Norway Offshore Guide

Introduction

Norway sees a lot of offshore helicopter traffic related to the oil and gas industry. Civil helicopters operate from onshore bases (ENHF, ENBN, ENKB, ENFL, ENBR and ENZV) to, from and between fixed and moveable installations on the Norwegian Continental Shelf. Offshore operators also fly SAR missions on contracts from the norwegian government.

Offshore helicopter procedures are somewhat specialized and tailored to the risks and challenges involved with flying far out over the seas in harsh enviroments. This guide is intended as a simplified summary of the unique helicopter procedures, flight planning considerations and radiotelephony used in offshore flying, for both pilots and ATC.

Sources: Avinor Helicopter Manual, AIP Norway, EASA EAR for Air OPS, FAA AC 90-80C, Helicopter Approach to Offshore Objects

General

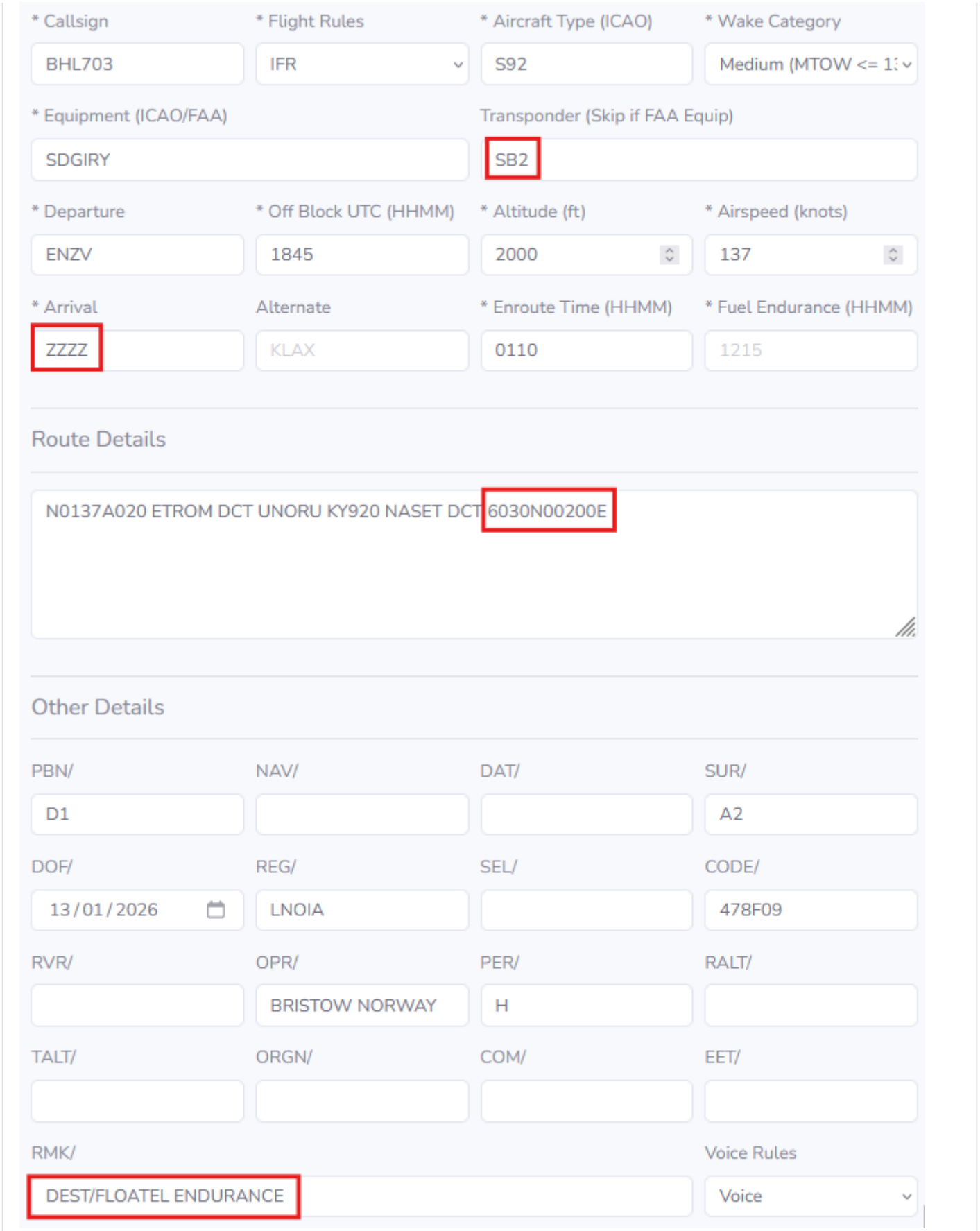
Flightplan requirements

> All offshore helicopters operating within Balder, Ekofisk, Statfjord and Heidrun CTA are required to have an ADS-B transponder. Due to lack of radar coverage, helicopters not ADS-B equipped will lose surveillance service.

ADS-B capability must be indicated in the flightplan by adding `B1` or `B2` to the transponder equipment code.

Flight plans to sea vessels/temporary installations not given a ENxx identifier, shall have `ZZZZ` as destination, coordinates of the vessel at the end of the route, and `DEST/NAME OF VESSEL` added to the remark field.

Example flight plan


* Callsign
* Flight Rules
* Aircraft Type (ICAO)
* Wake Category
BHL703
IFR
S92
Medium (MTOW <= 1
* Equipment (ICAO/FAA)
Transponder (Skip if FAA Equip)
SDGIRY
SB2
* Departure
* Off Block UTC (HHMM)
* Altitude (ft)
* Airspeed (knots)
ENZV
1845
2000
137
* Arrival
Alternate
* Enroute Time (HHMM)
* Fuel Endurance (HHMM)
ZZZZ
KLAX
0110
1215
Route Details
N0137A020 ETROM DCT UNORU KY920 NASET DCT 6030N00200E
Other Details
PBN/
NAV/
DAT/
SUR/
D1
A2
DOF/
REG/
SEL/
CODE/
13/01/2026
LNOIA
478F09
RVR/
OPR/
PER/
RALT/
BRISTOW NORWAY
H
TALT/
ORGN/
COM/
EET/
RMK/
Voice Rules
DEST/FLOATEL ENDURANCE
Voice

Free Routes

Helicopters with operative ADS-B transponder can normally file from SID-endpoint DCT destination, DCT between installations offshore or from offshore installations DCT STAR start point or IAF (see Note for ENBR arrivals).

Helicopter routes are described below. They must be used when a/c does not have a functioning ADS-B transponder (when exemption is given from either NCAA or from the ATS unit for single flights) or when ATM service is downgraded (due reduced COM/SUR etc).

Note: Arrivals to ENBR: Helicopter STARs are dependent on Runway in use at ENBR. FPLs shall be filed DCT TMA boundary fix. Expect routing/clearance direct STAR start point for Runway in use when traffic permits.

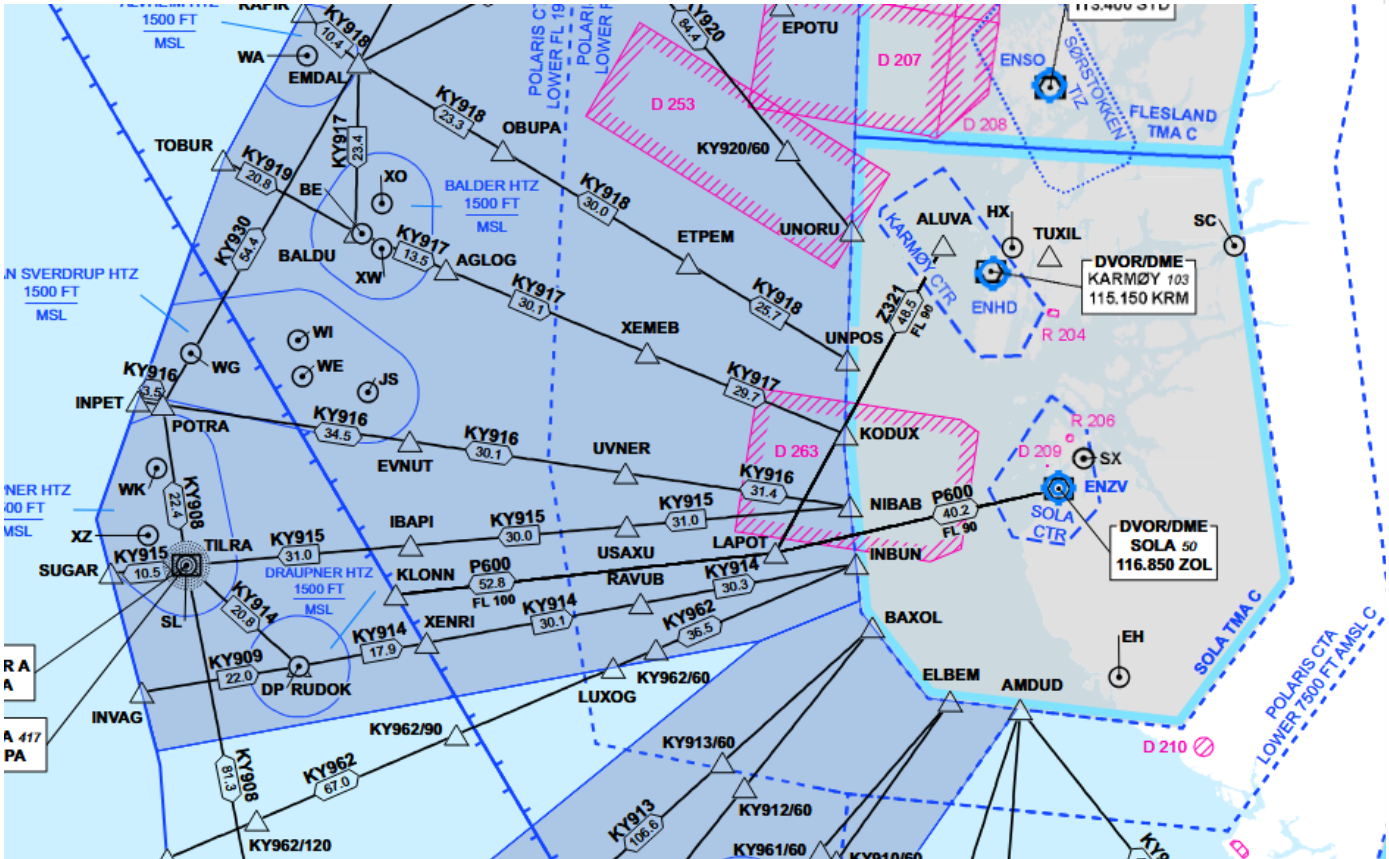
Helicopter Routes

Helicopter Routes (HR) are established in the parts of the North Sea, Norwegian Sea and the Barents Sea where Norway is responsible for providing ATS (REF AIP Norway GEN 3.3).

A HR is an ATS-route frequently used by civil helicopters, along which control and flight information service may be provided. They can be directional or bi-directional.

Civil helicopters will normally operate direct destinations from 500 FT AMSL to FL 80, but will follow an HR if the situation requires so.

Example of helicopter routes in South Norway



Ref. AIP ENR 6-23 | Offshore Helicopter Area - Southern Norway

Cruising Altitudes

Civil helicopters operating to and from offshore installations will normally be operating at the following altitudes, based on actual QNH/forecast minimum:

Magnetic track	Altitude
000° - 179°	ODD levels 3000 FT or above
180° - 359°	EVEN levels 2000 FT or above

> From ENKB to offshore destinations EVEN altitudes/Levels are to be used. To ENKB from offshore departure ODD altitudes/Levels are to be used.

If weather conditions or other circumstances necessitate operations below 2000 FT, the following altitudes based on radar altimeter will normally be used.

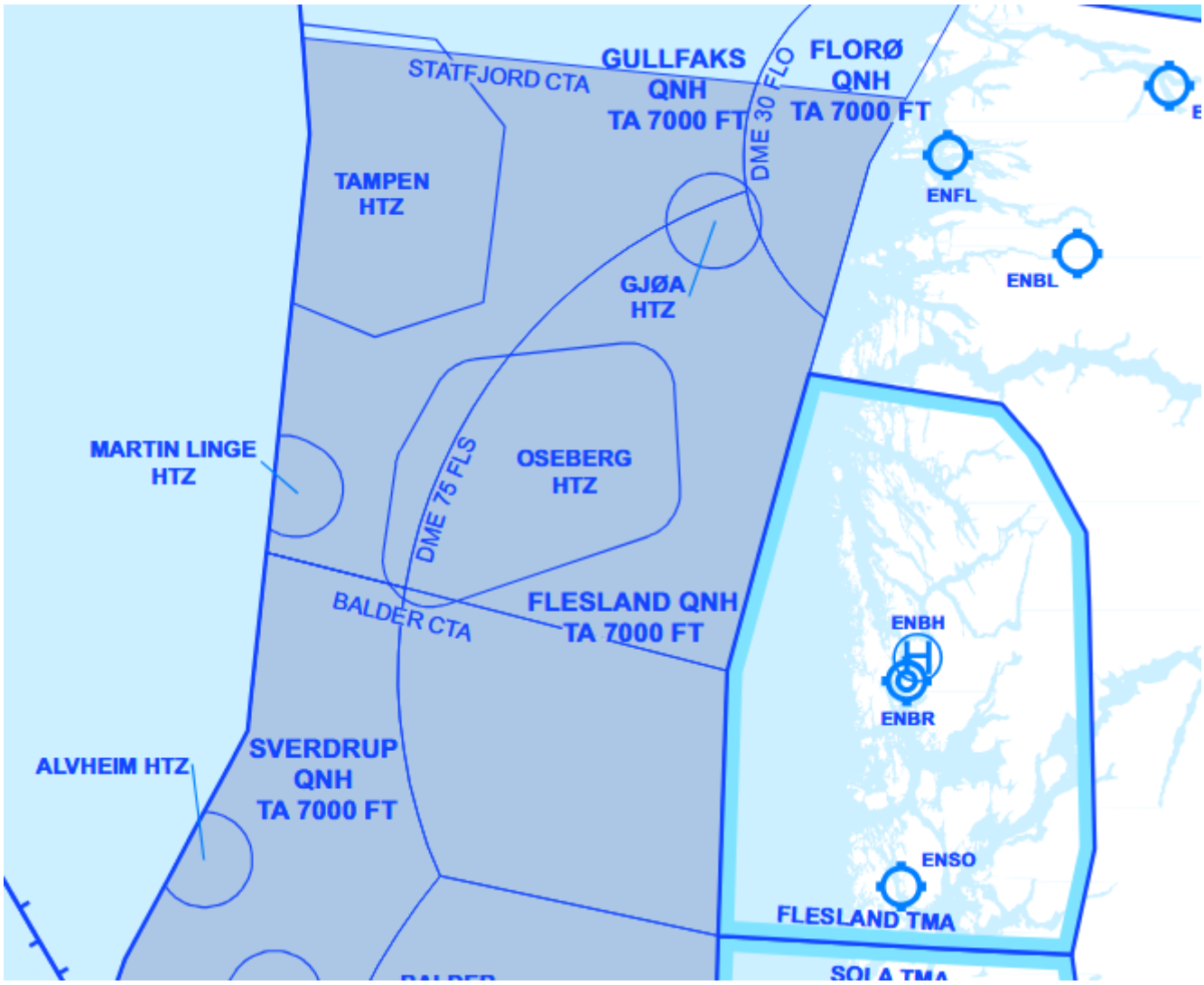
Magnetic track	Altitude
000° - 179°	1000FT
180° - 359°	500FT

Altimeter setting

QNH setting areas are based on *actual* QNH. The exception is Bjørnøya ASR, where a *forecast* minimum QNH is used. A change to a new QNH shall be carried out when instructed by ATS, as this may have implications on separation from other aircraft.

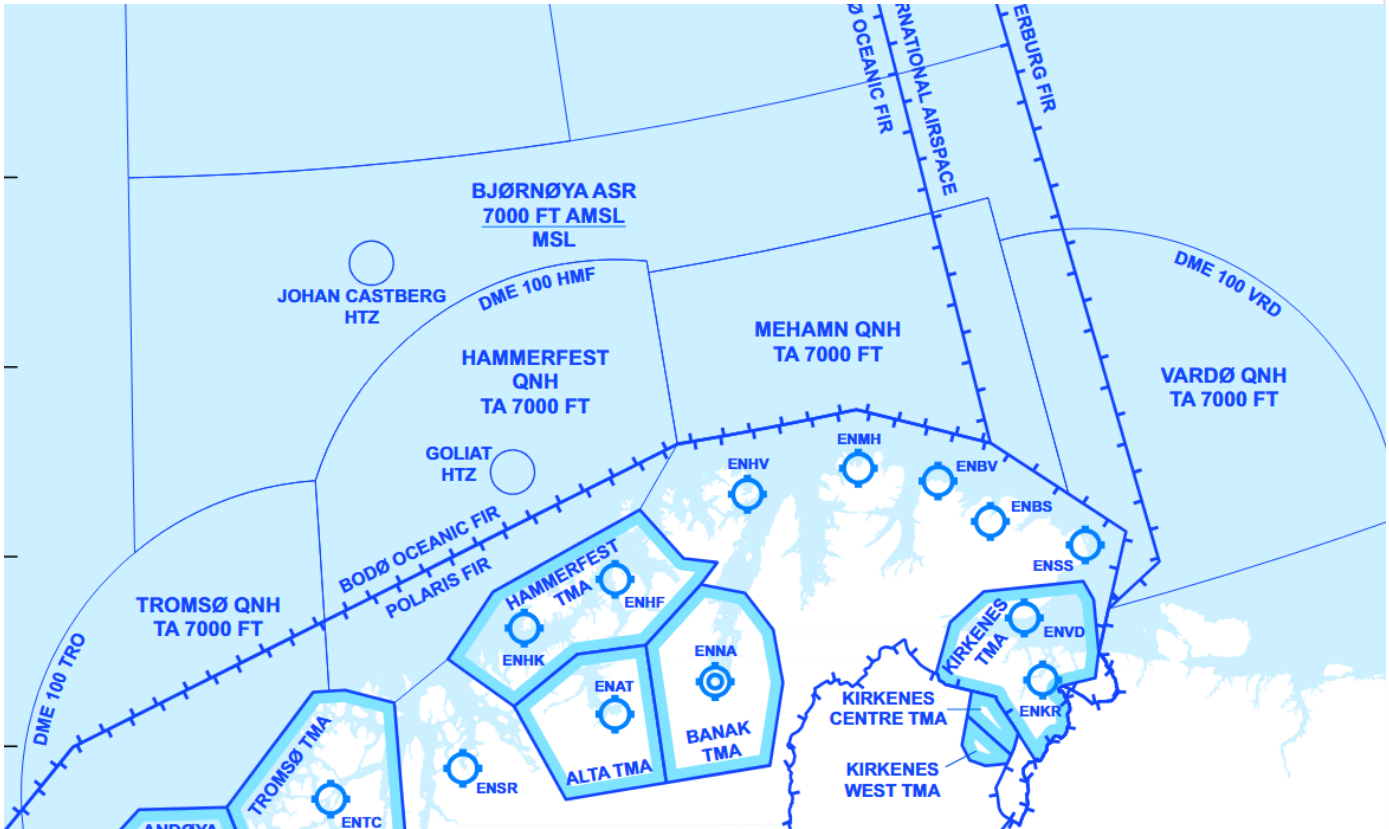
Transition altitude is 7000 FT. For flights at 1000 FT or below, radar altimeter shall be used.

Example of QNH Areas in Southwest Norway



Ref. AIP ENR 6-30 | QNH Setting Areas - Southwest Norway

Example of QNH Areas and Altimeter Setting Regions in North Norway

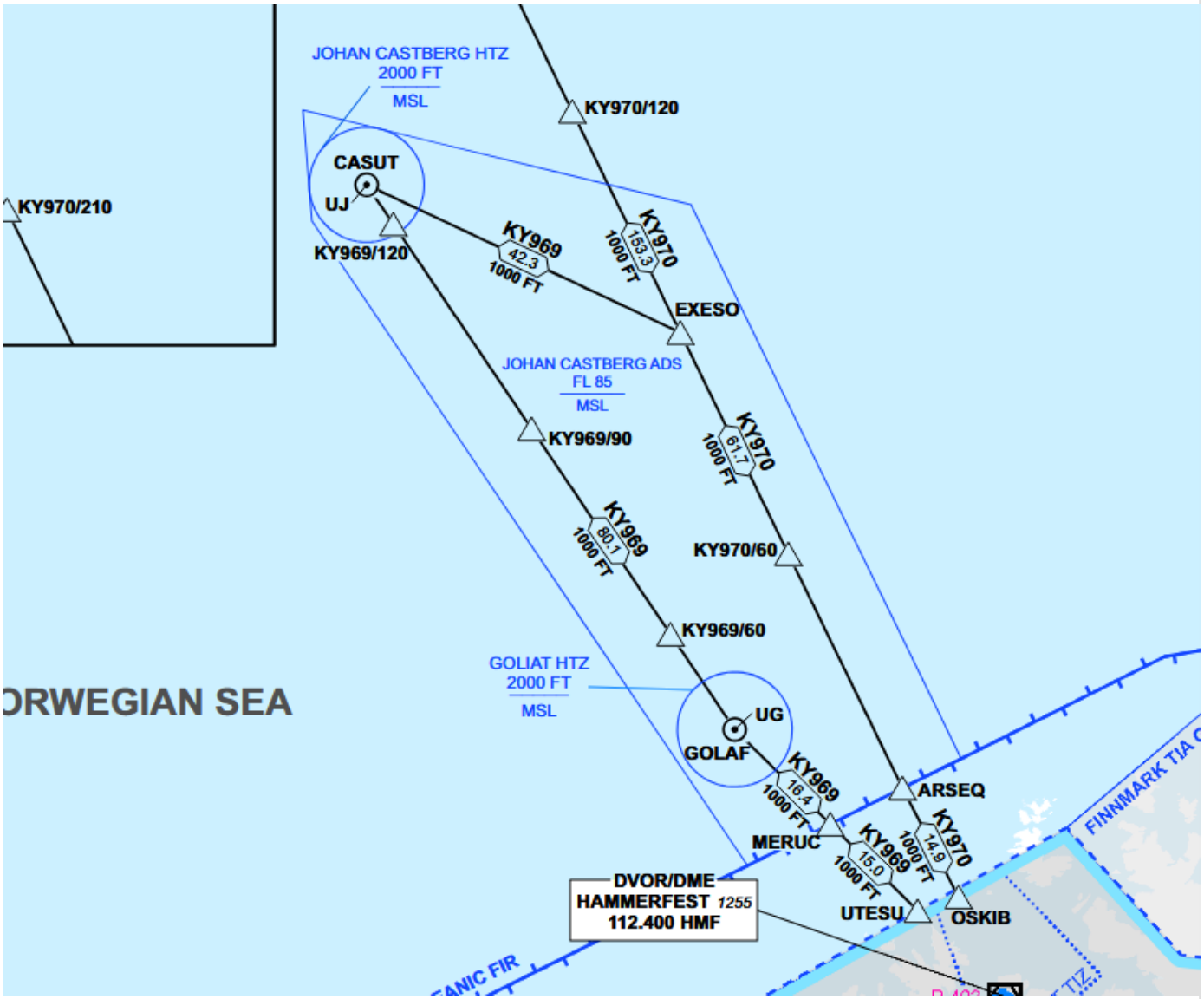


Ref. AIP ENR 6-32 | QNH Setting Areas - Barents

ADS areas

ADS areas are defined areas of Class G airspace, either below a CTA (MSL – 1500 FT), or a specific area (MSL – FL 085) between the main land bases and the main oilfields where surveillance based ATS is provided to participating helicopters.

Example of ADS Area without CTA

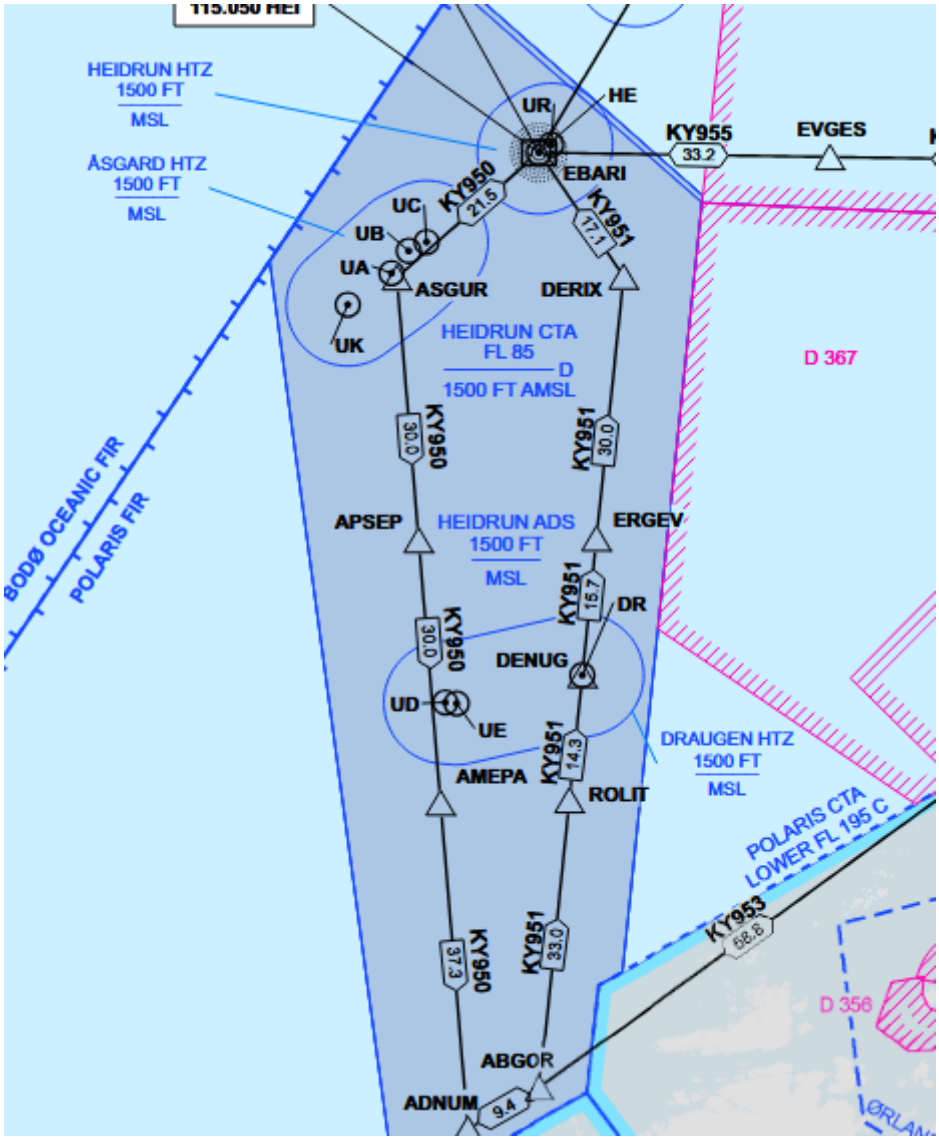


Ref. AIP ENR 6-25 | Offshore Helicopter Area - Northern Norway

Control Areas (CTA)

Defined Control Areas are established on the Norwegian continental shelf with Class-D Airspace, from 1500 FT- FL085. Heidrun CTA is established in the Norwegian Sea. Statfjord CTA, Balder CTA and Ekofisk CTA are established in the North Sea.

Example of CTA with ADS Area below



Ref. AIP ENR 6-24 | Offshore Helicopter Area - Southern part of Mid-Norway

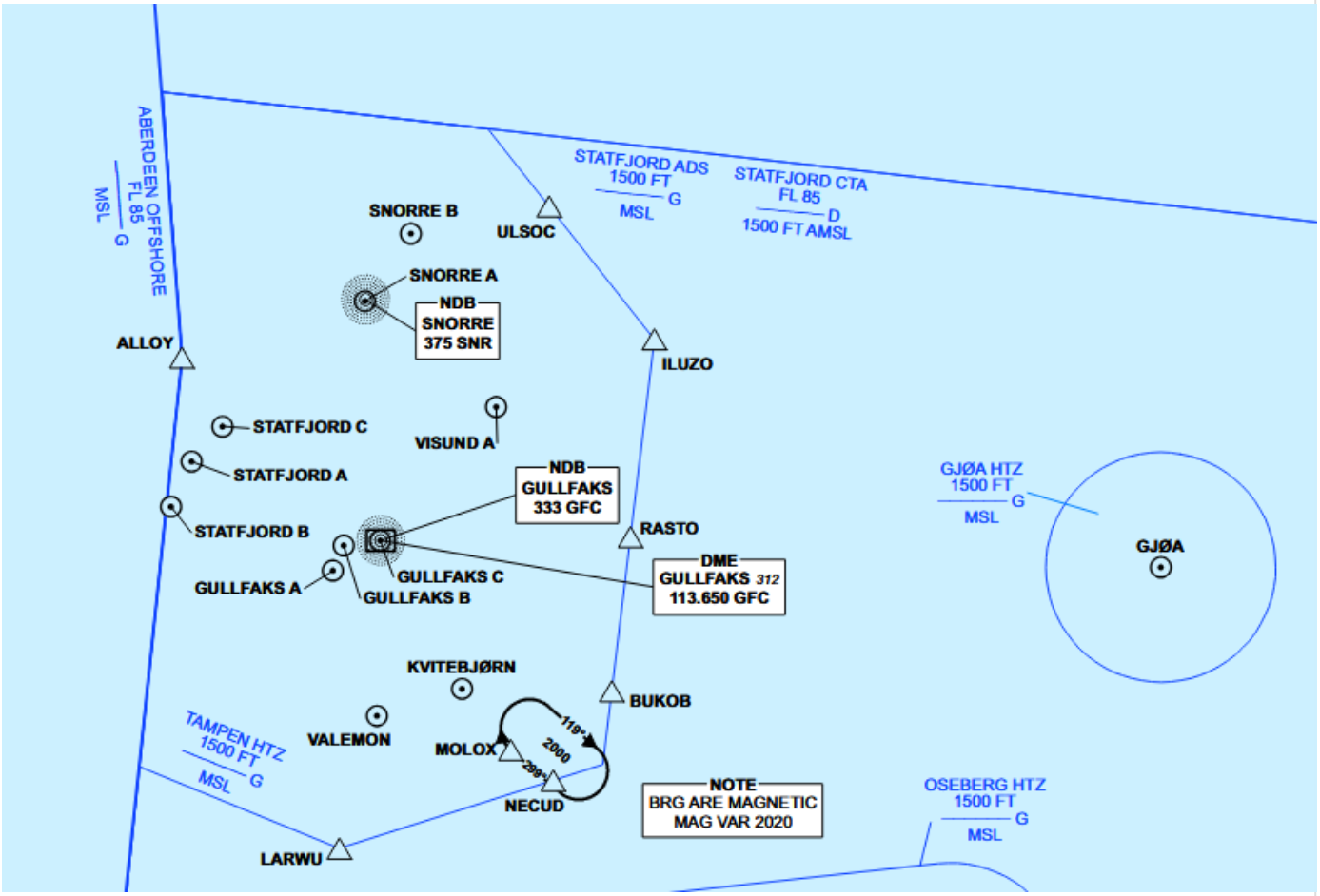
Helicopter Traffic Zones (HTZ)

A HTZ is established at all permanent offshore installations on the Norwegian continental shelf within a radius of 7 NM from the landing pad and comprises the airspace between MSL and 2000 FT, or to the lower limit of a CTA. Around groups of two or more installations, and with distance of less than 10 NM from each other, a common HTZ is established with the border tangential to a 7 NM radius from the

landing pads.

Helicopter Traffic Zones are Radio Mandatory Zones (RMZ) and two-way radio contact must be established with the approriate ATS-facility before entry.

Example of Tampen HTZ



Ref. AIP ENR 6-27 | Helicopter Traffic Zone (HTZ) Part 2

METAR

Offshore platform METARs contain some additional parameters that are not found on shore.

- Sea surface temperature in degrees celsius = **Wxx**/Sxx
- State of the sea = Wxx/**Sx**

WMO Sea state code	Wave height	Charasteristics
0	0 metres (0 ft)	Calm (glassy)

WMO Sea state code	Wave height	Charasteristics
1	0 to 0.1 metres (0.0 to 3.9 in)	Calm (rippled)
2	0.1 to 0.5 metres (3.9 in to 1 ft 7.7 in)	Smooth (wavelets)
3	0.5 to 1.25 metres (1 ft 8 in to 4 ft 1 in)	Slight
4	1.25 to 2.5 metres (4 ft 1 in to 8 ft 2 in)	Moderate
5	2.5 to 4 metres (8 ft 2 in to 13 ft 1 in)	Rough
6	4 to 6 metres (13 to 20 ft)	Very rough
7	6 to 9 metres (20 to 30 ft)	High
8	9 to 14 metres (30 to 46 ft)	Very high
9	Over 14 metres (46 ft)	Phenomenal

Example: `ENQA 151850Z 18029KT 9999 -SHRA BKN019/// BKN110/// 07/05 Q0996 W08/S5=`

Communication

Air Traffic Service

Air traffic service provided for helicopter operations on the Norwegian continental shelf:

Southern Norway

Area	Service	Provided by
Statfjord CTA	Air Traffic Control	Polaris ACC Stavanger
Balder CTA		
Ekofisk CTA		
Statfjord ADS	Flight Information	
Balder ADS		

Balder ADS	
Tampen HTZ	Tampen FIS
Ekofisk HTZ	Ekofisk FIS
HTZ	Polaris ACC Stavanger

Middle and Northern Norway

Area	Service	Provided by
Heidrun CTA	Air Traffic Control	Polaris ACC Bodø
Heidrun ADS	Flight Information	
Norne ADS		
Barents Sea		
HTZ		

In all cases, surveillance service is also provided when available.

Radio communication

> In real life, communications between the helicopter and offshore installation is carried out on a designated helicopter/rig-communication frequency. This is not simulated on VATSIM, and pilots will not be informed about unknown traffic occupying the helideck.

Startup

For departure from installations within HTZ with HFIS, the HFIS unit shall be notified of the estimated time of departure (ETD) of the flight at start-up.

- HFIS may relay enroute clearances to the pilot from Polaris ACC before lift-off.
- Enroute clearances are not required if the entire flight will remain in uncontrolled airspace.

Pre-lift-off report

Prior to lift-off from any installation, pilots shall deliver a pre-lift-off report to the appropriate ATS unit, and shall contain:

1. Callsign
2. Location
3. Intended route
4. Intended altitude or level

The appropriate ATS unit shall provide traffic information before lift-off is initiated.

> NOR123, ready for lift, Gullfaks C to Flesland, via flight planned route, 3000ft

> NOR123, ready for lift, Gullfaks C to Martin Linge via NEBAV direct NASET, 2000ft

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Airborne report

If not covered by other procedures, after take-off from an offshore installation, pilots shall deliver an airborne report to the appropriate ATS unit as soon as practicable, and shall contain:

1. Callsign
2. Actual time of departure (ATD) from installation
3. Actual/intended altitude or level
4. *If routing via HR and no surveillance service is provided:* ETO next reporting point and entry point TMA/TIZ.

> NOR123, airborne Gullfaks C at 55, passing 600, climbing 1500

> NOR123, airborne Ekofisk L at 31, passing 700, climbing 1000, estimate AGUVI at 36, ELBEM at 1820

On-deck report

After landing on an installation, pilots shall deliver an on-deck report to the appropriate ATS unit, and shall contain:

1. Callsign

2. Name on the installation
3. Actual time of arrival (ATA)
4. Additional information if required (e.g. refueling, shut down)

> NOR123, on deck, Gullfaks C at 50

> NOR123, on deck, Gullfaks C at 1450, shutting down

ARA

If planning an Airborne Radar Approach, pilots shall inform the appropriate ATS unit of the following information:

1. ARA to (destination)
2. Final inbound course
3. Course in case of Missed Approach
4. Will call passing IP

> NOR123, intentions to do an A R A to Ula, inbound course 040, missed approach left turn on course 355, will call passing I P

Operations within a HFIS HTZ

Standard calls while operating within a HFIS HTZ:

- Pre-lift-off report
- Airborne report
- On deck report

During marginal weather conditions, additional information to the standard calls above shall be made when applicable:

- Departure heading and altitude
- Intentions
- ARA

Shuttle (inter-rig flights)

For shuttle flights between adjacent rigs, the Pre-lift-off report and Airborne report are combined into a simplified Liftoff report that shall contain:

1. Callsign
2. Departure installation
3. Destination
4. POB

When landed, pilots shall report on deck and omit the time.

> "NOR123, lifting, Troll C to Troll B, 5 POB

> "NOR123, on deck, Troll B

Enroute and approach to an oil field

Outbound traffic from landbase to offshore destination, shall give an estimate for an entry point (HTZ) or destination rig on the initial call to ACC.

On initial contact for flights inbound to an oilfield, the initial call or position report shall contain:

1. Callsign
2. ATIS Information letter (if available)
3. Position
4. Altitude
5. Estimate time over (ETO) point of entry
6. Intentions: Visual approach direct to (destination) / Cloud break, direct to (destination) / ARA
7. ETA destination

> "Polaris control, NOR123, with Gullfaks information A, inbound NECUD, 2000ft, estimate NECUD at 40, intentions to do a visual approach direct to Kvitebjørn, estimate Kvitebjørn at 50

Enroute and approach to a land base

Per agreements between ATS and operators, the initial call with the APP facility at the airport shall contain:

1. Callsign
2. ATIS Information letter
3. Position
4. Altitude
5. Intended/requested approach, or
6. *Intentions to cancel IFR flight and proceed VFR, and*
7. *Canceling IFR*

> Flesland Approach, NOR123, Weather A, Inbound VENIN, 3000ft, request RNP 043.

> Flesland Approach, NOR123, Weather E, Inbound VENIN, 3000ft, intention is to cancel IFR.

> NOR123, visual, cancelling IFR flight.

Position reporting

> Position reports are not required when the pilot is informed that the helicopter is provided with Surveillance Service (“Identified”).

A Position Report shall contain:

1. Call Sign
2. Position and Time
3. Altitude
4. ETO next Reporting Point
5. Next Reporting Point if it is a special point

In areas with HR: a HR must be followed if without surveillance service, and position reports shall be transmitted at each reporting point.

- Helicopter routes are identified by the letter KY (called «Copter”) and route number, e.g. KY915.

- Reporting points are identified by:
  - a 5 letters identification (e.g. NECUD), or
  - letters KY + route number + distance from an onshore DME (e.g KY915/90).
    - Phraseology to be used is ”route number + distance” (e.g. ”Copter Niner One Five – Niner zero”)

> ”NOR123, passing Copter 915 – 60 at 01, 2000ft, estimate 90 at 31

> ”NOR123, passing Copter 915 – 90 at 15, 2000ft, estimate 120 at 30, SUGAR next

In areas without HR: FPL-route must be followed if without surveillance service, and position reports shall be transmitted every 30NM.

> ”NOR123 is position 72 north 15 east at 1002, 2000ft, estimating 73 north, 15 east at 1016

Helicopter procedures

Onshore

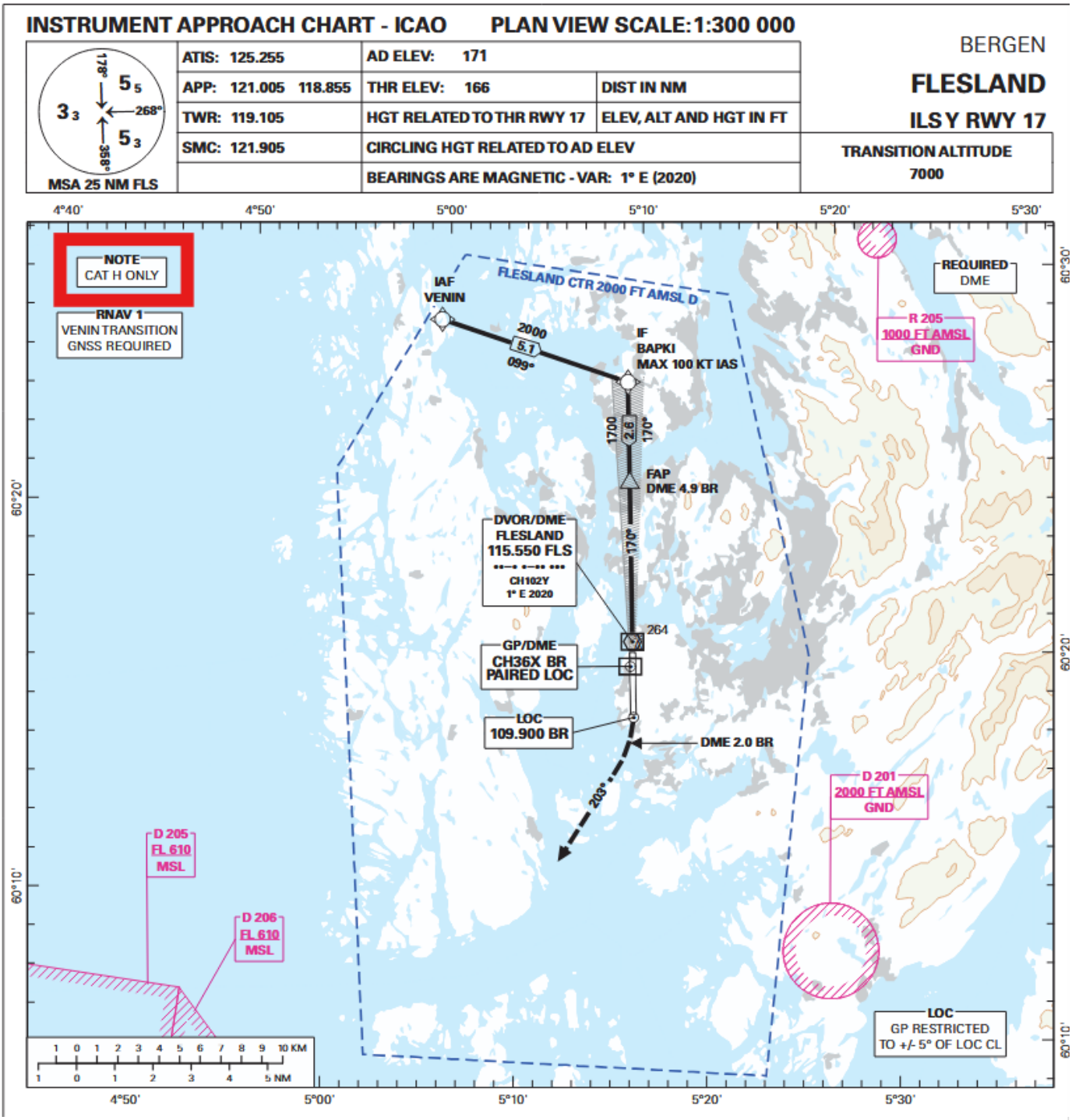
IFR Procedures

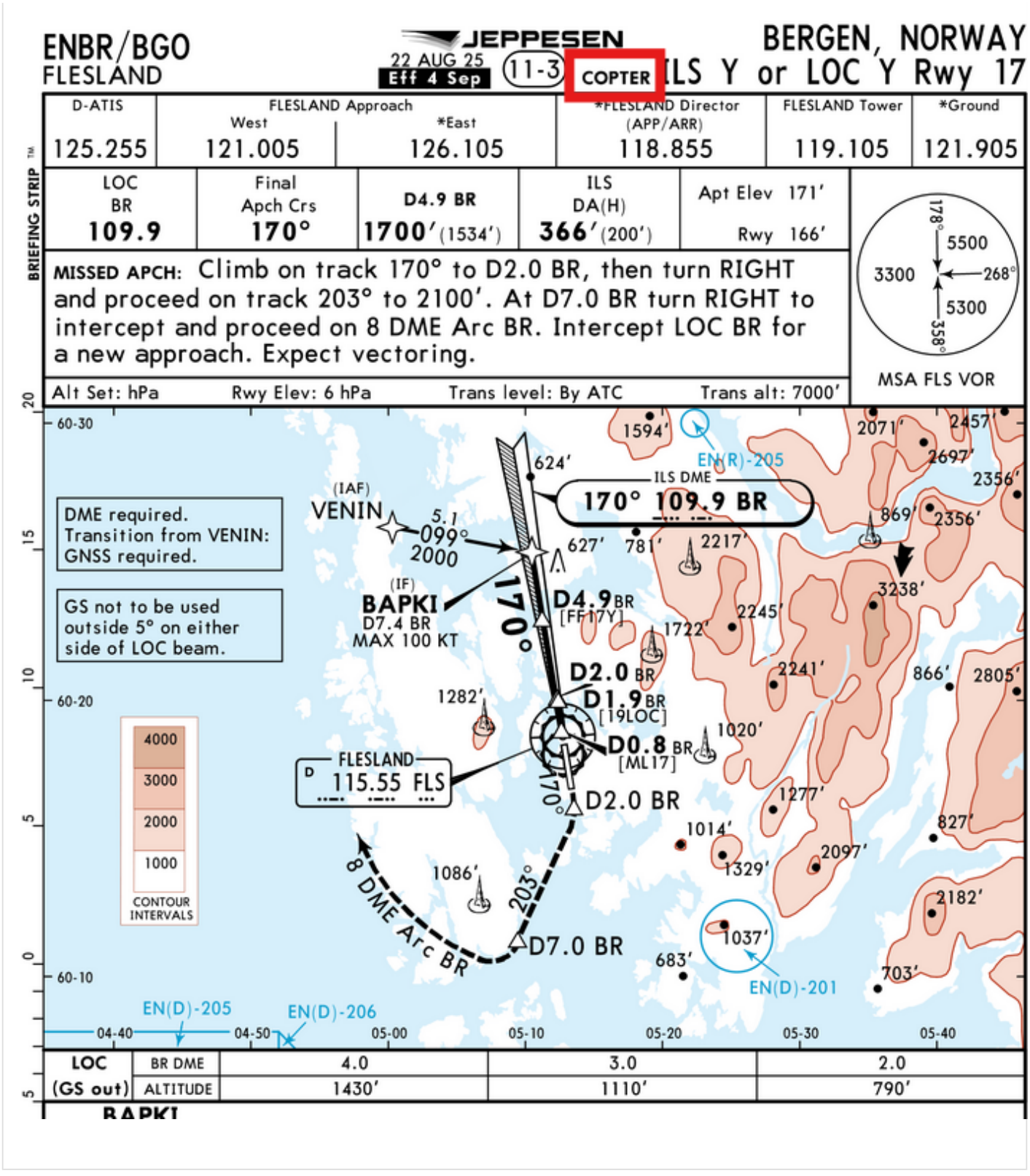
Except some minor differences, instrument flying is very similar for both fixed and rotary wing aircraft. Rules followed by rotary and fixed wing pilots after take-off until final approach are almost the same.

The major differences come up with the operational concerns. For example, special take-off and landing minimums dedicated for helicopters allow them to take-off and land in lower visibility conditions.

If requested by ATC, helicopters are obliged to comply with every necessities stated in standard departure and approach procedures. However, if available to the pilot, helicopter specific procedures will normally be offered.

Example of Copter only apparoaches



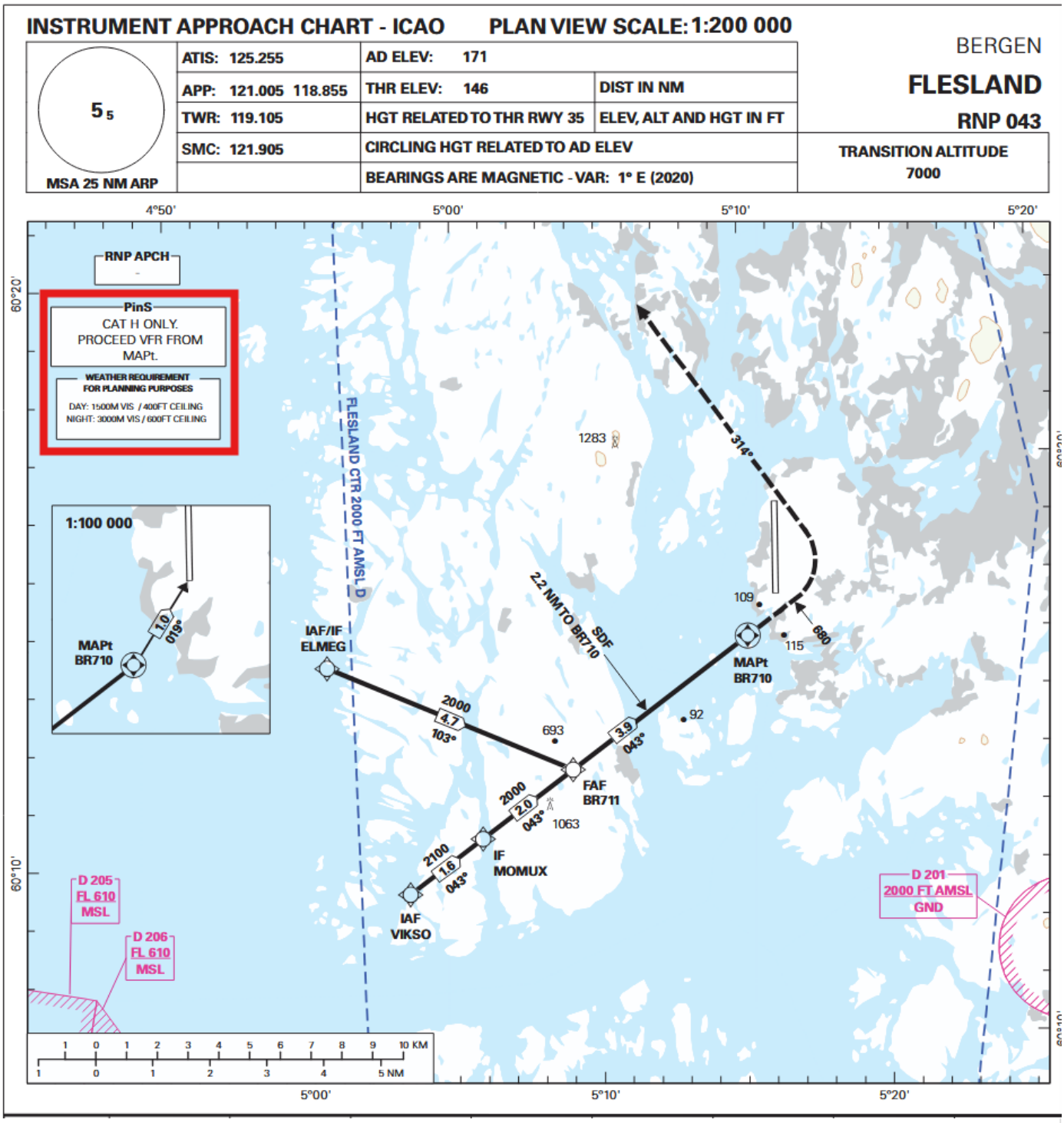


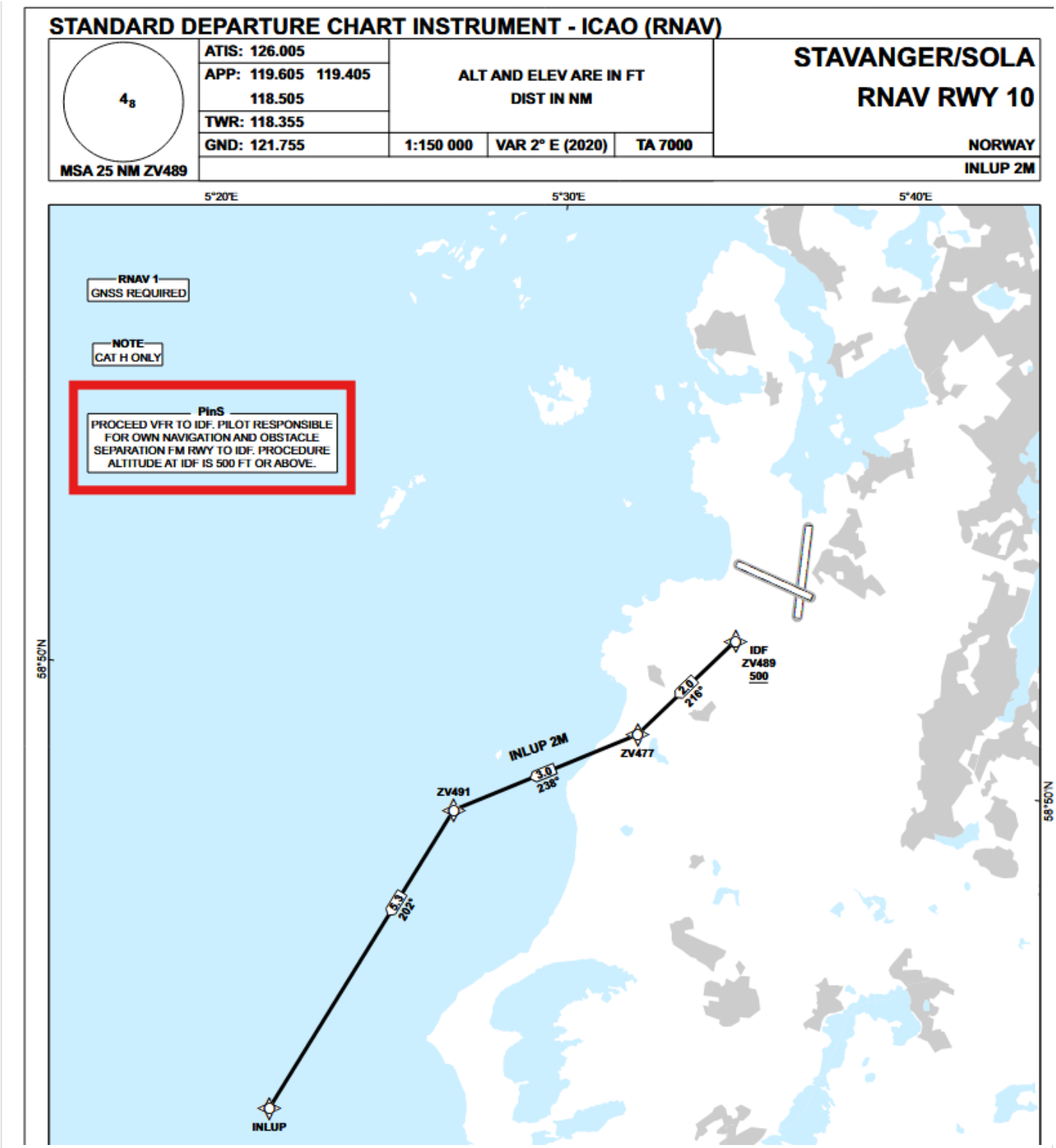
PinS - Point in Space

The Point-in-Space (PinS) concept is a flight operation based on GNSS and designed for helicopters only. It relies on the possibility for the pilot to conduct flight under IMC to/from a PinS (point in space) and not directly to/from the heliport.

PinS procedures are established as both approach and departure procedures in Norway.

Example of PinS procedures





Offshore

VFR Minimums

When using an offshore location as a destination or alternate, during the period between 1 hour before and 1 hour after expected time of arrival, weather forecasts should indicate above the following minima:

	Day	Night
Cloud base	600 ft	800 ft
Visibility	4 km	5km

When flying between offshore locations located in class G airspace where the overwater sector is less than 10 NM, VFR flights may be conducted when the limits are at, or better than, the following:

	Day	Night
Height*	300 ft	500 ft
Visibility	3 km	5km

*The cloud base shall allow flight at the specified height to be below and clear of cloud.

> Offshore IFR procedures are not publically available and difficult to simulate. This section will only show examples and describe how the procedures are designed.

Airborne Radar Approach (ARA)

ARA procedures have been used by helicopter pilots flying to oil rigs since the early 1980s. They are based on the use of weather radar, which observes the reflection of oil rigs.

Firstly, the final approach track must be identified, and it must be placed against the wind direction.

The approach must be flown with the weather radar in mapping mode to identify an area clear of obstacles.

The approach is flown directly to the helideck. The missed approach point is located 0.75NM from landing, and the missed approach track is deflected by 10° off approach track.

Example ARA

Airborne Radar Approach

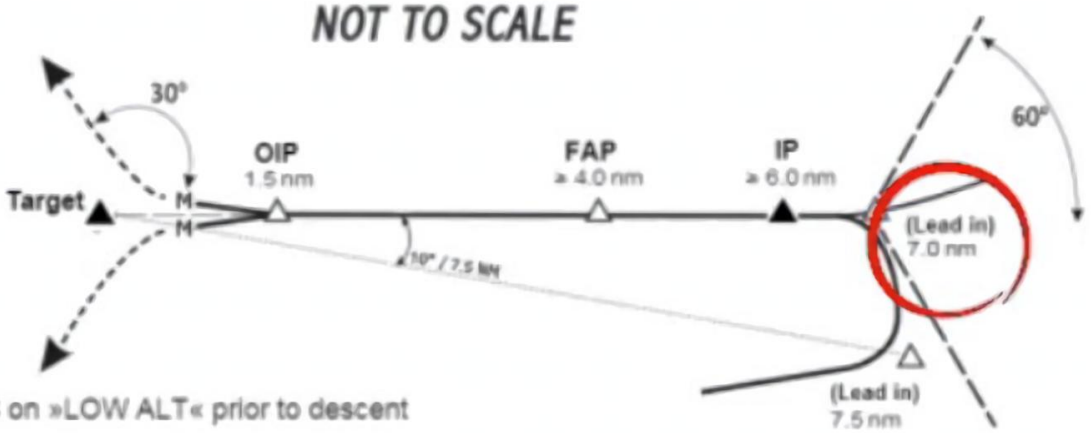
MAX DISCREPANCY Radar-GPS ≤ 0.3 nm At 4 nm to target radar-GPS ≤ 10°	Final Apch Crs Select	Minimum at FAP 1000'	MDH See Table	OIP +/- 10° 1.5 nm	MSA (offshore) 1500'

MISSED APPROACH:

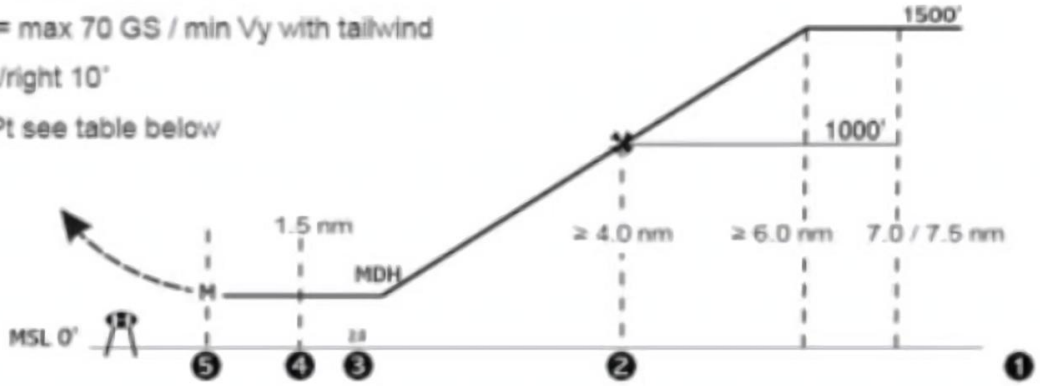
- Missed Approach Area identified and verified clear of targets before commencing descent at FAP.
- Initiate a climbing turn min 30° in the same direction as the offset.
- Climb to MSA.

Alt Set: hPa Helideck height: See helideck plate

NOT TO SCALE



1. Set TAWS on »LOW ALT« prior to descent
2. Recommended Max 90 GS
3. < 2 NM = max 70 GS / min Vy with tailwind
4. Turn left/right 10°
5. For MAPt see table below



▲ FMS mandatory and Fly-over

RADAR APPROACH MINIMA

Ground speed (kts)	MDH day	MDH night	MAPt day	MAPt night	Max. WCA
max 70	200' [a]	300' [b]	0.75	0.75	15°

CIRCLING MINIMA / WIND > ± 30° OF FAT (max 15 kt TWC)

Min speed with tailwind	MDH day	MDH night	MAPt day	MAPt night	Max. WCA
Vy	300' [b]	500' [c]	1.0	1.5	15°

a 200' or deck elevation plus 50' whichever is higher.
b 300' or deck elevation plus 100' whichever is higher.
c 500' or deck elevation plus 200' whichever is higher.

EN-ROUTE LETDOWN (OFFSHORE ONLY)

Reported weather conditions are equal to or better than:

day:	*night:*
4000 m visibility	*5000 m visibility*
600' cloudbase	*1200' cloudbase*

Climb back to MSA if target not in sight by:

day:	night:
2 nm at MDH 500'	3 nm at MDH 1000'

Modern Offshore Approach Procedures

Advancements beyond the ARA have been made to enhance safety. The CAA has developed the SBAS Offshore Approach procedure (SOAP), and the FAA has developed the Offshore Standard Approach Procedure (OSAP).

The procedures still require the use of airborne weather radar to identify obstacles, but aditional safety is provided through the use of SBAS for accurate GPS positioning and lateral offset, as well as more precise horizontal and vertical guidance.

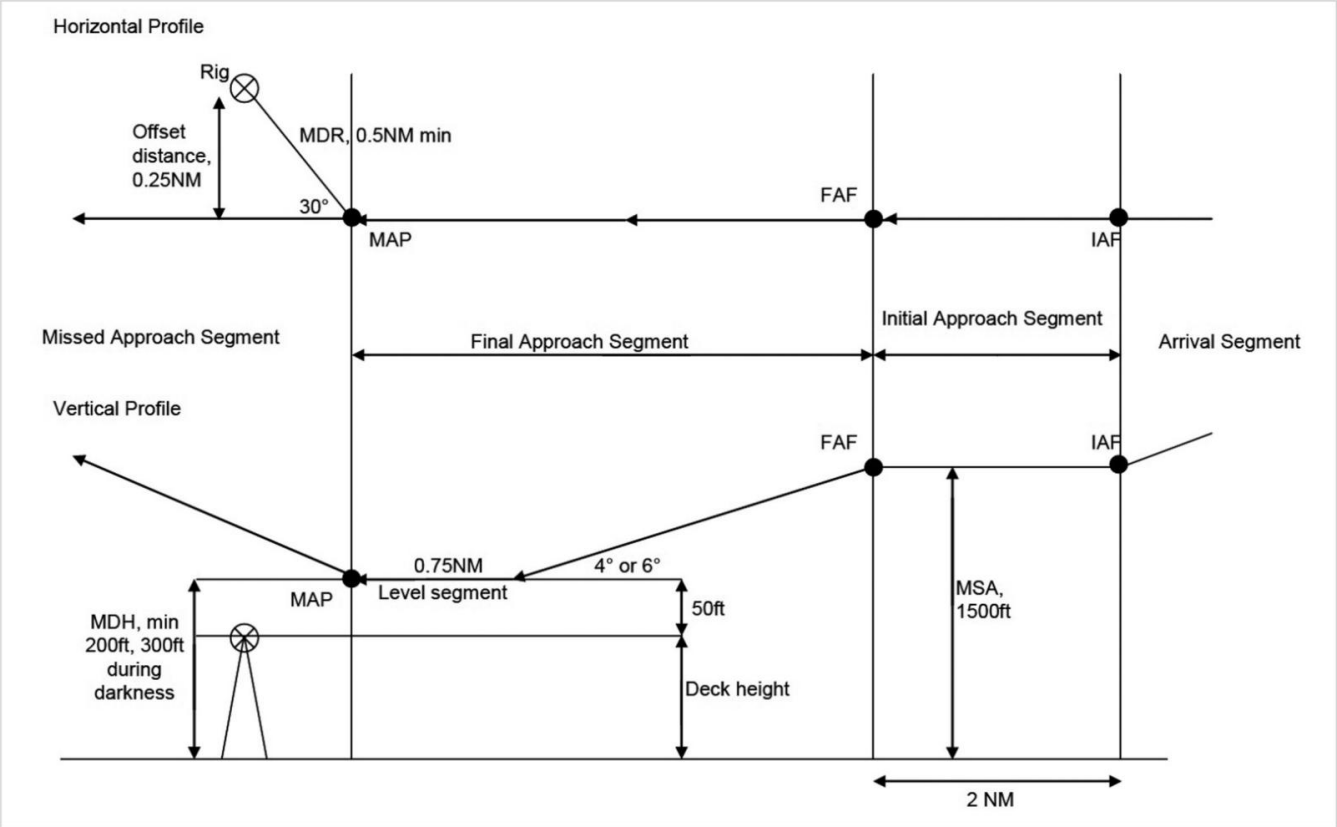
SOAP

A typical SOAP consists of two segments between the FAF and MAPt: the descending segment and level segment. The length of descending segment depends on the angle of descent and on the MDH (Minimum Descent Height), where the MDH is defined as the height of helideck increased by 50ft and meeting the minimum 200ft during the day and 300ft overnight, according to the radar altimeter.

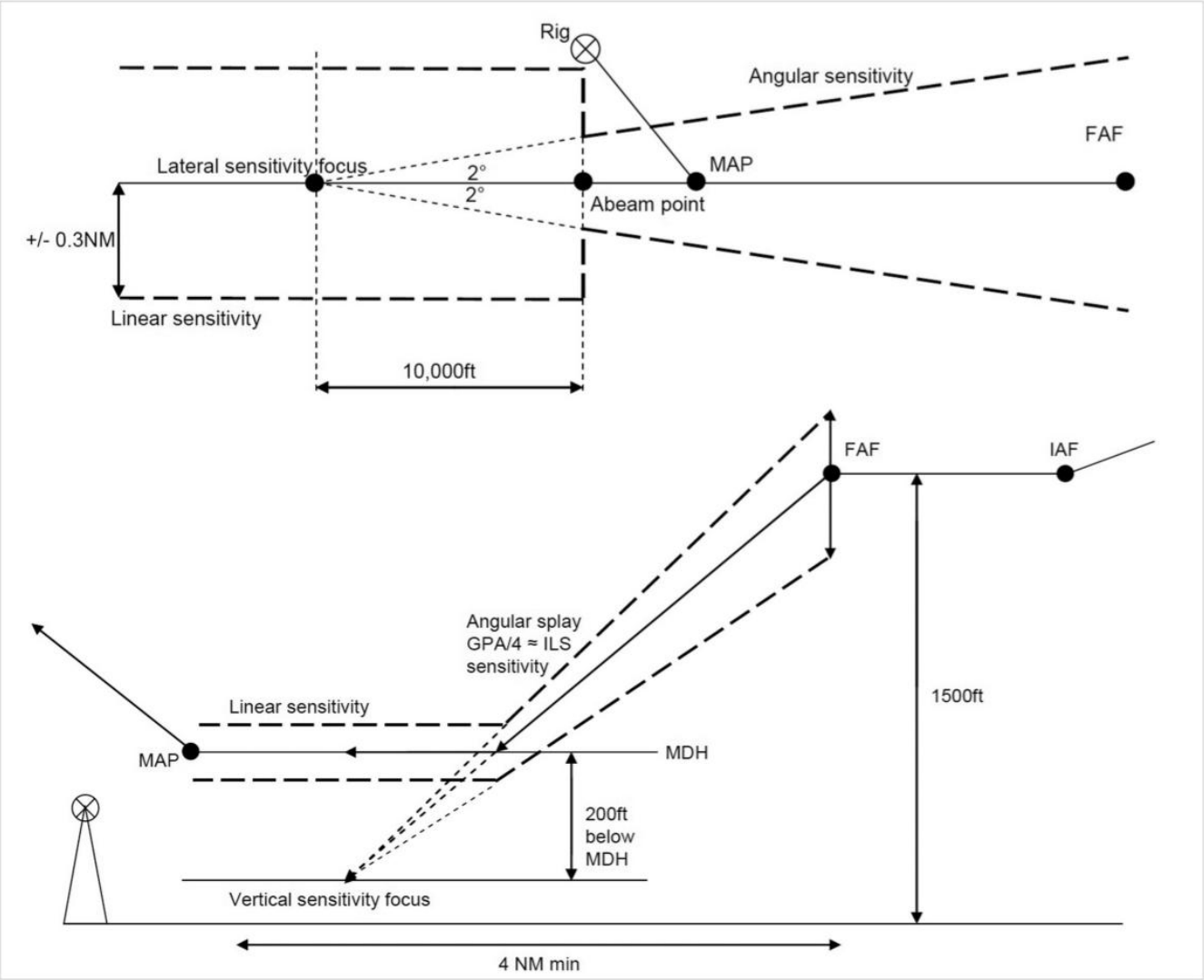
After reaching MDH, the helicopter goes into horizontal flight and the mission of flight crew is to establish visual contact with the landing site.

The MAPt is defined as the closest point to the landing site from which it is still possible to land safely. The minimum distance is 0.5NM at GS 60kts and maximum angle between the track and the direction towards the landing site is 30°. The length of the level segment is always 0.75NM to ensure sufficient time to get the visual contact. The guidance provided to pilots is shown in Figure 2.

SOAP Approach Plan and Vertical Views



Guidance Provided to the Pilots



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