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INVESTIGATION REPORT

Serious incident between the Boeing 787-10 registered N16009 and the Airbus A320-214 registered OE-IJF

on 20 July 2020
at Paris-Charles de Gaulle airport (Val-d'Oise)

Time	Around 05:17[1]
Operator	Boeing 787: United Airlines Airbus A320: EasyJet
Type of flight	Passenger commercial air transport
Persons on board	United Airlines flight: 3 flight crew, 9 cabin crew, 61 passengers EasyJet flight: 2 flight crew, 4 cabin crew, 149 passengers
Consequences and damage	None

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in July 2021. As accurate as the translation may be, the original text in French is the work of reference.

[1] Except where otherwise indicated, the times in this report are in Coordinated Universal Time (UTC). Two hours should be added to obtain the legal time applicable in Metropolitan France on the day of the event.

Lapsus by a controller when giving a landing clearance, read back not checked, missed approach on short final on request from aeroplane lining up on runway

1 - HISTORY OF THE FLIGHT

Note: The following information is principally based on the Boeing 787 flight data recorder, statements, the radio-communication recordings and the radar data.

The crew of the Boeing 787, performing flight United Airlines 57, took off on 19 July at around 22:45 (18:45 local time) from Newark airport (USA) bound for Paris-Charles de Gaulle airport (Val-d'Oise). During the approach, the captain was the PF[2], the first officer (FO) was the PM[3]. A third pilot was present in the cockpit in accordance with the operator's procedures.

[2] Pilot flying.
[3] Pilot monitoring.

The crew were cleared for the ILS approach to runway 09L by the Paris-Charles de Gaulle intermediate approach controller.

At 05:16, the aeroplane was established on the localizer on final for runway 09L and was transferred to the tower frequency[4]. Four nautical miles ahead, there was another Boeing 787, operated by Air France, on final for runway 09R. Its crew had asked to land on this runway, which is longer than the 09L, due to a technical problem.

[4] Controller in LOC (local) position in north tower.

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On the first call from the crew of the United Airlines Boeing 787, at 05:16:44, the controller replied, "*United 57 bonjour, number one for 09 Right cleared to land 09 Right, wind 010 degrees 9 knots gusting 21 knots*" (point ❶ of Figure 1), thinking that she had cleared the crew to land on runway 09L. The FO replied, "*Understand cleared to land 09 Right, sidestep for 9 Right United 57*" (point ❷ of Figure 1). The controller did not reply to the read-back. In the meantime, the Air France Boeing 787 landed on runway 09R.

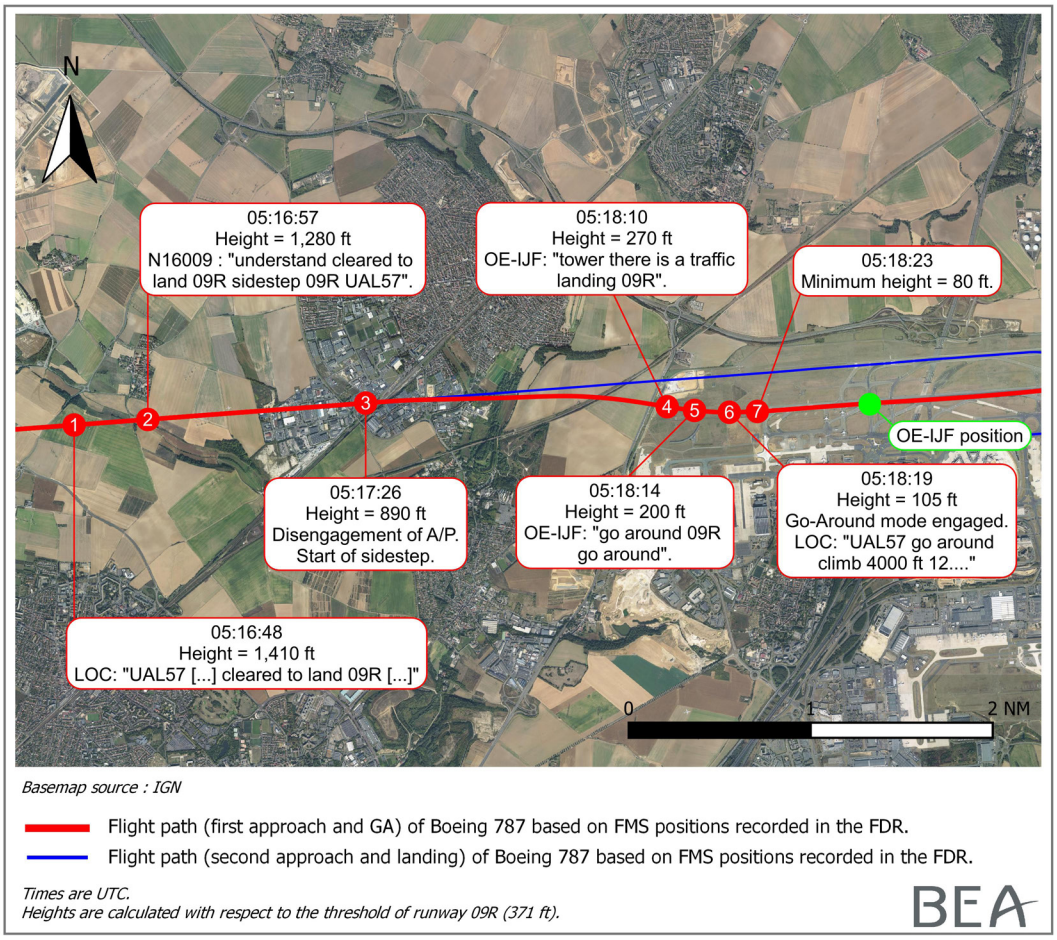
At 05:17:23, the controller cleared an EasyJet Airbus A320 to line up and hold on runway 09R at holding point D5[(5)]. At the same moment, the captain of the United Airlines Boeing 787 disengaged the autopilot (AP) and started a sidestep for runway 09R at a height of around 900 ft and at 2.2 NM from the threshold of runway 09R (point ❸ of Figure 1).

[(5)] Taxiway D5 is situated around 1,000 m from the threshold of runway 09R. The instructions were given in English.

The crew of the Airbus A320 looked a first time in the direction of the final approach path before lining up and saw the United Airlines Boeing 787 which they thought was on final for runway 09L. On entering the runway, the crew looked again in the direction of the final approach path and this time saw the Boeing 787 banked and heading for runway 09R. The captain understood that the Boeing 787 was manoeuvring to align with runway 09R and braked although he had already entered the runway by around 10 m, perpendicular to the runway centreline. The Boeing 787 was then at a height of around 300 ft and 0.7 NM from the runway threshold.

The captain of the Airbus A320 announced over the radio, at 05:18:10, *"Tower, there is a traffic landing 09R"* (point ❹ of Figure 1), then, *"Go around 09R, go around"* (point ❺ of Figure 1). The crew of the Boeing 787, who had seen the Airbus A320 on the runway and were getting ready to fly a missed approach replied that they were going around (point ❻ of Figure 1). Just after this message, the controller confirmed the go-around order by asking the crew of the Boeing 787 to climb to 4,000 ft. At the same time, the controllers' RIMCAS (Runway Incursion Monitoring and Collision Avoidance System) emitted warnings.

The Boeing 787 descended to a minimum height of 80 ft at 250 m before the runway threshold before climbing (point ❼ of Figure 1). It flew over the Airbus A320 at a height of just over 300 ft and continued the go-around followed by a new approach to runway 09L without any further incident.



Source: BEA

Figure 1: Path of Boeing 787 based on FDR

2 - ADDITIONAL INFORMATION

2.1 Airport information

Paris-Charles de Gaulle airport has four runways divided into two twin runways:

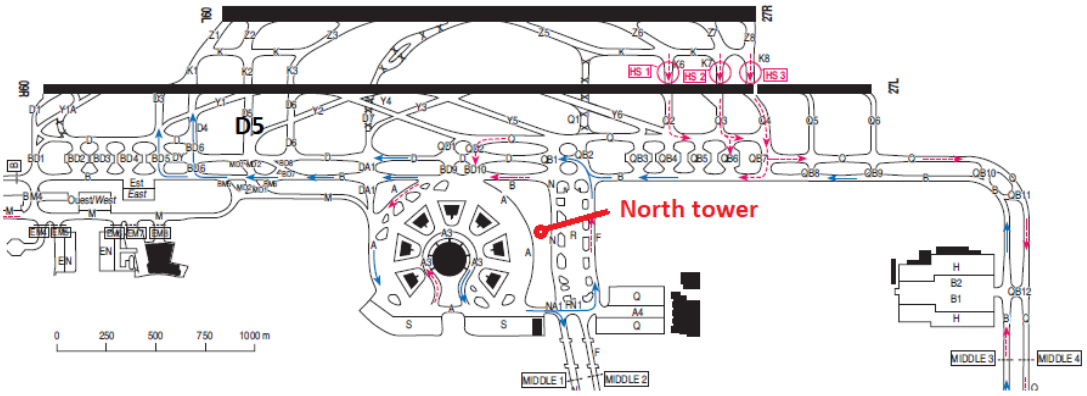
- the north twin runways 09R/27L and 09L/27R;
- the south twin runways 08R/26L and 08L/26R.

At the time of the occurrence, the south twin runways were closed. Easterly operations were in place with the runways assigned the following functions:

- runway 09R for take-offs (landing distance available (LDA): 4,200 m);
- runway 09L for landings (landing distance available (LDA): 2,700 m).

The slope for the final approaches of the ILS procedures for these two runways is 3.0°.

The distance between runways 09R and 09L is 380 m. The two runway thresholds are offset by around 900 m. Taxiway D5 is situated around 1,000 m from the threshold of runway 09R.



Source: AIS

Figure 2: Excerpt from airport chart

2.2 Meteorological information

The Paris-Charles de Gaulle airport METAR at 05:30 gave the following parameters:

- wind 010°, varying between 330° and 070°, 10 kt;
- visibility greater than 10 km;
- few clouds at a height of 1,200 ft;
- temperature 16 °C and dew point 14 °C.

Sunrise on 20 July 2020 was at 04:08. At 05:07, the sun's elevation angle was 9° and the azimuth angle 69°.

The crew of the Boeing 787 (on a heading of 080°) specified that the horizontal visibility was reduced due to the sun and mist but that the slant visibility was better, notably for making out the threshold of runway 09R.

The crew of the Airbus A320 indicated that the visibility westwards was good.

2.3 Crew statements

2.3.1 Crew of Boeing 787 (United Airlines flight)

The crew of the Boeing 787 specified that the intermediate approach controller cleared them for an ILS approach to runway 09L. They were following, at the approach speed, a slower aeroplane and the distance between them was decreasing. The tower controller cleared them to land on runway 09R. They wanted to confirm that they had correctly understood the clearance by specifying that they were going to "sidestep" for the runway in the read-back. They used the term "understand" and expected the controller to correct them if need be. Not having received a contrary clearance from the controller, they continued the approach. They thought that the change of runway was due to the slowness of the preceding aeroplane and a potential reduction in separation, and that the aeroplane might not have vacated the runway sufficiently early. They indicated that in the USA, this type of sidestep was commonly used.

The crew indicated that the approach to runway 09L was stabilized and that a sidestep, even at low height, had not posed a difficulty given that they had sight of the runway threshold. They had to increase the vertical speed[6]. At a height of around 500 ft, they saw the EasyJet Airbus A320 on runway 09R and got ready to fly a missed approach. They then heard the go-around instruction on the radio.

[6] The vertical speed of descent increased from 900 ft/min to around 1,200 ft/min.

2.3.2 Crew of Airbus A320 (EasyJet flight)

The crew of the Airbus A320 specified that they had been cleared to line up on runway 09R after an Air France Boeing 787 had vacated it. The latter had landed on runway 09R because of a technical problem, generating a small wait. When the PF (FO) started taxiing to line up, the PM (captain) looked left. He saw an aeroplane on final, according to him, for runway 09L. He indicated that it is difficult, from the ground, to see which runway an aeroplane on final is aligned on, notably because of the parallax and in case of crosswind. He added that when watching a traffic on final, one often has the impression that it is going to the correct runway. He realised, ultimately, that this impression is not reliable.

Ten to fifteen seconds later, after carrying out the "Take-off" checklist, the crew looked right to check that the runway was vacated and then left for a last check of the aeroplane on final. The aeroplane on final was banked and heading towards them. They understood that it was manoeuvring to align with 09R. At a standstill, the aeroplane was still perpendicular to the runway but had entered it. The captain asked the controller for confirmation about the plane on final for 09R and then quickly asked the plane to carry out a go-around.

2.4 Paris-Charles De Gaulle airport air traffic control service information

2.4.1 LOC controller

The LOC controller provides the control service, the information service and the alert service for the aircraft in her/his zone of responsibility.

S/he issues:

- take-off, landing and runway crossing clearances;
- clearances to enter the runway and runway safety areas.

S/he monitors and maintains the separation between the Paris-Charles de Gaulle airport and the Le Bourget airport outbound and/or inbound paths. S/he provides the crews with all the useful information for the take-offs and landings.

2.4.2 LOC controller experience and statements

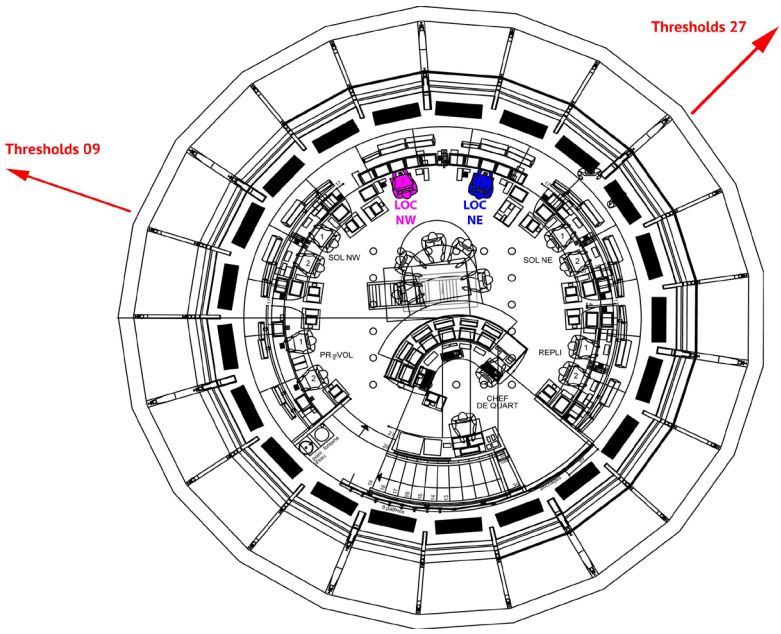
The LOC controller held an air traffic controller licence. She was also a simulator and on-job-training instructor. She had joined Paris-Charles de Gaulle airport in 2008.

The controller indicated that she had come on duty in the airport's north tower at 04:30, the day of the occurrence and that she was in the NE[7] LOC position. Usually the NW[8] LOC position is used for easterly operations. The NW LOC position control screen was not illuminated and according to the controllers, seemed to be inoperative.

[7] North east.
[8] North west.

It was the first day that the north tower had been open after being closed for two weeks, and the exclusive use of the south twin runways controlled from the south tower and centre tower. During this period, the screen had been switched off by means of its main switch, different to the one used on a daily basis by the controllers and located in a position difficult for them to access. The controllers did not know about this main switch.

From the NE position, the controller faced the holding points of runway 27L, she did not have direct sight of the thresholds of runways 09 from her position in the control tower.



Source: SNA, Paris-Charles de Gaulle airport

Figure 3: NE and NW LOC positions in north control tower

She specified that the traffic had progressively increased and that around 05:00, the crew of an Air France Boeing 787 had carried out a missed approach to runway 09L following a technical problem. The crew of this flight then wanted to land on the longer runway 09R. Two aeroplanes had just landed on runway 09L and were holding their position before crossing runway 09R to reach the aprons. Two other aeroplanes including the EasyJet Airbus A320 were ready for departure at holding point D5 for runway 09R. At the same time, the NW LOC position control screen had been switched on and the controller was getting ready to change position. Nevertheless, she had preferred waiting in order to have a clear situation before doing this. She added that her mind was on anticipating the position change.

When the crew of the Boeing 787 on final for 09L called, she thought she had cleared them to land on runway 09L. She thought that the lapsus was due to the fact that she was focalised on runway 09R with the Air France Boeing 787 which had just landed on it, the two aeroplanes which had to cross it and the two other aeroplanes which had to take off from it. She explained that controllers regularly make lapsus.

She did not check the crew's read-back, which notably included the words "sidestep" and went on to the next control task. After the Air France Boeing 787 had landed, she cleared the crew of the Airbus A320 to line up on runway 09R and was getting ready to manage the crossing of runway 09R by the planes which had just landed on runway 09L. It was then that she heard the messages from the Airbus A320 crew followed by the warnings in the control tower. She confirmed the instruction to fly a missed approach.

The controller in the PREFLIGHT and GROUND position whose workstation was opposite the aeroplanes on final had happened to see the United Airlines Boeing 787 carry out a sidestep. By the time he had realised that there was an aeroplane at the holding point and had turned to the LOC controller to ask her what the aeroplane was doing on final, she was already becoming aware of the situation.

In her opinion, the main contributory factor to this occurrence was the lack of practice caused by the health situation linked to the COVID-19 pandemic which had resulted in a reduction in the automatic reflexes required for her job.

2.4.3 LOC COOR[9] controller

[9] Coordinator.

At the time of the occurrence, the LOC COOR position was not manned. It can be manned at any time on request by the LOC controller or the tower supervisor in accordance with procedures.

The LOC COOR controller is situated next to the LOC controller. The role of the former is to alleviate the work of the LOC controller and to allow the latter to concentrate on the management of the traffic. Her/his priority is to ensure the coordination between the LOC position and the other positions and to prepare in advance, the management of the traffic by the LOC controller.

To facilitate her/his coordination and preparation duties, the LOC COOR controller monitors the tower frequency.

The LOC COOR controller is the first choice for replacing the LOC controller when the latter considers that s/he is no longer able to perform her/his duties or when the situation requires it.

2.5 Air/ground communication

2.5.1 Lapsus and check of read-back

The local safety board of the Paris-Charles de Gaulle airport air navigation service specified that a lapsus is an error inherent in the current system in which human resources have a large role given the alternation between the right and left runways.

Occurrences in which a controller does not notice the inappropriate crew read-back are not rare.

In the document, Eurocontrol EVAIR Bulletin No 21 published in August 2020, 13,000 air traffic management (ATM) occurrence reports, collected during the summer periods (1 April – 30 September) between 2015 and 2019, for around 20 million flights were studied. One of the main contributors to the ATM occurrences is air/ground communication: spoken (call sign confusion, language/accent, noise, interference, etc.) and operational (hearback error, phraseology, transfers, etc.) with around 1.4 reported occurrences for 10,000 flights. The hearback errors represent between 0.1 and 0.2 reported occurrences for 10,000 flights.

The hearback is a subject covered both in the initial controller training (subject taught, carried out and assessed) and in their continuous training.

2.5.2 Confirmation request

The landing clearance given by the controller implied carrying out a sidestep. The crew replied to the controller's clearance by using the term "understand" and mentioning "sidestep for 9 right" in order to clarify the situation.

According to the ICAO Manual of Radiotelephony, Doc 9432, the term "confirm" must be used to request a confirmation or verification, notably with respect to a clearance. This provision is adopted in the EU regulation 2016/1185 of the European Commission, which notably concerns the operational provisions regarding air navigation services and procedures (SERA – part C). However, this provision is not adopted in the current version (October 2017) of the French Phraseology for general air traffic training manual published by the Aeronautical Information Service (AIS). In its next version, a table will give all the phraseologies, including the term "confirm".

Furthermore, this term is not specified in the Order JO 7110.65Y regarding the Federal Aviation Administration's (FAA) air traffic organization policy nor in the FAA's Pilot/controller glossary.

According to the crew of the United Airlines Boeing 787, the term "understand" is frequently used in the USA. It constitutes a request for clarification of the instruction.

Lastly, Eurocontrol, in the European Action Plan for Air Ground Communications Safety, in the read-back section, suggests that a best practice, if there is still a doubt about an ATC instruction, is for the crew to ask the controller to reconfirm the clearance rather than repeating what they thought they heard.

2.6 Alert systems

2.6.1 RIMCAS and RWSL

Paris-Charles de Gaulle airport is equipped with a RIMCAS[10]. This tool is designed to alert the controller of a risk of collision between two aeroplanes or an aeroplane and a vehicle on the runways and in the runway safety areas. It transmits visual and aural warnings.

The airport is also equipped with a RWSL[11] system. This tool, independent of the control services, automatically informs the pilots and vehicle drivers of the runway occupancy status and when it is dangerous to:

- ❒ enter or cross, via the use of REL[12] embedded in the taxiways;
- ❒ take off, via the use of embedded THL[13].

The chronology of the activation of these systems is presented in the table below.

Time	Event	AAL height[14] and distance of N16009 to threshold 09R
05:17:26	N16009 starts sidestep	890 ft / 2.2 NM
05:17:50	OE-IJF starts taxiing to line up from D5	595 ft / 1.3 NM
05:18:14	OE-IJF requests go-around	200 ft / 0.42 NM
05:18:15	N16009 is practically aligned on 09R The REL (RWSL) light up, OE-IJF is on the runway	180 ft / 0.34 NM
05:18:19	The RIMCAS warnings are activated. The controller confirms the instruction to go around	105 ft / 0.17 NM

Partial chronology of events

[10] Runway Incursion Management and Collision Avoidance System.

[11] RunWay Status Lights.

[12] Runway Entrance Lights.

[13] Take-off Hold Lights.

[14] Above Aerodrome Level.

The warning systems were activated in accordance with their configuration. The systems took into account the aeroplane on final at a late stage due to the late positioning of the plane on final for runway 09R after the sidestep.

2.6.2 Surface alert system (SURF)

The aviation industry is currently developing new standards to improve runway safety by means of an application called SURF (Surface situational awareness). It is planned that this functionality will use the GNSS positioning data from the ADS-B messages emitted by the aircraft equipped with ADS-B OUT and received by aircraft which have the situational awareness functionality, ADS-B IN.

The flight path data (altitude, latitude and longitude) was shared with Airbus to assess a prototype of this functionality in the scope of this occurrence. In this conflict configuration and according to the actual configuration of this functionality, there would have been a visual TRAFFIC ON FINAL warning on the Primary Flight Display (PFD) and an aural warning in the Airbus A320 at 05:18:10. At the same time, there would have been a visual TRAFFIC ON RUNWAY advisory message displayed in amber on the PFD of the aeroplane on final (if it was equipped with the same functionality), followed, two seconds later, by a visual TRAFFIC ON RUNWAY warning on the PFD and an aural warning.

2.7 Carrying out a sidestep

2.7.1 Definition

The Aeronautical Information Manuel (AIM) published by the FAA, defines the sidestep manoeuvre as a visual manoeuvre carried out after an instrument approach in order to land on a parallel runway which is not more than 1,200 ft (around 365 m) from the edge of the runway to which the instrument approach was made.

The AIM specifies that the air traffic control gives the clearance for this manoeuvre at the same time as the approach clearance: "cleared ILS runway 07 left approach, sidestep to runway 07 right." The minima associated with this type of approach are based on the non-precision approach criteria and are therefore higher than those associated with the direct approach.

No precise definition of the sidestep manoeuvre exists in the applicable documents in France. It can thus be considered as a visual manoeuvre (circling).

2.7.2 Operational aspect

The ILS approach chart for runway 09L of Paris-Charles de Gaulle airport indicates the minimum values[15] for the visual manoeuvre, which, according to a note, only concern the change of path between the twin runways. They thus apply for a visual manoeuvre from an ILS or localizer approach on runway 09L, to runway 09R. The published values were compatible with the conditions of the day.

The United Airlines operations manual adopts the "sidestep" manoeuvre as it is defined in the AIM. The manual specifies that such a manoeuvre can only be started if the runway is in sight and the aeroplane can carry out a standard descent to land in the touchdown zone.

[15] Minimum descent altitude/height (MDA(H)) Cat D 1100 ft (720 ft), associated with a visibility of 4,300 m.

The analysis of the recorded data showed that these stabilization criteria were met:

- With respect to the vertical profile, as the change in runway brought the aiming point closer, the required vertical speed was increased to reach 1,200 ft/min which is the continuous vertical speed actually accepted by the operator. A note in the operations manual with respect to the stabilization specifies: "*If planned plus bracketing vertical speeds will exceed 1000 FPM or -4°, the approach briefing must include the minimum and maximum descent rates.*"
- The operations manual establishes lateral limits for the profile; the criteria are established for an ILS approach and for a visual approach[16], but nothing is precisely indicated for a visual manoeuvre such as a sidestep carried out after an ILS approach.

The crew did not mention the possibility of carrying out a sidestep during the preparation and carrying out of the approach briefing. Neither was this possibility mentioned in the TEM[17] item associated with the preparation of the approach.

Nevertheless, the crew could quickly confirm that the landing distance on runway 09R was sufficient. However, in the given time, they were not able to assess all the other implications (stabilization criteria, track of missed approach, landing run) that a change to the action plan could have on flight safety at the time that the decision to carry out the visual manoeuvre to runway 09R was taken.

2.7.3 Occurrences linked to a sidestep

The BEA has published an investigation report regarding an incident which occurred in 2011 to the Airbus A321 registered F-GTAE during a sidestep manoeuvre between the parallel runways at Marseille Provence airport (Bouches-du-Rhône). The angle of attack protection was activated at the end of the manoeuvre. The approach was carried out to runway 13R. The landing was carried out on runway 13L where the threshold had been brought forward by 600 m. The investigation determined that insufficient preparation during the approach briefing may have contributed to the inappropriate management of the workload during the simultaneous change to the landing path (sidestep) and to the configuration of the aeroplane.

In the same vein, the DSAC safety bulletin published in April 2014, based on an accident which occurred in 1993 and several lessons learnt, highlights the risks connected with sidestep manoeuvres which are increased when air traffic control invites the crew to carry out a sidestep at a late stage leaving the crew without sufficient preparation for this manoeuvre.

3 - CONCLUSIONS

The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation. They are not intended to apportion blame or liability.

Scenario

The day of the occurrence, landings were being carried out on runway 09L and take-offs from runway 09R (easterly operations from north twin runways). The LOC controller (in the north tower) was sat in the NE LOC position, as the controllers had been unable to switch on the screen used for the control in the NW LOC position. Sat in the NE LOC position, the LOC controller did not have direct sight of the thresholds of runways 09.

[16] For a visual approach, the limit for the lateral profile is defined as follows: "*Aircraft is continuously in a position from which a descent to landing can be made using normal maneuvers [sic] and unless charted otherwise, lined-up on final approach no later than approximately 2 NM*".

[17] Threat and Error Management.

A few minutes before the occurrence, two planes had landed on runway 09L and due to the Air France Boeing 787 landing on runway 09R, were holding position on the taxiway before crossing this runway. Two aeroplanes were at holding point D5, including the EasyJet Airbus A320, ready for departure from runway 09R.

When the crew of the United Airlines Boeing 787 on an ILS approach to runway 09L first made contact, the LOC controller made a lapsus and cleared the crew to land on runway 09R instead of runway 09L. The crew wanting nevertheless to clarify this authorization which implied carrying out a sidestep, read back the landing clearance adding, notably, the words "understand" and "sidestep for 9 right" in the expectation of a possible correction of the clearance by the controller. The controller did not check the crew's read-back. The crew continued the final approach, carrying out a visual sidestep, in manual, to runway 09R.

The controller cleared the crew of the Airbus A320 to line up on runway 09R. The crew checked that the final approach path to runway 09R was free and saw the Boeing 787 which they thought was on final for runway 09L. They started taxiing to line up. Before turning to line up on the runway centreline, the crew carried out a last check of the final approach path for runway 09R and saw the Boeing 787 carrying out a manoeuvre to align with runway 09R. The latter was at a height of 300 ft and 1,300 m (0.7 NM) from the threshold. They asked the controller about the presence of the Boeing 787 on final and faced with the imminence of a potential collision, the crew of the Airbus A320 asked the aeroplane on final to carry out a go-around. The crew of the Boeing 787 who had sight of the Airbus A320 on the runway carried out a missed approach. At the same time, the controller confirmed the go-around instruction and the RIMCAS warnings were activated. The Boeing 787 flew over the Airbus A320 at a height of around 300 ft.

Contributing factors

The following factors may have contributed to both the controller's lapsus leading to a landing clearance being given for an occupied runway, and to her not checking the read-back:

- The controller chiefly managing traffic on runway 09R at this time (one landing, two upcoming departures and two crossings on this runway).
- The controller having her mind on the change of position from NE LOC to NW LOC.
- The controller's lack of practice linked to the reduction in traffic during the COVID-19 health crisis period.
- The Boeing 787 crew's use of the non-standard expression "understand" instead of the expression "confirm" which might have attracted more attention from the controller.

The day of the occurrence, the NW LOC position in the control tower, normally occupied by a LOC controller when easterly operations are in force was initially not operational. From the NE LOC position used as a fallback position, the LOC controller did not have direct sight of the thresholds of runways 09. This situation may have contributed to the Boeing 787's change in flight path during the final approach not being identified and the resulting conflict with the Airbus A320 cleared to line up on the same runway.

The vigilance of the two crews, in particular the Airbus A320 crew's check of the final approach path before lining up and the Boeing 787 crew's identification of the plane lining up on the runway contributed to a potential collision on the runway being avoided. At the same moment, the PREFLIGHT/GROUND controller also acquired sight of the Boeing 787 carrying out a sidestep.

Measures taken

Following the occurrence, the Air Navigation Services at Paris-Charles de Gaulle airport set up a work group to study the roles and remits of the controller in the LOC COOR position. The conclusions of this work group resulted in an operational directive which took effect on 22 April 2021 and which specifies the roles and responsibilities of the LOC COOR controller now called the LOC assistant (LOC ASS):

- coordination;
- facilitating work of LOC controller;
- monitoring traffic.

With respect to this latter point, the directive specifies that when the coordination and facilitation tasks allow, the LOC ASS controller carries out a visual watch of the control situation and monitors the tower frequency. This monitoring of the traffic by the LOC ASS controller is in addition to that of the LOC controller who remains solely responsible for checking the read-backs and transmitting the correct version of the elements concerned.

The directive also specifies that the LOC ASS position is manned as soon as the approach room is opened.

The French air navigation service provider (DSNA) also analysed this occurrence during a national review of air ground communication by the safety occurrence processing body (ITES) on 7 April 2021. The following areas for consideration were proposed with respect to this occurrence:

- encourage the promotion of the LOC ASS/LOC COOR position being manned;
- provide lessons learned about the hearback aspects of this occurrence at a national level.

Safety lessons

Clarification

In the scope of its Action Plan for Air Ground Communications Safety[18], Eurocontrol issued recommendations and recalled best practices to reduce the number of incidents in which communication-related problems are contributing factors. Among the best practices for flight crews, Eurocontrol suggests that, "*If there is any doubt as to the content of a clearance, or its meaning is not clearly understood, pilots must obtain clarification or confirmation.*"

[18] https://www.eurocontrol.int/sites/default/files/2019-05/agc-action-plan.pdf