

HDA



Helideck Assistant Training

The Aim & Objective

The aims and objectives of the HDA Initial Training Programme are to equip the delegate with the initial knowledge, understanding and skills required to perform the role of Offshore Helideck Assistant (HDA) safely and effectively .

Module 1

Offshore Helideck Regulations & Guidelines

Regulations & Guidelines

Relevant Guidelines for Management of Offshore Helideck Operations

- International Regulations
- International Civil Aviation Organization (ICAO)
- Civil Aviation Authority (CAA) 2013
- Civil Aviation Publication (CAP 437) Guideline
- Oil & Gas United Kingdom (OGUK)

Regulations & Guidelines

Offshore Helicopter Landing Area guidance documentation

- ❑ CAP 437 - chapter 6 provides criteria on the physical characteristics of helicopter landing areas (helidecks) on offshore installations and some vessels.
 - Helideck Design Considerations – Environmental Effects
 - Structural Design
 - Loads – Helicopter Landing & At Rest
 - Size & Obstacle Protected Surfaces
 - Helideck Surface
 - Helicopter Tie-Down Points

Regulations & Guidelines

Offshore Helicopter Landing Area guidance documentation (con't.)

- Perimeter Safety Net
- Access Points
- Winching (Hoist) Operations

Regulations & Guidelines

Offshore Helicopter Landing Area guidance documentation (con't.)

- CAP 437 - chapter 6; Miscellaneous Standard Operation
 - Landing Area Height above Water Level
 - Wind Direction (Vessels)
 - Helideck Movement
 - Metrological Information
 - Location in Respect to Other Landing Areas in Vicinity
 - Control of Crane Movement in the Vicinity of Landing Area
 - General Precautions
 - Installations/Vessels Helideck Operations Manual & General Requirements
 - Helicopter Operations Support Equipment

Regulations & Guidelines

- ❑ ICAO Standards for recommended practices relating to offshore helidecks
- ❑ ICAO/IATA dangerous goods regulations
- ❑ Offshore emergency response requirements
- ❑ HLO Handbook
- ❑ Helicopter Refueling Handbook

Module 2

Helicopter and Helideck Hazards & Management System

Offshore Helideck Landing Areas

Helideck physical characteristics, to include: 'D value' and access and escape routes:

- Each helicopter landing area the maximum size of helicopter in terms of D-value and the mass for which that area is verified with regard to its size and strength.

'D Value' - A measurement equal to the overall length of a helicopter (O/L), from the front of the rotor disc area to the rear of the tail rotor disc area

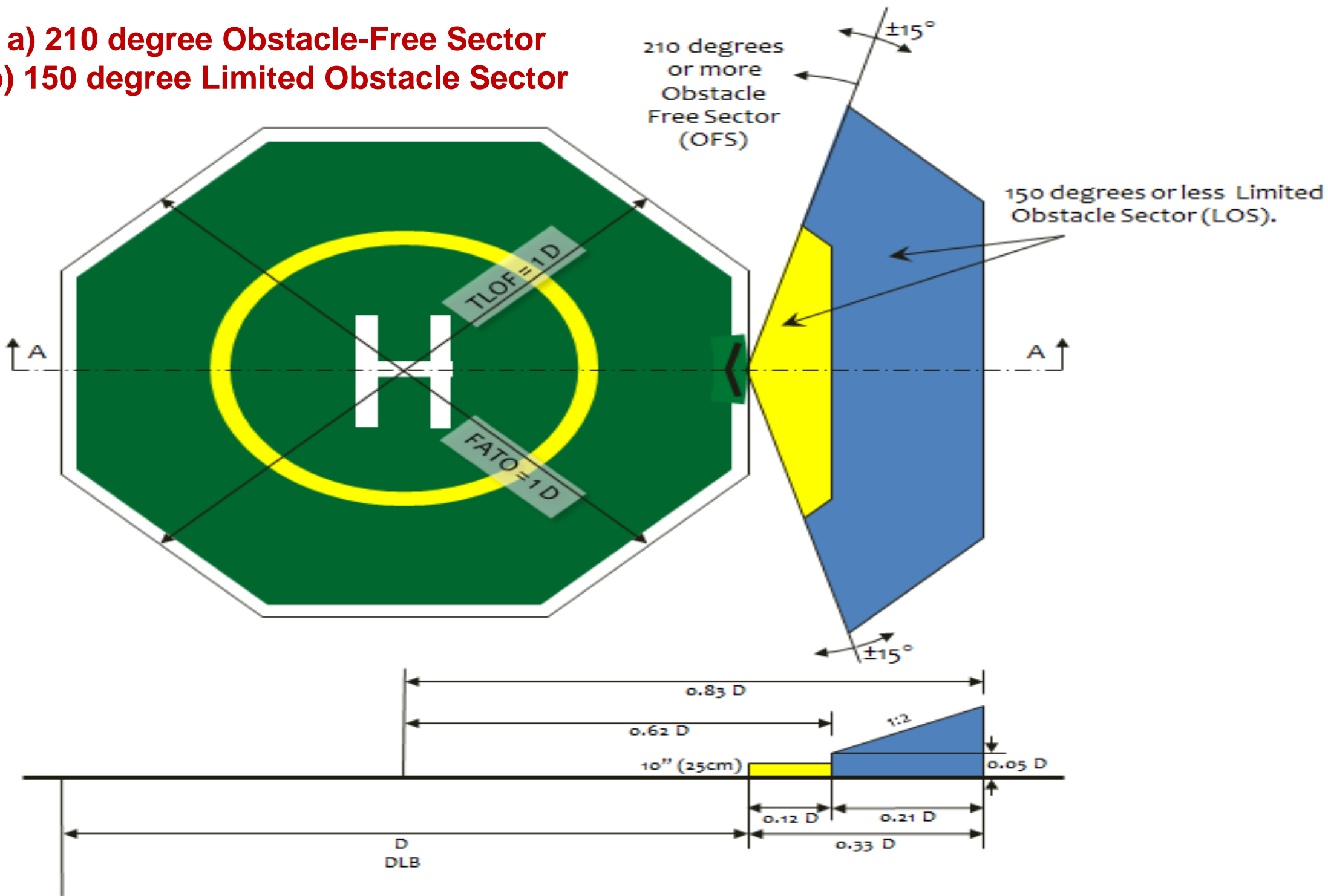
Offshore Helideck Landing Areas

Helideck visual aids, marking and lights, to include:
Helideck landing lights are fully serviceable and emergency power back-up is operational.

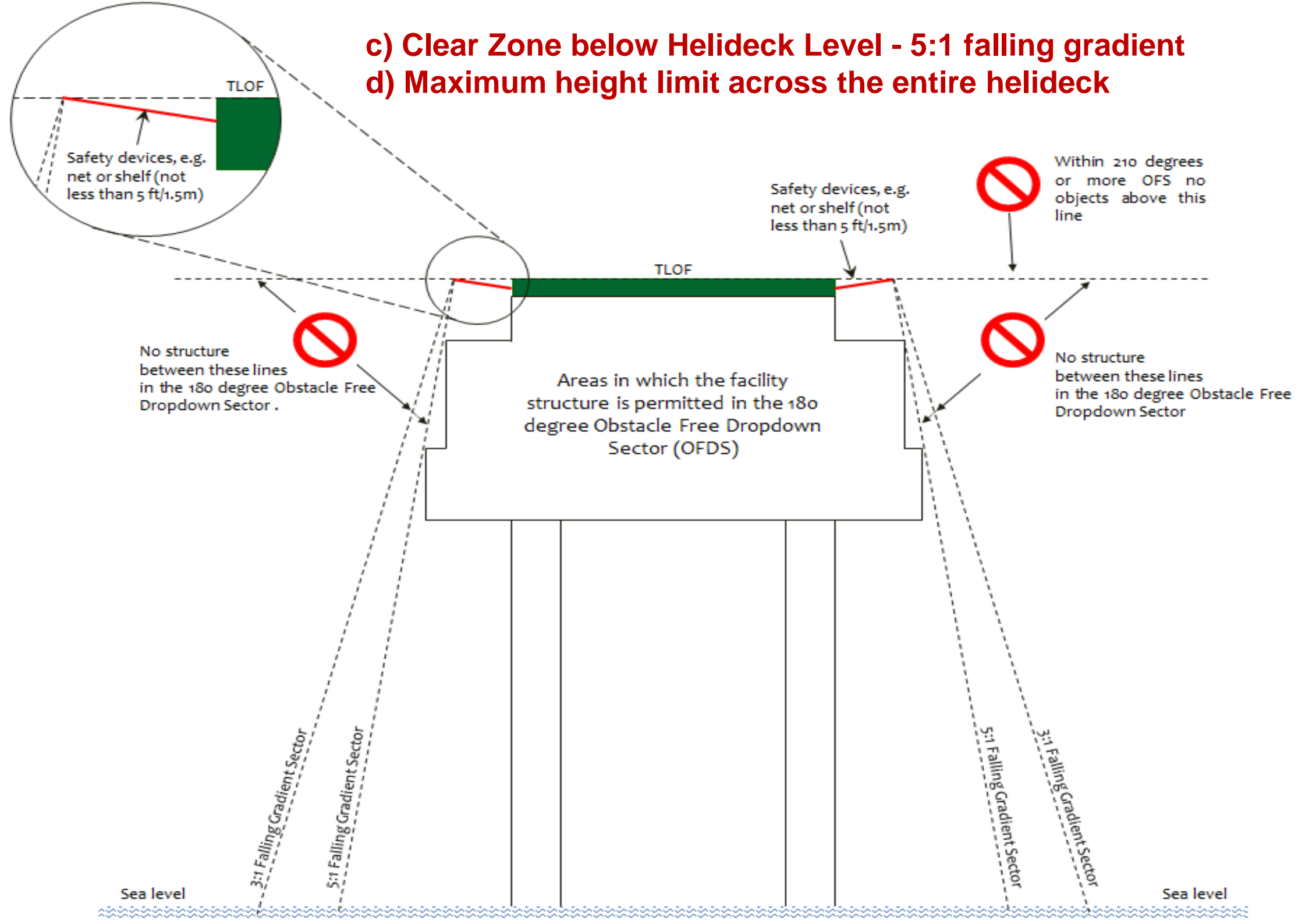


Alternative positions on the periphery and swinging the whole sector up to 15 degrees from that shown may be used in satisfying requirements

- a) 210 degree Obstacle-Free Sector
- b) 150 degree Limited Obstacle Sector



c) Clear Zone below Helideck Level - 5:1 falling gradient
d) Maximum height limit across the entire helideck



Offshore Helideck Landing Areas

Helideck landing and perimeter safety nets – purpose and requirements.

- ❑ The helideck should be fitted with a safety net or safety shelf for protection of personnel at least 5 ft (1.5 m) wide (measured horizontally) around the perimeter.
- ❑ Should produce an outward and upward inclined surface a minimum of 3° beginning below the helideck (TLOF).



Offshore Helideck Landing Areas

Landing areas and winching areas on vessels:-

- ❑ Located over an area to which the helicopter can safely hover whilst hoisting to or from the vessel.
- ❑ Located so as to minimise aerodynamic and wave motion effects.
- ❑ Clear zone should be at least 5 m in diameter and should be a solid surface capable of accommodating personnel and/or stores during hoisting operations.

WINCH ONLY
to be marked in
white so as to be
easily visible to the
helicopter pilot

**WINCH
ONLY**

CLEAR ZONE
5m minimum
diameter circle
painted yellow

0.3m wide-
broken line
with mark to
space ratio of
approximately
4:1

**INNER
MANOEUVRING
ZONE**
Diameter
1.5D

**OUTER
MANOEUVRING
ZONE**
Diameter
2D

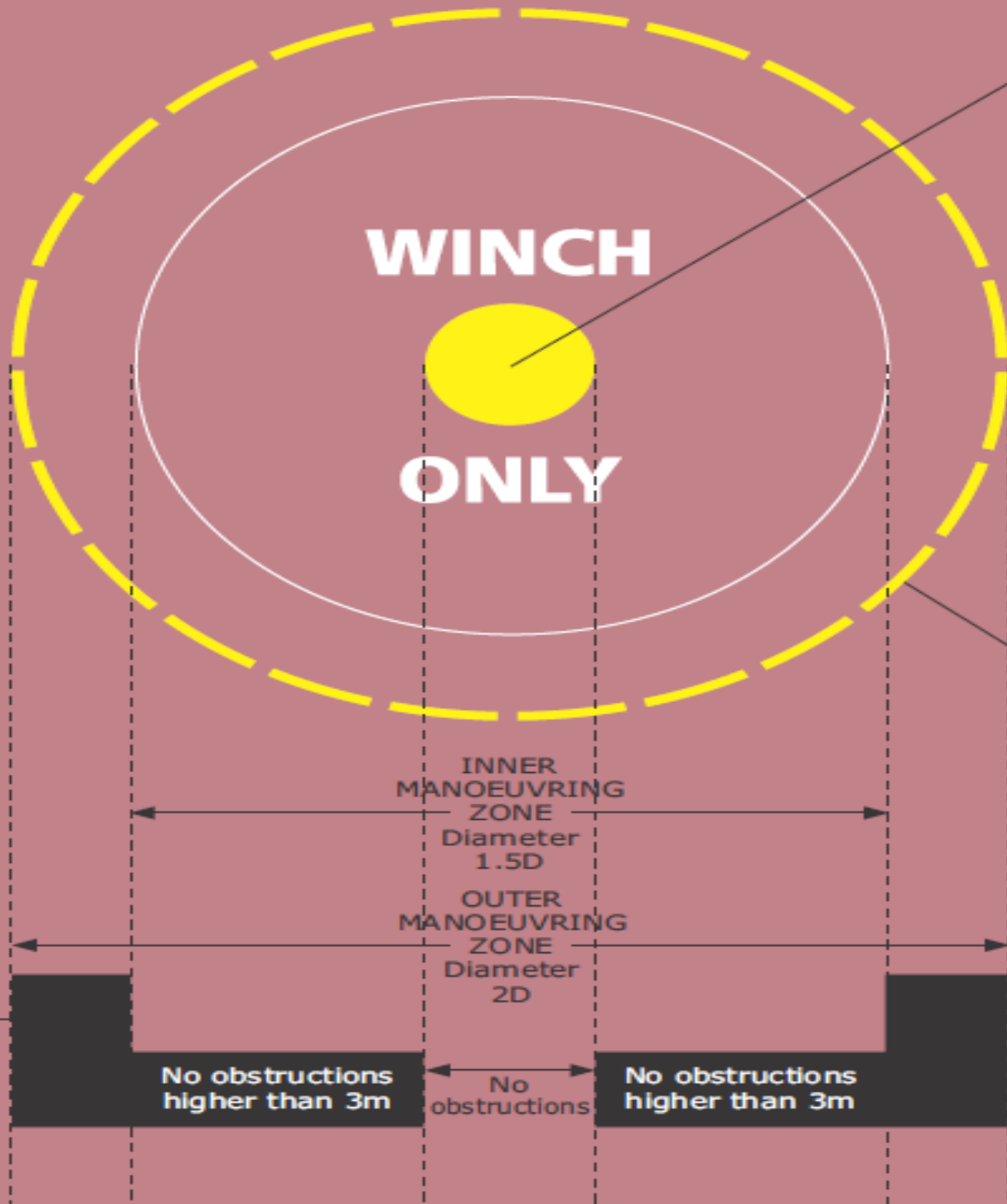
No
obstructions
higher than
6m

No
obstructions
higher than
6m

No obstructions
higher than 3m

No
obstructions

No obstructions
higher than 3m

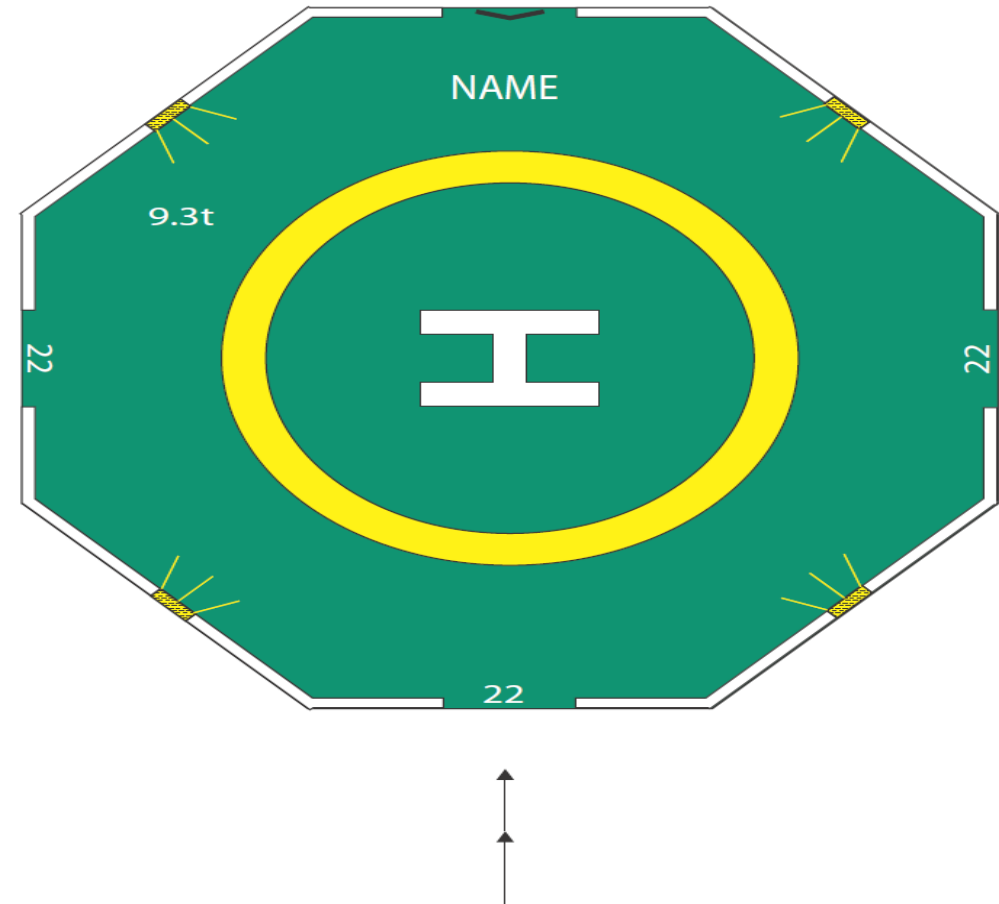


Helideck Equipment & Systems

Helideck systems

- Visual aids (markings and lighting systems)
 - A colour indication should be displayed on the HMS to indicate whether the deck is 'in limits' for approach to land (BLUE (or GREEN) = deck safe for landing) or whether 'out of limits' for approach to land (RED = nil landing)

- Wave-off and status lights



Helideck Equipment & Systems

Helideck location and motion characteristics (floating installations)

- ❑ Floating installations and vessels experience dynamic motions due to wave action which represent a potential hazard to helicopter operations.

Helideck Equipment & Systems

- ❑ Movement of the helideck in pitch and roll, helideck inclination, Significant Heave Rate (SHR) and vessel heading.
- ❑ It is necessary for details of these motions to be recorded by the vessel's Helideck Motion System (HMS) and reported as part of the overall Offshore Weather Report prior to, and during, all helicopter movements.

Helideck Equipment & Systems

Helideck certification limitations: (Helideck Limitation List [HLL])

- ❑ Helideck Certification Agency - is the certifying agency acting on behalf of the offshore helicopter operators that audits and inspects all helidecks and shipboard heliports on offshore installations and vessels.

Helideck Equipment & Systems

- ❑ Helideck Limitations List (HLL) - which contains details of known helidecks including any operator-agreed limitations applied to specific helidecks.

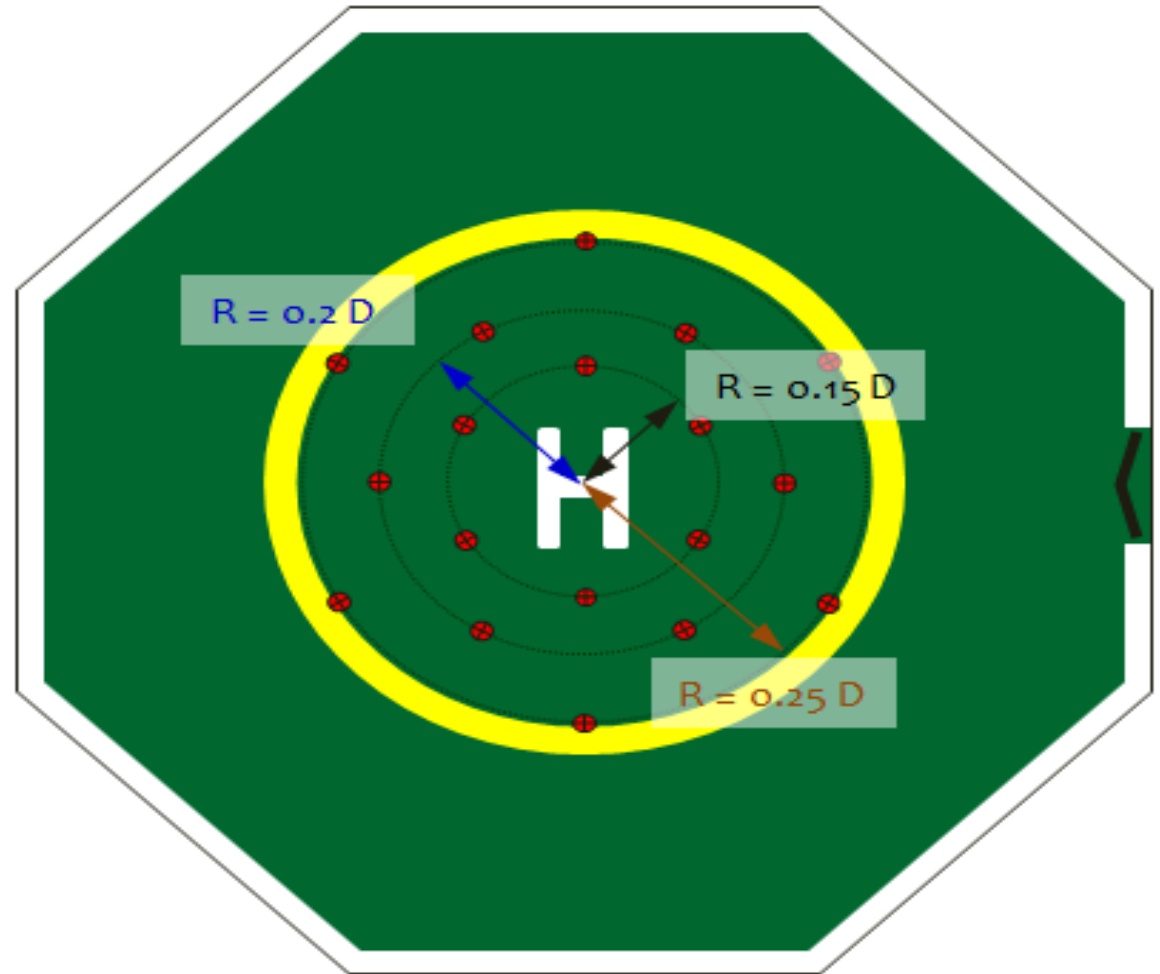
Helideck Equipment & Systems

Helideck standard plant and equipment - and uses; to include:

- Plant and equipment for routine and non-emergency response operations
- Fire Fighting Equipment – guidance on when and where to use various media
- Primary Media requirements: foam type, delivery and testing
- Complimentary media requirements
- Deck Integrated Firefighting System (DIFFS): overview-only required.

Helideck Equipment & Systems

- ❑ Tie-down points.
Sufficient flush fitting (when not in use) tie-down points should be provided for securing the maximum sized helicopter for which the helideck is designed.



Helideck Equipment & Systems

Meteorological systems and minimum meteorological equipment requirement for region of operations:

- ❑ Accurate, timely and complete meteorological observations are necessary to support safe and efficient helicopter operations.
- ❑ Equipment include:
 - Anemometer - wind speed & direction
 - Stevenson Screen – temperature & humidity
 - Barometer/Altimeter Box – Pressure
 - Present Weather Sensor
 - Visibility Measurement System
 - Ceilometers – Cloud (Above Mean Sea Level (AMSL))

Helideck Equipment & Systems

Typical helideck systems routine checks:

- System in place for controlling helideck weekly, monthly and annual planned maintenance.
- Reporting helideck and systems defects to appropriate authority e.g. OIM

Helideck Equipment & Systems

Typical helideck systems routine checks: (cont.)

- General Helideck Information
- Helideck Surface
- Helideck Dimension
- Helideck Markings
- Surface Net
- Perimeter Safety Net
- Perimeter Lighting
- Flood Lighting
- General Lighting
- Obstruction Marking & Lighting
- Status Lighting

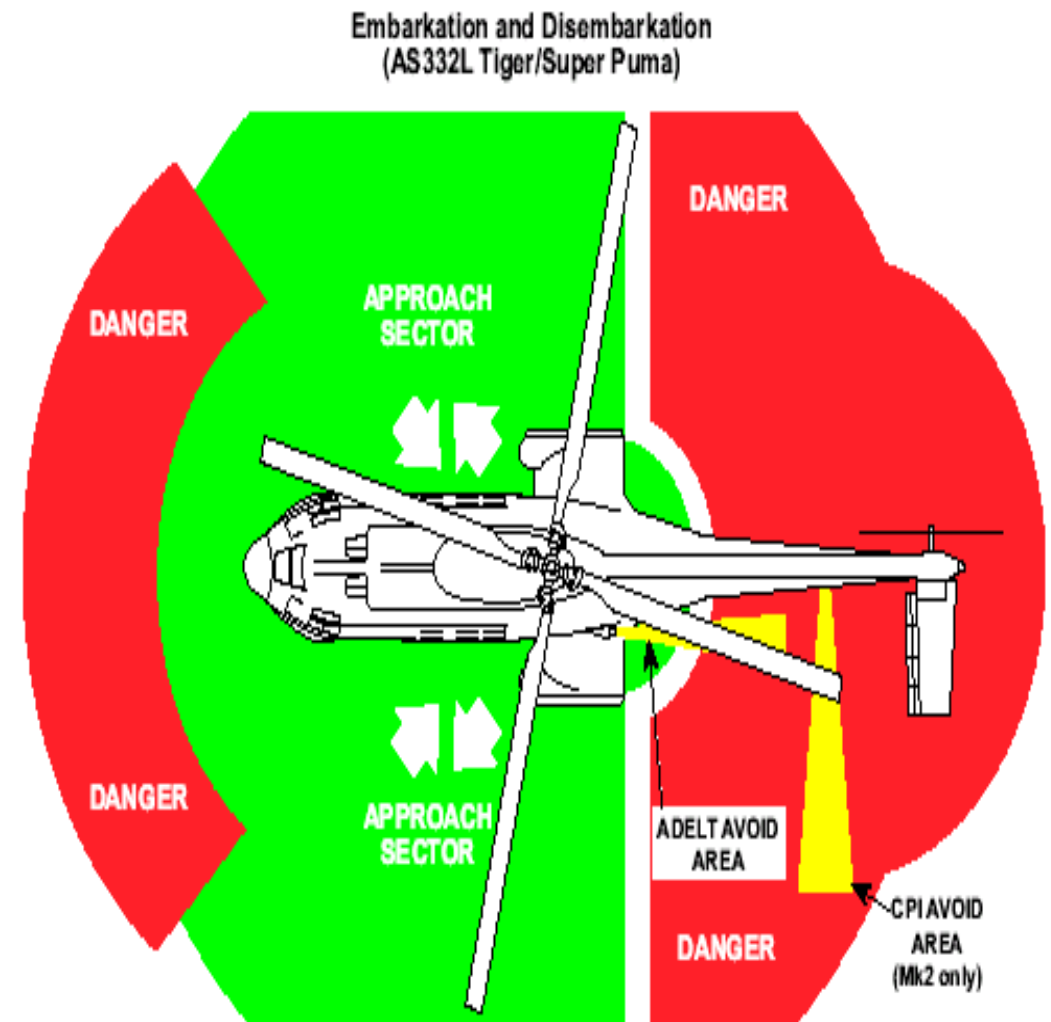
Helideck Equipment & Systems

Typical helideck systems routine checks: (cont.)

- Obstruction Environment
- Turbulence
- Refueling System
- Access Point
- Fire Protection
- Rescue Equipment
- Protective Clothing
- Additional Equipment; Chocks, Tie-down strops/ropes
- Radio Equipment
- Weather Equipment
- Emergency Response Equipment

Helicopter & Helideck Hazards

❑ Helicopter danger areas

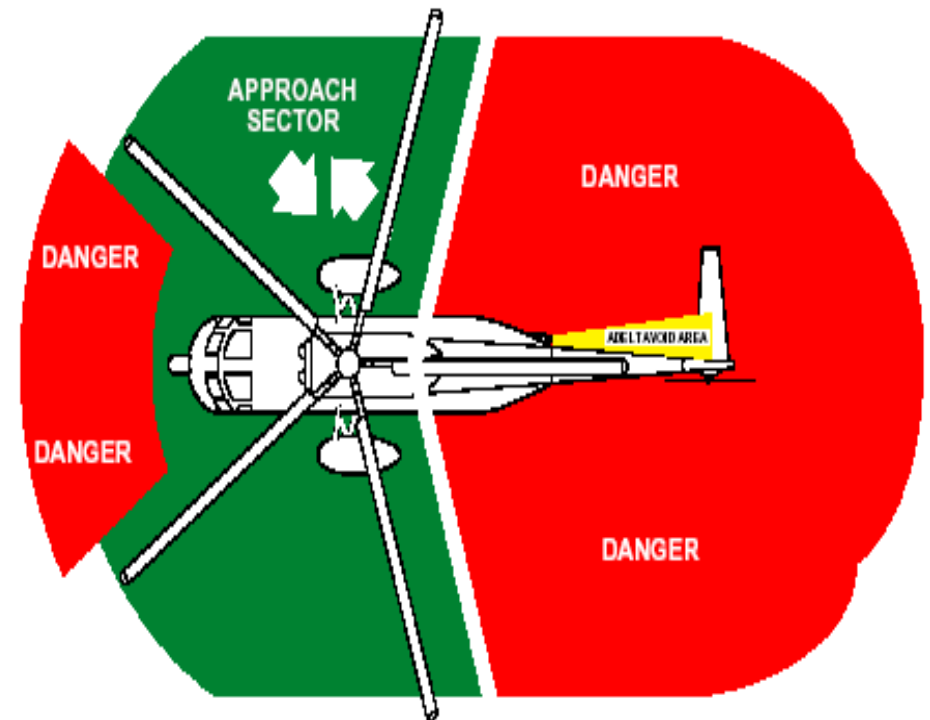


Helicopter & Helideck Hazards

□ Helicopter danger areas



Embarkation and Disembarkation
(Sikorsky S61N)



Helicopter & Helideck Hazards

- Rotors running – personnel contact with main or tail rotors while on deck
- Adverse weather effect on helicopter operations, to include: excessive wind turbulence
- Poor visibility effect on helideck operations
- Process thermal affects e.g. turbine exhausts and normal or emergency process venting
- Helicopter engine or cabin fire
- Electrical hazards – static electricity

Helicopter & Helideck Hazards

Mobile installations stability hazards during landing and take-off



Helicopter & Helideck Hazards

Key requirements for the Offshore Installation Manager (OIM)/Vessel Master, Radio Operator and Helicopter Landing Officer (HLO) to take into account during helicopter operations to moving helidecks are:

- Check the HLL
- Accurate and up-to-date meteorological and vessel motion information
- To ensure that all floating structure, MODU or vessel activities that may adversely affect helicopter or helideck safety are closely monitored during helicopter operations

Helicopter & Helideck Hazards

- To ensure that passenger and freight numbers and weights are accurate.
- To ensure that helideck activities such as passenger movements and freight operations only take place in acceptable sea state conditions.

Helicopter & Helideck Hazards

Dangerous goods transfer to/from helicopter by the helideck team:

- ❑ The manifesting, packaging, labelling of freight and confirmation of correct permissible quantities, must be conducted in accordance with the IATA Dangerous Goods Regulations, and the current International Civil Aviation Organisation (ICAO), Technical Instructions for the Safe Transport of Dangerous Goods by Air.

Helicopter & Helideck Hazards

- Refueling operations: fuel spillages, faulty equipment
- Loose items (baggage, freight, netting etc.) being sucked into rotor area or air intake
- Flying debris e.g. disintegrating rotor hitting personnel following a crash
- Crane operations: crane work to cease during helicopter operations
- Obstacles on deck.
- Noise hazard – ear protection requirement

Helicopter Refueling Awareness

- ❑ Relevant Regulations and Guidance publications (applicable to region of operations) – OGUK, CAP 748

- ❑ Aviation fuel: type and additives
 - The grade of fuel that is normally used by helicopters operating to offshore installations and vessels is “JET A1”.
 - Fuels may have a dye added to them to help distinguish them from jet fuels
 - An "anti static additive" (ASA 3) may be added to the Jet A1 fuel to assist the dissipation of static charges, which may build up in the fuel as it is pumped.

Helicopter Refueling Awareness

- ❑ Variation in different types of helicopter refueling ports.



Helicopter Refueling Awareness

- ❑ Typical fuel storage and delivery systems.
 - Transit tanks;
 - Static storage facilities
 - A pumping system; and
 - A delivery system



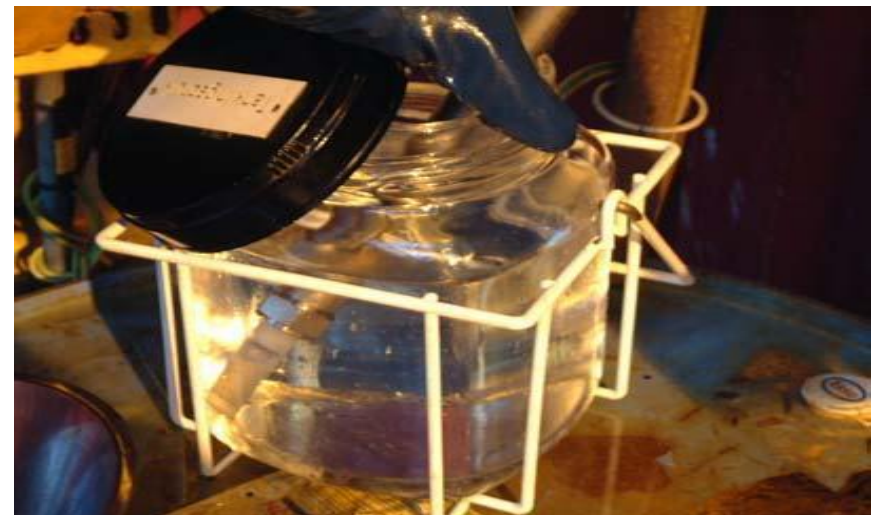
Helicopter Refueling Awareness

- ❑ Typical fuel storage and delivery systems.



Helicopter Refueling Awareness

- ❑ Refueling equipment inspections and maintenance.
- ❑ Bonding requirement.
- ❑ Filtration and water separation.
- ❑ Fuel sampling and testing – weekly and daily checks.
- ❑ Maintaining fuel records



Module 3

Preparation for Helideck Operation

The Roles & Responsibilities of HDA

The responsibilities of HDAs should include but not be limited to:

- ❑ Assisting the HLO in the operation of the helideck
- ❑ Directing passengers to and from the aircraft
- ❑ Loading and unloading freight and baggage from the aircraft
- ❑ Operation of firefighting and rescue equipment under the direction of the HLO, and assisting the HLO in checking firefighting and rescue equipment
- ❑ Coupling/uncoupling bonding leads and refueling hoses from aircraft under the direction of the HLO
- ❑ Assisting the HLO in general fuel handling procedures
- ❑ Undertaking other duties around the helideck area as required by the HLO.

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **PRIOR TO HELICOPTER LANDING**

Helideck crew is properly clothed & briefed by HLO

HLO to inform appropriate Installation management and vessels standing by

Ensure that any refueling requirements can be met - equipment and quantity of available fuel

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **PRIOR TO HELICOPTER LANDING – (cont.)**

The helideck and related equipment is available for immediate deployment if required - firefighting and rescue equipment, lighting, deck surface free of contamination and Foreign Object Damage (FOD)

Ensure that 210° and 150° sectors for infringements - cessation of crane operations

HLO to ensure that the helicopter operator has been informed about the Installation/vessel operating status and predicted helideck motion limits during helideck operations

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **PRIOR TO HELICOPTER LANDING – (cont.)**

HLO will advise helideck crew, standby and attendant vessels of any change in ETA

HLO, assisted by HDA(s), will check to confirm that helideck facilities are ready to receive the aircraft

Prior to landing on floating Installations or vessels, the Pilot must be advised of any change in roll, pitch, heave or heading

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **HELICOPTER ON-DECK**

The HLO assumes a supervisory role and, from a prominent position on the helideck, monitors all helideck activities

Transmit/receive radio contact should be maintained between the HLO and the helicopter handling Pilot whilst on the helideck. HDAs should be in receiving mode only

Only standard hand signals should be used

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **HELICOPTER ON-DECK – (cont.)**

On floating Installations and vessels, chocks must be placed against the aircraft's main wheels unless advised otherwise by the Pilot

HDA will carry out the offloading of baggage whilst passengers should remain seated, strapped in and continue to wear their lifejacket

Once offloading is complete, the HLO will signal the pilot that the passengers are clear to disembark

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **HELICOPTER ON-DECK – (cont.)**

HLO initiates passengers disembarkation after the baggage has been removed from the helicopter and for passengers to go below helideck level under the direction of an HDA

Inbound freight is offloaded by HDAs

Refueling by the helideck crew (HDA) is completed

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures **HELICOPTER ON-DECK – (cont.)**

The HLO provides flight crew with a manifest to the HDA

HLO initiates embarkation and checking of outbound passengers assisted by HDA

Once the helideck is cleared of all personnel, the HLO will give clearance to 'take off' over the radio to the Pilot, together with a thumbs-up signal

The Roles & Responsibilities of HDA

Typical routine helideck and helicopter operational procedures

HELICOPTER TAKE-OFF

Radio Operator sends departure message to helicopter operator base operations

HDA to assist HLO ensures that the helideck surface is free from any contamination, debris, damage etc

Preparing for Helideck Operation

- ❑ Identifying and reporting hazards that the HLO may not be aware of.
- ❑ Effective communications, to include:
 - Confirming completion of tasks to the HLO
 - Using standard radio protocols
 - Limitation of radio coms and correct use of hand signals - HDAs radios set to **'receive-only'** during helicopter operations (HDAs should only transmit in the event of an emergency)
 - Radio communication protocols during helicopter operations.

Preparing for Helideck Operation

Standard Words & Phrases

WORDS OR PHRASES	THE MEANING
ACKNOWLEDGE	Let me know that you have received and understood the message
AFFIRM	Yes.
APPROVED	Permission for proposed action granted.
BREAK	Indicates the separation between messages to different stations
CANCEL	Annul the previously transmitted message
CHECK	Examine a system or procedure
CLEARED	Authorized to proceed under the conditions specified
CONFIRM	Have I correctly received the message, or did you receive my message correctly.

Preparing for Helideck Operation

Standard Words & Phrases – cont.

WORDS OR PHRASES	THE MEANING
CONTACT	Establish contact with
CORRECT	That is correct
CORRECTION	An error has been made in this transmission, the correct version is.
DISREGARD	Consider the transmission as not sent
HOW DO YOU READ	What is the readability of my transmission
I SAY AGAIN	I repeat for clarity or emphasis
MONITOR	Listen out on (frequency)
NEGATIVE	No, or permission not granted, or that is not correct.

Preparing for Helideck Operation

Standard Words & Phrases – cont.

WORDS OR PHRASES	THE MEANING
PAST YOUR MESSAGE	Proceed with your message
GO AHEAD	Proceed with your message
READ BACK	Repeat all, or specific part, of the message
REPORT	Pass requested information
REQUEST	I would like to know, or I wish to obtain
ROGER	I have received all of your last transmission
SAY AGAIN	Repeat all after, give the last received word.
SPEAK SLOWER	Reduce rate of speech

Preparing for Helideck Operation

Standard Words & Phrases – cont.

WORDS OR PHRASES	THE MEANING
STANDBY	Wait I will call you (no onward clearance to be assumed)
VERIFY	Check and confirm
WILCO	I understand and will comply

Preparing for Helideck Operation

Phonetic Alphabet

A : Alfa	J: Juliet	S: Sara
B: Bravo	K: Kilo	T: Tango
C: Charlie	L: Lima	U: Uniform
D: Delta	M: Mike	V: Victor
E: Echo	N: November	W: Whisky
F: Foxtrot	O: Oscar	X: X-ray
G: Golf	P: Papa	Y: Yankee
H: Hotel	Q: Quebec	Z: Zulu
I: India	R: Romeo	

Preparing for Helideck Operation

- ❑ Helicopter type identification prior to landing – for helicopter-specific passenger, cargo loading and emergency response .
- ❑ Assisting with monitoring of weather and environmental conditions.
- ❑ Assisting HLO with communications system checks.
- ❑ Assisting HLO with checking helideck equipment status and safety nets.
- ❑ Assisting HLO with security and stowage of equipment - helicopter and helideck.
- ❑ HDAs are in a safe location adjacent to the helideck during helicopter landing, take-off and preparing for helicopter emergencies.
- ❑ Ensuring appropriate HDA PPE is worn during helicopter operations

Module 4

Assist with Passenger & Cargo Handling

Cargo Handling

- ❑ Importance of understanding and complying with company helideck operations procedures
 - Cargo shall only be loaded into the baggage compartment of the helicopter. (**Not in the cabin!**)
 - The International Air Transport Association (IATA) Dangerous Goods Regulations prohibit dangerous goods from being carried by passengers and crew with the exception of specific items.



Cargo Handling

- ❑ **Helicopter freight loading limitations and requirements**
 - A manifest shall be available covering destination of passengers & baggage / freight.
 - Offshore passenger baggage should not exceed 25 lbs (11.3kg) per individual.
 - Baggage should be labeled (airline type) with the correct destination on all flights.

Cargo Handling

Helideck protocols

'safe to approach the helicopter', anti-collision lights switched off and *'thumbs-up'* from pilot

- ❑ The Pilot will switch the anti-collision light off and, when in visual contact with the HLO, give a thumbs-up signal to indicate that it is safe to enter the helicopter landing area and approach the aircraft.



Cargo Handling

- Responding to 'safe to approach the helicopter' from the HLO.
- Complying with helicopter danger areas rules
- Assisting with preparations for, and correct handling of, freight and baggage.
- Correct manual handling techniques during freight loading and unloading.
- Asking for assistance from other HDAs with heavy cargo.
- Dangerous goods identification.

Passenger Handling

- Interpreting information on passenger manifests.
- Assisting with passenger safe egress and access on helideck.
- Assisting with passenger entry into helicopter.
- Assisting with passenger exit from helicopter.
- Being alert to changing events and conditions while assisting passengers.

Marshalling Signals



Start Engine(s)



Brakes
(commence with open palms)



Proceed to
Next Marshaller



Disconnect
Ground Power



Place Yourself
Facing Me



Stop



Move Ahead



Chocks Removed

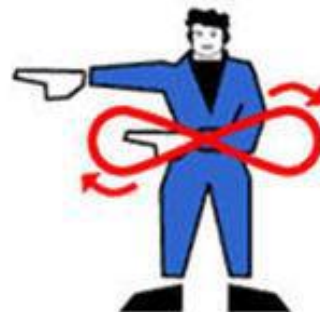


Turn to Your Left



Turn to Your Right

Engine Fire



Turn Tail
To Your Left
While Backing



Turn Tail
To Your Right
While Backing



Cut Engines



Connect
Ground Power