

Final Report

EUROCOPTER EC135P2, REGISTRATION PK-RJH RUNWAY INCURSION, SELETAR AIRPORT

24 FEBRUARY 2022

TIB/AAI/CAS.203

Transport Safety Investigation Bureau
Ministry of Transport
Singapore

31 August 2022

The Transport Safety Investigation Bureau of Singapore

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SYNOPSIS

On 24 February 2022, a Eurocopter EC135P2 helicopter was preparing to depart from Seletar Airport, Singapore to Hang Nadim International Airport, Batam, Indonesia. At 1229hrs, a Ground Movement Controller on-the-job trainee (GMC OJT) instructed the Pilot-in-Command (PIC) of the helicopter to air-taxi to Holding Point E4 for Runway 03. The GMC OJT did not issue any clearance for the helicopter to enter the runway.

After the helicopter had reached Holding Point E4, the PIC continued to air-taxi onto Runway 03. The GMC OJT instructed the PIC to contact the Runway Controller (RWC). The PIC contacted the RWC who then informed the PIC that there was no clearance for him to enter the runway. The PIC apologised for the mistake. There was no other aircraft approaching or on the runway then.

The Runway Controller subsequently issued take-off clearance to the PIC and the helicopter continued its flight without further event.

The Transport Safety Investigation Bureau classified this occurrence as an incident.

AIRCRAFT DETAILS

Aircraft type	:	Eurocopter EC135P2
Operator	:	PT. Ekspres Transportasi Antarbenua
Aircraft registration	:	PK-RJH
Date and time of incident	:	24 February 2022 1231hrs
Location of occurrence	:	Runway 03, Seletar Airport
Type of flight	:	Non-scheduled
Persons on board	:	3

1 **FACTUAL INFORMATION**

All times used in this report are Singapore Local Time (LT) unless otherwise stated. Singapore Local Time is eight hours ahead of Coordinated Universal Time (UTC).

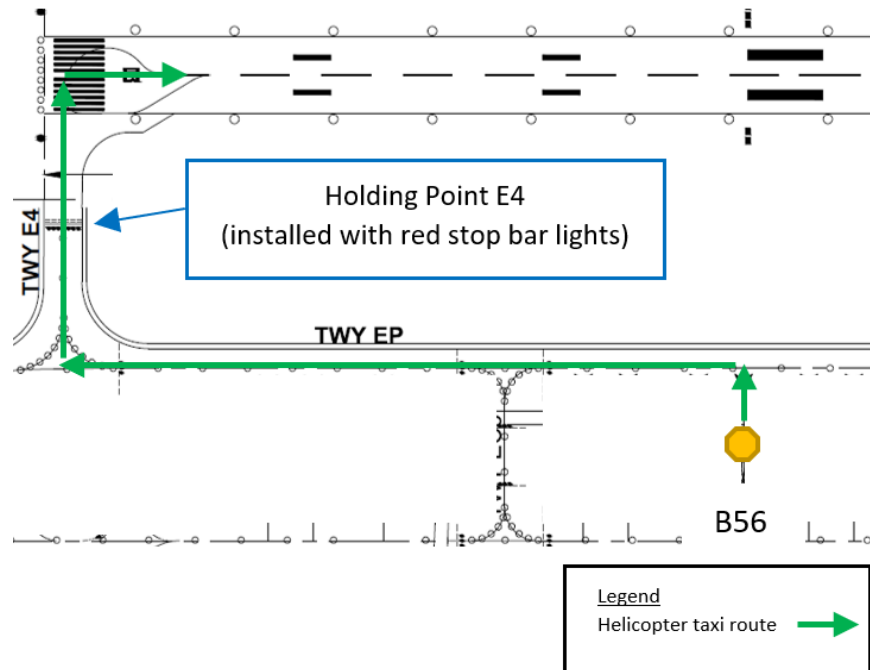
1.1 History of the flight

1.1.1 On 24 February 2022, a single-piloted Eurocopter EC135P2 helicopter was preparing to depart from Seletar Airport, Singapore to Hang Nadim International Airport, Batam, Indonesia. The helicopter movement was under the control of a Ground Movement Controller on-the-job trainee (GMC OJT), monitored by a qualified OJT instructor.

1.1.2 The helicopter was at parking bay B56. At 1229h, the Pilot-in-Command (PIC) informed the GMC OJT that he was ready to air-taxi for departure.

1.1.3 The GMC OJT issued taxi clearance to the PIC for the helicopter to air-taxi to Holding Point E4 for Runway 03. There was no clearance for the helicopter to enter Runway 03 (see paragraph 1.5 on the communication between the GMC OJT and the PIC).

1.1.4 The PIC air-taxied the helicopter from parking bay B56 to Holding Point E4 along Taxiway Echo Papa (EP). However, instead of holding at E4, the PIC continued air-taxiing onto Runway 03, lined up with the runway, and waited for take-off clearance (see **Figure 1**). According to the PIC, before entering Runway 03 he had checked that there was no other aircraft on approach or on the runway.



(Source: Singapore AIP) (Annotated by: TSIB)

Figure 1: Helicopter air-taxi route

- 1.1.5 During the post-incident interview by the investigation team, the PIC could not recall seeing, during his taxi, any red stop bar lights, which were switched ON at the time of the incident.
- 1.1.6 The GMC OJT, the OJT instructor and the Runway Controller (RWC) noticed the helicopter had entered the runway without clearance. The RWC asked the GMC OJT to instruct the PIC to contact him (the RWC)¹ over the tower frequency. The GMC OJT did as requested. The PIC contacted the RWC who then informed the PIC that no clearance had been given to enter the runway. The PIC apologised for the mistake.
- 1.1.7 The RWC subsequently issued take-off clearance to the PIC and the helicopter continued its flight without further event.
- 1.2 Injuries to persons
 - 1.2.1 There was no injury.

¹ At that time, the helicopter was already on the runway, which was the RWC's area of responsibility.

1.3 Damage to aircraft

1.3.1 The aircraft was not damaged.

1.4 Personnel information

1.4.1 PIC

Age	51 years old
Licence type	Airline Transport Pilot Licence-Helicopter
Issuing authority	Directorate General of Civil Aviation Indonesia
Licence validity date	31 March 2022
Medical certificate	Class 1
Medical certification validity	27 February 2022
Medical operational proviso	Possess glasses that correct for near vision.
Last Base Check date	10 March 2021
Last Line Check date	Not applicable for single pilot helicopter
Total flying hours	4,110.5 hrs
Aircraft types flown	EC-135, BK-117, BELL 206, A-109, BO-105, BELL 427, BELL 212/412
Total hours on type	81.8 hrs
Flying in last 90 days	11.9 hrs
Flying in last 7 days	10.5 hrs
Flying in last 24 hours	0.9 hrs
Duty time in last 48 hours	4 hrs 20 mins
Rest period in last 48 hours	19 hours
Last date operating in Seletar Airport	24 February 2022

1.4.2 GMC OJT

Age	28 years old
Licence validity date	31 July 2025
Ratings	Aerodrome Control (Changi)
Total experience	3 years
Experience in position manned	NA – Under training
Duty time in last 48 hours	0 hrs
Rest period in last 48 hours	48 hrs

1.4.3 OJT Instructor

Age	32 years old
Licence validity date	31 July 2024
Ratings	Aerodrome Control (Seletar), Aerodrome Control (Changi)
Total experience	8 years
Experience in position manned	8 years
Duty time in last 48 hours	5.5 hrs
Rest period in last 48 hours	38.5 hrs

1.5 Communications

1.5.1 The communication between the GMC OJT and the PIC is shown in **Table 1** below.

Table 1: Communication on taxi instructions between GMC OJT and PIC

From	Transmission
PIC	Seletar Ground Papa Kilo Romeo Juliet Hotel completed start we are ready for air-taxi
GMC OJT	Papa Juliet Hotel and turn left Echo Papa Holding Point Echo Four Runway Zero Three
PIC	Roger turn left Echo Papa ah Runway Zero Three Romeo Juliet Hotel
GMC OJT	Papa Juliet Hotel for Holding Point Echo Four
PIC	To Echo Four confirm
GMC OJT	Affirm Holding Point Echo Four
PIC	Roger Juliet Hotel

1.5.2 During the post-incident interviews by the investigation team, the GMC OJT said that she thought she did hear the PIC mentioning “holding point”. The OJT Instructor said that while she noticed that the PIC did not read back properly the taxi instruction, she did not request the PIC, nor instruct the GMC OJT to request the PIC, for a proper readback.

1.6 Aerodrome information

1.6.1 The runway holding points at Seletar Airport, including taxiway E4, are installed with red stop bar lights which can be switched ON or OFF via the Airfield Lighting Control Management System (ALCMS) at the control tower. When switched ON, the stop bar lights indicate to pilots that they should not enter the

runway, even if clearance to enter the runway has been issued by ATC. At the time of the incident, the stop bar lights were switched ON.

1.7 Flight recorders

1.7.1 The helicopter was not equipped, nor was it required to be equipped, with flight data recorder and cockpit voice recorder.

1.8 Medical and pathological information

1.8.1 The PIC and the controllers were not sent for medical toxicological tests.

2 ANALYSIS

The investigation team looked into the following:

- (a) Reading back of taxi clearance
- (b) Failure to notice red stop bar lights

2.1 Reading back of taxi clearance

2.1.1 The GMC OJT issued taxi instruction to the PIC to hold at Holding Point E4. The PIC was supposed to read back² properly the taxi instruction, but he did not.

2.1.2 As shown in Table 1 in paragraph 1.1.3 (partially reproduced below), there were three instances where the GMC OJT expected the PIC to read back her taxi instruction (highlighted in yellow):

GMC OJT	Papa Juliet Hotel and turn left Echo Papa Holding Point Echo Four Runway Zero Three
PIC	Roger turn left Echo Papa ah Runway Zero Three Romeo Juliet Hotel
GMC OJT	Papa Juliet Hotel for Holding Point Echo Four
PIC	To Echo Four confirm
GMC OJT	Affirm Holding Point Echo Four
PIC	Roger Juliet Hotel

2.1.3 However, the readback by the PIC missed consistently mentioning the key words “holding point”. The use of the expression “holding point” has great safety significance in ground movement control. It means that the aircraft concerned must hold at the holding point and not to enter the runway. It is critical for ground movement controllers to be certain that the aircraft’s pilot has positively received the “hold” instruction.

² Flight crew members are required to read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:

- a) ATC route clearances;
- b) clearances and instructions to enter, land on, take off from, hold short of, cross, taxi and backtrack on any runway; and
- c) runway-in-use, altimeter settings, transponder codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in automatic terminal information service (ATIS) broadcasts, transition levels.

(Source: ICAO Document 4444 Procedures for Air Navigation Service - Air Traffic Management)

- 2.1.4 It is a credit to the GMC OJT that she had been insistent in trying to get a proper readback by the PIC. She thought she heard the PIC mentioning “holding point” after the third time she tried to get a proper readback. She was mistaken as the communication record in paragraph 2.1.2 showed that at no time the PIC mentioned “holding point” in response to the GMC OJT’s taxi clearance instructions. It would have been desirable that the GMC OJT be direct in asking the PIC to provide a proper or more complete readback.
- 2.1.5 The OJT Instructor noticed that the PIC did not read back properly the taxi instruction, but she did not request the PIC, nor instruct the GMC OJT to request the PIC, for a proper readback. The OJT Instructor acknowledged that, in hindsight, she should have acted to ensure the PIC performed a proper readback.
- 2.1.6 It cannot be over-emphasised that it is important to adhere to the requirement for a proper readback of air traffic control instructions and clearances when necessary to do so.
- 2.2 Failure to notice red stop bar lights
- 2.2.1 The red stop bar lights installed at the runway holding points are intended to remind pilots and other personnel that their aircraft and vehicles are not supposed to enter the runway, even if clearance to enter the runway had been given by controllers.
- 2.2.2 In this incident, the PIC did not notice the presence of the stop bar lights. According to the PIC, before entering Runway 03 he had checked that there was no other aircraft on approach or on the runway. It was possible that the PIC’s attention was focused on the approach path and that this caused him to miss the stop bar lights. Had the PIC noticed the stop bar lights, which had been switched ON during the incident, he would have been reminded to hold at the holding point instead of entering the runway.

3 CONCLUSION

From the information gathered, the following findings are made. These findings should not be read as apportioning blame or liability to any particular organisation or individual.

- 3.1 The PIC did not properly read back the taxi clearance issued by the GMC OJT, i.e. the PIC did not read back the expression 'holding point'.
- 3.2 After several attempts to get a proper readback by the PIC, the GMC OJT mistakenly thought she heard the PIC mentioned 'holding point'.
- 3.3 Although the OJT Instructor noticed the PIC still had not properly read back the taxi instruction, she did not instruct the GMC OJT to request the PIC for a proper readback.
- 3.4 The PIC did not notice the presence of the stop bar lights at Holding Point E4, which had been switched ON during the incident. This was possibly because he was focused on checking for other aircraft on the approach or on the runway before entering the runway.

4 SAFETY ACTIONS

Arising from discussions with the investigation team, the organisations have taken the following safety action.

4.1 The aircraft operator has taken the following actions:

- (a) Published a Special Briefing Procedure in March 2022 to remind pilots of the red stop bar lights during ground movement.
- (b) Circulated a Quality and Safety Notice in April 2022 to inform and remind pilots of the lessons learnt from this incident.
- (c) Conducted training for all its pilots in March 2022 on its Standard Radio Telephony Procedure.

4.2 The Air Navigation Service Provider has taken the following actions:

- (a) Skills Enhancement Training were conducted in April 2022 for the controllers involved.
- (b) Refresher on Radio Telephony Discipline were conducted for all controllers in April 2022.
- (c) Lessons learnt from this incident were shared with all controllers in May 2022.
- (d) OJT instructor refresher training was conducted for all Aerodrome OJT instructors in July 2022.
- (e) OJT instructor refresher training for all Approach and Area OJT instructors was conducted in August 2022.

5 **SAFETY RECOMMENDATIONS**

In view of the safety actions taken by the aircraft operator and the Air Navigation Service Provider, no safety recommendation is proposed.