Safety Feedback

Landing in IMC on an uncontrolled aerodrome

Issued by the Air Accident Investigation Unit of Belgium, section of the FPS Mobility and Transport

Issue 1 / June 2018 – Original version

Addressee(s):
All pilots

Applicability:
All aircraft

Safety matter

Pre-flight planning and decision-making
In-flight decision-making

Related incident

Two befriended and both IR-qualified pilots took off with a Cessna 172 from the uncontrolled airfield of Grimbergen (EBGB) for some international cross-country flying above North-Germany and the Netherlands. This included IFR- and night flights with several stops. The following day, a flight plan was filed for the return leg from the airport of Eelde/Groningen (EHGG) to EBGB. The intention was initially to fly under IFR and to change to VFR (category 'Y') at LONDI, the entrance waypoint of EBGB. The selected alternate aerodrome was the airport of Antwerp (EBAW), a controlled airport that has facilities for instrument approaches. Because it is required to have prior permission to land in EBGB, a call was made before departure. The pilots were told that due to the intermittent instrument meteorological conditions (IMC), EBGB was closed and that it was highly probable that it would remain closed that day. The aerodrome forecast (TAF) at Brussels (EBBR) predicted a visibility of 6 km and a ceiling of 1400 ft for the 30 hour period starting from 12:00 UTC, with a temporary deterioration to a visibility of 3 km (thus IMC) and ceiling of 600 ft in the period between 12:00 UTC and 21:00 UTC. Nevertheless, they departed at 13:45 UTC from EHGG for a two-hour flight, with EBAW as a destination alternate in case the weather wouldn't improve. Flying inbound VOR NICKY, still under IFR, the pilots listened to the ATIS recordings of EBAW which stated that RWY11 was the active runway. Reportedly, it was approximately at the same time that the pilots noticed that the DME display (distance measuring equipment) was inoperative. Because the Instrument Approach Chart (IAC) for RWY11 states that DME is required, the pilots determined that landing in EBAW was neither possible nor safe (as the vicinity of the built-up area of Antwerp) and that continuing to EBGB was the best option. According to them, the weather was slightly improving (although still IMC).

Figure 1

Outbound NICKY, they were asked by 'Brussels Control' to report when they wanted to cancel the IFR flight. About one minute later the crew made a 'PAN PAN' call with as reason an 'erratic instrument' and they stated their intention to land at EBGB. They got the instruction to leave the frequency and to contact 'Grimbergen Radio'. According to the pilots, the last leg from LONDI to the aerodrome of EBGB was flown lower than normal (normally 900 ft AMSL) but both the vertical and horizontal visibility were good. The landing was uneventful.

Reportedly, the failure of the DME display was intermittent and already known by both the operator (club) and the pilot flying the aircraft that day.

Meteorological conditions:

METAR EBBR 141520Z 07005KT 9000 -RADZ FEW006 BKN009 BKN015 04/03 Q1018 **TEMPO**[1] **2000** DZRA SCT003 **BKN005=**

METAR EBAW 141520Z 07007KT 6000 -DZRA SCT006 BKN008 04/02 Q1018 **TEMPO 2500** DZ **BKN006=**

At the time of the landing the visibility was temporary less than 2500 m and ceiling[2] was 600 ft AGL or less.

Visual flight rules

Standardised European Rules of the Air (SERA), Regulation (EU) No 923/2012:

SERA.5001 prescribes that at and below 900m (3000 ft) AMSL, or 300 m (1000 ft) above terrain, whichever is the higher, the flight visibility has to be 5 km in airspace class G and aircraft have to be clear of cloud with the surface in sight.

When so prescribed by the competent authority (which is the case in Belgium):
flight visibilities reduced to not less than 1 500 m may be permitted for flights operating:

(1) at speeds of 140 kts IAS or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or
(2) in circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels

SERA.5005:
(b) Except when a special VFR clearance is obtained from an air traffic control unit, VFR flights shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

(1) the ceiling is less than 450 m (1 500 ft); or
(2) the ground visibility is less than 5 km.

Operational equipment requirements

As from August 2016, Air Operations Regulation (EU) No 965/2012 Annex VII, Part-NCO (applicable to non-commercial flights in other-than complex motor-powered EASA aircraft) entered into force in Belgium.

Paragraph NCO.IDE.A.125 Operations under IFR — defines the flight and navigational instruments and associated equipment to be installed in aeroplanes operated under IFR.
NCO.GEN.105 and NCO .IDE.A.105 both state that instruments and equipment required for the execution of that flight have to be operative before commencing that flight

NCO.IDE.A.105 Minimum equipment for flight
A flight shall not be commenced when any of the aeroplane instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:
(a) the aeroplane is operated in accordance with the MEL, if established; or
(b) the aeroplane is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.

Use of PAN PAN

A PAN PAN call is an urgency message and should be used for urgent situations that are not immediately life threatening, but may require assistance.

Feedback from Belgocontrol

Belgocontrol, the national Air Navigation Service Provider (ANSP) was asked for their feedback:

[1] The TEMPO group is used for any conditions are expected to last for generally less than an hour at a time (occasional), and are expected to occur during less than half the time period.

[2] For aviation purpose, *ceiling* is the lowest layer of *clouds* reported as being *broken* (BKN) or overcast (OVC).

"When pilots declare an emergency, ATC will provide assistance (= radar-vectoring) to any airport available (in this case Antwerp, Brussels or Grimbergen)
The declaration that diversion to EBAW was not possible because for a full VOR Instrument Approach Procedure DME is required is not valid. The same assistance would have been given like in EBGB; the IFR flight was radar vectored to a position from which a visual approach can be executed. Aircraft declaring an emergency will NEVER be instructed to follow a full instrument procedure.
When a flight with instrument or navigational problems declares an emergency every assistance will be given to radar vector the aircraft to the most suitable aerodrome.
In this case we can consider the most suitable aerodrome :

- *the alternate aerodrome, because the distance to EBAW was shorter than EBGB.*
- *any aerodrome which is operational because in that case assistance from the ground can be expected.*
- *when decision is made to proceed to a closed aerodrome, the risk of not getting the required visual reference is higher than accepting a more suitable 'open' aerodrome."*

Comments from AAIU(Be)

After the event, the pilots declared that the problem with the DME was known, however intermittent. Being aware of the prevailing winds, the pilots should have determined in advance which active runway to expect in EBAW and the related requirements. This would have led them to choose another alternate aerodrome or to decide not to fly, considering the uncertain weather conditions (temporary IMC forecasted) and the fact they had no prior permission to land at EBGB.
The pilot stated that landing at EBGB was considered safer because the urban area of the city of Antwerp lays in front of EBAW RWY11. However:

- The ground visibility in EBAW could be considered better as there is an approach light system (ALS) with high intensity lights
- The obstacle clearance altitude (OCA) is clearly stated on the approach charts of EBAW.
- A so called ground-controlled approach (GCA) could be delivered in EBAW by ATC to ensure adequate obstacle clearance up to the 'runway in sight'
- Another possibility was an ILS-approach on RWY29 ending by a (visual) circling approach to RWY11
- There are rescue and firefighting services at EBAW to assist any emergency
- The landing in EBGB was done on RWY01 without any (visual) landing aids and which has shortened traffic circuit (thus shorter time/higher workload) due to the vicinity of EBBR CTR.
- There are also obstacles below and close to this traffic circuit (even one of 290 ft AMSL in the vicinity)

Figure 2 gives an overview of the flight rules (top) against the meteorological conditions (left). It should be obvious that VFR in IMC (red) has to be avoided at all time.

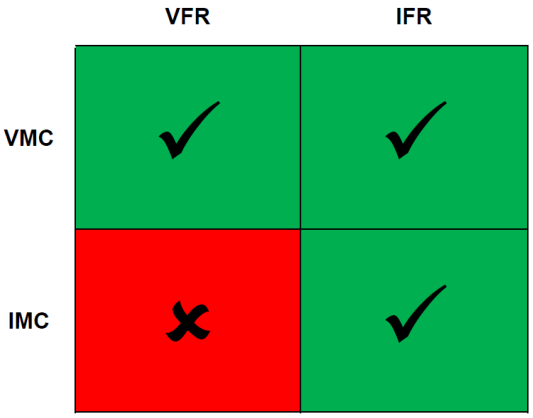

Figure 2

When changing from IFR to VFR, one should be in VMC first before cancelling IFR with ATC (green arrow). However the temptation often is to 'cut the corner' (orange arrow). The risk is to stay in IMC or marginal VMC, as was in this case. The same applies of course for the other way around.

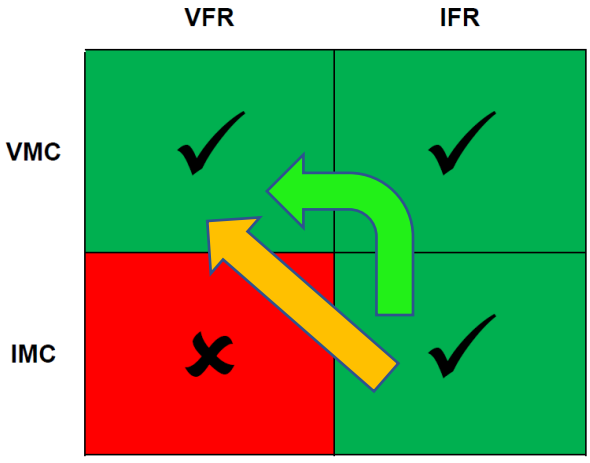

Figure 3

Safety message

- Good airmanship and **aeronautical decision making starts before entering** the airplane. One should consider the worst conditions in a forecast (even if TEMPO) to be limiting for planning purposes.
- When selecting an alternate under IFR, it should be verified that **all necessary equipment is operative** before commencing the flight.
- When an instrument malfunction occurs in flight, pilots should not hesitate **to ask assistance to ATC to vector** them safely to an airport with (visual and/or instrument) landing aids
- Pilots should **resist the temptation to reach their home base** at any cost (known as 'get-home-itis'.
- Changing **from IFR to VFR while still in IMC** or even in marginal VMC **compromises safety** and can never be considered as a proper decision.

More information

- Back in 2011, the European General Aviation Safety Team made a Safety Promotion Leaflet on 'Decision making'. It can be found on the EASA website:

  https://www.easa.europa.eu/document-library/general-publications/egast-leaflet-ga-2-decision-making

About this Safety Feedback

This Safety Feedback is intended to diffuse lessons learned and good practices amongst the aviation community. The material is coming both from investigations as per EU Regulation (EU) no. 996/2010 on the investigation and prevention of accidents and incidents in civil aviation and from reports made by pilots, traffic controllers, mechanics, ground handlers, in application of EU Regulation (EU) no. 376/2014. **The report is de-identified and the safety message has been established with the help of flight instructors and traffic controllers.**

The Air Accident Investigation Unit of Belgium (AAIU(Be)) is an independent section of the Federal Public Service Mobility and Transport and is the Belgian safety investigation authority as per EU Regulation (EU) no. 996/2010. The sole objective of safety investigations and the publications is the prevention of future accidents and incidents without apportioning blame or liability. The AAIU(Be) is also a member of the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA).