

# **INTERNATIONAL MANUAL FOR AIRCRAFT COORDINATOR**



**APPROVED FOR OPERATIONAL USE BY**

**DENMARK  
FINLAND  
SWEDEN**

## ABBREVIATIONS

AIP	Aeronautical Information Publication
ALT	Altitude
ACC	Area Control Centre
ATC	Air Traffic Control
ARA	Airborne Radar Approach
A/C	Aircraft
ACO	Aircraft Co-ordinator
ATA	Actual Time of Arrival
CSP	Commence Search Point
CS	Creeping line search
ETA	Estimated Time of Arrival
FMS	Flight Management System
GPS	Global Position System
GS	Ground Speed
HDG	Heading
IFR	Instrument Flight Rules
IAMSAR	International Aeronautical and Maritime Search and Rescue Manual
IMC	Instrument Meteorological Conditions
IAS	Indicated Air Speed
KT	Knot (nautical miles per hour)
LOA	Line Of Advance
MAP	Missed Approach Point
MHA	Minimum Holding Altitude
MRCC	Maritime Rescue Co-ordination Centre
MRSC	Maritime Rescue Co-ordination Sub-Centre
MHz	Megahertz
NM	Nautical Mile
OSC	On Scene Co-ordinator
PS	Parallel Sweep Search
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
RCC	Rescue Co-ordination Centre
SAR	Search and Rescue
SITREP	Situation report
SMC	Search and Rescue Mission Co-ordinator
SRU	Search and Rescue Unit
SS	Expanding Square Search
TCAS	Traffic alert and Collision Avoidance System
TS	Track Line Search
VMC	Visual Meteorological Conditions
VFR	Visual Flight Rules
VHF	Very High Frequency
WPT	Waypoint

## INDEX

<b>ABBREVIATIONS</b> .....	<b>2</b>
<b>1. GENERAL</b> .....	<b>5</b>
1.1. Purpose.....	5
1.2. Qualifications for ACO.....	5
1.3. Overall principles.....	5
<b>2. THE ACO ROLE</b> .....	<b>6</b>
2.1. Activation of the ACO function.....	6
2.2. Selection of the ACO.....	6
2.3 SAR Organisation.....	6
2.4. ACO duties based on the IAMSAR manual.....	7
2.5. ACO cooperation with the SMC.....	7
2.6. ACO cooperation with the OSC.....	7
2.7. ACO information to aircraft.....	8
2.8. Aircraft and ACO responsibilities.....	8
<b>3. COMMUNICATION</b> .....	<b>9</b>
3.1. Communication plan.....	9
3.2. Reporting.....	10
3.3. Language.....	11
3.4. ACO call sign.....	11
3.5. Requirement for two-way communication between the ACO and SRU.....	11
3.6. Communication flow.....	11
<b>4. SEARCH MISSION</b> .....	<b>12</b>
4.1. General considerations.....	12
4.2. Levels of deconfliction.....	12
4.2.1. Level 1 – Visual deconfliction.....	13
4.2.2 Level 2 – Flow deconfliction.....	13
4.2.3 Level 3 – Coordination zones.....	13
4.2.4 Level 4 – No fly zones (Zebra).....	14
4.3. Entry/Exit of search areas.....	14
4.4. Formats for assignment of search areas.....	14

<b>5. EVACUATION MISSION .....</b>	<b>16</b>
5.1. ACO overall task .....	16
5.2. General principles.....	16
5.3. Horizontal deconfliction.....	17
5.4. Vertical deconfliction .....	18
5.5. Visual procedures .....	18
5.6. Instrument procedures.....	19
<b>6. ACO PROCEDURE FORM.....</b>	<b>20</b>
<b>ANNEXES      Pages.....</b>	<b>21</b>
<b>SUPPLEMENTS .....</b>	<b>21</b>

## 1. GENERAL

### 1.1. Purpose

The purpose of the Aircraft Coordinator (ACO) function is to coordinate the involvement of multiple aircraft in a SAR operation, in order to increase mission effectiveness, while maintaining flight safety for all aircraft involved. The ACO should be seen as a cooperating, supporting and advisory agency.

The aim of this manual is to internationally standardize the basic principles used for a SAR mission where an ACO is activated.

### 1.2. Qualifications for ACO

ACO operations call for specialist competence and previous participation in both operational activities and exercises on the part of the person or the team appointed as an ACO. ACO skills should not be dissipated to too many people in order to ensure that those trained maintain the skills and capacities to act in the role.

### 1.3. Overall principles

This ACO manual contains guidelines, which can – and in some cases must - be modified as necessary in the actual situation.

Nothing written in this manual takes precedence over common sense and should never be allowed to prevent units to take the necessary initiatives in order to ensure flight safety and mission accomplishment.

This manual does not substitute the requirement for development of national plans for conduct of mass rescue missions, including the support of participating nations SRUs.

## 2. THE ACO ROLE

### 2.1. Activation of the ACO function

Normally the ACO will be appointed by the SAR Mission Coordinator (SMC). The SMC should take the following factors into account when deciding whether or not to appoint an ACO to coordinate aircraft activity:

- Number of aircraft in the same SAR mission.
- Aircraft from different countries.
- Weather conditions.
- Communication problems.
- Logistic problems.

### 2.2. Selection of the ACO

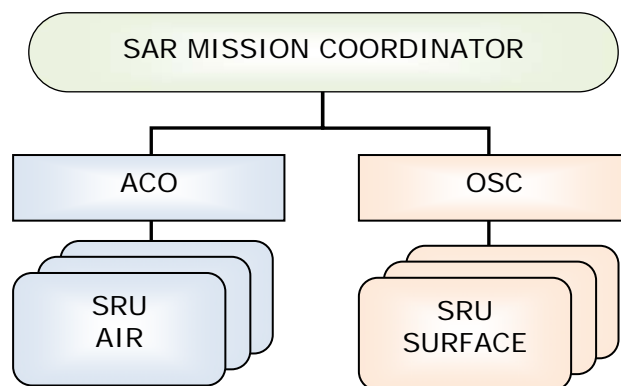
The ACO function will normally be performed from the facility with the most suitable mix of communication means, radar, Traffic Collision Avoidance System (TCAS) and navigation systems, long endurance on-scene combined with trained personnel.

Duties of the ACO can be carried out from a fixed wing aircraft, helicopter, ship, a fixed structure such as an oil rig, or an appropriate land unit – like a Rescue Coordination Centre.

### 2.3 SAR Organisation

Generally the ACO is responsible to the SMC; however if an OSC is at the scene, the ACO's work must be coordinated with the OSC.

The OSC and ACO operate as equal partners. Surface SRUs are coordinated by the OSC, and air SRUs are coordinated by the ACO.



## 2.4. ACO duties based on the IAMSAR manual

The SMC assigns the ACO duties. Depending on needs and qualifications, the ACO may be assigned duties that include the following:

Maintain flight safety:

- Ensure deconfliction between aircraft (avoidance of mid air collisions).
- Ensure common pressure setting (QNH) is used.
- Advise the SMC of on scene weather implications.
- Determine aircraft entry and exit points and altitudes.
- Coordinate with adjacent Area Control Centres (ACC) and airfields.

Prioritize and allocate tasks to aircraft:

- Ensure air facilities are aware of the SMC/OSC overall plan.
- Identify emerging tasks and, in coordination with the SMC, direct SAR aircraft to meet them.

Coordinate the coverage of search areas:

- Respond to changing factors on-scene and supervise effectiveness of searches.
- Monitor and report search area coverage.
- Advise SMC/OSC on how to maintain a continuous coverage during search.

Coordinate aircraft refuelling.

Forward radio messages.

Make periodic SITREPs to the SMC and OSC.

Coordinate with the OSC:

- Assist in execution of the SMC directives.
- Maintain communications.
- Advise on how the ACO can assist.

## 2.5. ACO cooperation with the SMC

The SMC will keep the ACO updated with the objectives for the operation, the command structure and participating units.

The SMC will organise refuelling points and evacuation sites in coordination with the ACO.

The SMC will organise crew support in coordination with the ACO.

The SMC will ensure that temporary restricted airspace is activated if necessary. This will be coordinated with the ACO.

In case of a SAR being positioned inside restricted airspace, the SMC will ensure that permission to operate within the area is obtained.

The ACO will maintain a log of events and make this available to the SMC as soon as possible after the mission.

## 2.6. ACO cooperation with the OSC

The OSC and ACO should coordinate the positioning of surface vessels from the perspective of flight safety and operational efficiency as appropriate. If radar approach to obtain visual contact with the distressed vessel is necessary, the approach sector should be free of surface vessels.

The ACO and OSC should coordinate the positioning of air SRU, in order to avoid disturbing surface SRUs with noise and downwash, as required.

In evacuation missions where ACO can obtain radio contact with the distress vessel, the ACO will make sure the distress vessel understands the role of the ACO.

## 2.7. ACO information to aircraft

The ACO will ensure that aircrew are aware of the SMC/OSC overall plan.

The ACO will assign tasks to aircraft.

The ACO will define entry and exit points, holding areas and altitudes for air traffic.

The ACO will provide information about all relevant air traffic and obstructions on scene.

The ACO will provide information regarding refuelling points and evacuation sites

The ACO will provide weather information:

- On scene, including pressure setting.
- At evacuation sites.
- At refuelling points.

## 2.8. Aircraft and ACO responsibilities

The ACO instructions must never be understood as air traffic control clearances, but should be regarded as advisory information.

However, the SRU must follow the instructions as closely as possible.

Where necessary, for reasons of aircraft safety, aircrew must take necessary measures regardless of instructions received.

If a pilot in command needs to deviate from instructions received, the ACO must be notified immediately.

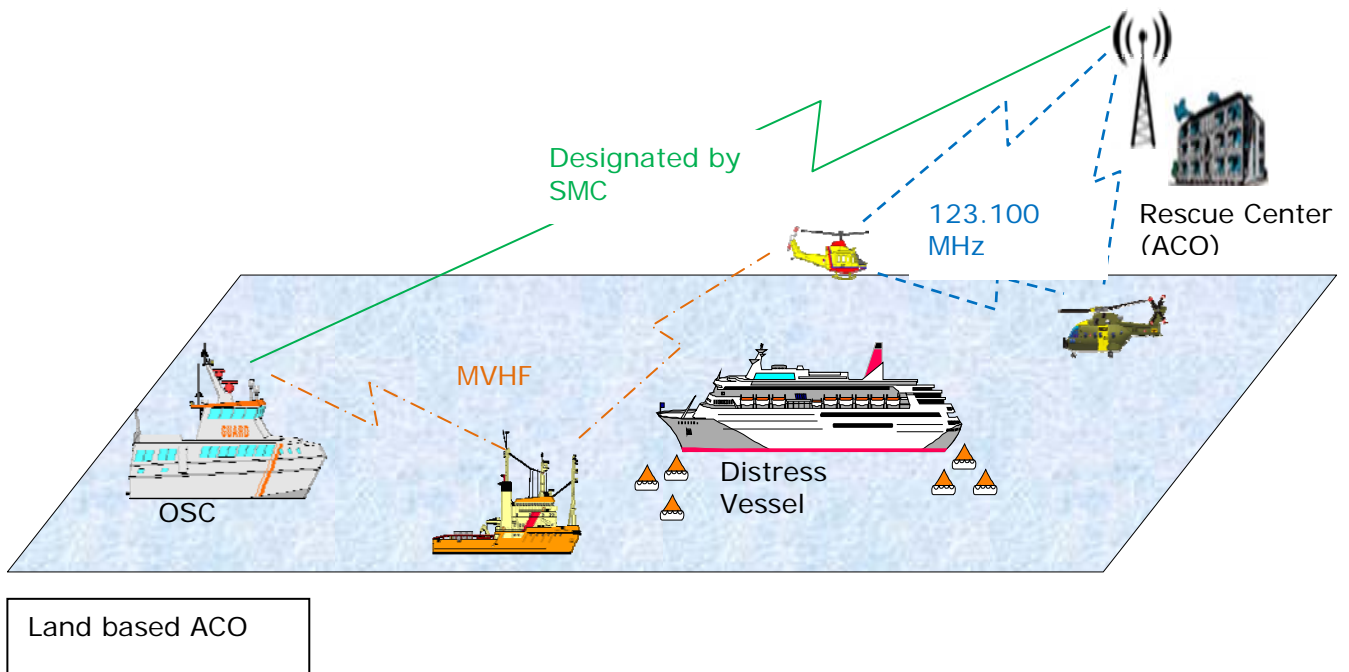
***The ACO will not in any respect overtake the flight safety responsibility from the pilot in command.***





Land based ACO:

- ACO/SRU: 123.1 MHz
- On scene surface to surface and surface to air: Maritime VHF (may be CH16 initially)
- On scene air to air: 123.1 MHz.
- On scene hoist: Maritime VHF CH 6 (Optional-not depicted)
- ACO/OSC: Designated by SMC.



### 3.2. Reporting

In order to enhance Situational Awareness of the ACO and SRUs, all aircraft should report:

- Joining entry report.
- Reaching assigned points.
- Leaving assigned points.
- Commencing operations (search, investigation during search, approach to the surface/ship, missed approach, hoist, landing etc).
- Completing operations, including information regarding results.
- Leaving present altitude.
- Reaching new altitude.
- 30 minutes on scene endurance, expecting fuel at (location).
- 10 minutes to completing hoist operation.
- 10 minutes to completing search.

The ACO will transmit Situation Reports (SITREP) to the SMC in the IAMSAR abbreviated format every 30 minutes, and in the full format for ACO handover purposes.

### 3.3. Language

All radio communication will be conducted in English.

### 3.4. ACO call sign

The IAMSAR term "AIR COORDINATOR" will be used as call sign for the ACO unit.

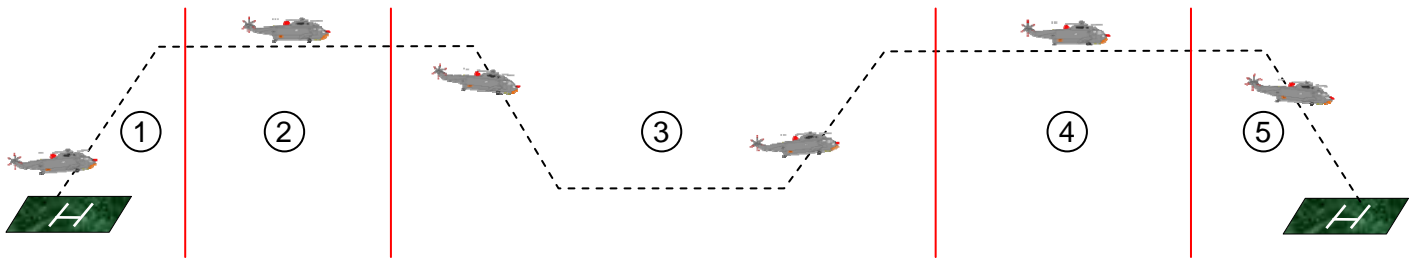
### 3.5. Requirement for two-way communication between the ACO and SRU

In order to ensure flight safety, and timely briefing by the ACO, SRUs will contact the ACO as early as possible within expected radio range.

Two-way radio communication with the ACO must be established no later than 20 NM from the point distress position in mass rescue missions.

### 3.6. Communication flow

The following depiction and table is a description of the communication flow during an ACO mission.



Phase	Task	Agency	Description
1	Departure	ATC	-
2	Transit to	RCC	<b>-Optional-</b> SRU will check in with RCC in order to receive an en route brief for the operation. SRU will prepare "Joining Report for ACO (See annex X)"
3	Operation	ACO	SRU will check in with ACO (123.100 Mhz) when inside radio range. No later than 20 MN from point distress. ACO will give "ACO briefing" (See annex X) SRU will give "Joining Report" (See annex X)  If hoist frequency is implemented, SRU will contact the vessel on MVHF CH 6 during the hoist faze.

After completion of the mission, SRU will give "SRU exit brief" (See annex X)			
4	Transit back	RCC	<b>-Optional-</b> SRU will check in with RCC in order to give "SRU exit brief" (See annex X)
5	Arrival	ATC	-

## 4. SEARCH MISSION

### 4.1. General considerations

The use of an ACO during a search mission is only expected to take place when several airborne SRU are involved in the search. This will only be the case, when the search area is large and the confidence in the datum is low and normally in open water. Therefore it is unlikely, that search patterns like expanding square and sector search will be used as these are used when the confidence in the datum is high.

Based on this, it is expected that only "creeping line search" and "parallel sweep search" will be used for airborne SRUs when an ACO is appointed for a search mission.

In large scale search operations it is crucial that the ACO, in close corporation with the SRU, find the right balance between the measures taken to uphold flight safety, and at the same time making sure that the SRU are given sufficient operational freedom to ensure an effective search and mission accomplishment. This balance is weather dependant.

During a search operation where SRUs operate in close proximity, it is vital that the ACO ensure a high degree of situational awareness amongst the SRU.

### 4.2. Levels of deconfliction

Four levels of deconfliction exist with level 1 being the least "restrictive". Level 1 will be activated in all operations and can be implemented in any combination with the remaining levels. However, level 3 and 4 will not be implemented at the same time. A total of six different combinations can be activated.

**The ACO/SMC must be aware that as more restrictive measures are implemented the higher impact**

The levels are:

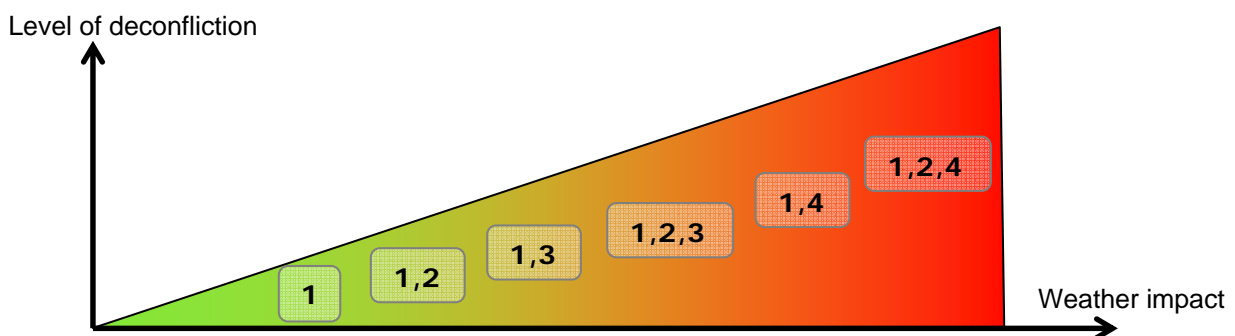
Level 1: Visual deconfliction.

Level 2: Flow deconfliction.

Level 3: Coordination zones.

Level 4: No fly zones (Zebra).

The following graph illustrates how the six different combinations of deconfliction levels are organized, from the least restrictive (left) to the most restrictive combination (right).



#### 4.2.1. Level 1 – Visual deconfliction

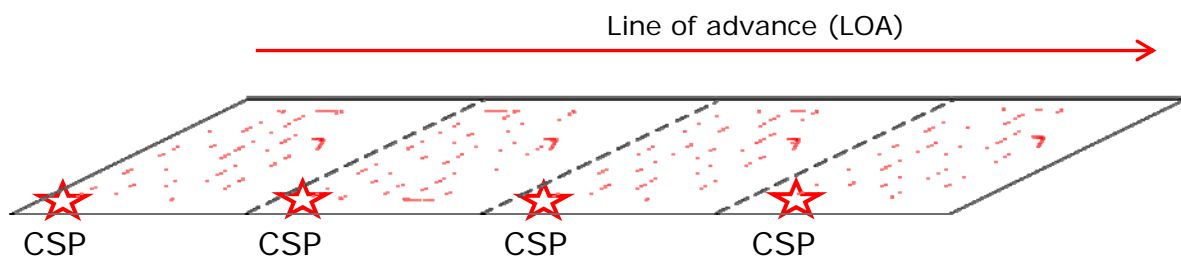
At this level the ACO will appoint a search area. But deconfliction between the SRUs, will be facilitated by the SRUs themselves. If weather allows, level 1 may be the only deconfliction tool used.

#### 4.2.2 Level 2 – Flow deconfliction

Level 2 allows the ACO to separate the SRU horizontally.

The primary method of separating the SRU horizontally in a search mission, is by the search pattern. Meaning the SRUs will fly the same pattern (Commence search point (CSP)/line of advance etc.) but in adjacent areas. This allows the SRUs to execute an effective search of the area with a minimum of radio communication.

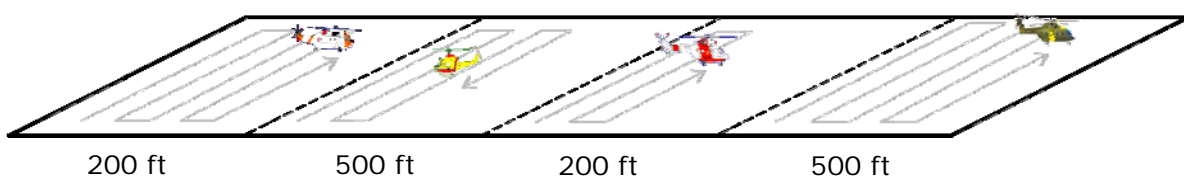
**The first SRU on scene will be given the subarea furthest away from the LOA.**



Another type of flow deconfliction is by time. This is an option if the SRU arrive at the scene with considerable spacing in time. This could be a consequence of SRU departing from different bases.

In Level 2 deconfliction, the ACO may order specific search altitudes for the SRUs. This allows an extra margin of safety when helicopters operate in close proximity. The ACO must however be aware that doing so, limits the operational freedom and may impact the search result in a negative manner. Furthermore, the ACO must expect the SRU to deviate from the assigned altitude if they need to investigate objects on the surface.

**The ACO will ensure that all SRUs use on the same reference for altitude.**



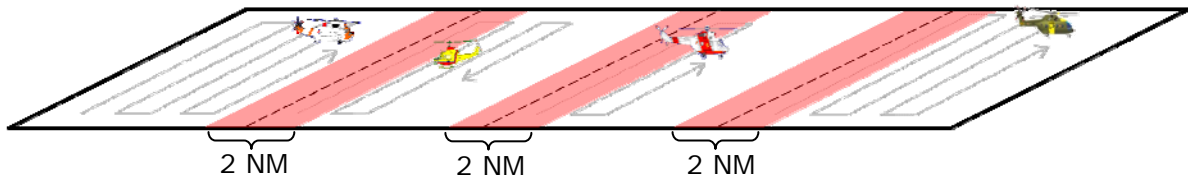
#### 4.2.3 Level 3 – Coordination zones

Activation of coordination zones is a method for the ACO to allow the SRU operational flexibility but at the same time focusing on the border area between the search areas. Level 3 - executed correctly - guarantee coordination among SRUs flying close to the border to a neighboring search area.

A 2 NM wide area is placed over the borderline between the search areas. Before entering this area, the SRU will call the SRU sharing the same border/coordination zone in order to coordinate the entry. The SRU will call again upon exiting.

In order to avoid any misunderstandings resulting in compromise of flight safety, it is absolutely vital that the ACO give the SRU a clear understanding of where the different SRUs operate.

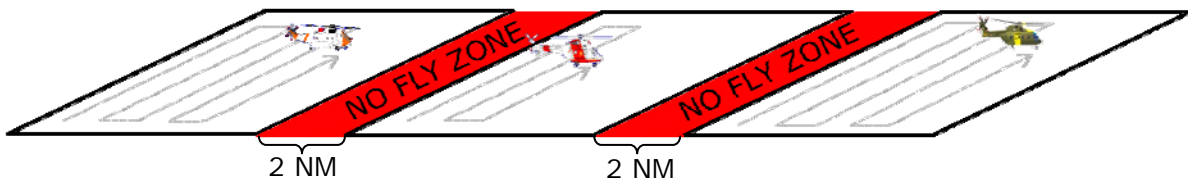
The size of the coordination zone may be increased if needed.



#### 4.2.4 Level 4 – No fly zones (Zebra)

Level 4 deconfliction is designed for large scale search operations in conditions with severe weather. The Zebra system introduces "No Fly Zones" acting as a buffer zone between the different sub-areas.

The ACO must make a plan for searching the buffer zones – e.g. by coordinating with the OSC. The size of the no fly zones are 2 NM as standard. This number is subject to change if needed.



#### 4.3. Entry/Exit of search areas

In order to separate transit to and from the search areas, the ACO may set up an entry- and exit point. In conditions with severe weather and poor visibility, the ACO may furthermore dictate fixed altitudes for transit to and from areas. When a SRU transit to and from search altitudes, this should be done within the borders of the sub area allocated to that SRU.

#### 4.4. Formats for assignment of search areas

The ACO will transmit the search areas to the SRU in one of the following formats:

##### Borderlines:

Assign the SRU two latitudes and two longitudes describing the borderlines.

E.g. "north border 5910N, south border 5901N, east border 02017E, west border 02000E".

Commence search point, direction of first leg and lane spacing should be included in information.

NOTE: Only usable if area is aligned horizontally/vertically (not tilted)

##### Corner points:

Assign the four corner points of the search area with four sets of latitudes/longitudes

E.g. "5910N 02000E, 5901N 02000E etc..."

Commence search point, direction of first leg and lane spacing should be included in information.

##### Search directions:

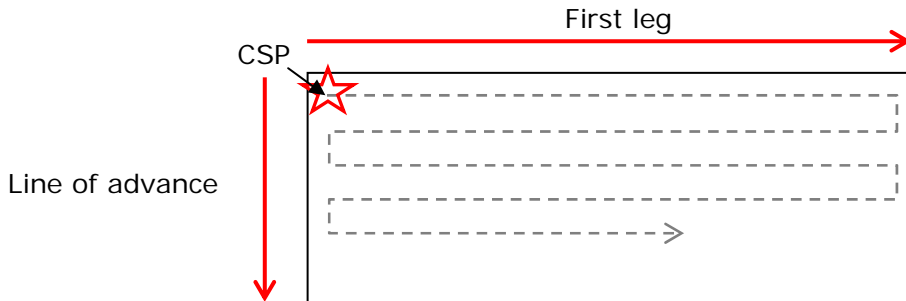
Assign the search parameters to the SRU with the following information:

Commence search point (Lat/long).

First leg (Direction in degrees and a range).

Line of advance (General direction of search pattern -  $90^\circ$  degrees of the direction of first leg).

Lane spacing.



E.g. "Commence Search point 5910N 02000E, First leg 090°/9NM, Line of advance 180°/4NM. Lane spacing 0.2 NM"

## 5. EVACUATION MISSION

### 5.1. ACO overall task

In distress situations with many people in need of evacuation, and several helicopters involved in the rescue, the ACO most important task is to coordinate the air operation with 2 equally important goals in mind:

- Efficient and timely evacuation of people in distress.
- Safety of helicopters.

### 5.2. General principles

The primary deconfliction method is horizontal separation. Vertical separation is a secondary or supplemental method, which can be used to further increase flight safety and/or when horizontal deconfliction is insufficient.

The planning model is based on a worst case scenario with low ceiling and low visibility, as well as icing conditions limiting the use of altitude separation of aircraft.

3 flow points, all over water, with 7 NM spacing are defined as radial/distance from the distress position:

- Entry point.
- Holding point.
- Missed Approach Point (MAP).

If needed also an exit point can be established.

This method will reduce the necessary radio communication, compared to using latitude and longitude, but will require helicopter aircrew to be able to navigate to waypoints based on a reference position and radial and distance.

It is important that the ACO monitors the drift of the distressed vessel and/or rescue area and updates the distress position if necessary. However, the ACO should avoid frequent updates to the distress position.

The entry point should allow 5 NM distance for helicopters to conduct Airborne Radar Approach (ARA) in instrument conditions.

Recommended altitude at the entry point for ARA purposes is 500-1500 feet.

Weather permitting the ACO can decide to use flow measures less restrictive, thus enabling more efficient operations.

The weather conditions on scene will be reported by the first aircraft arriving in the area.

The location of the mission may dictate deviations to the model due to restrictions such as airspace, obstructions and/or land areas.

In any case, in the hoisting area (inside the entry point) visual deconfliction is the only possibility.

The maximum number of helicopters in the hoist area will depend on the complexity of the mission and the weather/lighting conditions.

All aircraft will remain well clear of hoisting helicopters.



### 5.3. Horizontal deconfliction

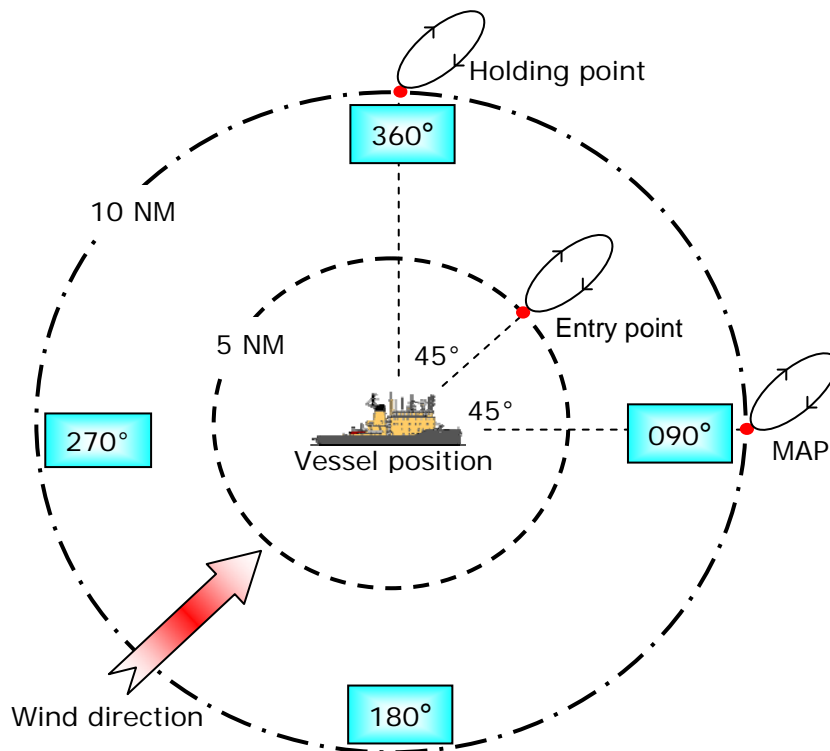
The flow points should be defined as follows:

- Define the entry point 5 NM downwind from the target, allowing approach to the target with headwind.
- Define the holding point, 10 NM from the target, 45 degrees offset from the approach track.
- Define Missed Approach Point (MAP), 10 NM from the target 45 degrees offset from the approach track, in the opposite direction from the primary holding point. When selecting the MAP, it is extremely important that the initial turn does not take the SRU towards any obstructions, such as masts, windmills, platforms or large ships etc.
- Define an exit point that will allow initial departure from the target with headwind, before turning inbound evacuation sites.
- Define entry, exit and holding points so that inbound and outbound aircraft remain clear of each other.

Entry, holding point and MAP, defined as described above, are separated by 7 NM.

Holding can be arranged by the ACO at either the holding point, the MAP and/or the entry point. All aircraft should be given similar holding patterns:

- Inbound tracks normally with headwind.
- Right-hand patterns.
- Outbound flight time 1 min.
- Maximum speed for entry in holding, and in the holding pattern is 100 knots Indicated Air Speed (IAS).



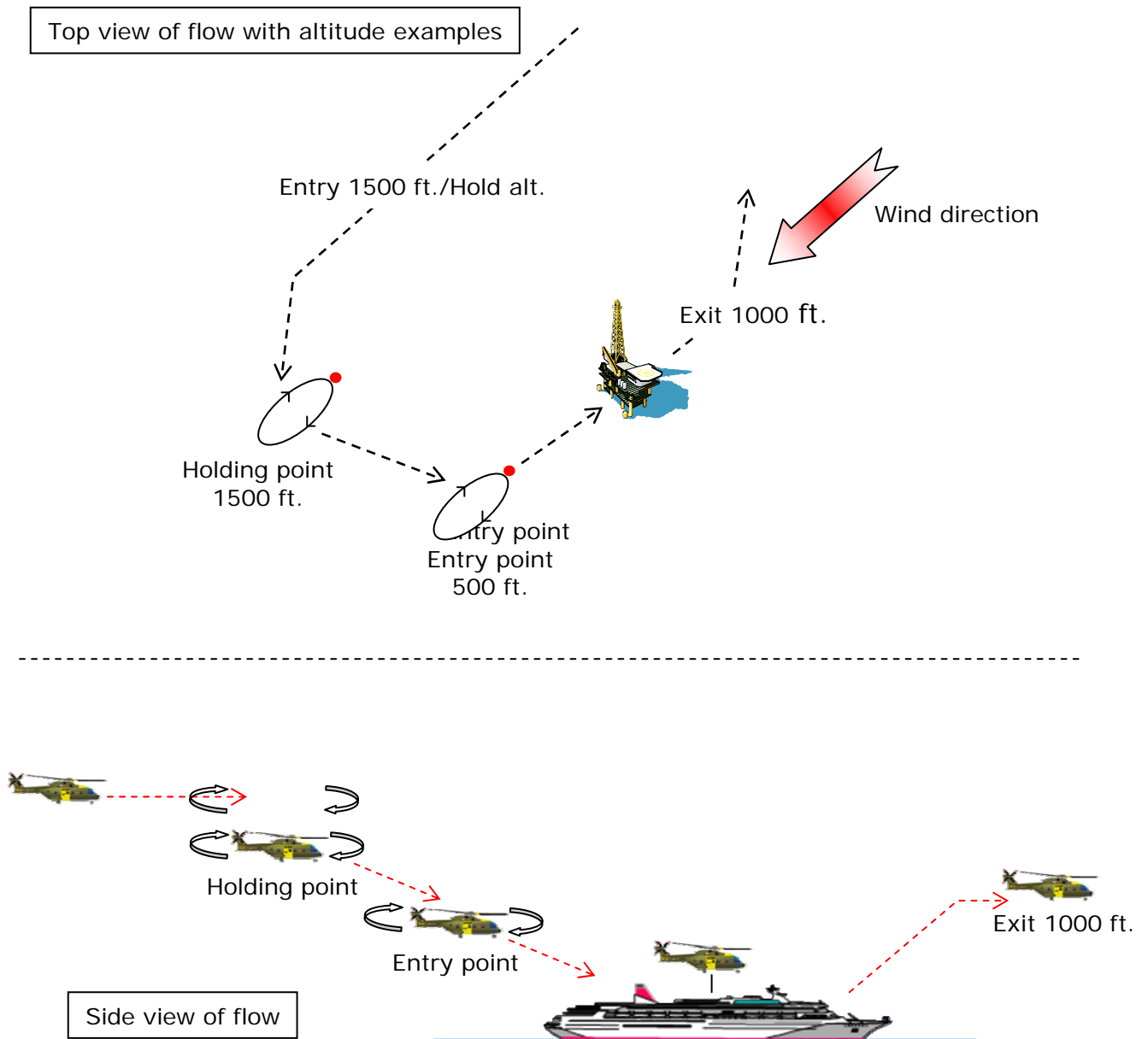
### 5.4. Vertical deconfliction

If crossing traffic cannot be avoided, and the weather allows, vertical separation can be established as follows:

- Visual conditions: 500 ft.
- Instrument conditions: 1000 ft.

### 5.5. Visual procedures

Visual procedures should be used if at all possible. Dependent on the weather conditions operations can be conducted with little or no restrictions such as flow points and altitudes. The ACO should keep arriving aircraft informed of the number of aircraft on the scene.



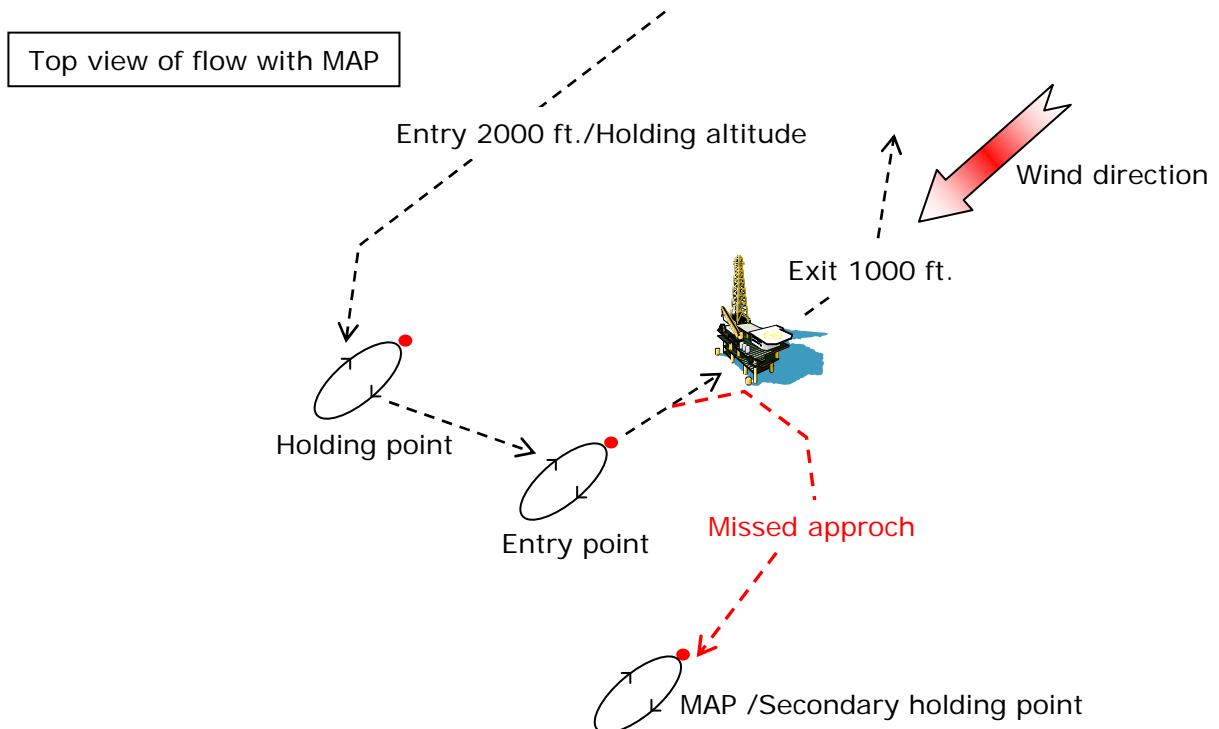
## 5.6. Instrument procedures

If the use of visual procedures are not feasible, instrument procedures must be adopted. These procedures do not in any way provide the same guaranteed safety margins as “published instrument approaches”. Full responsibility for avoidance of obstructions and other air traffic, will be retained by the pilot in command.

The ACO should make sure that the OSC keeps the approach sector clear of surface vessels to enable Airborne Radar Approach (ARA).

If holding is to be conducted simultaneously at the entry point and one, or both holding points, the following conditions must be met:

- Aircraft holding at the entry point must be separated by 1000 feet from the altitude used at the holding points.
- Or, all aircraft participating must be equipped with.
  - Functional GPS integrated in the aircraft avionics suite, and
  - Functional Flight Management System (FMS) with the ability to define a waypoint based on radial and distance from a reference point.



The ACO should try to minimise the periods with no helicopter hoisting at the distressed vessel, by allowing the next helicopter to commence ARA before the hoisting helicopter has finished operations.

This can be done when the helicopter in front is expected to complete hoist operations in 5-10 minutes.

Arriving at the distressed vessel, the arriving helicopter will hold visually on the distressed vessel and maintain visual separation from the hoisting helicopter.

Missed approach instructions should be given to all helicopters, including not to overfly the distress position, direction of turn, altitude and MAP.

## **6. ACO PROCEDURE FORM**

If possible the ACO or SMC should forward an ACO procedure form to participating units and rescue centres, in order to reduce misunderstandings and minimize the need for radio communication.

The form should be send by telefax or email, and contain information as follows:

- Operation title.
- Version number.
- Emergency location.
- Target identification.
- Flow points, evacuation points.
- Refuelling and support points.
- Frequencies used.
- Map of location and procedures.

**See annex A for ACO procedure form**

## ANNEXES

## Pages

A. ACO procedure form	1
B. ACO briefings	2
C. Joining Entry Report (Briefing form)	1
D. SRU exit brief (Briefing form)	1
E. ACO Capabilities (Aircraft and land based)	<i>(to be developed)</i>
F. Helicopter and fixed wings Capabilities	4
G. Pilot information File (PIF)	1
H. Communication Phraseology for Aircraft CO-ordinators	16

## SUPPLEMENTS

National specifics index:

- ACO (fixed wing and/or landbased),
- COMMs, map with SRU bases,
- preplanned refuelling/evacuation points, national responsibility to arrange refuelling support)

Supplements has been added by: (5 pages)

- Denmark
- Finland
- Sweden

**BALTIC ACO MANUAL ANNEX A – ACO PROCEDURE FORM**

<b>GENERAL INFORMATION</b>	
<b>OPERATION</b>	
<b>EMERGENCY LOCATION</b>	
<b>IDENTIFICATION (VERSION)</b>	
<b>TIME ZONE</b>	
<b>ACO INFORMATION</b>	
<b>ACO CALLSIGN</b>	
<b>ACO FREQUENCY</b>	
<b>ACO TELEPHONE NUMBERS</b>	
<b>WAYPOINTS</b>	
<b>ENTRY</b>	
<b>HOLDING</b>	
<b>HOLDING</b>	
<b>HOLDING</b>	
<b>EXIT</b>	
<b>EVACUATION</b>	
<b>EVACUATION</b>	
<b>EVACUATION</b>	
<b>REFUELLING</b>	
<b>CREW SUPPORT</b>	
<b>TECHNICAL SUPPORT</b>	
<b>ALTITUDES</b>	
<b>ENTRY</b>	
<b>EXIT</b>	
<b>ON SCENE</b>	
<b>HOLDING</b>	
<b>PICTURE OF ACO PROCEDURE</b>	
<b>MISSED APPROACH PROCEDURE</b>	

**BALTIC ACO MANUAL ANNEX B– ACO BRIEFINGS**

The ACO will ensure that the following information are briefed to the SRU after check in and before entering the operations area:

<b>SAFETY BRIEF</b>	<i>" The Air Coordinator will <u>only</u> provide advisory information. You are responsible for the safety of you own aircraft at all times. If you because of safety reasons are unable to comply with instructions given by the Air Coordinator , you are to notify me immediately"</i>
<b>QNH/ALT.</b>	Which reference is used for common altitude reference?
<b>ORGANISATION ON SCENE</b>	Who is acting Air Coordinator? Who is acting On Scene Coordinator?
<b>OTHER ASSETS</b>	Other airborne assets on scene (call sign, position, task) Ships on scene (call sign, task)
<b>FREQUENCY PLAN</b>	What frequencies are the SRU expected to use and/or monitor? - co ordination with other airborne SRU - coordination with OSC/ships - hoist frequency? - frequency for transit back after mission.
<b>WEATHER ON SCENE</b>	Flight conditions on scene.



<b>SEARCH MISSION</b>	
<b>ROUTEPOINTS</b>	Position of: - Entry point - Exit point
<b>PATTERN</b>	Search directions Track spacing
<b>SEARCH OBJECTS</b>	Primary search object Secondary search object
<b>ADJACENT SRU</b>	Which SRU are operating in close proximity.
<b>DECONFLICTION</b>	Which deconfliction tools have been implemented.

<b>MASS. EVACUATION</b>	
<b>HOIST POSITION</b>	Position of hoist
<b>ROUTEPOINTS</b>	Position/altitude of: - Entry point - Holding points - Entry point - Exit point
<b>MAP</b>	If radar approach is applicable: Missed approach procedure in force.
<b>COLLECTION POINT</b>	Position of collection point/post mission landing site.

During a mass rescue operation, the ACO will brief the following information to the vessel (ship, oilrig ect.) if radio contact can be obtained.

*"(call sign) this is Air Coordinator.*

*During the evacuation I will be responsible for the coordination of the airborne assets involved in the operation.*

*My call sign will be -Air Coordinator- and I can be reached on (net/frequency)*

*If possible you are to monitor (net/frequency) during hoist operations*

*(If an OSC is on scene):*

*Furthermore I will coordinate the evacuation with the On Scene Coordinator who is responsible for the ships in the operation"*



**BALTIC ACO MANUAL ANNEX C – JOINING ENTRY REPPORT**  
(IAW IAMSAR)

<b>1. CALLSIGN</b>	
<b>2. NATIONALITY</b>	
<b>3. TYPE (fixed / helicopter and type)</b>	
<b>4. Position</b>	
<b>5. Altitude and pressure setting</b>	
<b>6. ETA (relevant point or search area)</b>	
<b>7. ENDURANCE ON SCENE</b>	
<b>8. Remarks (equipment/limitations ect.)</b>	

Example of Joining Entry Report:

*“ Callsign Lifeguard 901; one Swedish S-76 rescue helicopter; position 25 NM south of Rönneby; 1500 ft. on QNH 1013; ETA holding point 1015Z; Endurance on scene 2 hours; no limitations”*

**BALTIC ACO MANUAL ANNEX D– SRU EXIT BRIEFING**

<b>1. CALLSIGN</b>	
<b>2. POB</b>	
<b>3. ETA DESTINATION</b>	
<b>4. REQUIREMENTS AT DESTINATION (fuel, medical care, food ect.)</b>	
<b>5. ETA BACK IN OPERATOINS AREA</b>	
<b>6. REMARKS (E.g. Hoist position, weather, ect.)</b>	

Example of SRU exit brief:

*" Callsign Lifeguard 901; total POB 9, 4 crew+5 PAX; ETA 1230Z; Require fuel after landing;  
ETA back in area 1430Z; hoist position 5535.9N 01659E "*

Version 1.11

**BALTIC ACO MANUAL ANNEX E - ACO CAPABILITIES**

**TO BE DEVELOPED**



## Denmark

- EH-101 (Aalborg, Roskilde, Skrydstrup, (Roenne, Bornholm if wind force over 20 m/s).
- S61 Sea King (to be decomissioned within 2010) (Same bases)
- 7-22 15 min readiness, 22-07 30 min readiness
- able to conduct operations in moderate icing conditions
- Radius 250 NM (2 hrs)





Super Puma

## Finland

- Super Puma (Turku)
- 8-16 15 min readiness,
- 16-08 60 min readiness
- Radius 240 NM (2 hrs)
- able to conduct operations in icing conditions



AB-412

- AB-412 (Helsinki, Rovaniemi)
- 8-16 15 min readiness,
- 16-08 60 min readiness
- Radius 200 NM (2hrs)



## Finland

- Mi-8
- not in 24 h readiness



- NH-90
- 24h readiness 4.1.2010
- 8-16 30 min readiness
- 16-08 2 hrs readiness



## Sweden

### Maritime Administration

- Sikorsky S76 C +/++
- Bases Umea, Stockholm, Visby, Ronneby and Goteborg
- 15 minutes readiness 7/24
- Endurance 3 hours



### Coast Guard

- Dash 8 Q-300
- Base Nykoping/Skavsta
- Endurance 8 hours

**BALTIC ACO MANUAL ANNEX G - Pilot information File (PIF)**

**"AIR COORDINATOR" 123.100 MHz**

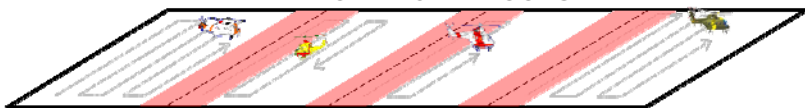
**JOINING ENTRY REPORT**

1. Callsign
2. Nationality
3. Type (FIXED/HELICOPTER AND TYPE)
4. Position
5. Altitude and pressure setting
6. ETA (RELEVANT POINT OR SEARCH AREA)
7. Endurance on scene
8. Remarks (EQUIPMENT – LIMITATIONS)

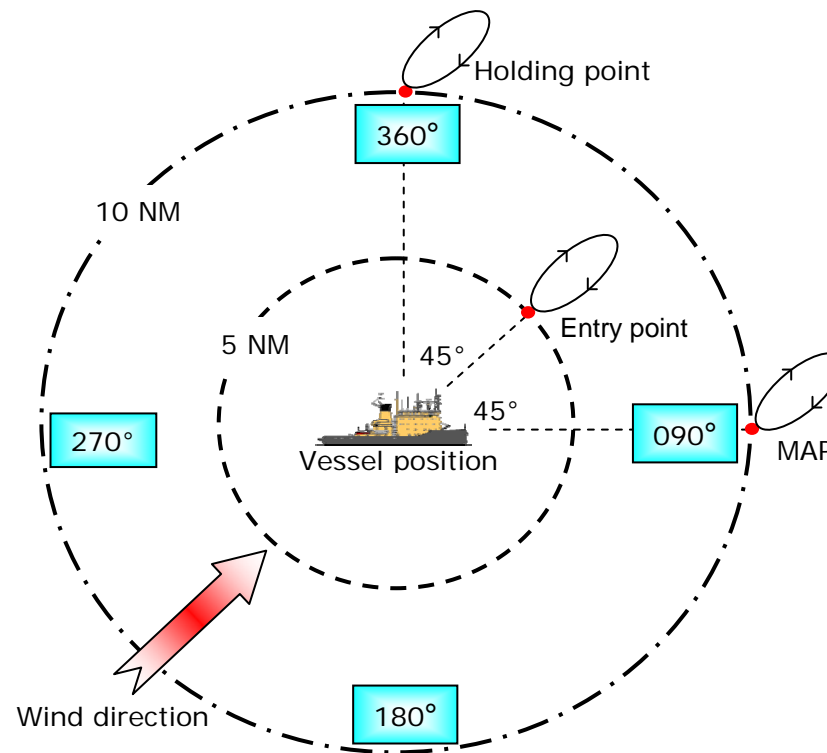
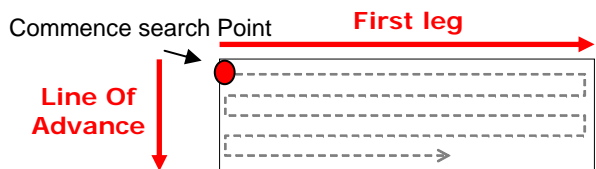
**REPORTING**

- **Reaching** assigned points.
- **Leaving** assigned points.
- **Commencing** operations (search, investigation during search, approach to the surface/ship, missed approach, hoist, landing etc).
- **Completing** operations, including information regarding results.
- Leaving present altitude.
- Reaching new altitude.
- 10 minutes to completing hoist operation.
- 30 minutes on scene endurance, expecting fuel at (location)

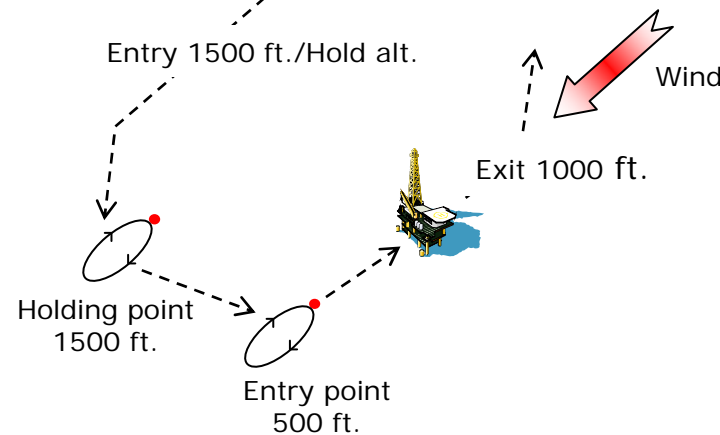
**SEARCH MISSION**



1. Coordination zones – 1 NM on each side of border  
Call neighbouring helo: before entering coordination zone +when exiting 1NM buffer
2. No fly zones: Do no enter buffer zone.



**Top view of flow with altitude examples**





**COMMUNICATION PHRASEOLOGY**

**FOR**

**AIRCRAFT CO-ORDINATORS**

## **FOREWORD**

ACO communication phraseology is made to standardize the radio traffic between Aircraft Co-ordinator (ACO) and search- and rescue units and to minimize misunderstanding in communication during SAR-operation.

The purpose of the Aircraft Coordinator (ACO) function is to coordinate the involvement of multiple aircraft in a SAR operation, in order to increase mission effectiveness, while maintaining flight safety for all aircraft involved. All other ACO duties are described in international aeronautical and maritime search- and rescue manual (IAMSAR).

ACO communication phraseology will not replace any other published RTF-manuals based on ICAO documents but shall complement those with terms and phrases considered important in search and rescue operations. Whenever any inconsistencies between these publications occur, official ICAO based phraseology shall be used.

This glossary will not provide example for all situations which can be possible during different SAR-operations. It is expected that SRU-pilots and ACOs are able to modify these terms and phrases if necessary, remembering that the original meaning shall always be remained.

The ACO instructions must never be understood as air traffic control clearances, but should be regarded as advisory information.

However, the SRU must follow the instructions as closely as possible. Where necessary, for reasons of aircraft safety, aircrew must take necessary measures regardless of instructions received.

If a pilot in command needs to deviate from instructions received, the ACO must be notified immediately.

# INDEX COMMUNICATION PHRASEOLOGY FOR AIRCRAFT CO-ORDINATORS

- CHAPTER 1**                    **TERMS AND PHRASES / REPORTS**  
Altitude reports / changes  
Joining entry report  
ACO announcement for all SAR-units  
Traffic reports  
Weather conditions  
Position reports  
Supplementary reports  
Operation reports  
Reports during search / rescue mission
- CHAPTER 2**                    **INSTRUCTIONS**  
ACO-procedure check  
Entry-/exit-/holding point assigning  
Waypoint assigning  
Route instruction  
Search/rescue mission setting  
Search area pointing  
Search pattern description  
Search commencing  
Description of emergency object  
Instructions for radio contact
- CHAPTER 3**                    **APPROACH INSTRUCTIONS**  
Instrument approach  
Depending commence for approach  
Combined instructions for approach and departure  
Missed approach  
Holding instructions  
Communication instructions
- CHAPTER 4**                    **OPERATION SAFETY**  
Endurance  
Search/rescue equipment  
Refuel  
Support / maintenance
- CHAPTER 5**                    **OPERATION RESTRICTIONS**  
Fire / smoke  
Dangerous material  
List of a vessel  
Wave height

## 1. TERMS AND PHRASES / REPORTS

### ALTITUDE REPORTS

- a) FLIGHT LEVEL (number) or
- b) (number) METRES or
- c) (number) FEET

#### Altitude reports using flight level or feet

LIFEGUARD 01 MAINTAINING FLIGHT LEVEL SEVEN ZERO / TWO THOUSAND FEET

### ALTITUDE CHANGES

- a) CLIMB/DESCENT  
TO (altitude/level)  
  
when necessary:
  - i) AFTER PASSING (significant point)
  - ii) AT (time/significant point)
  - iii) TO REACH (altitude/level) AT/BY  
(time/significant point)
  - iv) IMMEDIATELY
- b) REPORT LEAVING/  
REACHING/PASSING (altitude/level)
- c) EXPECT CLIMB/DESCENT AT (time or significant point)

## **(JOINING ENTRY REPORT / IAMSAR)**

Airborne SRUs should use a standard joining entry report to the ACO when entering a search and rescue mission area, including:

- A Call sign
- B Nationality (if relevant)
- C Type (specify fixed wing or helicopter and type)
- D Position
- E Altitude (on pressure setting used)
- F ETA (at relevant point or search area)
- G Endurance on scene
- H Remarks (specific equipment or limits)

**Order of information may vary:**

COORDINATOR, SWEDISH HELICOPTER LIFEGUARD 01, SIKORSKY 76, PASSING BOGSKÄR AT FL 50, ESTIMATING UTÖ AT 1715, ON-SCENE ENDURANCE 2 HOURS

## **ACO ANNOUNCEMENT FOR ALL SEARCH AND RESCUE UNITS**

THIS IS AIRCRAFT CO-ORDINATOR.  
THE ACO INSTRUCTIONS MUST NEVER BE UNDERSTOOD AS AIR TRAFFIC CONTROL CLEARANCES, BUT SHOULD BE REGARDED AS ADVISORY INFORMATION.  
HOWEVER, THE ALL UNITS MUST FOLLOW THE INSTRUCTIONS AS CLOSELY AS POSSIBLE.  
WHERE NECESSARY, FOR REASONS OF AIRCRAFT SAFETY, AIRCREW MUST TAKE NECESSARY MEASURES REGARDLESS OF INSTRUCTIONS RECEIVED.  
IF YOU HAVE TO DEVIATE FROM INSTRUCTIONS RECEIVED, THE ACO MUST BE NOTIFIED IMMEDIATELY.

## **TRAFFIC REPORTS**

- a) TRAFFIC (information)
- b) NO REPORTED TRAFFIC (ON THE AREA)
- c) \*LOOKING OUT
- d) \*TRAFFIC IN SIGHT
- e) \*NEGATIVE CONTACT (REASONS)

**Traffic information for observed traffic**

OBSERVE VFR TRAFFIC (S-76) AT 2.0 FT ESTIMATED MEETING AT 10

## WEATHER CONDITIONS

- PER HOUR
- a) WIND AT (level)(number) DEGREES (number) KNOTS/KILOMETRES
  - b) VISIBILITY (distance)(units)
  - c) PRESENT WEATHER (details)
  - d) CLOUD (amount, and height of base)/  
SKY CLEAR
    - few, 1/8 – 2/8
    - scattered, 3/8 – 4/8
    - broken, 5/8 – 7/8
    - overcast, 8/8
  - e) TEMPERATURE (MINUS)(number)  
(and/or DEW-POINT (MINUS)(number)
  - f) QNH/QFE (number)
  - g) (aircraft type) REPORTED (description)  
ICING/TURBULENCE  
(IN CLOUD)(LEVEL)(area)(time)

### Reporting icing or turbulence:

NH-90 REPORTED MODERATE ICING IN CLOUD AT 4.0 FT

## h) REPORT FLIGHT CONDITIONS

### Reporting flight conditions on scene

FINNGUARD 20 REPORTING FLIGHT CONDITIONS ON SCENE, WIND TWO SEVEN ZERO DEGREES EIGHT KNOTS, VISIBILITY THREE KILOMETRES, DURING OCCASIONALLY RAIN SHOWERS LESS THAN ONE KILOMETER, CLOUDS OVERCAST ONE THOUSAND TWO HUNDRED FEET, TEMPERATURE PLUS NINE.

## POSITION REPORTS

- a) NEXT REPORT AT (significant point)
- b) ALL POSITION REPORTS REQUIRED

## SUPPLEMENTARY REPORTS

- a) REPORT PASSING (significant point)
- b) REPORT POSITION

## **OPERATION REPORTS**

- a) \*ON-SCENE ENDURANCE 30 MINUTES

should be given on scene 30 minutes before transfer flight to refuelling is necessary.

### **... search**

- b) \*COMMENCING SEARCH

### **... approach**

- c) \*COMMENCING APPROACH

### **... winching/hoisting**

- d) \*COMMENCING WINCHING/HOISTING

- e) REPORT WHEN COMMENCING LAST WINCHING/HOISTING

### **... landing**

- f) \*LANDING TO (significant point),  
AIRBORNE AGAIN LATEST AT (time)

## **REPORTS DURING SEARCH/RESCUE MISSION**

### **... search**

- a) \*SEARCHING COMPLETED  
(REQUEST NEW MISSION / TASK)
- b) \*SEARCH OBJECT LOCATED, POSITION  
(significant point or/and degrees, minutes)

### **... winching**

- c) \*LAST WINCHING/HOISTING ON PROGRESS,  
LEAVING EMERGENCY VESSEL IN (number) MINUTES.\*
- d) \*WINCHING COMPLETED  
(number)RESCUED PERSONS ON BOARD,  
(number)STILL IN WATER/VESSEL  
TOTAL POB (number).
- e) \*RESCUE MAN/RESCUE DIVER.....

**... evacuation**

- f) \*AIRBORNE AT (time),  
(number)RESCUED PERSONS ON BOARD.  
TOTAL POB (number).



## 2. INSTRUCTIONS

### ACO – PROCEDURE CHECK

- a) HAVE YOU RECEIVED ACO – INFORMATION NUMBER (number)

### ENTRY-/EXIT-/HOLDING POINT ASSIGNING

vessels  
emergency

Position of entry-/exit-/ holding point in evacuation procedure is always determined referring on emergency position by using radial and distance. If necessary all positions can be replaced by reporting new position for vessel.

- POSITION, a) ENTRY-/EXIT-/HOLDING POINT (name) FROM EMERGENCY  
RADIAL (number) DEGREES, DISTANCE (number) NM

#### Assigning entry-point

DANISH 02, POSITION OF EMERGENCY VESSEL IS FIVE FIVE DEGREES ZERO TWO MINUTES NORTH, ZERO ONE SIX DEGREES ONE FIVE MINUTES EAST, ENTRY POINT NORTH FROM EMERGENCY POSITION RADIAL TWO FOUR ZERO DEGREES, DISTANCE FIVE (NAUTICAL) MILES.

### ADDITIONAL WAYPOINT ASSIGNING

- a) ARE YOU READY TO COPY ADDITIONAL WAYPOINT?  
b) \*READY TO COPY  
c) ADDITIONAL WAYPOINT (name), POSITION (degrees, minutes) NORTH/SOUTH, (degrees, minutes) EAST/WEST

#### Assigning additional waypoint

WAYPOINT CHARLIE, POSITION FIVE NINE (DEGREES) FOUR ZERO (MINUTES) NORTH, ZERO TWO ONE (DEGREES) TWO ZERO (MINUTES) EAST.

replaced

NOTE: When additional waypoint is determined by using specific latitude/longitude information it will not be replaced when updating flight management system with new position of emergency vessel.

## ROUTE INSTRUCTION

- a) PROCEED TO (designation)
- b) PROCEED TO (limit) VIA (designation)

### Instructions to enter controlled airspace

FINNGUARD 20 PROCEED TO WAYPOINT 7.  
OVER WAYPOINT 7 CONTACT VAASA TOWER 119,3 MHz FOR CLEARANCE TO CONTROLLED AIRSPACE.

## SEARCH/RESCUE MISSION SETTING

- a) SEARCH MISSION AVAILABLE,  
ARE YOU READY TO COPY?

## SEARCH AREA POINTING

### ... square area

- a) BORDERS OF YOUR SEARCH AREA ARE:

NORTH LATITUDE (number) NORTH/SOUTH  
SOUTH LATITUDE (number) NORTH/SOUTH  
WEST LONGITUDE (number) EAST/WEST  
EAST LONGITUDE (number) EAST/WEST

FINNGUARD 20, BORDERS OF YOUR SEARCH AREA ARE:  
NORTH LATITUDE FIVE NINE FOUR ZERO NORTH,  
SOUTH LATITUDE...

### ... circle area

- b) RADIUS OF SEARCH AREA IS (number) NM/KM,  
CENTRE POINT (position)

- c) OBLIQUE SQUARE

**All corners shall be assigned to SRU by using specific latitude and longitude information**

DANISH 01, NW CORNER OF YOUR SEARCH AREA IS  
FIVE FOUR (DEGREES) FIVE EIGHT (MINUTES) NORTH,  
ZERO ONE FIVE (DEGREES) ONE ZERO (MINUTES) EAST,  
NS CORNER...

## SEARCH PATTERN DESCRIPTION

- a) PARALLEL SWEEP SEARCH
- b) SECTOR SEARCH
- c) EXPANDING SQUARE SEARCH
- d) TRACKLINE SEARCH BETWEEN (two significant points)
- e) TRACK SPACING
- f) COMMENCE SEARCH POINT

## SEARCH COMMENCING

- c) COMMENCE SEARCH POINT IS (position),  
(description of search procedure),  
FIRST TRACK (three digits) DEGREES  
ALTITUDE (number) FEET (OR BELOW)  
TRACK SPACING

### Information for search commencing

LIFEGUARD 02, COMMENCE SEARCH POINT SIX ZERO (DEGREES) TWO ZERO (MINUTES) NORTH,  
ZERO TWO ZERO (DEGREES) THREE ZERO (MINUTES) EAST,  
FIRST TRACK THREE SIX ZERO (DEGREES), SEARCH ALTITUDE FIVE HUNDRED FEET (OR BELOW) QNH

1013,

TRACK SPACING ZERO POINT FOUR NM.

**NOTE: SRU may suggest change for altitude, track spacing or track direction due to weather conditions on-scene.**

## **DESCRIPTION OF EMERGENCY OBJECT**

### **...details**

a) **SEARCH/RESCUE OBJECT IS (description)**

SEARCH OBJECT IS A FISHING VESSEL CALLED DELFIN. BLUE HULL WITH WHITE STRIPES. FIVE PERSONS ON BOARD.

### **... position**

b) **POSITION OF RESCUE OBJECT IS  
(degrees, minutes) NORTH/SOUTH  
(degrees, minutes) EAST/WEST**

POSITION OF EMERGENCY VESSEL IS FIVE NINE (DEGREES), THREE EIGHT (MINUTES) NORTH, ZERO TWO ONE (DEGREES), THREE FIVE (MINUTES) EAST.

### **... drifting**

c) **OBJECT IS DRIFTING (direction, speed)**

DISTRESS VESSEL IS DRIFTING SOUTH, SPEED ONE KNOT.

### **... Vessel course**

d) **COURSE OF (vessel/name) IS (three digits), SPEED (number) KNOTS**

COURSE OF BALTIC STAR IS THREE TWO ZERO (DEGREES), SPEED TWELVE KNOTS

## **TRANSFER OF RADIO CONTACT**

a) **CONTACT (unit call sign)(frequency)  
/ CHANNEL (name)**

b) **IF NO CONTACT (instructions)**

c) **REMAIN ON THIS FREQUENCY/CHANNEL**

### 3. APPROACH INSTRUCTION

#### INSTRUMENT APPROACH

- a) REPORT (entry point) (OUTBOUND/INBOUND)
- b) YOU MAY COMMENCE APPROACH

**Airborne radar approach to visual holding:**

FINNGUARD 10, YOU MAY COMMENCE APPROACH TO HOLD VISUAL, REPORT VISUAL

**When aircraft is making ARA-approach to emergency vessel where another aircraft is already operating, instructions for going around shall be given before commencing approach. Instructions for going around can be published in ACO information form.**

#### DEPENDING COMMENCE FOR APPROACH

- a) WHEN (callsign) IS OVER (target) YOU MAY COMMENCE APPROACH TO HOLD VISUAL

FINNGUARD 10, WHEN LIFE GUARD 01 IS OVER SEA STAR YOU MAY COMMENCE APPROACH TO HOLD VISUAL

#### COMBINED INSTRUCTIONS FOR APPROACH AND DEPARTURE

- a) YOU MAY COMMENCE APPROACH (target), AFTER DEPARTURE PROCEED TO (significant point), CLIMB TO (altitude)

#### MISSED APPROACH POINT

- a) IF GOING AROUND (instructions)

FINNGUARD 10, IF GOING AROUND PROCEED TO MISSED APPROACH POINT, LEFT TURN. CLIMB TO 1000 FEET

- b) \*GOING AROUND

## **HOLDING INSTRUCTIONS**

### **... visual condition**

a) HOLD VISUAL

OVER (position)/  
BETWEEN (two prominent landmarks)

### **... when detailed holding instructions are required**

b) \*REQUEST HOLDING INSTRUCTIONS

b) PROCEED TO (significant point, name of facility/fix)  
MAINTAIN/CLIMB/DESCEND (TO) (level/altitude)  
HOLD ON INBOUND TRACK (three digits) DEGREES  
RIGHT/LEFT HAND PATTERN  
OUTBOUND TIME (number) MINUTES  
INDICATED AIR SPEED (number) KNOTS OR LESS  
EXPECT APPROACH / FURTHER INSTRUCTIONS AT (time)

FINNGUARD 30, PROCEED TO HOLDING POINT AND HOLD, DESCEND TO 2000 FEET,  
HOLD ON INBOUND TRACK 310 DEGREES, RIGHT HAND PATTERN,  
OUTBOUND LEG 2 MINUTES, INDICATED AIR SPEED 100 KNOTS OR LESS,  
EXPECT FURTHER INSTRUCTIONS AT 45.

## **COMMUNICATION INSTRUCTIONS**

a) (IF) RADIO CONTACT LOST (instructions)

b) REPLY NOT RECEIVED

c) PROCEED AS PUBLISHED

#### **4. OPERATION SAFETY**

##### **ENDURANCE CHECK / TOTAL ENDURANCE**

- a) REPORT TOTAL ENDURANCE

##### **ON-SCENE ENDURANCE**

- a) REPORT ON-SCENE ENDURANCE

##### **SEARCH/RESCUE EQUIPMENT**

- a) REPORT SEARCH- / RESCUE EQUIPMENT ON BOARD

##### **REFUEL**

- a) \*REQUEST REFUEL (AT)
- b) YOUR REFUEL IS ARRANGED (significant point) POSITION (latitude,  
longitude)

##### **SUPPORT / MAINTENANCE**

- a) PROCEED TO (significant point) (POSITION (latitude, longitude))  
FOR CREW SUPPORT
- b) TECHNICAL SUPPORT AVAILABLE AT (significant point)

## **5. OPERATION RESTRICTIONS**

### **FIRE / SMOKE**

- a) VESSEL IS ON FIRE, LIGHT/HEAVY SMOKE

### **DANGEROUS MATERIAL**

- a) VESSEL HAS DANGEROUS CARGO, (description)
- b) \*UN-CODE OF THE CARGO IS (number)
- c) VESSEL HAS A GAS LEAKAGE,  
RISK OF POISONING/EXPLOSION ON THE AREA

### **LIST OF A VESSEL**

- a) VESSEL HAS A LIST OF (degrees)  
DEGREES TO STARBOARD / PORT
- b) VESSEL HAS A HEAVY LIST

VESSEL HAS A LIST OF ONE ZERO DEGREES TO STARBOARD, PREPARE FOR WINCHING.

### **WAVE HEIGHT**

- a) WAVE HEIGHT IS (number) METRES



## FINLAND- National Specific Information

### 1. ACO PLATFORMS

#### MRCC TURKU AND MRSC HELSINKI

MRCC Turku and MRSC Helsinki are the primary ACO platforms in Finland.

Both centres are manned on permanent basis with the following personnel:

- One maritime duty officer
- One to two operators

The ACO function will be conducted at first by the maritime duty officer (SMC) until the ACO trained person is available.

### 2. COMMUNICATIONS

MRCC TURKU and MRSC HELSINKI have the following radios available:

- Maritime VHF coverage over Finnish national waters and coastal areas down to approximately 300 feet
- MF/DSC
- Aviation VHF coverage over land and Finnish national waters down to approximately 2000ft

All above radios are monitored permanently, except Aviation VHF only during ongoing operations.

Normal operating frequencies:

- Maritime VHF: channel 16
- Aviation VHF: 123,1
- MF/DSC 2187,5 KHz

### 3. CONTACT INFORMATION

- MRCC TURKU tel. +358 71 8727010  
Email: [mrcc@raja.fi](mailto:mrcc@raja.fi)
- MRSC HELSINKI tel. +358 71 8726911  
Email: [slmvjoke@raja.fi](mailto:slmvjoke@raja.fi)

### 4. SUPPORT

General support for helicopters and fix-wing aircrafts can be arranged at most civil airfields. Refueling can also be arranged in Turku and Helsinki patrol flight bases. If necessary fuel trucks can be arranged to evacuation points.

## DENMARK - National Specific Information

### 1. ACO PLATFORMS

#### 1.1. JRCC Denmark.

##### 1.1.1. Manning.

JRCC Denmark is the primary ACO platform. The JRCC is integrated into Admiral Danish Fleet (ADMIRAL DANFLEET) Operations Centre in Århus. The JRCC is manned on a permanent basis with the following personnel:

- One air duty officer.
- One air operations specialist.
- One maritime duty officer.
- One maritime operations specialist.

The ACO function will be conducted by the air duty officer and the air operations specialist.



##### 1.1.2. Radios.

JRCC Denmark has the following radios available:

- HF.
- UHF coverage over land and inner waters down to approximately 300 feet.
- Air VHF coverage over land and inner Danish waters down to approximately 2000 feet.
- Maritime VHF coverage over inner Danish waters and coastal areas down to approximately 300 feet.

JRCC Denmark is not monitoring any of the above radios, except during ongoing operations.

Normal operating frequencies:

HF: 4703, 3053 or 2296 Khz.

UHF: 379.525 Mhz.

Air VHF: 123.1 Mhz.

Maritime VHF: Working channel TBD.

##### 1.1.3. Contact information:

Telephone: +45 89 43 32 06/07

Email: [jrcc@sok.dk](mailto:jrcc@sok.dk)

### 1.2. RDAF Squadron 721 CL-604 (Challenger).

In cases where JRCC radio coverage is insufficient, which is expected in the North Sea, Skagerrak, central areas of Kattegat and in parts of the Baltic Sea, the JRCC will appoint an airborne ACO, primarily a fixed wing aircraft.

The RDAF squadron 721 CL-604, Challenger aircraft is equipped and trained for the ACO role. The Challenger is based on Airstation Aalborg (EKYT) in the Northern Denmark.

However the Challenger is not on call for the ACO task, and will not always be available.



Challenger key capabilities:

- HF.
- UHF.
- Maritime VHF
- Air VHF.
- SATCOM.
- Crew of 2 pilots and 2 Mission System Operators (MSO).
- Traffic Collision Avoidance System (TCAS).
- Electro-Optical (EO) sensors.
- Can be equipped with surveillance radar.

### 1.3. RDAF squadron 722 EH-101

The RDAF squadron 722 EH-101 is equipped, but not trained, for the ACO role.

In cases where the JRCC radio coverage is insufficient, and a fixed wing ACO is not (yet) available, the EH-101 can be tasked to conduct limited ACO functions for a limited period of time.

The EH-101 squadron is based on Airstation Karup (EKKA) in the central Jutland.

Permanent EH-101 alertposts are established at:

- Airstation Skydstrup (EKSP) in the southern Jutland.
- Airstation Aalborg (EKYT) in the northern Jutland.
- Roskilde Airfield (EKRK) at Sealand.



EH-101 key capabilities:

- Crew of 2 pilots, 1 winchman, 1 winch operator, 1 MSO and 1 doctor.
- HF.
- UHF.
- Air VHF.
- Maritime VHF.
- SATCOM.
- Mobile telephone integrated in avionics.
- FLIR.
- Capability to fly in icing conditions, except freezing drizzle and freezing rain.

#### **1.4. Other.**

In the Sound area, it can be necessary to involve Air Traffic Control (ATC), at Kastrup airfield, in ACO duties.

In the vicinity of oil platforms in the North Sea, it can be necessary to involve Offshore Traffic Control (OTC), (Tyra AFIS) at Esbjerg airfield, in ACO duties.

## **2. COMMUNICATION**

The Danish coastal radio station in Denmark, Lyngby Radio can only operate on maritime VHF CH-16. The common on-scene frequency is therefore expected to be CH-16.

## **3. SUPPORT**

General support for helicopters and aircraft can be arranged at all military air stations, at Skrydstrup, Karup and Aalborg, as well at naval stations Frederikshavn and Korsør.

Refuelling can also be arranged by JRCC Denmark at most civil airfields.

If necessary, evacuation points will be established at temporary locations, in which case fuel trucks will be deployed to support refuelling.

## SWEDEN- National Specific Information

### 1. ACO PLATFORMS

Coastguard aircraft DASH 8 is the primary platform used in Sweden. This unit is well equipped and trained for the ACO-duty. DASH 8 is manned by 2 pilots and 2 system operators. There is almost always one DASH 8 in the air or on duty somewhere in Sweden.

Our smaller units such as Rescue helicopters, Police helicopters and Ambulance helicopters may be used as ACO in smaller duties.  
Even JRCC can act as ACO in smaller parts.

### 2. COMMUNICATIONS

DASH 8 and JRCC Sweden has the following radios available:

- Aviation VHF and UHF .
- HF 5680 Khz and 3023 Khz. Changeable to the most HF frequencies.
- Maritime VHF 16, 67 (west coast) or 74 (east coast)
- RAKEL (TETRA)

Ch 16 is the only international radio that always is monitored in JRCC.

### 3. CONTACT INFORMATION

JRCC Sweden has specific phone number for each RCC as follows:

MRCC Turku	+46 31 699056
MRSC Helsinki	+46 31 699057
ARCC Tampere	+46 31 648072
ARCC Rovaniemi	+46 31 648073
JRCC Denmark (Air)	+46 31 648062
JRCC Denmark (Sea)	+46 31 699046

E-mail:

[arcc@sjofartsverket.se](mailto:arcc@sjofartsverket.se)

[mrcc@sjofartsverket.se](mailto:mrcc@sjofartsverket.se)

### 4. SUPPORT

General support including refueling for helicopters and fix-wing aircrafts can be arranged at most civil and military airfields.

JRCC Sweden may arrange a restricted or dangerous area for the rescue mission. One purpose with that is to exclude media flights over the area.