GENERAL INFORMATION

Identification number:	2007075
Classification:	Serious incident
Date and time[1] of the occurrence:	2 August 2007, 10.12 hours
Location of occurrence:	Maastricht control zone

Aircraft #1

Aircraft registration:	PH-KVC
Aircraft model:	Fokker F27 Mark 050
Type of aircraft:	Passenger aircraft
Type of flight:	Scheduled flight
Phase of operation:	Approach
Damage to aircraft:	None
Cockpit crew:	2
Passengers:	18
Injuries:	None

Aircraft #2

Aircraft registration:	D-FUKK
Aircraft model:	T-6J Harvard Mark IV
Type of aircraft:	Single engine piston
Type of flight:	Cross country
Phase of operation:	En route
Damage to aircraft:	None
Cockpit crew:	1
Passengers:	None
Injuries:	None

Other damage:	None
Lighting conditions:	Daylight

[1] All times in this report are local times unless otherwise specified.

SYNOPSIS

During the ILS-approach of PH-KVC for runway 21, the pilot of D-FUKK requested clearance to cross the Maastricht control zone from east to west. This request was approved with the remark to initially remain east of the airport and clear of final of runway 21. This was confirmed by the pilot of D-FUKK. Despite this manoeuvre both aircraft approached each other at a distance of approximately 0.14 NM at almost the same altitude. Due to the weather the pilots crew did not have visual contact with the other aircraft.

This investigation is based on information received from Air Traffic Control the Netherlands (LVNL), the flight safety department of the airline involved and the pilot of D-FUKK.

FACTUAL INFORMATION

Description of the occurrence

PH-KVC, a Fokker F27 Mark 050, was on a scheduled passenger flight from Amsterdam Schiphol Airport (EHAM) to Maastricht Aachen Airport (EHBK). At 10.02 hours the crew contacted Maastricht Approach Approach (APP) and at 10.08 hours the flight was cleared for an ILS[2] approach for runway 21.

D-FUKK, a fixed wing T-6J Harvard Mark IV aircraft, was on a cross-country flight from Aachen Merzbrück Flugplatz (EDKA), Germany to Duxford Airport (EGSU), United Kingdom. Shortly after take-off from EDKA, the pilot contacted Maastricht Approach at 10.03 hours for approval to cross the Maastricht control zone (CTR) midfield on his way to EGSU. Because of aircraft background noise and bad readability of the radio signal the approach controller had difficulties in reading the aircraft registration (call sign) and interpreted it as H-FUKK instead of D-FUKK. Because H-FUKK could not be found in the Amsterdam Advanced Air Traffic Control System (AAA) nor in the Aeronautical Data Access System (ADAS) database, the approach controller manually filed the flight plan. In the flight plan the flight was filed as helicopter flight.

Taking into consideration the actual weather conditions and after consulting his colleague controller at Maastricht Tower (TWR) the approach controller gave D-FUKK permission to cross the CTR as a Special VFR[3] (SVFR) flight at 1200 ft. The pilot received the local QNH[4], altitude and transponder code and was transferred to the tower frequency. From the tower controller the pilot received the instruction to call again one minute before crossing overhead. When the pilot made the call that crossing was imminent within one minute the tower controller instructed the pilot to remain well east of the field and clear of final runway 21 because of a Fokker 50 on final approach. The pilot acknowledged the message and informed the tower controller that he was staying east and making a right-hand turn. The approach controller who was watching the radar screen anticipated that D-FUKK would cross the flight path of PH-KVC and informed the tower controller. The tower controller instructed the pilot to turn east immediately and the pilot replied that he was already making a right-hand turn and that he would turn further to the right.

In the meantime the crew of PH-KVC was transferred to Maastricht tower as well and was able to hear the conversation between the tower controller and the pilot of D-FUKK. Following the ILS to runway 21 and

---

2 ILS – Instrument landing system.

3 VFR – Visual flight rules are a set of aviation regulations under which a pilot may operate an aircraft in weather conditions sufficient to allow the pilot, by visual reference to the environment outside the cockpit, to control the aircraft's attitude, navigate, and maintain safe separation from obstacles such as terrain, buildings, and other aircraft. When local weather in a control zone is less than the minimums required for flight under visual flight rules, air traffic control (ATC) may, under certain conditions, authorize the flight under special visual flight rules.

4 QNH is the pressure setting used in aviation to refer to the barometric altimeter setting which will cause the altimeter to read altitude above mean sea level within a certain defined region.

descending through an altitude of approximately 1060 feet the crew of PH-KVC was informed that the helicopter was not cooperating and that it was in their vicinity at 1000 feet. Shortly after, the conflicting traffic became visible on the TCAS[5] screen of PH-KVC and a traffic alert was generated. The crew of PH-KVC decided to continue the approach and made an uneventful landing at EHBK. The pilot of D-FUKK continued the right turn after which he continued the flight to EGSU.

INVESTIGATION AND ANALYSIS

According to the latest ATIS[6] the actual weather conditions around the time of occurrence were as follows:

- Wind: 250 degrees, 4 knots.
- Visibility: 5000 meters, increasing to 8000 meters.
- Clouds: 1/8-2/8 cloud coverage at 200 feet, 3/8-4/8 cloud coverage at 400 feet, 5/8-7/8 cloud coverage at 500 feet, lifting to 1000 feet.
- Light rain.

Special VFR flights

In a control zone a VFR flight may only be carried out when flight visibility is more than 5000 meters and the distance of aircraft from clouds are equal or greater than 1500 meters horizontally and 300 meters vertically.

Air traffic control (ATC) may, under certain conditions, authorize special VFR flights within a control zone, when the following conditions are met:

Fixed wing aircraft and balloons:

- The flight visibility is not less than 3 km.
- The clouds - rags included - are not below 600 feet.
- The VFR flight can be executed clear of clouds and in continuous sight of ground or water.

Helicopters:

- The flight visibility is not less than:
  1. 1500 meters when entering or leaving the control zone via an established or agreed route.
  2. 3 km if item 1 is not applicable.
- The clouds - rags included - are not below 200 feet.
- The VFR flight can be executed clear of clouds and in continuous sight of ground or water.

The local air traffic control unit will apply to the ICAO minima separation between IFR and special VFR-flights.

---

[5] Traffic alert and Collision Avoidance System (or TCAS) is a computerised avionics device which is designed to reduce the danger of mid-air collisions between aircraft. It monitors the airspace around an aircraft, independent of air traffic control, and warns pilots of the presence of other aircraft which may present a threat of mid-air collision.

[6] Automatic Terminal Information Service (or ATIS) is a continuous broadcast of recorded landing and departure information in busier terminal (i.e. airport) areas. ATIS broadcasts contain essential information, such as weather information, which runways are active, available approaches, and any other information required by the pilots, such as important NOTAM's. Pilots usually listen to an available ATIS broadcast before contacting the local control unit, in order to reduce the controllers' workload and relieve frequency congestion.

Analysis

- The approach controller had difficulties in reading the correct aircraft registration and asked the pilot of D-FUKK twice to repeat the full call sign. Despite these efforts the approach controller misinterpreted the call sign as H-FUKK instead of D-FUKK.
- Since there was no information present about an aircraft with registration H-FUKK crossing the control zone, the air traffic controller checked the Amsterdam Advanced Air Traffic Control System (AAA) and Aeronautical Data Access System (ADAS) for a flight plan. Because he was looking for H-FUKK instead of D-FUKK he did not find a flight plan and made an entry in AAA himself. This is a standard procedure for crossing traffic overhead EHBK without a flight plan.
- At first contact the pilot of D-FUKK mentioned the word 'Harvard' but the air traffic controller was not familiar with the aircraft type. Because background noise and transmitting quality had similarities with that often experienced with helicopters the air traffic controller filed the flight as a helicopter flight.
- The conviction that D-FUKK was a helicopter played a large role in the development of this serious incident. Different rules for special VFR flights are applicable and difference in speed and manoeuvrability exists between the two aircraft types.
- The request for crossing was discussed between the approach and tower controller. Both agreed that, given the weather conditions and based on the fact that it concerned a helicopter, crossing was approved.
- The pilot of D-FUKK planned his flight as a VFR-flight while the local weather circumstances in Dutch airspace did not meet with the VFR requirements.
- The actual weather conditions for conducting a special VFR flight were marginal. The weather just met the conditions for a special VFR flight with a helicopter but did not meet the conditions for a special VFR flight with a fixed wing aircraft (clouds were below 600 feet).
- Because of the marginal weather conditions it is not probably that the pilot of D-FUKK had a full sight of the airfield.
- Radar data showed that during the event D-FUKK did not cross the centreline of runway 21. The pilot of D-FUKK started a right-hand turn even before ATC instructed him to remain well east of the field. The closest distance between D-FUKK and PH-KVC was 0.14 NM (approximately 260 m) at almost the same altitude.
- Although D-FUKK was cleared to cross the Maastricht zone at 1200 feet, the altitude of the aircraft was below1200 feet during the incident.
- At 1350 feet the crew of PH-KVC received a TCAS traffic advisory.
- After the TCAS traffic advisory, the distances between the two aircraft met the requirements of a TCAS resolution advisory, however this warning was suppressed because PH-KVC was flying below 1000 feet.
- According to the crew of PH-KVC they were well informed by the tower controller about a conflicting aircraft in their vicinity but no avoiding action was instructed.
- Both aircraft had no visual contact with each other.

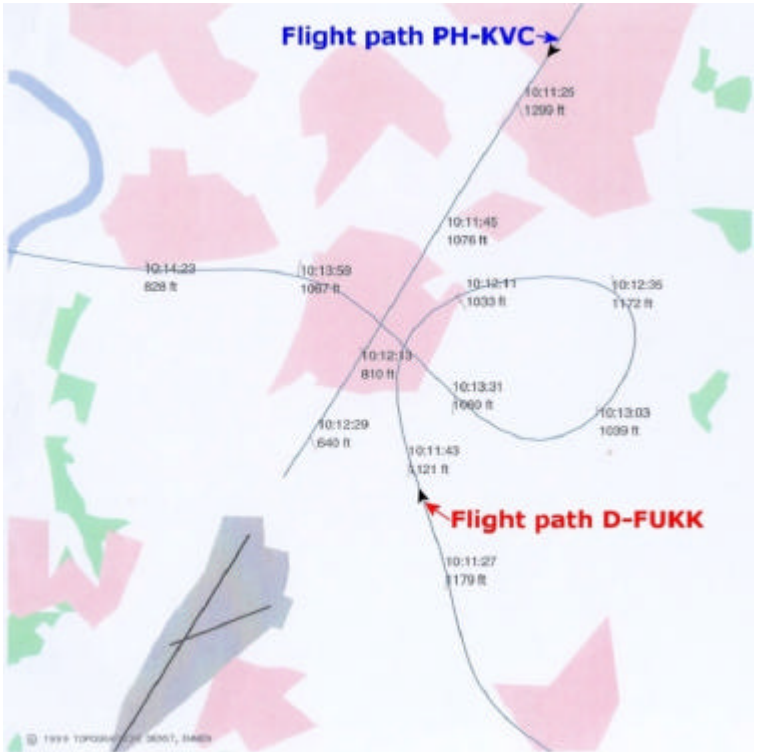

Illustration 1: Flight paths of PH-KVC and D-FUKK (source: FANOMOS EHBK)

CONCLUSION

The serious incident could happen because D-FUKK was mistakenly considered to be a helicopter. Consequently the special VFR regulations were not correctly applied and the performance of the aircraft was not properly estimated. That is the reason why no adequate separation minima was provided. Because of the weather conditions the pilot of D-FUKK did not have sufficient visual references for his position in relation to the airfield and the other aircraft.