<u>John Thorogood – Mesters Vig 2014</u> <u>Expedition Reference No: A-14-39</u> <u>Logistics Report</u>

Summary

A privately owned light aeroplane was flown from Scotland to Mesters Vig to check on the conditions of some expedition equipment stored at the base and recover a 30 hp outboard motor to Iceland for overhaul. Whilst in Mesters Vig, it was intented to hike in the local area for a few days. In accordance with the requirements of the Greenlandic Government regulations, a permit was obtained to enter the National Park, Search and Rescue insurance cover put in place and permission granted by the Danish Arctic Command to visit the base.

The aeroplane used was a light twin-engined Piper PA23/160 Apache operated privately under a UK National Certificate of Airworthiness. Built in 1958, it is capable of operations off short un-paved strips while cruising at 125 knots at an altitude of up to 10,000 feet. The party flew from Scotland to Iceland on Monday 4th August 2014. After spending the night in Akureyri, they continued the next day to Nerlerit Inaat, to complete entry formalities and refuel, before the final short flight to Mesters Vig.

On arrival at Mesters Vig, with equipment inspection by the base personnel and rifle practice completed, the stores in Ekspeditionshus were checked and found to be in good condition. Local walks included an ascent of Karsberg (1,057m) to the west of the airfield. Investigation revealed that the outboard motor had suffered a blockage of the float chamber inlet valve, which was rectified and the motor successfully run. A change of itinerary was notified by email to the MRCC and Police in Nuuk and a short boat journey from Noret to Kap Pedersen was undertaken. A day's walk up the Skjoldungebrae glacier was undertaken before returning to Noret and Mesters Vig.

After cleaning off the boat gear and winterising the outboard motors, the equipment was secured in Ekspeditionshus. The party departed from Mesters Vig on Monday 11th August, stopping at Nerlerit Inaat to refuel before continuing on to Akureyri. Two days were spent in Iceland awaiting wind conditions to abate following the passage of the remains of hurricane Bertha across the North Atlantic. The party returned to Scotland on Friday 15th August following a visit to the Faroe Islands.

The MRCC and Police in Nuuk were notified of the start and end of the expedition. The activity took place in accordance with the conditions of the permit and without accident, incidents or other safety or environmental events. All waste was returned to Mesters Vig base for disposal.



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Figure 1: Kong Oscars Fjord from Karsberg

Dr John L Thorogood October 2014 Author:

Date:

Members of the Expedition

Dr John Thorogood Leader. DOB 5th March 1952. Address: Gadie House, Leslie, INSCH, Aberdeenshire, AB52 6NT, UK, Tel: +(44) 1464 820492, Email: john.thorogood@drillinggc.com. Occupation: Engineering consultant. 7 prior expeditions to NE Greenland: 3 to Stauning Alper, 4 in Fjord region including ascents of Petermanns Tinde and Shackletons Bjerg. One to Arctic Norway, one to Svalbard.



Professor Michael Lean, DOB 16th March 1952. Address: Hatton Castle, Newtyle, Blairgowrie, PH12 8UN, UK, Tel: +(44) 1828 650404, mike.lean@glasgow.ac.uk. Occupation: Extensive climbing, mountaineering and hill walking experience in Scotland, the Alps, Svalbard, Himalaya and New Zealand



Access to Area of Operation

The party travelled by private aeroplane owned and operated by John Thorogood from Aberdeenshire in Scotland, UK to Mesters Vig on 4th-5th August 2014. On the way to Greenland, there was an overnight stop in Akureyri in Iceland and a brief stop at Nerlerit Inaat to complete entry formalities and refuel.

The aeroplane, registration G-APFV, is a twin-engined Piper PA23/160 It is operated under a UK Apache. National Certificate of Airworthiness in the Private Category. Built in 1958, it is capable of operations off short un-paved strips while cruising at 125 knots at an altitude of up to 10,000 feet without the requirement for supplementary oxygen. A fuel capacity of 410 litres provides an endurance of 6½ hours.



Figure 2: Crossing the Denmark Strait

Flight operations were conducted in accordance with the provisions of the relevant National AIPs and, specifically in Greenland, in accordance with Danish CAA document



Figure 3: On approach to Nerlerit Inaat

 2^{nd} BL 5-24. edition, June 2008. Certification in the Private Category, which had to be confirmed to the Authorities, simplified matters removing the Greenlandic Government requirements imposed on flights by charter operators. All that was required was "prior permission" from the airfields to be visited and permission to land at Mesters Vig from the Danish Arctic Command. It should be noted that, despite 24-hour daylight, the airfield at Nerlerit Inaat closes at 4pm on weekdays

and is closed at weekends and public holidays unless there is a requirement for unscheduled operations.



Figure 4: On Finals to Mesters Vig

All camping equipment, food, fuel and emergency supplies were carried on the aeroplane. The total weight of this equipment, including aeroplane covers, flight equipment, engine oil, was restricted to a maximum of 135 kg to ensure that, with full fuel and crew onboard, the loading remained within the weight and balance envelope of the aeroplane. To facilitate loading, the rear passenger seats were removed and, for safety, the equipment was secured to the seat rails with webbing straps and cargo

netting. The outboard motor weighed 51 kg. Had it proved necessary to take it back to Iceland, then safe loading would have been achieved by restricting the amount of fuel carried on the return flight by 70 litres, equivalent to each of the outboard tanks being filled only half-full. With a total of 340 litres onboard, this would have provided 5hr20min endurance.

Details of the route, flight times and other relevant information are included in Appendix D below. The route was also tracked using the DeLorme InReach personal location system; the tracks can be seen at https://share.delorme.com/JohnThorogood. Limited supplies of aviation gasoline (AVGAS) were positioned at Nerlerit Inaat and consumed prior to departure.

The party departed from Greenland on Monday 11th August by the same route with a stop in the Faroe Islands. The MRCC and Police in Nuuk were advised by email of the start of the expedition and its end by email over satellite phone link.

Expedition Activities

A summary of the expedition's activities are included in Appendix A, weather conditions in Appendix B and boat journeys in Appendix C. Some essential points to note are as follows:

- A complete inventory of equipment held by the expedition in Ekspeditionshus was made, no shortfalls were identified.
- The outboard motor, due to be returned to Iceland for repair, was successfully overhauled, test run and proved on a short 70NM voyage.
- The party climbed Karsberg, 1,057 m, to the west of the airfield.
- After notifying MRCC and Police of a change of itinerary, the party



Figure 5: Launching at Noret

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travelled by boat to Kap Pedersen and back.

- Boat launching from the beach at Noret beside the Mesters Vig base is feasible so long as attempted at or close to high tide, see section on boating operations below.
- Whilst at Kap Pedersen, they ascended the lower part of the Skjoldungebrae glacier.
- Brief details of the boat journeys, including fuel consumption are included in Appendix C. Average speeds were around 12 kts and fuel consumption around 0.4 litres / nautical mile. All equipment was cleaned, motors winterised and stored in Ekspeditionshus.
- Polar bear was sighted at Mesters Vig where it was being regularly moved away by base personnel. Muskoxen were observed on the tundra by Kap Pedersen
- The trappers hut at Kap Pedersen was visited. No supplies were used or removed from the hut. It was noted
 - that the visitor's book was missing. Also, the wooden brackets used to secure to door showed signs of damage, probably by polar bear. Unable to repair, no materials available on site.
- The historic winter houses were viewed at Kap Lagerberg, but it was impossible to land due to a heavy swell running. The condition of the adjacent trappers hut had deteriorated substantially since the last visit in August 2002.

Food Supplies

The team took 10 days of food of which 6 days were consumed. Cooking was performed on one Primus powered by kerosene. Consumption was around 0.25 litres per day.



Figure 6: Hut at Kap Pedersen



Figure 7: Fox Traps by Kap Pedersen



Figure 8: on the Skjoldungebrae



Figure 9: View into Segelselskapets Fjord

Personal Equipment

The team took with them normal personal wear and camping equipment for late summer conditions, anticipating generally dry weather, with occasional rain and temperatures from 5° to 10° C.

Boating Equipment and Operations

The expedition employed a Bombard Commando C5 inflatable boat with Yamaha 30hp and 4.5 hp (emergency) outboard motors. The emergency engine was tested on both legs of the journey.

Fuel was un-leaded motor fuel, mixed 50:1 with 2-stroke oil. At the end of the expedition the engines were winterised and stored with the boat in the Expedition Hus at Mesters Vig. Both members of the team were equipped with a helicopter survival suit and a life jacket.

For the boat journey, a full weighing of all the equipment was not carried out. With personal equipment, three days of food, 37 litres of fuel and the boat gear, the boat was lightly loaded. It was easy to get the vessel to plane and achieve speeds between 12 and 15 kts. Consequently, the fuel consumption, at 0.4 litres per nautical mile was very low. By comparison, in 2000, with three people and fuel and supplies for three weeks the consumption was 0.6 L/NM while in 2002, with four people and towing an additional boat, the consumption averaged 1.2 L/NM with transit at 6 to 6.5 kts.

Normally, boats have been launched from Nyhavn but since the large truck has been withdrawn from Mesters Vig base, this option is no longer available. Requesting the assistance of base personnel to

transport equipment by quad bike not Figure 9: Lang Glacier permitted.



Figure 8: Icebergs and Milne Land



Figure 10: Roslin Glacier



Launching from Nyhavn beach, some 15 minutes walk from Ekspeditionshus is possible so long as activities are timed to coincide with tidal conditions and planned as close to high tide as possible. Launching with a tide state of 0.8m above chart datum resulted in propeller fouling the sandy seabed for some 200m offshore while close to a high spring tide, with the level around 1.5m above datum resulted in a clear run all the way in to the beach, Appendix C.

The tidal predictions in Appendix C can be advance from obtained in the Hydrographic Office website www.ukho.gov.uk/easytide by selecting "Area 1-4 Europe, Northern Waters & Mediterranean" with Country/Regions "Greenland East Coast" with port selected as "Nyhavn". Three hours must be added to Figure 11: Malmbjerg

the "standard local times" shown on the prediction to agree with the local time in use at the base.

Radio Equipment

The expedition was granted a permit for and took an Icom marine VHF. emergency use a McMurdo FastfindMax personal emergency locator beacon that **GPS** radiates location 406MHz/121.5MHZ. It was registered both with the Danish Radio Administration as well as the UK EPIRB database.

The team carried an Iridium 9555 satellite telephone. Its primary use was to provide formal notification of expedition activities to the MRCC and the Police in Nuuk and make emergency calls if required. unit was re-charged with a PowerMonkey Extreme solar cell. Due to the low solar elevation, effective re-charging was only possible between the hours of 10am to 6pm local time.

Firearms

John Thorogood holds a UK Firearms Certificate and obtained a Firearms Permit from the Chief of Police in Nuuk for the use of his 308 calibre rifle, which was transported to and from the area of operations in the aeroplane. Sufficient ammunition was taken to allow target practice at Mesters Vig to gain familiarity with the action and open sights.





Figure 12: Mesters Vig



Figure 13: "Super Moon" over Mesters Vig



Figure 14: Nerlerit Inaat

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Search and Rescue Insurance Coverage

Normally, sport expeditions from the UK can be insured through the UK BMC (British Mountaineering Council) so long as all of the party are members. However, BMC refused to provide coverage on this occasion because their policy operates "Door-to-Door" and the travel by private aeroplane was excluded under the terms specified by their underwriters.

Research was undertaken and it was found that cover could be obtained from a Figure 15: Finals at Akureyri Greenland-based organisation Kaalit



Forsikring (<u>www.forsikring.gl</u>), contact Christian Fensbo (<u>kfa.privat@if.gl</u>). The party obtained coverage through a policy taken out by Tangent Expeditions (www.tangentexpeditions.co.uk), contact Paul Walker (paul@tangent-expeditions.co.uk).

Health and Safety, Search and Rescue

There was no illness reported by any of the expedition members. There were no safety incidents encountered during the boating or hiking activities.

Collection and Disposal of Waste

All other Human waste was buried. packaging and food waste was collected and returned to Mesters Vig for disposal. Tins and glass being sorted and placed in separate containers located at the base.



Figure 16: Cloud Break into Vagar

Historical Sites

The trappers hut at Kap Pedersen was visited and found to be in good condition. No supplies were used or removed from the hut. Unfortunately, it was noted that the visitor's book was missing. Also, the wooden brackets used to secure to door showed signs of damage, probably by polar bear. We were unable to repair the damage as no suitable materials or tools were available on site.





Figure 17: Damage to Kap Pedersens Hut Door

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The historic winter houses at Kap Lagerberg were viewed from the boat close in to the shore. It was impossible to land due to a heavy swell. The condition of the adjacent trappers hut had deteriorated substantially since the last visit in August 2002.





Figure 18: Kap Largerberg August 1982

Figure 19: August 2014

Acknowledgements

The members of the expedition thank the Greenland Government people for the efficient processing of the expedition application and granting of radio and firearms permits. Specifically, we are grateful for the Greenland Arctic Command for permitting us to land at Mesters Vig base.



Figure 20: Shackletons Bjerg and Petermanns Tinde



Figure 21: Dickson Fjord Recumbent Fold



Figure 22: Volquart Boons Kyst

Appendix A - Daily Log

Ref No: A-14-39

Date	Location	Activity
4/8	UK - Akureyri	Departed Whiterashes airstrip, Aberdeenshire 7:30 am to Perth. Picked up expedition member, Mike Lean. Departed Perth, transit to Wick. Completed UK departure formalities. Departed Wick, 4½ hrs flight time to Akureyri. Completed refuelling, customs and immigration formalities. Overnight stay in Akureyri.
5/8	Akureyri – Mesters Vig	Departed Akureyri at 12:30. Uneventful flight to Nerlerit Inaat 2¾ hrs, completed entry formalities including notification of MRCC and Police. Refuelled and then flew to Mesters Vig via Syd Kap and Schuchertdal in 1½ hrs. Base personnel carried out inspection of emergency equipment against expedition permit requirements.
6/8	Mesters Vig	Checked stores in Ekspeditionshus against 2002 inventory. Checked over outboard motors. Shooting practice with rifle. Short local walk to Tunnelelv. Disassembled 30hp motor, overhauled blocked carburettor. Satisfactory test run of motor in water barrel.
7/8	Mesters Vig	One day hike from Mesters Vig. Climbed Karsberg (1,057m) to the west of airfield. Notified MRCC and Police of intention to change itinerary.
8/8	Mesters Vig – Kap Pedersen	Moved boating equipment to the beach at Noret. Inflated boat, checked all survival equipment. Loaded stores and departed for Kap Pederson at 2:45pm. Smooth journey accomplished in 1¾ hrs, 21 nautical miles.
9/8	Kap Pederson – Skjoldungebrae	Day hike from Kap Pedersen to Skjoldungebrae glacier. Travelled up glacier to the main southward bend. Returned to Kap Perdersen.
10/8	Kap Pedersen – Mesters Vig	Departed Kap Pedersen at 8am. Travelled up Segelskapets Fjord to junction with Alpe Fjord before returning to view historic winter hut ruins at Kap Lagerberg. Unable to land due to heavy swell. Returned to Mesters Vig. Arrived in Noret at noon at top of high tide after 50 nautical miles travel. Beached boat; disassembled and cleaned boating gear. Washed out engines, inhibited and winterised them. Re-stored equipment in Ekspeditionshus.
11/8	Mesters Vig – Akureyri	Clean out inside of Ekspeditionshus. Securely store equipment in designated BNEGP room. Depart Mesters Vig at 12:30pm local time. Route Ella Island, Kaiser Franz Josef's Fjord, Petermanns Tinde, Shackleton's Bjerg and then direct to Nerlerit Inaat. Refuel aeroplane, complete exit formalities including notification of MRCC and Police. Depart for Akureyri. Arrive after 2½ hrs. Overnight stay in Iceland.
12/8	Akureyri – Rekjahalid	Wait on weather conditions (high winds) to improve in Faroe Islands. Undertake minor repairs to aeroplane. Check flight to Reykjhalid and practise instrument approach into Akureyri. Overnight stay in Iceland.
13/8	Akureyri – Vágar	Wait on the weather conditions to improve in Faroe. Depart Akureyri at 5pm local, arrive Vagar, Faroe Islands 8:44pm local time.
14/8	Tórshavn, Faroe Is	Travel in Faroe Islands
15/8	Vágar - Whiterashes	Departed Vágar 09:30 local, uneventful flight to Wick. Carried out UK entry formalities. Return to Whiterashes after dropping Mike Lean off at Perth.

Appendix B - Weather Observations

Date	Time	Location	Elev	Temp	Baro	Wind	Cloud / precipitation
			m	degC	MB	Kt	
06/08	11:00	Mesters Vig	5	11	1021	L&V	CAVOK
07/08	08:00	Mesters Vig	5	8	1026	L&V	CAVOK
	20:00	Mesters Vig	5	5	1027	12/SE	Sea fog, wind chill -3°C
08/08	09:00	Mesters Vig	5	5	1025	L&V	CAVOK
	21:30	Kap Petersen	5	6	1020	5/SE	CAVOK
09/09	10:00	Kap Petersen	5	6	1022	5/SE	CAVOK
	23:30	Kap Petersen	5	6	1021	L&V	CAVOK
10/08	06:30	Kap Petersen	5	8	1017	L&V	CAVOK
11/08	09:30	Mesters Vig	5	6	1020	L&V	High overcast. Fog banks in Kong Oscar's Fjord

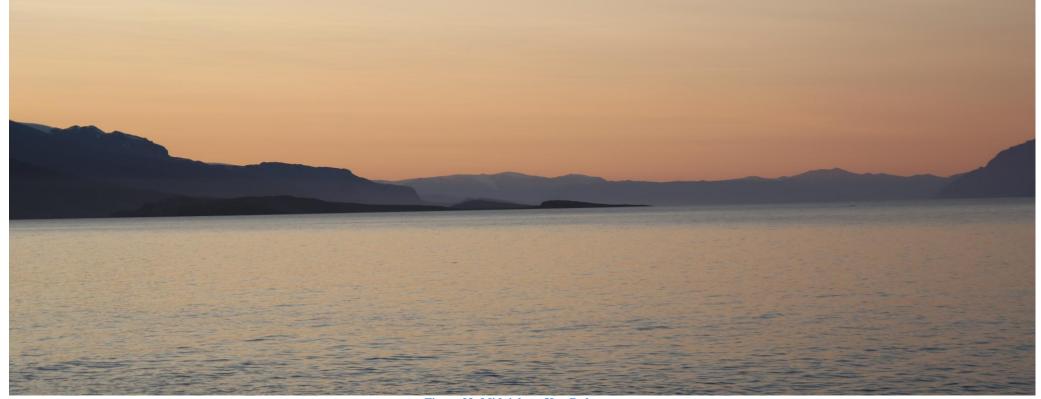


Figure 23: Midnight at Kap Pedersen

Appendix C - Boating Log

Ref No: A-14-39

Date	From	То	Dist	Ave Spd	Fuel Con	Notes
			NM	Kt	Litres	Distances / speeds from GPS
08/08	Mesters Vig/Noret	Kap Petersen	21.1	12	9	Departed 14:45 with 47 litres fuel (full boat tank plus red container), arrived 16:30. Choppy running downwind heading NW up Kong Oscar's Fjord.
10/08	Kap Petersen	Mesters Vig/Noret	50.4	12	19	Departed 08:00, west up Segelselskaspets Fjord to junction with Alpe Fjord. Choppy sea due to Fohn wind in Alpe Fjord. Returned via Kap Lagerberg. Arrived at noon

Average fuel consumption: 0.4 litres/Nautical mile.

Important Note:

This consumption is a consequence of the relatively high speeds (planing), calm water conditions and lightly loaded boat From 2000 expedition, more heavily loaded but planing (three people plus three weeks supplies) gives: 0.6 litres/Nautical mile From 2002, very heavily loaded with four people and towing another boat at 6-6.5 kts not planning gives: 1.2 litres/Nautical mile



Figure 24: Pctete Bjerg from Noret

Tidal Predictions for Nyhavn for the Period of Operations

Your EasyTide Prediction (enhanced)

Nyhavn, Greenland East Coast

Port predictions (Standard Local Time) are -3 hours from UTC

Start Date: Tuesday 5th August 2014 (Standard Local Time)

Duration: 7 days Daylight saving: 0 hours

Units: Metres Max graph size: 7 days

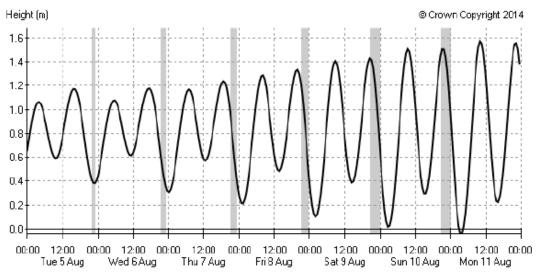
Tidal prediction chart

Note:

In summer, Iceland and East Greenland operate on UTC. Therefore, three hours should be added to the times on these charts to align with local "clock" time and observed behaviour of the tides in Noret.

Departing at 14:45 hrs on Friday 8th (11:45) gives a tide height of approx 0.8m above datum. This gave grounding of the propellor for some 200m from shore.

On return, at noon on Sunday 10th Aug, there was no problem with the tide level at this point around 1.5m



the date shown undermeath 12:00 on any given day is applicable to the previous and next periods of 12 hours

	Tue 5 Aug Wed 6 Aug					Thu 7 Aug			Fri 8 Aug			Sat 9 Aug				Sun 10 Aug				Mon 11 Aug						
HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW
03:48	09:37	15:51	22:44	05:28	11:07	17:19	00:01	06:54	12:28	18:40	01:06	07:55	13:33	19:44	02:01	08:43	14:27	20:36	02:50	09:27	15:14	21:23	03:34	10:07	15:58	22:07
1.1 m	0.6 m	1.2 m	0.4 m	1.1 m	0.6 m	1.2 m	0.3 m	1.2 m	0.6 m	1.2 m	0.2 m	1.3 m	0.5 m	1.3 m	0.1 m	1.4 m	0.4 m	1.4 m	0.0 m	1.5 m	0.3 m	1.5 m	0.0 m	1.6 m	0.2 m	1.6 m

Appendix D - Flight Log - Piper PA23/160 Apache, Reg: G-APFV

Ref No: A-14-39



	Crew Det	ails		Route		Flight tin	ne / UTC					Fuel	
Date	Pilot	Pax	Departure	ICAO	Destination	Brakes off	Brakes on	Block time	Flight time	Inst	IFR	Litres	
04-Aug	Thorogood		Whiterashes	ZZZZ	Perth	6:30	7:20	0:50	0:40				
04-Aug	Thorogood	Lean	Perth	EGPT	Wick	7:50	9:10	1:20	1:10	0:20		115	
04-Aug	Thorogood	Lean	Wick	EGPC	Akureyri	10:30	15:00	4:30	4:23	1:30	4:30	263	
05-Aug	Thorogood	Lean	Akureyri	BIAR	Nerlerit Inaat	11:30	14:15	2:45	2:34	0:45	2:45	160	
05-Aug	Thorogood	Lean	Nerlerit Inaat	BGCO	Mesters Vig	15:50	17:25	1:35	1:25				
11-Aug	Thorogood	Lean	Mesters Vig	BGMV	Nerlerit Inaat	12:30	15:40	3:10	2:59			300	
11-Aug	Thorogood	Lean	Nerlerit Inaat	BGCO	Akureyri	16:30	19:10	2:40	2:27	0:15	2:40	148	
12-Aug	Thorogood	Lean	Akureyri	BIAR	Reykjahalid	16:30	17:05	0:35	0:25				
12-Aug	Thorogood	Lean	Reykjahalid	BIRJ	Akureyri	19:10	19:45	0:35	0:27	0:20	0:35	66	
13-Aug	Thorogood	Lean	Akureyri	BIAR	Vagar	16:55	19:50	2:55	2:42	0:20	2:55	177	
15-Aug	Thorogood	Lean	Vagar	EKVG	Wick	8:25	10:35	2:10	2:01	0:20	2:10		
15-Aug	Thorogood	Lean	Wick	EGPC	Perth	11:05	12:20	1:15	1:05	0:15			
15-Aug	Thorogood		Perth	EGPT	Whiterashes	12:40	13:30	0:50	0:40			233	
							Totals:	25:10	22:58	4:05	15:35	1462	
									Ave fuel of	onsun	nption:	64	Litres/hr

Notes:

- 1. PPR obtained for arrivals at all airfields per respective National AIPs.
- 2. Operations in Greenland conducted in accordance with Danish CAA document BL 5-24, 2nd edition, June 2008 and terms of expedition permit A-14-39 issued by the Greenlandic Ministry of Environment and Nature.
- 3. Being classified as private flights, the requirements applied to charter operations were avoided. The Private Category status of the aeroplane was confirmed with the Danish CAA.
- 4. All international flights were conducted under IFR at FL 100. Those within UK and Greenland were carried out under VFR
- 5. Due to prior flights, actual fuel uplift from Wick was 341 litres
- 6. Wick-Akureyri encountered icing in occluded front over eastern Iceland requiring early descent and VFR arrival.
- 7. Departure Akureyri-Nerlerit Inaat was IFR due low cloud in the Akureyri fjord
- 8. Arrival at Vágar (EKVG) employed the VFR cloud break for RW 30 rather than procedural ILS to save time due to imminent airfield closure, 20:45 hrs local time.
- 9. Departure from Vágar RW 12 followed the localiser back beam to 4,000 ft before turning on course direct GONUT

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