THE REPUBLIC OF CROATIA

Air, Maritime and Railway Traffic Accident Investigation Agency

Air Traffic Accident Investigation Department

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F I N A L R E P O R T

ON SERIOUS INCIDENT OF AIRCRAFT CESSNA C525, REGISTRATION 9A-JIM

JUNE 8th, 2025
ZAGREB INTERNATIONAL AIRPORT FRANJO TUĐMAN

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CONTENT

OCCURENCE INFORMATION

Type of the occurrence:	Serious incident
Date:	June 8th, 2025
Local time:	15:21
Place:	Zagreb International Airport Franjo Tuđman, Croatia
Type of the aircraft:	Aeroplane
Manufacturer / model:	Cessna 525 CitationJet
Registration:	9A-JIM
Owner:	Air Pannonia d.o.o.
Operator:	Air Pannonia d.o.o.
Number of persons on bord:	Two
Injuries:	No injuries
Damage to the aircraft:	Minor material damage

INVESTIGATION

The Air, Maritime and Railway Traffic Accident Investigation Agency received a notification of a serious incident at Franjo Tuđman International Airport from the on-duty personnel of Franjo Tuđman International Airport. The serious incident occurred on June 8th, 2025, when the airport was closed to all traffic from 15:21 hours until 00:52 the following day due to a technical intervention.

AIA has opened a safety investigation, and the on-site inspection was carried out in the presence of representatives of the aircraft operator and the airport.

SUMMARY

On June 8th, 2025 at 15:21 local time, a serious incident occurred during the landing of an aircraft at Franjo Tuđman International Airport. The incident resulted in damage to a landing gear tyre and the excursion of the left main landing gear wheel onto the grass area adjacent to the runway. Due to the need for a technical intervention, the airport was temporarily closed to all traffic. Normal operations resumed on 9 June 2025 after 00:52 hours. No persons were injured in the incident.

It was established that the cause of the event was the bursting of the tyre on the aircraft's left main wheel.

Based on the conducted investigation, the Agency did not issue safety recommendations.

1. FACTS AND INFORMATION

1.1. FLIGHT INFORMATION

The flight in question was a return flight operated by Air Pannonia, aircraft type Cessna 525 CitationJet (registration 9A-JIM). On June 8th, 2025 at 14:26 LT, the aircraft departed from Milan Linate Airport (LIML) towards Franjo Tuđman International Airport (LDZA), without passengers, for the purpose of continuing operations out of Zagreb. The flight duly filed a flight plan and conducted in accordance with the applicable aviation regulations. Meteorological conditions throughout the entire flight, including the approach and landing phases, were favourable and had no impact on flight safety.

The aircraft conducted its approach to Runway 22 from the right-hand traffic pattern. Air traffic control cleared the aircraft to land and to vacate the runway via taxiway B. After touchdown and the initial deceleration, the tyre on the left main landing gear wheel burst. Despite the situation, the crew maintained controllability and the aircraft continued decelerating on the runway.

The aircraft completely stopped between taxiways C and D at 15:21 LT. Due to the partial excursion, one main wheel entered the grass area along the runway edge. The crew shut down the engines, secured the aircraft, and requested the arrival of a follow-me vehicle to assess the situation.

Only crew members were on board, and no injuries occurred. Communication with air traffic control proceeded without irregularities, and no technical malfunctions had been reported prior to landing.

1.2. INJURIES

Injuries	Crew	Passengers	Other
fatal	0	0	0
serious	0	0	0
minor / none	2	0	0

1.3. DAMAGE TO THE AIRCRAFT

The preliminary inspection established the presence of mechanical damage to the wheel rim, tyre, and landing gear doors. The rim was damaged in its lower section, the tyre had ruptures and material loss along its circumference, and the landing gear doors were found to be deformed. Minor mechanical damage was also observed on the left landing gear brake, while no hydraulic fluid leakage was detected.

1.4. OTHER DAMAGE

As the left main wheel exited onto the grass, the wheel created a shallow groove in the soft surface, approximately ten metres long, about thirty to fifty centimetres wide, and up to around ten centimetres deep. On the asphalt, a pair of dark, nearly parallel braking marks remained, beginning at the centreline of the runway and curving gently toward the edge, following the aircraft's path after the tyre burst. The marks are only superficial, with no visible cracks or deformation of the asphalt itself.

Picture 1 – damage to the grass surface

1.5. PERSONAL INFORMATION

1.5.1. Pilot

Male person, Croatian citizen, born in 1967. In the event in question, he was operating the Cessna 525 CitationJet (9A-JIM) as pilot-in-command. He possesses a valid ATPL(A) licence with a C525 type rating, as well as the status of an authorised instructor and examiner on the entire Cessna 525 series, and, according to his own statement, he is the only examiner for this type in the Republic of Croatia.

His Class 1 medical certificate contains the following limitations:

- VML – mandatory use of corrective spectacles or contact lenses.
- OML – permitted to operate only with a qualified co-pilot present.

He has approximately 8,000 of flight hours, of which around 5,500 hours are on the Cessna 525 series (CJ, CJ1/+, CJ2/+, CJ3, M2). In addition to his work on that type, he has also flown the Airbus A320 with Trade Air, Bulgaria Air and Bul Air, and has worked as an inspector at the Croatian Civil Aviation Agency (CCAA) in the training, licensing and operations divisions.

He has been employed with Air Pannonia since early 2024, where he serves as captain, instructor and examiner on C525 aircraft.

1.5.2. Co-pilot

Male person, Croatian citizen, born in 2001. In the event in question, he served as co-pilot on the Cessna 525 CitationJet (9A-JIM). He possesses a valid CPL(A) licence and has completed ATPL theory (frozen ATPL). He holds a valid Class 1 medical certificate with no limitations. He has accumulated approximately 500 total of flight hours, of which about 340 hours are on the C525 type. He has been employed with Air Pannonia since the last quarter of 2024.

1.6. AIRCRAFT CESSNA 525 CITATIONJET, 9A-JIM INFORMATION

Type of the aircraft:	Aeroplane (light business jet)
Manufacturer / model:	Cessna Aircraft Company / 525 CitationJet (CJ1)
Aircraft serial number:	525-0277
Year of manufacture:	1998
Maximum take-off weight:	4853 kg / 10700 lb
Total flight hours (construction):	7716 hours; 6958 cycles
Engine 1:	Williams FJ44-1A, S/N 1564 7467 h, 6741 cycles
Engine 2:	Williams FJ44-1A, S/N 1567 7574 h, 6826 cycles

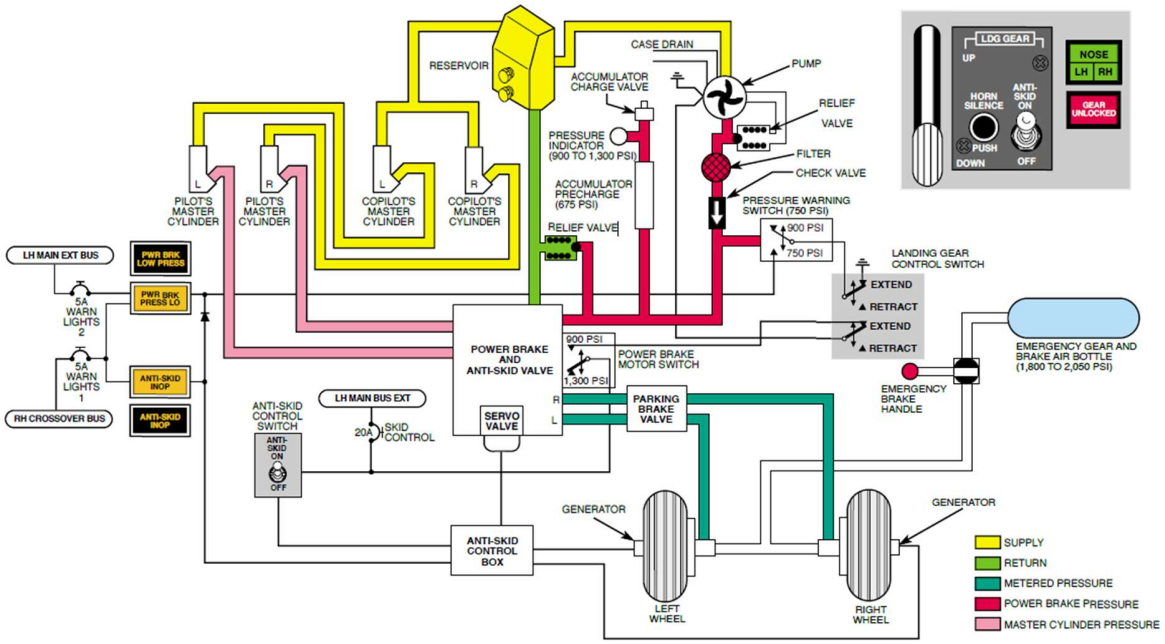
Picture 2 – aircraft 9A-JIM

The Cessna 525 CitationJet is a low-wing, all-metal, twin-engine turbofan aircraft with a retractable tricycle landing gear and a pressurised cabin. The aircraft accommodates 5 passengers with one or two crew members and is certified for IFR operations up to FL 410. With a maximum cruising speed of approximately 390 kt (720 km/h) and a range of about 1,250 NM (2,400 km), it is a commonly used charter platform with operational capability on short paved runways.

1.6.1. Equipment and systems

The Cessna 525 aircraft in question, serial number 525-0277, is not equipped with a cockpit voice recorder (CVR) or a flight data recorder (FDR), as such equipment is not required for this category of the aircraft. The aircraft is also not equipped with tyre pressure sensors.

It is equipped with an anti-skid system. The function of this system is to prevent the wheels from fully locking during braking, thereby maintaining directional control and reducing the risk of tyre damage. The system operates by monitoring the rotational speed of the wheels and, if a sudden deceleration or lock-up is detected, it automatically releases pressure in the brake circuit until the wheel begins to rotate again. In this manner, braking remains effective while reducing the likelihood of skidding and tyre bursting.



Picture 3 - Schematic diagram of the brake system

On Cessna 525 aircraft with serial number 437 and above, the anti-skid system additionally incorporates two advanced functions:

- Touchdown protection – prevents brake activation before the wheels touch down. If the pilot applies the brakes while the aircraft is still airborne, the system automatically releases pressure until the wheels are loaded after touchdown.
- Locked-wheel crossover protection – compares the rotational speed of the left and right wheels. If one wheel decelerates and its speed drops below 50% of the other wheel's speed, the system temporarily releases pressure to prevent that wheel from fully locking.

1.7. METEOROLOGICAL INFORMATION

On June 8th, 2025, during the approach and landing of the aircraft at Franjo Tuđman Airport (LDZA), the weather conditions were favourable for flight.

Operational METARs:

- METAR LDZA 081300Z 21008KT 140V290 CAVOK 32/14 Q1011 TEMPO 23012KT
- METAR LDZA 081330Z 25011KT 170V300 CAVOK 32/14 Q1011 NOSIG
- METAR LDZA 081400Z 24010KT 170V290 CAVOK 32/13 Q1011 NOSIG
- METAR LDZA 081430Z 23010KT 180V270 CAVOK 32/14 Q1011 BECMG 03015G30KT

Weather conditions in the period around the incident

- Visibility / cloud cover: CAVOK – visibility ≥ 10 km, with no significant cloud below 5,000 ft.
- Wind: 8–11 kt, west-south-westerly, with a very small crosswind component for Runway 22.
- Pressure: QNH 1011 hPa, stable throughout the entire period.
- Temperature / dew point: 32 °C / 13–14 °C – the large temperature spread (~18 °C) eliminates any risk of icing.
- Trend: a shift to a north-easterly wind at 15 kt with gusts up to 30 kt was forecast only after 14:30 UTC, i.e., after the completion of the operation (landing at 13:21 UTC).

Assessment of impact on the flight

A light headwind (~10 kt) had a favourable effect on the landing roll, CAVOK conditions and daylight contributed to an unobstructed visual approach. No wind shear or significant vertical air movements were reported that could have adversely affected controllability.

1.8. COMMUNICATION

Throughout the entire flight, radio communication with air traffic control was conducted by the co-pilot. During the approach they were on the Zagreb APP frequency, and upon entering the traffic pattern they switched to Zagreb TWR. A review of the audio recording confirmed that communications during the approach and landing proceeded normally, without interruptions or interference, and that the crew reported no difficulties.

After the tyre burst and after the aircraft complete stopped, the captain himself called on the same tower frequency, confirmed the incident, and requested a follow-me vehicle to check the condition of the wheel and the aircraft's position. No emergency situation was declared at that time either, and communication remained clear and uninterrupted until the end of the recording.

1.9. AIRPORT INFORMATION

Franjo Tuđman International Airport (IATA: ZAG, ICAO: LDZA) is the busiest airport and the main aviation hub in Croatia. Among all Croatian airports, it maintains the highest number of year-round international routes, including winter operations. In March 2017, a new 65,000 m² passenger terminal was commissioned, designed for approximately five million passengers per year, significantly increasing the airport's operational and commercial capacity.

The airport is located approximately 15 km southeast of central Zagreb, in the settlement of Pleso (Velika Gorica), and is connected by the A3 motorway and regular bus services.

The airport is equipped for both IFR and VFR operations and is open 24 hours a day for civil and military traffic. Its single runway, 04/22 (asphalt/concrete), is 3,252 m long and 45 m wide, allowing the accommodation of all aircraft types used in commercial service.

All key services, airport operator, customs, AIS/AIP, ATS, meteorological service, fuel supply, baggage handling, security and de-icing, are available 24/7, while medical services are on duty from 05:00 to 23:00 LT and are activated on call outside those hours.

1.10. SEARCH AND RESCUE

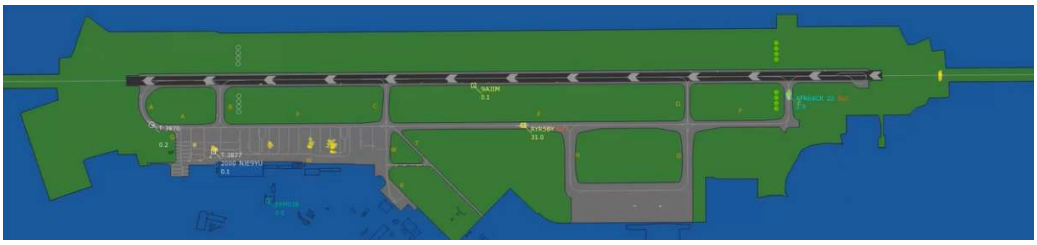
Since the aircraft remained on the runway and no persons were injured, there was no need to initiate a search or to engage external emergency services. The airport police and the security service of Franjo Tuđman Airport immediately secured the area between taxiways C and D, and the airport was temporarily closed to all traffic.

Picture 4 - position of the aircraft after stopping

The removal of the aircraft was carried out by the technical teams of Zagreb International Airport, the Public Fire Brigade of Velika Gorica, and Civil Protection.

1.11. DESCRIPTION OF THE SERIOUS INCIDENT SITE

The incident occurred on the runway of Franjo Tuđman Airport (LDZA), approximately one hundred metres beyond the runway's midpoint, between the exits for taxiways C and D. The aircraft stopped with the nose wheel and the right main wheel on the asphalt, while the left main wheel was on the grass, about twenty centimetres outside the runway edge marking. A shallow groove about ten metres long remained on the grass surface, and on the asphalt two dark braking marks, curving gently from the runway centreline toward the edge.



Picture 5 – incident site

Picture 6 – incident site

1.12. ADDITIONAL INFORMATION

1.12.1. Captain's statement

According to the captain's statement, on June 8th, 2025 the co-pilot and he operated the return flight with the Cessna 525 CitationJet (9A-JIM) on the route Milan Linate (LIML) – Zagreb (LDZA). They took off at 12:25 UTC (14:25 LT) and landed at 13:21 UTC (15:21 LT). Weather conditions were favourable, and the approach and touchdown were carried out without difficulty.

During the deceleration, however, the tyre on the left main landing gear burst. The crew managed to keep the aircraft on the runway for almost its entire length, and after the aircraft completely stopping, with one wheel in the grass approximately twenty centimetres from the edge, they shut down the left engine as a precaution and requested a follow-me vehicle from the tower.

When the airport staff member from the vehicle confirmed the tyre burst, the captain initiated the parking procedure and exited the aircraft to conduct an external inspection. He immediately emphasised that, under the regulations, the Accident Investigation Agency (AIA) had to be notified, the police had to be called to conduct an on-site inspection, and both crew members had to undergo alcohol and drug testing. Although the police arrived shortly thereafter, the testing was postponed with the explanation that it would be "handled by the investigative team that is on its way." After the arrival of a second police patrol at 18:30 LT, the alcohol testing was performed, and the result was 0.0‰ for both crew members.

1.12.2. Co-pilot's statement

The co-pilot, in his statement, confirms the captain's statements: the preparation, approach and landing were conducted normally, with no reported difficulties, and he handled radio communication with air traffic control, first on the Zagreb APP frequency, then on Zagreb TWR.

He adds that approximately one second after wheel touchdown he noticed the captain gradually increasing right-rudder corrections and adjusting the thrust levers in order to keep the aircraft as close as possible to the runway centreline. He also states that he was not using noise-cancelling headphones and that, during the final phase of deceleration, he began hearing unusual external sounds more distinctly, which had not noticed earlier in the flight.

1.12.3. Technical condition of the system

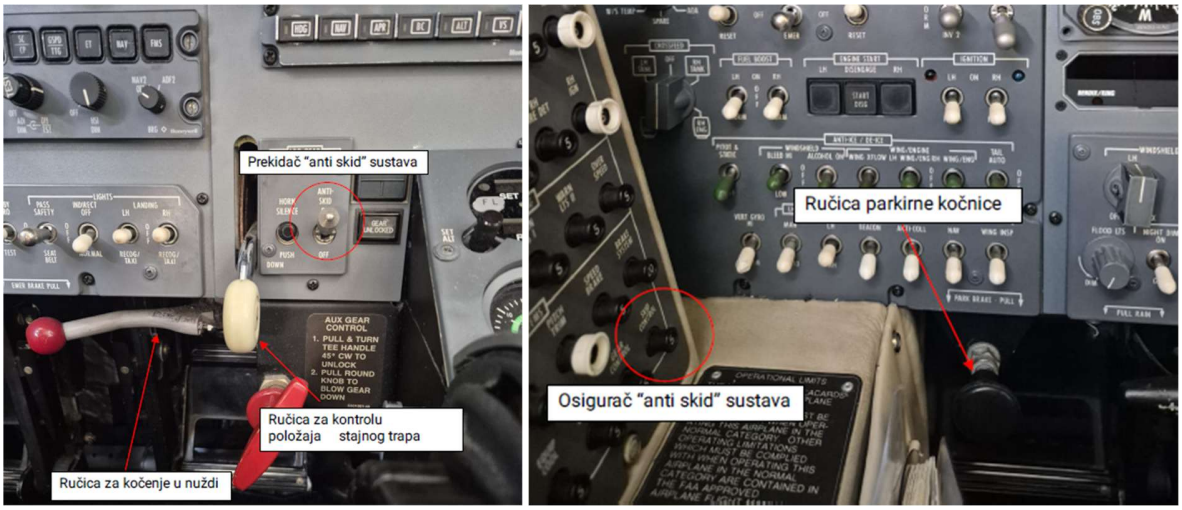
A detailed inspection of the left main landing gear revealed mechanical damage to the wheel rim, tyre, brake and landing gear doors. The landing gear mechanism itself, including the actuators, wiring and hydraulic lines of the braking system, showed no signs of malfunction or leakage. The brake wear indicator was within the prescribed limits, and the anti-skid system was found in the correct position (switched on, circuit breaker engaged).

Picture 7 - the tyre, wheel rim, brake and other components of the left landing gear

No mechanical damage was found on the right main landing gear elements, although minor tyre damage attributable to the incident was observed. The aircraft's hydraulic system, including the reservoir, lines and fittings, showed no signs of leakage, and the hydraulic fluid level was within prescribed limits.

The cabin inspection established the following positions of controls and circuit breakers:

- the landing gear selector was in the DOWN position (gear extended),
- the anti-skid system switch was in the "ON" position,
- the anti-skid system circuit breaker was pushed in (engaged),
- the parking brake handle was in the retracted position (off),
- the emergency brake handle was retracted (off).



Picture 8 - position of the landing gear and brake system controls

All stated control and circuit breaker positions were consistent with normal operation and did not indicate any irregularities in handling.

1.12.4. Maintenance documentation

A review of the technical documentation established that on March 12th, 2025 the aircraft underwent the scheduled and most extensive maintenance phase applicable to this type. During that maintenance, both main landing gear tyres and both main wheel brakes were replaced, and as part of the tasks included in "Document 10," the filter of the anti-skid system was also replaced.

Following the incident, the left wheel, left brake and the wheel-speed sensor were replaced. No reason was recorded for the replacement of the sensor, as no damage to it had been identified during the inspection. After these works, an anti-skid system test was carried out, and no additional deficiencies were found.

1.12.5. Removal of the aircraft

About fifteen minutes after the occurrence, the AIA chief investigator gave approval for the removal of the aircraft from the runway.

The intervention timeline shows that the process from the excursion to the reopening of the airport lasted more than nine hours.

The aircraft removal procedure continued until 00:52 hours the following day, when MZLZ was reopened.

1.12.6. Operator's internal analysis

The aircraft operator, Air Pannonia d.o.o., conducted an internal safety analysis of the event in accordance with its procedures. The internal investigation did not identify any irregularities in crew actions, maintenance or the technical condition of the aircraft that could have directly led to the tyre burst, nor was it possible to determine the exact cause of the burst itself.

2. ANALYSIS

2.1. FLIGHT

The flight from Milan Linate to Zagreb proceeded normally and without any recorded technical irregularities until the landing phase. Weather conditions were favourable, visibility was excellent, the wind was light with a favourable headwind component, and the meteorological trends had no impact on flight safety.

The approach commenced normally, in accordance with air traffic control clearance, and no signs of irregularities in the operation of the engines or aircraft systems were noted prior to touchdown. Immediately after touchdown and the initial deceleration, the tyre on the left main landing gear burst.

Despite this, the crew maintained control of the aircraft, kept it within the runway width, and stopped between the exits for taxiways C and D, with the left wheel entering the grass surface. Communication with air traffic control remained in order and uninterrupted.

2.2. TECHNICAL CONDITION OF THE SYSTEM

The damage to the wheel rim, tyre and brake of the left main wheel shows a pattern typical of the high forces occurring during landing. Minor mechanical damage was identified on the brake, but with no signs of hydraulic fluid leakage. The brake wear indicator was within the prescribed limits, and the anti-skid system was switched on and functioning correctly.

The positions of the controls and circuit breakers in the cockpit were consistent with normal operation: the landing gear lever was in the DOWN position (gear extended), the anti-skid system was on, the anti-skid circuit breaker was engaged, and both the parking brake and the emergency brake were off.

No irregularities were found on the mechanical components of the right main landing gear, although minor tyre damage attributable to the incident was observed. The aircraft's hydraulic system, including the reservoir, lines and fittings, showed no signs of leakage, and the hydraulic fluid level corresponded to the prescribed values.

The post-incident inspection of the aircraft revealed no technical deficiencies that could have directly caused the tyre burst or wheel lock-up. It was determined that the primary cause of the event was the bursting of the tyre on the left main wheel, while it was not possible to establish with certainty whether a wheel lock-up or other factors contributed to the burst, nor the sequence in which they may have occurred.

The aircraft was not equipped with a cockpit voice recorder (CVR), flight data recorder (FDR) or tyre pressure sensors, which limited the ability to gain a more detailed insight into the sequence of events.

The findings of the internal safety analysis conducted by the aircraft operator, Air Pannonia d.o.o., were consistent with the results of the technical inspection and did not indicate any irregularities in crew actions, maintenance or the technical condition of the aircraft that could have directly contributed to the occurrence of the event.

2.3. MAINTENANCE DOCUMENTATION

On March 12th, 2025 the aircraft underwent the scheduled and most extensive maintenance phase applicable to this type. During that maintenance, both main landing gear tyres and both main wheel brakes were replaced, and as part of the tasks included in "Document 10," the filter of the anti-skid system was also replaced.

Following the incident, the left wheel, left brake (which showed minor mechanical damage during the inspection) and the wheel-speed sensor were replaced. No reason was recorded for the replacement of the sensor, as no damage to it had been identified during the inspection. After these works, an anti-skid system test was carried out, and no additional deficiencies were found.

According to the available documentation, the right main landing gear tyre had also been replaced during the scheduled maintenance in March 2025. The minor damage observed on it occurred during the incident in question and is not related to maintenance procedures.

2.4. CREW ACTIONS

The landing proceeded normally and without any recorded difficulties until the moment the tyre burst occurred. After the damage to the left main wheel, the crew maintained controllability and kept the aircraft on the runway.

In his statement, the co-pilot states that immediately after wheel touchdown he observed the captain gradually increasing right-rudder inputs and adjusting the thrust levers. Such gradual adjustment of control inputs is a standard piloting technique in cases of asymmetric braking or a partial loss of a wheel and does not indicate improper action.

After the aircraft completely stopped, the crew shut down the engines, secured the aircraft and requested assistance from the relevant airport services. Communication with air traffic control remained in order, and the situation did not escalate into the declaration of an emergency.

2.5. OPERATIONAL AND ORGANIZATIONAL ASPECTS

The AIN chief investigator gave approval for the removal of the aircraft approximately fifteen minutes after the event. Despite this, the removal procedure lasted more than nine hours.

The aircraft removal was successfully completed through the coordinated efforts of all involved services, after which the aircraft was transferred to parking position G32.

3. CONCLUSION

3.1. FINDINGS

- The flight from Milan Linate to Zagreb took place in favourable meteorological conditions, with no technical difficulties recorded until the landing phase.
- During touchdown on the runway, the tyre on the left main wheel burst.
- The crew maintained controllability and brought the aircraft to a safe stop at the runway edge, with no injuries, with the left main wheel resting off the paved surface.
- Minor mechanical damage was identified on the left main landing gear brake, with no signs of hydraulic fluid leakage.
- Minor tyre damage attributable to the incident was found on the right main landing gear, while no other damage or irregularities were identified.
- The hydraulic system, brakes and associated installations showed no leakage, the fluid level was within prescribed limits.
- The positions of controls and circuit breakers were consistent with normal operation.
- The aircraft was not equipped with a cockpit voice recorder (CVR), flight data recorder (FDR) or tyre pressure sensors, which limited the data available for the investigation.
- Three months before the event, a comprehensive scheduled inspection was carried out, including the installation of new tyres and brakes.
- After the event, the left wheel, left brake and wheel-speed sensor were replaced, and the anti-skid system test revealed no irregularities.
- The co-pilot's statement confirms the captain's gradual and regular control inputs used to maintain directional control during landing.
- The AIA chief investigator gave approval for the removal of the aircraft 15 minutes after the event.

3.2. CAUSE

The cause of the occurrence was the bursting of the tyre on the aircraft's left main wheel during landing.

4. SAFETY RECOMMENDATIONS

Based on the conducted investigation, no systemic deficiencies were identified that would require the issuance of safety recommendations.

The Agency therefore issues no safety recommendations in this case.

Investigator in Charge

Tomo Matić