



**HELLENIC REPUBLIC
MINISTRY OF INFRASTRUCTURE AND TRANSPORT**

**AIR ACCIDENT INVESTIGATION
AND AVIATION SAFETY BOARD
(AAIASB)**



**SERIOUS INCIDENT INVESTIGATION REPORT
AIRCRAFT FAIRCHILD SA 227-AC
SX-BKZ
AT ATHENS INTERNATIONAL AIRPORT LGAV
ON DECEMBER 13, 2019**

E05 / 2021

SERIOUS INCIDENT INVESTIGATION REPORT
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**Serious Incident of Fairchild SA 227-AC aircraft with registration SX-BKZ
on December 13, 2019 at Athens international Airport LGAV**

**This serious incident investigation was carried out by the Air Accident Investigation
and Aviation Safety Board according to:**

- **Annex 13 of the Chicago Convention**
- **EU regulation (EU) 996/2010**
- **Law 2912/2001**

*“According to Annex 13 of the Chicago Convention of the International Civil Aviation, EU
Regulation 996/2010 and Law 2912/2001, Accidents and Incidents Investigation is not intended to
attribute blame or liability. The sole purpose of this investigation and the findings is to prevent
accidents and incidents.*

*Therefore, the use of this report for any purpose other than to prevent future accidents
and incidents could lead to misinterpretations.”*

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List of Abbreviations

A.I.A.	:	Athens International Airport
AIP	:	Aeronautical Information Publication
AOC	:	Air Operator's Certificate
ARC	:	Airworthiness Review Certificate
ATC	:	Air Traffic Control
ATPL	:	Air Transport Pilot License
BEA	:	Bureau d'Enquêtes et d'Analyses
CAMO	:	Continuing Airworthiness Management Organisation
CVR	:	Cockpit Voice Recorder
FCL	:	Flight Crew Licence
FDR	:	Flight Data Recorder
LT	:	Local Time
MEL	:	Minimum Equipment List
METAR	:	Meteorological Terminal Air Report
MSN	:	Manufacturer Serial Number
MTOW	:	Max Take-off Weight
NTSB	:	National Transportation Safety Board
SB	:	Service Bulletin
TAF	:	Terminal Aerodrome Forecast
UTC	:	Universal Time Coordinates

TITLE

OPERATOR	:	SWIFTAIR HELLAS
OWNER	:	SWIFTAIR HELLAS
MANUFACTURER	:	FAIRCHILD
A/C TYPE	:	FAIRCHILD, SA 227-AC (METRO III)
COUNTRY of MANUFACTURE	:	USA
NATIONALITY	:	GREEK
A/C REGISTRATION	:	SX-BKZ
LOCATION of ACCIDENT	:	ATHENS INTERNATIONAL AIRPORT
DATE and TIME	:	Friday December 13, 2019 at 17:35 UTC
Note	:	All Times are UTC. Wintertime LT = UTC + 2

SYNOPSIS

After landing on runway 21R at Athens International Airport, SX-BKZ aircraft type Fairchild SA 227 Metro III and while turning to exit the runway on the A6 high speed exit, the steering of the nose wheel turned sharply to the left. The aircraft was immobilized on the A6 taxi link halfway out of the taxiway. The right main wheel remained on hard surface while the left main and nose wheel on soft ground. No injuries were reported.

1 FACTUAL INFORMATION

1.1 History of Flight

On Friday December 13, 2019, the aircraft of the Greek registry SX-BKZ type Fairchild, SA 227 (Metro III) of the company SWIFTAIR HELLAS departed from the airport “Macedonia” of Thessaloniki with destination Athens International Airport where it landed at 17:35 UTC on the runway 21R.

After landing, the aircraft started vacating the runway via high speed taxi link A6. During that shallow turn the nose wheel steering, without any action by the commander, it turned sharply to the left. The commander decided to immobilize the aircraft and the result was to the left main landing gear and nose gear to exit the taxi way on soft ground with the right main landing gear to remain on the taxi way. The flight crew executed a normal shut down, informed ATC and evacuated the aircraft without injuries. There after the aircraft was towed to the parking bay F01.



Photo 1: The aircraft at the incident site.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	0	0	None
Serious	0	0	None
Minor	0	0	None
None	2	0	None
TOTAL	2	0	None

1.3 Damages to the aircraft

No aircraft damage was reported.

SWIFTAIR HELLAS reported:

1. The nose wheel steering was thoroughly inspected without findings.
2. The nose landing gear assembly was precautionary replaced.
3. A hard landing check on the aircraft was performed.

1.4 Other damages

No other damages.

1.5 Personnel information

1.5.1 Commander

License Number	EL.FCL.1656
License valid until	31-12-2019
License type	ATPL
Medical Certificate valid until	EL 15358 Class 1 – Valid until 16-10-2020
Total Hrs	2.736:00
Total on Type	693:00

1.5.2 First Officer

License Number	EL.FCL.3800
License valid until	30-06-2020
License type	ATPL
Medical Certificate valid until	EL 13749 Class 1 – Valid Until 16-06-2020
Total flight hrs	2.435:00
Total flight hrs on type	228:00

1.5.3 Cabin crew

No cabin crew on board the cargo flight.

1.5.4 Passengers

No Passengers on board.

1.6 Aircraft Information

The aircraft transported 969 Kgs of goods from Thessaloniki.

Manufacturer	SWEARINGEN
Aircraft type	METRO SA 227
MSN	AC 694B
Registration	SX-BKZ
Made in	USA
Airworthiness Certificate / Date	A.A.1018 / 25-04-2007
MTOW	16,000 lbs / 7,200 kg.



Photo 2: The aircraft Fairchild SA 227-AC (Metro III) with registration SX-BKZ.

1.6.1 General information

SWIFTAIR HELLAS is an airline with its own approved Part -145 line and base maintenance under its own AOC number GR-004 with its own CAMO Part M. Subpart G with certificate Ref.EL.MG.006 with the following authorizations.

1. Continuous airworthiness management of aircraft.
2. Issuance and extension Airworthiness Review Certificate (ARC).
3. Make proposals for an ARC issue issued by a Member State of registration.
4. Development of maintenance program and modifications / revisions.
5. Execute the airworthiness instructions and the Service Bulletins (SB) analysis and design.
6. Reliability Monitoring.
7. Monitoring of engine reliability (subcontracting).
8. Any other activity as described in this manual does not limit the responsibilities of the Agency and is agreed upon by the Competent Authority.

1.6.2 Maintenance data.

No indications of any malfunctions before the incident.

1.7 Meteorological information

LGAV Actual airport weather.

METAR: LGAV 131750Z VRB02KT 9999 FEW 030 11/07 Q1003 NOSIG

1.8 Aids to navigation

Not applicable.

1.9 Communications

No communication problems reported.

1.10 Aerodrome information

Athens International airport has two parallel runways, 03L / 21R and 03R / 21L. The dimensions of the 03L / 21R are 3,800 meters long and 45 meters wide. The dimensions of the 03R / 21L are 4,000 meters long and 45 meters wide. Both hard surface concrete. The average altitude is 28 meters and 65 centimetres (94 feet). The two parallel runways are framed by a parallel taxiway and rapid evacuation taxiways. The runway surface was dry.

1.11 Flight recorders

The aircraft was equipped with two recorders. One CVR and one DFDR of the following types.

- CVR: Manufacturer Universal Avionics, Model CVR-120, P/N 1603-02-12, S/N 1075.
- DFDR: Manufacturer Fairchild, Model F-800, P/N 17M900-274, S/N 728.

Both recorders were sent to BEA for analysis. The results of the analysis did not contribute to the investigation of this serious incident.

1.12 Wreckage and impact information

Not applicable.

1.13 Medical and pathological information

Not applicable.

1.14 Fire

Not applicable.

1.15 Survival aspects

Not applicable.

1.16 Tests and Research

Not applicable.

1.17 Organizational and Management Information

Not applicable.

1.18 Additional information

The Components-Removals-Installations list was checked, and it was found that the nose wheels underwent six maintenance actions for unbalanced wear-normal wear-uneven wear all in the year 2019. During the detailed inspection of the nose wheels, after the incident, no malfunctions were observed on its wheels in aspects as mentioned above.

Useful or effective investigation techniques

On the history search of similar accidents and incidents for the same type of aircraft, we found four (4) other incidents of the aircraft exiting the runway due to a nose wheel steering failure. All four (4) cases happened in the take-off phase. In all four (4) cases, the cause of the failure could not be investigated.

In particular:

The Civil Aviation Accidents and Incidents Investigation Commission of Spain (CIAIAC) investigated three (3) cases on similar aircrafts characteristics and performance.

1. The first one, on similar aircraft type, was in May 21st, 2004 at Palma de Mallorca airport on aircraft EC-ITP which veered to the right outside the runway during take-off. The excursion took place without any actions from the pilots and the steering malfunction was not determined.
2. The second one, on similar aircraft type, in June 17, 2004 at Valencia airport on aircraft EC-GXE which also veered to the right outside the runway during take-off. The excursion took place without any actions from the pilots and the steering malfunction was not determined.
3. The third one, on similar aircraft type, in November 13, 2012 at Murcia airport on aircraft EC-JYC which also veered to the left outside the runway during take-off. As in two previous cases the reason for the nose steering malfunction could not be identified.
4. The fourth one again on a similar aircraft type in August 29, 2006 at Casper-Natrona airport in Wyoming USA on aircraft N235BA which also veered to the left outside the runway during take-off. The steering malfunction could not be identified as NTSB could not reproduce the malfunction during test conducted after the serious incident.

2 ANALYSIS

The pilots were licensed and certified in accordance with applicable regulations and corporate requirements and procedures.

Flight, duty, and rest time was in accordance with the regulations.

Meteorological conditions are not related to the serious incident.

The aircraft was certified and maintained in accordance with regulations and approved maintenance procedures.

The AAIASB examined the evidence to determine the causes of the accident such as:

- Maintenance procedures and work performed by the company's engineers.
- Pilots training procedures and actions by the operator.
- Organizational factors related to flight safety oversight.

The flight from Thessaloniki “Macedonia” airport to A.I.A., was conducted according to applicable regulations.

After landing on runway 21R at the A.I.A., the Commander taxied out of the runway on high speed taxi link A6. During the turn the nose wheel steering sharply turned to the left and the aircraft exited the taxi link with the nose wheel and left main landing gear to rest on soft ground. Both pilots evacuated the aircraft without help and without being injured and the aircraft was towed to the ramp on stand F01.

The mechanics of the airline performed the project from the kept file and judging this as satisfactory, they controlled the aircraft and primarily the steering system of the nose wheel. Although they did not find any malfunction, they changed the entire nose wheel assembly.

The investigation team checked the Components-Removals-Installations chapter and revealed that six interventions were conducted to the nose wheels for unbalanced wear in March 2019, as well as wheel removal for maintenance purpose due to normal wear in October 2019, that is two months before the incident.

3. CONCLUSIONS

3.1 Findings

- 3.1.1** The pilots were licensed and certified in accordance with applicable regulations and corporate requirements and procedures.
- 3.1.2** After the serious incident, an alcohol test was performed on the crew without any findings.
- 3.1.3** The crew had a valid Medical Certificate and was medically fit to perform the flight.
- 3.1.4** The aircraft had a valid airworthiness certificate.
- 3.1.5** There was no pending items in the M.E.L.
- 3.1.6** The weight and center of gravity were within certified limits.
- 3.1.7** The aircraft had been refueled with the required amount of fuel.
- 3.1.8** The Components-removals-installations list was normally maintained.
- 3.1.9** The last nose wheels actions for normal wear was performed two months before the serious incident.

3.2 Cause(s)

According to the existing data and after the study of similar accidents, it was not possible to identify the specific cause for the above serious incident.

As such, the AAIASB recognizes the event as undetermined.

3.3 Contributing factors

There are no contributing factors.

4 SAFETY RECOMMENDATIONS

To SWIFTAIR HELLAS:

2021/17: To be in regular contact and be informed by the manufacturer, on issues related to similar incidents, in order to take precautionary measures to avoid serious incidents.

2021/18: To ensure that all flight crews always report, as soon as possible, to the airline CAMO and the Airline Safety Department, anomalies identified, as required by applicable regulations.

Nea Philadelphia, 24 September 2021

THE CHAIRMAN

Ioannis Kondylis

Exact Copy

THE SECRETARY

Kyriakos Katsoulakis

THE MEMBERS

Akrivos Tsolakis

Grigorios Flessas

Christos Valaris

Charalampos Tzonos-Komilis

5 APPENDICES

5.1 A.I.A. Meteorological data

METAR/SPECI from LGAV, Athens Eleftherios Venizelos International Airport (Greece).		
SA	13/12/2019 18:50->	METAR LGAV 131850Z VRB03KT 9999 FEW025 12/09 Q1003 NOSIG=
SA	13/12/2019 18:20->	METAR LGAV 131820Z VRB01KT 9999 FEW030 11/07 Q1003 NOSIG=
SA	13/12/2019 17:50->	METAR LGAV 131750Z VRB02KT 9999 FEW030 11/07 Q1003 NOSIG=
SA	13/12/2019 17:20->	METAR LGAV 131720Z 15004KT 9999 FEW030 12/07 Q1003 NOSIG=
SA	13/12/2019 16:50->	METAR LGAV 131650Z 24004KT 9999 FEW030 11/07 Q1003 NOSIG=
SA	13/12/2019 16:20->	METAR LGAV 131620Z 25004KT 9999 FEW025 12/07 Q1003 NOSIG=
SA	13/12/2019 15:50->	METAR LGAV 131550Z 25006KT 9999 FEW025 12/07 Q1003 NOSIG=
SA	13/12/2019 15:20->	METAR LGAV 131520Z 23005KT 9999 FEW025 12/07 Q1003 NOSIG=

large TAF from LGAV, Athens Eleftherios Venizelos International Airport (Greece).		
FT	13/12/2019 11:00->	TAF LGAV 131100Z 1312/1412 24010KT 9999 SCT020 SCT070 PROB30 TEMPO 1312/1316 5000 SHRA FEW018TCU BKN030 BKN070

LGAV/ATH
Apt Elev 308'
N37 56.2 E023 56.7

31 MAY 19 10-9
ATHENS, GREECE
ELEFTHERIOS VENIZELOS INTL

ATIS	VENIZELOS Delivery	West	North	Ground	East	South	Tower	ATIS Departure
136.125	118.675	121.8	121.750	121.9	121.950	136.275	118.625	128.950

For AIRPORT BRIEFING refer to 10-1P page

Incident Site

FOR DETAILS SEE 10-9A

GA APRON

APRON NORTH

APRON SOUTH

CARGO APRON 1

CARGO APRON 2

MAIN TERMINAL APRON

AIS - MET

Control Tower

VOR

12,467' 300m

13,123' 300m

03L 110°

03R 110°

03C 110°

03D 110°

03E 110°

03F 110°

03G 110°

03H 110°

03I 110°

03J 110°

03K 110°

03L 110°

03M 110°

03N 110°

03O 110°

03P 110°

03Q 110°

03R 110°

03S 110°

03T 110°

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03J 110°

03K 110°

03L 110°

03M 110°

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03O 110°

03P 110°

03Q 110°

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5.3 Nose gear assembly

