

***The original of the Final Report was issued in the Slovak language.  
In case of inconsistency original version in Slovak language is applicable.***



MINISTRY OF TRANSPORT, CONSTRUCTION  
AND REGIONAL DEVELOPMENT  
OF THE SLOVAK REPUBLIC



AVIATION AND MARITIME INVESTIGATION AUTHORITY  
Námestie slobody 6, P.O.BOX 100  
810 05 Bratislava 15

# **FINAL REPORT**

on investigation of serious incident  
reduction of separation below prescribed separation minima of aircraft  
in flight between civil and military operation

**Reg. No. SKS2016001**

The investigation of occurrence has been conducted pursuant to Art. 18 of the Act No. 143/1998 on Civil Aviation (Civil Aviation Act) and on Amendment of Certain Acts and in accordance with the Regulation (EU) No. 996/2010 of the European Parliament and of the Council on investigation and prevention of civil aviation accidents and incidents, governing the investigation of civil aviation accidents and incidents.

The final report is issued in accordance with the Regulation L 13 that is the application of the provisions of ANNEX 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation.

The exclusive aim of investigation is to establish causes of accident, incident and to prevent their occurrence, but not to refer to any fault or liability of persons.

This final report, its individual parts or other documents related to the investigation of occurrence in question have an informative character and can only be used as recommendation for the implementation of measures to prevent occurrence of other accidents and incidents with similar causes.

#### Used abbreviations

AMC	Airspace management cell
APP	Approach control office
AUP	Airspace use plan
FDR	Flight data record
FL	Flight level
FPL	Filed flight plan
ft	feet (dimensional units)
GAT	General air traffic
GND	Ground
IFR	Instrument flight rules
LZKZ	ICAO code for Airport Košice
LZPW	ICAO code for Airport Prešov
LZSL	ICAO code for Airport Sliač
LZTT	ICAO code for Airport Poprad-Tatry
LZZI	ICAO code for Airport Žilina
NM	Nautical mile
OAT	Operational air traffic
RC	Radar controller
STCA	Short term conflict alert
TMA	Terminal control area
UTC	Co-ordinated Universal Time
VMC	Visual meteorological conditions

## A. INTRODUCTION

Type of operation: OAT/GAT  
Place of incident: TMA LZSL  
Date and time of serious incident: 30.03.2016, 08:57

Poznámka: All time data in this report are indicated in UTC.

### Aircraft involved in the serious incident:

Piper Seneca PA-34, call sign SP-TUC / hereinafter "SPTUC"



L-39ZAM, reg. No. 4711, call sign MUSTANG 26 (pilot under training military aircraft L-39 with instructor) / hereinafter "MUSTANG 26"



## B. INFORMATIVE SUMMARY

After its arrival from navigation flight to the area of TMA LZSL MUSTANG 26 received from APP Sliáč instruction to maintain FL110. At 08:57 the crew of MUSTANG 26 reported flight level FL110, but they started the descent without permission; SPTUC was flying under them at FL100 at that time in accordance with FPL. During this descent of MUSTANG 26 **vertical separation was reduced from 1 000 ft to 319 ft (horizontal separation was 0.4 NM).**

The following commission was appointed for investigation of the serious incident:

Ing. Zdenko Bielik	- chairman of the investigation commission
plk. Ing. Ján Salaj	- member of the investigation commission

The report is issued by:

Aviation and Maritime Investigation Authority  
of the Ministry of Transport, Construction and Regional Development  
of the Slovak Republic

## C. MAIN PART OF REPORT

1. FACTUAL INFORMATION
2. ANALYSES
3. CONCLUSIONS
4. SAFETY RECOMMENDATIONS

### 1. FACTUAL INFORMATION

#### 1.1 History of the flight

Before the incident the crew of MUSTANG 26 conducted a flight on the route LZSL – KULIN – Rožňava – LZKZ – LZPW – LZTT – Martin – RIMIT - LZSL at FL140.

At 08:45 the crew of SPTUC took off from Airport LZZI for navigation IFR flight in accordance with submitted flight plan on the route LZZI – L 617 – SLC – R 53 – EPEDA - LZTT at FL100.

At 08:54 the crew of SPTUC established communication with APP Sliač in front of the point “RIMIT” at FL100, speed 156 kt, and entered the airspace of TMA LZSL. APP Sliač gave them clearance for continuation of the flight on the route in accordance with FPL.

At 08:56 the crew of MUSTANG 26 established communication with APP Sliač in front of the point “RIMIT” at FL110, speed 245 kt, and entered the airspace of TMA LZSL. APP Sliač ordered them to report the flight over the point “RIMIT” and to maintain FL110. The crew of MUSTANG 26 did not respond to the report. RC APP Sliač again requested the crew to maintain FL110.

At 08:57 the crew of MUSTANG 26 reported FL110 and started the descent without being authorized to do so. The instructor of MUSTANG 26 did not react to such unauthorised descent.

The pilot of MUSTANG 26 noticed SPTUC during the descent.

APP Sliač instructed him to immediately climb to FL110; the crew of MUSTANG 26 did so and thus increased vertical separation back to 1 000 ft.

**However, during the descent vertical separation of both aircraft was reduced from 1 000 ft to 319 ft and horizontal separation to 0.4 NM.**

The incident was reconstructed on the basis of transcription of radio correspondence from APP Sliač and OAT Bratislava and communications between the pilots onboard MUSTANG 26.

RC APP Sliač uses primary radar information from airport radar locator for determination or radar spacing in TMA LZSL. Multi-radar information of the system LETVIS is not certified by the Transport Authority of SR for use in civil operation.

#### Participants of radio correspondence:

- OAT Bratislava - radar controller of special air traffic control unit Bratislava, call sign Bratislava Control 124,0 MHz
- RC APP Sliač - radar controller of APP unit Sliač, call sign Sliač Radar /119,150 MHz
- pilot MUSTANG 26 - pilot under training
- instructor MUSTANG 26 - pilot responsible for flight safety
- SPTUC - aircraft PA-34, civil operation

### Transcription of radio correspondence:

08:54:45: SPTUC : Sliáč Radar, SPTUC, good morning. Inbound RIMIT, FL100.

*Note: First report of SPTUC, waiting for response of RC APP Sliáč.*

08:54:52: Pilot of MUSTANG 26: (FL) 100 reached?, instructor MUSTANG 26: Yes, yes.

*Note: The crew of MUSTANG 26 has **received first information about the civil operation at FL100** on the second radio, intercepted frequency Sliáč Radar 119,150 MHz.*

08:54:57: OAT: MUSTANG 26, Bratislava Control, after reaching FL 110 maintain this level because of the civil operation under you at level 100.

*Note: The crew of MUSTANG 26 receives official information on civil operation at FL100 and about the need to maintain FL110.*

08:55:07: Pilot of MUSTANG 26: To whom was it addressed? To us? {reaction to information transmitted by OAT unit Bratislava at 08:54:57}, instructor MUSTANG 26: Yes, yes.

*Note: Reception of two radio channels (OAT unit, on the frequency of which the flight is conducted, and APP unit in Sliáč, for which they have not received the tuning instruction yet) in the cockpit of MUSTANG 26 the communications are overlapping and confusing the pilot under training. The pilot under training must ask the instructor whether information transmitted by the OAT unit is addressed to him.*

08:55:10: pilot of MUSTANG 26: Maintaining FL110, MUSTANG 26.

*Note: Answer to the OAT unit.*

08:55:22: RC APP Sliáč: SPTUC Sliáč radar good day, confirm position 2 minutes to RIMIT.



08:55:27: SPTUC : Affirm position SC.

08:55:49: Instructor MUSTANG 26: Tell him that we are one minute away from RIMITOM.

*Note: Instructor gives order to the pilot under training.*

08:55:55: Pilot of MUSTANG 26: MUSTANG 26, one minute inbound RIMIT

*Note: In the cockpit of MUSTANG 26 transmissions from OAT and report SQF1303 are overlapping.*

08:56:03: OAT: MUSTANG 26, Bratislava Control, position 1 minute inbound RIMIT affirmed, contact Sliáč Radar on 119,150. Hearing you later, have a nice day.

08:56:10: RC APP Sliáč: SPTUC proceed via flight plan route.

*Note: Report for MUSTANG 26 from OAT is transmitted concurrently with transmission of the SPTUC report for RC APP Sliáč via the second radio.*

08:56:13: Pilot of MUSTANG 26 : 119,150 MUSTANG 26. Thank you, have a nice day.  
SPTUC : Proceed via flight plan route SUC.

*Note: MUSTANG 26 changes over to the frequency of Sliáč Radar 119,150 MHz. Both radios are tuned to a single frequency – Sliáč Radar 119,150 MHz.*

08:56:24: Pilot of MUSTANG 26: Sliáč radar, MUSTANG 26 hello again, inbound RIMIT FL110.

***Based on the onboard camera record from MUSTANG 26, the aircraft was in a cloud without ground visibility. The flight should have been conducted under VMC, natural horizon visibility.***

08:56:31: RC of APP Sliáč: MUSTANG 26 Sliáč radar, good morning, break - MUSTANG 18 turn left heading 060.

08:56:42: RC of APP Sliáč: MUSTANG 26 report passing RIMIT.  
MUSTANG 26: Will report passing MUSTANG 26.

08:55:50: RC of APP Sliáč: And maintain FL110.

*Note: MUSTANG 26 does not respond. **The aircraft is still in the cloud.***

08:56:55: RC of APP Sliáč: MUSTANG 26 maintain FL110.

08:56:58: *Note: Aircraft has left the cloud.*

Pilot of MUSTANG 26: FL110 MUSTANG 26.

***Pilot under training confirmed FL110 and at the same moment started the descent from FL100 (based on the camera record). The instructor had not reacted to the situation, although being aware of civil operation at FL100.***

***Pilot of MUSTANG 26 has descended for 15 seconds - instructor of MUSTANG 26 still does not react. Actual altitude 10700 ft (FL107).***

08:57:13: Instructor of MUSTANGS 26: 110, right?

Pilot of MUSTANG 26: - incomprehensible -

*Note: First reaction of the instructor, but without taking over the control from the pilot under training.*

08:57:18: Pilot of MUSTANG 26: Can you see to the right?

*Note: Pilot under training continues the descent despite of seeing civil aircraft in front of him.*

08:57:20: Instructor of MUSTANG 26: I can't, but did not he instruct you to maintain 110?

08:57:23: Pilot of MUSTANG 26: He said 100, did not he?

08:57:25: Instructor of MUSTANG 26: OK, ask them.

***Based on FDR, the actual altitude of MUSTANG 26 was 10450 ft (FL104); the pilot of MUSTANG 26 continued the descent and the instructor remained passive. RC of APP Sliáč saw the altitude FL107 on the display of LETVIS from multiradar information.***

08:57:27: Pilot MUSTANG 26: MUSTANG 26 descending 110.

RC APP Sliáč: MUSTANG 26 maintain FL110 due to traffic below you on FL100.

*Note: Pilot MUSTANG 26 reported **descent to FL110**, but he was actually descending to FL100, by which he exceeded the clearance limit.*

***RC APP Sliáč timely and correctly evaluated the situation when he instructed the pilot of MUSTANG 26 to maintain the allocated level FL110, pointing out to the presence of civil operation at FL100.***

08:57:32: *Note: Information on STCA between civil operation of SPTUC and MUSTANG 26 appears on the display of LETVIS. Multiradar information on actual altitude of MUSTANG 26 on the display of LETVIS is FL105.*

Based on FDR, the actual altitude of aircraft MUSTANG 26 was 10319 ft (FL103). At this moment the pilot under training ceased the descent and started to climb on the basis of the report from RC of APP Sliač (after 29 seconds of descent). Horizontal distance between the two aircraft was then 0.4 NM.



08:57:35: Instructor of MUSTANG 26: Climb, climb.

Pilot MUSTANG 26: Maintaining 110 MUSTANG 26 and passing RIMIT.

08:57:38: RC APP Sliač: MUSTANG 26 immediately climb to FL110. Instructor of MUSTANG 26: Climb!

08:57:42: Pilot of MUSTANG 26: Climbing 110 MUSTANG 26.

*Note: At this moment the instructor gives climbing instructions to the pilot under training.*

Daytime: Day

## 1.2 Injuries to persons

N/A.

## 1.3 Damage to aircraft

N/A.

## 1.4 Other damage

N/A.

## 1.5 Personnel information

N/A.

## 1.6 Information about aircraft

N/A.

## 1.7 Meteorological situation

N/A.

## 1.8 Aids to navigation

N/A.

## 1.9 Communications

Communication between aircraft and the air traffic controllers was established.

## 1.10 Aerodrome information

N/A.

## 1.11 Flight recorders

Flight recorders of the unit APP Sliač, control unit OAT Bratislava and on-board communication between pilots of aircraft MUSTANG 26 were used.

## 1.12 Wreckage and impact information

N/A.

## 1.13 Medical and pathological information

N/A.

## 1.14 Fire

No fire broke out.

## 1.15 Survival aspects

N/A.

## 1.16 Tests and research

N/A.

## 1.17 Organizational and management information

N/A.

## 1.18 Additional information

N/A.

## 1.19 Useful or effective investigation techniques

Standard investigation techniques were used.

## 2. ANALYSIS

Although OAT Bratislava and RC APP Sliač correctly instructed the crew of aircraft MUSTANG 26 to maintain FL110 the pilot on the controls of MUSTANG 26, who was under training, was partially confused, probably due to the stress and overlapping radio communications from two channels (OAT, on the frequency of which they conducted the flight, and APP Sliač, for which they had not received the tuning instruction yet), as proved by the extract from correspondence:

*“Pilot of MUSTANG 26: To whom was it addressed? To us? {reaction to the transmission from OAT at 08:54:57}*

*Instructor of MUSTANG 26: Yes, yes.”*

The pilot under training inquired the instructor whether the transmission from OAT had been addressed to him.

The pilot flew under conditions for which he had not been trained (aircraft flew through a cloud), which added to his anxiety.

What is also appalling in this case is the passivity of the instructor, who did not react when the pilot on the controls had exceeded the clearance limit, and did not timely prevent the dangerous approach to civil aircraft SPTUC flying at FL100.

### **3. CONCLUSIONS / Cause of serious incident**

#### **3.1 Findings**

- The flight operation was performed in accordance with flight rules valid in the Slovak Republic.
- The activity of RC APP Sliáč in terms of assurance of prescribed distance between MUSTANG 26 and civil aircraft SPTUC was correct.

#### **3.2. Causes of serious incident**

##### **Main cause**

Exceeding of the clearance limit and arbitrary descent by the pilot of MUSTANG 26 under training, without adequate reaction of the instructor to this manoeuvre.

##### **Immediate cause**

Reduction of separation below prescribed separation minima of aircraft in flight between civil and military operation.

##### **Contributing factors**

Flight under conditions for which the pilot under training had not been trained.

### **4. SAFETY RECOMMENDATIONS**

On the basis of investigation of the serious incident

#### **We recommend the Headquarters of Slovak Air Force adopting the following measures:**

- To analyse the serious incident with flying personnel and air traffic controllers;
- To take their own measures on the basis of results of internal investigation of this incident.

Bratislava, 24.05.2016