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RVR

5000'	1 SM
4000'	3/4 SM
2000'	1/2 SM
1200'	1/4 SM (T/O limit with Alternate)
600'	1/8 SM (with centerline lighting)

Sloping Ground Envelope

Above 12,500kg Below 12,500kg

Pitch	Roll	Pitch	Roll
11	0	9	0
9	5	9	5
5	8	3	6
0	9	0	6
-3	0	-3	0

TRQ (%)

		Power off NR
All Engine		Max Trans 116
Continuous	100	Max 110
Intermediate (30 m)	106	Caution 105-110
Transient (6 s)	117	Continuous 100-105
		Min 95
OEI		Min Trans 90
Continuous	112	
Contingency (2.5 m)	125	Power on NR
Transient (12 s)	136	Max Trans 105
		Max 103
		Min 100
		Min Trans 98
		Min Trans OEI 85

Minutes Decimal

0-2	0.0
3-8	0.1
9-14	0.2
15-20	0.3
21-26	0.4
27-32	0.5
33-38	0.6
39-44	0.7
45-50	0.8
51-56	0.9
57-59	1.0

ANNEX T - OWTD CHECKLIST

CHECKLIST		Timings Outbound	G/S	70	80	90	100	110	120
		M:ss	2:43	2:14	2:00	1:48	1:38	1:30	
SAR Check	Part I								
Target	Type								
	Height								
	Steering (into wind?)								
Surface Wind	Direction								
	Speed								
Obstacles	Type								
	Location ref to Flt Path								
Flares	Req'd/Available								
	Calls:								
	1. "5 Min" (from final)								
	2. "On Final"								
	3. "In the Rest"								
RAD/BAR Alt	RadAlt to primary (top)								
Altitude	500' RadAlt 1 Nm prior to IF								
PCU Set	HOV: 100'								
	RAD: 500'								
	A/S: 75kts								
App Type	Straight In/Tear Drop								
IF Outbound (Tear Drop Only)	Hdg (to 3 Nm from Fix)								
	Alt: 500' RadAlt								
	(+ height of Target if >100')								
	A/S: 75kts								
	B/U Timing								
	Turn (Left/Right)								
Inbound (see notes)	Hdg (into wind)								
	TD1 @ Min 2.5 Nm								
	TD2 @ ___ Nm (based on winds)								
Minima	100' AWL @ 0.25 Nm								
(see notes)	(visual with water & target)								
Go Around (via T/UP)	Hdg (30 deg offset from app)								
	Alt: 500' RadAlt								
	A/S: 75kts								
Emergencies	OEI considerations								
	Other								

ABC Hover Page

ABC Radalts 80'

(100'Hover) MAP

NOTES:

1. TD2 to be engaged based on winds. For 0kts engage @ 1 Nm, decrease distance for increase in winds but no < 0.6nm
2. No Radar: Minimums = (100' + highest obstacle @ 0.25nm) or (100' @ 1.0 Nm)
3. For a Manual OWTD minimums are 200' AWL 60 KIAS, if the water is visual descent may be made to 100' AWL 60 KIAS, if the vessel and target is not visual at 100' AWL and 60 KIAS at .5 Nm then a Go Around must be initiated.
4. OWTD approach to shoreline. Minimums are 100'AWL @ 0.5nm. If factors such as terrain elevation, wind directions, turbulence, etc make planning a safe approach and overshoot difficult, the minimum will be adjusted to 100'AWL @ 1.0nm.

SAR Check Pt 1 - Ditching Drill – Garmin – CCU – IFR Clearance
– Radar Ready – Coastal Check – OWTD Brief – Cancel IFR

OWTD Requires:

- BAR or RAD
- 1x RADALT
- Hover Page
- Cyclic + Coll Trim
- Search light (night)

Limits with Radar:

100 & $\frac{1}{4}$ nm

Limits with No Radar:

100' + obstacle height & 1/4nm

or

100' & 1nm

Limits to Shoreline:

$\frac{1}{2}$ nm or more

Manual OWT:

200' & 60kts Visual with water

100' & 60kts & $\frac{1}{2}$ nm visual target

HELICOPTER EVACUATION BRIEFING (English)

1. We are ____ minutes away.
2. Please make the following preparations as soon as possible...
 - a. Remove or lower all possible obstructions such as masts, rigging, antennas, loose articles and equipment;
 - b. Leave the patient in a warm dry area;
 - c. When the helicopter arrives, slow to minimum steerage speed and turn into wind;
[wind off your port bow OR off your starboard stern]
 - d. Turn off your radar when possible and leave it off until the helicopter departs

At night:

- e. Turn on all available lights on your vessel; and
- f. Do not shine any lights on the helicopter.
3. Rescue technicians will be lowered to your vessel. Do not assist them until they request it.

HELICOPTER EVACUATION BRIEFING (French)

1. On est en route vers votre position on va etre la en ____
 2. SVP faites les préparations suivantes le plus tôt possible.
 - a. Enlevez ou abaissez toutes obstructions possibles telles que les mats, les séjours, les antennes, les objets non- attachés et autre equipment
 - b. Laissez le patient dans un endroit chaud et sec
 - c. Lorsque l'hélicoptère arrivera, ralentissez a la vitesse minimum de gouverne et diriges le vaisseau dans le sens du vent
 - d. Éteignez votre radar et laissez-le éteint jusqu'à ce que l'hélicoptère part
- La Nuit:
- e. allumez toutes les lumières disponibles sur votre vaisseau.
 - f. Ne dirigés pas de lumière sur l'hélicoptère
3. Il est possible que nous envoyons une ligne que vous devrez recevoir à la main, ou avec un crochet si c'est nécessaire.

SIGNALING VESSELS

Procedure performed in sequence by aircraft

1. Circle the vessel at least once
2. Cross the vessel's projected course close Ahead at low altitude while rocking the wings*
3. Head in the direction in which the vessel is to be directed
4. Cross the vessel's wake close Astern at low altitude while rocking the wings*

Signification of procedures

Steps 1-3 : the aircraft is directing a vessel towards an aircraft or vessel in distress*

Step 4: The assistance of the vessel is no longer required*

* Repetition of such signals shall have the same meaning

NOTICE OF CRASH LOCATION (NOCL)

ALPHA

- affirmative – positive ID of search object
- negative – unable to positively ID object as search object

BRAVO

(lat/long) _____ (8 or 9 char, w/o N, W)

CHARLIE

- negative – no survivor or casualties can be seen
- OR x undetermined – status of survivors unk
 - _____ x red – immediate treatment
 - _____ x yellow – early treatment
 - _____ x green – routine treatment
 - _____ x blue – deferred treatment
 - _____ x white – uninjured
 - _____ x gray – missing
 - _____ x black – dead
 - _____ x green – routine treatment

DELTA

- one – side of hill, which side: _____ (N,S,W or E)
- two – in valley, which side: _____ (N, S W or E)
- three – level terrain

Combined with:

- four – in heavily wooded area
- five – in water
 - A – near shore
 - B – well offshore

ECHO

- one – request authorization to deploy SAR techs
- two – helicopter required
- three – ground party could reach location in good time
- four – rescue boat required
- five – request coroner

FOXTROT (remarks)

Launch Authority



CH149 MALA



Item	Low (0)	Medium (1)	High (8)	Severe (All)
Crew				
Crew Far Score		6 to 11	≥ 12	
Crew Rest		< 12 Hrs	< 10Hrs	
Crew Duty Day		> 8 hrs	>15 Hrs	
AC's Geographical Area Knowledge		< 9 Months		
Acting AC Mission		Jumpseat AC	Jumpseat AC for Nt SAR Sequences	
FO 1 On the Crew		Yes		
AC's Total SAR Helicopter Time		<1000 Hrs		
Crew Members Under Training		> 2 Crew UT		
Environment				
Weather at Departure		Take-Off Alternate Required		
Weather at Destination (If Available)		Alternate Required	Alternate required, no alternate available	
Weather on Scene (If Available)		Below 500' or 1(3) SM	Below SAR WX Limits	
Significant Forecast Turbulence or Icing		Yes		
Wave Height (If Available)		> 3 m		
Night Anticipated Enroute or On Scene		Yes		
Terrain - Mountainous		Yes		
Mission Specific				
Distance Offshore		> 200NM from fuel or oil-rig fuelling	Oil-Rig fuel stop required to return to land	
Hoisting to a Vessel - Night		No flare illumination available		
Tasking North of 60° Latitude		Yes		
Anticipated Mission Length		> 12 Hrs	> 18 Hrs	
Tasking Time		22:00 - 06:00		
OWTD - Anticipated		Yes		
Transport of Suspected or Confirmed Highly Infectious Disease Patient				Yes
Emergency Rescue Diving (ERD)	Minimum dive team requirements met	2-person dive team with lifelines/floats	Free Swimming without lifelines/floats	Night
Aircraft Specific				
Aircraft Status - MMEL Items or Ops Restrictions		Yes		
Flight Above 14,600 KGS			Yes (Delegated)	
Non-FSII fuel & Operating Temperature Below +5°C			Yes (Delegated)	
Overall Valuation (Total Points)				
Black: Outside the CO/ATF Comd's authority to approve		> 60 or ANY Black	Sign with Name, Initials, Ran	
Red: within the CO/ATF Comd's authority		8 Points or Greater	Sign with Name, Initials, Ran	
Yellow: CO/ATF Comd's delegated authority to flight supervisor (DetCO as required)		6 - 7 Points	Sign with Name, Initials, Ran	
Green: Aircraft Commander's authority to approve		0 - 5 Points	Sign with Name, Initials, Ran	



CH149 MALA AMPLIFYING INSTRUCTIONS



Conditions	<i>Unless specified, applies to any crew member that meets the criteria.</i>
Crew	
1.Crew FAR Score	Add overall FAR outcome to MALA scoring in accordance with FOM 2.1.3.
2.Crew Rest	Ideal is 12 hrs. 10 hrs minimum for SAR ops/standby posture. CO can reduce crew rest as required for SAR ops.
3.Crew Duty Day	Total elapsed time since the first crew member has arrived at work prior to the tasking. Speaks to fatigue.
4.AC's Geographical Area Knowledge	Total time on squadron for the AC. After 9 months, sufficient experience in the operating has been gained to reduce the level of risk.
5.Acting AC Mission	Applies if the mission is being led by an acting-AC. Does not apply should the AC deem that AAC duties will not be performed. If the AC elects not to occupy a control seat for night SAR sequences, the CO must authorize the trip.
6.FO I On The Crew	Applies if a pilot position is held by an FO I, regardless of which seat that pilot is in.
7.AC's total SAR Helicopter Time	Total flying time that the AC has accumulated in the CF.
8.Crew Members Under Training	Applies to a crew where two or more positions are being held by aircrew without a valid category.
Environment	
9.Weather at Departure	Based on IFR flight rules.
10. Weather at Destination (if available)	Destination is where the mission will terminate. Based on IFR flight rules
11. Weather on Scene (if available)	Based on the forecast or reported weather from a near-by station or responsible person on-scene. If not available, will be determined by AC once on-scene. Yellow criteria elevates to 3 SM at night.
12. Significant Turbulence/Icing	Significant implies the weather conditions will be a complicating factor. Based on the GFA forecast or applicable PIREPS.
13. Wave Height (if available)	Wave height as determined by the wave model forecast.
14. Night Anticipated Enroute or On Scene	Applies if on scene at night time, or if night is a complicating factor during the transit.
15. Terrain – Mountainous	Mountainous would be any elevation or terrain where the AC determines that it would be a complicating factor to the mission.
Mission Specific	
16. Distance Offshore	Distance off-shore is from the nearest point of land, to the anticipated position of the vessel at the time of rendezvous. If the distance is such that an off-shore refueling stop is required to return to land (ie holding an off-shore refueling site as the destination), the CO must authorize the trip.
17. Hoisting to a Vessel - Night	Applies to any night mission where flare illumination would be a great benefit, but due to range, capability, serviceability, etc., top cover cannot provide flares.
18. Tasking North of 60°	Any mission that will require the aircraft to travel north of 60° latitude.
19. Anticipated Mission Length	The total time from tasking until the AC estimates the crew day will end. For an on-going search, this time would be re-assessed at each fuel stop.
20. Tasking Time	Either the time JRCC tasks the AC, or the time crew arrives at the hanger; if the launch is delayed for any reason.
21. OWTD - Anticipated	If the AC is anticipating employing an OWTD either to a vessel or as a cloud break to commence operations.
22. Transport of Suspected or Confirmed Highly Infectious Disease Patient	If the mission requires transport of suspected or confirmed Highly Infectious Disease Patient, the highest level of Launch Authority is required.
23. Emergency Rescue Dive (ERD)	The mission involves the possibility of a rescue dive, with various environmental considerations with a night dive involving the highest risk.
Aircraft Specific	
24. Aircraft Status - MMEL, Ops Restrictions	Applies to any mission where the aircraft is not fully serviceable, or an ops restriction that has been imposed.
25. Flight Above 14 600kg	Sqn CO's received delegation from Director of Fleet Readiness to approve flight above 14,600Kg
26. Non-FSII fuel & operating temperature below +5°C	Sqn CO's have received delegation from 1 CAD Comd for the approval of refueling with non-FSII fuel for FE SAR missions which includes returning to an MOB. For all other FG flights such as planned Sqn northern trainer or FE SAR missions, approval for the use of non-FSII fuels at temperatures below plus 5 Celsius must be received from Comd 1 CAD. See RARM XH-149-2012-002 Version 12 19 Dec 2019.

Fatigue Assessment Report

Crew Fatigue Risk Factors	Assessment Criteria		
Sleep in Last 24 hrs Note 1	≥ 6.5 hours of sleep in last 24	5 to < 6.5 hrs of sleep in last 24 hrs	< 5 hrs of sleep in last 24
Score	0	2	4
Sleep Debt: time missed from 7 hrs per day OR since last period of 2 consecutive good sleeps. Note 2	≤ 7 hours of sleep debt over last 7 days	> 7 to ≤ 10.5 hrs of sleep debt over last 7 days	> 10.5 hrs of sleep debt over last 7 days
Score	0	2	4
Continuous Wakefulness: How long have you been awake and how long will you be awake for the mission. Note 3	≤ 10 hours of continuous night operations ≤ 17 hours of continuous wakefulness	> 10 hours of night operations; or > 17 hours of wakefulness	≥ 22 hours of wakefulness
Score	0	6	12
Sleepiness Scale: Describe your level of sleepiness during the previous 5 minutes.	Alert	Neither alert nor sleepy	Sleepy, some effort to stay awake
Score	0	1	6
Total Score (prior to mitigation)			
Fatigue Risk			
Low 0-5	Moderate 6-11		High 12 or greater
Mitigations:	Note 4		
Value of Mitigations			
FAR Score (mitigated)			
FAR Outcome	Note 5		

NOTES, MITIGATION AND OUTCOMES

Note 1: Sleep in the last 24 hours is the total accumulated sleep during that period. Any disruptions in sleep are required to be accounted for, with the duration(s) of the wakeful period(s) during the disruption(s) subtracted from the total accumulation of sleep.

Note 2: Sleep debt is repaired and reset following two consecutive nights of good sleep. Good sleep is somewhat subjective, but allows the individual to wake up feeling rested and is typically longer than a normal sleep cycle. Sleep debt is accumulated with time missed from 7 hrs of sleep per day over a 7 day period OR since the last period of 2 consecutive good sleeps.

Note 3: Short sleeps or naps of less than 1 hour are ignored. A two for one credit may be taken for naps that are 1 hour or longer. For example, an individual that identified as 22 hours of wakefulness but took a 2 hr nap, would now identify as someone who has only 18 hours of wakefulness.

Note 4: Mitigations. Annotate any mitigations applied to address fatigue risk, and provide a numerical value that serves to reduce the overall FAR score.

Note 5: Outcomes. FAR Outcomes are based upon the highest individual score for daily mission/crew duty cycle personnel. Possible outcomes of the FAR:

- a. Low;
- b. Moderate mitigated to low;
- c. Moderate, authorized;
- d. Moderate, cancelled;
- e. High, mitigated to low/moderate;
- f. High, authorized; or
- g. High, cancelled.

APPROVAL AUTH FOR OPS, TRG, FAMIL

Ref. FOM, Annexes 2.5.3.2.A.1

Passenger Category	Approval Authority
CAF members or DND civilian personnel on duty or leave.	CO Det Comd (delegated by CO)
HCol, Cadet Officers, Cadet Civ Instructors, or Cadets.	WComd, Comd ATF/DetCO
Dependants of CAF members and DND employees.	WComd, Comd ATF/DetCO
Canadian Civ	WComd, Comd ATF/DetCO (note 4)
Media	WComd, Comd ATF/DetCO (note 6)
VIPs	WComd, Comd ATF/DetCO
All others, including foreign military personnel and foreign civilians.	1 CAD Dir Flt Rdns for flights on board all operational aircraft ... or Dir AF Trg for flights on training aircraft

[Note: on RCC tasked ops, RCC is the Comd ATF]

[Note: all hoisting of non-SAR Tech pers is covered in Safe Trg practices]

4. CASARA personnel that are utilized in support of training or operational Search & Rescue (SAR) missions may be authorized by the Squadron CO of the parent aircraft unit, or the Searchmaster when delegated by Squadron CO.

6. The local PAO must be consulted before seeking chain of command approval... For no-notice SAR operations where by happenstance a media crew is available, the Squadron CO may authorize media personnel to accompany crews where in the CO's judgement it would be in the interest of the CAF.

APPROVAL AUTH FOR FLIGHT TESTS AND FERRY FLIGHTS

Ref. FOM, Annexes 2.5.3.2.B.1

Passenger Category	Approval Authority
Maint Test Flights (1) CF pers on duty (2) Civ tech directly involved (3) All others	(1) WComd, CO AETE, or delegated (2) WComd, CO AETE, or delegated (3) Not normally authorized
All other Test Flights	In accordance with CAF Flight Test Orders.
Ferry Flights (1) CF pers on duty (2) All others	(1) WComd, or delegated (2) Not normally authorized

IMMERSION SUIT ROTARY-WING OPERATIONS

Ref. FOM 4.2.2.7 (2) (4)

If the water temperature is less than or equal to 13 degrees C, or the combined water and air temperature is less than 31 degrees C, immersion suits shall be worn by all crewmembers and passengers when operating over water.

Aircraft Captains, at their discretion, may waive these temperature requirements for overwater flights **of less than 20 minutes duration** (i.e. 10 minutes from shore) **if the aircraft remains above Safe Single Engine Speed.**

For over water maneuvers, Aircraft Captains may waive the requirement for immersion suits when a ship or another aircraft capable of rescue is within 15 minutes and is in constant visual and/or radio contact.

LIFE-JACKETS/LPSV

Ref. FOM 4.2.2.9

LPSV shall be worn as dictated by mission requirements.

Life jackets easily accessible to all crew shall be carried on all Air Mobility aircraft.

...all occupants of Air Mobility aircraft shall wear approved personal floatation devices/LPSV with Emergency Breathing System (EBS) when flying below 500 feet during overwater Search and Rescue (SAR) missions and/or training.

Maximum Accumulated Flying Time

Ref: Annex 2.3.3.2.G

7. SAR Crews - 12 hours of flying (limited use of or no auto-pilot); or up to 14 hours of flying at the discretion of the AC if extensive use is made of an auto-pilot.

Rest

Ref: FOM 2.3.3.3

...

2. CR shall be a minimum of 12 hours unless reduced IAW para 3. Additional CR should be provided for flights commencing and terminating three or more time zones apart or when warranted by the nature or duration of the mission or task.

...3... Regardless, it remains the Aircraft Commander's (AC) responsibility to ensure that adequate CR is attained...

[see next page for SAR Crew Rest]

SAR Crew Duty Day

Ref: Annex 2.3.3.2.G

1. Applicable to crews engaged in SAR operations, holding 30 min (RP30) or 2 hour (RP2) ready postures, regardless of location. ..

a. 15 hours in duration commencing when the first crewmember reports for duty; extendable to 18 hours at the discretion of the AC;

b. Crew Duty Day is not dependant on time of day nor readiness posture. Crews are expected to be prepared to commence regardless of whether it is day or night;

c....When NVG have been employed, completion of the normal SAR Crew Duty Day may be neither reasonable nor desirable...

SAR Crew Rest

Ref: Annex 2.3.3.2.G

4. CR for SAR crews is defined as:
 - a. a minimum of 10 hours of rest prior to beginning a Crew Duty Day. The rest period shall be extended by one hour for each hour or portion of an hour the previous Crew Duty Day is extended beyond 15 hours;
 - b. during a prolonged major search, the Search Master/RCC Controller shall attempt to schedule crews so that a minimum CR of 12 hours is provided. When this is not possible, consideration should be given to double crewing aircraft; and
 - c. in an emergency, the Unit CO (in consultation with the AC) may adjust normal CR requirements.

Temporary Interruption of crew rest

Ref: Annex 2.3.3.2.G

5. Temporary interruption of normal crew rest requirements may be necessary during normal working hours for the purposes of administrative or non-SAR flying duties (test, photo, famil flights etc) and is permitted so long as:

- a. the crew member has, before the commencement of the temporary Duty Period, acquired a minimum of 10 hours of rest;
- b. the temporary Duty Period is less than 4 hours in duration;
- c. the temporary Duty Period commences and terminates between the beginning and the end of the Sqn RP30 posture (normally 0800-1600L);
- d. it is limited to one temporary Duty Period per day;
- e. a return to the possibility of fulfilling a Full Crew Duty Day will be renewed following a period of rest equivalent to the period of activity; and
- f. duty that does not fall within these guidelines will require a minimum of 10 hours crew rest to renew the full Crew Duty Day.

Safe Training Practices

Ref. FOM Appendix 3.1.1.11.A.1c

Manoeuvre/Simulated Sequence	Restrictions Additional to Those Shown in the Reference
All manoeuvres	<p>Minimum obstacle clearance from the rotors:</p> <ul style="list-style-type: none"> a. 10 feet horizontal between the 8 o'clock and 4 o'clock position (FRONT); b. 20 feet horizontal between the 4 o'clock and 8 o'clock position (BACK); and c. 5 feet vertical. d. Without a left spotter: 50' horizontal between the 7 o'clock and 12 o'clock (LEFT), unless landing in an area that was previously landed in on the same flight.
Simulated Engine Failure Initiated below 45 KIAS	<ul style="list-style-type: none"> a. Day or Night VMC; b. Icing conditions are not present; c. Over prepared surfaces; and d. With a TRG/STDS pilot as aircraft captain only.
Simulated Engine Failure Initiated at or above 45 KIAS Note 3b	<ul style="list-style-type: none"> a. Day or Night VMC; and b. Icing conditions are not present.
Tail Rotor Malfunctions Note 3b	<ul style="list-style-type: none"> a. Day VMC; b. Carried out to an airfield; c. Smooth level touchdown area must be available such as a runway or taxiway; d. PAL's shall not be retarded; e. With a TRG/STDS pilot as aircraft captain, may proceed to touchdown simulating high pitch setting, minimum 10' for All other ACs; and f. Neutral to low pitch setting may be flown to a minimum altitude of 100' AGL.
3-4 Hz Awareness Training Note 3b	<ul style="list-style-type: none"> a. Day VMC; b. Carried out over a prepared surface; c. All Up Weight less than 12,500 kg d. With an OTF IP or Chief Check Pilot as the aircraft captain only.
System or Instrument Failures Note 3b	<ul style="list-style-type: none"> a. Day or Night VMC for systems or instrument failures that directly affect control of the helicopter; and b. Simultaneous deactivation of both main generators is prohibited.
Confined Areas Note 3a	<ul style="list-style-type: none"> a. SAR Tech TL or Restricted TL is required when SAR Tech TM or SAR Tech under training are involved in confined area training; and b. Must remain within safe OEI or minimize the transition time from a safe fly-away altitude to using a safe reject altitude.
Hoisting (All types) Note 1/3a	<ul style="list-style-type: none"> a. Minimum crew for live hoisting shall include a SAR Tech TL or Restricted TL; b. Simulated emergencies shall not be practiced during live hoist; c. Rescue slings shall not be used when hoisting personnel out; and d. Land hoisting shall remain within safe OEI or safe reject parameters.
Live Boat Hoisting Note 3a	<ul style="list-style-type: none"> a. Shall not be conducted unless the training vessel can provide or act as a safety vessel, otherwise the training is to be conducted with 2 SAR Techs; b. Night Live Boat Hoist shall be conducted with 2 SAR Techs; c. A combination of sea state, vessel size and the availability of a clear hoisting area should be selected to minimize risk; d. FO I to be monitored by Training or Standards Pilot during Night Boat Hoist; e. Must remain within safe OEI parameters. Take into account the power required to transition to forward flight when bow hoisting; and f. Weather limits are 300' ceiling, 1SM day and 3SM night.
Free Entry Note 3a	<ul style="list-style-type: none"> a. Shall not be conducted unless a safety vessel is available or the training is conducted with 2 SAR Techs in a designated area which would permit the SAR Techs to easily and safely swim to shore; b. Day VMC only; and c. Sea state 3 or less.

Live hoisting with non-SAR Tech personnel (Land or Vessel) Note 3a	<ul style="list-style-type: none"> a. Person to be hoisted on vessel shall wear a flying helmet, safety goggles, gloves, LPY, and dry suit or immersion suit; b. Person to be hoisted on land shall wear a flying helmet, safety goggles and gloves; c. Hoisting to be carried out at the lowest safest altitude; d. Must conduct the manoeuvre with Safe OEI; e. Trip must be authorized by the Sqn CO; f. Following a thorough briefing by a qualified SAR Tech, the Non-SAR Tech will don the Triton Harness and the QRD release fitting shall be taped; g. All agencies involved shall be briefed thoroughly, i.e. hoistee, vessel, and crew; and h. Non-aircrew hoisting to vessels shall be recommended by the unit CO and authorized by SSO SAR, day VMC only and when the sea state is 3 or less.
Rope Lowering System descents and Combination Hoist / Rope Lowering System descents Note 3a	<ul style="list-style-type: none"> a. Only qualified SAR Techs or a SAR Tech receiving training shall conduct Rope Lowering System descents; b. Maximum altitude should be sufficient to provide realistic training value, but in no case shall it exceed 200 feet AGL; and c. Over land only.
Double Hoist Note 3a	The person acting as the patient shall be carried in the rescue sling with a SAR Tech.
Stokes Litter and Rescue Basket Hoisting Note 3a	<ul style="list-style-type: none"> a. Only qualified SAR Techs or personnel undergoing training by a qualified SAR Tech, shall conduct guideline control; b. Live Stokes is prohibited; and c. Live Rescue Basket is prohibited over land.

Safe Training Practices (Continued)

NOTES:

1. A live hoist is defined as a sequence where it is intended to hook a person to the hoist cable or Rope Lowering System Device. Lowering the hoist cable with the intention of hooking a person up for recovery is considered part of the live sequence. Recovery of the empty hook after a person has disconnected is not considered part of the live sequence and appropriate simulated emergencies (i.e. hoist failure or communications failure) may be practiced consistent with safe training practices described in the table above.
2. Training flights should remain within safe OEI regimes. ACs should use good judgment in regards to the amount of training required in high DA/poor engine performance conditions. This restriction does not apply during mountain landings.
3. Utility ACs:
 - a. are not authorized to conduct OWTD or SAR manoeuvres listed in serials indicated; and
 - b. system malfunctions and emergency simulation described in serials indicated are not authorized until sufficient proficiency has been demonstrated and Commanding Officer has authorized.
4. Utility Flight Engineers are not authorized to conduct Confined Area Operations or SAR manoeuvres unsupervised.

Restricted Areas

Ref. FOM 2.2.5.1

Area	Height (AGL)	Lateral Separation	Note
Sensitive Citizens	1,000 ft	1 nm	
Population Centres	1,000 ft	1 nm	1, 2
Provincial Parks	2,000 ft	2 nm	3
Arsenals and Ammunition Storage Facilities	1,500 ft		4
Aerodromes	2,000 ft	2 nm	5
Fur/Poultry Farms	2,000 ft	2 nm	6
Forest Fires	3,000 ft	5 nm	
National Parks	2,000 ft	2 nm	9
Bird Sanctuaries/Nesting Areas	2,000 ft	2 nm	
Wild Animal Refuges/Calving Areas	2,000 ft	2 nm	
Nuclear Research/Power Facilities	1,500 ft	1 nm	
Penitentiaries	1,000 ft	1 nm	
Weapons Ranges			7,8
Hospitals	1,000 ft	1 nm	
Blasting Areas			4

Notes:

1. The minimum altitude is actually 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet from the aircraft.
 2. Canadian Forces Northern Area (CFNA) restricts all aircraft overflights to 2,000 feet within 3 nm unless there is an Operational Necessity.
 3. Aircraft should not overfly Provincial Parks at lower than 2000 ft AGL unless the following prerequisites are met: the park is part of an approved low flying area or an approved low flying route crosses the park and Provincial Park officials agree to permit the overflights as part of a low flying area or low flying route. The flights must give due regard to park environmental concerns.
 4. Areas where demolitions are being carried out shall be totally closed to aircraft operations, if necessary.
 5. The minimum altitude is actually 1,000 feet above the highest published circuit height or 2,000 feet AGL whichever is higher.
 6. The minimum altitude for the CF188 is 3,000 feet AGL. All aircraft overflights shall be avoided, if possible, and in particular between February and May for fur farms as per reference A. In addition, all aircraft shall, if possible, maintain a minimum of 4000 ft AGL when within 4 NM lateral radius from known fur farms between February and May, except for fur farms located in close proximity of home airfields (VFR approach and Departure paths) or located within base training areas. These particular farms shall be avoided in accordance with Table 2. Wings and Sqns with historically established special noise/overflight mitigation plans may continue to operate in accordance with those orders. Aircraft on IFR flight plans within controlled airspace are exempt from the overflight restrictions.
- ...
9. National Parks normally do not permit aircraft to land or take-off from within their boundaries. AIP Canada, RAC 1.14.5 lists National Parks that provide some latitude for landing and taking-off within their boundaries as long as written permits are obtained from the Park Superintendent.

VFR Weather Minima

Ref. BGA-100

VFR All Controlled Airspace	Minimum Weather Limits	Ceiling 1 000 feet	Visibility 3 miles*
	Aircraft Operating Requirements	Minimum vertical distance from cloud - 500 feet Minimum horizontal distance from cloud - 1 mile Minimum height above ground or water - 500 feet	
Class G (Uncontrolled)	Minimum Weather Limits	Flight Visibility - 1 mile day - 3 miles night	
	Aircraft Operating Requirements	Remain clear of cloud Minimum height above ground or water - 500 feet**	
***Special VFR: Control Zones (Class B, C, D or E)	Minimum Visibility Limits	Ground Visibility 1/2 mile	
	Aircraft Operating Requirements	Must remain clear of cloud and within sight of the surface at all times. Minimum height above ground or water - 300 feet Must be operated at a reduced airspeed that will allow the pilot to see and avoid other air traffic or obstructions.	

Figure 7-2 Table of Helicopter VFR Criteria

* Flight visibility except reported ground visibility in control zones, regardless of the class of airspace.

** Lower height permitted only while operating under special provisions as detailed in this publication and supporting operations documents.

*** ATC clearance required. Aircraft shall be operated in accordance with SVFR instructions issued by the Commander 1 Cdn Air Div/CANR or equivalent.

SAR Weather Minima

Ref. BGA-100 Annex 2.3.4.1.A

Crews qualified IAW 1 Cdn Air Div Orders are authorized the following weather minima for tasked SAR operations. However, where the search area overlaps controlled airspace, clearance must be obtained from the controlling agency. The following distances and conditions apply:

- a. CH-146/CH-149;
 - (1) ceiling of 300 feet;
 - (2) flight visibility of 1/2 nm; and
 - (3) flight conducted clear of cloud and at a reduced airspeed.

VFR Over the Top (VFR OTT)

Ref. BGA-100

8. VFR OTT will permit, with restrictions, VFR operations to be conducted without the pilot being in constant visual contact with the surface of the earth in accordance with the following:

- a. ...
- b. ...
- c. no special annotation is necessary on a VFR or composite flight plan to indicate the intention to fly the en route portion of a VFR flight VFR OTT; and
- d. if a VFR flight plan is filed, fuel requirements for VFR OTT flight remain the same as for VFR operations. If a composite flight plan is filed, minimum fuel requirements for IFR flight shall apply.

9. VFR OTT pertains to day VFR operations in the en route phase only and, during this phase of flight, the pilot is not required to maintain visual contact with the surface of the earth. At all other times, VFR flight shall be conducted in accordance with Figures 7-1 and 7-2. When, and only when, the aircraft reaches the en route phase of the flight, i.e., at the VFR OTT en route altitude, the requirement to maintain visual reference with the surface of the earth no longer applies. At that time, other weather minima specific to VFR OTT then apply. The aircraft shall be at least **1000 feet above and below any cloud** layers and shall maintain a **minimum of 5 statute miles flight visibility**. The minimum **distance between cloud layers shall be 5000 feet**.

10. For VFR OTT operations, the weather at **destination, based on a valid TAF, shall not have a ceiling below 4000 feet above planned cruise altitude, and visibility shall not be under 3 statute miles**. **These conditions shall be applicable for the period from one hour before to two hours after the estimated time of arrival**. When these conditions are based on a valid GFA, the applicable period shall be increased to from one hour before to three hours after the estimated time of arrival.

11. All regulations and procedures governing VFR OTT apply to both controlled and uncontrolled airspace. The following regulations that govern VFR flight operations also apply to VFR OTT: communications failure procedures; all airspace classifications; cruising altitudes (even and odd +500 feet); minimum altitudes; reporting requirements; and ATC clearance and instruction readbacks.

IFR Take-Off Requirements

Ref. FOM 2.3.5.1

1. ... take-offs are not permitted unless the reported ceiling and visibility/RVR are equal to or above the lowest usable HAA/HAT and visibility for a usable published approach to a usable landing runway at the departure aerodrome. Helicopters can also take advantage of their slow speed to use the reported visibility equal to or above one-half the lowest published visibility/RVR for a usable published approach at the departure aerodrome, in this case, visibility/RVR minima used shall not be less than 1/4 mile (400 meters) or RVR 1400. One-half the visibility shall not be applied to Copter-Only approaches.

IFR Take-Off Alternate Requirements

Ref. FOM 2.3.5.2

- a. the aircraft can maintain the published climb gradient at the take off aerodrome to the minimum enroute IFR altitude to the take-off alternate with one engine out;
- b. the aerodrome is compatible with the aircraft type;
- c. the aerodrome is forecast to be at or above alternate limits at ETA and for one hour thereafter;
- d. ...
- e. ... aerodrome is not more than two hours flight time from the departure aerodrome at normal cruising speed with one engine inoperative, adjusted for wind; and
- f. the take-off alternate is indicated in the remarks column of the flight plan.

2. When all these conditions are met, the multi-engine aircraft take-off weather limits are

**1/4 statute mile (sm) ground visibility or
RVR 1200.**

When centre-Line runway lighting is available on the take off runway ...

**1/8 statute mile (sm) visibility or
RVR 600.**

3. For Multi-engine Category I/Restricted (CAT I/R) take-off minima can also be lowered when a take off alternate aerodrome is filed IAW the conditions above. In this case, the take-off actual wx shall not be less than:

- a. a ceiling of 300 ft; and
- b. a visibility of one sm;

4. When take-off is conducted below IFR Category I (CAT I) conditions to take advantage of the use of a take-off alternate. The Aircraft Captain (AC) shall occupy the main control position (as applicable) for the aircraft...

IFR Special Take-Off Requirements - Rotary Wing

Ref. FOM 2.3.5.3

Rotary-wing aircraft may depart IFR from an aerodrome not served by an IFR approach procedure, an IFR aerodrome where no METAR exists, or a field location, provided that the following exists:

- a. the pilot has obtained an IFR clearance prior to entering controlled airspace;
- b. the reported or estimated ceiling is at least

300 feet AGL and

the ground visibility is at least 1 sm;

- c. the aircraft's ability to meet the required obstacle clearance climb gradient... is calculated **using all-engine operating climb performance to 300 feet AGL and one engine inoperative (OEI) performance thereafter;** and

- d. there is an aerodrome meeting **alternate aerodrome requirements within ... 2 hours of take-off** for all other multi-engine helicopters at OEI cruise speed at an altitude which ensures obstacle clearance. The take-off alternate is indicated in the remarks column of the flight plan.

Notes:

An IFR flight plan is not required for flights in uncontrolled airspace; however, a flight plan, flight note or flight itinerary, as applicable, must be filed prior to departure for all IFR flights. Obstacle clearance remains the AC's responsibility.

IFR Desintation Aerodrome Weather Requirements

Ref. BGA-100 -31

For destination aerodromes and for flights confined to the designated local flying area, the weather limits, which do not require an alternate, shall be:

- a. On IFR flights, when the lowest ceiling and visibility forecast for the destination for one hour before and until one hour after ETA are at or above the following;
 - (1) ceiling 400 feet above the lowest HAA/HAT for the usable approach to be flown, and
 - (2) visibility of 1 mile (1 600 meters) or equal to the lowest published visibility for the usable approach to be flown, whichever is higher.

IFR Alternate Aerodrome Weather Requirements - Valid TAF

Ref. BGA-100 -36

... based upon a valid TAF for the ETA at the alternate, and for the ETA plus one hour at the take-off alternate, must be as follows:

- a. with a usable published procedure;
 - (1) ceiling 200 feet above the lowest HAA/HAT for the approach to be flown. When destination weather forecast is below the destination approach minima or if the aerodrome is being used as a take off alternate in accordance with the RCAF FOM, alternate ceiling requirements shall be 400 feet above the lowest HAA/HAT for the approach to be flown at the alternate,
 - (2) visibility 1 mile (1 600 meters) or equal to the lowest published visibility for the approach to be flown, whichever is higher
- b. without a usable published approach procedure, the forecast weather for the ETA must permit a visual descent from the IFR minimum enroute altitude and a VFR approach and landing.

IFR Alternate Aerodrome Weather Requirements - GFA

Ref. BGA-100 -37

... based upon a valid GFA for the ETA, must be as follows:

- a. ceiling - 1 000 feet above the highest published circling HAA for the approach flown, regardless of aircraft category; and
- b. visibility - 3 miles (4 800 meters).

IFR Alternate Aerodrome Requirements (RADAR/GNSS)

Ref. BGA-100 -32

32... an alternate shall be designated for all IFR flights to a radar-only or GNSS-only destination regardless of the forecast weather or the time enroute.

33. For aerodromes having only RNAV (GNSS) approaches available to qualify as an alternate, the following criteria must be met:

(1) an approach at the planned destination which is completely independent of GNSS is available at the ETA; or,

(2) where a RNAV (GNSS)-only approach is planned at both the destination and the alternate, the aerodromes are separated by a minimum of:

- (a) 75 NM where both aerodromes are in Nunavut; or,
- (b) 75 NM where both aerodromes are north of 56 degrees latitude in Quebec and Labrador; or,
- (c) 100 NM where either or both aerodromes are located anywhere else in Canada;

(3) ...

(4) The pilot-in-command ensures that approach-level RAIM or WAAS integrity will be available at the planned alternate aerodrome at the ETA +/- 1 hour by taking into account predicted satellite outages using the appropriate GNSS NOTAM file. No more than one predicted satellite outage is permitted during that period unless RAIM prediction can be accomplished by using a dispatch RAIM prediction software or other approved means; and

(5) For TSO C129/C129a avionics, the pilot in command confirms periodically during the flight, and at least once before the mid-point of the flight to the destination, that approach-level RAIM will be available at the planned alternate aerodrome at the ETA +/- 15 min.

IFR Application of the Terms BECMG, TEMPO and PROB

Ref. BGA-100 -17

...

- a. where conditions are forecasted to improve, the forecasted BECMG condition shall only be considered to be applicable as of the end of the BECMG time period,
- b. where conditions are forecasted to deteriorate, the forecasted BECMG condition shall be considered to be applicable as of the start of the BECMG time period,
- c. the forecast **TEMPO** condition shall not be below the following minima:
 - (1) For destination: the TEMPO period shall not be below the destination weather minima as identified in Para 29 and 30. Otherwise an alternate is required.
 - (2) For alternate: the TEMPO period shall not be below the alternate minima requirements for that aerodrome.
- d. the forecast **PROB** condition shall not be below the following minima:
 - (1) For destination: the PROB period shall not be below the destination weather minima as identified in Para 29 and 30. Otherwise an alternate is required.
 - (2) For alternate: the PROB period shall not be below the published landing minima for the usable runway at the alternate aerodrome.

FUEL

Ref. SMM 1.2.11

1. Airspeeds. The optimum cruise speed will vary with aircraft weight and density altitude. As a rule of thumb, the following can be used:

- a) max range: 130 KTAS, and
- b) max endurance: 75 KTAS.

2. ...

3. Fuel consumption. The following table describes the approximate fuel burn for different speeds (TAS) with or without Engine De-Ice On:

TAS	Fuel burn	De-Ice On
130	750 kg/hr	800 kg/hr
150	930 kg/hr	1000 kg/hr
75	600 kg/hr	650 kg/hr

When flight planning, the following fuel requirements are recommended:

- a) 15-minute hold: 150 kg [600 kg/hr, Anti-ice off, 75kts]
- b) 1 approach: 150 kg.

Note:

Approximately 8% is lost on top end power when Engine De-Ice is ON. Disregard the NGL indication on the PFD when Engine De-Ice is on, it is considerably inaccurate. Torque can be pulled through the NGL warning by at least 10% (sometimes 20%). Monitor TIT and use information provided by FE performance chart.

MIN FUEL

Ref. BGA-100 - 10 - 12 & SMM 1.3.2 & SMM 1.2.11

Aircraft shall be landed prior to 30 kg of fuel remaining in any main tank
(1, 2 or 3) supplying an engine.

VFR: 290 kg $(150 + 90 = 290)$

... to the destination, and for 15 minutes thereafter, at normal cruising consumption

IFR with Alt: 390 kg $(150 + 150 + 90 = 390)$

... to the destination, fly to the alternate, hold for 15 minutes and then complete an approach

IFR no Alt: 540 kg $(300 + 150 + 90 = 540)$

... to the destination, hold for 30 minutes and then complete an approach

FRC Notes:

Crossfeeding shall not be used when the contents of the selected fuel tank are less than 120kg.

The contents of tanks 1,2 and 3 must not exceed 700kg during manual fuel transfer.

Nitesun shall be off during manual fuel transfer operation if contents of any of tanks 1,2, and 3 exceed 700kg or anytime during automatic fuel transfer operation due to the potential of fire if a fuel spill occurs.

INSTRUMENT FLIGHT CHECKLIST

Ref. SMM Annex D, Rev 7

IFR PRE-TAXI CHECKS

1. Equip st
2. Comm. - set/ATIS
3. FPN - enter wpt route
4. PND - HSI mode (both)
 - a. Navaid - set data and settings a/r
 - b. GPS check
 - c. nav data init
5. FPN - activate
 - a. compare trk against log card
6. IFF - set (stby/norm)
7. Flt instruments check
8. Altimeters/rad alt
9. Clocks
10. Taxi clearance/airways

IFR CLIMB/LEVEL-OFF CHECK

1. Cockpit check (LH-999, RADAR 10/10/10, ICING)
2. Landing Its (A/R), RADALTs (MOCA)
3. IAS, TAS, GS chk-amend ETA a/r
4. Fuel consumption check
5. Radio backups

IFR HALFWAY CHECK

1. Navaid switch (TIMS check)
2. WRACEM
 - Wx/wind (ATIS or FSS)
 - Runway in use
 - Alt setting
 - Clearance limit, app request
 - ETA, EFC
 - Missed app, overshoot instruction
3. Update RAIM (if ETA differs +/- 15 min)

IFR TAXI CHECKS

1. Turn, needle/ball/compass/bearing pointers
2. Stby inst
3. ASI / AI / altimeter / VSI / RADALT
4. Compass chk on known heading (or on Rwy)
 - Main +/- 2°; Standby +/- 5°
5. VOR/DME - chk radial- +/- 4°, DME +/- 0.5NM

IFR PRE-TAKEOFF CHECK

1. IFR clearance (if still not acquired)
2. Navaids, radios, IFF set and on norm
3. Pitot heat/lts - A/R
4. Emergency recovery brief / departure brief (if changed)
5. Cockpit check
6. Takeoff clearance
7. Log card entries: fuel, time, ETA

IFR APPROACH BRIEF (AMORTSE)

1. Appr name/loc/alt/app lights/entry/PMA or PFA
2. Minimums: amended ? , temp corr, radalt, baro
3. Overshoot
4. Radios, navaids, dme, app backups, monitoring
5. Timings, dme
6. Speed, switches
 - a. Anti-ice/defroster
 - b. ...
 - c. DMS source/AFCS mode
 - d. ...
 - e. ...
 - f. ...
7. Emergencies (as briefed)

RAIM + OBS + APPR + "GPS APR Activated and Checked."

- 126.7 Call
- 5 minutes prior to commencing appr (landing time)
- fix outbound or intercepting final (position)
- FAF or 3 minutes from landing (position)
- on final (position)
- commencing circling (intentions)
- after missed approach (intentions)

AIRPORT DATA - QUEBEC

			FSII
BAIE COMEAU CYBC	(514)238-3569 (Day Time) (418)378-4262 (After Hours)	1 Hr PNR	YES
BAGOTVILLE CYBG	(418)677-2555 (Trans-sol) (418)812-2562 (Trans-sol Cell)	1 Hr PNR	YES
BONAVENTURE CYVB	(418)534-2528 (Office) (418)391-7390 (After Hours Cell)	1 Hr PNR	YES
CHARLEVOIX CYML	(418)452-3417 (Airport)	1 Hr PNR No Winter Maint	YES
CHIBOUGAMAU CYMT	(418)748-4429 (Transfer After Hours) (418)748-2602 (Heliport)	30 Min PNR	YES
CHICOUTIMI CYRC	EXACT AIR/PETRO 129.15 418-673-3522		
GASPE CYGP	(418)361-2496 (Cell) (418)368-4379 (Home)	1 Hr PNR	NO
HAVRE ST-PIERRE CYGV	(877)404-3267 (Trans-sol in Sept Iles)	1 Hr PNR	YES
ILES DE LA MADELINE CYGR	(418)986-2135 (Cell Phone) (418)937-3027 (Voice Pager)	1 Hr PNR	NO
INUKJUAQ CYPH	819-254-8608 (Bobby Mina) 819-254-8969 (Co-op)	1 Hr PNR (FCNQ)	NO
IVUJIVIK CYIK	819-922-9923 (Josepie Padlayat) 819-922-9922 (Co-op)	1 Hr PNR	NO
KANGIQSUJUAQ CYKG	819-338-3334 (William Tuaq) 819-338-3252 (Co-op)	1 Hr PNR (FCNQ)	NO
KANGIRSUK CYAS	819-935-4686 (Lasa Pootoogee) 819-935-4382 (Co-op)	1 Hr PNR (FCNQ)	NO
KUUJJUAPLIK CYGW	819-964-2978 (Claude Gadbois) 819-964-2585 (Airport)	24 Hours	NO
LA GRANDE 3 CYAD	(819)638-2988 (Hydro QC)	1 Hr PNR	YES
LA GRANDE 4 CYAH	(819)854-6117 (Hydro QC)	1 Hr PNR	NO
LA GRANDE RIVIERE CYGL	(819)638-9104 (Transfers After Hours)	1 Hr PNR	YES
LOURDES DE BLANC SABLON CYBX	(418)461-2619 (BX Flight Services) (418)461-2806 (Trans-Sol)	1 Hr PNR	YES
MONT JOLI CYYY	(418)775-4020 (Transfers After Hours)	30 Min PNR	YES
NATASHQUAN CYNA	(418)409-6516 (Sébastien)	ABV GRD 1 Hr PNR	YES

	(418)968-8095 (Trans-Sol)		
PUVIRNITUQ CYPX	819-988-2525 (Pausie Tulugak) 8191-988-2972 (Co-op)	1 Hr PNR	NO
QUEBEC CITY CYQB	(418)871-1958 (Transfers After Hours)	1 Hr PNR	YES
Rimouski CYXK	Petro T 122.95 418-725-7361		
RIVIERE DU LOUP CYRI	(418)867-5001 (Office) (418)868-9338 (Cell - After hours)	ABV GRD 30 Min PNR	YES
ROBERVAL CYRJ	(418)275-2344 (Airport) (418)679-7133 (After Hours)	1 Hr PNR	YES
SCHEFFERVILLE CYKL	(418)585-2624	24 Hrs	YES
STE ANNE-DES-MONTS CYSZ	(418)763-9519 (Daytime) (418)763-5978 (Firehall)	1 Hr PNR	NO
SALLUIT CYZG	819-255-8335 (Adamie Tayara) 819-255-8950 (Co-op)	1 Hr PNR (FCNQ)	NO
SEPT-ILSES CYZV	(877)404-3267 (418)968-8095 (Trans-Sol)	24 Hours	YES

AIRPORT DATA - NEWFOUNDLAND

			FSII
BURGEO N 47 37 2 W 57 38 0	(709)686-2737 (Aviation Refueling) (709)649-0083 (Cory Banks)	Key in Aircraft	NO
DEER LAKE CYDF	(709)635-3776	24 Hours	YES
GANDER CYQX	(709)256-4414 (Woodwards) (709)424-8392 (Refueler Cell)	24 Hours	YES
HIBERNIA	(709)778-7433 (Hibernia Radio) (709)758-4828 (Cougar Dispatch)	VHF 130.275 FM CH 9 1 Hr PNR	NO
ST ANTHONY CYAY	(709)454-3149/3839 (709)454-3191/3573	1 Hr PNR	YES
ST JOHN'S CYYT	(709)579-3776 (Woodwards) (709)570-4791 (ARAF)	24 Hours	YES
STEPHENVILLE CYJT	(709)643-8445/8446 (Flight Ops) (709)649-9290 (Fuel Cell)	24 Hours	YES
ST PIERRE LFVP	011-508-41-18-22	PNR in Flt Pln	NO
TOP POND N 47 53 9 W 57 38 4	(709)686-2737 (Aviation Refueling) (709)649-0083 (Cory Banks)	Key in Aircraft	NO

AIRPORT DATA - LABRADOR

			FSII
CARTWRIGHT CYCA	(709)938-7476/7505 (Lilian Work/Home) (709)896-7576 (Air Labrador Dispatch) (709)938-7509/7385/7476 (Woodwards)	IN GRD PUMP 1 Hr PNR	NO
CHURCHILL FALLS CZUM	(709)925-3273 (Airport) (709)925-8280 (Fire Department-24/7)	IN GRD 1 Hr PNR	NO
GOOSE BAY CYYR	(709)896-5036 (Woodwards) 122.9 (Woodwards)	24 Hrs	YES
HOPEDALE CYHO	(709)896-5259 (CHL Direct) (709)896-1627 (CHL Mobile)	ABV GRN PUMP 28V connector on pump attaches to 28V port behind FE seat.	YES
MAKKOVIK CYFT	(877)977-6775 (Air Lab - Goose Bay) (709)896-7576 (On Call Dispatch)	IN GRD PUMP, 1 Hr PNR	NO
MARY'S HARBOUR CYMH	709-921-6987 (Henry Acreman) 709-921-6235 (After Hours)	1 Hr PNR	NO
NAIN CYDP	(877)977-6775 (Air Lab - Goose Bay) (709)896-7576 (On Call Dispatch)	IN GRD PUMP, 1 Hr PNR	NO
RIGOLET CYZ2	(709)896-5259 (CHL Direct) (709)896-1627 (CHL Mobile)	ABV GRN PUMP 28V connector on pump attaches to 28V port behind FE seat.	YES
WABUSH CYWK	(709)282-8388 (Av Tech) (709)280-4009	30 Min PNR	NO
VOISEY'S BAY CVB2	(709) 922-2972 128.9 FM	ABV GRD 2 Hr PNR	NO

AIRPORT DATA - NUNAVUT

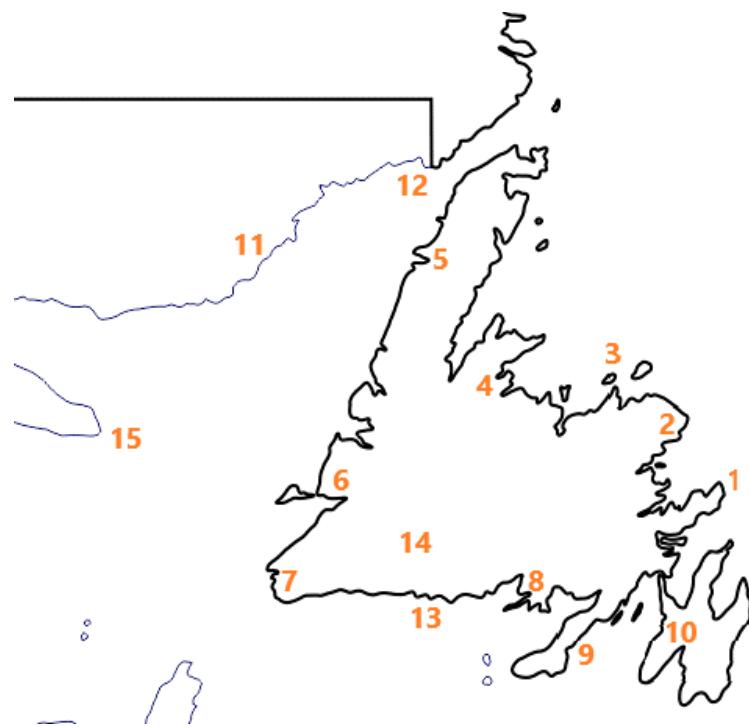
			FSII
ARCTIC BAY CYAB	(867)439-9934/8433 (Mosa) x(867)439-8291 (Mosa's Home)	1 Hr PNR	NO
CAPE DORSET CYTE	(867)897-8862 (Co-op Daytime) (867)439-8551/8322 (Driver's Homes)	1 Hr PNR	NO
CORAL HARBOUR CYZS	(867)925-9969 (867)925-9789 (Cell-Let Ring 10x)	1 Hr PNR	NO
CLYDE RIVER CYCY	(867)924-6087/6088	1 Hr PNR	NO
HALL BEACH CYUX	(867)928-8807 (Hall Beach CARS)	1 Hr PNR	NO
IQALUIT CYFB	(867)979-2855 (Uqsuq) (867)222-2855 (Uqsuq - cell)	30 Min PNR	NO
PANGNIRTUNG CYXP	(867)473-8936 (Co-op) (867)473-8047/8522 (Allen/Lisa-Home)	1 Hr PNR	NO
POND INLET CYIO	(867)899-5100 (Co-op Daytime) (867)899-1325/5122 (Manager's Home/Cell) (867)899-2887 (Driver's Cell)	1 Hr PNR	NO
QIKITARJUAQ (Broughton Island) CYVM	(867)927-8002 (867)927-8009 (Driver's Cell) (705)937-8866 (Manager's Cell)	1 Hr PNR	NO
SANIKILUAQ CYSK	(867)266-8909 (Co-op Daytime) (867)266-8580/8487 (Driver's Joseph/Zach)	1 Hr PNR	NO

CANADA COAST GUARD TANKS

CG01	BONAVISTA	N 48 38 1 W 5306 1	PAD CO-LOCATED WITH RCMP	FSII
				NO
CG02	WESLEYVILLE	N 49 09 4 W 53 34 8	PAD ON ROUTE 330	NO
CG03	TWILLINGATE	N 49 38 0 W 54 43 6	PAD ON ROUTE 340	NO
CG04	SPRINGDALE	N 49 28 44 W 56 10 41	Airfield SAR OPS ONLY	NO
CG05	PORT AUX CHOIX	N 50 41 3 W 57 19 9	PROVINCIAL AIRSTRIP	NO
CG06	STEPHENVILLE	N 48 32 3 W 58 33 0	PROVINCIAL AIRSTRIP	YES
CG07	ST. ANDREWS	N 47 46 22 W 59 18 45	PROVINCIAL AIRSTRIP	NO
CG08	HARBOUR BRETON	N 47 28 38 W 55 50 07	PAD ON ROUTE 360 PUMP VERY SLOW	NO
CG09	MARYSTOWN/ WINTERLAND	N 47 08 2 W 55 19 5	PROVINCIAL AIRSTRIP	NO
CG10	ARGENTIA	N 47 17 7 W 53 59 4	PAD CO-LOCATED WITH CG RADIO STATION	NO
CG11	CHEVERY	N 50 28 1 W 59 38 2	PROVINCIAL AIRSTRIP SAR OPS ONLY	YES
CG12	LOURDES DE BLANC SABLON	N 51 26 4 W 57 11 1	AIRPORT	YES
CG13	BURGEO	N 47 37 3 W 57 38 1	Key in Aircraft	NO
CG14	TOP POND	N 47 53 9 W 57 38 49	Key in Aircraft	NO
CG15	HEATH POINT	N 49 05 0 W 61 42 5	ANTICOSTI ISLAND Breaker must be turned on in building SAR OPS ONLY	YES

(See map on next page)

CANADA COAST GUARD TANKS



Northern Warning Site Locations

LAB 6	Cartwright Minimally-Attended	N 53 33 1 W 56 49 8
LAB 5	Tukialik Bay Unattended	N 54 42 9 W 58 21 5
LAB 4	Big Bay Unattended	N 55 44 3 W 66 25 8
LAB 3	Cape Kiglapait Unattended	N 57 08 2 W 61 28 5
LAB 2	Saglek Minimally-Attended	N 58 29 3 W 62 35 1
LAB 1	Cape Kakaviak Unattended	N 59 59 1 W 64 09 9
BAF 5	Resolution Isl Unattended	N 61 35 5 W 64 38 2
BAF 4A	Loks Land Unattended	N 62 30 3 W 64 31 5
BAF 3	Brevoort Island Minimally-Attended	N 63 20 2 W 64 07 3
BAF 2	Cape Mercy Unattended	N 64 57 3 W 63 34 4
DYEM	Cape Dyer Minimally-Attended	N 69 39 5 W 61 21 3
FOX 5	Broughton Island Unattended	N 67 32 7 W 63 47 2
FOX 4	Cape Hooper No data	N 68 28 3 W 66 49 6
FOX C	Kangok Fiord Unattended	N 68 39 0 W 69 09 9
FOX 3	Dewar Lakes Minimally-Attended	N 68 39 0 W 71 14 5
FOX B	Nadluardiuk Lake No data	N 68 37 2 W 73 14 7
FOX 2	Longstaff Bluff No data	N 68 53 9 W 75 08 5
FOX A	Bray Island Unattended	N 69 13 4 W 77 13 8
FOX 1	Rowley Island Unattended	N 69 04 0 W 79 03 9
FOX M	Hall Beach Minimally-Attended	N 68 43 7 W 81 14 7

All Sites Have Jet-A

Pump with Dry Brake Adapter Required

ARCAL Pad Lighting System

131.15 MHZ

Key Mike 5 times within 3 seconds

HOSPITALS - NEWFOUNDLAND AND LABRADOR (area code 709)

Baie Verte	4956N 05611W	Hospital field	532-4281
Belle Island	4738N 05259W		488-2821
Bonavista	4834N 05303W	Hospital field	468-7881
Bonne Bay	4931N 05753W		458-2201
Brookfield	4908N 05335W	Field 200m E	536-2405
		Adjacent Field	672-3326 672-3304
Buchans	4849N 05652W		Field West 886-3350 886-3352
Burgeo	4737N 05737W	S of Hospital	891-1040
Burin	4708N 05520W	At Hospital	945-5111
Carbonear	4744N 05313W	Parking Lot	925-3381
Churchill	5334N 06406W	Field / Parking	466-5211 466-3411
Clarenville	4810N 05358W		On Hill 158.70 637-5000 Ext 5524
Corner Brook	4857N 05757W	Back Cove	266-2221
Fogo	4939N 05414W	James Payton Hospital	651-2500 256-2500
Gander (Airport)	4856N 05434W		897-2000
Goose Bay	5319N 06026W	School Field	832-2500
Grand Bank	4706N 05546W	Hospital Field	292-2500
Grand Falls	4856N 05540W	1.5km WEST of field	885 2359
Harbour Breton	4729N 05548W		944-2632
Labrador City	5257N 06655W		Norris Point 458-2201
Old Perlican	4805N 05301W		587-2200
Placentia	4714N 05358W		227-2013 227-2061
Port Aux Basques	4734N 05909W	Across the street	695-4500 695-2151
Port Saunders	5122N 05535W	Adjacent field	454-3333 861-3139
St. Anthony	5121N 05534W	122.85	454-3333 454-3344
St-Johns (health science ctr)	4734N 05244W	Tx: 149.41 Rc: 150.095 Hospital Pad	737-6300
Twillingate	4939N 05446W	157.74 SE of Hospital	884-2131

HOSPITALS - QUEBEC (area code 418)

Amqui	4828N 6726W		629-2211
Baie-Comeau	4913N 06809W		589-3701
Cap-Aux-Meules	4723N 06152W		986-2121
Chandler	4821N 06441W		689-2261
Gaspe	4850N 06429W 4849N 06429W	Gaspe Centre Hospital - Emergency Only Gaspe Harbour - Emergency Only	368-2291 368-3301 Ext 3247
Havre St-Pierre	5014N 06336W		538-2212
Kuujjuaq	5806N 06825W		(819) 964-2905
La Malbaie	4739N 07009W		665-3711
Les Escoumins	4821N 06924W		233-2931
Lourdes du Blanc Sablon	5125N 05712W		461-2144
Maria	4810N 06559W		759-3443
Matane	4851N 06732W		562-3135
Mont-Joli	4835N 06811W		775-7261
Murdochville	4858N 06530W		784-2561
Port-Cartier	5001N 06653W		766-2715
Rimouski	4826N 06833W		724-8574
Riviere-du-Loup	4750N 06932W	St-Joseph Reg. Du Grande Portage	862-6385 862-8261
Ste-Anne-Des-Monts	4908N 06630W		763-2261
Sept-Iles	5012N 06623W		962-9761
Trois-Pistoles	4807N 06910W		851-3301

NUNAVUT (area code 867)

Iqaluit	6345N 06883W		979-7300
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NORTHERN AIRFIELDS

CYMH - Mary's Harbour

Hotel/restaurant is a 5 Min walk from the airport

Labrador Coast ATF Corridor: 122.8

CYCA - Cartwright

Fuel is NOT at the airport, fuel is located behind Gateway Convenience (0800-2200 everyday) in town, no notice required.

Airstrip is located 7 km from the town, there are no services at the field.

Labrador Coast ATF Corridor: 122.8

CZUM - Churchill Falls

Fuel available from fuel tanks, call ahead with as much notice as practical.

Typical operating hours are 0800-1600, fuel closes over lunch.

Airport is 7 km West of town

CYWK - Wabush

Fuel is available by fuel truck

Avtech is located at the SW corner of the ramp, courtesy car may be available

Avtech Hours: 0900L - 1700L

1 Hr prior notice is preferred

Northern Inn is the nicest hotel option in Lab City, walking distance to restaurants

CYFT - Makkovik

Fuel is by honour system, no prior notice required.

Key for fuel is inside the door of the fuel hut.

Airstrip 1.5 km south of town.

CYHO - Hopedale

Contrary to the CFS, there is fuel in Hopedale.

Fuel is by the honour system, No notice is required.

Contact the fuel numbers only if there are any issues. (Fuel cabinet is locked, etc.)

Shuttle from the hotel to the airport is \$10 per person each way.

There is a Coast Guard Heli Pad near the hotel that we have permission to use when it's open.

CNH2 - Natuashish

Fuel delivered by fuel truck at the airstrip.

Airstrip is located 5 km West of town.

CYDP - Nain

Fuel is by the honour system, no prior notice required.

There are 2 fuel locations, one on either end of the runway.

Airport is located at the base of a mountain, risk of downflow when wind is from the West.

Cell service is spotty, and only from the south side of the runway.

Labrador Coast ATF Corridor: 122.8

ARCTIC AIDE MEMOIRE

AREA PLANNING:

- Cruising altitude based on true tracks in standard pressure region
- N/S tracks (315T - 045T)
- West of 80W - file 5 degrees of latitude (whole degrees latitude, whole or half degrees longitude), beginning at 55N
- East of 80 W - file 5 degrees of latitude (whole degrees latitude, whole or half degrees longitude), beginning at 60N
- E/W tracks (046 - 134T)
- S of 75 N - file 10 degrees of longitude (whole or half degrees latitude, whole degrees longitude)
- N of 75N - report 20 degrees of longitude (whole or half degrees latitude, whole degrees longitude)
- The Pilot must make a Position Report/AIREP when passing each significant point of his/her flight plan

FUEL FREEZING

It is assumed that after 3 hrs of flying at a specific TAT, the fuel is assumed to be at that temperature. Typically JP-8 begins to freeze at temperatures of

-47. JETPLAN temperatures are typically 10 degrees warmer (rule of thumb) than listed due to heating by compressibility. For example, if JETPLAN reads a temperature of -52, this may be considered to be -42 TAT for fuel freezing purposes.

One must maintain an OAT at least 4 degrees Celsius warmer than the freezing point. This may be achieved by the following:

- flight at a lower altitude
- delay flight until warmer temperatures are achieved
- reduce legs to less than 3 hours flying time

ARCTIC CORMORANT CONSIDERATIONS:

To switch over to True on the Garmin, select Aux page 3/Units and rotate the inner knob to select heading to True.

Cold weather start procedures outlined in the Flight Reference Cards (FRC) must be followed diligently. Approximately three hours prior to scheduled departure for pre-heating and forty-five minutes to an hour prior for the start were required.

ARHS was reset each morning by pulling both circuit breakers for the system. It needed to be completely rebooted due to a MDU FAIL that was caused by the tight lines of Longitude.

The CAMU needed time to warm up ITO have proper communications performance.

When doing the AFCS test AP COLL showed up and the series actuators ran to the full aft or fwd position. It was determined that this snag was caused by the series actuators being cold soaked. Engaging ASE or a collective hold was ineffective to re-center the series actuators. It was found that carrying out the full MBIT test (Level 2), by pressing the Test switch followed by pressing the CPL switch will initiate the test and force the series actuators back to center. Collective hold could not be used for at least an hour until they were warmed up and then the collective hold functions would function normally.

The Micro-switches of the engine number three drive Main Actuator took much longer to indicate the correct state. It was found that the number three drive would generally not indicate Main until the MGB oil temperature reached at least 70 degrees.

Cracked windshields were experienced due to operations using gravel runways.

GPS mapping database was only available to the "top" of Baffin Island. All other features were still available.

AHRS data was inaccurate once north of Iqaluit resulting in CHK HDG, HDG 1st and HDG 2nd fail, however, the EGI and GPS were accurate. Copying the EGI heading to relieve HDG 2nd fail assisted in solving the issue. Isolating the AHRS data from the solution assisted in keeping accurate waypoint and flight plan info.

An uncoupled ILS approach using True bearings was flown in VMC conditions. All indications were normal but when coupled, the aircraft wandered off course.

ADIZ - DVFR flight plan is required. Flight notes are not acceptable.

Hand held SAT phones will not dial 1-800 numbers (ie. FSS). Direct numbers need to be used. SAT phone service was not reliable in the Arctic. Having SATCOM capability in the CH149 would complement HF communications and greatly enhance and facilitate the command and control requirement during any mission assigned to the CH149 in the Arctic or elsewhere.

ARCTIC AIRFIELDS

IQALUIT, NUNAVUT (CYFB):

- Runway 17T/35T (8600x200 asphalt)
- Iqaluit is in a control area. Descent & approach clearance required.
- If fuel truck unavailable, taxi to fuel pits & shut down to fuel, then taxi to parking spot
- Daily radiosonde balloon launches at 1/4 nm W of Rwy 35
(1115-1345Z) & (2315-0145Z)
- Mountainous terrain, area 5 (2000' clearance required)
- Passenger meals can be catered through First Air Operations or purchased at the grocery store

ALERT, NUNAVUT (CYLT):

- Runway 05T/23T (5500x150 gravel)
- Mountainous terrain, area 5 (2000' clearance required)
- IFR clearances for aircraft entering Reykjavik airspace can be obtained by contacting +354-569-4264/4141 prior to departure
- No ATC control, Alert radio 126.7 for traffic, weather, runway conditions, ETA, fuel on board, upload/download information (including number of passengers)
- Ensure flight plan is closed upon landing/open on take-off
- If invalid or no TAF, call arctic weather office (780-951-8902) or ask Trenton Wx office to have CYLT forecast extended or to request TAF
- Be watchful of freezing fog/freezing rain in forecast
- daily radiosonde balloon launches
(1115-1345Z) & (2315-0145Z)

RESOLUTE BAY, NUNAVUT (CYRB):

- Runway 17T/35T (6500x200 gravel), Rwy 35T up 0.58%
- No ATC control, Resolute Bay radio 126.7 for traffic, weather, runway conditions, ETA, fuel on board, upload/download information (incl. number of passengers)
- MF 122.1 (25nm 5300ASL)
- Non-mountainous terrain

EUREKA, NUNAVUT (CYEU):

- Runway 10T/28T (4802x150 gravel)
- Do not file as an alternate
- (off-site advisory and/or provisional TAF is equivalent to terminal advisory--no amendments).
- Terminal advisory not used above 58N.
- Daily radiosonde balloon launches
(1115-1345Z) & (2315-0145Z)
- Mountainous terrain, area 5 (2000' clearance required)

ARCTIC AIRFIELDS (CONTINUED)

THULE, GREENLAND (BGTL):

- Runway 08T/26T (9997x140 asphalt)
- explosive hazardous cargo prohibited in Thule (CLASS 1)
- must enter/exit at a compulsory reporting point
- contact TL Approach control prior to 100nm out

-Airport Operating Hours -

Standard Time - 12-20Z closed Sat, Sun & US holidays

DST - 11-19Z closed Sat, Sun & US holidays

-Base Ops Hours/Frequency -

Standard Time - 10-21Z (Mon-Thu), 10-20Z Fri,
closed Sat, Sun & US holidays

DST - 09-20Z (Mon-Thu), 09-19Z Fri,
closed Sat, Sun & US holidays

Frequency - 131.1

DSN - 86-312-268-3840 ext 2717

-PPR Required

-Ensure additional addressees on ICAO

1. BGTLWYX - Thule
2. BGSFZQZX - Sondrestrom FIR (up to FL195)
3. BIRDZQZX, BIRDZOZA (Iceland Oceanic)
4. CYQXYFYX - Gander

-Thule is considered mountainous terrain (+3000' MSL)

-Hangar usually available (request inbound) otherwise park on hdg 220M. If high winds are forecast, it may be a requirement to chain aircraft

-Be mindful of frost on painted runway as nosewheel steering will be ineffective (painted white runway (with red markings) is relatively more slippery than gravel or asphalt).

-Transition level - 9000 within 100nm, transition altitude 6500

-reflective gear must be worn on the flight line and outdoors in Thule at all times, in darkness.

ENROUTE

SMM Annex E - Ch4

Establish COMMS with JRCC and other agencies A/R

- a. pass ETA
- b. establish working frequencies
- c. pass BINGO fuel
- d. update mission details

Aircraft Configure

- e. cockpit set-up (homing, DF, ...)
- f. complete coastal check/ditching drill
- g. SAR check Pt 1 ...

Determine:

- h. Spotter rotation
- i. Altitude/speed/distances for search, AFCS usage
- j. Recovery airport, fuel, hospital with BINGO fuel

PRE-SEARCH

- 1. Intercom check
- 2. Search object
- 3. Search plan
 - a. assigned task and search plan
 - b. intentions in event of call-around
 - c. search area update (weather, elevation, IIMC plan)
 - d. recovery: hospital / airport / BINGO
 - e. spotter rotation
- 4. Distance checks for spotters
- 5. Aircraft configured for search
 - a. altitude, airspeed, distances, pattern, freqs, NAV
- 6. Advise Entering the Search Area

SEARCH HEIGHTS, VISIBILITY, AND TRACK SPACING

Ref. SMM 11.4.3

OVER LAND

Terrain	Alt-ft	Vis	Spacing	Remarks
Open to Lightly Wooded	1500	3 nm	6 nm	Initial Search
	1000	1 nm	2 nm	Second
	500	½ nm	1 nm	Third
Moderately Wooded	1500	3 nm	6 nm	Initial Search
	1000	1-2 nm	2-4 nm	Second
	800	½ nm	1 nm	Third
Night Search	3000	5 nm	10 nm	200 Ft Above highest peak in mountains
	2000	5 nm	10 nm	
Contour Search	500 ft Intervals			
ELT Search	10000 ft		30 nm	Spacing can be reduced by ½ in mountainous terrain
	5000 ft		15 nm	
	1000 ft		8 nm	

OVER WATER

Conditions	Altitude-ft
PIW without raft or dye marker	Below 500
In raft without dye or signal device	800-1500
If survivors have dye marker	1000-2000
If survivors have signal device	1000-3000

TRACK CRAWL

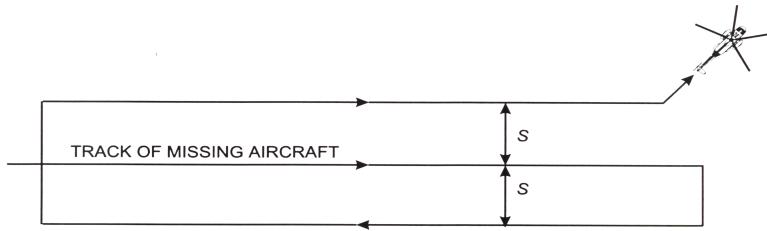
Ref. SMM 11.4.5

Used when an aircraft disappears without a trace. It consists of a rapid and reasonably thorough coverage on either side of the intended track of the missing aircraft.

The A/C proceeds to the LKP (Last Known Position) and flies the intended track to the intended destination. It then returns along a parallel track at twice the assigned visibility distance to one side of the original track and then repeats for the other side. Spacing = $2 * \text{visibility}$.

Return: Will start with an initial offset and follow parallel to the flight plan at the end it will offset on the other side and fly it in reverse.

Non-return: Will follow the initial flight plan and that at the end will offset and fly the flight plan in reverse.



NIGHT FLARE ILLUMINATION

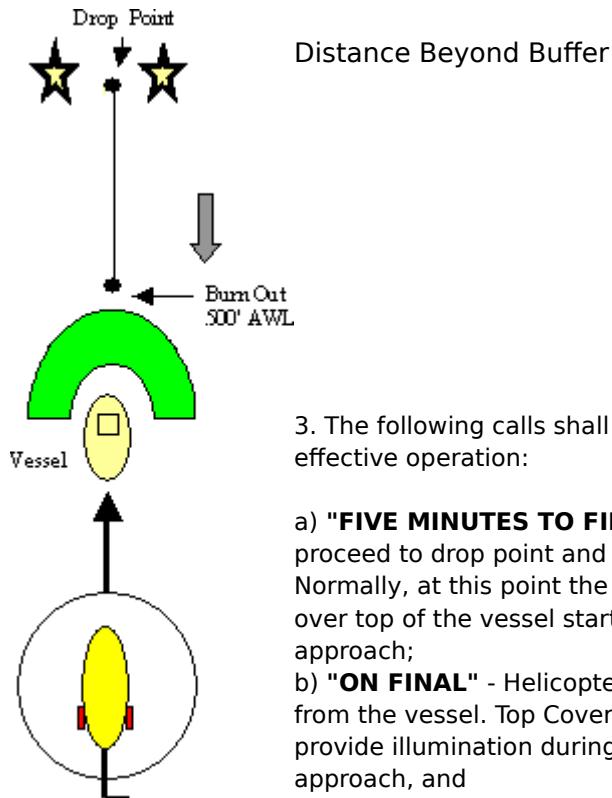
Ref. SMM Annex S

1. Flares are primarily used to provide a horizon, not deck illumination, and even if the flares are in cloud, the diffused light provides a suitable horizon.

It is imperative that flare illumination be continuous.

2. The distance beyond buffer table included below specifies the distance at which flares are dropped to safeguard a 2 Nm buffer zone between the vessel and the flare burn out point. 4-minute flares are released at 3,000 ft AWL. 5-minute flares are released at 3,500 ft AWL. This will ensure that flares burn out by 500 ft AWL.

4m flare	Wind	5m flare
0.7nm	0-10	0.9nm
1.3nm	10-20	1.7nm
2.0nm	20-30	2.5nm
2.6nm	30-40	3.3nm
3.3nm	40-50	4.1nm



3. The following calls shall be made to ensure safe and effective operation:

- a) **"FIVE MINUTES TO FINAL"** - Top Cover A/C to proceed to drop point and commence the flare drop. Normally, at this point the helicopter is over top of the vessel starting the full procedure approach;
- b) **"ON FINAL"** - Helicopter is a minimum of 3 Nm back from the vessel. Top Cover A/C is to advise if unable to provide illumination during the last two minutes of the approach, and
- c) **"ESTABLISHED IN THE REST"** - Helicopter is in the rest position. Flares are now to be moved to the 2 o'clock position. The vessel will turn to place wind 30-45 deg off its port bow (Starboard Stern for a Bow Hoist).

rest position. Flares are now to be moved to the 2 o'clock position. The vessel will turn to place wind 30-45 deg off its port bow (Starboard Stern for a Bow Hoist).

To request flare position movement, give magnetic bearing from helicopter to top cover (ie. Read it off your HSI).

SMOKE MARKERS

Ref. SMM 9.5.7

- a) The helicopter proceeds past the target on a heading between 15-30 deg right of the wind. Airspeed and altitude shall be at the pilot's discretion, however, airspeed should not exceed 55 KIAS for smoke deployment.
- b) As the helicopter approaches the desired location for the markers (approximately 10 seconds back), the PF advises the FE to prepare to drop the smoke... If required, the FE should con the aircraft left or right to maintain a good "line" to the target.
- c) When at the drop point, the PF will call "**SMOKE MARKER... NOW**". The FE will drop the marker on the word "NOW". When the smoke has been deployed, the FE shall advise the PF. Two smoke markers are normally dropped approximately **100-300 ft out from the survivor and 100-300 ft apart**.

AIRBORNE INTERCEPT / LOST AIRCRAFT

Ref: ?

Enroute

- a. Determine altitude for interception. ENSURE you're using the same Alt Setting as lost aircraft.
 - VFR day -1000' below distress aircraft;
 - VFR night (over water) -1000' above distress aircraft;
 - VFR night (over land) -1000' below distress aircraft;
 - IFR -1000' above distress aircraft.
- b. Based on the nature of the emergency, make sure the SAR Tech's equipment and personnel are prepared for immediate dispatch.
- c. Use any method of homing that is available (VHF/UHF, ground-controlled intercept).
- d. Attempt VHF/UHF voice contact when in range.
 - a. (The rescue aircraft climbs to increase radio range)

UHF/VHF Voice Contact

- a. Get aircraft to turn on ELT IOT track aircraft and use voice comms on primary radio.
- b. Obtain essential data.
- c. Confirm frequencies as follows:

1	Primary VHF	Secondary
2	Primary UHF	Secondary

- d. Advise distressed aircraft to try secondary frequency if contact lost for any 3 minute period.
- e. Advise aircraft to transmit "EMERGENCY" Mode 3, Code 7700 on IFF.
- f. Obtain and evaluate the latest information such as;
 1. Position (time)
 2. True course/true heading
 3. TAS/ground speed/altitude
 4. Fuel status/distance that can be covered with fuel remaining
 5. Personnel on board
 6. Flight conditions
- g. Verify nature of emergency and intentions.
- h. Obtain DF's.
- i. Keep distressed aircraft informed of your position and estimated time of intercept.

Transmit following information:

1. Altimeter setting,
2. Weather and
3. Minimum safe altitude.

Useful Tools

- Radar vectors from terminal
- Side-Car (NORAD) is an option. Ask for working freq on 121.5
- Homing equipment

Close-In Procedure

- a. Ten minutes prior to estimated intercept:
 1. Conduct radar search;
 2. Post spotters for visual sighting;
 3. Confirm altitude and altimeter setting;
 4. Obtain current heading and airspeed.
- b. Five minutes before, attempt visual contact, signal with landing lights or flares.
- c. Request more frequent UHF/VHF homing; if no visual contact, turn to follow the aircraft using DF bearings.
- d. Assume escort position for the following:
 1. Visual- slightly below to the right and to the rear of the aircraft;
 2. IFR- 1000' above and behind.

Escort Procedures

- a. Maintain visual/electronic contact.
- b. Assume navigation and position reporting responsibility if distressed aircraft desires.
- c. Notify RCC of position and time of intercept.
- d. Provide landing weather and airborne information if distressed aircraft can make a landing.
- e. Obtain approach/landing clearance if requested and remain overhead or airborne until distressed aircraft lands.

Emergency Assistance

- a. Delay bail-out, forced landing or ditching until absolutely necessary.
- b. Provide location and heading to closest suitable facility or best area for bail-out, ditching or forced landing.
- c. Alert ground stations and request bearings, fixes and dispatch of additional rescue aircraft
- d. Advise on jettison of cargo, equipment, or fuel.
- e. Advise on use of maximum range power setting.
- f. Advise on water conditions, best heading and technique for ditching.
- g. Guide to VFR area if possible.
- h. Advise distressed aircraft to place emergency radios in operation as soon as possible after landing- verify frequencies.
- i. Brief on night-illumination pattern and procedures.

Incomplete Intercept

- a. Request heading, altitude and notification just prior to bail-out, forced landing or ditching.
- b. Maintain altitude EN ROUTE to area for reception of emergency signals.

LOST AIRCRAFT PROCEDURES

Establish communications (climb to increase range):

Primary	UHF	_____	VHF	_____
Secondary	UHF	_____	VHF	_____

- a. Instruct lost aircraft to climb and orbit at the highest possible altitude.
- b. Obtain fuel remaining and number of persons aboard
- c. Utilize all aids to intercept or determine position UHF/VHF DF, GCI, surface objects and landmarks.
- d. Have pilot check to see if compass is working.

Intercept Techniques

- a. When reliable bearing or position is established, have aircraft take up heading toward you.
- b. If intercept is impractical, vector to most suitable landing site.
- c. Ensure that vectors or headings provide minimum obstruction clearance at aircraft altitude.

Distressed Aircraft Orbit

- g. Take a bearing on the orbiting aircraft.
- h. Fly perpendicular heading for 5 minutes.
- i. Take a second bearing.
- j. Compute distance to lost aircraft:
$$\frac{\text{TAS} \times \text{Min Flown}}{\text{Bearing Change}} = \text{Distance}$$
- k. Plot bearings/determine position.
- l. Provide lost aircraft with bearing, distance, ETA to closest suitable airfield.
- m. Perform offset intercept/monitor progress.

WARNING

Ensure that vectors provide minimum
Obstruction clearance at the lost aircraft's altitude

GROUND-AIR SIGNALS

SAR Techs (Para)

2 Red Flares	Require Assistance
2 Green Flares	Ok
1 Red Flare	No Survivors
1 Green Flare	Survivors

International

V	Requires assistance	LL	All is well
X	Requires medical assistance	F	Require food & water
N	No	L	Require fuel & oil
Y	Yes	W	Need repairs
(arrow)	Proceeding in this direction		

DEPARTURE/ARRIVAL MESSAGES

Ref. FOM 2.4.5.8

To AOC Winnipeg & MACS Trenton
CC Sqn, RCC

Departure Message Format

The Departure Message text shall include the following information:

- a. flight number;
- b. aircraft number;
- c. AC's surname;
- d. departure point and time;
- e. next destination and ETA; and
- f. remarks - include VIPs onboard, late departure/payload information if required. Payload information should include Dangerous Goods, parking restrictions and any special handling requirements.

Arrival Message Format

The Arrival Message text shall include the following information:

- a. flight number;
- b. aircraft number;
- c. AC's surname;
- d. arrival point and time;
- e. estimated time of departure for next scheduled stop (if applicable); and
- f. Remarks - include crew whereabouts, crew accommodations, telephone/fax number, diplomatic clearances outstanding, any diplomatic overflight issues experienced on leg, etc.

FREQUENCIES

Station	Remarks	Frequency
103 Sqn Ops/Servicing	Outcast Ops	128.85/252.8
413 Sqn Ops/Servicing	Tusker Ops/Servicing	129.775
444 Sqn Ops/Servicing	Retriever Ops	134.1
ARAF CYTT		131.025
ARCAL NWS	(5 TIMES IN 3 SECS)	131.15
ARCAL RCMP Pad St-John's		122.8
Woodward St-John's	709-579-3776	123.5
Botwood Continuous Wx	Good for homing	162.550

SAR Equipment

Station	Remarks	Frequency
Data Marker Buoy (DMB)		156.75
Training Bcn		123.1/246.2
PRQ 501	Voice Capable	243.0/282.2
Radio (Msg dropper)	Voice Only	156.3

Common SAR Frequencies

Station	Frequency
SAR Onscene	123.1 / 246.2 / 282.8 / 252.8
SAR Marine	M16 / M19
SAR Ground	156.3 / 156.95
SRK	156.8
SAR Interagency Ops	149.080 (comms between GSAR, RCMP, CF SAR)
GSAR	166.14

Police Frequencies

Station	Frequency
RCMP NB, NS, NFLD	155.670 SIMPLEX *note 1
RCMP (NFLD only)	155.310
Sûreté du Québec	171.18/172.02

Note: VHF freq for RCMP or Sûreté du Québec: 155.67. Initial contact must be made by phone or through RCC , 1-800-709-7267 or 1-709-772-5465 or local detachment phone number, to inform the detachment to monitor **freq 155.67** or "local". Can Also proceed through Halifax Comm Centre 426-1323 or for SQ, call Montréal Duty Officer 514 598-4141

VHF-FM MARINE CHANNELS

Ch	Ship (Tx)	Shore (Rec)	Func	S	D	Type of Traffic
01	156.050	160.650	s/c		X	Public
02	156.100	160.700	s/c		X	Public
03	156.150	160.750	s/c	X	X	Public
04	156.200	160.800	s/c	X	X	Public
05	156.250	160.850	s/c	X	X	Ship movement
06	156.300	156.300	s/s	X		SAFETY/SAR
07A	156.350	156.350	both	X		Commercial
08	156.400	156.400	s/s			Commercial
09	156.450	156.450	both	X		Maritime support op
10	156.500	156.500	both			Commercial/SAR
11	156.550	156.550	s/c	X		Port ops
12	156.600	156.600	s/c	X		Port Ops
13	156.650	156.650	both	X		Nav safety comm.
14	156.700	156.700	S/c	X		Port Ops
15	156.750	156.750	both	X		(Low Power)
16	156.800	156.800	both	X		Distress/Safety/calling
17	156.850	156.850	both			(Low Power)
18A	156.900	161.500	S/c	X	X	Public
19A	156.950	161.550	both	X	X	Coast Guard
20	157.000	161.600	s/c		X	Port Ops
21A	157.050	157.050	both	X		Coast Guard
21B		161.650		X		Marine Broadcast
22A	157.100	157.100	both	X		CCG to Non-CCG
24	157.200	161.800	s/c	X	X	Public
25B		161.850		X		Marine Broadcast
26	157.300	161.900	s/c	X	X	Public
27	157.350	161.950	s/c			Public
28B		162.000				Marine Broadcast
60	156.025	160.625	s/c		X	Public
61A	156.075	156.075	both	X		Commercial Fishing
62A	156.125	156.125	both	X		Commercial Fishing
64A	156.225	156.225	both	X		Commercial Fishing
67	156.375	156.375	both	X		Commercial/SAR
68	156.425	156.425	both	X		Marinas & Clubs
69	156.475	156.475	both	X		Commercial Fishing
71	156.575	156.575	both	X		Marinas & Clubs
72	156.625	156.625	s/s	X		Maritime Ops
73	156.675	156.675	both	X		Commercial, SAR
74	156.725	156.725	s/c	X		Ship Movements
75	156.775		s/c	X		Port ops
76	156.825		s/c	X		Port ops
77	156.875		s/c	X		Port ops
78A	156.925	156.925	both	X		Commercial
79	156.975	161.575	s/c		X	Public
80	157.025	161.625	s/c		X	Public
81	175.075	161.675	s/c		X	Public
82	157.125	161.725	s/c	X	X	public
83A	157.175	157.175	both	X		Fed Government
83B		161.775		X		Marine Broadcast
84	161.825	157.225	s/c	X	X	CCG Phone Patch
85	157.275	161.875	s/c	X	X	Public

Ch	Ship (Tx)	Shore (Rec)	Func	S	D	Type of Traffic
86	157.325	161.925	s/c	X	X	Public
87	157.375	161.975	s/c	X	X	Public
88	157.425	162.025	both	X	X	public
97	(W3)	162.475	c/s			Continuous Wx

Function: s/c : ship to coast communication

s/s: intership communication

S: simplex frequency

D: Duplex frequencies

Letter A after the channel corresponds to simplex freq.

Letter B after the channel corresponds to duplex freq.

When selecting a simplex freq, use the **ship (tx)** column.

When selecting duplex freq, set the freq from the **ship (tx)** column. On the Radio setting page, select duplex. The radio will automatically receive on the correspondent **Coast (Rec)** freq.

PHONE NUMBERS

Weather

FSS	866-992-7433
CanForce Wx	800-996-3836
Gander Wx	709-256-6663
Long Pond Wx	709-758-4828

NAV CAN

Gander Low Domestic (Supvr)	709-651-5221
Gander Low Domestic Manager	709-422-2097
Gander Ocean (Supvr)	709-651-5324
Gander Ocean Manager	709-424-9482
Gander Shift Manager	709-651-5203
Gander IFR Flight Planning	709-651-5225
Gander Flight Planning manager	709-424-3284
Gander Tower	709-651-5329
St-John's Tower	709-724-1055
Deer Lake FSS	709-655-2848
Deer Lake Supervisor	709-635-4308
Halifax FIC	1-866-541-4106

NEWFOUNDLAND OTHER NUMBERS

Customs	888-CANPASS
Gander Customs	709 256-6583
Can Pass Customs (info only 24/7)	905-679-2075
ARF Torbay	709-570-4791
Cougar St John's	709-758-4800 Freq 130.275
St. Pierre Tower	011-508-41-18-22
Consulate St. Pierre	011-508-41-55-10
MRSC St. Pierre	011-508-41-28-72
Woodward St-John's	709-579-3776
Shell Aerocentre (Hot Refuel)	709-570-0765
Parks Canada	1-877-852-3100
Gros Morne Park Warden	709-458-2417
OC JTFN Iqaluit	867-22-1179
South Camp Inn CYRB	867-252-3737

SAT PHONE

1. To call another Sat phone:
Dial **00-8816-xxxx-xxxx**
2. For someone to call a Sat phone from a land line:
Dial **011-8816-xxxx-xxxx**
3. Sat phone to Sat phone:
use Iridium Operator# (**480-768-2500**)
then dial other Sat # when prompted.

CH149 Sat Phones

901	011-8816-5145-9429
902	011-8816-5147-3126
903	011-8816-5147-2987
904	011-8816-5145-9422
905	011-8816-5146-7742
906	011-8816-5147-6648
907	011-8816-5145-9413
908	011-8816-5147-6646
909	011-8816-5147-4594
910	011-8816-5147-4566
911	011-8816-5145-9464
912	011-8816-5145-9468
913	011-8816-5147-6623
915	011-8816-5147-2990

Buffalo Sat Phones

451	8816-3144-3936
452	8816-4142-9819
456	8816-4144-9318
457	8816-4146-5588
462	8816-3144-4556
465	8816-4144-7011

OIL RIG SPECIAL PROCEDURES

The radio room appreciates a call from Ops prior to leaving for Cougar. This helps de-conflict with Cougar traffic. They also like a 30 minutes back call so they can position their refueling crew. (If you ask nicely, they will provide hot meals upon request).

On approach to the Rig, the safety boat may be positioned such that radar let down is possible to the vessel rather than the rig. This procedure provides a better margin of safety for approaching the rig in fog.

LONG POND may be used as a valid alternate for an IFR leg if required. For this to occur, the TAF must remain valid, therefore, you have to request that the forecaster stay there overtime if necessary.

When returning from the rig, fly direct to CYYT. These routes will deconflict with Cougar traffic.

Past 60 nm from shore Cougar works 126.7 until close to the rigs then they work 130.275. They also give position reports every 30 nm going out and returning and an ETA for the next point. (A30, A60, A90, A120, A150 and B150, B120, B90, B60, B30)

Give a traffic report on 126.7 when leaving controlled airspace and maintain a listening watch.

COUGAR HELICOPTER OFFSHORE OPS

Cougar Dispatch	169.6 5	709-758-4810
GSF Grand Banks	156.3	709-724-6944
Transocean Henry Goodrich	156.4	709-778-3900
Petro Can FPSO Terra Nova	156.5	709-778-3000
Husky Sea Rose	156.7 25	709-724-4000 x1600
Hibernia	156.4 5	709-778-7433
Rowan Gorilla 3	156.6 75	713-422-5851
Rowan Gorilla 6	156.3 5	709-724-6550

St John's Base:

Stratos flight following: 709-748-4242

Emerg Response Room: 709-758-4451

HEBRON



D-Value 23 m

Deck Height ASL 226 ft

Maximum Height of Structure 466 ft

Communication Frequency (130.275)

VHF AM 130.275MHz

VHF FM Ch 6

Navigation Frequency 246 kHz

(G8 --- • --- • •)

Latitude/Longitude N 46 32.64

W 48 29.94

Telephone Numbers:

Inmarsat -011-870-773-928-882

Fuel Yes

Deck Heading 200° M

HIBERNIA



D-Value	23 m
Deck Height ASL	230 ft
Maximum Height of Structure	475 ft
Communication Frequency	(130.275)
VHF AM	130.275MHz
VHF FM	Ch 9
Navigation Frequency	229 kHz (1M • -----)
Radar Transponder	Yes
Latitude/Longitude	N 46 44.96 W 48 46.79

Telephone Numbers:

Radio Room -	(709) 778-7430
Fax -	(709) 778-7440
CCR -	(709) 778-4981
Inmarsat	-011-870-331-609-920
Fuel	Yes (Required double ground)
Deck Heading	290° M

TRANSOCEAN: HENRY GOODRICH



D-Value	30 m
Deck Height ASL	95 ft
Maximum Height of Structure	
Drilling Draft	286 ft
Survival Draft	308 ft
Communication Frequency	
VHF AM	130.275
VHF FM	Ch 8
Navigation Frequency	413 kHz (6C - • • • - - - •)
Radar Transponder	Yes
	Code 3B 6P
Latitude/Longitude	Verify with Ops
	N 46 36.20 W 048 02.70
Telephone Numbers	
Radio Room	(709) 778-7136
Fax	(709) 758-4476
Fuel	Yes
Deck Heading	Verify with operations

HUSKY ENERGY: FPSO SEA ROSE



D-Value	22.8m
Deck Height ASL	120 ft
Maximum Height of Structure	400 ft
Communication Frequency	
VHF AM	130.275MHz
VHF FM	CH 74
Navigation Frequency	350kHz (F2 • - • - • - - -)
Radar Transponder	No
Latitude/Longitude	
Telephone Numbers:	
Radio Room	(709) 724-4000 ext 1600
Fax	(709) 724-6814
CCR	724-4000 ext 1614
InMarSat	011 870 331631710
Fuel:	Jet A-1
Deck Heading:	VARIABLE (Weathervane)

BEAUFORT SEA STATE SCALE

	Wind (kts)	Sea Indications	Wave Height (Feet)
0	Calm	Like a mirror.	0
1	1 - 3	Ripples with the appearance of scales.	0.5
2	4 - 6	Small wavelets; crests have glassy appearance and do not break.	1
3	7 - 10	Large wavelets; crests begin to work. Foam of glassy appearance; few very scattered whitecaps.	2
4	11 - 16	Small waves becoming longer. Fairly frequent whitecaps.	5
5	17 - 21	Moderate waves taking a pronounced long foam; many whitecaps.	10
6	22 - 27	Large waves begin to form; white foam crests are more extensive; some spray.	15
7	28 - 33	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of waves.	20
8	34 - 40	Moderately high waves of greater length; edges of waves break into spindrift; foam blown in well marked streaks in direction of wind.	25
9	41 - 47	High Waves. Dense streaks of foam; Sea begins to roll; spray affects visibility.	30
10	48 - 55	Very high waves with overhanging crests; foam in great patches blown in dense white streaks. Whole surface of sea takes on a white appearance. Visibility is affected.	35

25 HOUR CHECKS

Anti-Icing and Start-Valve checks

Notes: While conducting this check only the PAL for the engine you are checking should be at NORMAL. The other two engines should be at Ground Idle in order to observe the appropriate amount of TIT increase on the engine being checked.

Before switching ON the engine anti-icing, confirm NG's are in excess of the NG vs OAT table. In case NG's are not in excess, increase collective to reach a proper level of NG.

With the test engine driving the rotor at 102% Nr, slowly increase collective pitch to obtain the minimum NG.

Turn on the engine anti-icing system; TIT should increase at least 30C and ENGINE A/ICE status on the SPSD ELEC page changes from OFF to ON.

If recorded TIT is less than 30C, the valve has failed the check.

Repeat check for each engine.

Temp °C	NG %
-50 to -43	81
-42 to -37	82
-36 to -31	83
-32 to -25	84
-24 to -18	85
-17 to -13	86
-12 to -6	87
-5 to 0	88

Temp °C	NG %
1 to 6	89
7 to 13	90
14 to 19	91
20 to 25	92
26 to 31	93
32 to 37	94
38 to 43	95
44 to 50	96

25 HOUR CHECKS (CONTINUED)

Overspeed Check

An overspeed check can be used to verify that the NF overspeed protection system is functioning properly. This check can be done with one or more engines operating and driving the rotor at 102% Nr and collective pitch lever at the MPOG position.

1. Complete Normal First flight of the day checks on the overspeed system.
2. Complete 25 Hour Check on Overspeed Protection System
 - a) As one (A or B) switch is being held in the test position, briefly flick the other switch to test. A noticeable transient decrease in Ng should occur. If this does not happen the NF Overspeed protection system has failed and should be investigated. If flameout occurs, restart engine.
 - b) Repeat on remaining engines.

DECU Lockout Check (IF REQ'D)

CAUTION: The DECU TIT limiter, torque limiter and Ng governor are inoperative when the engine is operated in lockout mode. Promptly retard the pal control from lockout position to avoid exceeding engine and temperature limits.

Note: This is the on the ground procedure.

1. With PAL control in the NORM position open the lockout gate. Advance the PAL control to the lockout position and promptly retard it just above the GROUND IDLE position.
2. Ensure engine is in a lockout position by slowly advancing the PAL and noting the associated rise in torque, Ng, TIT and Nf. Continue to slowly advance the PAL while paying close attention to all engine and rotor limits to a point where torque of the engine being tested is slightly above the torque setting of the remaining engines and no torque sharing is noted.
3. Slowly retard the PAL to the GROUND IDLE position noting a decrease in torque, Ng, TIT and Nf.
4. Close the lockout gate and slowly advance the PAL to the NORM position, taking note that normal torque sharing takes place and that the engine is no longer in lockout mode.
5. Repeat procedure for remaining engines

TWO ENGINE CRUISE

Ref: SMM Ch4 - 3.2.5

1. ... this option may only be contemplated if unforeseen in-flight extreme situations create an unquestionable risk of aircraft fuel starvation...
2. This procedure may not be possible if the aircraft is operated at high DA... performance charts or in flight by retarding #3 engine to ground idle and assessing the aircraft performance prior to engine shut down.
3. ... For maximum benefit, approximately 125 kts cruising speed should be used (refer to the appropriate AFM chart for a more accurate best range TAS). Depending on altitude and temperature, fuel burn will decrease by 18-25% and aircraft range will be improved by 12-17%. ...

Restrictions ...

- (1) a minimum of 1,000 ft AGL/AWL should be maintained to allow time to restart #3 engine in the event of #1 or #2 engine malfunction;
- (2) only #3 engine shall be intentionally shutdown;
- (3) #3 engine should be restarted once the critical fuel issue has been resolved or prior to commencing the approach for landing;
- (4) once the engine is shutdown, the engine drive shall be selected to NEUT;
- (5) the Emergency Restart Procedure (Annex C) and the AFM Restarting Procedure shall be committed to memory, and
- (6) flight in icing conditions should be avoided.

Warning: If icing conditions are inevitable, #3 engine intake anti-ice shall not be used (ice and/or snow will melt at the front of the intake and water will freeze inside the engine) and the engine should not be restarted if possible. In this case, an OEI landing should be conducted.

4. Initial Cruise Check. The Initial Cruise Check (Annex C) must be carried out when using the Two Engine Cruise Procedure.

(restart next page)

TWO ENGINE CRUISE RESTART

Ref: SMM Ch4 – 3.2.5 and Annex C

Annex C - Emergency Restart Procedure & AFM Restart

1. Collective Adjust
(maintain NR and minimize rate of descent)
2. Airspeed 75 KIAS
3. #3 Engine Drive MAIN
4. AFM Restart Procedure Complete

- 1. Engine * DRIVE switch** MAIN
- 2. BLEED switch** APU
- 3. TIT** < 150

Vent the engine if required TIT.
Carryout Basic Engine Starting Procedure.

5. Emergency response Complete

Caution: Before attempting an engine crossfeed ‘bleed air’ start in flight, ensure that other engines are driving at a torque value of at least 50%.

Remaining SMM Details

5. Engine restart. When #3 engine normal (non-emergency) restart is required, select #3 drive to MAIN and follow the AFM Restarting Procedure. When #3 engine must be restarted after #1 or #2 engine has malfunctioned, refer to Annex C, Emergency Restart Procedure.

6. #3 engine may be restarted at any time using bleed air from the remaining engines. Even after a #1 or #2 engine malfunction, #3 engine can be restarted with the remaining engine bleed air but engine performance will be degraded by as much as 20%. Time permitting during any malfunction, start the APU and select the bleed switch to APU.

Warning: #3 Engine Drive must be selected to MAIN prior to starting #3 Engine. This will ensure that the Engine Drive will move to the appropriate position (MAIN) under all possible system configurations.

Note: Once #3 Engine start is initiated, it will not be possible to move #3 Drive to MAIN if #2 Engine is shut down and #2 PAL is in the SHUTOFF position. In this case, #3 NF is above #2 and the aircraft “logic” system inhibits Drive operation. Moving #2 PAL out of the SHUTOFF Gate Position will allow #3 Drive to move.

FLIGHT IN AIRFRAME ICING CONDITION

FOLLOWING ICING SYSTEM FAILURE

Ref: SMM Ch 4 – 3.2.11

1. ...

2. ... At no time should this information be used to extend flight into known icing conditions once an available escape route has been identified.

a) **RIPS failure** – Complete the FRC response. Although not certified for Canadian use, the CH149 has been tested and found capable of sustained flight in icing conditions with “Cold Main Rotor Blades” provided that the following limitations are met:

(1) Max AUW	14,600 kg
(2) Min OAT	-8° C
(3) Max LWC	0.3 g/m3
(4) Max Press Alt	6,000 ft
(5) Max Air Speed	IAW RIPS FAILED airspeed envelope
(6) VAM Limit	20 mm from start of cold blade operation
(7) Torque rise	20%
(8) Max angle of bank	30°

A perceptible change in vibration is to be used as a cue that icing conditions should be vacated.

b) **ISDS failure** – Complete the FRC response. Flight in icing may be continued with the RIPS operating in manual. Icing conditions should be vacated as soon as possible if torque rises by 20%, or 95% torque is reached in level flight or there is a marked vibration increase.

c) **Intake anti-icing** – Complete the FRC response. Airspeed should be kept as high as possible when OAT increases above 0° C to minimize the possibility of ice shedding into the intake.

d) **Engine Scoop** – Complete the FRC response. Up to 30 mm of ice accretion following the failure should not pose a significant risk to the aircraft while implementing the escape plan.

e) **T/R anti-ice** – As per AFM, minimum temperature in icing conditions
-8° C.

3. ...

RDR1400C ColourVision Weather Radar

Ref: AFM Vol 2 Section 7

SRCH 1 - System rejects to detect sea clutter of targets over water. Depending upon sea state, small boats should be detectable down to approx 300 yards. (max 20nm)

SRCH 2 - This mode gives short range precision ground mapping of topography. (max 20nm) (Towns red, water green, open ground yellow)

SRCH 3 - This mode provides normal surface mapping and maximises clutter returns. SRCH 3 mode could be used, for example, in determining the extent of oil slicks.

Warning: Make sure ground pers are at least 7' away from the antenna

Disable stabilization: Pull up on PULL STAB OFF.