

GENERAL INFORMATION

Identification number:	2008031
Classification:	Accident
Date, time ¹ of occurrence:	31 March 2008, 12.07 hours
Location of occurrence:	Rotterdam Airport (EHRD)
Aircraft registration:	PH-KIS
Aircraft model:	Christen A-1 Husky
Type of aircraft:	Single engine piston
Type of flight:	Banner towing
Phase of operation:	Taxi-in
Damage to aircraft:	Heavily damaged
Cockpit crew:	One
Passengers:	None
Injuries:	None
Other damage:	None
Light conditions:	Daylight

SYNOPSIS

The aircraft was blown over by jet blast when it taxied behind a Cessna Citation which was performing an engine test run. The aircraft came to a rest with its nose down and the tail pointing upwards. Damage was inflicted to the left wingtip, propeller and engine. The pilot was not injured.

FACTUAL INFORMATION

The flight

Two aircraft were involved in this accident. PH-KIS, a Christen A-1 Husky, had taken off from Rotterdam Airport for a banner towing flight above The Hague. In the meantime, a Cessna Citation with registration CS-DFP was parked near the Jet Centre at Rotterdam Airport and was prepared to perform an operational check flight (OCF).

The air traffic control (ATC) transcripts show that the pilots of CS-DFP contacted Rotterdam Delivery with the request to start-up in order to perform some ground tests and run-up tests, which were a required part of the OCF. Rotterdam Delivery notified the pilots that it was only allowed to use idle power at their present position, after which the pilots asked about the procedures for the run-up test. After consult with the airport authority, Rotterdam Delivery notified the pilots that parking spot Bravo 1 (see figure 1) was assigned for the run-up test. No further details about the run-up procedures were provided.

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

The air traffic assistant, performing the delivery duties, declared that he gave the air traffic controller a strip² with information and a verbal explanation regarding CS-DFP. Start-up was approved by Rotterdam Delivery and communication was transferred to Rotterdam Tower (TWR). Thereafter the air traffic assistant was relieved by a colleague.

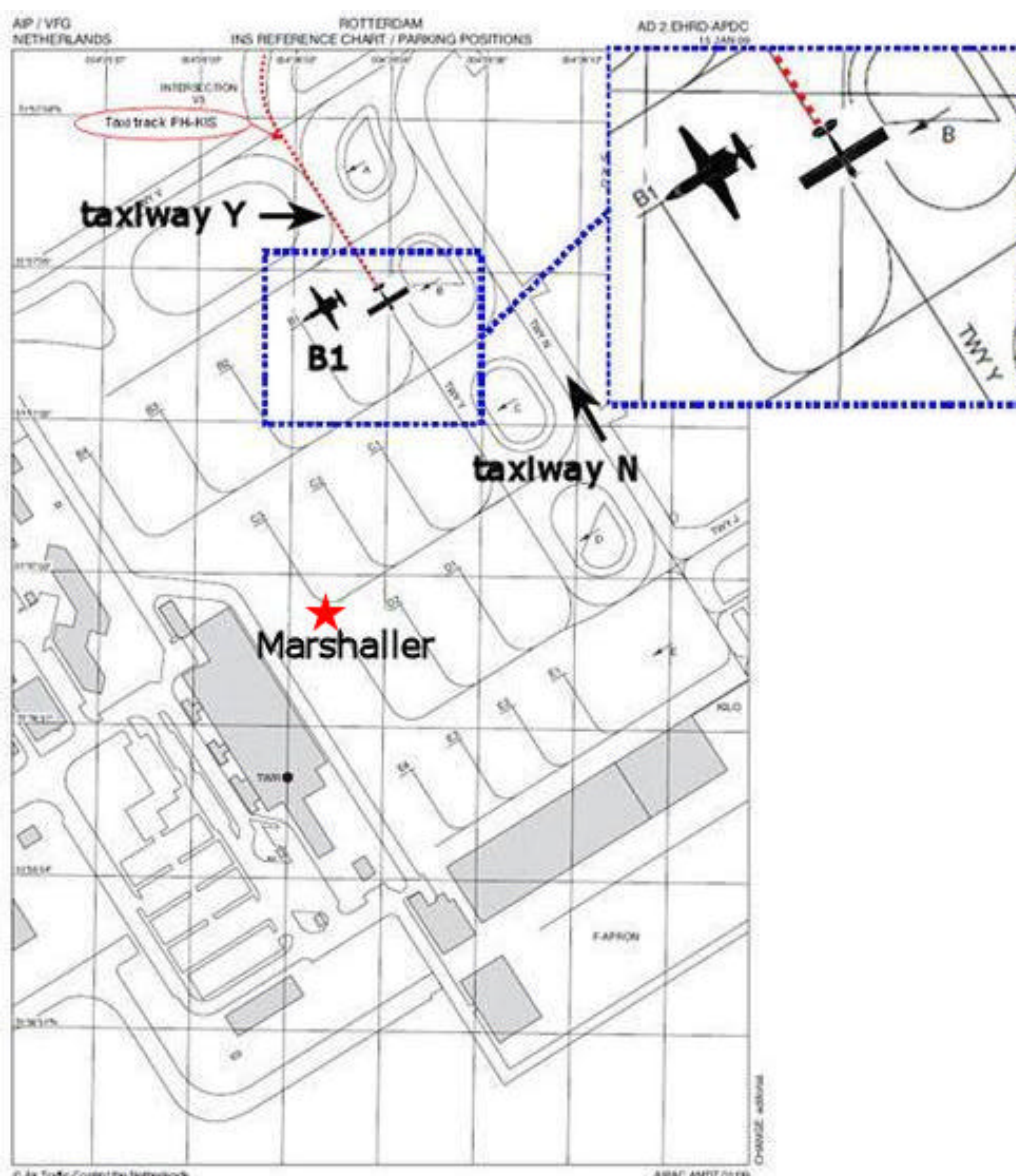


Figure 1: Situation oversight

Rotterdam Tower provided taxi clearance and instructed the pilots to follow the marshaller to Bravo 1. After arrival at Bravo 1, the aircraft was positioned into the eye of the wind as per instructions of the marshaller, in accordance with the aerodrome procedures. The crew of CS-DFP communicated to the Rotterdam Tower that they would call back either to taxi back to the Jet Centre or activate their flight plan. Rotterdam Tower approved and no further communication with Rotterdam Delivery or Rotterdam Tower was established until after the accident. The safety report written by the pilots of CS-DFP indicates that they were of the opinion that ATC had approved the engine run-up test.

² The strip contained the call sign of the aircraft, the present parking position and the assigned parking position.

Ten minutes after the last contact between Rotterdam Tower and CS-DFP, the pilot of PH-KIS called Rotterdam Tower to request a banner drop and landing. Rotterdam Tower approved and after landing PH-KIS was cleared by Rotterdam Tower to taxi to the Foxtrot Apron, where the hangar is located. According to the pilot's report, he taxied to the Foxtrot Apron on the usual taxiway Yankee. While taxiing, the pilot saw CS-DFP standing perpendicular to taxiway Yankee, its tail pointing towards the taxiway at a distance of approximately forty metres. According to the pilot's statement, the doors of CS-DFP were closed and the aircraft's beacon light³ was not turned on. When PH-KIS passed behind CS-DFP, full power was selected on the left engine of CS-DFP and PH-KIS was blown over by the jet blast. Its left wingtip contacted the ground and the aircraft came to rest with its nose on the ground. Damage was inflicted to the left wingtip, propeller and engine. The pilot was not injured.

According to the report of the Duty Manager Operations/Airside Safety Coordinator of Rotterdam Airport, the required marshaller was occupied with training activities at the time of the accident. The marshaller, accompanied by a trainee marshaller, was inspecting parking spot Delta 3 in preparation of the arrival of another aircraft so no look-out was present at parking spot Bravo 1. When the marshaller and trainee marshaller noticed the accident at parking spot Bravo 1, they moved to CS-DFP and signalled the pilots to shut down the engines. Rotterdam Tower also instructed the pilots to shut down the engines because there was a light aircraft behind.



Figure 2: PH-KIS after the accident



Figure 3: Situation after the accident

Aircraft

The Christen A-1 Husky is a light, high-wing, piston engine aircraft with a conventional landing gear (tail dragger) and a maximum take-off mass of 820 kg. The Cessna Citation 560XL is a low-wing, turbofan engine aircraft with a maximum take-off mass of 9163 kg. The engines can develop a thrust of 16.9 kN (3804 lb) each.

Aerodrome

Rotterdam Airport uses several designated parking stands to accommodate aircraft, which can be reached by taxiways Yankee or November (see figure 1).

According to the work instruction of the Airport Shiftleader/Operations Officer that was valid at the time of the accident, parking spot Bravo 1 was assigned as the primary location for engine ground runs of propeller aircraft with a maximum take-off mass up to approximately 4000 kg. For aircraft with a maximum take-off mass in excess of 4000 kg and aircraft equipped with turbofan engines, a

³ A beacon light is a rotating red light on an aircraft indicating that the engines of the aircraft are running.

suitable location had to be assigned after the request for an engine ground run was received. During the engine ground run contact should be established between the technician/pilot and Rotterdam Delivery on frequency 122.17 MHz. To warn taxiing traffic well in advance, application of full engine power should be approved separately on the same frequency. Additionally, ATC should be notified when the engines were returned to idle power. According to the work instruction, a person outside the aircraft should be present to watch for taxiing aircraft when full engine power is applied.

The Aerodrome Manual did not contain different procedures for engine ground runs for aircraft with a maximum take-off mass in excess of 4000 kg or aircraft equipped with turbofan engines, except that a suitable location had to be assigned.

Air traffic control

ATC services at Rotterdam Airport involved in the accident were Rotterdam Delivery on frequency 122.175 MHz and Rotterdam Tower on frequency 118.20 MHz. Both controllers are situated together in the control tower of Rotterdam Airport with view on the platform.

INVESTIGATION AND ANALYSIS

When a run-up test is requested at Rotterdam Airport, this has to be coordinated with the following parties involved according to the procedures as prescribed in the work instructions of the Airport Shiftleader/Operations Officer:

- The crew of the aircraft.
- ATC Delivery.
- ATC Tower.
- Airport authority.

When the pilots of CS-DFP asked about the scenario for the run-up test, Rotterdam Delivery consulted Airport authority to find an applicable parking spot according to the procedures. However, when Rotterdam Delivery notified the pilots of the parking spot to be used, no information was provided about the communication procedures when selecting full engine power during the run-up test. This might be caused because Rotterdam Delivery assumed that the crew was informed about the procedures. On the other hand the crew of CS-DFP did ask instructions for the run up test but was only informed that they would be directed to another parking spot.

The communication procedures in the Aerodrome Manual required obtaining approval for a full engine power run-up test by Rotterdam Delivery on frequency 122.17 MHz. However, after start-up was approved by Rotterdam Delivery, communication was transferred to Rotterdam Tower on frequency 118.20 MHz because CS-DFP had to taxi to Bravo1. In the communication between Rotterdam Tower and CS-DFP, no information was provided by Rotterdam Tower regarding procedures for a full power engine run-up test. The crew of CS-DFP did not ask permission for starting the run-up test when the aircraft arrived at Bravo 1.

The work instructions of the Airport Shiftleader/Operations Officer valid at the time of the accident require a look-out to be present outside the aircraft during high power engine run-ups to warn the pilot/technician of taxiing traffic behind. Normally this task was performed by a marshaller. In compliance with the work instructions of the Airport Shiftleader/Operations Officer, there was a marshaller sent to Bravo 1 to provide a lookout for other aircraft during the run-up test. However, due to training activities, the marshaller moved to parking spot Delta 3, from which CS-DFP

obstructed his view on the northern part of the taxiway Yankee. Therefore, the marshaller probably did not notice PH-KIS approaching CS-DFP until the accident occurred. The inadequate look-out of the marshaller prevented an early warning for taxiing traffic behind the aircraft to the pilots of CS-DFP.

After PH-KIS had landed, Rotterdam Tower cleared the aircraft to taxi to the Foxtrot apron, for which normally taxiway Yankee is used. No information was provided concerning CS-DFP performing the run-up test next to taxiway Yankee. During taxiing to the Foxtrot apron, the pilot of PH-KIS noticed CS-DFP, but did not see the activated anti-collision light, or it had not been activated by the pilots of CS-DFP.

Since the crew of CS-DFP had not been informed of the proper procedure for a full power engine run-up test and they did not have the knowledge of the procedures, they did not request, nor obtained, approval prior to applying full power. This resulted in the fact that neither Rotterdam Tower nor Rotterdam Delivery was aware of the application of full power, which would be directed at taxiway Yankee.

Following the accident, the work instructions of the Airport Shiftleader/Operations Officer have been changed to assign the coordination of engine run-up tests to the Rotterdam Tower only.

CONCLUSION

The accident was caused by:

- Insufficient provision of information to the pilots of CS-DFP regarding to the procedure for a full power engine run-up test, resulting in non-adherence to the proper procedure .
- Insufficient knowledge of the procedures regarding to the procedure for a full power engine run-up test by the crew of CS-DFP.
- Insufficient communication to the pilot of PH-KIS concerning the run-up tests of CS-DFP at parking spot Bravo 1.
- The absence of the required look-out near CS-DFP.
- Insufficient information in the work instructions of the Airport Shiftleader/Operations Officer concerning specific procedures for engine ground runs for aircraft with a maximum take-off weight in excess of 4000 kg or aircraft equipped with turbofan engines.