or may collide with any aircraft. Generally speaking, it refers to these objects.

h) *offshore vessel* - any construction, including offshore platforms floating and, when towed, fixed, capable of moving in the water, used directly in the activities of prospecting, extraction, production and/or storage of oil and gas. Includes Semi-Submersible, Jack-Up, Drillship, Leg Units Tension Legs, Deep Draft Units (*Spar*), Stationary Unit Production, Storage and Offloading (FPSO) and Stationary Storage and Offloading Unit Transfer (FSO).

i) Aviation Firefighting and Maneuvering Team (EMCIA) - is the team responsible for manning the helideck during air operations (boarding and unboarding of personnel and material, aircraft refueling, fire fighting, first aid and transportation of injured).

j) requirement - is the non-compliance with the requirements established in this Standard, found during an Initial, Renewal or Unexpected Inspection.

k) impeding requirement - these are requirements that directly compromise safety of air operations. They will result in the closure of the helideck.

l) non-impeditive requirement - these are requirements that do not directly compromise the safety of air operations, but which show some non-compliance with this standard and may result in restrictions on air operations.

m) helideck registration form (FRH) - is the official document in which the Charterer/Shipowner describes the general characteristics of helidecks on vessels and offshore platforms.

n) helideck - is a helipad located on a structure over water, fixed or floating. It is also called *offshore helipad*.

o) adapted helideck - is an adapted landing area, located amidships, on the cargo hold cover (*hatch cover*), of General Cargo Ships or Bulk Carriers, or on the side of the

main deck of other types of ships. It differs from the helideck by the absence of a structure built to enable helicopter landings and takeoffs in situations routine, with its use limited to the boarding and disembarking of agents public/practical and removal of injured or sick people to places where they can receive adequate medical care.

p) registration - is the official act by which the National Civil Aviation Agency (ANAC) authorizes the opening of a private helideck to air traffic, for the purpose of carrying out operations with helicopters.

q) interdiction - is the official act by which ANAC promulgates the interruption of air operations, permanently or temporarily, on a given helideck.

r) helideck diameter (L) - is the diameter of the largest imaginary circle that fits in the AAFD.

s) merchant ship - for the purposes of this standard, it is a national or foreign flagged ship, used in cargo transportation, prospecting, extraction, production, storage activities of oil and gas or passenger transportation in AJB, for commercial purposes.

t) reference point - is the point located on the peripheral line of the AAFD, chosen carefully based on the existing structures in the vicinity of the helideck, which serves as reference for defining the Obstacle Free Sector (SLO) and Obstacle with Limited Heights

(QUESTION).

u) applicant - is the Brazilian Shipowner, the Brazilian Shipping Company, the charterer, the operator or his representative, with representation in the country, who requests regularization services audio deck.

v) helideck inspection report (RVH) - is the document through which the Directorate of Ports and Coasts (DPC) will issue a technical opinion on the conditions for carrying out air operations on a given helideck, initiating the registration or prohibition defined by this standard, the model of which is set out in Annex 1-D.

w) inspection - is the official action by which experts qualified by the DPC inspect, *on site*, certain helidecks, checking whether their facilities, equipment, personnel and material meets the minimum requirements established in this standard, in order to ensure the

existence of satisfactory conditions for conducting helicopter operations in the AJB in security.

x) remotely piloted aircraft (RPA) - aircraft designed to operate without a pilot on board and is not used for purely recreational purposes. This definition includes all airplanes, helicopters and airships controllable on three axes, excluding balloons traditional and model airplanes.

y) recognized organization (RO) - Specialized Entity authorized to act on behalf of of the Brazilian Maritime Authority in the regularization and control of vessels in the aspects relating to the safety of navigation, the safeguarding of human life and the prevention of pollution environmental. They act under the specific conditions of each recognition (NORMAM-331/DPC).

z) risk - is the assessment of the consequences of a danger or threat, expressed in terms probability and severity, taking as reference the worst possible condition. Example:

ÿ A 45-knot crosswind on the helideck is a hazard. A pilot who fails to control the aircraft during takeoff or landing is one of the consequences of this danger.

ÿ Assessment of the consequences of the possibility that the pilot will not be able to controlling the aircraft, in terms of probability and severity, is the risk.

aa) risk management - is the identification, analysis and elimination, and/or mitigation of a danger or threat that affects the operational capacity of an organization. The process aims to purpose of reducing the possibility of occurrence and its consequences to an acceptable level, counting on the balanced allocation of resources to face, control and reduce its effects to an acceptable, defensible and easy to explain level.

bb) *safety case* - can be understood as a safety case study composed of one or more Risk Analysis Reports (RAR), structured in arguments supported by evidence and intended to justify that a system is acceptable with regard to security of operations carried out in a given operational environment.

For the purpose of this standard, *Safety Case* can be considered as the document composed of one or more RAR, depending on the need presented.

cc) aeronautical emergency plan (AEP) or emergency response plan with Aircraft (PRE) - is the document that establishes the procedures to be followed by

sectors involved and which defines the unit's participation in various emergency situations aeronautics.

#### 1.4. PROVISIONAL AUTHORIZATION, INSPECTIONS AND SUPERVISION INSPECTION

a) provisional authorization - is intended to meet the immediate needs of operation. The DPC may recommend the issuance of a Provisional Authorization to carry out air operations on a given helideck that enters the AJB, provided that it is operating abroad.

The request for issuance of a Provisional Authorization must be made using the model in Annex 1-A, and must be at least twenty (20) days before the date requested by the applicant for the start of air operations. The FRH must be attached to the application form (annex 1-B) and other documents provided therein, which correspond to the current situation of the audio deck.

The granting of Provisional Authorization will observe the following aspects:

- i) The helideck must already have approval with a validity period in force, issued by an official foreign civil aviation body or by an entity that has delegation of powers of such body;
- ii) if the documentation presented is assessed as satisfactory, the DPC will request ANAC to open the helideck to air traffic to carry out operations landings and takeoffs for a period of up to thirty (30) consecutive days or until the expiration of the foreign approval in force, whichever occurs first, extendable for a single period of up to thirty (30) days, at the discretion of the DPC. Only a Provisional Authorization may be granted, for the same helideck every three (3) year period; and
- III) within the term of validity of the Provisional Authorization the helideck must be in accordance with this standard and the inspection, certification and approval process must be carried out established herein.
- IV) if the vessel, even with valid foreign homologation, violates any requirement of this standard, provisional authorization will not be granted.
- V) vessels that have their approval order cancelled by failure to comply with Article 1.6 or the Exclusive Telecommunications Station (ETEX) process will not be able to request new provisional authorization.

b) initial and renewal inspection - to begin conducting air operations at AJB helidecks must undergo Initial Inspection for certification and registration, which will be valid for three (3) years and may be renewed before the end of the registration period.

i) the technical parameters established for the authorization of the carrying out of air operations on the helidecks will be assessed by a Committee of Inspectors, whose constitution will be determined by the DPC;

II) the applicant must request the Initial Inspection using Annex 1-C. The date of the The application entry protocol at the DPC Secretariat must precede, at least, forty-five (45) days from the date requested by the applicant for the inspection to be carried out;

III) after the expiration of the validity of the initial registration order, the helidecks must be subject to Renewal Inspections;

IV) Renewal Inspections must take place within thirty (30) days prior to the end of the validity period of the Registration Ordinance, in order to verify the maintenance the technical conditions of the helideck and its certification and registration renewed;

V) the request for Renewal Inspection must be made using Annex 1-C. The The applicant must submit his/her request at least fifty (50) days in advance of relation to the expiration date of the ordinance;

VI) in the case of Initial or Renewal Inspection, the documents provided for in Annex 1- C must be attached to the application. The FRH must be completed with all current data of the helideck. From the beginning of the registration process, when there is any change in the information contained in the last form submitted to the DPC, the applicant must update it and forward it correctly filled out;

VII) with the aim of serving newly built vessels in Brazil or in abroad, an Initial Inspection may be carried out, outside the operating area, if it is considered acceptable and feasible by the DPC. In addition to that provided for in Annex 1-C, the vessel must have an aircraft available for landing on the helideck, or place a weight equivalent to half of the tonnage of the heaviest helicopter it will support, and must be forwarded to the DPC, if they are not presented "in loco", copies of the ALPH qualification certificates, Aviation Firefighters (BOMBAV), the Maritime Platform Radio Operator (RPM), the crew of the rescue vessel and proof of receipt of Title 1 approval process

of ETEX at the Integrated Center for Air Defense and Air Traffic Control (CINDACTA) responsible by the area of operation. Only helidecks that pass the final checks will be certified, if necessary, carried out during the first landing of the aircraft with DPC experts, in AJB; and

VIII) after the Initial or Renewal Inspection, the RVH (annex 1-D) will be issued, with \_\_\_ copy to the applicant, within five (5) working days.

Note: requests for inspection abroad must be sent to the DPC 90 (ninety) days in advance.

c) inspection to remove requirements – used to verify compliance with requirement found during an Initial, Renewal or Inspection Inspection.

It will be scheduled upon request of the Shipowner/Operator or his/her legal representative. The The applicant must communicate compliance with the requirement to the DPC by means of the document “Information on Compliance with Requirement” (Annex 1-E). Communication must be made with, at the minimum of ten (10) days in advance of the expiry of the deadline stipulated for the withdrawal of the requirement. Failure to comply with this deadline will result in the cancellation of the Ordinance of Registration. The date of communication of compliance with the requirement will be considered as the date of receipt protocol of the document “Information on Compliance with Requirement” by DPC Secretariat.

These Standards establish a list of prohibitive requirements and define them, generically, as those whose severity immediately compromises the minimum conditions for the safe conduct of air operations. The list of Impeding Requirements, attached 1-F, is not exhaustive and will be dynamic, undergoing constant updates, depending on the accumulation experience of surveyors, as well as the evolution of technological resources and operational procedures.

After the Inspection for Removal of Requirement, the RVH (annex 1-D) will be issued, with copy to the applicant, within five (5) working days.

d) inspection - the DPC may carry out inspections, without prior notice, at any period, called Inspection Inspections, to verify the maintenance of technical conditions of the helideck.

i) After the Inspection, the RVH (annex 1-D) will be issued, with a copy to the applicant;

II) for the withdrawal of requirements, the procedures provided for must be adopted in paragraph c above;

III) if a requirement is identified relating to the design of the platform or vessel that was not observed during the Initial Inspection or the previous Renewal Inspection, it will be observation made at the RVH determining compliance with the requirement until the next inspection programmed for the helideck; and

IV) Inspections of Inspections will not be considered for extension the validity period of the helideck Registration Order.

e) inspection of parameter changes - in the event of a need to change parameters, the applicant must request it from the DPC, by filling out the Application for Changing the Helideck Parameter (annex 1-G), to which the following must be attached: documents mentioned therein, the request must be made at least twenty (20) days before the date desired by the applicant for the change.

i) if the DPC considers that the changes do not imply substantial changes in the characteristics of the helideck, will request ANAC to issue the Registration Ordinance containing the requested changes, the validity period of which must be the same as that of the previous Registration Order;

ii) if the DPC identifies that the requested changes imply the need for carry out an *on-site* inspection , must notify the applicant;

iii) carrying out the Inspection to Verify Parameter Changes will not imply change in the validity period of the previous Approval Ordinance; and

IV) after the Parameter Change Inspection, the RVH will be sent to the applicant.

Note: Law No. 13,726 of October 8, 2018 must be complied with.

#### **1.5. DEPARTURE AND RETURN FROM AJB OF A VESSEL WITH A REGISTERED HELIDECK**

The Shipowner/Operator, or his/her legal representative, must inform the DPC of the departure of all vessel or platform of the AJB, otherwise the vessel or platform will have its registration canceled.

If the vessel or platform has a Registration Ordinance issued by ANAC, absent from the AJB and return later with it still within its validity period, it does not will lose its effectiveness. However, the Shipowner/Operator must forward to the DPC, a

Helideck Technical Conditions Maintenance Certificate, according to the model in Annex 1- \_\_\_\_\_

H.

#### **1.6. EXPENSES UNDER THE RESPONSIBILITY OF THE APPLICANT**

It is the applicant's responsibility to bear the costs of compensation for registration and certification of the helideck, as well as logistical expenses for air and land transport in urban travel, food and accommodation for the Inspection Team. In the case of any inspection to be carried out abroad, in addition to the costs related to transportation, accommodation and food, daily allowances due to the Surveyors will be the responsibility of the applicant. The values referring to daily allowances will be those adopted by MB for the position/grade of each Surveyor; and transportation and accommodation must be consistent with the Officer level Superior.

The compensation amounts are listed in the table on the website ([www.marinha.mil.br/dpc/NORMAM](http://www.marinha.mil.br/dpc/NORMAM)), whose payment guide, contained in Annex 1-I, must be \_\_\_\_\_ requested at DPC.

#### **1.7. CONDITIONS FOR CARRYING OUT INSPECTIONS**

For planning purposes, the following aspects should be considered:

a) inspections will be carried out at the place of operation or where all the equipment can be tested. the platform or vessel systems and equipment related to the operation of the helideck, under the normal operating conditions in which it will be used.

b) inspections will be carried out during the day. When requesting the inspection, the The applicant will receive a logistics proposal from the DPC, with the schedule, in order to be considered. The applicant must appoint a representative to accompany the application in person. inspection team, from the beginning of the land transfer until the end of the inspection.

c) surveyors must be transported to the helideck by multi-engine helicopter that meets the requirements of *offshore operation*, that has the *Helicopters* equipment *Operation Monitoring Program* (HOMP - a system that standardizes operations and previously any problem in the quality of operations), *Health and Usage Monitoring Systems* (HUMS - monitoring system that uses data collection and analysis techniques to help ensure the availability, reliability and safety of aircraft), *Blue Sky* (satellite system that monitors various aircraft information) and the *Traffic Alert and Collision Avoidance System* (TCAS)

- collision avoidance and traffic alert system), or similar, and its crew must be capable of flying under instrument meteorological conditions (IMC). The helicopter will be intended exclusively for carrying out the inspection and will be on the helideck, cut and at available to the Inspection Committee during its implementation. A communication point (3rd earpiece - tail) in the helicopter, so that an inspector can check the radio communication procedures of the pilots and the unit to be inspected; and

d) during the inspection the helideck will be closed and at the disposal of the Inspection Committee. Surveyors, and the vessel must provide all necessary resources to meet the its realization.

### **1.8. REGISTRATION PROCESS**

a) certification - the Helideck Certification (annex 1-J) will be issued by the DPC, with the validity counting from the date of the Initial or Renewal Inspection.

If there is a Non-Impedimental Requirement at the time of Inspections, the DPC will request ANAC to opening of the helideck for carrying out air operations. After verifying compliance of the requirements, the DPC will issue the final RVH of the Helideck, counting the certification period from from the date of inspection. The helideck may operate for a period of up to sixty (60) days, renewable for a single period of up to thirty (30) days, at the discretion of the DPC. If this period ends without the requirement has been met by the shipowner and verified by the DPC, ANAC will be requested to cancellation of the Registration Order. After the cancellation of the Registration Order, it must be a new Initial Inspection is carried out so that the vessel/platform is authorized again operating the helideck.

If there is an Impeding Requirement, the DPC will request ANAC to close the helideck, in in accordance with the procedure set out in paragraph c below.

The Helideck Certification will be valid for three (3) years and may be renewed indefinitely for equal periods by carrying out Renewal Inspections with results satisfactory.

The DPC will forward the Helideck Certification to ANAC, in order to subsidize the issuance of the Registration Order. A copy of the RVH will be forwarded to the applicant.

The DPC may cancel the Certification at any time if it becomes aware of that the technical parameters or the conditions of the platform or vessel compromise the safe performance of air landing and take-off operations.

b) registration - will occur upon forwarding, by the DPC, of the Certification of Helideck together with the respective FRH for ANAC.

ANAC is responsible for issuing the Registration Ordinance and publishing it in the Official Gazette of the Union (DOU).

The Registration Order will be valid for three (3) years, and its end date must coincide with the validity date of the Helideck Certification issued by the DPC.

Note: ANAC will always issue the Registration Ordinance with its maximum term. If the vessel/platform helideck contains non-impeding requirements, these will be listed in the RVH with their execution deadlines. If they are not met within the respective deadline, the DPC will request ANAC to cancel the Ordinance (annex 1-J). \_\_\_

c) notification of helideck interdiction and release - If the helideck is found to be existence of Impeding Requirement, the Helideck Interdiction Notification will be issued for helicopter landing, being signed by the Surveyors and the person responsible for vessel/helideck, as provided in Annex 1-K. After the Inspection for Removal of Requirement, having verified the correctness of the Impeding Requirement(s), the representative of the Authority Marítima will issue the Helideck Removal Notice, Annex 1-K, and will request ANAC to opening/reopening of the helideck to air traffic. Notifications will be issued in two (2) copies, with the original remaining with the person responsible for the Vessel/Platform, and a copy with the team survey.

#### **1.9. CERTIFICATE OF MAINTENANCE OF TECHNICAL CONDITIONS (CMCTH)**

If a vessel or platform, which has a Registration Ordinance issued by ANAC, is If you leave the AJB, you must inform the DPC. If you return later, with the Order Registration in force, and is interested in using the helideck, must forward the CMCTH to the DPC, as per Annex 1-H, within ten (10) days before re-entering AJB. It must be forwarded together with the Coefficient of Friction Certificate, where applicable.

Failure to submit this document within the stipulated period will result in cancellation. automatically the validity of the Helideck Certification, resulting in the revocation of the ordinance record.

It will be up to the DPC to request ANAC to close the helideck and cancel the Ordinance. Registration, if the vessel leaves AJB, without notifying the DPC. In this case, in order for the helideck can resume air operations, must undergo a new Initial Inspection.

#### **1.10. SPORTS AND RECREATIONAL VESSELS WITH HELIDECK**

DPC does not certify helidecks installed on sports and recreational vessels. For these In such cases, ANAC procedures must be followed.

#### **1.11. COMMUNICATION BETWEEN VESSEL/PLATFORM AND AIRCRAFT**

If there is no aeronautical frequency allocated by the Air Traffic Control Department, Airspace (DECEA), through the Project Approval Certificate (CAP), for a certain helideck, for security reasons, essential communications between the helicopter and the maritime unit must operate on maritime VHF, until the approval of the respective Exclusive Telecommunications Station (ETEX).

The use of non-approved frequencies in the aeronautical band is a crime, according to provided for in art. 183 of Law No. 9,472 of July 16, 1997.

The so-called Radio Operator on an Offshore Platform (RPM) voice is that designated by the DECEA in the ETEX Approval Ordinance.

#### **1.12. REMOTELY PILOTED AIRCRAFT (RPA)**

Remotely piloted aircraft, which comprise aircraft systems remotely piloted and fully autonomous aircraft fall within the definition of aircraft, present in the Brazilian Aeronautics Code - CBAer (Law No. 7,565, of December 19 of 1986) and, therefore, are subject to regulation and inspection by ANAC, in the case of civil operations.

Authorization from ANAC is a necessary but not sufficient condition for the operation of remotely piloted civil aircraft systems in Brazil. It is also necessary that the operator obtain authorization from DECEA and check with the National Telecommunications Agency (ANATEL) whether your control frequency is safe.

The competences of ANAC and DECEA are complementary and, therefore, both authorizations are required for the operation of remotely piloted civil aircraft in Brazil.

Vessels/platforms wishing to use the RPA must follow the rules and regulations of ANAC, DECEA and ANATEL.

Its use is not permitted on vessels/platforms that have helidecks, simultaneously with helicopter landing and takeoff operations, an exception would be made in cases of RPA use in the internal area of vessels/platforms, such as tanks, reservoirs and confined spaces, or for structural inspections, on an exceptional basis, which involve security aspects of the same, when there must be coordination with the helicopter crew and without the possibility of mutual interference.

Failure to comply with this rule may result in a fine being imposed by the Authority competent.

#### **1.13. COMPLIANCE WITH REQUIREMENTS**

The DPC will keep updated, on its website ([www.marinha.mil.br/dpc/NORMAM](http://www.marinha.mil.br/dpc/NORMAM)), a table of deadlines for compliance with requirements and exceptions; the Maritime Authority recommends consultation and prior knowledge by helicopter operators and vessels, the exceptions and deadlines in this table, especially when operating in areas with difficult access to the internet.

If the vessel/platform, after the approval of its helideck, violates any requirement of this standard, will receive a communication ([annex 1-L](#)) and will inform its compliance to DPC, otherwise air operations may be suspended, either permanently or temporarily.

#### **1.14. TRANSPORTATION OF DANGEROUS GOODS AND INSPECTION OF BAGGAGE AND PASSENGERS**

Companies operating vessels/offshore platforms equipped with helidecks must have formally established procedures in place to ensure that no article dangerous goods are loaded onto aircraft, except when the carriage is carried out in accordance with ANAC requirements and carried out by Airlines expressly authorized by the same to drive them.

Vessels/platforms must have qualified personnel to carry out inspections baggage and passengers before boarding the aircraft, and can be used as a reference, by the Vessel/Platform Operators, the basic AVSEC course for the inspection of

baggage and passengers and Category 12 of Supplementary Instruction 175 002F of RBAC 175, for the verification of dangerous goods.

Any additional qualifications are at the discretion of the vessel/platform operators. in other Categories referenced in the aforementioned supplementary instruction.

#### **1.15. WILDLIFE RISK**

The Brazilian Civil Aviation Regulation (RBAC) No. 153 Amendment No. must be complied with. 06, of March 15, 2021, or its update, as applicable.

Stationary Units must be alert when there is a migration route, and must inform aircraft crews of the existence of birds in the vicinity of the vessel when in air operations.

#### **1.16. VESSELS WITH UNREGISTERED HELIDECKS OR WITHOUT VALID REGISTRATION**

The vessels, which will operate in AJB, which have helidecks, but do not wish to register it or with expired registration must:

- in the assessments and inspections, present to the Naval Inspector a declaration that will use their helideck, annex 1-M; and
- place the helideck closed sign, article 5.4, subitem g of this standard.

Unregistered vessels/platforms that require aeromedical rescue must request it from SALVAMAR or SALVAERO in their area of operation.

#### **1.17. DOCUMENTS**

All documents must be sent to the DPC electronically, using the formato PDF (Adobe Reader).

The helideck plans, on a scale of 1:100, in addition to the electronic format, must also be forwarded by printed means.

The original documents must be kept on file by the interested party until finalization of the process for possible consultation.

#### **1.18. HELIDECK OPERATION**

Helidecks located on vessels and offshore platforms may perform the following air operations during the day, from sunrise to sunset locally, and in emergencies, in night period.

**1.19. UNFORESEEN CASES**

Cases not covered by this standard must be forwarded to the DPC, in order to  
to be analyzed.

## CHAPTER 2

### HELIDECK PROJECT

#### 2.1. FUNDAMENTAL REQUIREMENTS

To design the structure of a helideck, the engineer needs as a starting point, define its location, dimensions and weight of the largest and heaviest helicopter that structure must be able to support. To define these fundamental requirements the engineer may, as project data:

- a) adopt the dimensions and weight of the largest and heaviest helicopter known may operate on that helideck; or
- b) assume dimensions for the AAFD and floor resistance that allow operation in the helideck of helicopters, known or not, with dimensions and weight lower than or, at most, equal to those assumed.

#### 2.2. LOCATION

a) the location of a helideck on fixed offshore platforms, on merchant ships and on vessels used in *offshore* operations is almost always a solution compromise between the different basic requirements of the project, such as space limitation and the need to perform several functions. The location of the helideck must be carefully chosen to meet these different needs;

b) the AAFD must be positioned, in relation to the other structures, in such a way that there is an obstacle-free sector below the helideck level, outside the gradient sector negative, which allows an aircraft to approach and take off or go around safely, even that presents loss of engine power;

c) the AAFD must also be located so as to minimize the occurrence of turbulence on the helideck, caused by the flow of wind on the installation structures; for the new **construction projects, started from 2018**, the vessels/platforms must have a study of the wind environment on the helideck where the helicopters will operate the criteria for which are set out in the document in Article 1.3, paragraph f;

d) there must be no combustion gases from burners or other devices on the helideck. other equipment that can release hot gases that alter environmental parameters for which the flight was planned. Sudden increases in ambient temperature can cause

decrease in engine performance and rotor efficiency at a critical stage of the engine's operation helicopter. Designers must therefore take great care with the location and elevation of gas discharges in relation to the AAFD; vessels/platforms must carry out tests in a wind tunnel or Computational Fluid Dynamics (CFD) of the helideck to determine wind parameters for aircraft landing and takeoff;

Notes:

- in projects prior to 2018, the DPC may request the above study to be carried out.

but, when there is a history of turbulence formation on the helideck.

- helidecks at the bow, class 3, do not need to carry out the study of paragraphs c and d.

e) the project must provide for the installation of several environmental condition sensors in the helideck area in order to provide pilots with as accurate a picture as possible of the conditions prevailing in the AAFD. Motion sensors must be positioned on the floor of the helideck. If this is not possible, the values presented for pitch , roll , pitch (*heave*), pitch rate (*heave rate*) and inclination (*inclination*) should be corrected for helideck height and position, while thermometers and wind sensors must be installed, mandatorily, close to the helideck;

f) in cases where not all the parameters established in this standard for the project of the helideck can be fully satisfied, it may be necessary to impose restrictions on the helicopter operations;

g) the touchdown area must be in the center of the AAFD; and

h) avoid placing the rescue boat under or near the projection to below the helideck, so that it is not damaged in the event of an accident.

### **2.3. DIMENSIONS**

The helidecks will be classified according to the length D of the largest helicopter that may operate at each facility in the helideck categories defined in article 3.2, of this Norma.

### **2.4. SECURITY**

a) protective screen - protective screens must be installed around the helicopter area. deck, in accordance with the contents of Annex 2-A, except when there is structural protection that verifies

must provide sufficient safety for personnel involved in air operations. The screen must be made of flexible, fire-resistant material.

i) the protective screen must have a minimum width of 1.5 m, in the horizontal plane, from the outer edge of the helideck, and may include the drainage gutter;

ii) the protective screen mesh must have dimensions of, at most, 0.10 m x 0,10 m;

iii) the spacing between the screens and the edge of the helideck, and between the sections of the same, but should not exceed 0.10 m. If construction characteristics prevent this spacing with the nets folded down, such spaces must be closed with a net made of the same material;

iv) the lower end of the protective screen must be at the same level as the helideck, that or at a level slightly below the drainage gutter, when present. The screen must have have an approximate upward inclination of 10° in relation to the horizontal plane. The upper end The top of the protective screen may be slightly above the level of the helideck, but should not exceed give a height of 0.25 m in relation to this plane;

v) the protective screen must not be stretched too much, in order to avoid its actuation as a springboard and, if lateral and longitudinal beams are installed to provide greater resistance, due to the structure of the screen, they must not have a shape that could cause injuries to people who, eventually be supported by the screen. The ideal design should produce the effect of a stretcher, which must safely support a body that falls onto the screen without causing injury;

vi) protective screens may be made of any material: carbon steel, bono, sisal, polyester or others.

vii) each section of the screen must withstand, without rupture, the test consisting of impact of a 100 kg load, with a base diameter of 0.76 m, released, in free fall, from a height of 1m;

viii) when requesting an inspection, a Certificate of Fabric Resistance, issued by a Recognized Organization (RO) by the DPC, or by the engineering sector. ria of the company operating the platform/vessel, certifying that all sections of the screen protective devices are in safe conditions of use, in accordance with Annex 2-D. In this case, the resp- The company's technical manager must present the Technical Responsibility Note (ART) and the copy of the CREA registration. This document must be valid for three (3) years or in the case of screens

that comply with subparagraph XIII below, the validity will be in accordance with the manufacturer's manual, and have issued no more than three (3) months before the inspection request;

IX) a visual check must be carried out before carrying out air operations, if if corrosion points are found in a certain section of the screen, this must be subjected a new impact test. In case of rupture, the screen section must be replaced;

x) Broken, open and/or corroded screen locking devices must be replaced;

XI) if it is necessary to replace the screen, the new section must be subjected to impact testing;

XII) the protective screen must always be free of any object on it or your support; and

XIII) destructive laboratory tests on polyester screens or those that contain pieces of wire installed in the steel nets to check the resistance and degradation of the material over time, without the need for mechanical tests as described in the subparagraph VII.

b) accesses - in order to provide fire-fighting routes, regardless of from the prevailing wind, and in order to allow the eventual evacuation of injured people, there must be, at least, mo, the following accesses outside the AAFD and, preferably, equidistant:

i) category H1: two (2) accesses;

ii) categories H2 and H3: three (3) accesses; and

iii) for categories H1 and H2, one of the accesses may be an emergency access.

Observations: - in cases where handrails associated with heli access points that exceed the maximum permitted elevation of 0.25 m around the AAFD, these must be of the folding or removable type, being obligatorily lowered during the carrying out of operations. air connections, so that they do not obstruct access or emergency exits.

- emergency access may be within the AAFD, outside the area of touch, however, must be at most 0.025 m high in relation to the helideck floor, not constituting an obstacle.

c) cranes - pay attention to the location of cranes near the helideck that, during their movement, may invade the SLO or SOAL.

When certifying the helideck, it must be assessed whether the cranes do not interfere with the air operation.

d) structural design - the helideck floor and its supporting structure must have sufficient strength to support 150% of the *Maximum Takeoff Mass* [Load] *Take Off Mass* – MTOM), for normal landings, and 250% of MTOM, for landings in emergency of the heaviest helicopter considered in the helideck design, in addition to those due due to the concentration of people, equipment, meteorological and sea effects. The project should contain the helideck resistance certificate.

Helidecks **built up to August 12, 2011** may only comply with the requirement of 150% for normal landings. When sending the standardized certificate to the DPC, you will see the observation: "This helideck was built on xx/xx/2xxx, not complying with the 250% MTOM requirement for emergency landing".

e) helideck resistance certificate - this is a prerequisite for carrying out an inspection Initial, Renewal Inspection and Parameter Change Inspection (when applicable), being presented in the original or copy, in Portuguese or English, attesting to the resistance resistance of the floor and its supporting structure declared in the FRH, issued by a recognized Organization decided by the DPC, or by the engineering sector of the company operating the platform/vessel; in accordance with Annex 2-E. In this case, the company's technical manager must submit the Year-Technical Responsibility Statement (ART) and a copy of the CREA registration. This document must be valid for three (3) years, and must have been issued no more than three (3) months prior to the visa application. tory.

f) drainage tank - the vessel/platform, which is certified to supply fuel supply, must be provided with arrangements by which any spillage of fuel on the helideck can be collected and drained into a safe container, in accordance with Chapter II-2, Part G, Reg18, of the SOLAS Convention and Regulation 9 of the MODU Code 2009.

The capacity of this container must be at least the same capacity as the fuel tanks of the largest helicopter that can operate on the helideck.

The container does not need to be exclusive and can be shared with other fluids. of, as long as they meet the aforementioned requirements.

## **2.5. GENERAL ARRANGEMENT PLANS AND HELIDECK MARKINGS**

The General Arrangement and Helideck Markings plans must be on a scale of 1:100, following the models in Annexes 2-B and 2-C, respectively, and must contain the location of the helideck and its markings, the anti-slip net and its fixing links, protective screens, accesses, lights and spotlights, foam monitors, fire extinguishers, drains, buricas, the birutas, the discharge ducts of hot gases, the obstacles and the structures that may generate turbulence, and any other item placed on the helideck.

## CHAPTER 3

### PHYSICAL CHARACTERISTICS

#### 3.1. PURPOSE

Describe the minimum physical characteristics required for helidecks located on board of platforms and vessels.

#### 3.2. HELIDECK CATEGORIES

Depending on the length D of the largest helicopter that can operate, the helidecks will be classified according to the following table:

LENGTH (D)	CATEGORY (H)
< 16 m	H1
Between 16 and 24 m	H2
> 24 m	H3

#### 3.3. FINAL APPROACH AND TAKEOFF AREA

The AAFD may have any geometric shape, and must contain an inscribed circle of diameter L equal to or greater than length D, within which it will not be permitted to existence of no obstacle above 0.025 m.

a) exceptions - Exceptions are listed in the Compliance Deadlines Table of Requirements and Exceptions, published on the DPC website. The Maritime Authority recommends consultation and prior knowledge by helicopter operators and vessels, the exceptions and deadlines in this table, especially when operating in areas with difficult access to the internet.

b) AAFD surface on the helideck

i) the entire surface must be painted in dark green or gray, with paint non-slip, and all markings on it must be made with non-slip materials. It is mandatory to paint the area outside the AAFD with other colors, so as not to confuse the pilots as to the size of the helideck;

ii) Floors made of aluminum do not need to be painted, and must:

the aluminum is matte so as not to obscure the pilots' vision due to reflection of the ambient light (e.g. sunlight); and

the color of the aluminum must provide adequate contrast for perfect viewing, individualization and identification of the marking lines of the various painted areas of the AAFD (Area Touch, etc.). To highlight, these lines should be outlined by a ten-inch strip centimeters wide, painted black or with a black background;

III) the surface of the AAFD, painted or not, must have a coefficient of friction in any direction and sense, attested by a certificate, for maritime units that choose for operating without the use of the anti-slip net on the helideck, measured by the test method specified in paragraph d below. Fixed platforms do not need to perform the test of coefficient of friction and are exempt from the use of anti-slip nets;

IV) must be watertight, preventing liquids from leaking onto the decks inferior; and

V) during Initial or Renewal Inspections, the painting and markings of the AAFD must be new and uniform, repairs, patches or rusty areas will not be accepted.

c) certificate of coefficient of friction - original document or copy, in the languages Portuguese or English, issued by an Organization recognized by the DPC, or by the sector of engineering of the company operating the platform/vessel, attesting to the average value of coefficient of friction prevailing in each section of the AAFD floor, whose periodicity between tests is found in the table in article 3.5, and must be attached to the application for carrying out Initial Inspection, Renewal Inspection and Parameter Change Inspection (when applicable), in accordance with Annex 3-B. This document must be issued whenever there is painting of the helideck, and at most three (3) months before the inspection request.

This requirement must be met for maritime units that choose to operate without the use of anti-slip netting on the helideck, except for fixed platforms. Annually, counting from the date of the helideck inspection, this certificate must be sent to DPC.

d) coefficient of friction test method – the coefficient of friction test shall be carried out by a method that meets the following requirements:

- i) use the braked wheel technique ;
- ii) the surface of the helideck must be wet and with the amount of water produced by controlled test equipment;

III) the Test Report automatically produced by the test equipment, must present the friction coefficient values for the entire surface of the helideck, subdivided into areas of, at most, 1 m<sup>2</sup> and also the day, time and place (Lat - Long) of the event of the test;

IV) the test must be performed by a qualified technician; and

V) the test equipment must meet the following requirements:

· should be suitable for measuring the coefficient of friction by the technique of locked wheel, covering the entire surface of the helideck;

· must be able to control the amount of water to be applied to the helideck surface during testing;

· must process and electronically store the measurement results; and

· must have GPS so that it can record automatically, without external interference, the day, time and place of the test (Lat - Long).

Equipment calibration must comply with the parameters established by the Brazilian Calibration Network (RBC), made up of accredited laboratories or recognized by the National Institute of Metrology, Quality and Technology (Inmetro).

### **3.4. DRAINAGE**

Every helideck must be provided with an effective drainage system to prevent the formation of puddles and that is capable of ensuring the rapid drainage of liquids from fire fighting fire. Gutters, cracks around the helideck and/or fire points may be used. drainage inside the AAFD.

The drained liquid must be directed directly into the sea to prevent any possible fire on the helideck spreads to other areas of the lower decks, as predicted by the SOLAS Convention and the 2009 MODU Code.

Although there is a permanent commitment to preserving the environment, the The aforementioned procedure aims to prioritize human life at sea and the safety of the vessel.

Note: the vessel/platform, which is certified for supplying fuel, arrangements must be provided by which any spillage of fuel on the helideck can be collected and drained into a safe container in accordance with Chapter II-2, Part G, Reg18, of the SOLAS Convention and Regulation 9, of the MODU Code 2009.

### 3.5. ANTI-SLIP NET

The anti-slip net is intended to prevent aircraft from sliding on resulting from the platform or vessel rolling when operating in climatic conditions adverse conditions (strong wind, rain, etc.).

In vessels with a friction coefficient whose value is proven by the certificate of test required in paragraph c of article 3.3, the use of anti-slip nets is optional, however the use of shims is recommended and the coefficient of friction must be complied with, according to the following table:

Helideck section	Vessels
Touch area	0.65
Out of touch area	0.5

Note: The coefficient of friction should be retested annually or when the your condition suggests that more frequent testing is appropriate, e.g. guano accumulation or other contaminant(s).

On fixed platforms, the use of anti-slip nets is not required.

Maritime units that, although floating, constantly have a large stability, such as a *Tension Leg Wellhead Platform (TLWP)* installation, and reduced movements of heaving, rocking and heaving will be considered, for the purposes of this Standard, such as fixed platforms. To meet this criterion, it must be demonstrated that the pitch and roll movements are limited to 1° and the maximum pitch variation is 1 m/s, measured by HMS equipment over a period of six (6) months.

The helideck paint must remain in good non-slip condition, regardless of network usage.

Guano, a substance produced by the accumulation of excrement and carcasses of seabirds, is an extremely effective destroyer of friction surfaces. Due to the difficulty of ensuring that a friction surface can be kept free of contaminants, the permanent removal of the net Non-slip on Uninhabited Platforms is not usually a viable option unless effective preventive measures are in place.

a) anti-slip net characteristics - the anti-slip net must extend for the entire Touch Area, not including other identifications external to it, and their dimensions can be adjusted, if necessary, to cover this area, and can be of any shape.

Cables must:

- i) be made of sisal, frictape or material that is not easy to combustion;
- ii) have a diameter or width of 20 mm and not show wear that compromise its functionality; and
- iii) have a grid formed by squares or diamonds measuring 20 cm on each side.

b) fixing the anti-slip net - the net must be fixed firmly, using cables and/or tensioners, to eyebolts installed at the limit of the AAFD, with a maximum spacing of 2.0 m and with a maximum height of 0.05 m. It must not be possible to raise any part of the net by more than than 0.25 m above the helideck surface when applying vertical traction by hand.

### 3.6. BURICS

Burics are devices installed on the surface of helidecks intended for mooring helicopters, by means of restraints (straps). Aircraft parking areas are also must be equipped with holes.

a) quantity and distribution - the buricas should form, with the restraints, points of mooring with angles within the limits recommended by helicopter manufacturers. At least six wells must be installed, distributed evenly, in each circumference concentric to the Touch Area (annex 3-A). \_\_\_\_\_

b) the minimum number of holes and the radii of the circles for their distribution vary according to the helideck category, as shown in the table below:

CATEGORY	MINIMUM QUANTITY OF BURICAS	RADIUS OF CIRCUMFERENCES (m)
H1	6	2.5 or 3.0
H2	12	2.5 or 3.0 and 5.0
H3	18	2.5 or 3.0; 5.0 and 7.0

When it is not possible to install the boreholes following the rules above, the spokes and the  
The spacing between them may vary, but should be as uniform as possible.

c) height of the boreholes - fixed boreholes must be a maximum of 0.025 m high or preferably, face the helideck floor and the parking area. In the case of burrows with retractable links, these must be folded when not in use and in the case of removable holes, these can only be placed after landing and cutting the aircraft and removed before takeoff.

d) resistance of the bolts – the set of bolts/braces must support the loads of the largest helicopter operating on the helideck. The movement of the platform/vessel imposes on the aircraft accelerations that generate dynamic loads greater than its weight, thus, the set of anchors/bolts must have a breaking load greater than the forces generated by the aircraft, in order to ensure that it does not come loose. In addition, these dynamic loads must be distributed across an adequate number of holes.

Safe working loads (SWL ) data should be obtained with helicopter manufacturers/operators, with the purpose of dimensioning the set of buricas/peias.

e) diameter of the crossbar of the rigging point - the maximum diameter of the bar of the rigging point must be 22 mm, in order to facilitate adjustment to the size of the mooring strap hook.

Note: Units already in operation that do not meet this requirement must provide the fit between the shackles and the holes using shackles or cargo lashing straps, with resistance equal to or greater than that of the restraints.

f) certificate of resistance of the holes – when requesting inspections, it must be the resistance certificate must be presented, issued by an Organization recognized by the DPC, or by the engineering department of the company operating the platform/vessel, describing clearly that they are in safe conditions for conducting operations aerial of the largest helicopter operating on that helideck, in accordance with Annex 3-C. In this case, The company's technical manager must present the Technical Responsibility Note (ART) and a copy of the CREA registration. This document will be valid for three (3) years, and must have been issued no more than three (3) months before the inspection request.

### 3.7. HELICOPTER PARKING AREA

A parking area, when available, must be located within the parking sector. 150 degree obstacle limited (SOAL) and equipped with marking to provide taxi line for assist the helicopter in moving from the landing area to the parking area. You should be considered the removal of obstacles along the taxi line of a value equal to length of main rotor blade of largest helicopter.

For a dark green helipad, the parking area should be painted gray. of course, using the coefficient of friction, according to the table in article 3.5, or use the network non-slip. In both cases, the number of holes is listed in article 3.6.

The dimensions and lighting of the parking area are listed in Annex 3-D. \_\_\_\_

Notes:

- as the perimeter lights around the parking area do not need to be seen from a distance, the perimeter lights, in blue color, spaced at most 3 m apart, can be low intensity, not less than 5 candelas (cd) and may not exceed 60 cd at any time elevation angle.

- the structural design requirements for a parking area are as follows: same applied to the landing area.

## CHAPTER 4

### SECTORS AND SURFACES

#### 4.1. GENERAL PROVISIONS

In order to ensure that helicopter operations are conducted in a manner that safe manner, sectors and surfaces are defined around the helideck, which may have obstacles as long as they have limited heights.

The minimum dimensions required for these surfaces vary depending on the dimensions (D) the largest helicopter considered in the project.

#### 4.2. OBSTACLE FREE SECTOR (OSL)

It is a 210° sector where obstacles are not allowed. The SLO is defined in horizontal plane coinciding with the helideck plane by the following limits:

a) laterals - half-lines originating at the reference point ( chevron *vertex*, defined in paragraph f of article 5.4, forming an angle of 210° between them and located externally to the AAFD.

b) external - along the line parallel to the AAFD boundary line, up to a distance of 370 m.

c) the maximum heights permitted for essential equipment, in relation to the helideck, such as lights and fire-fighting equipment existing in the SLO and external to AAFD, should not exceed 0.25 m, or exceed 0.05 m for helideck where the D value is less than 16 m.

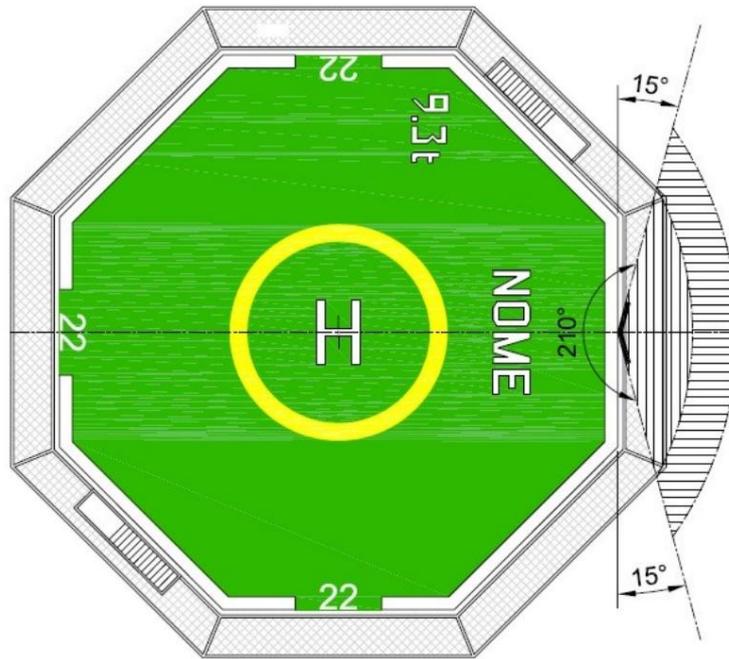
d) the characteristics of the SLO, depending on the positioning of the helidecks on the ships, are described in the following annexes:

i) helideck on the side of the main deck of a ship - as per subparagraph 3, the follow;

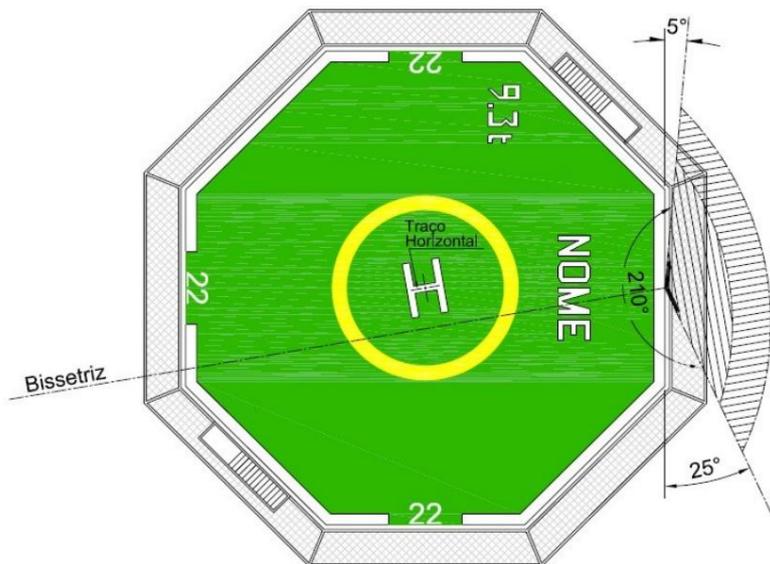
II) helideck at the bow or stern of a ship (annex 4-A); and \_\_\_\_

III) helideck amidships (annex 4-B). \_\_\_\_

e) the bisector of the SLO must pass normally through the center of the Touchdown Area, as shown in the following illustration:



f) a variation of up to 15° clockwise or counterclockwise is acceptable, however, the H must be directed so that its horizontal line is parallel to the bisector of the 210° SLO varied, as illustrated in the following figure:



Notes:

- for SLO, the horizontal distance of obstacles below the helideck level, outside of the negative gradient sector, shall be such as to provide a safe vertical separation for an engine loss on takeoff with an aircraft operating in performance class 2.

- even with the Chevron rotation, SOAL measurements must be performed in the same way center of the identification sign.

- whenever the helicopter is not maneuvered entirely within the SLO, in its entry trajectory over the helideck for landing, the risk of collision with obstacles increases significantly.

- in an aircraft accident, with five fatalities, which occurred in Brazil in 2003, the aircraft's tail rotor hit a vessel's mast because on the chosen trajectory for landing, the helicopter was not maneuvered entirely within SLO. In 2012 and 2017, two other events with tail rotor impact on obstacles outside SLO and SOAL occurred for the same reason.

- regardless of the direction used for the stabilized approach, the entry on the helideck must always be carried out with the helicopter entirely within the limits sides and outside of the SLO.

#### **4.3. NEGATIVE GRADIENT**

It is necessary to consider the possibility of the aircraft losing flight height during the last moments of entering the helideck or of not being able to maintain horizontal flight in the first moments after takeoff. Therefore, protection must be provided below the level of the helideck in this critical sector.

Regarding the top view of the helideck, from its center, imagining a line perpendicular to the bisector of the SLO angle (*chevron*), should be considered a sector of at least minus 180°. With regard to the profile view, the sector is counted from the edge of the screen protection up to the water surface, with a gradient of 3 m (vertical) to 1 m (horizontal). This sector must not contain obstacles attached to the platform or floating as illustrated in Annex 4-C. In the accesses (BOMBAV platforms) it will be counted from its balustrade, however, the warning strip must be painted as described below.

No obstacles should be allowed in this 180° sector, except:

- ships carrying out *offloading* operations (article 0407), where they can be accepted, must be confined to an arc not exceeding 120° (one hundred and twenty degrees), when centered on the vessel, or in the center of the stern of the vessel, when the helideck is off-center, and

- in inspection and maintenance operations of the *offloading* hose line (article 4.8), meeting the requirements as presented in Annex 4-C. \_\_\_\_

For marine units built, or with construction started, before 12th August 2011, as well as those whose projects are prior to the aforementioned date and present restrictions on compliance with this requirement, operation will be permitted, provided that the Shipowner and/or Unit Manager, present a Risk Analysis Report, based on the manual of each aircraft to be used, containing procedures for mitigating risks.

In this case, a fifty centimeter wide strip must be painted in the colors black and yellow, next to the AAFD limit line, in the direction of the obstacle, as described in the Annex 4-C, in order to alert pilots to its existence.

The Commander and/or Person Responsible for the Unit must adopt procedures that guarantee that aircraft pilots are informed of the existence of obstacles with regard to negative gradient.

Note: although flying over the Negative Gradient area is not prohibited, it must be avoided whenever possible. It should be noted that the painting, referring to this area on the helideck, serves as a warning for obstacles below the helideck level that could interfere with a possible single-engine takeoff or go-around. Therefore, avoid flying over the obstacle warning strip in the negative gradient it is the pilots' competence in making risk decisions regarding entry trajectory over the helideck and takeoff from the helideck.

Applications for inclusion of maritime units in this exception must be forwarded to the DPC, with due justifications.

#### **4.4. OBSTACLE SECTOR WITH LIMITED HEIGHTS**

It is a 150° sector, adjacent to the SLO, where obstacles with heights are allowed limited in relation to the helideck level, as per Annex 4-D. The sector is defined in the plan horizontally coinciding with the plane of the helideck by the following limits:

a) laterals - half-lines originating at the reference point, coinciding with the half-lines straight lines defined for the SLO, making an angle of  $150^\circ$  between them (supplementary angle to the SLO angle) and located externally to the AAFD.

b) external:

i) by the arc of a circle with origin at the center of the touch area and radius equal to  $0.62D$ , where obstacles with a maximum height of  $0.25$  m are permitted, counting from the origin of the *chevron*; e

ii) by the arc of a circle with origin at the center of the touch area and radius between  $0.62D$  and  $0.83D$ , where obstacles from  $0.25$  m are allowed; obeying an increasing gradient of  $1:2$  m (one vertical unit to two horizontal units), in the directions of the  $150^\circ$  angle up to  $0.83D$ , as detailed in the illustration in Annex 4-E. \_\_\_\_\_

c) for helidecks located amidships of ships, the SOALs must have, at least, minimum, the dimensions indicated in the figure in paragraph d of article 4.2.

d) for helidecks located on the sides of ships, obstacles located in the SOAL must have, as a minimum, the dimensions indicated in the figure in paragraph d of article 4.2.

e) a paint scheme or other device may be necessary to highlight obstacles close to the helideck, such as chimneys, antennas and other constructions, with the purpose of highlighting them for better visibility of the helicopter crew. Normally, the obstacles are painted with diagonal stripes in red and white, black and yellow or other color combinations contrasting with existing structures, as per Annex 4-E. \_\_\_\_\_

The installation of whip antennas *in* locations close to the limit delimited by the half-lines originating at the reference point, as they are difficult to visualize by of pilots during landing approaches. In the case of units that have antennas in this situation, an alternative is to use devices with colors that highlight their position, as long as the they are not likely to come loose due to the turbulence caused by the rotors.

f) It is forbidden to fly over SOAL. The aircraft must not fly over obstacles or any parts of the vessel/platform structure during its flight path.

Note: theoretically outside of SLO and SOAL there could be unlimited obstacles.

#### 4.5. EXCEPTIONS

Exceptions are listed in the Table of Deadlines for Compliance with Requirements and Exceptions, published on the DPC website; the Maritime Authority recommends consulting and prior knowledge by helicopter and vessel operators of the exceptions and deadlines in this table, especially when operating in areas with difficult internet access.

#### 4.6. COUPLED VESSELS/SEA PLATFORMS

When coupled, offshore vessels/platforms may use an SLO of 180°, maintaining the paintwork of your license, appendix 4-E.

Coupled vessels/platforms are those joined by a passage (*Gangway*); are not considered coupled vessels/platforms, operations involving only passage of cables and ducts (example: vessels in diving service, carrying out the *Pull In* or Offloading maneuver ).

#### 4.7. OFFLOADING OPERATION

*Offloading* operations are those that transfer oil between the storage vessel (FPSO) and the shuttle tanker (NT). This operation may also present a different configuration from the normal one, which includes a CTV (Transport Vessel Cargo), of smaller proportions, between the Storage Vessel and the Shuttle Vessel. This arrangement allows the Shuttle Tanker to be further away from the FPSO, approximately 400 m. Annex 4-C presents these two configurations schematically.

#### 4.8. OFFLOADING HOSE LINE INSPECTION AND MAINTENANCE OPERATIONS

These are maintenance operations carried out on the hose lines and mooring cables. (hawser) of *off-floanding systems*, carried out by Terminal maintenance vessels Oceânicos (TO) (AHTS (*Anchor Handling and Tug Supply*) ou PSV (*Platform Supply Vessel*)). O The Aircraft Commander must be informed by the RPM about the performance of this type of operation. Annex 4-C\_schematically presents the positions of these vessels when performing these operations on the platforms' *offloading* systems.

## CHAPTER 5

### VISUAL AIDS

#### 5.1. PURPOSE

This chapter aims to present visual aids for signaling and lighting of helidecks on board offshore platforms and vessels.

#### 5.2. GENERAL PROVISIONS

Signaling and lighting aids were developed primarily to assist non-precision approaches and operations in visual meteorological conditions.

#### 5.3. WIND DIRECTION INDICATOR (WIND SOCK), WIND SENSOR (ANEMOMETER) AND TEMPERATURE SENSOR (THERMOMETER)

a) windsock - there must be at least one wind direction indicator close to the helideck, placed in a highly visible location, but not subject to turbulence and which does not constitute danger to helicopter maneuvers. Other windsocks may be used, they must receive the clean wind, without the effect of structures.

On some offshore platforms or vessels, more than one may be required. wind direction indicator, due to the fact that the air above the landing and takeoff area is subject to a disturbed flow depending on the wind direction and existing obstacles.

The wind direction indicator should be made of high-quality fabric. resistance, in white, yellow, orange or with a combination of two colors (orange and white, red and white, and black and white), and the choice should be for the color that offers the greatest capacity contrast with the background of the structure. It must be able to rotate freely through 360° in any weather conditions and wind intensity. The specifications of this indicator are demonstrated in Annex 5-A.

The wind direction indicator should be illuminated by white light if it is necessary operation at night or in low visibility. The light beam must be positioned so that so as not to obscure the pilots' vision.

b) anemometer - there must be at least one sensor indicating direction and intensity of wind, placed in a visible location, but not subject to turbulence.

Note: If the stationary sensor suffers any damage that makes it impossible to for its immediate repair or replacement, a portable anemometer may be used, duly calibrated, to obtain the necessary wind information that enables safe operation.

c) thermometer - there must be at least one external temperature sensor, placed, mandatorily, close to the helideck.

#### 5.4. SIGNALING AIDS

a) identification sign - for helidecks located on offshore platforms and in vessels is the letter H, which must be painted in white, in the center of the Touch Area. The horizontal line of the H must coincide with the bisector of the SLO angle, except in the case of variation of the *chevron*, provided for in paragraph f of article 4.2, when its horizontal line must be parallel to the bisector of the SLO angle. The H sign must have a height of 4 m and a width of 3 m, with the width of the strips of 0.75 m. For helidecks with a D value below 16 m, the dimensions of the H can be reduced to 3 mx 2 mx 0.5 m.

If the floor is made of aluminum, the paint must comply with the provisions of article 3.3, paragraph b. The dimensions and positioning of H are shown in the illustration in Annex 5-B. \_\_\_\_\_

b) maximum permissible load - expressed in tonnes, with two or three digits, specifying the maximum resistance that the floor and its supporting structure can withstand. It must be painted white. The positioning of the numerals must be in accordance with the indicated in Annex 5-C and the dimensions in accordance with Annex 5-D.

To define numerals, the following must be observed:

i) whole values up to nine tons: will be painted in two (2) digits, using zero in front;

ii) Decimal values should be rounded to the nearest hundred kilos close to and separated from the whole ton by a period;

iii) whole values accompanied by decimals, greater than ten (10) tons, will be painted with three digits, separating an integer from the decimal by a period; and

iv) when painting as described above is not possible due to lack of space physical, the characters may have their dimensions reduced by up to 1/3 of the pre-defined size.

The models and dimensions of the numerals are indicated, in centimeters, in the illustration of Annex 5-D. \_\_\_\_\_

Note: This information refers to the maximum weight that the floor and its structure can support. support and not the maximum take-off weight of an aircraft model to be used in air operations on that helideck.

c) limit of the final approach and takeoff area - the AAFD perimeter must be marked with a 0.30 m wide strip, in white, as shown in the illustration of Annex 5-E.

d) touch area - must be demarcated with a circular strip one meter wide, in yellow color, with an internal diameter of 0.5D, as indicated in the illustration in Annex 5-E. \_\_\_\_\_

The aircraft crew must orient themselves around the touchdown circle for a landing normal, so that when the pilot's seat is over the circular track, and the wheels of the main landing gear are within the Touchdown Area, all parts of the helicopter will be free of any obstacles with a safety margin. It should be noted that only the Correct positioning over the Touch Area will ensure adequate distancing with relation to obstacles. For helidecks with a D value below 16 m the circular strip width may be reduced to 0.5 m.

The Touch Area must have a non-slip surface for touch operations. helicopter, in accordance with the table in Article 3.5. The operator of the installation must ensure that the helideck is free of oil, grease, ice, snow, water accumulated on the surface or any other contaminant (particularly guano) that may degrade surface friction.

e) signaling of the name and/or visual indication and location indicator of the platform/vessel - must be painted white, contrasting with the color of the floor helideck. Its alphanumeric characters (name or visual indication) must be painted between the start of the SLO and the Touchdown Area Limit, as indicated in the illustration in Annex 5-C. \_\_\_\_\_

When the name and/or visual indication is a composition of letters and numbers, Arabic or Roman numerals of the same size as the letters must be used , and may be separated by a dash.

The platform name cannot be covered by the anti-slip net; it must be the same constant in the Registration Ordinance.

In order to facilitate the identification of the maritime unit by the crews of the aircraft, the helidecks will have their location indicator painted in white characters, on the

position diametrically opposite to the position provided for the name or visual indication of the platform/vessel, between the touchdown area and the AAFD limit, as illustrated in Annex 5-C. This painting must occur within fifteen (15) days after receiving the indication through the ANAC or DPC.

The dimensions and spacing between characters must be in accordance with Annex 5-F. When it is not possible to paint as described above, due to lack of physical space, characters may have their dimensions reduced by up to 1/3 of the predefined size and/or placed in two lines.

f) *chevron* - geometric figure painted in black, in the interval of the strip that defines the V-shaped boundary of the AAFD, where its vertex defines the origin of the SLO. Each segment of the *chevron* will be 0.79 m long and 0.1 m wide, forming an angle as shown in the illustration in Annex 5-G.

The Chevron painting location must follow the guidance indicated in Annex 5-G.

Notes:

- the purpose of the chevron is to provide visual guidance to the ALPH, so that it can ensure that the 210° of the SLO is clear of obstructions before releasing the helideck for a helicopter landing or taking off.

- on old vessels/platforms, authorized to have a helideck with SLO 180°, Chevron painting will not be required.

g) signaling of a closed helideck - for certain technical reasons or operational, the helideck may be closed permanently or temporarily for operations with aircraft operating in AJB. In such circumstances, the closed state of the helideck indicated by the sign presented in the color and dimensions of Annex 5-H, must be painted (if permanent) or attached to a tarpaulin (if temporary), over the identification sign H.

h) safety notices - panels must be placed near access points, in places clearly visible, painted with black letters on a yellow background, measuring 0.80 m x 1.60 m, with a 0.05 m black border, in Portuguese or if in Portuguese and English, with dimensions of 1.20 mx 1.60 m, with a black border of 0.05 m or one in each language with the dimension previous, and with recommendations to be followed by passengers, who embark or

disembark from helicopters and by other users of the aircraft, with the characteristics, detailed in Annex 5-H. \_\_\_\_

Notices for passengers boarding or disembarking may be painted on the bulkheads of offshore platforms and vessels, as long as they are in clearly visible locations. It is forbidden to place it on the protective screen.

i) marking of the value of D - must be painted in white, on the perimeter of the helideck, in the range that delimits the AAFD, the value of D, rounded to the nearest integer. The positioning and dimensions of this marking are shown in the illustrations in Annex 5-G. \_\_\_\_

### **5.5. LIGHTING AIDS**

The lighting aids required to comply with the provisions of Article 5.2 are listed below: follow. No other lighting device on the platform may interfere with the lighting of the helideck when it is being used for approach, landing and takeoff of aircraft, in conditions of reduced visibility and mainly during the period at night, on an emergency basis.

a) final approach and takeoff area boundary lights - must be positioned green lights spaced at most 3 m apart and tangent to the AAFD limit line, with a tolerance of distance for this line of up to 0.50 m and with a maximum height of 0.25 m, regardless of the helideck shape as shown in the illustration in Annex 5-I. \_\_\_\_

The installation of lights must take into account that they cannot be viewed by the pilot from a position below the helideck elevation.

For square or rectangular helidecks there must be a minimum of four (4) lamps on each side including one at each vertex, respecting the same 3 m of maximum spacing between them.

For circular helidecks the lights should be equally spaced along the line AAFD limit, with a minimum of fourteen (14) lamps.

These lights must have a minimum intensity of 30 candelas (cd) and may not exceed 60 cd. The material used in the manufacture of the luminaires must be frangible or of the turtle.

Turtle-type luminaires can be installed above the AAFD boundary line, with the maximum height of 0.05 m.

The color of the perimeter lights must follow the standard set by ICAO (2009), Annex 14, volume 1, appendix 1, chromaticity limit.

These lights will be turned on, day or night, whenever the helideck is ready and equipped to carry out air operations; they must remain off when not in air operations.

b) obstacle lights - fixed red and omnidirectional lights must be installed on obstacles and obstruction points in the vicinity of the helideck's AAFD and in the higher places on the maritime platform or vessel that may constitute danger to air operations. These lights must have an intensity of at least 10 cd.

A safety net must be installed at the highest point of the offshore platform or vessel. fixed, omnidirectional, red obstacle light, with intensity between 25 and 200 cd. When not if placement at the highest point is possible, it should be placed as close as possible to the end.

When it is not possible to install lights on obstacles and obstruction points, reflectors should be used to illuminate them, as an alternative solution. The reflectors should be positioned so as not to obscure the pilots' vision when landing and takeoffs. The reflectors must be designed to produce a luminosity of at least minimum, 10 cd/m<sup>2</sup>.

Note: Any auxiliary structure within one kilometer of the landing area and which is above the height of the helideck, must also be equipped with red lights.

c) helideck status lights - A visual warning system must be provided. installed as an aid, to warn of conditions that may be dangerous to the helicopter or for its occupants.

The helideck status light *consists* of a red, flashing light. (intermittent), installed close to the AAFD limit line, and may also exist in other vessel/platform locations so that it is visible from any direction of approach of the aircraft.

The *status light* must be turned on and off manually, by ALPH and RPM, and be visible at a distance of at least 1400 m, having a minimum intensity of 700 cd,

between 2° and 10° above the horizontal plane of the AAFD and at least 176 cd in all others elevation angles.

Notes:

- the *status light* on/off switch must be located for the ALPH next to the helideck and for the RPM within ETEX.

- the vessel that has automatic activation of the *status light*, for extrapolation of some HMS parameter, it is not necessary to use the on/off switch in ETEX.

The chromaticity and intensity of the light must follow the ICAO standard, Annex 14, volume 1, appendix 1.

d) lighting of the touch area – every touch area must be adequately lit in order to provide a sense of depth for pilots.

The best way to achieve adequate lighting is to use recessed lighting in the touch circumference and the letter H. This lighting can be done using LED technology or by light strings. The system must be assembled in such a way as to not allow any compromise of its sealing and in accordance with CAP 437, apd C - *Standards for Offshore Helicopter Landing Areas* and the CAP 1077 - *Specification for Offshore Helideck Lighting System - UK Civil Aviation Authority*.

When it is not technically possible to install the lighting described above, it can be spotlights are used to illuminate the touch area, so that the lighting provides depth indications that allow the pilot to understand how the approach is going helicopter. These indications are essential for positioning the helicopter during final approach and landing.

Spotlights must be properly installed to ensure that the light source not be directly visible to the pilot at any stage of landing. Lighting must be designed to provide an average horizontal illumination of at least 10 cd with a uniformity ratio of eight to one.

The spotlights can be controlled by ALPH, and their intensity can be reduced or turned off at the pilot's request.

Note: for vessels/platforms **built from 2023 onwards** it will be mandatory use of lighting around the touch area and the letter H. This Lighting can be done using LED technology or light strings.

## CHAPTER 6 OPERATING PROCEDURES

### 6.1. PURPOSE

The purpose of this chapter is to describe the operational procedures to be adopted by crew members directly involved in air operations.

### 6.2. QUALIFIED PERSONNEL

During air operations, the helidecks of the inhabited maritime platforms and of the vessels must be manned by:

a) aviation firefighting and maneuver team (EMCIA), consisting of:

I) one (1) Helicopter Launch and Landing Agent (HLLA), who must be the EMCIA leader and be qualified to operate the portable aeronautical VHF radio transceiver, ready to communicate about risk situations or in case of emergency, in Portuguese, with the pilots and/or radio operator, and to operate the portable maritime VHF radio transceiver, ready to communicate with the rescue vessel;

II) two (2) (category H1) or three (categories H2 or H3) Aviation Firefighters (BOMBAV), aiming to man the foam monitors and provide assistance in case of emergency; and

III) two (2) Helideck Assistants (AHD) for H2 and H3 and one (1) for H1, personnel who assists in loading or unloading material and passengers, must have a course in Maneuvering and Aviation Firefighting (MCIA), assigned to BOMBAV, as well as the fuel suppliers fuel, if any.

b) radio operator on offshore platform (RPM) - must remain at the radio station (Exclusive Telecommunications Station – ETEX) of platforms or vessels, aiming establish bilateral communications with the aircraft, in Portuguese.

c) rescue boat crew - consists of three crew members, one of whom is in the role of boss, all qualified for rescue and salvage activities and wearing the appropriate equipment personal protective equipment (PPE) required.

The EMCIA components, the Rescue Boat crew, Radio Operator and the fuel suppliers may not accumulate other functions during the period of air operations.

### 6.3. OPERATIONAL DUTIES AND RESPONSIBILITIES

Each crew member engaged in air operations must be duly qualified and trained to perform the functions of their responsibilities.

When inspecting helidecks, the certificates of technical qualification (CHT) of the courses, of the ALPH, of the BOMBAV, of the RPM and of the crew of the Rescue Vessel, within validity.

The Aviation Firefighting and Maneuvering course held in the country, at an institution accredited by the DPC, must comply with the contents of NORMAM-104/DPC or, if carried out in the abroad, those that are within the validity period and issued by foreign Maritime Authority or by an organization subordinate to it, or by an institution accredited as long as they have been endorsed/approved by it.

Companies wishing to provide this course will be certified and may be audited. by the DPC.

The ALPH and BOMBAV will have their performances evaluated during inspections.

The Offshore Radio Operator course must meet the requirements for it established by the Institute for Airspace Control (ICEA).

The course established for the Rescue Vessel skipper must meet the requirements set out in Chapter VI, section A-VI/2 of the STCW 78/95 Convention and the other two components must have basic first aid training, whose minimum standards specifications are set out in Table A-VI/1-3 of the said convention.

a) helicopter launch and landing agent - is the crew member responsible for coordination of air operations, helideck readiness, EMCIA leadership.

The ALPH must:

i) know the requirements for helidecks established in this standard;

ii) wear fire resistant (RF) coveralls;

III) wear a vest in contrasting colors, in order to be easily identified;

IV) be equipped with a portable aeronautical VHF transceiver, tuned to the ETEX aeronautical frequency of the helideck;

V) communicate directly with the aircraft to alert pilots about risk situations;

VI) visually monitor the helicopter's trajectory during entry over the helideck for landing, especially at night, communicating directly with the aircraft, when necessary, to alert pilots to situations of high potential risk, such as entering the wrong helideck, forgetting the landing gear, smoke coming from the aircraft, presence of other aircraft, among others;

VII) check and maintain communications with the Command, the Radio Operator and the rescue boat crew, via portable marine VHF radio transceiver, throughout the period of air operations;

VIII) use the Portuguese language when communicating with the aircraft;

IX) observe, when landing and taking off the helicopter, any situation risk and use the aeronautical VHF transceiver to communicate with the pilots; also visual signals may be used in accordance with publication ICA 100-12, Annex A. —

X) know the functions of all EMCIA components ;

XI) coordinate fire fighting on the helideck;

XII) know the emergency exits, doors, luggage compartment, main equipment and the dangerous areas of aircraft operating on the helideck;

XIII) man the helideck at least fifteen (15) minutes in advance in relation to the estimated time of landing of the aircraft on the platform/vessel;

XIV) keep the helideck manned after the helicopter takes off, for at least 15 (fifteen) minutes or until the unit establishes contact with another unit;

XV) ensure that, before take-off, passengers are aware of the helicopter normal and emergency procedures (*briefing*);

XVI) supervise all activities on the helideck such as:

- boarding and unboarding of personnel and material;
- helicopter refueling;
- check that cargo and/or luggage are secured and locked;
- ensure that personnel, cargo and baggage are weighed;
- chocking and/or securing the aircraft;
- keep luggage and cargo isolated after weighing; and
- sign the air transport manifest (MTA).

XVII) carry out training with EMCIA components every time there is a change of class, and register (with date, names and subject) addressing the following topics:

- familiarization with the helicopters operating on the helideck;
- helideck characteristics (capacity, signaling and fire extinguishers);
- handling of fire-fighting equipment;
- helicopter crash procedure at sea, including the maneuver of the rescue boat;
- fire fighting procedures ;
- helideck manning procedure; and
- reading accident prevention reports.

XVIII) ensure that, before air operations, the helideck is prepared, complying with the following procedures:

- DOE patrols on the helideck and nearby decks;
- check the windsock (condition of conservation and free movement);
- bounce or remove obstacles that are within the SLO and SOAL;
- check that the cranes are de-energized at the cradles or in position safe;
- check the support and rescue material;
- perform communication test with Radio Operator and Rescue Vessel and Rescue;
- perform AAFD light tests;
- check the status of the helideck *status light*;
- test the monitor cannons with water before air operations and maintain them pressurized during helicopter operations;
- limit the movement of people on the helideck to the personnel involved;
- carry out *briefing* and *debriefing* with EMCIA components;
- check if the BOMBAVs are equipped and positioned in their proper positions monitors (foam cannon) and ready to be activated;
- check the integrity of the protective screens; and
- inform "helideck cleared for landing" to the Radio Operator.

XIX) perform, during the landing and take-off phase, a visual scan of the horizon in order to identify risks in the trajectory, not allowing landing or takeoff until this trajectory is free from possible obstacles, instructing attacks if necessary; vessels and birds can if it constitutes obstacles to air operations;

XX) know the PEA/PRE; and

XXI) know RBAC 175.

b) aviation firefighters - are crew members specifically qualified to man firefighting equipment during helicopter operations.

BOMBAVs must:

i) wear basic protective clothing and accessories as described below:

- approach suit or 7/8 cover for fire fighting;
- balaclava type mask;
- ear protector;
- firefighter's helmet;
- firefighter gloves; and
- firefighter boots.

II) know the emergency exits, doors, luggage compartment, main equipment and the dangerous areas of aircraft operating on the helideck;

III) man the helideck at least fifteen (15) minutes in advance relation to the estimated time of landing of the aircraft on the helideck;

IV) while refueling the helicopter, remain at the gunpoint monitors ready to be activated;

V) request testing of the monitoring cannons with water and keep them pressurized during helicopter operations;

VI) know the PEA/PRE; and

VII) know RBAC 175.

c) helideck assistants - are crew members specifically qualified to assist the ALPH when embarking and disembarking personnel and material, as well as replacing the BOMBAV in immediate needs. You should:

i) wear fire resistant (RF) coveralls and PPE;

II) wear a contrasting colored vest to be easily identified;

III) know the emergency exits, doors, luggage compartment, main equipment and the dangerous areas of aircraft operating on the helideck;

IV) man the helideck at least fifteen (15) minutes in advance in relation to the estimated time of landing of the aircraft on the platform/vessel;

V) coordinate with the ALPH the embarkation and disembarkation of personnel and material;

VI) know the PEA/PRE; and

VII) know RBAC 175.

d) radio operator on a maritime platform - ETEX M - professional holding the Certificate Technical Qualification (CHT), issued by the Department of Airspace Control (DECEA), after successful completion of CNS-014 taught by ICEA (FAB). The valid CHT must to be presented during inspections of the helideck.

The Radio Operator must:

I) activate EMCIA and the Rescue boat crew at least 10 minutes in advance 15 (fifteen) minutes in relation to the estimated time of landing of the aircraft on the platform;

II) activate the crane operators to de-energize all equipment and position them in the cribs or in a safe position, previously defined and that does not interfere with the SLO and with the SOAL of the helideck;

III) maintain radio contact with the aircraft, transmitting aeronautical information necessary. Administrative matters should be dealt with the ALPH when landed;

IV) maintain permanent listening until landing and cutting of the helicopter engines in platform/vessel and after takeoff until it establishes contact with another unit;

V) use the Portuguese language in radio communications between platform and aircraft, in Brazilian Jurisdictional Waters;

VI) maintain communications with the ALPH and the rescue boat crew during the entire period of air operations;

VII) provide the following information:

- vessel's course (when applicable) or heading, reported in degrees relative to magnetic north;

direction and intensity of the wind, reported in degrees and knots (kts), in relation to magnetic north, averaged over the last two (2) minutes; and wind gusts (where applicable);

ambient temperature, given in degrees Celsius;

sea condition on the Beaufort scale and, if possible, water temperature;

*pitch , roll , heave , heave rate*

pitch), *inclination* of the vessel, the maximum values of the last twenty (20) minutes

them;

HMS light condition (green or red) and the condition light status

helideck lighting (*status light* - on or off);

helideck readiness; and

known aircraft movements in the vicinity.

VIII) notify, when applicable, through the company's loudspeaker system.

Vessel/Platform: "Vessel in aerial operations, the use of RPA is prohibited".

IX) know the PEA/PRE;

x) transmit data on weather conditions and water movements

vessel to helicopter operators and ground support units;

XI) adjust the correct category of aircraft that will land on the helideck in the HMS;

XII) before air operations, ask the technician responsible for air maintenance

EPTA to verify the operation and recording of the video, audio and data system of the

HMS;

XIII) Fill in the communications record book (LRC) until the recorder approves it.

voice for the Air Force;

XIV) immediately inform the aircraft Commander when it occurs

gas leak or change in helideck condition (red light on HMS and/or *status light*

on) on the vessel/platform;

XV) Inform the aircraft Commander of the recommended operating conditions

in the CFD study, when applicable, to avoid turbulence through structures or discharges

of gases; and

XVI) Have two (2) devices for transmission and reception in the frequency range

of the Aeronautical Mobile Service (SMA), in VHF-AM.

e) rescue boat crew

The rescue boat crew must:

I) keep the boat ready and equipped for launching into the sea, so that be able to begin your journey at sea to carry out the rescue within two (2) minutes, during air operations;

II) maintain communications with the ALPH, Radio Operator and Command throughout the period of air operations, by means of a portable maritime VHF radio transceiver;

III) be able to provide first aid and rescue survivors of an aircraft accident at sea, close to its platform;

IV) use a safety belt when on board the rescue boat, during execution of lowering and lifting maneuvers, connecting it to the eye of the cable lifting/lowering during the lowering and lifting maneuvers of the same. It may be The lanyard equipment is used to extend the safety cable and facilitate movement in the boat. The safety belt is part of the crew's personal protective equipment (PPE) of the boat; e

V) know the PEA/PRE.

f) helicopter commander

The Helicopter Commander must:

I) know NORMAM-223/DPC;

II) know the current regulations of the Air Force Command and ANAC;

III) maintain bilateral contact with flight, platform or other protection agencies vessel;

IV) communicate, via radio, with the destination vessel/platform at least thirty (30) minutes before the scheduled landing time. If the flight time is less than thirty minutes, the communication must be made immediately after take-off;

V) observe safety standards for the transportation of external cargo and articles restricted;

VI) accept receipt of properly tested fuel in the aircraft under your command;

VII) report any irregularities found to your company;

VIII) check, before landing/takeoff, whether there is any vessel that may interfere with its operation in the event of the need to use the single-engine helicopter performance;

IX) note that, given the greater distance from installation obstacles, the entry onto the helideck for landing must always be done via the SLO;

X) comply with current aeronautical regulations when traveling to helidecks or helidecks adapted to vessels/platforms;

XI) ensure that after a landing on the wrong helideck (*Wrong Deck Landing* (WDL)), the aircraft will only take off from this helideck after it is manned by the EMCIA team and with authorization from ALPH;

XII) before take-off, check the weather conditions and movements of the vessel observing the information transmitted by the RPM; and

XII) before landing or takeoff, brief the pilots on the ramp favorable approach or takeoff, so as not to overfly the superstructure of the vessel by parts of the aircraft.

g) helicopter operating company

The Helicopter Operating Company must:

I) provide training on NORMAM-223/DPC for Pilots of helicopters;

II) notify ANAC and the owner or shipowner or operator, the management platform or captain of the vessel, irregularities found on the helidecks by Helicopter Commanders:

III) ensure that before flights to platforms/vessels, all passengers attend the safety *briefing* ;

IV) inform the platform operator of the wind envelope for landing and takeoff, wind limits for starting and stopping the engines, and *roll* limits , pitch *and* heave *for* aerial operations, with respect to platforms or vessels;

V) inform the operator of the scheduled time for landing and takeoff at destination helidesque;

VI) ensure that landing and take-off operations are only carried out within the limits defined in the helicopter's landing and take-off envelope;

VII) know NORMAM-223/DPC;

VIII) know the regulations of the Air Force Command and ANAC, in force;

IX) ensure that after a landing on a wrong helideck occurs (*Wrong Deck Landing* (WDL)), the aircraft will only take off from this helideck after it is manned by the EMCIA team and with authorization from ALPH; and

X) provide pilots with weather conditions and information before the flight. vessel movements observing the information transmitted by the RPM.

h) owner or shipowner or operator

The owner/shipowner or operator must:

I) ensure that the helidecks meet the requirements set out in this norma;

II) ensure that before flights departing from the platforms/vessels, all passengers attend the safety *briefing* ;

III) inform the DPC and the helicopter operating companies of any change in the conditions for which the Helideck Registration Order was issued;

IV) for the movement of platforms or vessels, proceed in accordance with what is prescribed in Chapter 2 of the Regulations for Traffic and Permanence of Vessels in Brazilian Jurisdictional Waters – NORMAM-204/DPC and consider the conditions that will influence in operations, such as aligning the approach and takeoff axis with the mean wind predominant at the site and the location of burners, turbine exhaust ducts or air coolers, so as not to interfere with the approach and take-off trajectory or the helideck surface;

V) ensure that landing and take-off operations are only carried out within the limits defined in the landing envelope informed by the operating company from the helicopter;

VI) provide air transportation between the DPC headquarters and the nearest city close to the platform to be inspected; land transport, in urban travel; and accommodation of the Inspection Committee;

VII) provide the MB Surveyors' Commission with an *offshore flight*, exclusive, intended for the relevant platform/vessel to carry out the planned inspections in this standard;

VIII) determine, after an erroneous landing has occurred on its helideck (*Wrong Deck Landing* (WDL)), the EMCIA garrison;

IX) know the rules of the Air Force Command, ANATEL and ANAC, in vigor; and

X) in the event of an accident or incident, only conduct air operations after the helideck is released by the DPC.

#### **6.4. VIDEO AND VOICE RECORDING SYSTEM**

The helideck must have a video recording system, with continuous and uninterrupted recording. use motion sensors to record air operations (final approach, landing and takeoff) with visualization according to the diagram in Annex 6A, and voice recording, for recording of communications between the aircraft and the Radio Operator. To improve control and standardization of their operations, airlines may request the recorded images from maritime units, which must share them.

Records from the video and voice recording system must be stored in accordance with the deadlines established in the Data Preservation Procedures contained in the Instruction of the Air Force Command (ICA) No. 63-25, for the recording system of voice.

In the event of the helideck voice and video recording system being inoperative, the person responsible the maritime unit must immediately communicate the fact to the DPC, estimating the deadline for restoration of the operational condition. At the discretion of the DPC, if the time for system repair is considered excessive, palliative control measures may be applied or even operational restriction.

The RPM must have a video monitor at the radio station to view the audio deck.

This system constitutes a valuable tool for investigation in the event of an aircraft accident and prevention in relation to possible future occurrences.

## 6.5. STATUS LIGHT

The *status light* when on will mean that the helideck does not offer safe conditions for landing and aircraft must remain away, or, if already landed, in case of risk to the maritime unit (gas leak), must take off immediately or turn off their engines; When the *status light* is off it means that there is a safe condition to operate in that audio deck.

On drilling and/or production platforms, this system must be connected to the alarm system, which is automatically activated in the event of a gas leak in the unit maritime.

When the helideck is unguarded, in an area with many vessels/platforms (within a radius of 1km from the helidecks), or when the limits provided by the Helideck Monitoring System (HMS) are outside the parameters, or the vessel has an alarm system activated that interferes with the operation of the helideck, the *status light* must remain on.

At night, if there is no forecast for air operations, all the lights on the helideck may be turned off.

Note: The aircraft Commander must be informed immediately by ALPH and/or RPM, when there is a gas leak or a change in the helideck condition (light incarnated on the HMS and/or *status light* on) on the vessel/platform.

## 6.6. DECOMMISSIONING OF VESSEL/PLATFORM

For the decommissioning of a vessel/platform, the following must be complied with: procedures:

a) vessel/platform with crew:

i) if up to one year has passed since the last certification, the vessel will send the DPC the CMCTH, beyond this period, the helideck must be certified again;

ii) if the crew is foreign, the EMCIA may be foreign, and must be having verified their respective certifications with the Representative of the Maritime Authority (DPC); e

iii) the ALPH must carry a portable maritime VHF radio transceiver, for the communication with the aircraft.

b) uninhabited vessel/platform:

i) if up to one year has passed since the last certification, the vessel will send the DPC the CMCTH, beyond this period, the helideck must be certified again;

ii) a *firefighting* support vessel must be made available to carry out the continuous monitoring of weather and sea conditions, equipped with a rescue boat, ready and manned during air operations. Environmental parameters to be observed during the day: minimum visibility of 3 km or 1.8 nautical miles; maximum wind speed of 21 knots or 40 km/h and maximum wave height of 2 m;

iii) the support vessel must transmit the conditions to the aircraft *pitch, roll*, inclination, wind (direction and intensity) and air temperature in the area of vessel/platform; and

iv) the ALPH must carry a portable maritime VHF radio transceiver, for the communication with the aircraft and support vessel.

c) after the last take-off of the vessel/platform, with crew or uninhabited, the helideck will be closed and the DPC will request ANAC to cancel its Ordinance of Record.

## 6.7. SANCTIONS

Vessels/platforms with helidecks may only operate with helicopters if are certified and registered, respectively, by MB (DPC) and ANAC, in compliance with this standard.

The improper use of helidecks, detected during inspections, reported by some helicopter operator or through proven complaints, will result in the sanctions provided for in current legislation, which may result in the suspension, definitive or temporary, of operations airlines by ANAC, at the request of DPC or DECEA/CINDACTA, when applicable.

## CHAPTER 7

### FIRE PREVENTION AND FIGHTING AND RESCUE

#### 7.1. PURPOSE

Describe the basic requirements for fire prevention and fighting on helidecks platforms and vessels.

#### 7.2. GENERALITIES

The basic requirements for fire prevention, fire fighting and rescue vary according to function of the helideck category.

Fires on board aircraft have two main sources: fuel and electrical. In both cases, the possibilities the pilots have resources, fire extinguishers in the compartments or inside the aircraft, to combat it. However, after landing, crash, incident or accident on the helideck or at sea, they may need external assistance.

Firefighting on the helideck must be coordinated by the ALPH, which must maintain, if possible, contact the aircraft crew.

#### 7.3. FIRE FIGHTING

a) foam application system - every helideck must have a foam combat system fire, equipped with foam generating branches, preferably equidistant, which guarantees its application throughout the helideck and meets the requirements set out in the table in paragraph c below. The maximum time to start using the foam should be fifteen (15) seconds from of activating the foam monitors.

In the case of using foam monitors (cannons) the helidecks:

- i) of category H1 must have at least two (2) foam monitors; and
- ii) categories H2 and H3 must have at least three (3) monitors.

foam.

In the case of using the *pop-up spray system* or *DIFFS (Deck Integrated Fire Fighting System)*, these must be equipped with two hose lines, with sufficient length to reach any part of the helideck, in order to allow access to the interior of the helicopter or replace the system in case of failure. Such hoses may be equipped with nozzles, connected to the foam generating system, or alternatively with a manual foam applicator using drums.

b) dry chemical and carbon dioxide fire extinguishers - every helideck must also have dry chemical and carbon dioxide fire extinguishers, with quantities and capacity, according to the your category, listed in the following item.

c) minimum quantity of extinguishing agents

Category do audio deck	Fire extinguishers chemical powder	Fire extinguishers		Minimum capacity of liquid tank foam generator LGE (l) (AFFF 1%)	Minimum capacity from the liquid tank foam generator LGE (l) (AFFF 3%)
		portable gas carbonic			
H1	1 unit x 50 kg 3 units x 6 kg			90	250
H2	2 units x 50 kg 3 units x 6 kg			170	500
H3	2 units x 50 kg 3 units x 6 kg			250	800

Notes:

the minimum Discharge Ratio Rate (Rd) (minimum flow rate) of each monitor (foam cannon) should be 5.5 liters per square meter per minute, as stated in the ICAO, *Doc Heliport Manual*.

To calculate the Minimum Discharge Ratio (T), the ratio rate must be applied discharge to the entire area of the helideck. Thus, the formula will be used:  $T = Rd \times \pi \times r^2$ , where r = radius of the helideck (length of the largest helicopter).

Example: Based on circle D for an S-92 (for illustration purposes, the length of the helicopter D is 20.88 m and consequently its radius R is equivalent to 10.44 m).

Minimum discharge rate (T) =  $5.5 \times 3.142 \times 10.44 \times 10.44 = 1,883$  liters/minute.

the minimum discharge ratio of the hoses for foam production should be 250 liters per minute;

dry chemical extinguishers must be positioned in such a way as to ensure that the extinguishing agent reaches the entire helideck and can be replaced by 20 kg units or 25 kg; trailers that could not be taken to the helideck must have a length of hose that reaches the center of the helideck.

portable carbon dioxide fire extinguishers may be replaced by four (4) 4.5 or 5 kg portable fire extinguishers, with a charge of halogenated gas Fe-36.

- in case of failure of one of the foam monitors, it can be replaced,

up to a maximum period of six (6) months, through a water pressure outlet, with hose equipped with a nozzle and a device for connecting to the foam generator. Alternatively, such hose can be equipped with a manual foam applicator using drums. The vessel/platform must inform the DPC of the situation, establishing the deadline for readiness of the system;

LGE storage tanks must have the identified capacity in liters and have a level indicator or other instrument that informs the amount of liquid in the reservoir. If there is a pressure gauge, it must have the calibration report, to be presented at the time of inspection;

the foam monitor jets should reach the center of the touch area, when activated simultaneously and the opposite side of the helideck, when activated individually; and

the LGE storage tank may be replaced, up to the maximum period of six (6) months, per drum, as long as they present their capacity in liters and have the quantity determined by the table above. The vessel/platform must report the situation to the DPC, establishing the deadline for the system to be ready.

Notes:

- during inspections, documentary evidence of the above notes must be presented.
- the hoses, in reserve for the *pop-up spray or DIFFS system*, in case of failure, must be equipped with a manual foam applicator using portable drums with a minimum capacity of 1/3 of the foam generating liquid tank.

#### **7.4. RESCUE BOAT**

Platforms and vessels must have a rescue boat, approved by the DPC, for the rescue of shipwrecked people according to the publications International Convention for the *Safety of Life at Sea (SOLAS)* and International Code of Conduct Life-Saving Appliances (*International Life-Saving Appliance Code - LSA*).

Foreign-made rescue boats may be accepted, provided they have Approval Certificate issued by a foreign Maritime Authority.

Uninhabited platforms are exempt from having a rescue boat, however must have at least one life raft.

The lowering and lifting system must be tested when carrying out the exercises simulated. The lowering time must be recorded at the time.

The crew must wear individual safety belts when on board the lifeboat. rescue, connecting it to the eye of the lifting/lowering cable during lifting maneuvers. lowering and hoisting of the same. The lanyard equipment may be used to increase the safety cable and facilitate movement in the boat. The safety belt is part of the personal protective equipment (PPE) of the boat crew.

### **7.5. TOOLS, SUPPORT AND RESCUE MATERIAL**

Helidecks must be equipped with tools and support and rescue material, which will be stored in red painted cabinets, properly marked, close to the helideck and properly protected from the sun and rain. The chosen location must allow, in case of an accident, that the materials be moved to the helideck immediately.

The following items must be available for immediate use:

a) tools:

- I) one (1) firefighter's axe for rescue (over 3 kg);
- II) one (1) crowbar of at least 1 m;
- III) one (1) rebar cutter of at least 0.60 m;
- IV) one (1) hand saw for metals;
- V) one (1) 8 (eight) inch insulated universal pliers;
- VI) one (1) 10 (ten) inch screwdriver ;
- VII) two (2) belt cutters; and
- VIII) three (3) portable lanterns, two (2) with red signal lights.

b) support material:

I) one (1) scale with a minimum capacity of 150 kg, with calibration certificate valid, placed near the helideck, in order to weigh personnel, luggage or material to be loaded onto the aircraft;

II) three (3) pairs of shims;

III) at least four (4) metal or *nylon straps*, specifically for mooring of aircraft, whose couplings are compatible with the bores. If it is not possible to fit between shackles and lashings, shackles or cargo lashing straps may be used, with

resistance equal to or greater than that of the restraints;

IV) one (1) articulated or support ladder, with a height compatible with the dimensions of the largest helicopter operating on board; and

V) one (1) helideck signaling tarpaulin closed, annex 5-H. \_\_\_\_\_

Note: The chocks must be compatible with the helicopter wheel. Experience of *offshore* helicopter operation has shown that the most effective chock for use on helidecks is the NATO *sandbag* type . Alternatively, rubber or plastic triangle type wedges can be used. one piece fore and aft. The triangular rubber pad is generally effective on platforms without nets.

c) fire-fighting clothing:

Each BOMBAV must have a fire-fighting suit consisting of:

i) firefighting and approach clothing or 7/8 firefighter's cover

fire approach and fighting;

II) balaclava type mask;

III) ear protector;

IV) firefighter's helmet;

V) firefighter gloves; and

VI) firefighter boots.

d) salvage material:

I) one (1) portable first aid kit;

II) three (3) rigid floating stretchers with head immobilizer; and

III) one (1) portable oxygen bottle and two (2) masks.

## 7.6. UNINHABITED PLATFORMS

The helideck is located on an uninhabited fixed platform, where the rescue capacity is reduced, should be used for landing up to three weekly air journeys and in conditions VMC.

When there are people on board, the platform must have at least one with the course of ALPH, carrying a portable maritime VHF radio transceiver. The others do not need to have the BOMBAV course, however, they need to know how to use the equipment and be equipped with the fire fighting suit.

Uninhabited platforms, as they do not have ETEX, do not require a voice recorder.

In uninhabited units, video images can be extracted remotely.

When there are no people on board, uninhabited platforms must be provided with personnel qualified to man the helideck. EMCIA must be conducted on the first flight and removal on the last flight to/from the uninhabited platform.

The wind direction indicator (windsock) must follow article 5.3 of this standard.

There must be a sensor indicating wind direction and intensity (anemometer). However, every uninhabited platform must also have a portable anemometer.

There must be an external temperature sensor close to the helideck.

Note: - the use of a support vessel is mandatory, which must have a boat with rescue capacity. It must transmit the conditions of wind and temperature in the platform area for the first landing. They must be available, for ready to use, at least the following items:

a) tools:

- I) one (1) firefighter's axe for rescue (more than three 3 kg);
- II) one (1) crowbar of at least one meter;
- III) one (1) rebar cutter of at least 0.60 m;
- IV) one (1) hand saw for metals;
- V) one (1) eight (8) inch insulated universal pliers;
- VI) one (1) ten (10) inch screwdriver;
- VII) two (2) belt cutters; and
- VIII) three (3) portable lanterns, two (2) with red signal lights.

b) support material:

- I) three (3) pairs of shims;
- II) at least four (4) metal or *nylon straps*, specifically for mooring of aircraft, whose couplings are compatible with the swivels;
- III) one (1) articulated or support ladder, with a height compatible with the dimensions of the largest helicopter operating on board; and
- IV) one (1) helideck signaling tarpaulin closed, annex 5-H. \_\_\_\_\_

c) rescue equipment:

- I) one (1) portable first aid kit;
- II) one (1) rigid floating stretcher with head immobilizer; and
- III) one (1) portable oxygen bottle and two (2) masks.

d) fire-fighting material:

- i) three (3) 6 kg portable dry chemical fire extinguishers;
- ii) three (3) 6 kg portable carbon dioxide fire extinguishers; and
- III) one (1) fire fighting system equipped with a foam monitor that

ensure application throughout the helideck and meet the requirements set out in the table in paragraph c of article 7.3.

e) fire-fighting clothing:

Each EMCIA component, except the ALPH, must have a combat suit.

fire composed of:

- i) approach and fire-fighting clothing or 7/8 firefighter's cover

fire approach and fighting;

- II) balaclava type mask;
- III) ear protector;
- IV) firefighter's helmet;
- V) firefighter gloves; and
- VI) firefighter boots.

f) life raft:

Approved in accordance with the requirements set forth in the International Convention for the Safety of Life at Sea (SOLAS) and with capacity compatible with the aircraft that can operate on that helideck. This ferry must have a device for its rapid release if necessary.

Note: The above items are the exceptions, all other items in this standard must be served by uninhabited platforms.

## CHAPTER 8

### FUEL SUPPLY

#### 8.1. GENERAL PROVISIONS

This chapter contains general information about aircraft fueling in maritime platforms and *offshore* vessels .

The on-board fuel supply system for the storage tanks of static fuel, must have:

- a) storage tank;
- b) disposal tank;
- c) distribution system;
- d) pipes, filters and sockets;
- e) a fuel supply hose line, with their respective supply nozzles (by gravity and/or pressure);
- f) a ground wire sized to provide static discharge, with minimum length 2.5 m and male and alligator clip terminals; and
- g) a pump system capable of delivering 50 UK gallons (227 litres) per minute, helideck, with a minimum pressure of 40 psi.

The design of fuel systems must provide for the containment of possible spills, as well as facilitating fire fighting in these systems and also having the isolation capacity from other areas of the unit.

#### 8.2. FIXED STORAGE TANK

The storage tank must meet *Intergovernmental Marine Consultative Organization* (IMCO). It must have filtering equipment and resources that allow recirculation through a coalescing filter and separator, in addition to drainage facilities.

Fixed storage tanks must have:

- a) external indication of tank capacity;
- b) device for measuring the fuel level in the tank. If a device is used, probe rod, it must not touch the inner wall of the tank, in order to avoid any scratching, especially on coated tanks; and

c) corrosion treatment and yellow finish.

### **8.3. TRANSPORTABLE STORAGE TANK**

For transportable fuel storage tanks, the following must be complied with:

which appears in chapter 7 of CAP 437.

Transportable storage tanks must have:

a) external indication of tank capacity; and

b) device for measuring the fuel level in the tank. If a device is used, probe rod, it must not touch the inner wall of the tank, in order to avoid any scratch, especially on coated tanks.

Note: it is not expected to have features that allow fuel recirculation, however, it must have drainage facilities.

### **8.4. DISCARD TANK**

There must be a suitable tank to dispose of drained fuel samples.

### **8.5. DISTRIBUTION SYSTEM**

The distribution system for transferring fuel from the storage tank to the aircraft must include, as a minimum, the components described below:

a) pump - must be capable of delivering up to 50 UK gallons (225 litres) per minute under normal flow conditions and minimum working pressure of 40 psi and maximum of 60 psi. The button remote start and stop must be located near the helideck and the emergency stop button should be located near the pump. The flashing amber warning light The pump's operating status must be visible to the aircraft's fueling crew.

Normal and emergency operation manuals must be on board.

b) filtering equipment - coalescing and separating filters must be installed equipped with a differential pressure gauge whose filter elements are in accordance with current standards. These filters must provide protection against particles of one micron and be arranged in the system so that drainage and recirculation can be carried out through the filters and supply nozzle.

At least one monitor-type filter, whose filter elements comply with the standards in force, must be installed immediately before the fuel passes to the hose supply. The main purpose of this device is to block the passage of

aviation fuel, if it has a water content above the acceptable limit.

Filters must have plates identifying the manufacturer as well as the filter elements, with identification of the last inspection and replacement carried out, according to the current regulations.

c) flow meter - must be volumetric and sized to meet the flow rate, and should be calibrated regularly in accordance with the manufacturer's recommendations. The flow meter must include a filter and an air eliminator.

d) supply hose - must comply with current standards and must be stored on a reel appropriate to its size and protected against the action of rain and sun rays.

e) grounding cable - must be used to provide static electricity discharge before the start of refueling. The ends of the cable must be connected, on one side, to the distribution system and on the other, to the aircraft structure through a device quick disconnect.

f) fueling nozzle - aircraft fueling can be carried out by gravity or pressure. It is recommended that the unit has both types of supply, to cover all aircraft models.

g) protection against exposure to the weather - the distribution system must be protected from weather, minimizing deterioration of the hoses and contamination by dust and water.

## **8.6. FUEL SYSTEM MAINTENANCE**

The storage, handling and quality control of aviation fuel are fundamental to the safety of air operations, as fuel contaminated by water or by solid particles can lead to engine shutdown.

Minimum procedures for ensuring fuel quality.

a) fuel sample - should be taken regularly from the fuel nozzle fuel samples to check for the presence of solid particles and water. The samples must be packaged in containers whose requirements are set out in paragraph b. If they are Accessories used in collecting samples (funnel, etc.) must be made of stainless steel, glass or aluminum and must be absolutely clean before collection, so as not to contaminate the sample.

If no impurities (solid particles) are observed, the samples should be tested for the presence of water using an appropriate test, such as the *Shell Water Detector* or *Exxon Hidrokit*.

b) fuel sample containers - must be made of glass or stainless steel with no maximum two liters capacity and be absolutely clean before receiving the samples. The containers with the collected and tested samples must have the test date affixed and must be stored for a minimum period of 48 hours, protected from light and heat.

The storage of such samples will be verified during inspections.

c) storage tanks - static storage tanks must be subject to regular inspections, with frequency depending on the constituent material of the tank. If the storage tank is made of carbon steel with epoxy coating (in the light color) should be inspected at least once a year; if it is made of stainless steel, these inspections must occur every two (2) years.

The fuel quality certificate must be presented to the inspectors, delivered by the fuel supplier to the operator, referring to the last refueling.

The reports of the inspections carried out must be kept on file and may be verified during inspections carried out by the DPC.

d) distribution systems - must be inspected every three (3) months. In addition, must be subject to daily, weekly and monthly inspections carried out by personnel helideck supply, to ensure satisfactory fuel quality.

i) daily inspections - these inspections must be recorded in a book own and in the Daily Inspection Form, according to the model in Annex 8-A. The following \_\_\_\_\_ procedures must be followed:

filters - remove fuel from the collector until it is clean. The sample should have the correct coloration, visually clean, clear and free from any solid material. The sample (QAV-1) should be analyzed, checking for signs of dissolved water, using a syringe and capsule water detection; and

storage tank - also take a fuel sample of each compartment of the storage tank and check its quality as described in paragraph a. Take another sample from the end of the hose and check its quality

according to the procedure described above. Check the condition of the drains, vents and valves in terms of physical appearance and leakage.

Retain the fuel samples taken in accordance with the above paragraphs, for at least 48 hours, in order to allow them to be analyzed in the event of an aircraft accident.

II) weekly inspections - these inspections must be recorded in a book own and in the Weekly Inspection Form, according to the model in Annex 8-B. \_\_\_\_

· differential pressure indicator - during refueling, the reading of the differential pressure indicator must be noted and recorded in the technical registration sheets of the filter;

· the entire system - a general check of the entire system is required, with Pay special attention to leaks and the condition of the connections, checking that they are all clean and hermetically sealed;

· filters - filters installed on injectors and fuel supply joints must be inspected and cleaned. During inspections, the sealing condition must be verified;

· distribution hose - the filter must be removed and inspected; and

· grounding cable - must be inspected for general condition and electrical connections.

III) quarterly inspections - quarterly inspections must be carried out by qualified personnel. Inspections depend on the type of installation and serve as a general guide. Items Additional items may be included as needed.

The performance of these inspections must be recorded in a specific book and in the Inspection Form. Quarterly Inspection, according to the model in Annex 8-C. The following procedures must be followed:

· filtration units, decantation line, monitor filter and distributor - obtain a fuel sample and inspect for appearance and presence of water. Note the sample inspection results on the respective record sheets. If the samples are unsatisfactory, this may indicate the presence of bacterial growth in the separator. If this occurs, open the filter container and inspect for the presence of detergent additives, bacteriological presence, mechanical damage and the condition of the coating (if applicable). Clean

any deposit and run water test on water separator;

hose - perform visual inspection of the hose while under system pressure. Inspect for external damage, dents, cracks, leaks, and any other sign of defect. Carefully inspect the hose sections within 45 cm away from joints, as these sections are especially prone to deterioration;

pump - remove, clean and inspect filters. If pneumatic, remove the air line lubricant, regulator and water separator units, and perform necessary maintenance;

hose reel - check the correct functioning of the hose mechanism spool and lubricate the gears of the mechanism;

filler nozzle - inspect operation to ensure that the operation is correct and there are no leaks. Remove, clean and inspect visually inspect the conical filters and replace if necessary. Dust caps must be correctly positioned and fixed; and

Grounding cable - inspect for general condition and continuity, the claws and connecting pins, replacing them if necessary.

IV) biannual inspections - biannual inspections must be carried out by qualified personnel. They must include all elements of the quarterly inspections, in addition, include the procedures below:

filtration units, decantation line, monitor filter and distributor - inspect the operation of the differential pressure indicator (replace the filter element if the differential pressure limit has been exceeded); and

pump - inspect all electrical circuits. Inspect the level of gearbox oil as appropriate. Inspect the junction between motor and pump for is worn or shows signs of misalignment. Consult the maintenance schedule recommended by the pump manufacturer to see if there are additional items.

The performance of these inspections must be recorded in a specific book and in the Inspection Form. Biannual Inspection, according to the model in Annex 8-D.

Note: all items in the system may be checked during the inspection, including the removal of samples for testing.

## 8.7. AIRCRAFT FUELING PROCEDURES

ALPH must be notified before the start of supply.

Aircraft refueling must be carried out by qualified personnel.

Vessel or Platform approved for supplying aviation fuel must have personnel certified for this supply throughout the entire period of approval of the audio deck.

All passengers must disembark the helicopter and leave the helideck before from the start of supply. The fire-fighting team must be ready throughout supply operation.

The following procedures must be carried out when refueling:

- a) take a fuel sample from the end of the nozzle for refueling by gravity or from the water separator drainage point, for pressure supply;
- b) perform a water detection test. One of the pilots must witness the test in order to check that the result is within the acceptable limit;
- c) connect the grounding cable to the aircraft;
- d) connect the pressure supply port to the aircraft. The person responsible for the task must be positioned close to the supply point. If the supply is by gravity, the aircraft tank outlet must be opened and the fuel nozzle inserted. The Refueling must be controlled and interrupted by the pilot as soon as he confirms receipt of the desired quantity. It is not recommended to use gravity to fill the tank. simultaneously with the occurrence of rain;
- e) activate the shut-off valve immediately if any abnormality is observed during refueling;
- f) remove the fuel nozzle or disconnect the fuel plug by pressure, as applicable, and replace the aircraft tank cap. Finally, disconnect the secondary grounding cable;
- g) remove the helideck supply hose and perform a final check to ensure that the aircraft fuel tank cap is correctly fitted; and
- h) disconnect the aircraft's main grounding cable. The hose must be wound on the respective spool.

### **8.8. AVIATION FUEL SYSTEM CERTIFICATE**

The Vessel or Platform that you wish to include in the helideck approval fuel supply must, when requesting inspections, present a fuel system certificate, issued by an organization recognized by the DPC, explaining that it is in safe conditions for conducting refueling of aviation fuel and informing whether the tank is transportable or fixed; as per Annex 8- — E. This document will be valid for three (3) years and must have been issued no more than three (3) months ago. before the inspection request.

Note: The Ports and Coasts Directorate does not carry out the approval of systems fuel for vessels/offshore platforms.

## CHAPTER 9

### COMMUNICATIONS AND NAVIGATION SYSTEMS

#### 9.1. PURPOSE

This chapter deals with the characteristics of communication and navigation aid systems. Brazilian aeronautical legislation provides that every station that carries out communications or provides air traffic service to aircraft must meet specific requirements that vary according to with the nature of communications and the services provided. These stations are called Exclusive Telecommunications Stations (ETEX) and are regulated by Instruction of the Command of Aeronautics (ICA) 63-10, which lists the definitions and requirements necessary for the installation of an ETEX.

#### 9.2. HELIDECK CLASSIFICATION REGARDING NAVIGATION

a) stationary helidecks - these are located on offshore platforms or in vessels that will be approved to operate in a stationary geographic position in the AJB.

Depending on the type of vessel, this position may undergo tolerable variations, and in this In this case, the position reported should be the position of the mooring to the bottom.

The position must be included in the FRH and will be published in its Registration Ordinance, always in geographic coordinates and with precision of tenths of minutes.

Stationary helidecks will be considered those expected to operate in a same geographical position for at least one year.

b) variable position helidecks - these are located on offshore platforms or in vessels that, given the nomadic nature of their operation, will be approved for operate in any position or geographic area in the AJB.

#### 9.3. COMMUNICATIONS

All communications between helidecks and aircraft must be carried out in the Portuguese language.

The radio room must be approved as ETEX M, in accordance with the ICA standard in force, and the Radio Operator must have specific training.

Communications include the exchange of information necessary to bring the aircraft and its preparation for landing, that is, the initial contact with the helideck

by the aircraft and the receipt of information about the conditions at the AAFD, which must be obtained from the Helideck Monitoring System (*Helideck Monitoring System - HMS*).

This information includes:

- a) vessel's course (when applicable) or heading, given in degrees in relation to magnetic north;
- b) wind direction and intensity, reported in degrees and knots (kts), relative to the north magnetic, averaged over the last two (2) minutes; and wind gusts (when applicable);
- c) ambient temperature, given in degrees Celsius;
- d) *pitch , roll , heave , heave rate , inclination* of the vessel, from the maximum values of the last twenty (20) minutes;
- e) HMS light condition (green or red) and the status of the HMS condition light. helideck (*status light* - on or off);
- f) sea conditions on the Beaufort scale and, if possible, water temperature;
- g) readiness of the helideck; and
- h) known movements of aircraft in the vicinity.

The ALPH must communicate directly with the aircraft to alert pilots about risk situations or in case of emergency.

Communications on aeronautical frequencies must be limited to matters of interest to the aircraft and administrative matters should not be handled. Other matters, such as the readiness of the helideck, number of passengers to embark and disembark, cargo to be transported, etc., must be transmitted between ALPH and vessel/platform using another frequency.

On uninhabited platforms there is no need for a registered ETEX M, However, there must be a portable marine VHF radio transceiver.

Note: ETEX M RPM is not authorized to perform traffic control service. aerial.

#### **9.4. HELIDECK MONITORING SYSTEM**

Every ETEX M must have a Helideck Monitoring System . (*Monitoring System - HMS*). This equipment provides wind information (direction, intensity and gusts), ambient temperature, real-time helideck movements, storage

of data, reporting tools and critical alarms. Its aim is to assist in security of air operations.

The person responsible for the vessel (Platform Manager or Captain) must:

- suspend air operations when the helideck movements of their units are above the values indicated in the tables below;
- ensure that data on the movement of the unit is forwarded to the helicopter operators and ground support units;
- ensure that the data is reliable and has adequate accuracy;
- ensure that measuring instruments and associated systems are properly measured, calibrated and maintained;
- ensure that the calibration of instruments and sensors must be carried out according to the technical specifications established by the manufacturers, if there is no defined range it must be carried out every twenty-four (24) months, and in accordance with the parameters established by the Brazilian Calibration Network (RBC), made up of accredited laboratories or recognized by Inmetro; and
- make sure that the motion sensors must be positioned on the floor of the helideck. If this is not possible, the values presented for *pitch and roll* pitch (*heave*), pitch rate (*heave rate*) and inclination (*inclination*) should be corrected for helideck height and position, while thermometers and wind sensors must be installed, mandatorily, close to the helideck.

The following are the limits of the helideck movements that must be applied to floating marine units and, when satisfied, the helideck will be safe for landing and takeoff.

a) Procedure to be adopted:

I) with rocking, pitching, tilting movement; and higher pitching speed to the values shown in the table below, the helideck must be closed for air operations;

II) the **pitch** value only constitutes a limit to be observed when they are not information on **pitch speed available**;

III) with values equal to or lower than those indicated in the table, the assessment regarding the

The conditions for landing and/or takeoff to be carried out will be determined by the aircraft commander.

IV) **under normal conditions**, if **the red light comes on in the HMS** due to having exceeded the limit of some *pitch, roll, heave, heave rate, inclination* or intensity parameter or gust of wind, the **RPM will close the helideck to air operations via *status light***. In **emergency situations**, whether of the aircraft or the Maritime Unit (UM), remain in force all guidelines contained in the Brazilian Aeronautical Code (CBA) and Regulations Brazilian Civil Aviation Authority (RBAC). The decision of the aircraft Commander must be informed to the ONE, via ETEX.

b) helicopter category:

i) category A - includes all series of AS332, EC225, S-61 ...

92, AW189, H175 and others considered super medium and large;

ii) category B - includes all helicopters not included in Category A,

all series of AS365, EC135, EC155, S76, B212/B412, AW139, AW169 and H145 helicopters.

c) helideck class:

i) class 1 - includes helidecks of semi-submersible platforms;

FPSO; floating storage units (FSU); semi-submersible barges and barges

or not; of production vessels; of converted tankers and other vessels of

equivalent size, **with good visual references**;

ii) class 2 - includes vessel helidecks (e.g. DSV, seismic, support

maritime, etc.) which **provide good visual references** during landing operations and

takeoff, **installed at the stern or amidships**; and

iii) class 3 - includes helidecks on vessels that **offer few**

**visual references** during landing and takeoff operations, **installed at the bow or above the**

**superstructure**.

Table 1 - Movement limits of floating maritime units

Helicopter	Period of Operation	Helideque											
		Class 1				Class 2				Class 3			
		B/C	Inc	top (m/s)	Arf (m)	B/C	Inc	top (m/s)	Arf (m)	B/C	Inc	top (m/s)	Arf (m)
Category A	Daytime	±3°	3,5°	1,3	5,0 ±2°	2,5°		1,0	3,0	±2°	2,5°	1,0	3,0
	Nocturnal	±3°	3,5°	1,0	4,0 ±2°	2,5°		0,5	1,5	±1°	1,5°	0,5	1,5
Category B	Daytime	±4°	4,5°	1,3	5,0 ±3°	3,5°		1,0	3,0	±3°	3,5°	1,0	3,0
	Nocturnal	±4°	4,5°	1,0	4,0 ±2°	2,5°		0,5	1,5 ±1,5°	2,0°		0,5	1,5

- B/C - roll and pitch ;

- Inc - inclination;

- VArf - pitching speed; is the average speed of the center of the helideck, when

this moves between the maximum and minimum of the largest vertical oscillation; and

- Pitch - pitch is the vertical displacement of the center of the helideck.

#### Notes:

do not confuse helideck pitch with vessel pitch, which is the vertical displacement of the vessel's center of gravity;

the values of B/C, Inc, VArf and Arf are the maximum values that occurred in the last 20 minute interval;

the vessel will record in its helideck registration form which class it belongs to, however, the DPC may change it if it does not agree with this indication;

helidecks installed at the bow and/or above the superstructure of vessels will always be class 3;

vessels with helidecks amidships will always be class 2; and

adapted helidecks, located amidships, above the cargo hold cover (hatch cover) or on the side of the main deck of ships will always be class 3.

In units where the slope measurement is not directly available, its value will be obtained through Table 2, combining the balance and the unit's weight.

Table 2 - Calculation of the slope from the balance and the catarro

		Balance								
		0,0°	0,5°	1,0°	1,5°	2,0°	2,5°	3,0°	3,5°	4,0°
Catura	0,0°	0,0°	0,5°	1,0°	1,5°	2,0°	2,5°	3,0°	3,5°	4,0°
	0,5°	0,5°	0,7°	1,1°	1,6°	2,1°	2,5°	3,0°	3,5°	4,0°
	1,0°	1,0°	1,1°	1,4°	1,8°	2,2°	2,7°	3,2°	3,6°	4,1°
	1,5°	1,5°	1,6°	1,8°	2,1°	2,5°	2,9°	3,4°	3,8°	4,3°
	2,0°	2,0°	2,1°	2,2°	2,5°	2,8°	3,2°	3,6°	4,0°	4,5°
	2,5°	2,5°	2,5°	2,7°	2,9°	3,2°	3,5°	3,9°	4,3°	4,7°
	3,0°	3,0°	3,0°	3,2°	3,4°	3,6°	3,9°	4,2°	4,6°	5,0°
	3,5°	3,5°	3,5°	3,6°	3,8°	4,0°	4,3°	4,6°	4,9°	5,3°
	4,0°	4,0°	4,0°	4,1°	4,3°	4,5°	4,7°	5,0°	5,3°	5,7°

Example: if the balance is 2.5° and the pitch is 3.0°, the inclination will be 3.9°, as shown in the following table:

		Balance								
		0,0°	0,5°	1,0°	1,5°	2,0°	2,5°	3,0°	3,5°	4,0°
Catura	0,0°	0,0°	0,5°	1,0°	1,5°	2,0°	2,5°	3,0°	3,5°	4,0°
	0,5°	0,5°	0,7°	1,1°	1,6°	2,1°	2,5°	3,0°	3,5°	4,0°
	1,0°	1,0°	1,1°	1,4°	1,8°	2,2°	2,7°	3,2°	3,6°	4,1°
	1,5°	1,5°	1,6°	1,8°	2,1°	2,5°	2,9°	3,4°	3,8°	4,3°
	2,0°	2,0°	2,1°	2,2°	2,5°	2,8°	3,2°	3,6°	4,0°	4,5°
	2,5°	2,5°	2,5°	2,7°	2,9°	3,2°	3,5°	3,9°	4,3°	4,7°
	3,0°	3,0°	3,0°	3,2°	3,4°	3,6°	3,9°	4,2°	4,6°	5,0°
	3,5°	3,5°	3,5°	3,6°	3,8°	4,0°	4,3°	4,6°	4,9°	5,3°
	4,0°	4,0°	4,0°	4,1°	4,3°	4,5°	4,7°	5,0°	5,3°	5,7°

d) for helidecks installed on tanker mooring buoys, the limits are of  $\pm 2^\circ$  during the day and  $\pm 1^\circ$  at night, for rocking, tilting and tilting, for all helicopter categories.

Tanker mooring buoys are large buoys equipped with helideck and used in oil storage and loading of tankers.

e) on fixed platforms, the movement parameters (swing, pitch, tilt and pitch) are not applicable. These platforms must have a system that presents and record wind information (direction, intensity and gusts) and temperature, following the same requirements as HMS systems for these parameters.

f) maritime units may be considered as fixed platforms if, although floating, constantly have great stability, of the *Tension Leg Wellhead Platform* type (TLWP), and reduced pitching, rolling and rolling movements (less than 1° of C/B and less than 1 m of Arf/VArf) in the period of 6 months, measured by the HMS equipment.

g) in case of unavailability of the HMS, on vessels equipped with Positioning Dynamic (DP), the RPM must obtain movement information from the DP system; those that do not have this system should observe the parameters, using clinometers or mechanical inclinometers (Balance and Caturro) installed inside ETEX, for about two (2) minutes and record the maximum value of the period as a reading, in this case, there will be no information pitching speed. If the vessel/platform does not have mechanical inclinometers, helideck must be closed to air operations until HMS is ready. The vessel/platform must inform the DPC of the situation, establishing the deadline for readiness of the HMS system.

h) records of the HMS data recording system must be stored in accordance with the deadlines established in the Data Preservation Procedures contained in the Air Force Command (ICA) Instruction No. 63-25.

i) RPMs must be careful to enter the vessel class (1, 2 or 3) and the category of aircraft (A or B) being received by the vessel.

#### **9.5. RADIOFAROL (NDB)**

It can be installed on offshore platforms and vessels to mark a non-precision instrument approach procedure, approved together with with an EPTA category A or as an EPTA category C, in accordance with the provisions of the standard ICA in force. In this case, the helideck must be of the stationary type. The request for implementation must be forwarded to the DECEA Regional Body.

Platforms and vessels with helidecks, with ETEX M, do not need to have NDB, however, in order to increase flight safety, it is possible that every unit

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mobile has NDB with a minimum range of thirty nautical miles. The NDB can be installed only as a location aid, it cannot be used for any IFR procedure, but must be registered by the Air Force Command and duly registered, having specific frequency. This NDB should be switched on only at the request of the pilot of the aircraft with which the unit communicates, to assist in location, and should be turned off as soon as the need for its use.

## CHAPTER 10

### OPERATIONAL SAFETY MANAGEMENT

#### RISK ANALYSIS REPORT AND AERONAUTICAL EMERGENCY PLAN

##### 10.1. PURPOSE

Guide the execution of Operational Safety Management for the preparation and maintenance of maintenance of a Risk Analysis Report (RAR) and Aeronautical Emergency Plan (PEA) or Plan- in the Aircraft Emergency Response (PRE) where the unforeseen hazards must be identified. related to the operation of helicopters on the vessel/platform, the risk assessment was carried out and implementation of the necessary control measures (barriers) in order to remain within a adequate level of safety, air operations on the helideck and, subsequently, provide a PEA/ PRE, appropriate to the level of operation, which must be prepared and presented by all vessels. offshore platforms/rigs that operate approved helidecks.

##### 10.2. GENERALITIES

The purpose of this chapter is to define the minimum requirements for an operator to have his/her Operational Safety Management System (OSMS) focused on risk assessment and risk reduction, as well as for planning the response to an aeronautical emergency occurred during operations on the helideck.

It is applicable to all aviation service providers and operators of vessels/platforms with approved helidecks that carry out operations *offshore*.

Operational or Aviation Safety Management Systems, as they are called (SGSO or SGSA) are part of the regulatory requirements adopted by the Agency National Civil Aviation Authority (ANAC) for all Aircraft Operators.

Operators of vessels/platforms holding approved helidecks and contracted aircraft operators are required to comply with national regulations of ANAC applicable to the SGSO, as they relate to air operations by associated infrastructure (helideck and equipment), thus becoming jointly responsible for the safety of vessel/platform and aircraft operations.

Vessels/platforms must require aircraft operators to communicate any changes in risk tolerance that may result in changes to the processes

management, procedures, practices or any other related to risk management for each type of aircraft authorized and contracted for passenger and cargo transportation operations for specific vessel/maritime platform.

Every Manager must keep in mind that it is impossible to eliminate all risks. However, risks can be minimized to a level as low as rationally practicable. Mitigation risk is a balance between time (speed), costs and the difficulties of reducing or eliminating risks. Preparing the RAR helps to list the reasons for decisions and to obtain acceptance and commitment of all those involved in the operations.

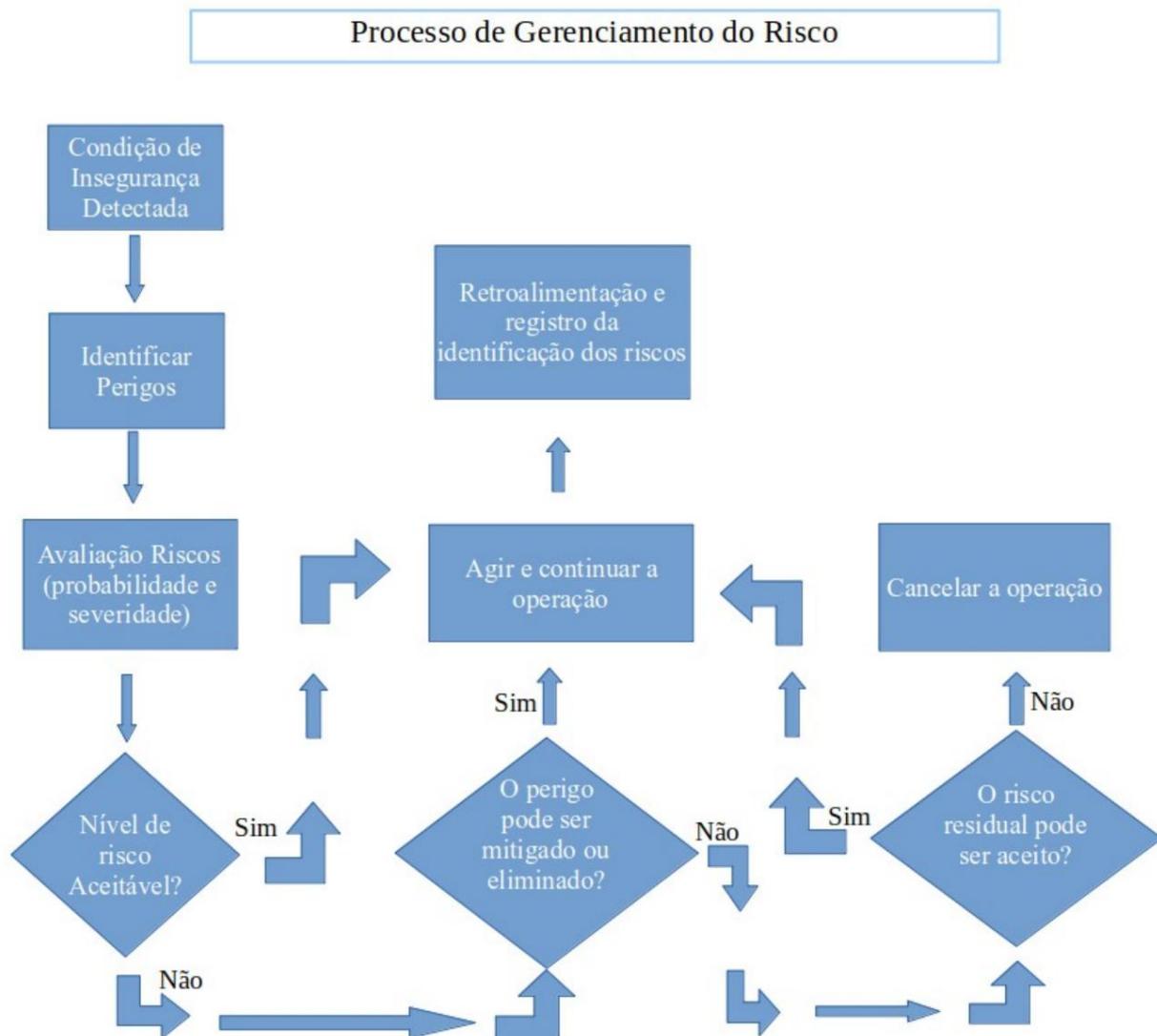
The PEA/PRE contains the measures to be taken from the moment the characterizes the emergency until the moment in which the aeronautical infrastructure is unblocked for normal operations in order to:

- ensure the effectiveness of the transition from routine activities to emergency operations;
- define the delegation of authority for emergency operations, establishing its competence and its limits;
- establish the different degrees of responsibility and authorizations within the tasks not planned PEA/PRE;
- establish the means for effective coordination of the efforts involved; and
- ensure the return to normal and routine operations of the aeronautical infrastructure after the end of the emergency.

The Plan must include prompt response procedures related to services that are necessary, including fire-fighting, rescue, medical care, psychological and hospital.

Periodic procedures and training for the Plan and analysis of the your results in order to improve their effectiveness. The exercises should be performed at least once at each crew change, and recorded. The PEA must be in Portuguese.

The flowchart below summarizes the actions and activities carried out in management operational.



### 10.3. CRITERIA FOR PREPARING THE RAR

a) mandatory - All hazards inherent in the operation of helicopters on the vessel/platform, and the risk assessment and implementation of the necessary control measures in order to maintain the operation of aircraft within a adequate level of security.

b) risk assessment report - A risk assessment report must be sent to the DPC, upon request. copy of the RAR of the risk analyzed. The RAR must contain, at a minimum, the following items:

- date of analysis.
- date of review (if applicable).
- name of the risk or threat analyzed.
- name of the vessel or platform.
- description of the activity.
- initial damage potential.
- initial risk rate (Not tolerable or unacceptable/tolerable or acceptable/acceptable)

well).

- personnel at risk.
- material or equipment at risk.
- list of evaluators or analysts.
- description of the risk or threat analyzed.
- control measures for each threat.
- initial risk rate.
- final risk rate.
- acceptance of the final rate of each risk or threat.
- listing of control measures.
- residual or final rate after implementation of control measures.
- action plan for implementing control measures containing what,

when, where, how and who is responsible.

- deadline for implementing control measures (before the initial inspection and start of operations).
- risk rate after analysis and implementation of all control measures.
- declaration of acceptance of the report and control measures.
- manager responsible for accepting the report.
- signature of the Manager and Analysts responsible for the RAR.

#### **10.4. CRITERIA FOR PREPARING THE PEA/PRE**

a) mandatory - every vessel or maritime platform where there is a helideck for helicopter operation, you must have a PEA/PRE with the human and material resources available.

A copy of the PEA/PRE must be sent to the DPC as an attachment to the Application. for Provisional Authorization, Annex 1-A, or Helideck Inspection, Annex 1-C, in order to \_\_\_\_\_ enable its analysis prior to inspection.

When carrying out the Inspection, the DPC will verify the existence and dissemination of the PEA/PRE, as well as the training carried out.

The PEA/PRE must be widely disseminated to the sectors involved.

b) types of emergency - the various actions provided for in the PEA/PRE must be grouped into lists by type of emergency, and not by the duties of each responsible sector. For each type of emergency there must be a list of actions to be taken, clearly indicating who is responsible for that action and for its supervision.

c) vessels and maritime platforms - vessels and maritime platforms with ability to conduct or support air operations, prepare their PEA/PRE, foreseeing, in addition to the emergencies reported with the aircraft in flight, emergency landing situations, crashes, incident or accident on the helideck and at sea.

d) management of the ground unit - the management of the ground unit must have a sector with the capacity to support the unit with an emergency on the helideck, activating the bodies necessary and provide all necessary assistance to minimize the emergency.

e) area of activity - for planning and dimensioning the resources needed for execution of the PEA/PRE, the area of operation to be considered is the helideck operation area, from the beginning of communication with the helicopter. However, provision must be made for procedures in case of receiving a communication from an aircraft in emergency outside this area.

f) human and material resources - this PEA/PRE item must describe the following: resources needed to respond to the emergency. The material and human resources of the PEA/PRE are allocated based on the largest aircraft for which the respective helideck is approved.

Care for the injured must be planned to accommodate this aircraft. with its maximum capacity. The PEA/PRE must take into account the personnel available in the unity in routine situations.

g) distress or emergency conditions - the aircraft will report an emergency preceding your message of expressions:

- **MAYDAY, MAYDAY, MAYDAY**, for the condition of **distress** or
- **PAN-PAN, PAN-PAN, PAN-PAN**, for the **emergency condition**.

Based on this information, the PEA/PRE of the unit in question must be activated. communication with this aircraft.

The PEA/PRE must contain detailed procedures for relief conditions and urgency, indicating the sector responsible for each action. Among these procedures, the following stand out:

I) urgency:

· radio operator: inform the person responsible for the unit, the ALPH and the boss from the rescue boat; call for medical support to be close to the helideck (doctor or nurse) for possible assistance;

· ALPH: position EMCIA and test fire-fighting equipment fire; and

· responsible for the unit: interrupt ongoing exercises that may interfere with the emergency landing of the helicopter; start recording the information foreseen in the pre-investigation plan and be ready for the eventual activation of the investigation structure search and rescue.

II) help

· radio operator: comply with the provisions set out for the condition of urgency; and inform all support sectors so that they assume maximum readiness; and

· responsible for the unit: comply with the measures provided for emergency condition and inform the Management of the unit on land; if on a powered vessel, maneuver in order to reduce the distance to the aircraft, and, subsequently, to offer the ideal wind for collection.

### 10.5. ESTABLISHMENT OF THE EMERGENCY PHASE

The vessel/platform to which the aircraft was heading must notify, immediately to the Area Control Center (ACC) that an aircraft is in emergency. The PEA/PRE must contain emergency frequencies and telephone numbers.

a) emergency phases:

i) uncertainty phase - INCERFA:

when there is no communication from the aircraft after thirty (30) minutes following the time at which a communication of the same should be received, or thirty (30) minutes after the moment when an attempt was first made, unsuccessfully, to establish communication with said aircraft, whichever occurs first; or

when the aircraft does not arrive after thirty (30) minutes following the estimated time of arrival estimated by the pilot or calculated by the control agency or station, which results later.

Procedures:

- make calls on emergency and alternative frequencies;
- request other units in the area to make calls on aeronautical and maritime frequencies;
- check or consult other units or control bodies on land as to the existence of radar contact;
- note the start time of INCERFA, last known position of aircraft, people on board, its altitude, course, speed, takeoff time and autonomy;
- check the information in the *briefing* or flight plan;
- assess whether the current situation could lead to a momentary loss of contact; and
- keep the person responsible for the vessel/platform informed.

ii) alert phase - ALERFA:

when, after the uncertainty phase, it has not been established communication with the aircraft or, through other sources, not being able to obtain news from the aircraft;

when an aircraft authorized to land fails to do so within five (5) minutes after the scheduled landing time and communication with the aircraft;

when information is received indicating that the operating conditions of the aircraft are abnormal but do not indicate the need for a forced landing; or

when it is known or suspected that an aircraft is being targeted of unlawful interference.

Procedures:

- ensure that INCERFA procedures have been complied with;
- keep the person responsible for the Unit informed;
- prepare the activation of the search and rescue structure (SAR);
- start planning a possible search; and
- interrupt ongoing exercises that may interfere with

a possible collection of the ANV in an emergency.

III) danger phase – DETRESFA:

when, after the alert phase, new attempts are unsuccessful to establish communication with the aircraft, and when other external means of research also prove fruitless and it can be assumed that the aircraft is in danger;

when it becomes evident that the fuel the aircraft was carrying on board has run out or is not sufficient to allow landing in a safe place;

when information is received that abnormal conditions of aircraft operation indicate that a forced landing is possible; or

when information is received, or it can be deduced, that the aircraft will a forced landing or has already made one.

Procedures:

- activate the search and rescue structure, as necessary;
- report the aircraft accident, as per the item below; and
- if on a propelled vessel, request the last known position of the

ANV and initiate search actions.

Every PEA should emphasize that any delay in reporting emergency phases is unacceptable, since this delay reduces the probability of rescuing, alive, any victims of an aircraft accident.

b) communication of the accident - the vessel/platform operating with the aircraft at the time of the accident must transmit messages to the Control Body standardized as provided for in the PEA/PRE, informing:

- I) type of occurrence;
- II) helicopter model;

- III) helicopter number or registration number;
- IV) date and time of occurrence;
- V) location, geographic reference or latitude/longitude;
- VI) number of people on board the helicopter;
- VII) names of fatal victims;
- VIII) names of victims with serious injuries;
- IX) material and third party consequences; and
- X) condition of the helicopter and vessel/platform after the occurrence.

c) Helicopter firefighting and crew rescue

- i) begins when properly qualified and equipped personnel approach the crashed aircraft to extinguish or prevent possible fire and rescue the crew;
- ii) the vessel's fire-fighting brigade must be called to remain positions, ready to spring into action if necessary;
- III) after the fire is extinguished, the medical team will assess the advisability of starting the assistance while still inside the aircraft or carry out immediate removal. The best route to the place of care after removal must be previously determined and be knowledge of all those involved in this stage; and
- IV) after the rescue, the area of the accident or incident must be completely isolated. until the arrival of CENIPA.

Saving victims takes priority over preserving evidence

for the investigation of the accident, however, this need must be emphasized whenever it do not interfere with the rescue.

d) landing or crashing of a helicopter at sea and rescue of the crew

- i) as soon as the unit becomes aware of the landing or crash of the helicopter in the sea, the rescue boat, which will already be manned by duly qualified and trained personnel, must be thrown into the sea immediately within a maximum of two (2) minutes;
- II) activate nearby vessels to send assistance, if necessary;
- III) the rescue boat, upon arriving at the location, must begin the rescue;
- IV) the medical team must wait for the rescued people to arrive to begin the first aid and carry out removal (the best route to the place of care after the

removal must be previously determined and be known to all those involved at this stage); and

V) the unit must always have all nearby vessels listed and nautical resources available for immediate action during a helicopter landing or crash in the mar.

e) triage of injured people - priority in care occurs according to classification of the injuries of each accident victim in the following categories:

i) category I - spinal cord injuries, major hemorrhages, severe inhalation of smoke and gases, thoracic asphyxia, cervico-maxillo-facial injuries, cranial trauma with coma and progressive shock, exposed and multiple fractures, extensive burns, impact injuries and any type of shock;

ii) category II - non-asphyxiating chest trauma, simple fractures, burns limited, head trauma without coma or shock and soft tissue injuries;

iii) category III - minor injuries; and

iv) care for the uninjured survivor - the uninjured survivor may be affected of uncomfortable conditions that may have unpleasant consequences, since, in most cases, Sometimes, after an emergency evacuation, you may be wet, with the psychological state shaken, having inhaled gases or smoke, even if just a little, providing a potential condition for occurrence of a state of shock or hysteria. Blankets must be provided and, within the priority for the injured, should be taken to a place where they feel comfortable. It is important consider that the uninjured survivor may be anxious for news of the person who was with him.

f) treatment of fatal victims - photographs must be taken before removing the bodies of the same and the instruments/indicators of the aircraft panel to provide subsidies to the investigation of the accident and the bodies, when removed, must be identified with the indication of the location where he was in the crashed aircraft or in its wreckage, as well as a record of your general condition. It should be placed in a slop bag to prevent it from being visible. of people, especially survivors. Identification of the body should begin as soon as is possible, allowing the proper continuation of legal procedures, as well as the provision of the relevant information.

g) sick bay – all vessels must have a main sick bay and a place to serve as a secondary infirmary, where they can receive the wounded. The person responsible for vessel must disclose the route (course) indicated for the removal of the injured and the doctor/nurse which ward to take you to, main or secondary.

#### **10.6. REPORTING AN ACCIDENT/INCIDENT ON THE HELIDECK OR IN THE VESSEL/PLATFORM AFFECTING THE HELIDECK**

When an Accident or Incident occurs that affects the helideck, its structure or signaling, or an Accident on the vessel/platform that affects the helideck crew, from ETEX or the rescue vessel, the DPC must be informed.

The responsible Shipowner/Operator/Commander will close the helideck.

After the actions to restore the helideck to operational status, in order to enable the continuity of air operations, the shipowner/operator/legal representative will request its opening to the DPC, which, at its discretion, may carry out a new technical inspection or request a Helideck Technical Conditions Maintenance Certificate, as per Annex 1-H. \_\_\_\_\_

#### **10.7. PRE-INVESTIGATION PLAN (PPI)**

The PPI describes the procedures and records required from the communication of the aeronautical emergency or occurrence, until the start of the investigation itself.

The PPI can be an integral part of the PEA/PRE or an isolated document.

It is vitally important that the PPI is available for consultation and is known to all sectors of the unit that may eventually receive an informal communication from occurrence of an aircraft accident (e.g. ETEX). The consternation usually caused by This type of news sometimes causes valuable information to be lost or not requested from the informant and it is impossible to recover them later.

Initial information:

- a) probable time of the accident;
- b) location of the accident;
- c) local weather conditions at the time of the accident;
- d) estimated direction of ANV displacement;
- e) characteristics of the ANV: color, registration number;
- f) if the existence of fire was noted during the flight or after the impact, or even if

the fire still persists at the site;

g) number of injured or fatal victims;

h) whether medical assistance has already been provided and by whom;

i) whether there was damage to third parties, and the extent of that damage;

j) time at which the accident report was received, means used (telephone call, message, etc.), name and qualification of the person who received it; and

k) identification of the informant: name, address, telephone number, occupation and others witnesses who can provide information.

#### **10.8. CLEARING OF LANDING SITE**

After an aeronautical incident on the helideck, the unit may have to deal with the possible need to immediately release the landing site, so that another aircraft in emergency make an immediate landing at the same location or for support.

In these situations, the removal of the interdiction of the landing site has greater priority than the preservation of the wreckage or evidence necessary for the investigation of the occurrence and must be taken by the person in charge of the unit.

The PEA/PRE must establish procedures so that the decision to remove the interdiction from the place of landing occurs with the necessary speed and considering the following aspects:

a) the risks that may arise to the helideck from failure to remove the wreckage;

b) the potential for degradation that these wreckages may suffer due to not having been taken to a sheltered location until the investigation begins; and

c) in the case of a ship, the disposal of the wreckage must be carefully assessed when it is imperative to remove the helideck from the interdiction.

#### **10.9. UPDATE**

The PEA must be updated whenever any deficiency is detected during the application of the simulated exercise, in the response of each service participating in the procedures established; or in response to a real emergency; or when any change occurs in the following aspects:

- physical characteristics of the helideck;

- fire fighting system; and

- change in the type of the largest helicopter in operation.

## CHAPTER 11

### HELIDEQUE ON RAFT

#### 11.1. PURPOSE

Describe the necessary characteristics for helidecks located on ferries for operation in inland waters.

Landing and takeoff operations will only be authorized on certified helidecks and approved, installed on rafts with minimum dimensions of 12 x 42 meters.

#### 11.2. QUALIFIED PERSONNEL

During air operations, the ferry helideck must be manned by:

a) aviation firefighting and maneuver team (EMCIA), consisting of:

i) a Helicopter Launch and Landing Agent (ALPH) - must be the leader of the EMCIA and be able to operate the portable aeronautical VHF radio transceiver, ready to be communicate, in Portuguese, with the pilots and/or radio operator, if necessary; and

ii) three Aviation Firefighters (BOMBAV) - must have completed the Maneuver course and Aviation Firefighting (MCIA), attached to BOMBAV.

b) rescue boat crew - consisting of three (3) crew members, one of whom is in the role of the boss, all qualified for rescue and salvage activities and wearing the equipment of necessary personal protective equipment (PPE).

c) fuel supplier - qualified to refuel helicopters, must have completed the Aviation Firefighting and Maneuvering (MCIA) course, assigned to BOMBAV.

The EMCIA components, the Rescue Vessel crew and the fuel suppliers fuels may not accumulate other functions during the period of air operations.

#### 11.3. SECURITY

a) protective screen - protective screens must be installed on the edges adjacent to the helideck area, in accordance with the contents of Annex 11-A.\_\_\_\_

i) the protective screen must have a width of 1.5 m, in the horizontal plane, from the outer edge of the helideck, which can be folded down;

ii) the protective screen mesh must have dimensions of, at most, 0.10 mx 0,10 m;

III) the spacing between the screens and the edge of the helideck, and between the sections of the shall not exceed 0.10 m. If the construction characteristics prevent this, spacing with the nets folded down, such spaces must be closed with a net of the same material;

IV) the lower edge of the protective screen must be at the same level as the helideck or at a level slightly below the drainage gutter, where applicable. The screen should have an inclination of approximately 10° upwards in relation to the horizontal plane. The the upper end of the protective screen may be slightly above the level of the helideck, not exceeding a height of 0.25 m in relation to this plane;

V) the protective screen must not be stretched too much, in order to avoid actuation as a springboard and, if lateral and longitudinal beams are installed to give greater resistance to the screen structure, these must not have a shape that could cause injuries to people who, eventually be supported by the screen. The ideal design should produce the effect of a stretcher, which must safely support a body that falls onto the screen without causing injury;

VI) the screen must withstand, without rupture, the test consisting of the impact of a bag of 100 kg of sand, with a base diameter of 0.76 m, loose, in free fall, from a height of 1 m;

VII) a Fabric Strength Certificate must be presented, with a validity of twelve (12) months, issued by an Organization recognized by the DPC, or by the engineering sector of company operating the platform/vessel, certifying that all sections of the protective screen present safe conditions of use, in accordance with Annex 2-D; \_\_\_\_\_

VIII) the protective screen must have its conservation and safety conditions verified annually by the shipowner, when sending the Maintenance Certificate to the DPC of the Technical Conditions of the Helideck; and

IX) the protective screen must always be free of any objects on it or your support.

#### **11.4. WIND DIRECTION INDICATOR (WIND SUN)**

There must be at least one wind direction indicator, placed in a clearly visible location, but not subject to turbulence and which does not constitute a danger to helicopter maneuvers, in accordance with Annex 5-A.

### 11.5. ANTI-SLIP NET

a) characteristics of the anti-slip net - the anti-slip net must be limited to covering the entire Touch Area, which may have any format, not including other identifications she external.

Cables must:

- i) have a diameter of 20 mm, when in cylindrical form, and do not present wear and tear that compromises its functionality;
- ii) be made of sisal or material that is not easily combustible; and
- iii) have a grid formed by squares or diamonds measuring 20 cm on each side.

b) fixing the anti-slip net - the net must be fixed firmly, using cables and/or tensioners, to eyebolts installed at the limit of the AAFD, with a maximum spacing of 2.0 m and with a maximum height of 0.05 m. It must not be possible to raise any part of the net by more than 0.25 m above the helideck surface when applying vertical traction by hand.

### 11.6. SIGNALING AIDS

a) identification sign - is the letter H, which must be painted in white, in the center of the Touch Area. The H sign must be 3 m high and 2 m wide, with the width of the 0.40 m strips.

b) maximum permissible load - expressed in tonnes, with two or three digits, specifying the maximum resistance that the floor can withstand. It must be painted yellow contrasting with the color of the floor, with its dimension in accordance with Annex 5-D. The positioning of the numerals must be as indicated in the illustration in Annex 11-A. \_\_\_\_\_

To define numerals, the following must be observed:

- i) whole values up to nine tons: will be painted in 2 (two) digits, using- if the zero in front;
- ii) decimal values should be rounded to the nearest hundred kilos and separated from the whole ton by a period;
- iii) whole values accompanied by decimals, greater than ten (10) tons, will be painted with three digits, separating an integer from the decimal by a period; and
- iv) when it is not possible to paint as described above, due to lack of physical space, characters can have their dimensions reduced by up to 1/3 of the predefined size.

c) limit of the final approach and takeoff area - the AAFD perimeter must be demarcated with a 0.30 m wide strip, in white, laterally one meter away from the edge, as indicated in the illustration in Annex 11-A. \_\_\_\_\_

d) touch area - must be demarcated with a circular strip 50 cm wide, in the yellow color, with an internal dimension of 6m, as indicated in the illustration in Annex 11-A. \_\_\_\_\_  
It should be located in the center of the ferry.

e) signaling of the name and/or visual indication and location indicator of the platform/vessel - must be painted white, contrasting with the color of the floor helideck (green), as shown in the illustration in Annex 11-A. \_\_\_\_\_

When the name and/or visual indication is a composition of letters and numbers, they must Arabic or Roman numerals of the same size as the letters may be used, and may be separated by a dash.

The dimensions and spacing between characters must be in accordance with Annex 5-F. \_\_\_\_\_  
When it is not possible to paint as described above, due to lack of physical space, characters may have their dimensions reduced by up to 1/3 of the predefined size and/or placed in two lines.

f) signaling of a closed helideck - for certain technical reasons or operational, the helideck may be closed permanently or temporarily for operations with aircraft operating in AJB. In such circumstances, the closed state of the helideck indicated by the sign presented in the color and dimensions of Annex 5-H, must be painted (if permanent) or attached to a tarpaulin (if temporary), over the identification sign H.

g) safety notices - panels must be placed near access points, in locations clearly visible, painted with black letters on a yellow background, measuring 0.80 m x 1.60 m, with a 0.05 m edge and recommendations to be followed by passengers boarding or disembark from helicopters and by other users of the aircraft, with the following characteristics, detailed in Annex 5-H. \_\_\_\_\_

It is forbidden to place it on the protective screen.

### 11.7. FIRE FIGHTING

The ferry helideck must have:

a) foam application system - a fire-fighting system equipped with foam monitor, with hose line long enough to reach any part of the helideck. Such hoses may be equipped with nozzles, connected to the generator system foam, or alternatively with a manual foam applicator using bottles.

b) dry chemical and carbon dioxide extinguishers - two dry powder extinguisher units chemical of 20 or 25 kg and three (3) units of carbon dioxide of 6 kg.

Note: portable carbon dioxide fire extinguishers can be replaced by four (4) 4.5 or 5 kg portable fire extinguishers, with a charge of halogenated gas Fe-36.

There may be another ferry or support vessel nearby, with the equipment and teams that reach the entire length of the ferry with helideck.

### **11.8. SUPPORT VESSEL AND RESCUE BOAT**

There must be a support vessel and a rescue boat close to the raft with audio deck.

### **11.9. TOOLS, SUPPORT AND RESCUE MATERIAL**

Helidecks must be equipped with tools and support and rescue material, which will be stored in red painted cabinets, properly marked, close to the helideck and properly protected from the sun and rain. The chosen location must allow, in case of accident, that the materials be moved to the helideck immediately.

The following items must be available for immediate use:

a) tools:

- I) one (1) firefighter's axe for rescue (over 3 kg);
- II) one (1) crowbar of at least 1 m;
- III) one (1) rebar cutter of at least 0.60 m;
- IV) one (1) hand saw for metals;
- V) one (1) eight (8) inch insulated universal pliers;
- VI) one (1) ten (10) inch screwdriver;
- VII) two (2) belt cutters; and
- VIII) three (3) portable lanterns.

b) Support material:

I) one (1) scale with a minimum capacity of 150 kg, with calibration certificate valid, placed near the helideck, in order to weigh personnel, luggage or material to be loaded onto the aircraft;

II) three (3) pairs of shims;

III) at least four (4) metal or *nylon straps*, specifically for mooring of aircraft, whose couplings are compatible with the existing anchors;

IV) one (1) articulated or support ladder, with a height compatible with the dimensions of the largest helicopter expected to operate on board; and.

V) one (1) helideck signaling tarpaulin closed, annex 5-H. \_\_\_\_\_

c) fire-fighting clothing

Each BOMBAV must have a fire-fighting suit consisting of:

I) approach and fire-fighting clothing or 7/8 firefighter's cover  
fire approach and fighting;

II) balaclava type mask;

III) ear protector;

IV) firefighter's helmet;

V) firefighter gloves; and

VI) firefighter boots.

d) salvage material:

I) one (1) portable first aid kit;

II) one (1) rigid floating stretcher with head immobilizer; and

III) one (1) portable oxygen bottle and two (2) masks.

### 11.10. FUEL SUPPLY

The on-board fuel supply system must have:

a) storage tank.

b) disposal tank.

c) distribution system.

d) a fuel supply hose line, with their respective supply nozzles (by gravity and/or pressure).

e) a ground wire sized to provide static discharge, with minimum length 2.5m and male and alligator clip terminals.

f) a pump system.

#### **11.11. COMMUNICATIONS**

All communications between helidecks and aircraft must be carried out in the Portuguese language.

Communications include the exchange of information necessary to bring the aircraft and its preparation for landing, that is, the initial contact by the aircraft and receiving information about conditions on the helideck.

This information includes:

a) heading of the vessel (when applicable), given in degrees relative to north magnetic.

b) direction, in relation to magnetic north, and wind intensity.

c) ambient temperature.

d) helideck readiness.

e) known aircraft movements in the vicinity.

The ALPH must communicate directly with the aircraft to pass on information and alert pilots to risky situations.

#### **11.12. AERONAUTICAL EMERGENCY PLAN (AEP) or EMERGENCY RESPONSE PLAN WITH AIRCRAFT (PRE)**

You must have a PEA/PRE in accordance with Chapter 10 of these Standards.

Periodic procedures and training for the Plan and analysis of the your results in order to improve their effectiveness. The exercises should be performed at least once for each crew change and registered. The PEA must be in Portuguese.

The PEA/PRE must be widely disseminated to the sectors involved.

#### **11.13. OPERATIONAL RISK MANAGEMENT (ORM)**

The hazards inherent in the operation of helicopters on the ferry must be identified and carried out risk assessment and implementation of the necessary control measures in order to maintain aircraft operation within an adequate level of safety.

**11.14. LANDING AND TAKEOFF**

Landings and takeoffs must be carried out in the longitudinal direction of the ferry.

The raft must be positioned in a location with adequate distance from obstacles.

**11.15. REPORTING AN ACCIDENT/INCIDENT ON THE HELIDECK**

When an Accident or Incident occurs that affects the helideck, its signaling or a Accident on the ferry that affects the crew of the helideck or the rescue vessel, the DPC must be informed.

The responsible Shipowner/Operator/Commander will close the helideck.

After the actions to restore the helideck to operational status, in order to enable the continuity of air operations, the shipowner/operator/legal representative will request its opening to the DPC, which, at its discretion, may carry out a new technical inspection or request a Helideck Technical Conditions Maintenance Certificate, as per Annex 1-H. \_\_\_\_\_

## CHAPTER 12

### HELIDECK ADAPTED TO THE MIDSHIP AND SIDE OF SHIPS

#### 12.1. PURPOSE

Describe the requirements necessary for certification and registration of adapted helidecks, located amidships, above the cargo hold cover (*hatch cover*) on General Cargo Ships and Bulk carriers, or on the side of the main deck of ships.

Note: Tankers, Gas or Chemical vessels may, on a case-by-case basis, be included. in this chapter, after analysis and authorization by the DPC.

#### 12.2. GENERALITY

The requirements of these standards that were not mentioned in the following articles, of this chapter, remain mandatory for carrying out air operations.

#### 12.3. QUALIFIED PERSONNEL

During the period of air operations, the vessel must be manned by:

a) Nautical Watch Officer - must be qualified to operate the VHF radio transceiver seafarer on the bridge, aiming to establish bilateral communications with the aircraft, ready to pass on the necessary information for landing and take-off to the pilots, preferably in the Portuguese language.

b) aviation firefighting and maneuver team (EMCIA), consisting of:

i) a Helicopter Launch and Landing Agent (ALPH) - must be the leader of the EMCIA and be able to operate the portable marine VHF radio transceiver, ready to communicate with the Officer on Watch, or, if necessary, with the pilots; and

ii) two Aviation Firefighters (BOMBAV) - must have completed the Maneuver course and Aviation Firefighting (MCIA), attached to BOMBAV.

EMCIA components may not accumulate other functions during the period of air operations.

#### 12.4. SECURITY

The provisions of article 2.4, paragraphs c, d and e of these Rules must be complied with.

The movement of people on the helideck should be limited to personnel involved in operations. aerial.

## 12.5. LIGHTING ASSISTANCE

The provisions of article 5.5, paragraph b of these Rules must be complied with.

## 12.6. FIRE FIGHTING

a) foam application system - a fire-fighting system equipped with two hose lines, main and reserve, with sufficient length to reach any part of the helideck, as established in paragraph a of article 7.3 of these Rules. Such hoses must be equipped with nozzles, connected to the foam generating system, or alternatively with a manual foam applicator using bottles.

b) dry chemical and carbon dioxide extinguishers - two dry powder extinguisher units chemical of 20 or 25 kg and two units of carbon dioxide extinguishers of 6 kg.

Note: portable carbon dioxide fire extinguishers can be replaced by four (4) 4.5 or 5 kg portable fire extinguishers, with a charge of halogenated gas Fe-36.

c) capacity of the foam generating liquid LGE – as per article 7.3, paragraph c of these – standards. You may have drums that total the established quantities.

d) salvage material:

I) one (1) portable first aid kit;

II) two (2) rigid floating stretchers with head immobilizer; and

III) one (1) portable oxygen bottle and two (2) masks.

## 12.7. ANTI-SLIP NET

The use of a non-slip net is not mandatory; in no situation is it authorized to cut the aircraft engines, however, the aircraft must use chocks in these sound decks.

## 12.8. BURICS

It is desirable to comply with the provisions of article 3.6 of these Rules, with the quantity minimum of four holes within a radius of three meters.

## 12.9. RESCUE BOAT

A rescue boat must be ready during air operations.

## 12.10. SWAY, SWING and TILT

The tables in Chapter 9 should be used for *pitch* and roll limits . and *inclination* of the class 1 vessel.

### **12.11. COMMUNICATIONS**

All communications between helidecks and aircraft must be carried out, preferably in Portuguese, via maritime VHF.

Communications include the exchange of necessary information (Article 6.3, paragraph c, subparagraph 7 of this Standard) to the approach of the aircraft and its preparation for landing and take-off, that is, the initial contact by the aircraft and the receipt of information about the conditions on the helideck.

The ALPH must communicate directly with the aircraft to alert pilots about any risk situation.

### **12.12. OBSTACLE SECTORS**

For adapted helidecks:

amidships on the cargo hold cover of ships - Annex 12-A. \_\_\_\_\_

on the side of the main deck of ships - Annex 12-B. \_\_\_\_\_

Note: the balustrades close to the adapted helideck must be removable or folding.

### **12.13. LANDING AND TAKEOFF**

Landing and take-off operations on adapted, approved helidecks are authorized only with ships at anchor, or with machines stopped and during the daytime, for boarding and disembarking public agents/pilots and removing injured or injured people patients to a place where they can receive adequate medical care.

In situations where an emergency is established, by a doctor or, in his absence, a nurse, nursing technician or ship's captain for the removal of people wounded or sick to a place where they can receive adequate medical care, are night-time operations are permitted. In this case, lighting must be provided for the adapted helideck. Spotlights must be properly installed to ensure that the source of light is not directly visible to the pilot. The lighting arrangement must ensure that the shadows are kept to a minimum.

Under no circumstances is it authorized to cut off the aircraft engines on these helidecks.

Note: The above items are the exceptions, all other items in this standard must be served by the adapted helidecks.

## CHAPTER 13

### HELICOPTER *PICK-UP* AREA ON BOAT

#### 13.1. PURPOSE

Describe the necessary requirements of a helicopter *pick-up* area in vessels that do not have a helideck, for the use of the aircraft *winch* to transfer material or people (live cargo) from the ship to the helicopter or vice versa.

#### 13.2. *PICK-UP* AREA

It includes the area of the vessel in which the aerial operation will take place, which is characterized by the use of the aircraft's winch to transfer material or people from the ship to the helicopter or vice versa.

There are two distinct ways to carry out a live load *pick-up*, namely:

- by the rescue handle (*sling*); and
- on the stretcher (rescuing the injured).

#### 13.3. QUALIFIED PERSONNEL

During air operations, the vessel must be manned by:

- a) Nautical Watch Officer - must be qualified to operate the VHF radio transceiver seafarer on the bridge, aiming to establish bilateral communications with the aircraft, ready to pass on the necessary information to pilots, preferably in Portuguese.
- b) *pick-up* area team :
  - I) one (1) Coordinating Officer - must be the team leader and be qualified to operate the handheld marine VHF radio transceiver, ready to communicate, preferably in the Portuguese language, with the pilots, if necessary, and with the Officer on Watch; and
  - II) two (2) crew members, at least - will assist in the operation and grounding with the static electricity discharge stick (grounding rod).

#### 13.4. PERSONNEL SAFETY

Pilots must be qualified in the *pick-up* maneuver in accordance with the regulations of ANAC.

Traffic in the *pick-up* area must be limited to personnel involved in the operation.

The *pick-up* team must use personal protective equipment (PPE): overalls, gloves, helmet, glasses and ear protectors.

Carry out DOE patrol.

### 13.5. HELICOPTER PERFORMANCE FOR *PICK-UP*

The helicopter must have sufficient power reserve to ensure, in the event of an engine failure, that can continue in hover flight *with* the other engine.

### 13.6. STATIC ELECTRICITY DISCHARGE STICK

This equipment, grounding rod, comprises a rod measuring one to two meters long. extension, covered with electrical insulating material, having at one of its ends a metal hook to which a copper or steel wire, four to five meters long, is attached length, ending in an alligator clip, as illustrated in Annex 13-A. \_\_\_\_\_

The grounding rod operator must attach the alligator clip to an uninsulated location and touch with the end of the pole on the cable or on the winch hitch to perform the unloading from static electricity (grounding), remaining that way until the end of the *pick-up maneuver*.

### 13.7. *PICK-UP* AREA CONFIGURATION

The marking of the *pick-up* area must comply with Annex 13-B.

- a) the *pick-up* area must provide a maneuvering zone with a diameter of  $2D$  (the twice the length of the largest helicopter allowed to use the area). Within the zone of maneuver, a clear zone must be centered.
- b) this clear zone must be 5 m in diameter, painted yellow, with paint non-slip.
- c) in the inner part of the maneuvering zone, with a diameter of  $1.5D$ , no obstacles must be greater than 3 m.
- d) on the outside of the maneuvering area, no obstacle must be higher than 6 m.
- e) although it is not desirable, it is acceptable for there to be obstacles in the cleared area with maximum height of 11 cm, as long as they have a smooth contour.
- f) the marking of the external maneuvering zone must consist of a broken circle with a line width of 30 cm, space ratio of approximately 4:1. The marking should be painted yellow. The extent of the internal maneuvering zone can be indicated by painting a white line 10 cm thick.

g) within the maneuvering zone, in a location adjacent to the unobstructed area, must be painted the words *WINCH ONLY*, with the dimensions of the characters as per appendix 5-F, in the color white.

h) all obstacles within or adjacent to the maneuvering zone must be visibly marked, as per Annex 4-F.     \_\_\_

To reduce the risk of accidents, all guardrails, awnings, posts, antennas and other obstructions in the vicinity of the maneuvering area must, as far as possible, be removed, lowered or stowed safely.

All doors, holds, hatches, etc. in the vicinity of the operating area must be closed; this also applies to deck levels below the operating area.

### **13.8. FIRE FIGHTING**

Firefighting and rescue personnel must be ready, but protected, outside the area of operation.

### **13.9. RESCUE BOAT**

A rescue boat must be ready and manned during air operations.

### **13.10. COMMUNICATIONS**

All communications between the vessel and the aircraft must be carried out, preferably in Portuguese, via maritime VHF.

Communications include the exchange of information necessary to bring the aircraft.

The Coordinating Officer must communicate directly with the aircraft to alert the pilots about any risk situation.

### **13.11. TRANSFER OF MATERIAL (CARGO) OR PERSONNEL (LIVE CARGO)**

Considering the aircraft already positioned in hovering flight over the *pick-up* and contact area bilateral between the pilots and the Nautical Watch Officer.

a) material transfer

l) lowering the winch.

Without load, ground after touching the ground, remaining that way throughout the entire maneuver; after touching the winch hitch in the *pick-up* area the grounding rod operator Hold the alligator in a non-isolated location, remaining there until the end of the maneuver.

With load, land before touching the ground, remaining that way throughout the entire maneuver.

The assistants place the load to be lifted and leave the maneuver area.

II) safety precautions.

The material to be shipped must be checked and weighed with the written weight in a visible place.

If possible, remove or push back obstacles near the maneuver site or in the approach line of the aircraft, with special care for the protection nets.

b) transfer of personnel

1) transfer by rescue handle (*sling*).

going down the winch

Without load, ground after touching the ground, remaining that way throughout the entire maneuver.

With load, land before touching the ground, remaining that way for the whole maneuver.

going up the winch

The Coordinating Officer will confirm to the aircraft that it is ready for hoisting of the live load. If lifting is not possible, if there is a need to cancel the operation, it will be done the signal to cancel the operation with both arms raised above the head, with the hands spread out, making movements of crossing and uncrossing the arms - similar to the sign of onset.

When going down or up, when the victim is close to the aircraft door, only the assistant on the aircraft should pull it in, not being able to be helped in any way.

instructions for using the rescue strap

Completely remove the ends of the winch *sling* .

Pass the strap under your arms around your chest, adjusting it to your body of the element to be transferred, using the safety belt on the handle.

Hook the ends of the handle onto the winch hitch so that the together with the coupling are in front of the face of the element to be lifted.

The element to be lifted must cross the arms, pressing the sling against the body.

During the lift, if the body starts to rotate, move the legs apart.  
other.

#### Safety Precautions

Personnel to be transferred must be informed of the safety procedures and use of necessary personal protective equipment (vest inflatable, muffler, glasses, etc.).

Reflect antennas, masts and remove, if possible, any obstacles that may interfere with the maneuver.

#### II) transfer of injured (on stretcher).

The Coordinating Officer will confirm to the aircraft that it is ready to descend or ascend the winch, depending on the maneuver to be performed; it will then coordinate the placement or removal of the stretcher and the live cargo.

going down the winch.

Without the stretcher, land after touching the flight deck, remaining that way for the whole maneuver.

With cargo, land before touching the flight deck, remaining that way for throughout the maneuver, the maneuvering assistant must signal with his right fist clenched.

lifting the winch with the stretcher.

Make sure the patient's head is elevated approximately 30° in relation to the feet and that this is the first part of your body to enter the aircraft.

Attach a guide cable (appendix 13-C) to prevent the stretcher from turning and to ensure that it is kept parallel to the longitudinal axis of the aircraft.

#### Notes:

- the guide cable can only be released from the stretcher when it is safely inside the aircraft. In this case, the end of the cable that is attached to the stretcher must be configured with a carabiner in order to facilitate its release.

- the stretcher must contain lifting points to receive the sling type spider or armlet (appendix 13-C), containing four legs, with their upper ends

joined to a ring through reinforced stitching, also containing four small shackles in each lower end to be installed at the attachment points for lifting the stretcher, so that its weight is equally distributed.

- the stretcher that best suits is *Neil Robertson*, due to its characteristics of fixation and immobilization of the injured in the most difficult transport conditions, as completely surrounds the patient. When installed, it has very small dimensions, adjusting to the person's size. It is equipped with three handles on each side for carrying by stretchers and braces, which allow for vertical lifting or at an inclination of thirty degrees; depending on the choice of the point where the winch is connected. All these features are shown perfectly compatible with the desired job.

safety precautions

Do not attach the stretcher guide cable or the winch cable to the fixed parts of the ship.

Do not touch the winch cable until it has touched the deck in order to avoid the risk of electric shock.

Collect all loose material on deck, using patrol do DOE.

### **13.12. CERTIFICATE OF MAINTENANCE OF THE TECHNICAL CONDITIONS OF THE *PICK-UP* AREA (CMCTAP)**

The Certificate of Maintenance of the Technical Conditions of the Machine must be sent to the DPC. Helicopter Pick-up Area, as per Annex 13-D, issued by a recognized Organization by the DPC, or by the engineering sector of the vessel's operating company, counting from the date of first referral, clearly describing that it remains in the conditions techniques in accordance with this Chapter and is in a safe condition for driving of air operations. This document will be valid for thirty-six (36) months.

After receiving this certificate, the DPC will implement its control and inform, via fax or email, the ORs, Consulting companies and aircraft operators the vessels that had their *pick-up* area approved.

There will be no DPC inspection and certification for these areas.

**13.13. GENERALITIES**

Landing and take-off operations are not authorized on vessels that only have pick-up areas .

*Pick-up* operations will only be carried out during the day, under normal conditions. visual meteorological (VMC).

**ANNEX 1-A**

**Company name**

**APPLICATION FOR PROVISIONAL HELIDECK AUTHORIZATION**

Dear Mr. Director of Ports and Coasts,

(Company Name), headquartered at \_\_\_\_\_, (full address, zip code) registered with the  
CNPJ/MF under no. \_\_\_\_\_, as (Agent/Owner) of,  
\_\_\_\_\_ of flag \_\_\_\_\_ in the service of \_\_\_\_\_

comes to request Your Excellency provisional authorization for a period of \_\_\_\_\_  
day(s) to carry out aerial operations on the helideck of the aforementioned (platform/vessel), in  
accordance with article 1.5 of NORMAM-223/DPC.

In these terms, it requests deferral.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

Attached documents:

- a) helideck registration form;
- b) top and profile view of the fixed platform or signed vessel, on a scale of 1:100;
- c) approval document issued by a foreign competent authority;
- d) original power of attorney or certified copy granting the necessary powers

to the administrative processes related to the approval of helidecks, with the Navy of  
Brazil, when the applicant is not the shipowner or owner.

- e) 21 x 29.7 cm (A4) panoramic photo of the vessel/platform;
- f) 21 x 29.7 cm (A4) photo with the top view of the Helideck;
- g) request for the issuance of the corresponding compensation payment slip;
- h) aviation emergency plan (AEP) or emergency response plan (ERP);

i) proof or declaration, from the Commander or legal representative, that the ALPH and radio operator speaks Portuguese and that the vessel has the HMS and status light; and

j) period of stay in AJB.

Notes:

1) All items must be submitted electronically, using PDF format.

(Adobe Reader), item b must also be sent in print; and

2) Documents not sent must be justified, and the order of the documents must be maintained.

attachments.

## ANEXO 1-B

<b>Company Name</b>		
<b>HELIDECK REGISTRATION FORM</b>		
1- Name and acronym of the Vessel/Platform:		
2.1- Vessel/Platform Radio Station Voice Call Indicator:		
2.2- Vessel/Platform ETEX Voice Call Indicator:		
3- Registration Number at the Port Authority, Delegation or Agency:		
4- Locality Indicator (ANAC):		
5- Registration with the International Maritime Organization (IMO No.):		
6- Flag:		
7- Type (Vessel/Platform):		
8- Shipowner:		
9- Operator / CNPJ:		
10- Owner:		
11- Charterer:		
12- Name, address, telephone number and email of the applicant:		
13- Length (D) of the largest helicopter in operation (in meters):		
14- Helideck features:		
14.1- Diameter (L):	14.2- Helideck height:	14.3- Nature of the floor:
14.4- Format:	14.5- Maximum height of the vessel:	14.6- Helideck resistance:
14.7- Class:	14.8- Category:	14.9- Adapted helideck: (YES/NO)
15- Obstacles near the helideck:		
15.1- Type(s) and height(s) in relation to the AAFD floor level:		
a)	b)	
15.2- Type(s) and distance(s) in relation to the AAFD area boundary:		
a)	b)	
16- Communications and Navigation Systems - framework agreement article 0902:		
( ) Stationary helideck 16.1-		( ) Variable position helideck
NDB (if applicable):		
a) Frequency:		b) Registration (DECEA):
16.2- VHF:		
a) Frequency(s):		b) Registration:
17- Position of the Vessel/Platform (when the helideck is stationary):		
a) Latitude: b) Longitude:		
17.1- In marking and distance (MN):		

<b>a) From the nearest coast:</b>	<b>b) From the nearest aerodrome:</b>
<b>18-</b> Has an approved helicopter fuel supply system: (YES/NO)	
<b>19-</b> Has anti-slip net: (YES/NO) <b>20-</b> Area(s) of exploration of natural resources and UF:	
<b>21-</b> Date of construction of the helideck:	

I declare that I assume full responsibility for the information presented here, as well as as well as by immediate communication to the Directorate of Ports and Coasts of any changes that may occur in the data contained in this document.

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

**ANNEX 1-C**

**Company Name**

**HELIDECK INSPECTION APPLICATION**

Dear Mr. Director of Ports and Coasts,

(Company Name), headquartered at \_\_\_\_\_ (full address, zip code) registration of CNPJ/MF under no. \_\_\_\_\_ – \_\_\_\_\_, as (Agent/Representative) of (Company, Shipowner, Owner, Charterer, Operator), related \_\_\_\_\_ a (vessel/platform) \_\_\_\_\_, flagged \_\_\_\_\_, (IMO No.) \_\_\_\_\_, in the service of \_\_\_\_\_, comes to request Your Excellency to inspect Certification and Registration of the Helideck existing on the mentioned vessel/platform, in compliance with the determinations contained in NORMAM-223/DPC.

I inform Your Excellency that the aforementioned helideck was prepared for inspection in accordance with the technical parameters established by the aforementioned Standard and that the \_\_\_\_\_ (Harbor Master's Office, Police Station or Agency of jurisdiction) became aware of this request.

In these terms, it requests deferral.

Suggested location and date for inspection:

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

Attached documents:

- a) top and profile view of the helideck, on a scale of 1:100;
- b) helideck registration form;
- c) helideck strength certificate;
- d) certificate of the coefficient of friction of the helideck floor;
- e) certificate of resistance of the helideck protective screen;

f) request for the issuance of the compensation payment slip corresponding to the inspection;

g) copy of a document proving the start of the ETEX approval process.

h) power of attorney, original or certified copy, granting the powers

necessary for the administrative processes related to the approval of a helideck with the Brazilian Navy, when the applicant is not the Shipowner or the Owner;

i) certificate of resistance of the buricas;

j) aeronautical emergency plan (PEA) or emergency response plan (PRE);

k) risk analysis report if applicable; and

l) study, in a wind tunnel or Computational Fluid Dynamics (CFD), of the helideck to determine wind parameters for aircraft landing and takeoff, if applicable.

**Notes:**

1) all documents must be sent electronically, using the PDF format (Adobe Reader), item a must also be sent in printed form;

2) Documents not sent must be justified, and the order must be maintained.

of the annexes; and

3) the documents submitted to obtain the Provisional Authorization do not need to be resent.

**ANNEX 1-D**



**BRAZILIAN NAVY**

**DIRECTORATE OF PORTS AND COASTS**

**Superintendence of Water Traffic Safety**

**Helideck Division**

**HELIDECK INSPECTION REPORT No xxx/20xx -**

**VESSEL/PLATFORM: Name/Visual sign/Location sign**

**Unit Photo**

**1 - INSPECTION PROCESS**

This inspection was carried out in accordance with NORMAM-223/DPC.

**2 - SUMMARY OF INSPECTION**

Inspection Date	
Inspection Type	
Vessel/Platform Name	
Vessel/Platform Type	
IMO No.	
Vessel/Platform Call Sign	
ETEX phone call sign	
Flag	
Shipowner	
Operator/CNPJ	

Owner	
Charterer	
Area of operation and UF	
Surveyors	

**3 - HELIDECK DATA:**

Category	
Class	
Adapted helideck	
Length (D) of largest helicopter in operation	
Helideck diameter (L)	
Maximum permissible load	
Helideck height (in relation to sea level)	
It has an approved supply system	<input type="checkbox"/> YES <input type="checkbox"/> NO
Uses non-slip net:	<input type="checkbox"/> SIM <input type="checkbox"/> NO
Operating conditions	Validity of the Certificate Coefficient of Friction:

**4 - PHOTOS OF THE HELIDECK**

Vessel/Platform Profile Photo	photo no. 1
Photo of the top of the helideck	photo no. 2
Photo of foam monitors or Pop-up spray system in operation	photo no. 3

**5 - REQUIREMENTS (with photos)**

ITEM	PREVENTIVE REQUIREMENT	NORMAM-223/DPC TERM

ITEM	NON-PREVENTIVE REQUIREMENT	NORMAM-223/DPC TERM

## 6 - OBSERVATIONS

a) carry out periodic training with the rescue boat crew in order to reduce their reaction time, two (2) minutes, in the garrison and launch.

b) the vessel/platform has the following exceptions authorized by the DPC:

-....

c) registered vessels and platforms must comply with the requirements set out in NORMAM-223/DPC, whose term expires:

-....

After these deadlines, they are the responsibility of the Platform Manager or Commander of the vessel, any irregularities arising from non-compliance with these requirements.

d) status of the unit: (requirements with deadline)

I - **has (or does not have) ...**

II - **has (or does not have) ...**

e) if there is no aeronautical frequency allocated by DECEA, or its license has expired.

given, for safety reasons, essential communications between the helicopter and the maritime unit. but should travel via maritime VHF.

f) the calibration of instruments and sensors must be carried out according to the technical specifications established by the manufacturers, if there is no defined interval it must be carried out every twenty-four (24) months, and in accordance with the parameters established by the Brazilian Network Calibration Center (RBC), made up of laboratories accredited or recognized by Inmetro.

g) full name, CPF or identity of the person responsible for the vessel (Captain, OIM or Manager), functional telephone, fax and e-mail, responsible for the vessel at the time of inspection.

h) name of the Company; full name, CPF or identity of the person responsible for the company, telephone number functional and email of the person responsible for advising the vessel/platform at the time of the visit. tory.

**7 - The inspected Helideck DID NOT PRESENT SATISFACTORY SAFETY CONDITIONS .**

Inspected helideck **PRESENTED SATISFACTORY SAFETY CONDITIONS** and the requirement(s) found allow(s) the operation of the helideck with helicopters, until the date of \_\_\_\_/\_\_\_\_/\_\_\_\_.

Local e data.

\_\_\_\_\_  
NAME  
Graduation  
Assistant Surveyor

\_\_\_\_\_  
NAME  
Graduation  
Assistant Surveyor

\_\_\_\_\_  
NAME  
Place  
Surveyor

\_\_\_\_\_  
NAME  
Place  
Chief Surveyor

**ANNEX 1-E**

**Company Name**

**INFORMATION ON COMPLIANCE WITH HELIDECK REQUIREMENTS**

Dear Mr. Director of Ports and Coasts,

(Company Name), headquartered at \_\_\_\_\_ (full address, zip code),

registered with the CNPJ/MF under no. \_\_\_\_\_, as Agent/Owner-

(a) of (a), \_\_\_\_\_ of Bandeira \_\_\_\_\_ at the service of (a)

\_\_\_\_\_ comes to inform Your Excellency that the requirements of no. \_\_\_\_\_ -

\_\_\_\_\_ constant in the Helideck Inspection Report No. \_\_\_\_\_ - \_\_\_\_\_,

dated \_\_\_\_\_, were remedied in accordance with paragraph c of article 1.5.

of NORMAM-223/DPC.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

Attachments:

a) proof of payment of compensation for the helideck Removal Inspection.

what;

b) certified copy of the power of attorney granting the necessary powers to the administrative processes related to the approval of a helideck with the Brazilian Navy,

when the applicant is not the shipowner or owner; and

c) photos or films, with date, of the requirements met.

**ANEXO 1-F**  
**BRAZILIAN NAVY**  
**DIRECTORATE OF PORTS AND COASTS**  
**IMPEDITIVE REQUIREMENTS**

Examples of Impeditive Demands:

- 1) obstacles encountered at SLO that pose a risk to the aircraft.
- 2) obstacles encountered in SOAL that pose a risk to the aircraft.
- 3) liquid leaks to the lower decks.
- 4) absence of the windsock.
- 5) absence of qualified crew members required to operate the rescue boat.
- 6) absence of enabled ALPH.
- 7) number of BOMBAVs qualified less than two (2), category H1, or three (3), categories H2 or H3.
- 8) absence of a qualified Offshore Platform Radio Operator (RPM).
- 9) ALPH does not speak Portuguese.
- 10) RPM does not speak Portuguese.
- 11) RPM with expired Technical Qualification Certificate (CHT).
- 12) inoperability of the fire-fighting system.
- 13) foam monitor malfunction, not allowing foam production in 15 (fifteen) seconds.
- 14) fire fighting system pressure insufficient for jet to cover the entire length of the helideck.
- 15) malfunction of the lifting/lowering system and/or rescue boat.
- 16) lack of EMCIA equipment during helicopter landing and takeoff.
- 17) the vessel does not have an HMS.
- 18) RPM does not see the HMS in the radio room.
- 19) the vessel/platform does not have a helideck *status light*.
- 20) the touch area is not centered.
- 21) HMS MRU (*pitch, roll and heave*) measurement sensors , anemometers and wind sensor

temperature) without calibration or with expired calibration.

Note: this relationship does not exhaust the impeding requirements and will be dynamic, suffering updates, depending on several factors such as, for example, the evolution of resources technological and operational procedures.

**ANEXO 1-G**

**Company Name**

**REQUEST TO CHANGE HELIDECK PARAMETERS**

Dear Mr. Director of Ports and Coasts,

(Company Name), headquartered at \_\_\_\_\_ (full address, zip code) registered with CNPJ/MF under no. \_\_\_\_\_, as (Agent/Representative) of the (Shipping/Operating Company, owner or charterer), owner of the (vessel/platform) under the flag \_\_\_\_\_, (IMO No.) \_\_\_\_\_, in the service of \_\_\_\_\_, hereby requests the V. Exa alteration of the following parameters mentioned (vessel/platform), constant in the Registration Order No. \_\_\_\_\_, in accordance with paragraph e of Article 1.4 of the NORMAM-223/DPC.

Change Report: \_\_\_\_\_

I inform Your Excellency that the (vessel/platform) presents satisfactory safety conditions according to the parameters established by the aforementioned ordinance and that the \_\_\_\_\_ (Harbor Master's Office, Delegation or Agency of jurisdiction) took cognizance of ment of this request.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

Copies: DPC, Harbor Master's Office, Delegation or Agency (with attachments).

Attached documents:

- a) top and profile view of the platform or merchant ship, on a scale of 1:100;
- b) helideck registration form (FRH);

c) authenticated power of attorney granting the necessary powers for the proceedings administrative procedures related to the approval of a helideck with the Brazilian Navy, when the re- the applicant is not the Shipowner or the Owner;

d) other documents that may be necessary; and

e) request for payment of compensation relating to the requested parameter change, in accordance with the guidelines contained in Annex 1-H;

Notes:

1) all documents must be submitted electronically, using the format PDF (Adobe Reader); item a must also be sent in print; and

2) Documents not sent must be justified, and the order of the documents must be maintained.

attachments.

ANEXO 1-H

Company Name  
MAINTENANCE CERTIFICATE OF  
HELIDECK TECHNICAL CONDITIONS (CMCTH)

I certify that, on this date, the helideck located on board the (vessel/  
platform) \_\_\_\_\_, (No: IMO) \_\_\_\_\_, Indicative of  
City \_\_\_\_\_, Flag \_\_\_\_\_, currently operating in  
area \_\_\_\_\_, of property \_\_\_\_\_, Frame \_\_\_\_\_,  
chartered \_\_\_\_\_, remains in the technical conditions for which it was opened to traffic.  
aerial fire, in accordance with the Helideck Certification issued by the Brazilian Navy and the  
Registration Order No. - \_\_\_\_\_, \_\_\_\_\_ (date), issued by the National Agency for Avi-de  
Civil action (ANAC), valid until \_\_\_\_\_ (date). The helideck was inspected  
by \_\_\_\_\_ and was approved by \_\_\_\_\_ (name of Organization  
recognized by the DPC or by the engineering department of the company that operates the helideck).  
e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

Notes:

1) attach to the CMCTH three current photos of the helideck (21 x 29.7 cm (A4), profile, top and  
vessel).

2) attach the ETEX M approval certificate to the CMCTH.

3) attach the coefficient of friction certificate, where applicable.

4) all documents must be submitted electronically, using the format  
PDF (Adobe Reader).

ANNEX 1-I

PAYMENT GUIDE

COMPANY NAME

Simplified Service Proposal (PCS)

Type of process: \_\_\_\_\_

Name of the Vessel/Platform	Company Data
	Name of the person in charge:  Cargo:  Company Name:  CNPJ:  Full address:  Tel/Fax:  Email:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

Note: must be sent to the email **dpc.helideques@marinha.mil.br**.

ANEXO 1-J



**BRAZILIAN NAVY**

**DIRECTORATE OF PORTS AND COASTS**

**HELIDECK CERTIFICATION NO. \_\_\_\_\_ - \_\_\_\_\_**

The Director of Ports and Coasts has tasked me, using the powers conferred upon him by Interministerial Normative Ordinance No. 1,422/MD/SAC-PR, OF June 5, 2014, published in the Official Gazette No. 107, of June 6, 2014, to certify that, on \_\_/\_\_/\_\_, the helideck was inspected and recommended that it be opened to air traffic in vessel/platform, with the following characteristics:

- I) Name of vessel/platform, flag, location code and acronym: \_\_\_\_\_;
- II) ETEX phone call sign: \_\_\_\_\_;
- III) Registration with the International Maritime Organization (IMO No.): \_\_\_\_\_;
- IV) Type of vessel/platform \_\_\_\_\_;
- V) Area of exploration of natural resources: \_\_\_\_\_;
- VI) Altitude in relation to sea level: \_\_\_\_\_;
- VII) Floor resistance: \_\_\_\_\_;
- VIII) Maximum length of the largest helicopter in operation: \_\_\_\_\_;
- IX) Operating conditions: \_\_\_\_\_;
- X) Class: \_\_\_\_\_;
- XI) Category: \_\_\_\_\_;
- XII) It has an approved fuel system: \_\_\_\_\_;
- XIII) Operator / CNPJ: \_\_\_\_\_; and
- XIV) This certification will be valid until \_\_/\_\_/\_\_.

Rio de Janeiro, in of \_\_\_\_\_ from 20xx.

NAME and PLACE  
Helideck Division Manager



**BRAZILIAN NAVY**

**DIRECTORATE OF PORTS AND COASTS**

**CANCELLATION OF ORDINANCE**

**CANCELLATION NO. - \_\_\_\_\_**

The Director of Ports and Coasts has tasked me, using the powers conferred upon him by Interministerial Normative Ordinance No. 1,422/MD/SAC-PR, OF June 5, 2014, published in the Official Gazette No. 10706 of June 2014, and in view of the non-compliance with the requirements of this Board, to inform you that the helideck does not present conditions satisfactory techniques for helicopter landings and takeoffs, with the recommendation being cancellation of Ordinance No. \_\_\_/ANAC and its consequent closure to air traffic on the vessel/platform, with the following characteristics:

- I) Name of vessel/platform, flag, location code and sail: \_\_\_\_\_;
- II) Type of vessel/platform \_\_\_\_\_;
- III) Registration with the International Maritime Organization (IMO No.): \_\_\_\_\_;
- IV) Observation: \_\_\_\_\_.

Rio de Janeiro, in of \_\_\_\_\_ from 20xx.

NAME  
PLACE  
Helideck Division Manager

## ANEXO 1-K



## BRAZILIAN NAVY

## DIRECTORATE OF PORTS AND COAST

## NOTIFICATION OF HELIDECK INTERDICTION

1 – I certify that, on \_\_\_\_/\_\_\_\_/\_\_\_\_\_, the helideck located on board the  
VESSEL/FIXED PLATFORM \_\_\_\_\_, LOCATION INDICATOR  
\_\_\_\_\_ and ACRONYM \_\_\_\_\_, was submitted to INSPECTION (INITIAL / OF  
RENEWAL / INSPECTION / PARAMETER CHANGE), in accordance with the provisions of  
NORMAM-223/DPC, aimed at verifying the technical conditions for landings and takeoffs of  
helicopters, and **did not present satisfactory safety conditions for operating helicopters**,  
because the Impeding Requirement(s) described below have been verified:

Impeding Requirement(s)	NORMAM-223/DPC

2 - In view of the above, I hereby notify the Responsible Party that **the helideck of this vessel is banned**, as of this date, and helicopters are not allowed to land until the  
The above mentioned Impeding Requirement(s) are remedied and reported to the DPC so that it can be  
inspected again and, if approved, ANAC will be asked to open/reopen to traffic  
Air.

\_\_\_\_\_  
CHIEF INSPECTOR

\_\_\_\_\_  
ASSISTANT INSPECTOR

\_\_\_\_\_  
NAME OF THE PERSON RESPONSIBLE FOR THE HELIDECK



**BRAZILIAN NAVY**  
**DIRECTORATE OF PORTS AND COAST**  
**NOTIFICATION OF HELIDECK CLEARANCE**

1 – I certify that, on \_\_\_\_/\_\_\_\_/\_\_\_\_\_, the helideck located on board the  
VESSEL/FIXED PLATFORM \_\_\_\_\_, LOCATION INDICATOR  
\_\_\_\_\_ and ACRONYM \_\_\_\_\_, was submitted to the REMOVAL INSPECTION OF  
REQUIREMENTS, in accordance with the provisions of NORMAM-223/DPC, aiming to verify the conditions  
techniques for helicopter landings and takeoffs, and presented satisfactory conditions for  
safety to operate helicopters.

2 - In view of the above, I hereby notify the Responsible Party that **the helideck of this vessel is  
unbanned**, as of this date, with helicopter landings being permitted.

\_\_\_\_\_

CHIEF INSPECTOR

\_\_\_\_\_

ASSISTANT INSPECTOR

\_\_\_\_\_

NAME OF THE PERSON RESPONSIBLE FOR THE HELIDECK

**ANNEX 1-L**



**BRAZILIAN NAVY**

**DIRECTORATE OF PORTS AND COAST**

**COMMUNICATION OF REQUIREMENT**

1 – I hereby certify that, on \_\_\_\_/\_\_\_\_/\_\_\_\_\_, it was observed that the helideck located on board of the VESSEL/FIXED PLATFORM \_\_\_\_\_, LOCATION INDICATOR \_\_\_\_\_ and ACRONYM \_\_\_\_\_, presented requirement(s) in relation to the requirement(s) to operate helicopters as provided for in NORMAM-223/DPC, described below:

Requirements)	NORMAM-223/DPC

2 - In view of the above, I hereby inform the person responsible for the vessel/fixed platform that shall, within a period of \_\_\_\_ days, regularize the aforementioned requirement(s), pay the PAS for the inspection to remove requirements and inform the DPC of their compliance, otherwise it may have your registration cancelled.

Local e data:

\_\_\_\_\_  
IN CHARGE OF THE HELIDECK DIVISION

**ANEXO 1-M**

**Company Name**

**DECLARATION**

I declare that the helideck located on board the (vessel/platform) \_\_\_\_\_,  
(IMO No./Registration No.) \_\_\_\_\_, operating in AJB, will not be used for air operations,  
therefore not being certified and registered in accordance with NORMAM-223/DPC.

I hereby declare that I am aware that I must place the helideck closed sign, article  
5.4, subitem g of the above standard.

e-mail:

contact phone number:

Local e data:

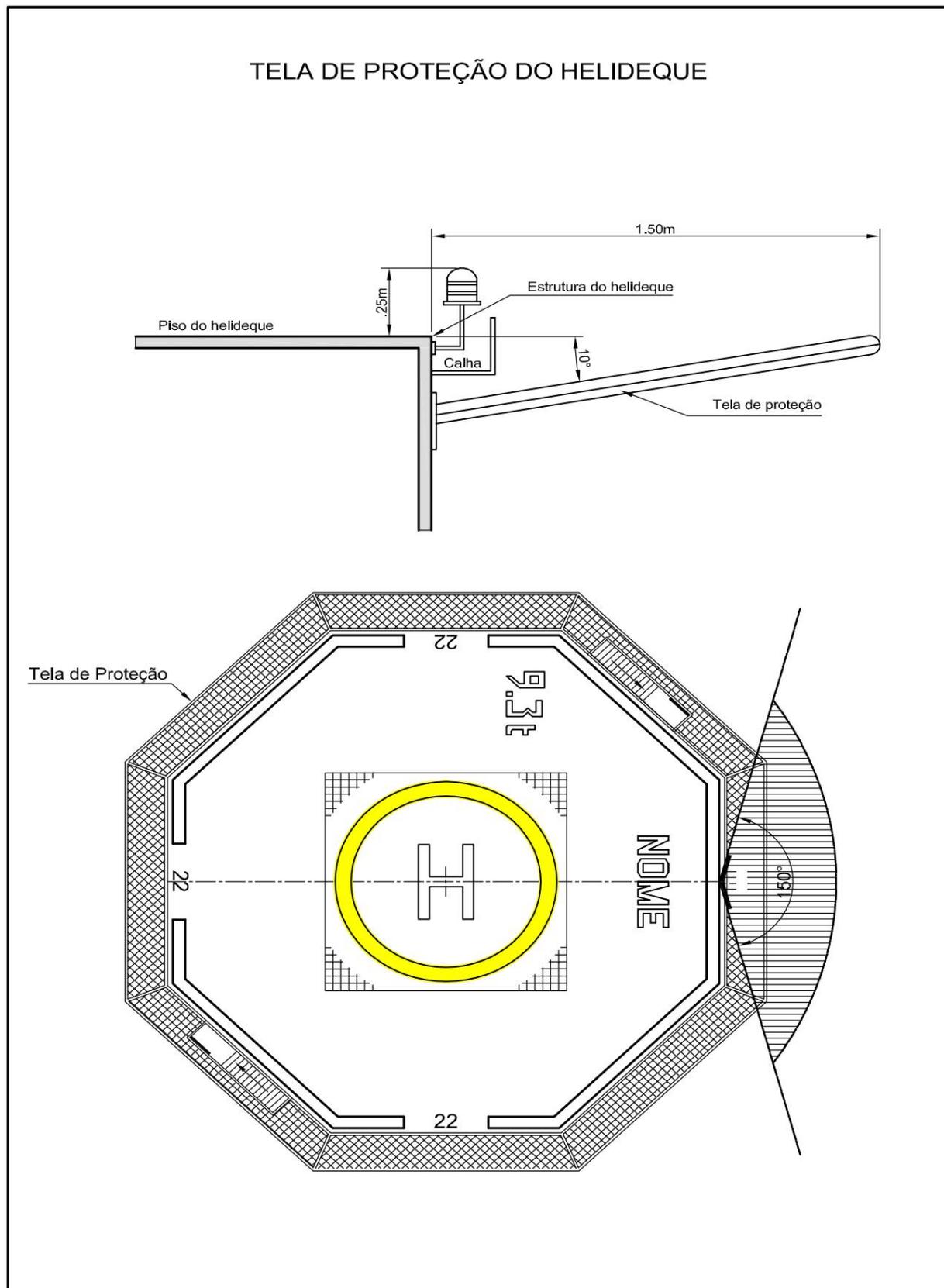
SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

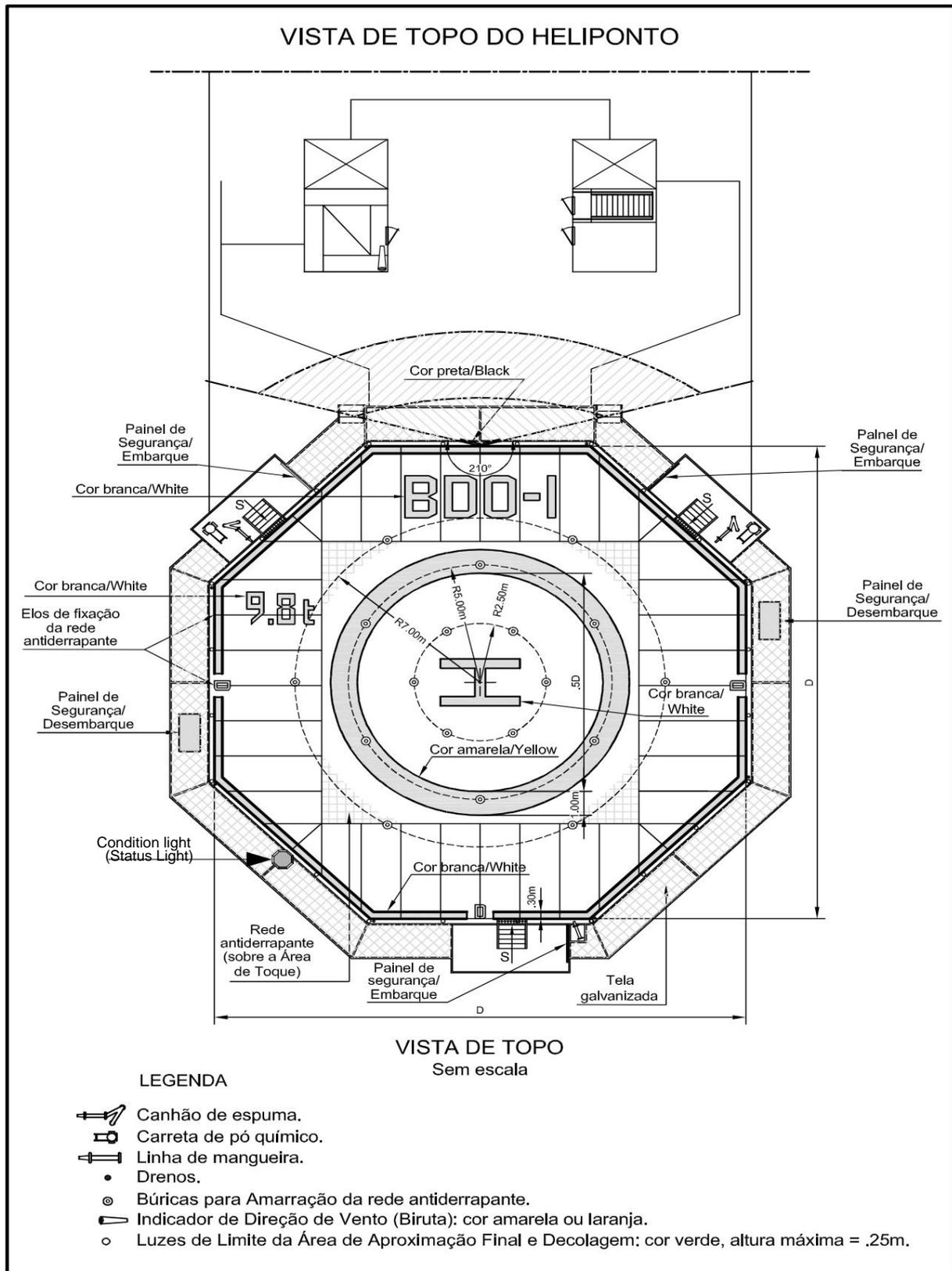
ANNEX 2-A

TELA DE PROTEÇÃO DO HELIDEQUE



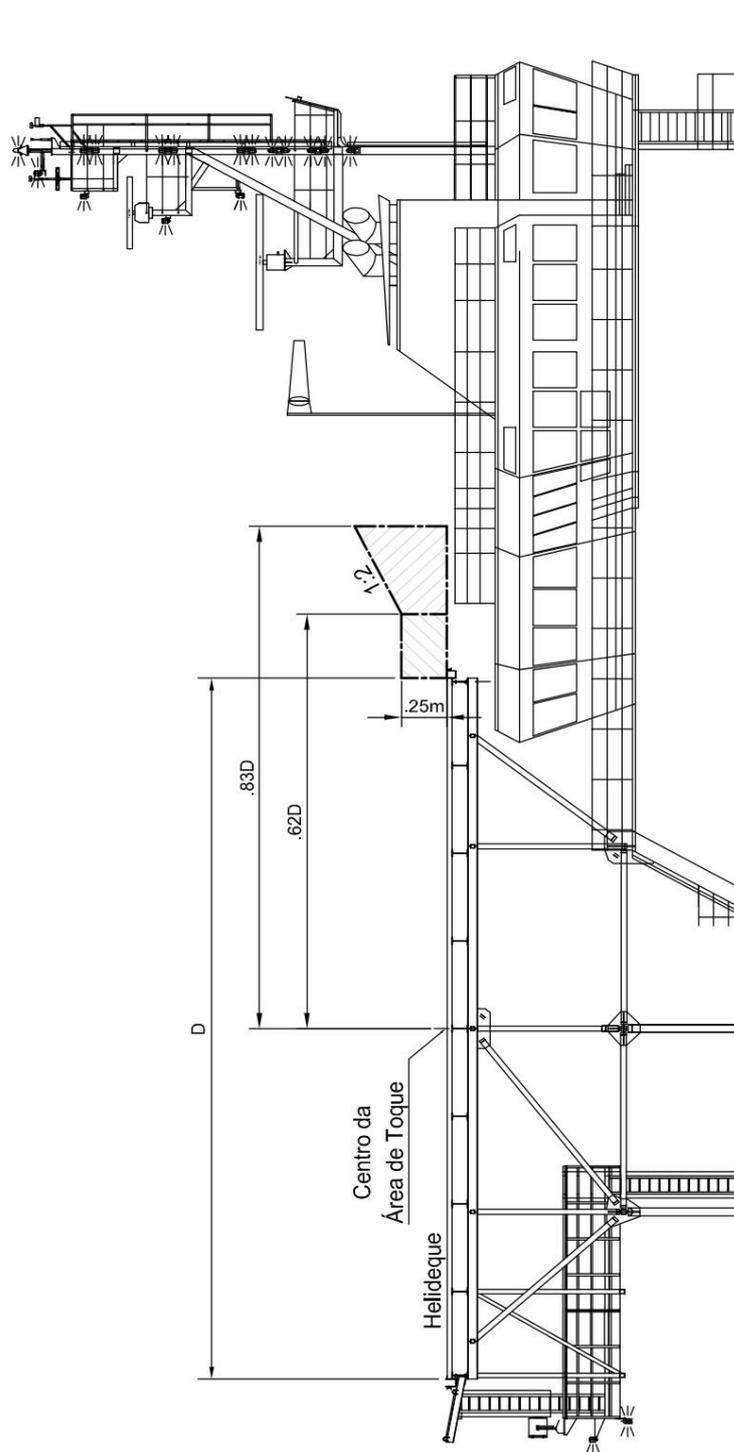
## ANEXO 2-B

## VISTA DE TOPO DO HELIPONTO



ANNEX 2-C

VISTA DE PERFIL DO HELIDEQUE



VISTA DE PERFIL  
Sem escada

**ANNEX 2-D**

**Company Name**

**HELIDECK PROTECTION SCREEN RESISTANCE CERTIFICATE**

I certify that, on the present date, the sections of the protective screen installed on the helideck si-  
carried out on board (vessel/platform) \_\_\_\_\_, (IMO No./Registration No.) - -  
\_\_\_\_\_, Locality Indicator \_\_\_\_\_, were subjected to the test provided for in  
NORMAM-223/DPC, and it was found that they are free from damage and in safe conditions.  
for conducting air operations.

The test was performed by \_\_\_\_\_ and approved by  
\_\_\_\_\_ (DPC Recognized Organization or Industry Engineer)  
engineering director of the company operating the helideck with Technical Responsibility Note  
- ART and copy of the CREA registration).

Note: This certificate is valid for three (3) years.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

ANNEX 2-E

Company Name

HELIDECK RESISTANCE CERTIFICATE

I certify that the floor and support structure assembly of the helideck located on board  
of (vessel/platform) \_\_\_\_\_, (IMO No./registration No.) \_\_\_\_\_, Now-  
Locality captive \_\_\_\_\_, resist to \_\_\_\_\_ tons, and meets, on the present date, the  
parameters described in paragraph d – Structural Design, of article 2.4 – Personnel Safety, of  
NORMAM-223/DPC.

The helideck was inspected by \_\_\_\_\_ and approved by  
\_\_\_\_\_ (Organization Recognized by the DPC or Engineer from the engineering sector of the  
company that operates the helideck with Technical Responsibility Note - ART and copy of the CREA registration).

Please note: This certificate is valid for three (3) years.

e-mail:

contact phone number:

Local e data:

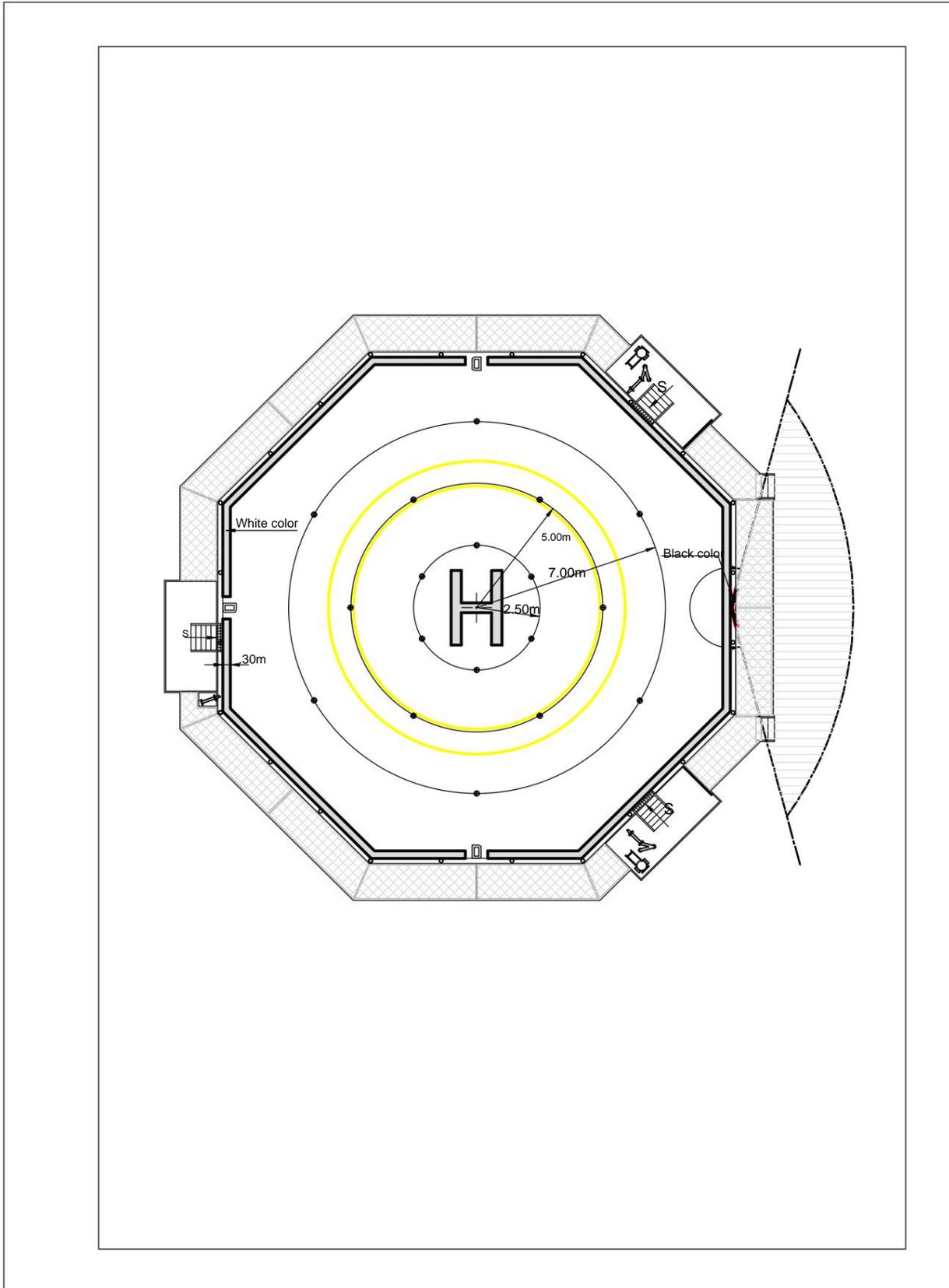
SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

ANNEX 3-A

DISTRIBUTION SCHEME OF BURSTS



**ANEXO 3-B**

**Company Name**

**CERTIFICATE OF COEFFICIENT OF FRICTION**

I certify that, on this date, the floor of the AAFD of the helideck located on board the (em-vessel/platform) \_\_\_\_\_, (IMO No./Registration No.) \_\_\_\_\_, Indicative of Locality \_\_\_\_\_, was subjected to the coefficient of friction test according to the method than provided for in NORMAM-223/DPC.

The test was performed by \_\_\_\_\_ and approved by \_\_\_\_\_ (DPC Recognized Organization or Engineer of the engineering sector of the company that operates the helideck with Responsibility Note Technique - ART and copy of the registration at CREA), having the validity of \_\_\_\_\_ months.

Notes:

- 1- This certificate is valid for twelve (12) months.
- 2- the equipment report with the results of the tests must be attached to this document.

measurements.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

**ANNEX 3-C**

**Company Name**

**CERTIFICATE OF RESISTANCE OF BÚRICAS**

I certify that, on this date, the bilges installed on the helideck located on board the  
(vessel/platform) \_\_\_\_\_, (IMO number/registration number) \_\_\_\_\_,  
of Locality \_\_\_\_\_, were subjected to non-destructive testing, and it was found that  
are free from damage and in safe conditions for conducting air operations.  
largest helicopter operating on the helideck.

Indicative

The non-destructive test was performed by \_\_\_\_\_ and approved by  
\_\_\_\_\_ (DPC Recognized Organization or Industry Engineer)  
engineering director of the company operating the helideck with Technical Responsibility Note  
- ART and copy of the CREA registration).

Please note: This certificate is valid for three (3) years.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

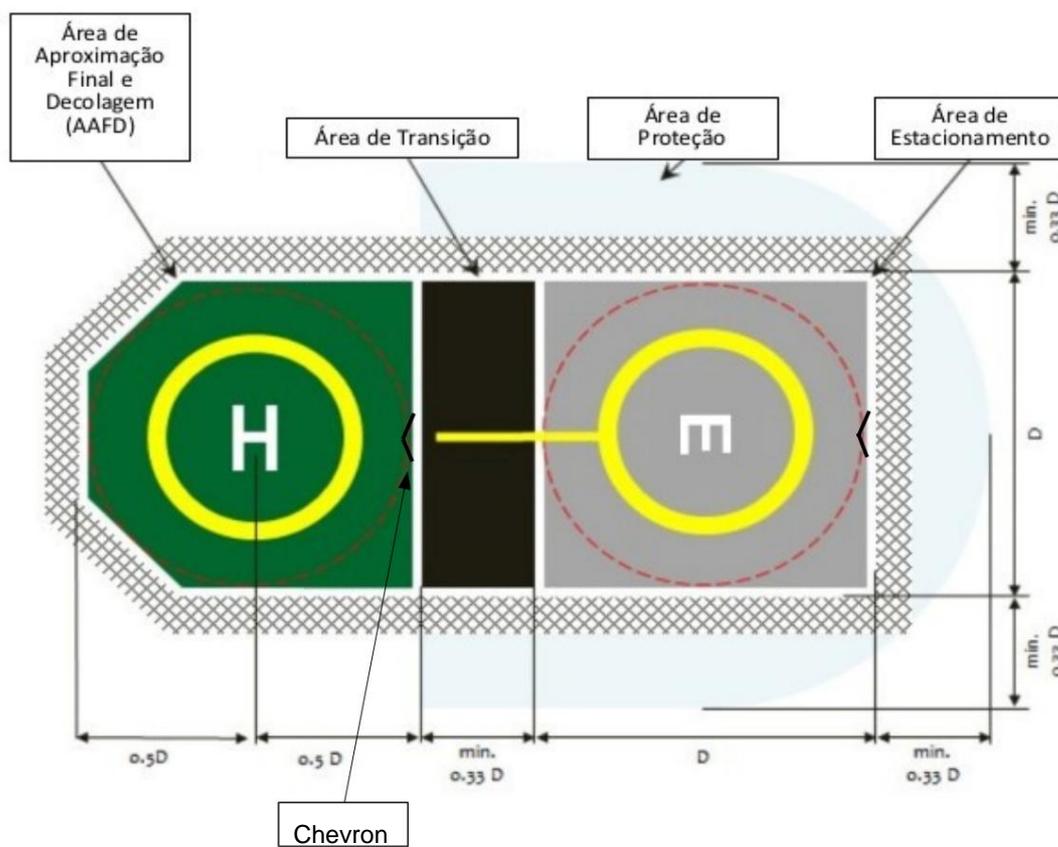
NAME

CARGO

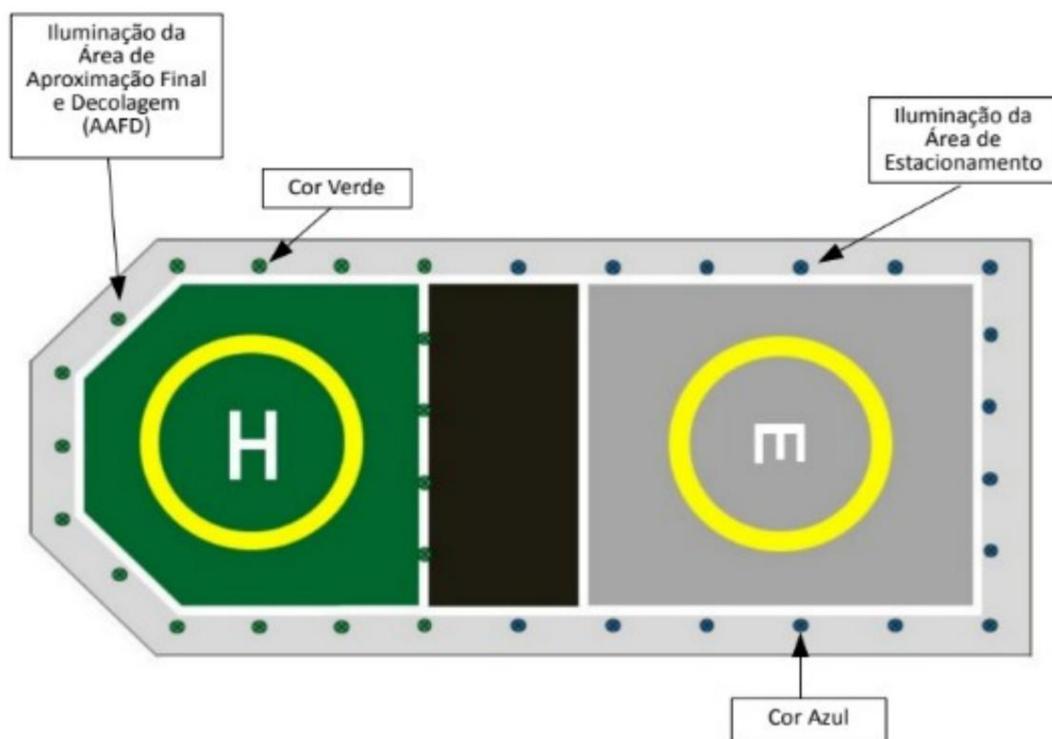
ANNEX 3-D

STANDARD-27

Área de Estacionamento de Helideques

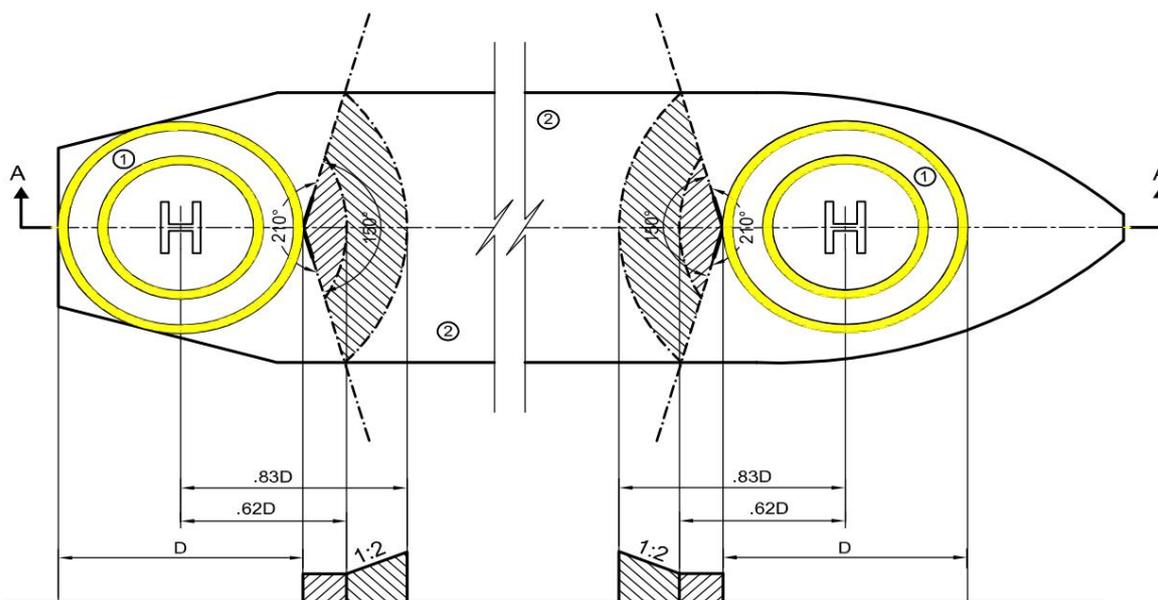


### Iluminação da Área de Estacionamento de Helicópteros



ANNEX 4-A

HELIDEQUE DE NAVIO  
NA POPA OU NA PROA

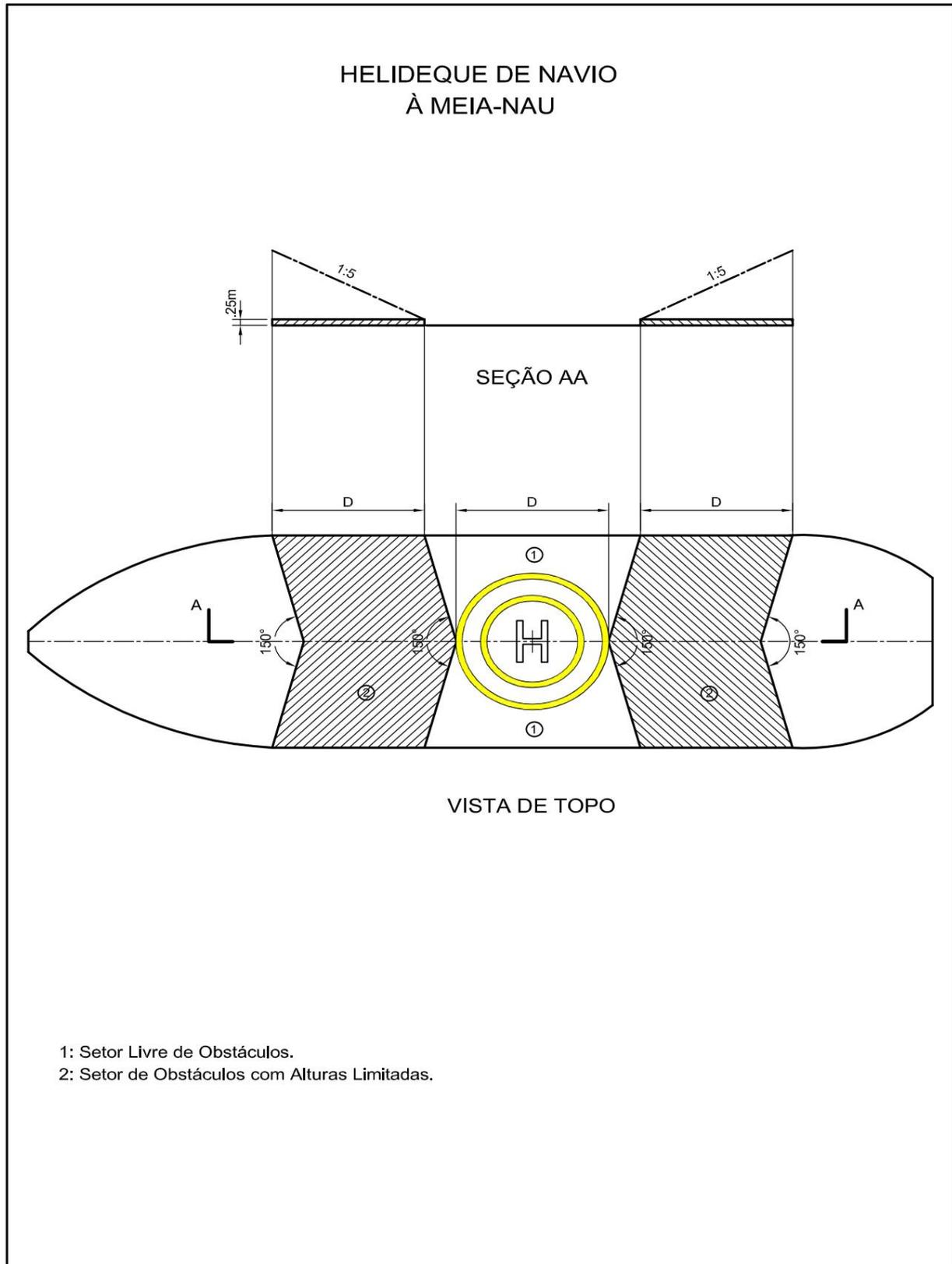


SEÇÃO AA

- 1 = Setor Livre de Obstáculos.
- 2 = Setor de Obstáculos com Alturas Limitadas.

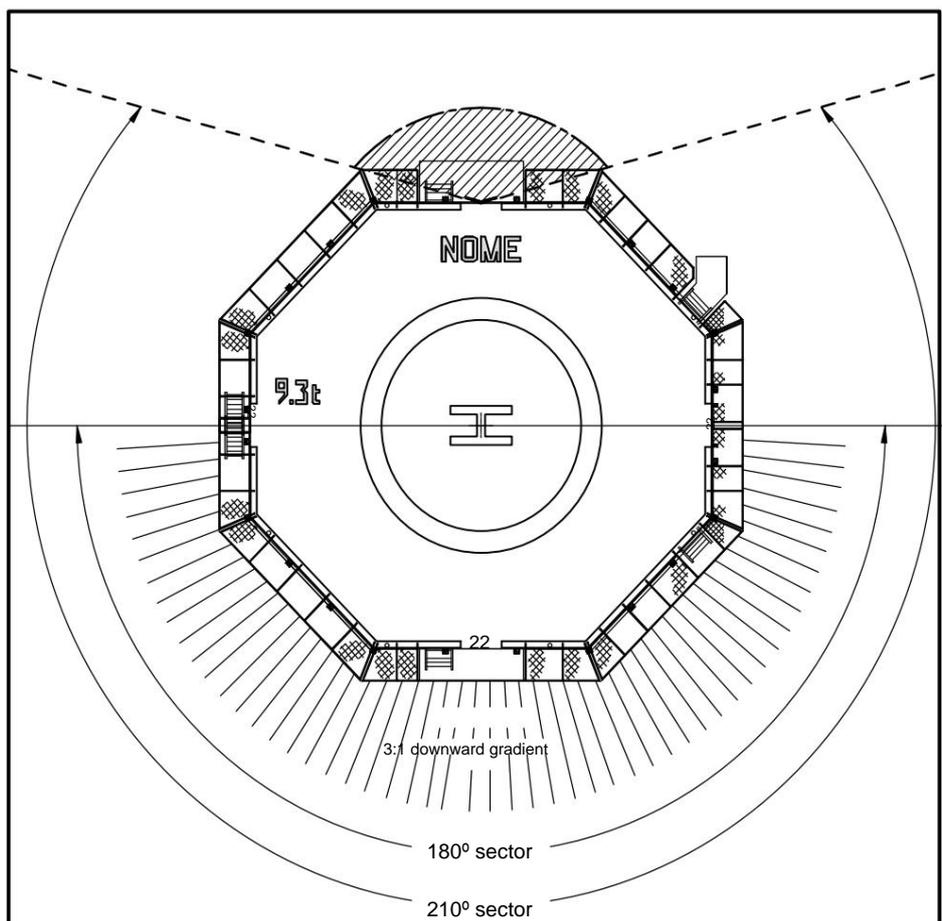
ANEXO 4-B

HELIDEQUE DE NAVIO  
À MEIA-NAU

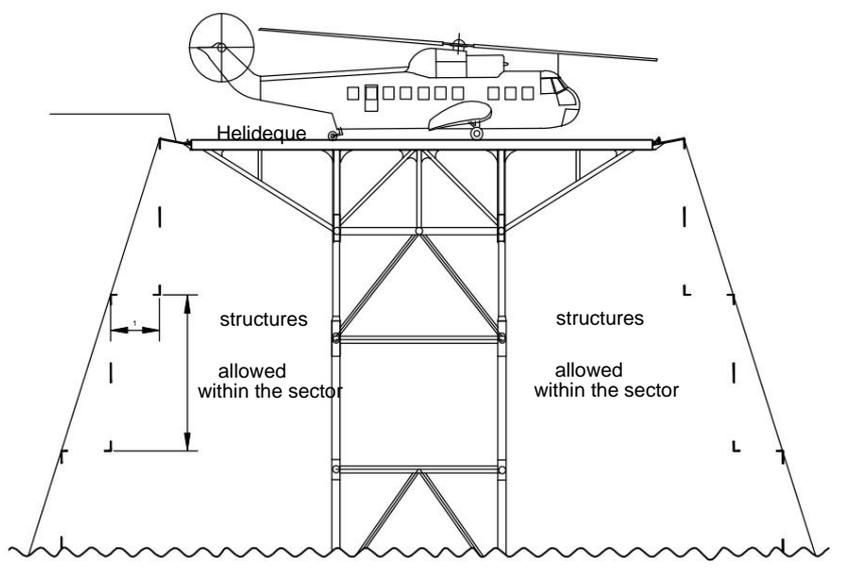


- 1: Setor Livre de Obstáculos.
- 2: Setor de Obstáculos com Alturas Limitadas.

ANNEX 4-C  
NEGATIVE GRADIENT



TOP VIEW



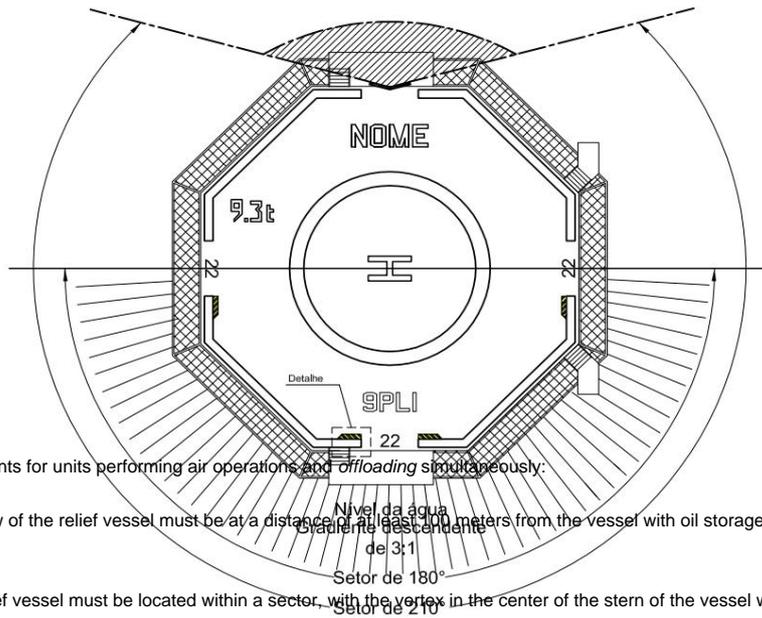
PROFILE VIEW

STANDARD 222-222  
STANDARD-222

ANEXO 4-C  
ANNEX 4-C

FAIXA DE ALERTA DO NÃO CUMPRIMENTO DO GRADIENTE NEGATIVO

CROQUI PARA SINALIZAÇÃO DE OBSTÁCULOS  
QUE COMPROMETAM O GRADIENTE NEGATIVO



Requirements for units performing air operations and offloading simultaneously:

- 1 – the bow of the relief vessel must be at a distance of at least 100 meters from the vessel with oil storage capacity;
- 2 – the relief vessel must be located within a sector, with the vertex in the center of the stern of the vessel with oil storage capacity and with the bisector coinciding with the centerline of the vessel, which does not exceed an arc of 120° (one hundred and twenty degrees), as illustrated above;

DETALHE PINTURA DA FAIXA DE SINALIZAÇÃO  
DO NÃO CUMPRIMENTO DO GRADIENTE NEGATIVO

- 3 – the approach and take-off ramps must be clear, and a support vessel (tugboat) must be available for immediate use nearby to ensure the movement of the ship. Tanker vessels to keep the ramps clear, vessels equipped with a dynamic positioning system (Dynamic Positioning System - DPS) are exempt from the support vessel.



- 4 – the helicopter that moves to land and take off on the helideck of the vessel with oil storage capacity must be configured for performance class 2, as per RBAC No. 01, or HOGE (Hover Out Ground Effect), whichever is more restrictive.

DETALHE

Obs.: Em helideques circulares o ângulo da faixa será de 90°.

- 4-C-3 -

- 4-C-2-C-2 -

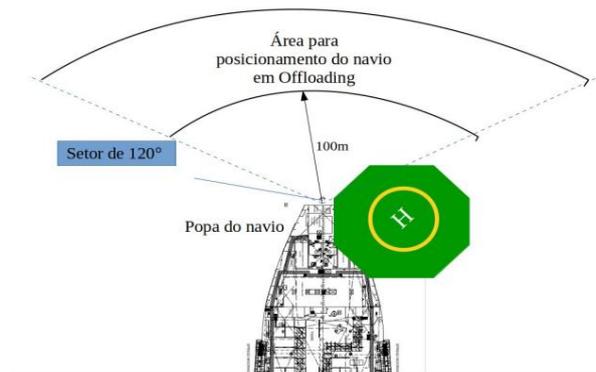
- 4-C-2 -

## STANDARD-222

## ANNEX 4-C

## NEGATIVE GRADIENT

## Offloading Vessel Operations Area



Requirements for units performing air operations and *offloading* simultaneously:

- 1 – the bow of the relief vessel must be at a distance of at least 100 meters from the vessel with oil storage capacity;
- 2 – the relief vessel must be located within a sector, with the vertex in the center of the stern of the vessel with oil storage capacity and with the bisector coinciding with the centerline of the vessel, which does not exceed an arc of 120° (one hundred and twenty degrees), as illustrated above;
- 3 – the approach and take-off ramps must be clear, and a support vessel (tugboat) must be available for immediate use nearby to ensure the movement of the shuttle tanker in order to keep the ramps clear. Vessels equipped with a dynamic positioning system (*Dynamic Position System - DPS*) are exempt from this support vessel;
- 4 – the helicopter that moves to land and take off on the helideck of the vessel with oil storage capacity must be configured for performance class 2, as per RBAC No. 01, or HOGE (*Hoover Out Ground Effect*), whichever is more restrictive.

- 4-C-3 -

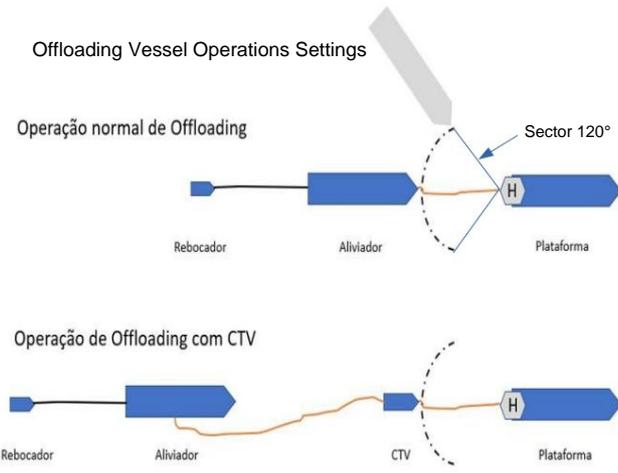
- 4-C-3 -

STANDARD-222

ANNEX 4-C

STANDARD-222

Offloading Vessel Operations Settings  
ANNEX 4-C



TO vessel performing operation alongside the platform

Height Obstacles Sector  
Limited

H

Maintenance Vessel

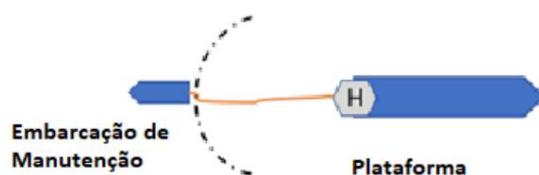
- 4-C-4 -

- 4-C-4 -

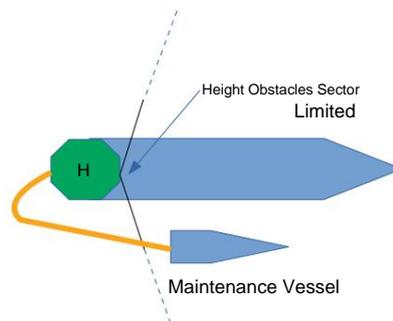
ANNEX 4-C

Offloading Vessel Operations Settings

Embarcação TO realizando operação a cerca de 150m da plataforma



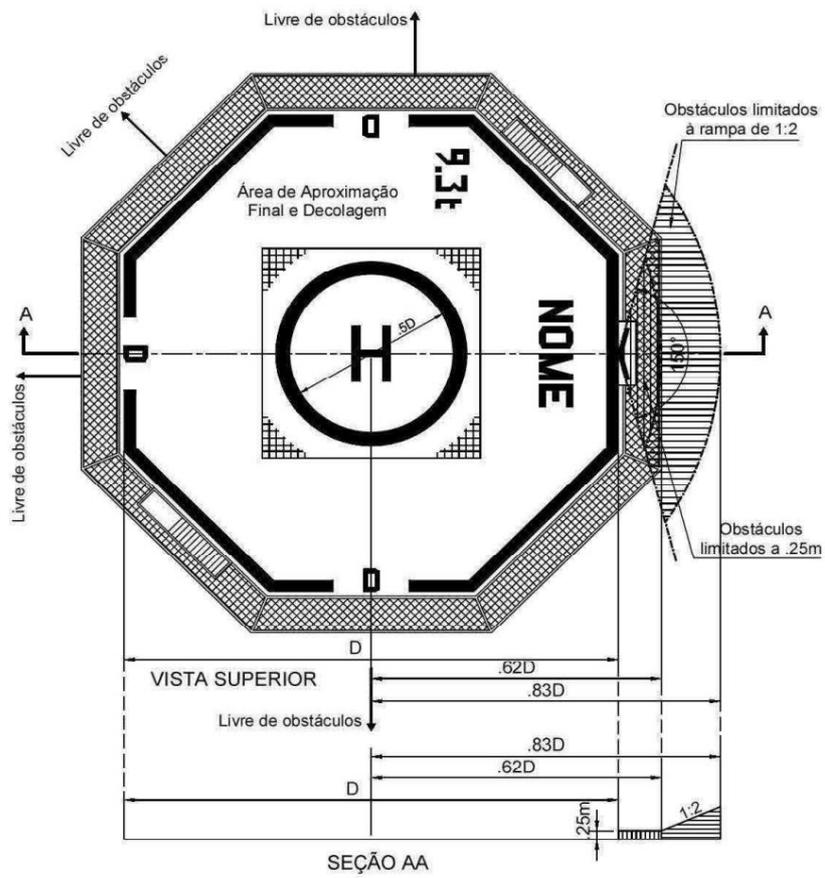
TO vessel performing operation alongside the platform



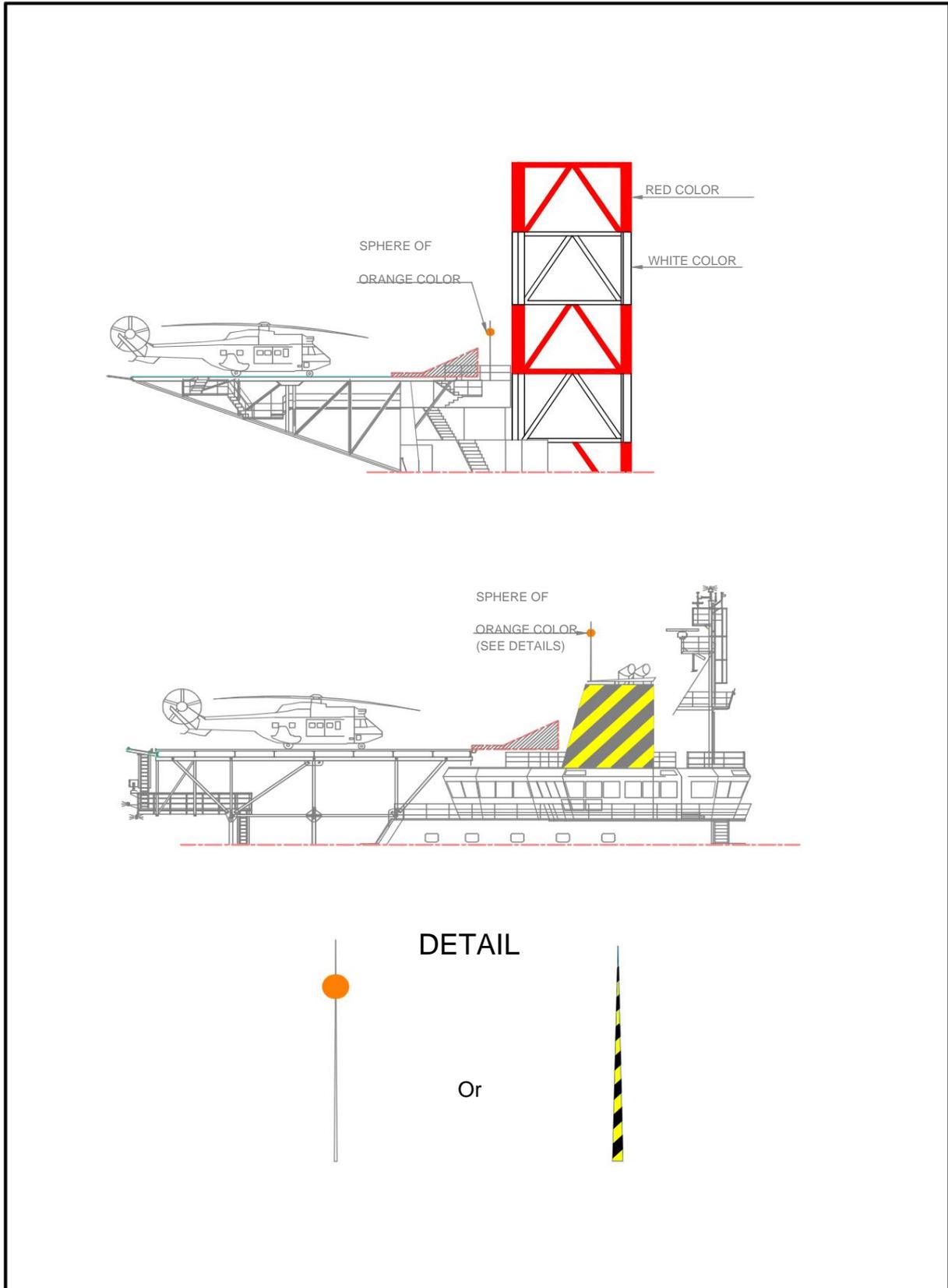
ANNEX 4-D

SETOR DE OBSTÁCULOS COM ALTURAS LIMITADAS

(QUESTION)



ANNEX 4-E  
OBSTACLE SIGNALING



ANEXO 4-F

ANEXO 4-F

Docked offshore vessels/platforms



fig.1 - coupling with 210° SLO (green helideck closed)

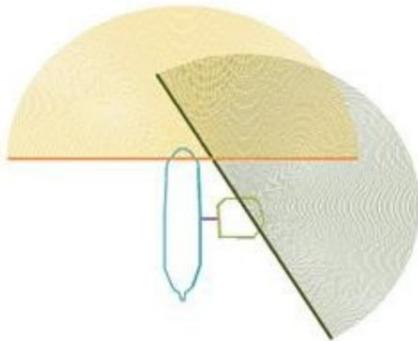


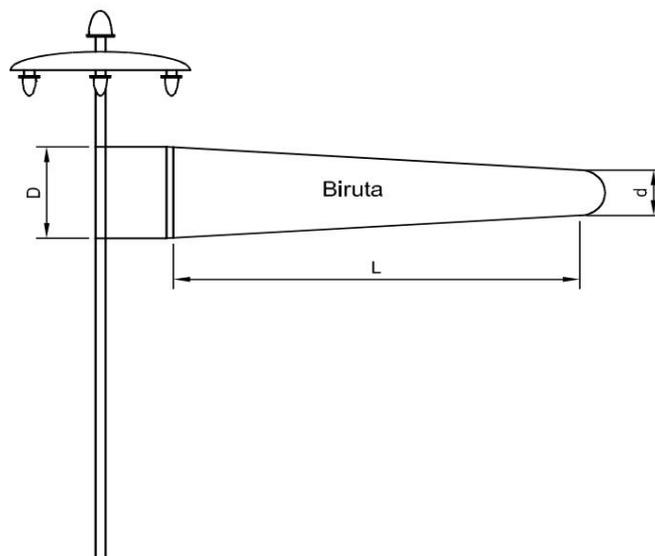
fig. 2 - coupling with 180° SLO (operational helidecks)



fig. 3 - coupling with SLO of 210° (helidecks 1 and 2 closed); with SLO of 180° (helideck of Unit 1 closed)

ANNEX 5-A

WIND DIRECTION INDICATOR MODEL (WIND SUN)

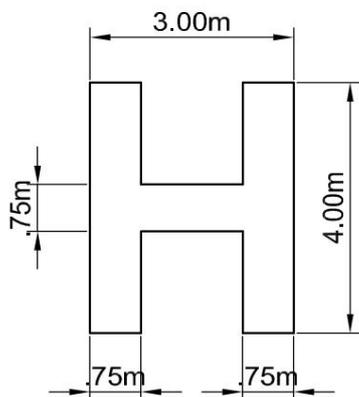
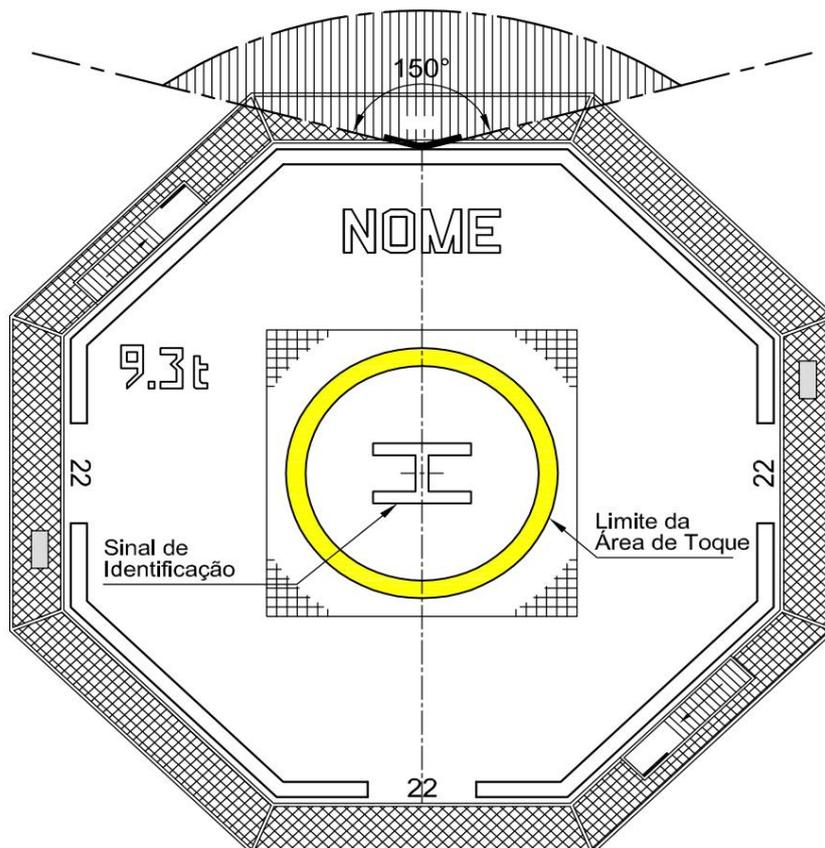


DIMENSÕES

- Comprimento (L) ..... 1.20m a 1.40m
- Diâmetro da extremidade maior (D) ..... .30m
- Diâmetro da extremidade menor (d) ..... .15m

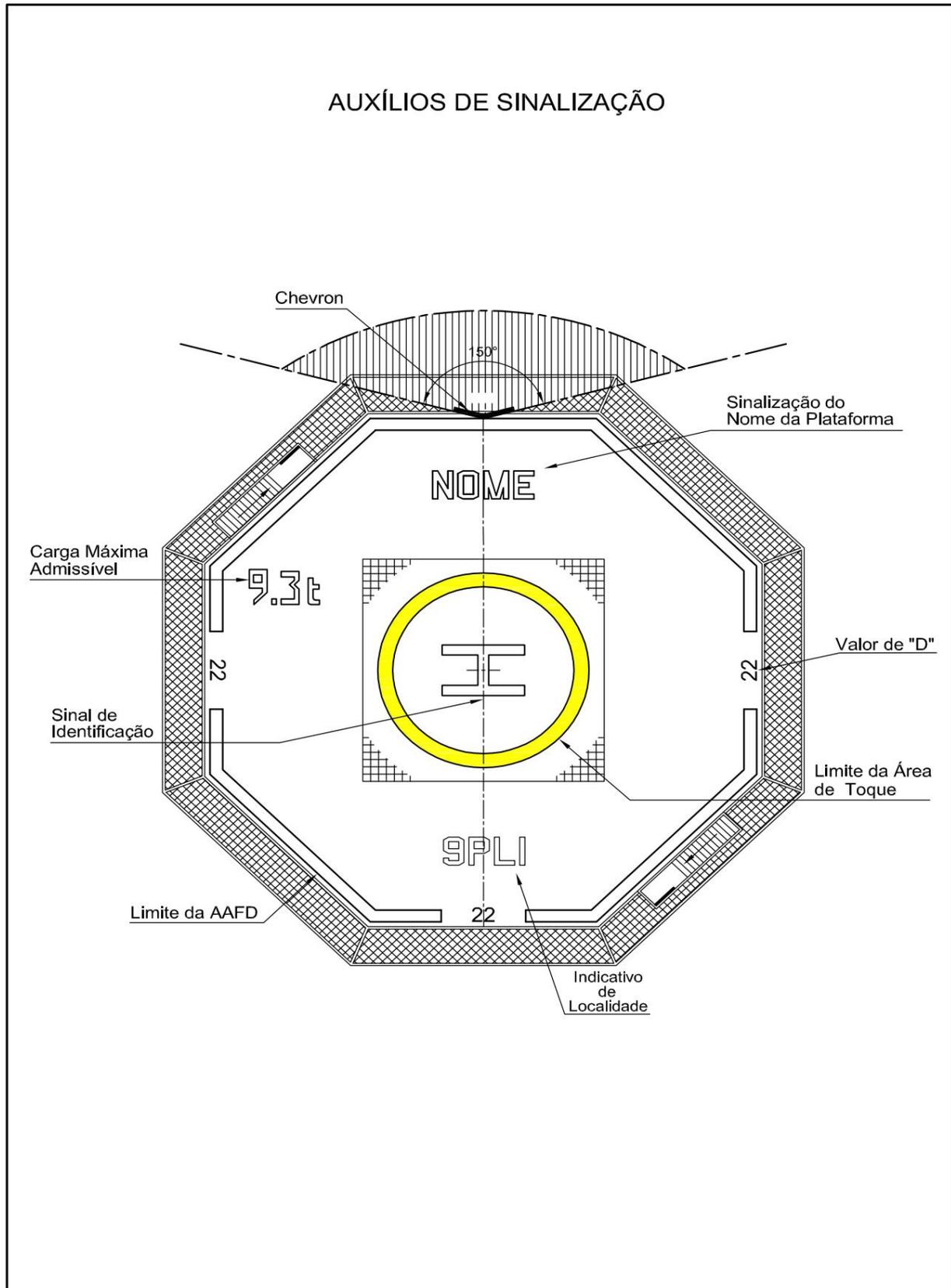
ANEXO 5-B

SINAL DE IDENTIFICAÇÃO

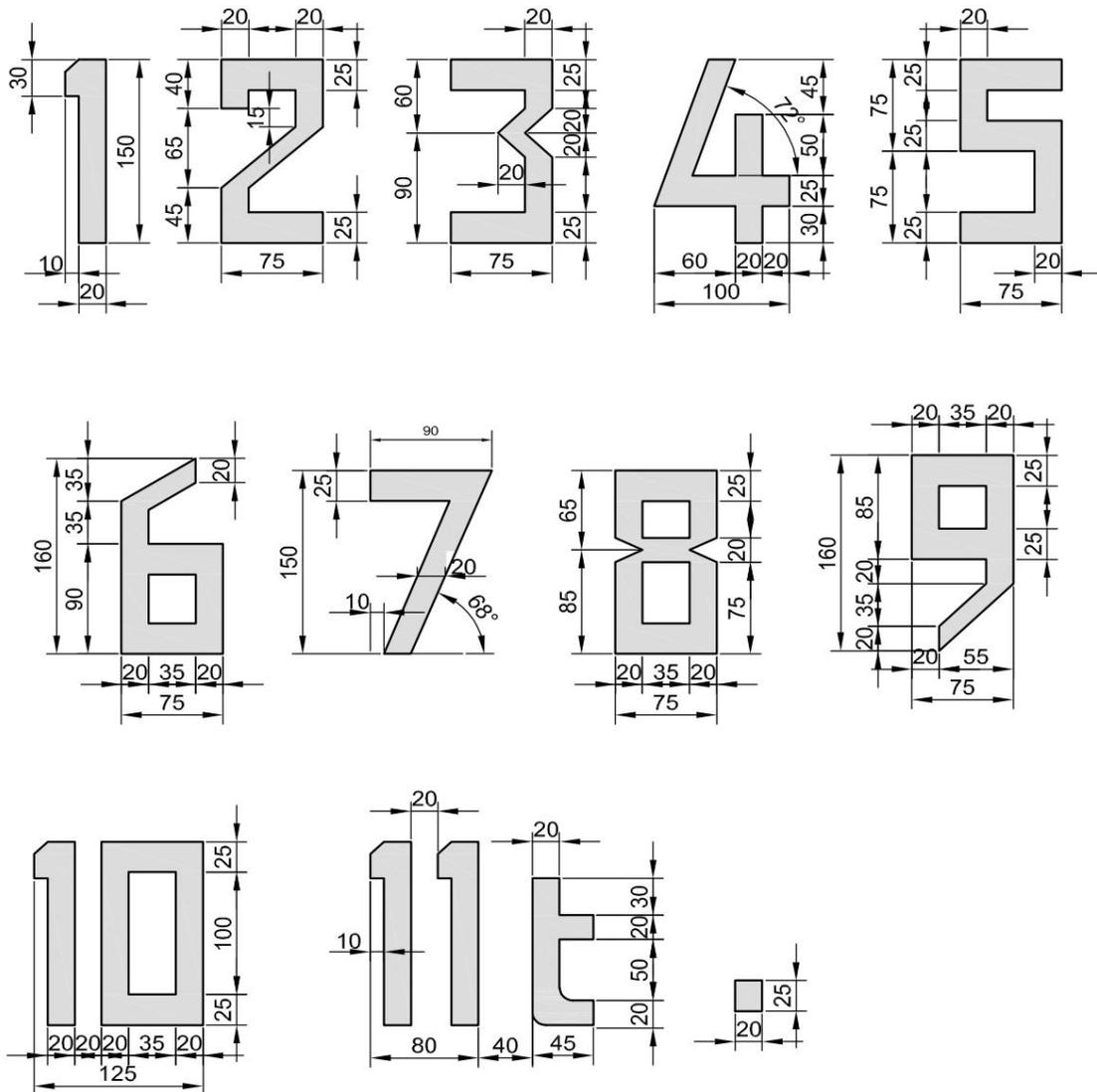


ANNEX 5-C

AUXÍLIOS DE SINALIZAÇÃO



## ANNEX 5-D

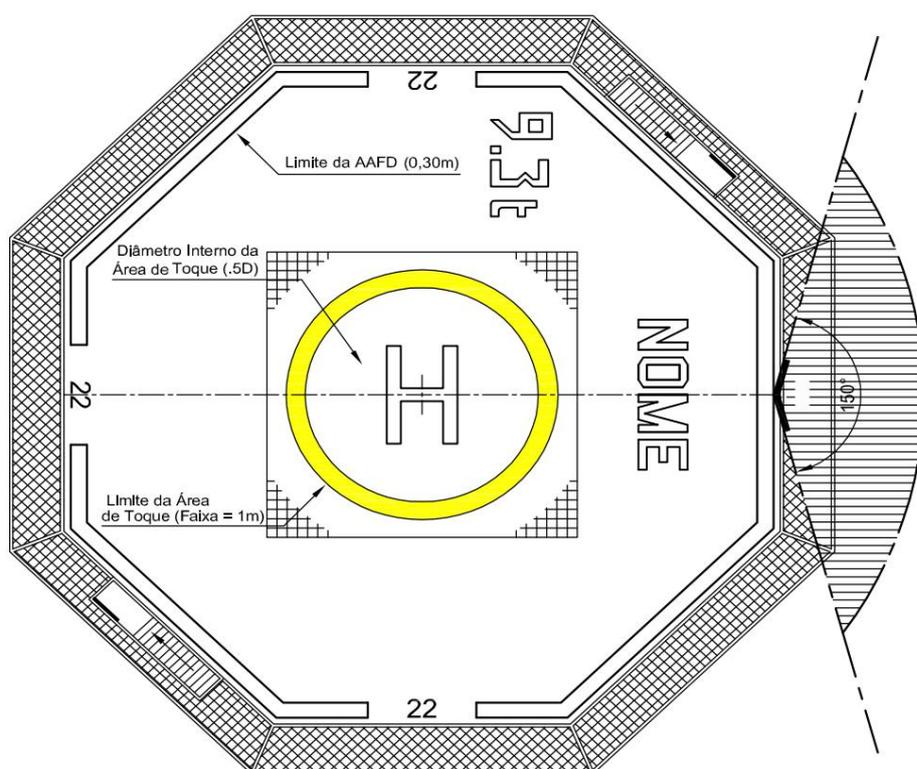
DIMENSÕES DA MARCAÇÃO DA  
CARGA MÁXIMA ADMISSÍVEL

## OBSERVAÇÕES:

1 - Medidas em centímetros.

ANNEX 5-E

DIMENSÃO DA ÁREA DE TOQUE



## ANEXO 5-F

DIMENSÕES DAS LETRAS DO NOME, INDICATIVO VISUAL  
E INDICATIVO DE LOCALIDADE DA PLATAFORMA/EMBARCAÇÃO

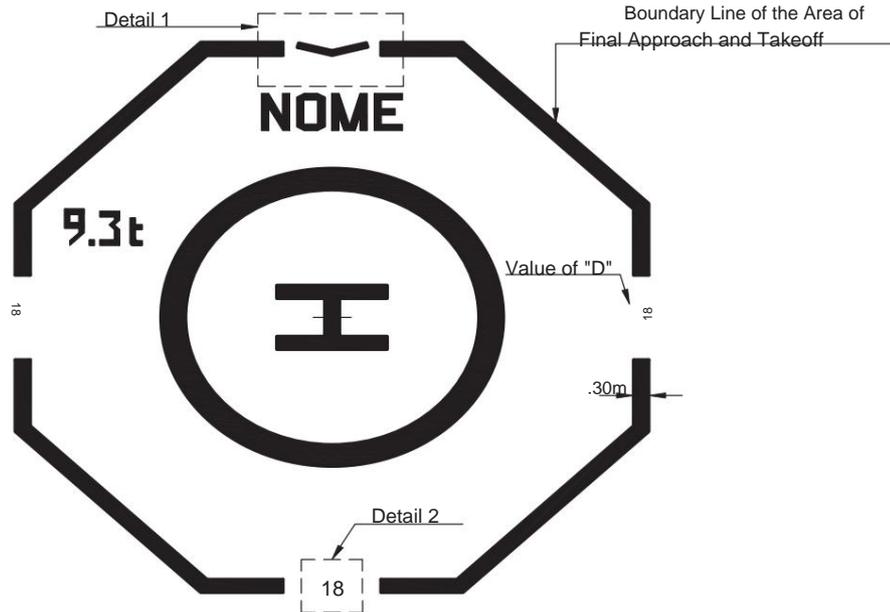


## OBSERVAÇÕES:

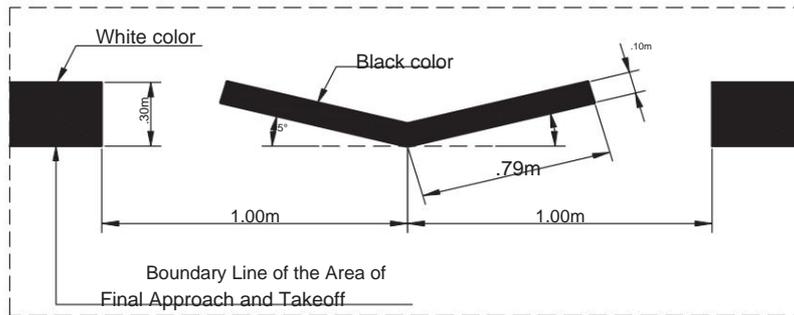
- Altura das letras = 1.20m.
- As dimensões dos quadrados de referência serão: .20m x .20m.
- Espaçamento entre as letras = 1 quadrado de referência.

ANEXO 5-G

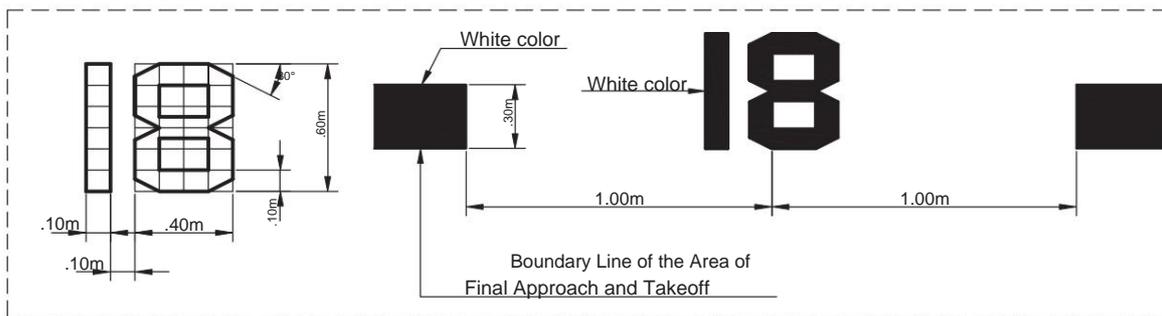
CHEVRON OVER STRIP AND "D" MARKING



TOP VIEW



DETAIL 1



DETAIL 2



STANDARD-222 STANDARD-222

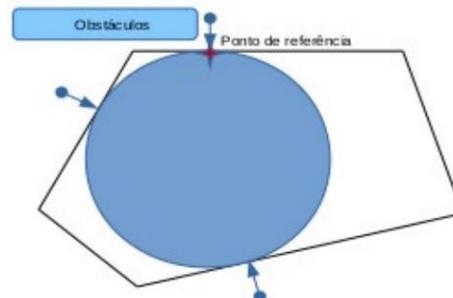


figura 3 - em azul, foi assinalado o círculo inscrito na AAFD de formato irregular. As setas azuis representam os pontos onde o círculo a tangencia. Em função da posição dos obstáculos, foi selecionado um ponto para servir como referência para posicionamento do chevron, destacado pela estrela vermelha.

2.4 - deverá ser selecionado o setor de  $150^\circ$  do chevron de forma a abranger o SOAL. A bissetriz do SLO, setor de  $210^\circ$ , deverá passar pelo centro da área de toque. (fig. 4 e 5)

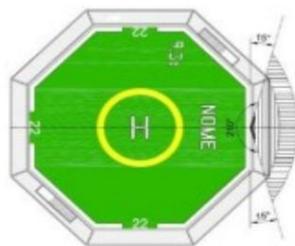


figura 4 - bissetriz do SLO passando pelo centro da área de toque.

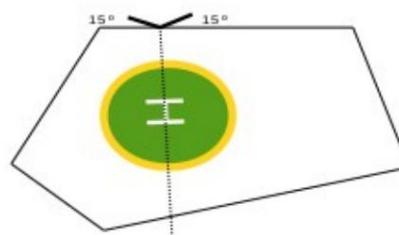


figura 5 - AAFD irregular, estando a bissetriz do SLO passando pelo centro da área de toque.

2.5 - é admissível uma variação rotacional do chevron de até  $15^\circ$ , no sentido horário e anti-horário, para posicionamento do SLO. O "H" deverá ser girado para que seu traço horizontal fique

STANDARD-222 STANDARD-222

paralelo a bissetriz do ângulo do SLO (fig. 6 e 7). **Não é permitido o deslocamento lateral do chevron em relação ao ponto de referência.**

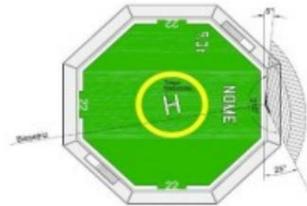


figura 6 - rotação do chevron em helideque regular.

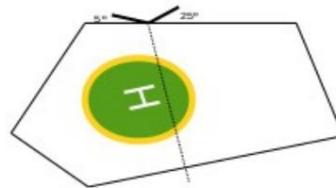


figura 7 - rotação do chevron em helideque irregular.

2.6 - definido o ponto de referência, serão feitas demais sinalizações que mantêm um paralelismo com a linha onde se encontra o chevron. O comprimento do maior helicóptero autorizado para operar na unidade (D) é assinalado na parte central das demais linhas da AAFD. (fig. 8 e 9)

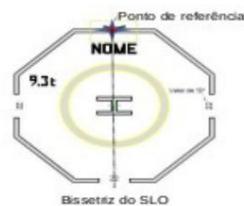


figura 8 - representação de sinalização em um helideque com AAFD octogonal.

STANDARD-222 STANDARD-222

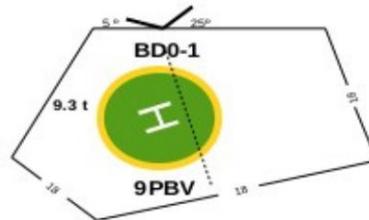


figura 9 - posicionamento de sinalização em um helideque com AAFD irregular e o chevron rotacionado.

3 - Para helideques situados a meia nau, haverá dois chevrons, um dizendo para proa e outro para popa. Deverá ser assumido o ponto de referência na extremidade mais à proa do navio para as demais sinalizações. (fig.10 e 11)



figura 10 - vista de topo de uma embarcação com helideque circular a meia nau.

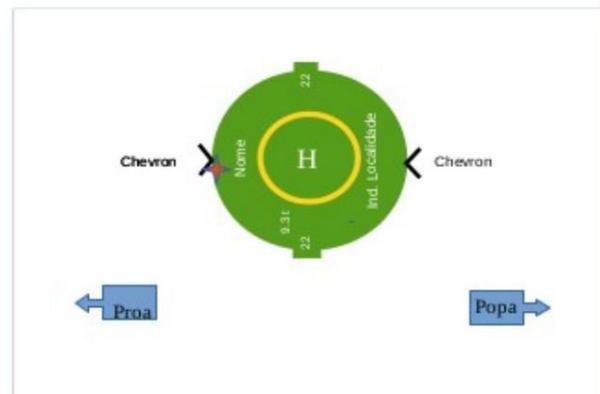
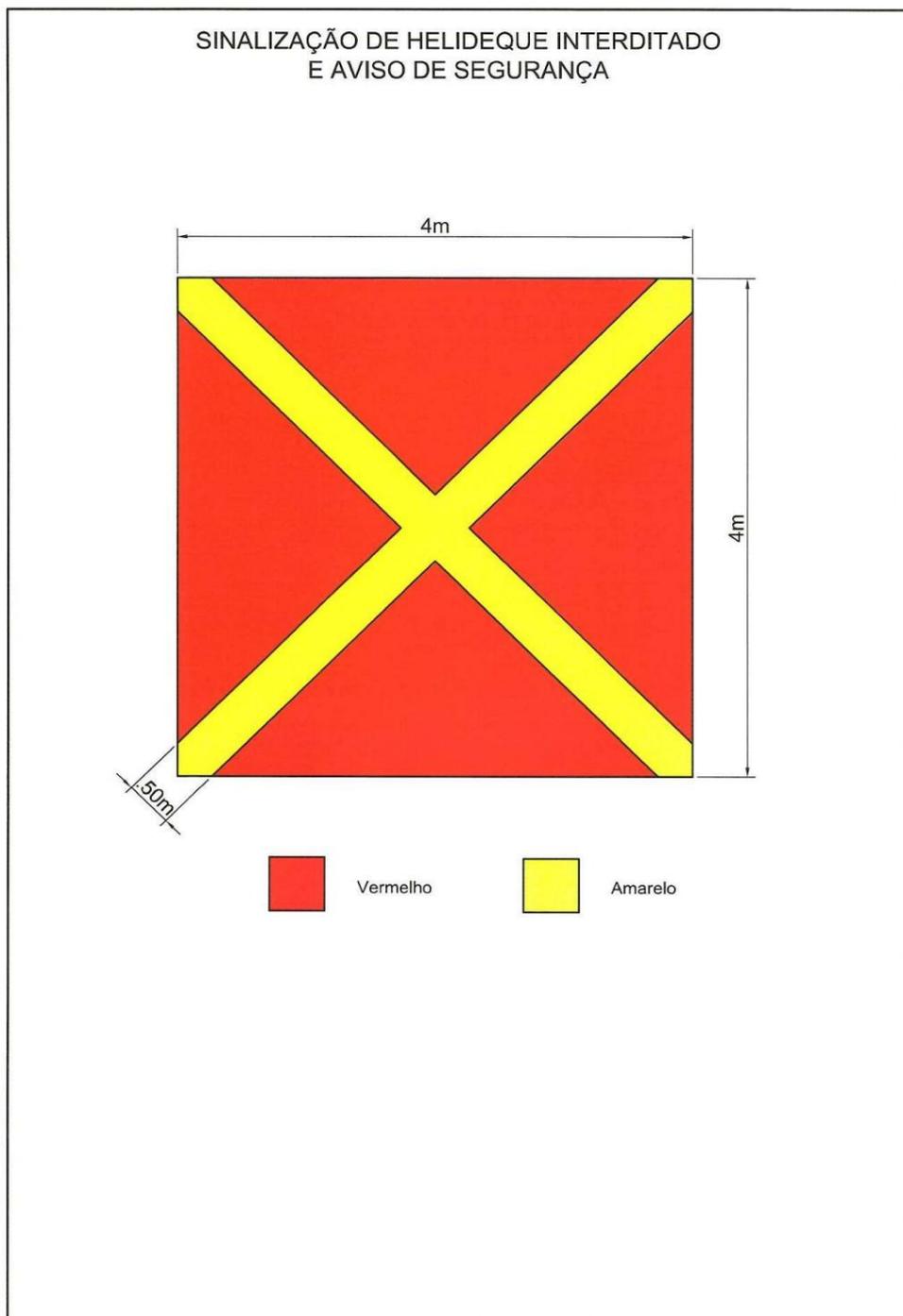


figura 11 - em destaque, a representação do helideque da fig.10. O ponto de referência deverá ser assumido na posição mais a proa da unidade. Os demais auxílios à sinalização serão dispostos conforme a ilustração. Observar que este tipo de helideque possui a sinalização de dois chevrons, com setores de 150º cada um.

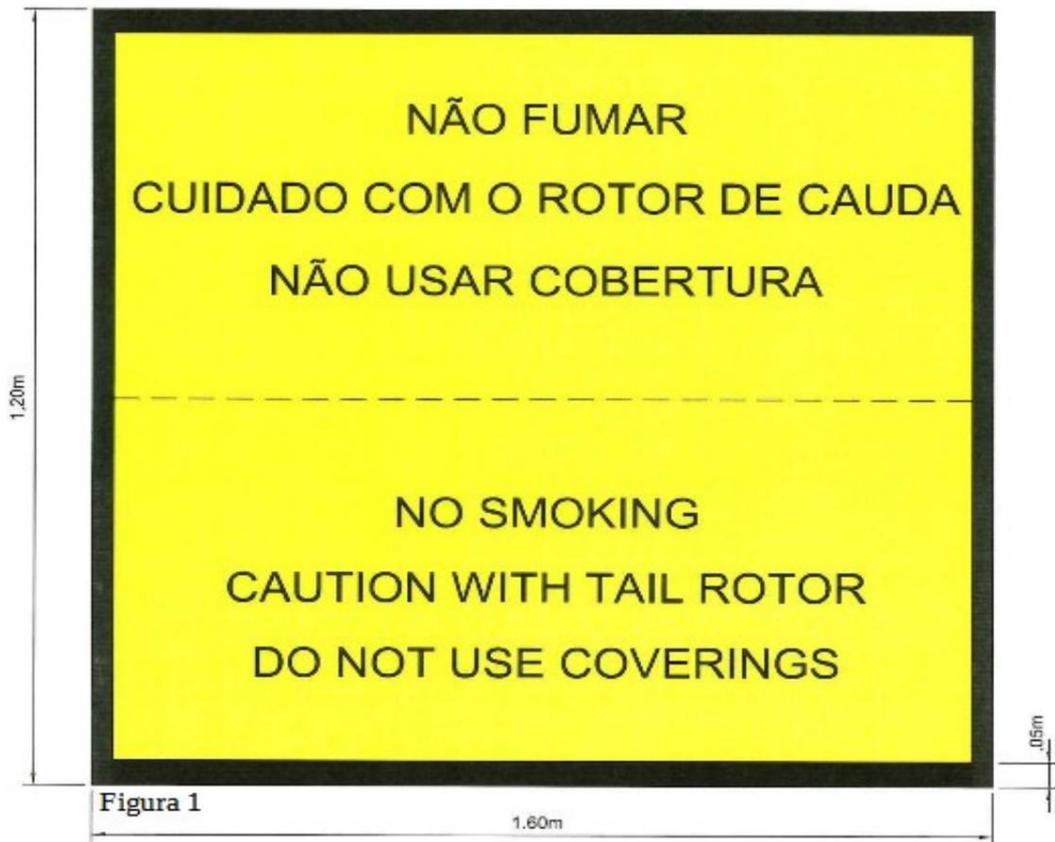
ANEXO 5-H



-5-H-1-

- 5-H-1 -

AVISO DE SEGURANÇA

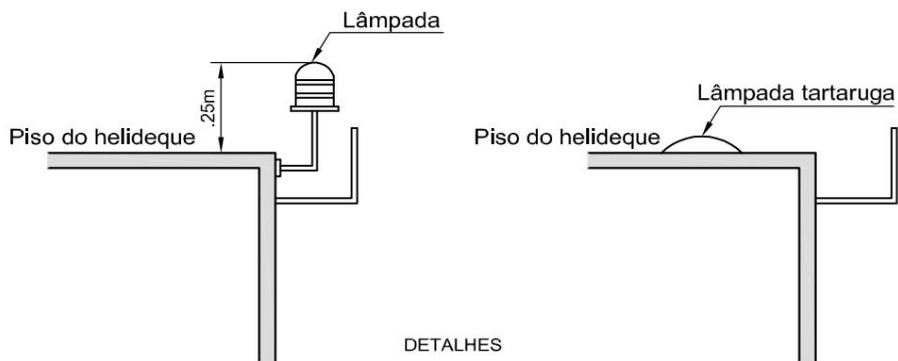
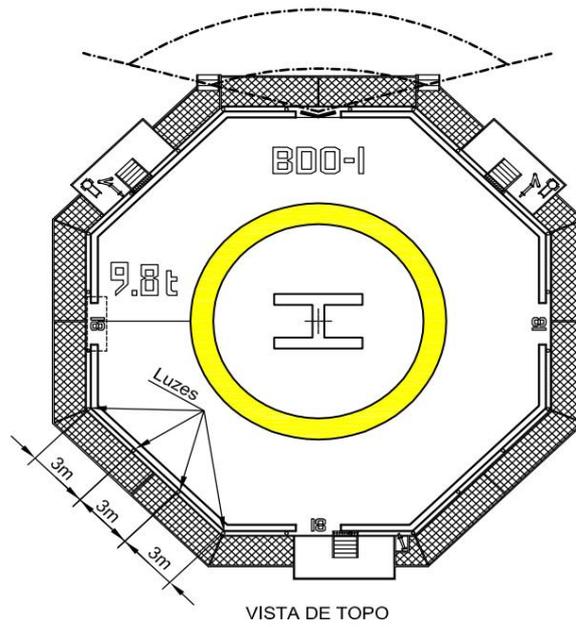


Note: notices may be prepared separately, one in Portuguese and the other in English. Notices must have the dimensions shown in figure 2.

ANNEX 5-I

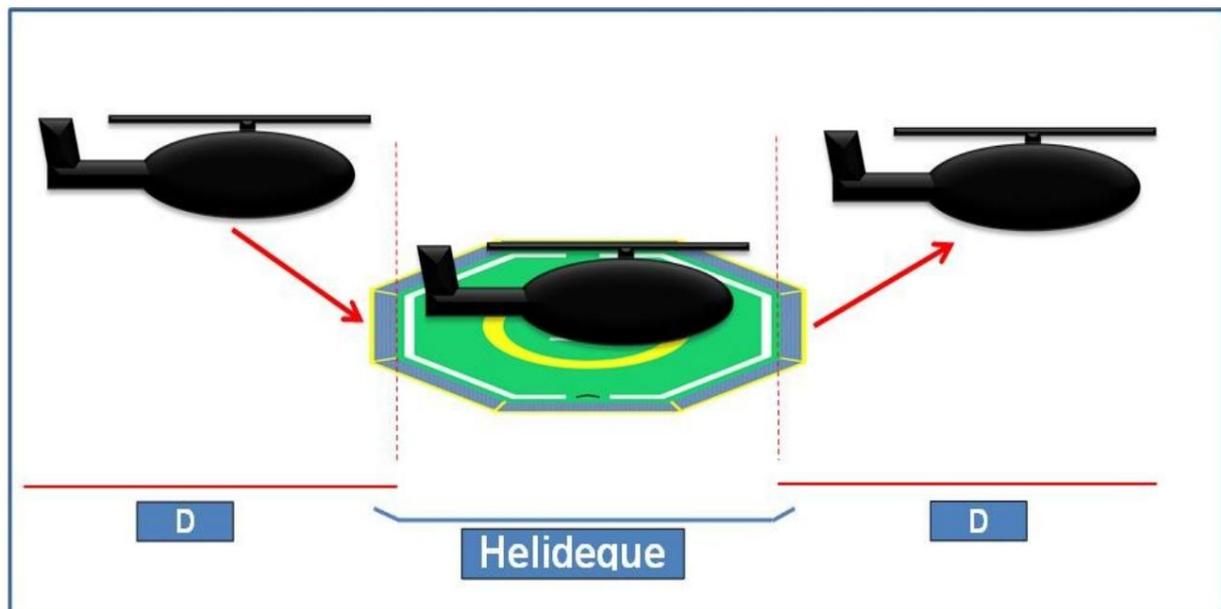
AUXÍLIOS DE ILUMINAÇÃO

Luzes de Limite da Área de Aproximação Final e Decolagem



ANNEX 6-A

CAMERA FRAMING SCHEME FOR RECORDING THE  
HELICOPTER APPROACH, LANDING AND TAKEOFF



Approximation

Landing

Take-off

## ANNEX 8-A

## DAILY INSPECTION FORM

RESPONSIBLE:	DATA:	LAST CHECK:
--------------	-------	-------------

## 1) FILTERS

COLLECTOR		
QAV-1	SOLID PARTICLES	
	WATER	

## 2) STORAGE TANK

QAV-1	
SIGH	
VALVES	
DRAIN	

## 3) MANGOTES

PHYSICAL CONDITIONS		
ENVIRONMENTAL CONDITIONS		
QAV-1	SOLID PARTICLES	
	WATER	

## ANEXO 8-B

## WEEKLY INSPECTION FORM

RESPONSIBLE:	DATA:	LAST CHECK:
--------------	-------	-------------

## DIFFERENTIAL PRESSURE INDICATOR

PRESSURE MEASUREMENT	
----------------------	--

## ALL SYSTEM

LEAK	
CONNECTIONS	
CLEANING	
SEALING	

## INJECTOR FILTERS AND FUEL JOINTS

GENERAL STATUS	
SEALING	
CLEANING	

## DISTRIBUTION HOSES

PHYSICAL CONDITIONS		
ENVIRONMENTAL CONDITIONS		
QAV-1	SOLID PARTICLES	
	WATER	

## GROUNDING CABLE

GENERAL CONDITIONS	
ELECTRICAL CONNECTIONS	

## ANNEX 8-C

## QUARTERLY INSPECTION FORM

RESPONSIBLE:	DATA:	LAST CHECK:
--------------	-------	-------------

## FILTRATION UNITS, DECANTATION LINES, FILTER MONITOR AND SEPARATOR

GENERAL STATUS		
QAV-1	SOLID PARTICLES	
	WATER	
CLEANING		

## DISTRIBUTION HOSES

GENERAL STATUS	
LEAKS	
JOINTS	

## THE PIPE

GENERAL STATUS	
LUBRICATION	
FILTERS	
WATER REGULATOR/SEPARATOR	
LEAK	
VILLAGE	

## HOSE REEL

OPERATION	
GEARS	
LUBRICATION	

SUPPLY NOZZLE

GENERAL CONDITIONS	
LEAK	
FILTER	
LIDS	

GROUNDING CABLE

GENERAL CONDITIONS	
CONTINUITY	
CLAWS	
CONNECTION PINS	

## ANNEX 8-D

## SEMI-ANNUAL INSPECTION FORM

RESPONSIBLE:	DATA:	LAST CHECK:
--------------	-------	-------------

## FILTRATION UNITS, DECANTATION LINES, FILTER MONITOR AND SEPARATOR

GENERAL STATUS		
QAV-1	SOLID PARTICLES	
	WATER	
CLEANING		
PRESSURE INDICATOR DIFFERENTIAL		

## DISTRIBUTION HOSES

GENERAL STATUS	
LEAKS	
JOINTS	

## THE PIPE

GENERAL STATUS		
LUBRICATION		
FILTERS		
WATER REGULATOR/SEPARATOR		
LEAK		
VILLAGE		
ELECTRICAL CIRCUITS		
GEARBOX OIL LEVEL		
MOTOR/PUMP JOINT		
CONSULTED THE PROGRAM OF MANUFACTURER MAINTENANCE	Sim	
	NO	

## HOSE REEL

OPERATION	
GEARS	
LUBRICATION	

## SUPPLY NOZZLE

GENERAL CONDITIONS	
LEAK	
FILTER	
LIDS	

## GROUNDING CABLE

GENERAL CONDITIONS	
CONTINUITY	
CLAWS	
CONNECTION PINS	

**ANNEX 8-E**

**Company Name**  
**FUEL SYSTEM CERTIFICATE**

I certify that, as of this date, the aviation fuel system located on board the  
(vessel/platform) \_\_\_\_\_, (IMO number/registration number) \_\_\_\_\_, Indicative  
of Locality \_\_\_\_\_, was inspected. The storage tank, disposal tank,  
distribution system, pipes, filters and sockets, supply hose line for  
fuel, with their respective supply nozzles (by gravity and/or pressure),  
ground wire and pump system were inspected, tested and are in good condition.  
safe conditions for conducting aviation fuel refueling.

I hereby inform you that the fuel tanks are \_\_\_\_\_ (fixed or trans-  
portable).

The tests were performed by \_\_\_\_\_ and approved by  
\_\_\_\_\_ (DPC Recognized Organization).

Please note: This certificate is valid for three (3) years.

e-mail:

contact phone number:

Local e data:

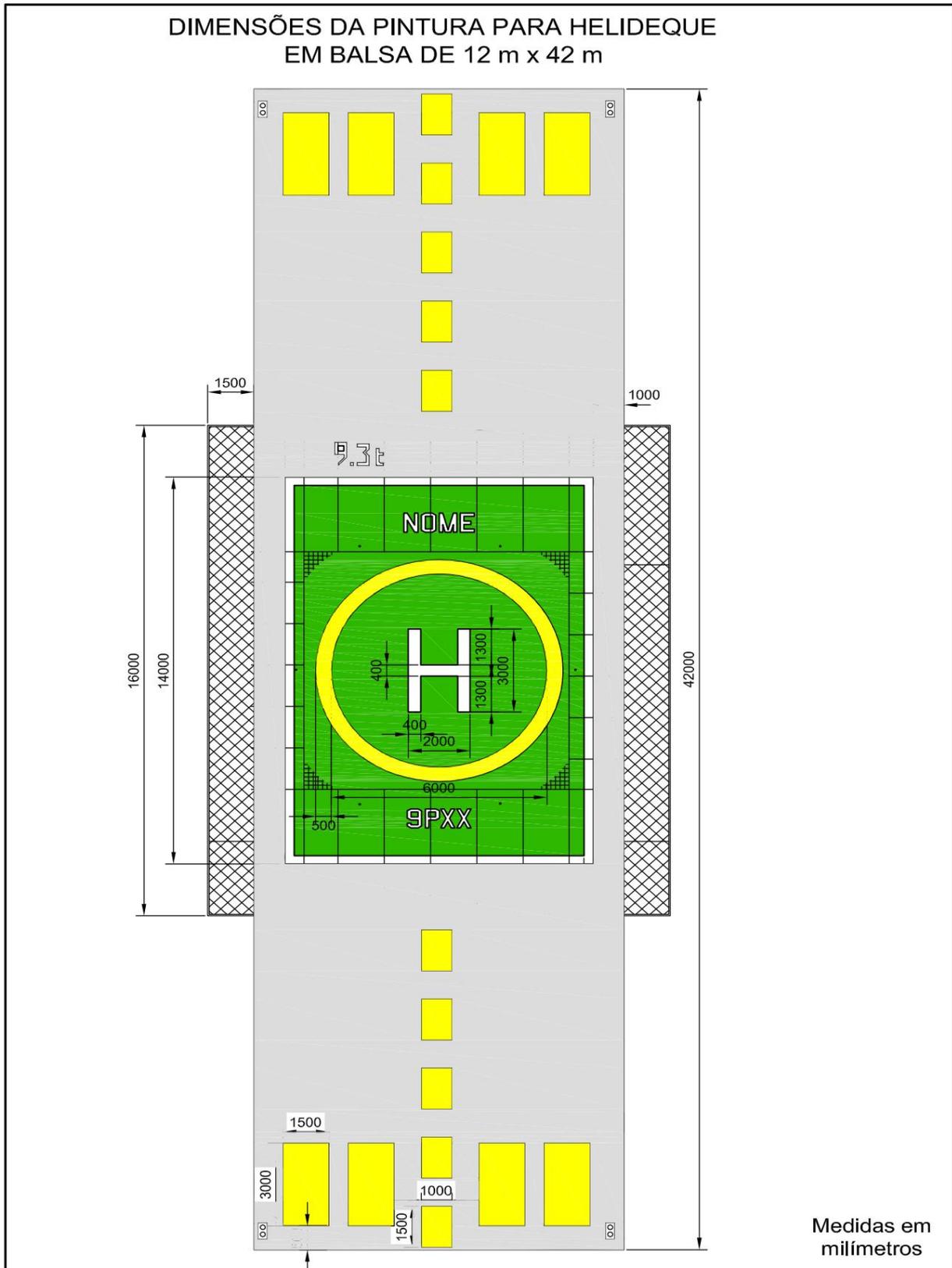
SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

ANNEX 11-A

DIMENSÕES DA PINTURA PARA HELIDEQUE  
EM BALSA DE 12 m x 42 m

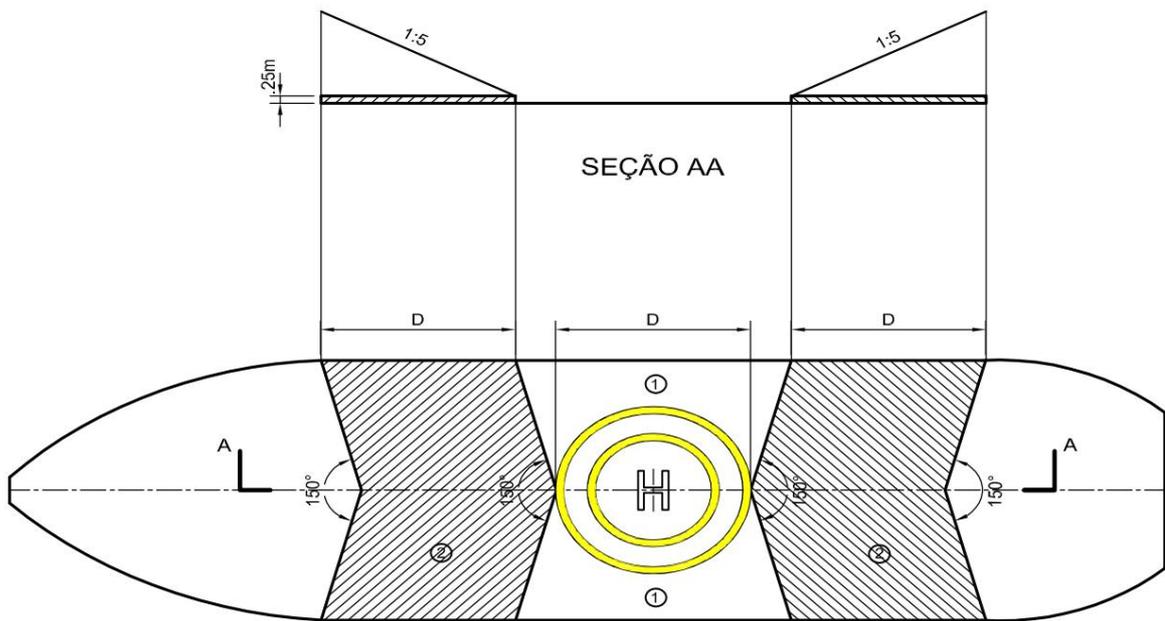


ANNEX 12-A

NORMAL

-222

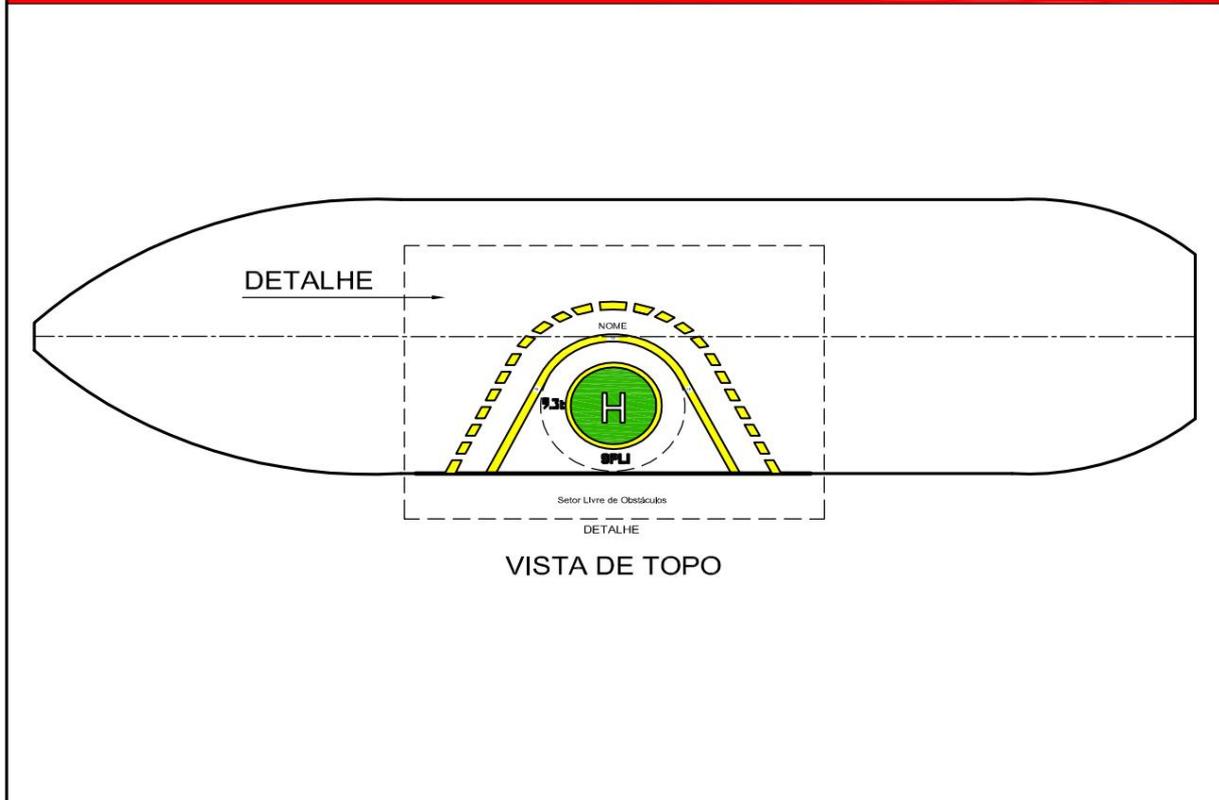
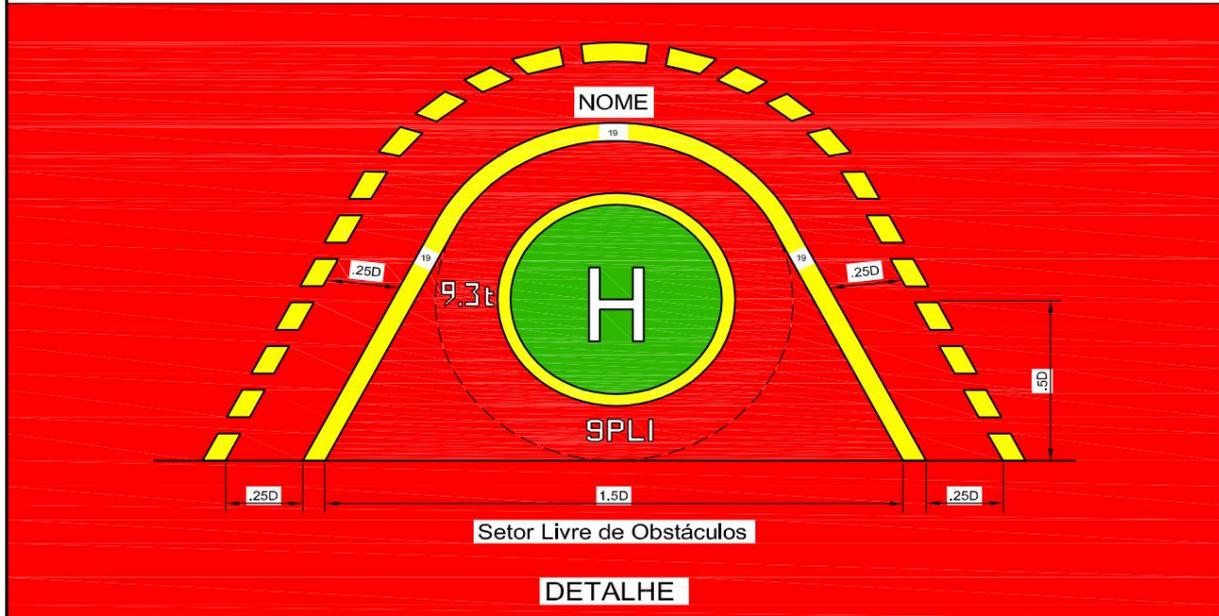
HELIDEQUE ADAPTADO À MEIA-NAU SOBRE A TAMPA DO PORÃO DE CARGA DE NAVIO



- 1: Setor Livre de Obstáculos.
- 2: Setor de Obstáculos com Alturas Limitadas.

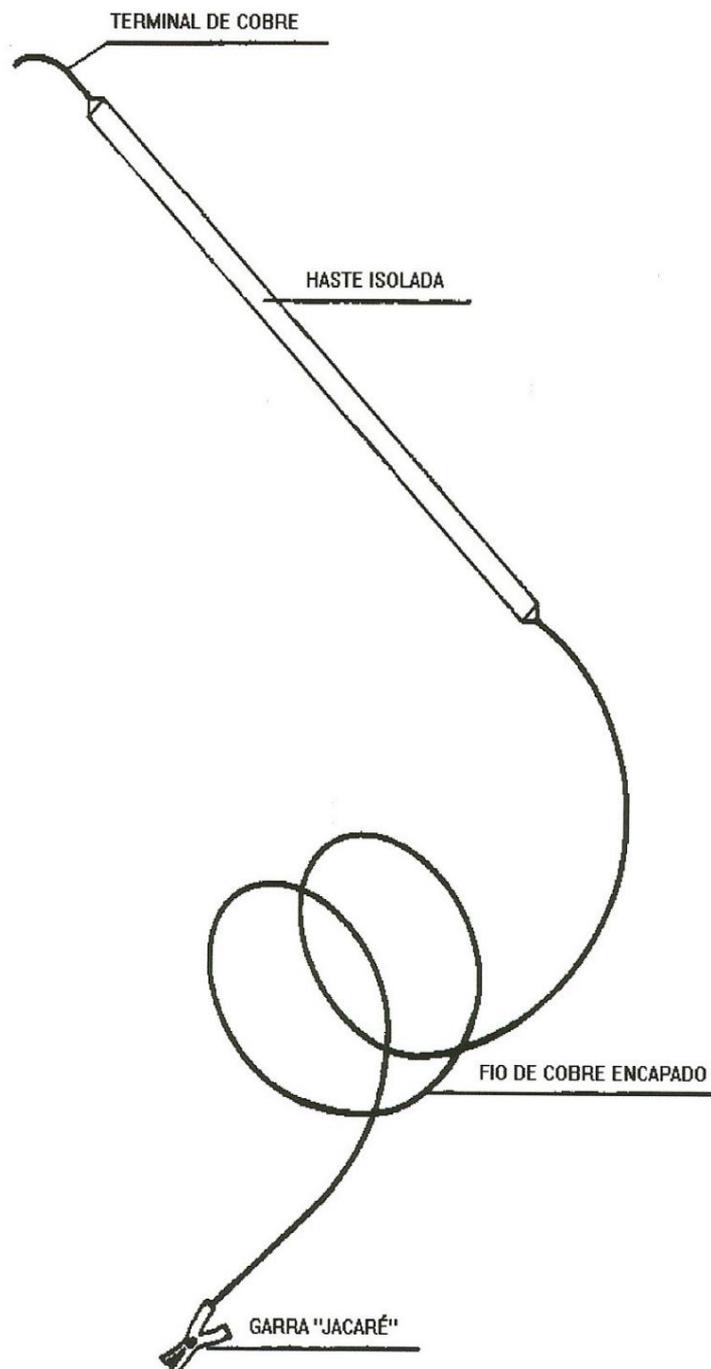
ANEXO 12-B

HELIDEQUE ADAPTADO NA LATERAL  
DO CONVÉS PRINCIPAL DE NAVIO



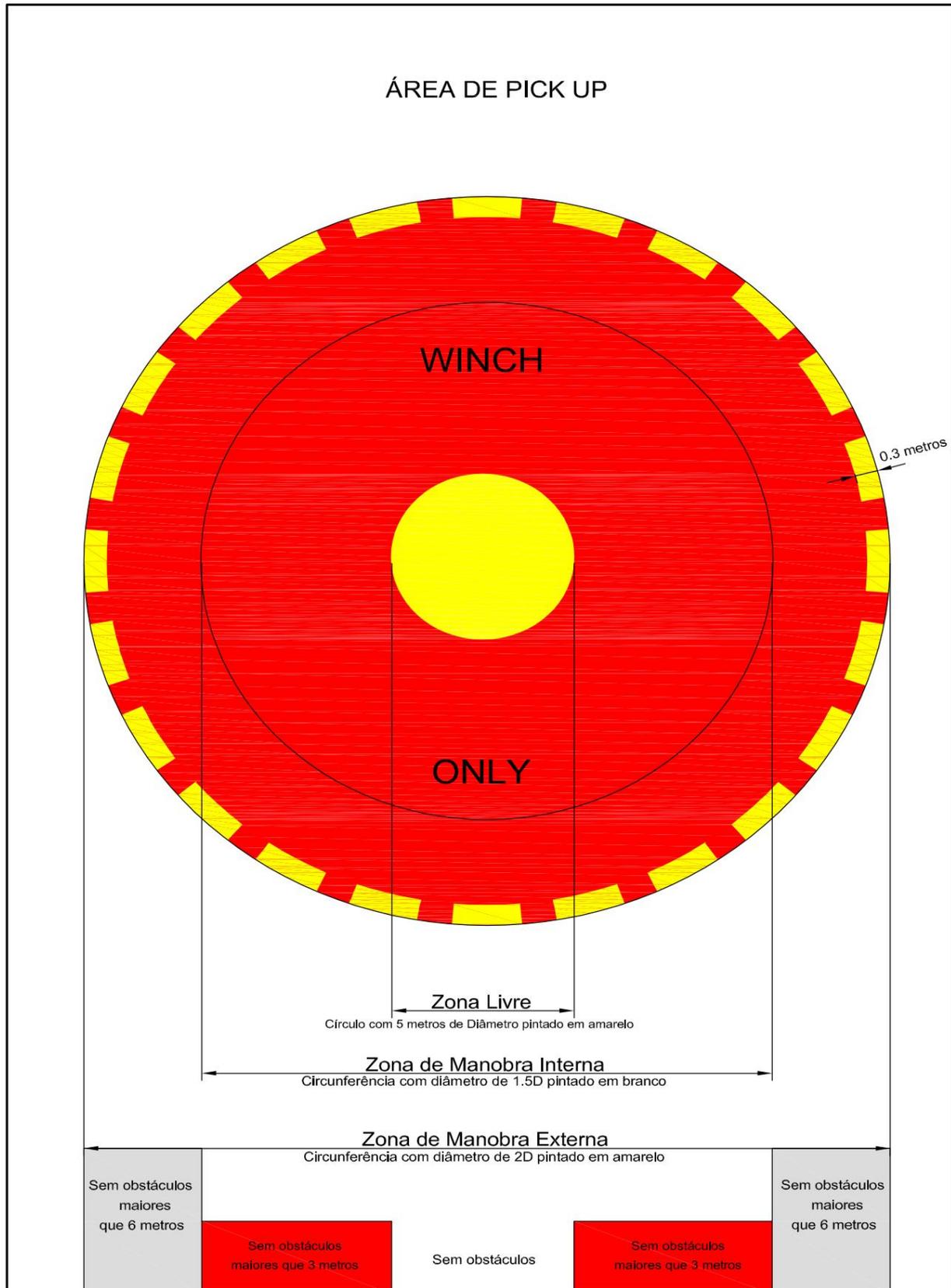
ANNEX 13-A

STATIC ELECTRICITY DISCHARGE STICK



ANEXO 13-B

ÁREA DE PICK UP



ANNEX 13-C  
STRETCHER PICK-UP

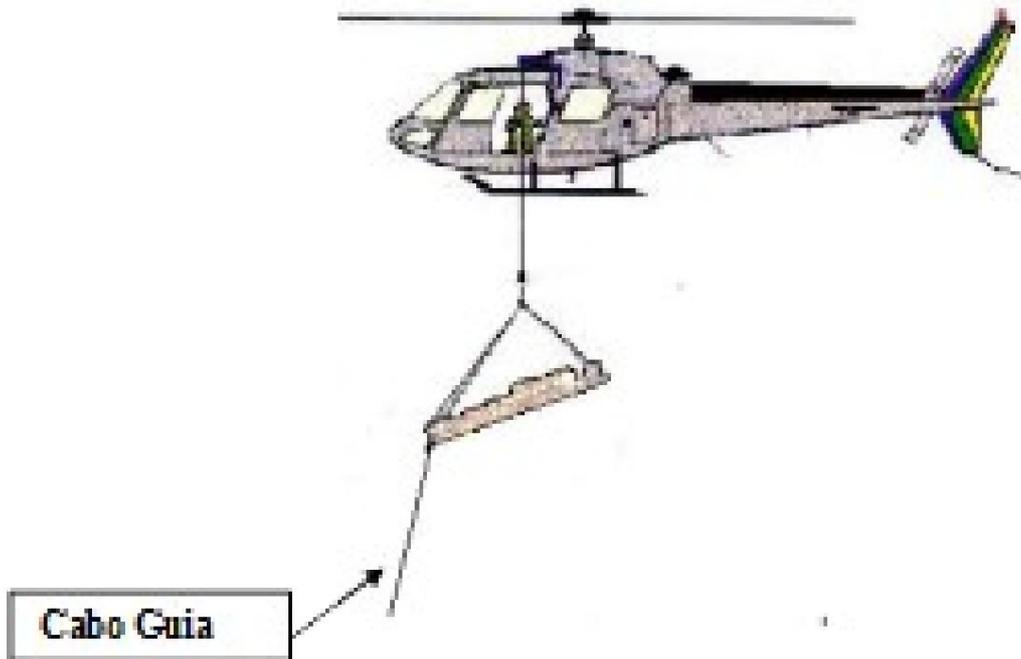


Fig. 1 - GUIDE CABLE

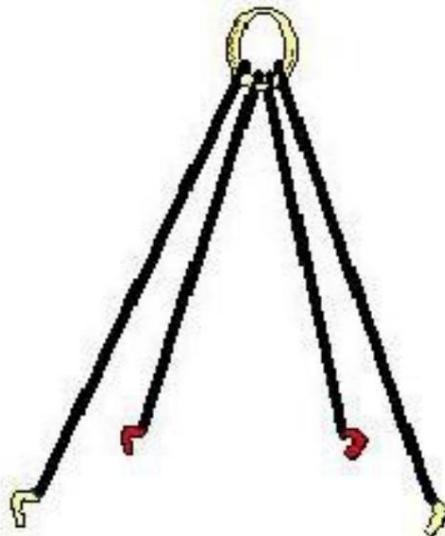


Fig. 2 - SPIDER TYPE STRAP OR BRAÇALOTE

**ANNEX 13-D**

**Company Name**

**CERTIFICATE OF MAINTENANCE OF TECHNICAL CONDITIONS  
FROM THE PICK-UP AREA**

I certify that, on this date, the *pick-up* area located on board the (vessel)

\_\_\_\_\_, (IMO No→) \_\_\_\_\_, Flag \_\_\_\_\_,

owned \_\_\_\_\_, Armação \_\_\_\_\_, chartered \_\_\_\_\_, found

is in technical conditions in accordance with Chapter 13 of NORMAM-223/DPC

and in safe conditions for conducting air operations. The *pick-up* area and the personnel

qualified personnel were inspected by \_\_\_\_\_ and approved

by \_\_\_\_\_ (name of the Organization recognized by

DPC or by the engineering department of the company operating the vessel).

This certificate is valid for thirty-six (36) months.

e-mail:

contact phone number:

Local e data:

SIGNATURE OF THE RESPONSIBLE PERSON

NAME

CARGO

Note: attach three current photos of the helideck (21 x 29.7 cm (A4), profile, top and vessel), printed and in electronic format, using PDF format (Adobe Reader).

## REFERENCES

Interministerial Normative Ordinance node 1.422/MD/SAC-PR/2014, June 5, 2014 - Approves the Directive on the provision of safety for air operations on helidecks operating in Brazilian jurisdictional waters;

Law No. 13,726, of October 8, 2018 - Streamlines administrative acts and procedures of the Powers of the Union, the States, the Federal District and the Municipalities and institutes the Seal of Debureaucratization and Simplification;

Law node 7,565, of December 19, 1986 - Provides for the Brazilian Aeronautics Code.

Law No. 9,432, of January 8, 1997 - Regulation of Waterway Transportation;

Law No. 9,472, of July 16, 1997 - Provides for the organization of services telecommunications, the creation and operation of a regulatory body and other aspects institutional, under the terms of Constitutional Amendment No. 8 of 1995.

Brazilian Civil Aviation Regulation (RBAC) No. 153 Amendment No. 06, of March-15, 2021 - subpart H, wildlife risk management;

Supplementary Instruction 175 002F of RBAC 175 - Hazardous materials training for personnel involved in processes related to the transportation of passengers, air cargo and dangerous goods by civil aircraft;

Law No. 9,537, of December 11, 1997 - Safety of Water Traffic in Underwater Waters National Jurisdiction;

Complementary Law No. 97, of June 9, 1999 - General Rules for the Organization, the Preparation and Employment of the Armed Forces;

ICAO Convention on International Civil Aviation – Annex 3 Meteorological Service for International Air Navigation;

ICAO Convention on International Civil Aviation – Annex 14 - Volume II;

CAP 437 - *Offshore Helicopter Landing Areas - Guidance on Standards - UK Civil Aviation Authority*;

ICS International Chamber of Shipping - Guide to Helicopter/Ship Operations;

SOLAS - International Convention for the Safety of Life at Sea -SOLAS;

MODU CODE - Code for Construction and Equipment for Mobile Platforms

Drilling;

Instruction of the Aeronautical Command ICA 63-10 - Stations Providing Services

Telecommunications and Air Traffic;

Aeronautics Command Instruction ICA 63-25 - Preservation and reproduction of data

ATS Revisualizations and Communications;

Aeronautical Command Instruction ICA 66-27 - Maintenance and Calibration of  
SISCEAB Meteorological Instruments and Equipment;

Air Force Command Instruction ICA 100-4 - Special Rules and Procedures for  
Air Traffic for Helicopters;

Air Force Command Instruction ICA 100-12 - Rules of the Air; and

Air Force Command Instruction ICA 100-37 - Air Traffic Services.