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SAFETY INVESTIGATION REPORT

Serious incident to the PARTENAVIA - P68 registered F-GIEV on 30 July 2019 at Melun-Villaroche

Time	Around 11:25[1]
Operator	Private
Type of flight	Proficiency check
Persons on board	Pilot and instructor
Consequences and damage	None
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in September 2022. As accurate as the translation may be, the original text in French is the work of reference.	

Touch-and-go on an occupied runway, during a check flight

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements and radio communication recordings.

The pilot and the instructor took off for an IR/ME and MEP revalidation flight from Toussus-le-Noble airport (Yvelines) bound for Melun-Villaroche airport (Seine-et-Marne), where they planned to carry out approach exercises. The flight preparation did not flag any elements not conducive to the successful performance of the flight and planned exercises.

At Melun airport, work was underway in the safety area of runway 10/28. This work was scheduled to last all day. The air traffic control services decided not to publish this information by way of a NOTAM and to "tactically" manage the runway closure, i.e. in real time at the discretion of the controller on duty.

At 11:11, on first contact, the pilot of F-GIEV asked the Melun-Villaroche LOC controller for clearance to make a RNAV approach to runway 28[2], followed by an option[3] and an airport circuit before heading back towards Toussus-le-Noble. The controller cleared the RNAV 28 approach and indicated that the wind conditions made landing on runway 19 preferrable. The pilot confirmed his intention to continue for runway 28. The controller agreed and asked him to call back on final for runway 28.

[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.
[2] Only runway 28 has a RNAV approach procedure.
[3] The type of landing (full stop, touch-and-go or missed approach) is left to the pilot's discretion.

At 11:17, the crew of a helicopter coming from the south-west bound for Melun-Villaroche contacted the controller, who informed them that runway 19 was in service. Then the controller realised that there was a risk of there being potentially conflicting flight paths should the crew of F-GIEV fly a missed approach. Two minutes later, the pilot of F-GIEV announced that he was going to perform a touch-and-go followed by a runway circuit.

At 11:21, the controller instructed the helicopter pilot to quickly cross the axis of runway 28 to allow the crew of F-GIEV to go around, then he instructed the latter to perform a runway circuit from the south after the touch-and-go. One minute later, while F-GIEV was on short final, the controller instructed the pilot to perform a right-hand runway circuit (i.e. from the north) after the touch-and-go on runway 28.

At 11:23, he gave the traffic information to the helicopter pilot. The latter replied that he was on short final for runway 19. At the same time, the pilot of F-GIEV carried out a touch-and-go on runway 28, without a landing clearance having been issued by the controller.

A few seconds later, the agent supervising the work near the runway contacted the controller to inform him that an aeroplane had just landed on the runway while workers were working nearby and vehicles were in the safety area.

At 11:26, with no time to clear the runway safety area before the return of F-GIEV, the controller asked the pilot to “stay in the air” after the runway circuit. The pilot accepted, saying that the next planned exercise was a simulated engine failure.

Between 11:28 and 11:35, the pilot of F-GIEV was cleared for two missed approaches to runway 28 while there were still personnel in the runway safety area.

2 ADDITIONAL INFORMATION

2.1 Crew information

The 75-year-old instructor held an Airline Transport Pilot Licence - Aeroplanes (ATPL(A)). His ratings included an IR/ME rating and an instructor rating. He had logged 40,000 flight hours on aeroplanes.

The 37-year-old pilot held a Commercial Pilot Licence - Aeroplanes (CPL(A)). His ratings included an IR/ME rating (IR). He had logged approximately 4,500 flight hours on aeroplanes.

The instructor and the pilot stated that they did not notice any workers in the runway safety area when they first landed on the runway. However, the instructor indicated that he noticed vehicles near the runway during the approach, but as these appeared to be sufficiently far away from the runway, he considered that safety was ensured. He further thought that the controller would have informed him in the event of a potential threat resulting from a moving vehicle or work. Both the pilot and the instructor thought they had received the landing clearance.

2.2 Aerodrome information

Melun-Villaroche airport has two intersecting runways[4] arranged in a "T" shape. The main runway 10/28 has a RNAV approach procedure for the preferred QFU 283°. The area in which workers and vehicles were present during work on runway 28 is shown in Figure 1 below.

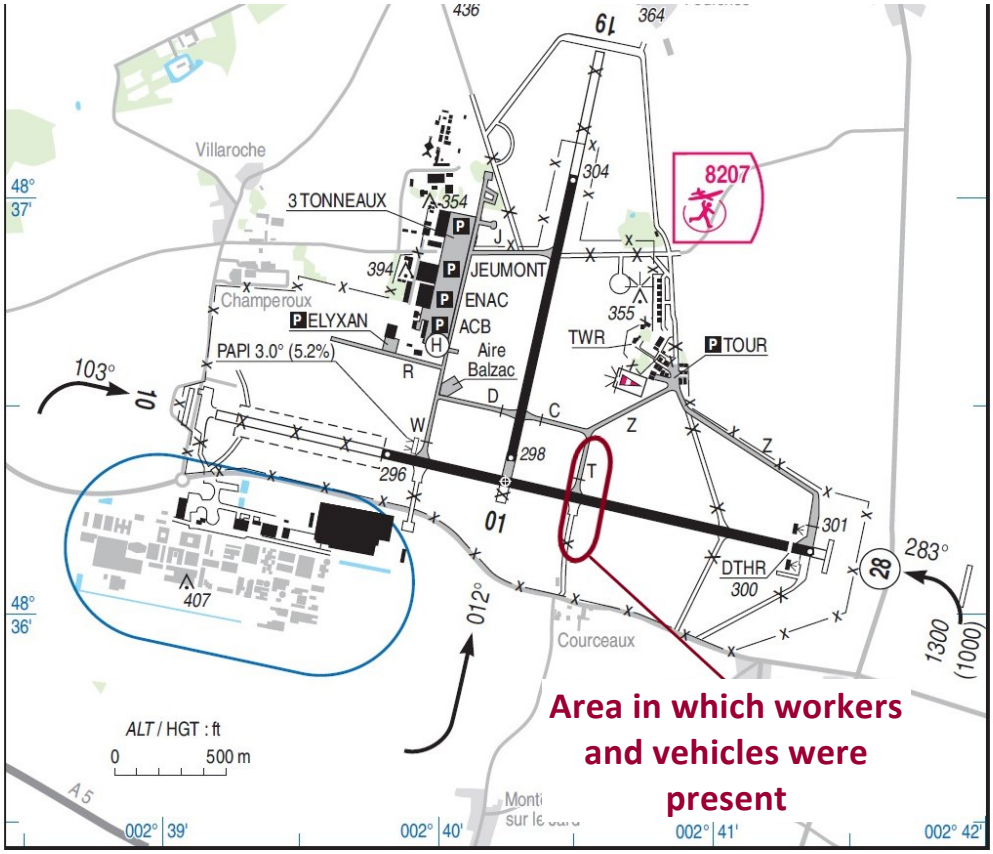

Figure 1: map of Melun-Villaroche (source: AIS)

2.3 Airport work information

2.3.1 Procedures and regulatory requirements for runway work

Annex 15 of the International Civil Aviation Organization (ICAO) on aeronautical information services was made directly applicable in France by the Order of 23 March 2015 relating to aeronautical information[5]. It indicates that a NOTAM shall be originated and issued concerning the [...] establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways.

The Operations Manual (OM) of the Melun-Seine control unit includes this requirement by indicating that a NOTAM shall be published in the event of a runway closure exceeding 12 h.

[4] Paved runway 10/28 measuring 1,972 x 45 m, and paved runway 01/19 measuring 1,300 x 30 m.

[5] Version in force on the day of the accident.

It also stipulates the following:

- Any work on the manoeuvring area shall be authorised by management or the manager. If necessary, a temporary memo must be written to define the specific conditions of this work.
- When no closure NOTAM has been issued, priority is always given to air traffic over work. In this case, the vehicles involved must clear the area as requested by the tower and move to a minimum distance of 150 m from the main runway[6].
- If work exceeds 30 min, the ATIS content must be updated accordingly.

2.3.2 Upstream organisation of work

On the day of the incident, work was underway to lay cables under the runway through dedicated holes, which required personnel and vehicles to work for several hours in the safety area of runway 10/28. The duration of the work had not been specified.

The definition of the project and the framework for the work had been prepared in April 2019 in a meeting between the National Airport Engineering Service (SNIA)[7] and the project manager. The work was subsequently planned to take place over two days, from 30 July to 1 August 2019.

On 25 July, the "Control" subdivision of the Melun control unit sent an email to the "Remote Equipment" subdivision informing the latter of its decision not to close the runway by way of a NOTAM, but to proceed with a "tactical closure". The same email stated that a specific memo confirming this decision would be issued to inform the controllers.

Moreover, it was planned that an SNIA agent would accompany the work team to the runway area in the "FLYCO" vehicle so as to coordinate the work with the air traffic controllers by monitoring the radio frequency.

2.3.3 Work on the day of the event

On the day of the event, the Control subdivision manager verbally informed Controller 1 (LOC controller on duty before the event[8]) about the work. The telephone recordings revealed that the instruction, given at about 08:30, was to close runway 28 when this was possible in order to facilitate the work, and to "tactically" manage the situation, without explaining this term. The controller was further instructed to summarise the instruction in a handwritten note to be left at the LOC control position.

The controller agreed to these instructions and specified that the team of workers would be able to clear the runway quickly, although the FLYCO agent had explicitly told him the opposite in a previous radio exchange. Furthermore, the controller did not leave a handwritten note at the LOC control position or in the control tower logbook.

[6] Note: this item corresponds to the definition given by the Control subdivision manager concerning the "tactical closure" principle.

[7] DGAC service responsible for infrastructures.

[8] See Table 1, para. 2.4.1.

2.4 Control unit information

2.4.1 General information

For operational aspects, the Melun-Seine control unit is under the authority of the Operations Department, which is part of the North Air Navigation Service (SNA Nord). For technical aspects, it is under the authority of the Remote Equipment subdivision of the General Aviation Air Navigation Service for the Paris region (SNA RP).

This unit provides aerodrome control and approach control services. The TWR and GND positions are combined and managed by the LOC controller.

The manning schedule of the Melun-Seine unit on the day of the event was retrieved and is shown below. It shows that three control positions were open: TWR, FIS and coordinator. Controller 2 (in bold in the table) was at the TWR position during the event and in radio contact with the F-GIEV and helicopter pilots.

Table 1: extract from the manning schedule of the Melun-Seine unit on 30 July 2019

	TWR	FIS - Radar	FIS - Coordinator
04:20 – 06:00		*Other controller*	
06:00 – 06:45			**Controller 2**
06:45 – 07:45	Controller 1	**Controller 2**	*Other controller*
07:45 – 09:15		*Other controller*	**Controller 2**
09:15 – 10:00		*Other controller*	*Other controller*
10:00 – 10:45	**Controller 2**	*Other controller*	*Other controller*
10:45 – 12:00		*Other controller*	*Other controller*
12:00 – 12:45	Controller 1	*Other controller*	*Other controller*

2.4.2 Working methods of LOC controllers

The airport's traffic management method specified in the Operations Manual provides safeguards to prevent the LOC controller from issuing a take-off or landing clearance when the runway is occupied.

In particular, a panel indicating that the runway is occupied (see Figure 2) may be folded over the wind indicator when vehicles or aircraft are on the runway or in the associated safety area. This way, the controller cannot, in theory, issue a clearance, since the latter normally includes wind information, which is then no longer visible.

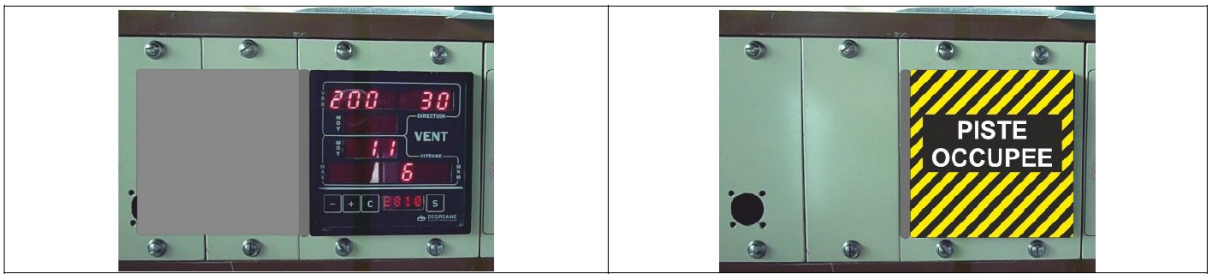

Figure 2: wind indicator and masking panel (source: Melun-Seine OM)

It should be noted that, since Melun airport has two runways, this method only applies to the occupancy of the runway in service. When folded across, the masking panel prohibits the issuance of a clearance by the LOC controller. As such, this method is not suitable for indicating that one runway is closed while the second runway is in service.

Furthermore, the OM advises that simultaneous use of both runways should be avoided.

If one of the two runways is closed, the procedure provides for the use of a red strip indicating that runway 10/28 or runway 01/19 is closed. LOC controllers must put this strip at the top of their board to ensure that the information regarding runway unavailability is continuously visible.

The "tactical" management principle is only mentioned once in the OM, in the sentence indicating that tactical management is conducted directly with the Flight Management Position of the North En-route Control Centre (CRNA-N) by phone.

In terms of this event, the word "tactical" most likely refers to real-time management, as opposed to strategically planned management. This means that working methods are not different from those normally applied and that first-line operators are simply expected to implement standard procedures and best practices.

2.5 Meteorological information

The METAR report for Melun-Villaroche airport at 11:00 included the following information:

- wind from 210° of 17 kt;
- CAVOK.

The ATIS 'E' information recorded by Controller 2 at 10:55 indicated the following:

- wind from 200° of 16 to 23 kt;
- visibility greater than 10 km;
- BKN at 4,800 ft and OVC at 5,600 ft;
- runway 28 in service.

The 'A' information recorded at 06:50 by Controller 2 also indicated that runway 28 was in service. The 'B', 'C' and 'D' information recorded by Controller 1 at 07:20, 08:20 and 09:30, respectively, gave similar weather conditions, but indicated that runway 19 was in service. There was no mention of a closure of runway 28.

2.6 Statements

2.6.1 LOC controller on duty prior to event (Controller 1)

Controller 1 started working as a controller in 2003 and was assigned to the Melun unit in 2016.

He stated that, on the day of the event, he arrived at the TWR position at approximately 06:45, for a control service opening at 07:00. When he took up his position, the ATIS 'A' information had already been recorded, and he received a phone call from the Control subdivision manager notifying him that work was going to be carried out on runway 28. After receiving the instructions, he put the red strip indicating that runway 10/28 was closed on his desk as a physical reminder of the unavailability of the main runway, but on the side, so as not to disrupt the organisation of his strip board.

He indicated that during the handover at 10:03, he informed Controller 2 that runway 10/28 was closed for work, that personnel were on the runway and that the FLYCO agent was coordinating the work by radio.

2.6.2 LOC controller on duty during event (Controller 2)

Controller 2 started working as a controller in 2005 and was assigned to the Melun unit in 2012. He held the examiner rating since 2016 and the tower manager rating since January 2019.

He said that he arrived at the airport at approximately 05:30. He reported that he spoke for a few minutes with the FLYCO agent, who told him that work was going to take place on the main runway and that he thought that a NOTAM had been issued on this subject. He remembered consulting the information of the day[9] at the tower cab without finding any reference to this NOTAM. He then checked the Aeronautical Information Service (AIS) website but did not find this information either.

He indicated that his first three shifts of the day were uneventful. He then recorded the ATIS 'E' information before taking over from Controller 1 at the LOC position for his second shift. The weather conditions, in particular the wind, were consistent with runway 19 being in service. However, the controller thought that it was more appropriate to put runway 28 into service, as he was accustomed to using the preferred QFU regardless of the wind, except in exceptional circumstances. He added that, according to him, there was no reason the other runway could not be used at the same time, even with runway 28 in service.

He explained that then, during the handover, Controller 1 informed him about the work on runway 28. He added that when he reorganised the strip board after receiving the instructions, he failed to put back the strip indicating that runway 10/28 was closed.

He said that during the first hour at the position, traffic was very low, so according to him, he was in a state of hypovigilance at that time.

When F-GIEV lined up for final, he stated that he was focused on the helicopter which was crossing the runway axes to join runway 19 and did not visually check whether runway 28 was available.

When the pilot of F-GIEV later asked him for clearance to make circuits for runway 28, the controller explained that he authorised the manoeuvres, requesting that the go-arounds be performed "high enough" so as not to disrupt the work. He justified this decision by saying that he remembered observing airliners flying over work where he had previously worked.

In addition, several statements indicated that Controller 2 used his phone to send a "large" number of messages shortly before and shortly after the event.

[9] Daily summary of relevant information, compiled from various aeronautical information sources, and in particular NOTAMs relating to Melun-Villaroche airport.

2.6.3 FLYCO agent

The agent in the FLYCO vehicle had been working at Melun airport for 21 years. He remembered that when F-GIEV performed the touch-and-go, he had his back to threshold 28, and that due to the strong wind, he only heard the aeroplane when the latter took off again. He stated that during the April work definition meeting, it was agreed that the work would take place over three days and that a runway closure NOTAM would be issued. He added that he did not receive any further information saying otherwise.

2.6.4 Control subdivision manager

Appointed control subdivision manager in January 2019, she introduced changes in working methods, in agreement with her management. Indeed, she had observed that controllers were no longer reading all memos received due to the sheer number of these memos. She therefore focused on providing more concise information.

It was in this context that the decision was made to “tactically” manage the runway closure, which she defines, in operational terms, as equivalent to handling it as a runway occupancy. Indeed, she indicated that she considered the planned work to be comparable to mowing operations carried out periodically at the airport. She added that this decision enabled flexibility to be retained in the use of runway 10/28, should there be an urgent need.

She considered that she complied with the need to inform the controllers on duty on the day of the event, by verbally giving the instructions to Controller 1 and by asking him to write them in the tower logbook. She stated that according to her, a written memo would have been counterproductive, since such communications are, in her opinion, not read by controllers.

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 Melun control unit made the decision to manage, in a simplified manner, a work situation during which personnel and vehicles were moving in the safety area of runway 28, without publishing a NOTAM or formalising instructions in writing for the controllers.

The controller cleared the crew of F-GIEV to use runway 28 for a touch-and-go. His situational awareness did not include the unavailability of runway 10/28, until he received the message from the FLYCO agent indicating that the aeroplane had performed a touch-and-go on the runway. The controller was most likely distracted due to using his mobile phone shortly before the event.

No landing clearance was issued prior to the touch-and-go, the pilots and the controller each thinking that it had been issued. The crew of F-GIEV thus performed a touch-and-go on runway 28 while workers were working nearby and vehicles were in the safety area.

Contributing factors

The following factors may have contributed to the landing on an occupied runway:

- The decision to "tactically" manage the runway closure, without any particular procedure associated with the unusual situation.
- The heterogenous situational awareness of the different parties involved (Control subdivision, controllers, agent in the FLYCO vehicle and pilots), resulting from insufficient communication, in particular due to:
  - the decision of the control unit not to publish the runway closure in a NOTAM, contrary to undertakings initially made;
  - this decision not being shared with the workers on the runway;
  - the decision of the control unit's management not to formalise in writing operational instructions for the controllers, which did not allow them to anticipate the situation;
  - the absence of a handwritten note at the LOC position or in the tower logbook about the use of runway 28 during the work.
- Runway 28 being defined by the controller on duty as a runway in service, despite wind conditions that were not conducive to this configuration and the work planned on this runway.
- Simultaneous use of the two intersecting runways, on which the controller focused his attention rather than checking the availability of runway 28 for the landing of F-GIEV.
- The controller very likely being distracted by the use of his mobile phone shortly before the event, thus heightening his lack of situational awareness.

Measures taken by Melun control unit

Following the analysis of the event by the Melun local safety commission, the following measures were decided:

- the local management will endeavour to have the tower logbook completed before any work;
- magnetic strips indicating that runway 10/19 or runway 10/28 is closed will be placed next to the wind indicator when only one of the runways is closed;
- a standing directive (or memo) will formalise these new working methods before they are incorporated in the OM.

Safety lessons

Management of infrastructure unavailability

In its issue dated August 2014, the guide published by the French civil aviation safety directorate (DSAC) and entitled "Évaluation d'Impact sur la Sécurité Aéroportuaire" (airport safety impact assessment) defines "controlled routine operations" as short duration or recurring operations:

- which are the subject of defined and formalised procedures and operating methods;
- which are implemented without difficulty and are the subject of regular and appropriate feedback.

Such operations (e.g. mowing, area inspection or lighting maintenance) do not generally require an airport safety impact assessment. However, it is essential to ensure that the above two conditions are met before deciding not to perform an airport safety impact assessment.

For work with low operational impact, a simplified risk assessment process would allow potential weak points to be identified and appropriate safety barriers, not relying solely on the first line operator, to be put in place.

Air traffic controller distractions

In low traffic situations, the attention of controllers on duty may be affected by various distractions, in particular by the use of mobile phones. This topic is taken into account by the air navigation services and is the subject of several safety measures (posters, memos, briefings, etc.) as well as specific monitoring as part of the risk identification process implemented by the EUROCONTROL Operational Safety Group (SAFOPS)[10].

The BEA investigations are conducted with the sole objective of improving aviation safety and are not intended to apportion blame or liabilities.

[10] Source: Eurocontrol Top 5 Operational Safety Priorities.