NESRETZA RESEARCH
CENTER IN CAOBPATtAJ

Nema'ina 11
11000

Belgrade

CAOBPATAJ

Број: 343-00-001/2024-01-01-10

Number:

Given - M: """""" ' } 1 FG°!J i!!l› °°

NOTICE ABOUT THE BEGINNING INVESTIGATION AN ACCIDENT AIRPLANE

BASIC THE DATA

1	Date, time and place accident:	18. 02. in 2024 years, in 16:38 (UTC)/17:38 (LV) airport Nikola Tesla, Mr. Belgrade
2	Type aircraft:	Embraer E190-200LR (E.MB-195 LR)
3	Registration aircraft:	OY-GDC (Kraševina Denmark)
4	Serial Number aircraft:	MSN 190000204
5	Operator:	Marathon Airlines S.A. Greece
6	Flight:	JU324, BEG-DUS, Air Serbia a.d.
7	Damage:	The plane suffered significant damage to the left fuselage wings and the left wing of the horizontal stabilizer
8	Injured:	none
9	Killed:	none
10	Flight phase:	During flight
11	Secondary damage:	Damage to airport infrastructure
12	Crew information:	Captain: age 58, permanent residence – Italy license: ATPL (A) ratings: A320, EMB170, IR ME MR Copilot: age 44, permanent residence - Poland license: CPL. (A) ratings: EMB170, IR, FI CPL

GOOGLE TRANSLATED

SHORT DESCRIPTION

On February 18, 2024 at "Nikola Tesla" Airport, Belgrade, there was an accident of an Embraer E190-200LR (EMB-195 LR), registration number OY-GDC, operated by Marathon Airlines, which performed operations (flight) on behalf of operator Air Serbia on flight JU324 Belgrade-Dusseldorf in the Federal Republic of Germany (IATA: BEG-DUS, i.e. ICAO: LYBE-EDDL). On that occasion, there was damage to the plane, which is classified as an accident in accordance with the applicable regulations, while there were no injured or killed persons. 2 members of the flight crew, 3 members of the cabin crew and 106 passengers were present in the plane.

On the indicated day, February 18, 2024, after making the return flight Belgrade-Vienna-Beograd (flight no. JU602/JtJ603) where there were no problems with the plane and the flight, the crew started preparing for the next return flight Belgrade-Dusseldorf-Belgrade (flight no. JU324/325). During the preparation for the flight, the crew planned to perform a maneuver from the left runway (PCC) in direction 300 (RWY30L) of the airport "Nikola Tesla" in Mr. Belgrade, which she would approach via the D6 intersection, and for which, according to the crew's statement, she performed a double check of the calculation of parameters for take-off. During the departure from the airport building, the crew was instructed by the appropriate air traffic control unit (KL) to taxi/taxi to stop/hold position D6 for RWY30L, via taxiways F, G and A, which the crew correctly confirmed by repeating the received data. At 16:35UTC the crew reported to the competent unit KL that they were approaching Intersection D6, with feedback to KL to prepare for departure from Intersection D6 with departure and alignment to PCC - RWY30L. At 16:36 UTC, KL sent an urgent message to the flight crew asking if they were aware that they had exited the PCC at intersection D5. The crew soon replied to KL thanking them for the information. KL immediately contacted the crew again with the information that the available length for take-off from the given intersection was 1,273 meters, with the suggestion that this was not sufficient for a safe take-off. The crew requested a minute to perform checks. According to the crew, she then performed parameter calculations for the flight using the hand-held flight computer in the co-pilot's hand-held tablet. During this time, KL informed the crew to raise the necessary calculations and report back, noting that if necessary, the crew could taxi back to D6. Some 30 seconds later, the crew reported back to KL to confirm that they were ready for takeoff. KL confirmed the reception with an initial inquiry as to whether they were able to take off from position/intersection D5, which the crew immediately confirmed. KL then cleared the crew to take off on RWY30L from position D5 with the information that there was no wind. At 16:38 UTC, the plane took off for take-off. After the KL report was received, the plane took off leaving a cloud of dust behind and with a weak glider. According to the given statements, the cabin crew judged that the plane had normal acceleration on take-off. According to statements, the flight crew in the plane made changes in the thrust of the engine in order to get as high a speed as possible. At 80 knots (kts) the crew reported that everything was fine, while at 100 knots they noticed that there was not enough PCC length. Considering the available length of the PCC and the speed at which the aircraft was moving, the crew decided it was safer to continue takeoff as they estimated that the aircraft would soon take off. According to the statements, the crew set the engine thrust to maximum and decided to delay the turn-up of the front part of the wing as much as possible in order to be able to use the maximum available length of the PCC and the asphalt section in the continuation of the PCC. Immediately after leaving the PCC and the asphalt section next to the PCC, according to the flight crew, the plane began to shake, after which the plane hit an object. Cabin crew members stated

GOOGLE TRANSLATED

that just before take-off they felt vibrations as if the plane was going over bumps, and immediately after leaving the ground it hit some object. Soon the plane separated from the ground, during which the crew heard an unknown noise all the time from the direction of the plane's fuselage, with an interruption in the operation of the lights on the left wing. The crew began to receive information about the problem with a number of systems, the most significant of which was with the flaps and the engine's warm air system (bleed air), and proceeded to the procedures according to the checklists for the problems that were indicated. Immediately after take-off, the competent KL unit addressed the crew asking if everything was OK, considering that it deviated from the approved vector during take-off. The crew replied that they were not sure, but that they would most likely have to return to the airport. Soon, crew informed KL that it had to return to the airport because it hit something on the ground during takeoff, while a little later it declared a mayday because the plane hit an object during takeoff. The responsible KL suggested to the crew to check the landing gear, with the possibility of a low flight past the control tower at the airport "Nikola Tesla". The crew requested time to perform additional checks, during which they performed 2 circles southeast of the airport. According to the crew, they were checking the plane against the checklists to determine the location of the problem with the plane. During that time, KL made preparations for the emergency landing of the aircraft, relocating the rest of the aircraft and informing the competent units for emergency situations at the airport, which informed the competent authorities about the potential problem. During that period, the operator also informed the competent authorities about a possible problem on the flight in question. The aircraft then made a low pass over the PCC in the direction of 300 deg. with the landing gear extended, during which KL did not detect a problem with the landing gear. During the descent and overflight, the crew reported a problem with the flaps, as well as increased vibrations of the aircraft. After the flyover, the crew decided to land, and made a left turn in the airport circle, after which they landed at the airport, RWY30L, at 17:36UTC. According to the crew, she decided to land with a slightly higher speed due to problems with the flaps, but within the prescribed limits, and she had no other problems except for the appearance of vibrations. After landing, the crew did not have any problems with the plane, and after communicating with KL, according to the instructions, they agreed to parking position C2 of the "Nikola Tesla" airport. After landing and leaving, the PCC plane was constantly covered by the vehicles of the fire department at the airport. Immediately after stopping, the crew received information from the ground crew that fuel was leaking from the left fuel tank, and quickly shut down the engine and other systems. The crew of the present vehicle of the fire department at the airport responded immediately and started to treat the fuel leaks with fire-fighting means, covering and limiting the flow of fuel on the airport platform, while soon, in cooperation with the airport authorities, they also placed an open canister of large volume into which the fuel was leaking from the left tank. The crew and passengers were disembarked via the air bridge at the parking position. After the fire department secured the place of the fuel leak, the competent authorities carried out a short and preliminary inspection of the parking lot at the C2 airport, after which the airport services were ordered to move the plane from the airport building to a safer place as soon as possible, and which they soon did. The plane was secured all the time by the vehicles of the fire department at the airport, while the fuel leakage from the wing continued the next day (despite the fuel drain).

During the rollover, a lot of damage was found on the plane's fuselage, in which there was a multiple piercing of the plane's plating on the left side, a tear at the root of the left wing with damage to the aerodynamics of the fuselage and wing plating and a piercing of the plane's plating and damage to the aircraft systems under the plating, damage to the leading edge wings along the fuselage with the

PUBLIC TRANSLATE

same bend backwards in depth of 80-90 centimeters and with a circular fracture, damage to the left wing of the horizontal stabilizer on the ground in the part of the leading edge with a gap of 30-40 centimeters deep and two holes in the plating on the right side, traces of scratches, damage to the plating and the antenna in the rear part of the hull and the damage on the right tire of the left leg of the main cabin (the part corresponding to the approach light supports).

By checking the airport areas in the direction of flight of the aircraft with RWY30L, damage was found to the approach lights for RWY l2R — the ends of the right lights in all three rows (that is, the ends of the left in the direction of flight of the aircraft in question) with broken control boxes located in the middle of the lights, and on which tire tracks were observed. The tracks of the wheels of the main landing gear in the continuation of the PCC on the ground surface were observed, where the wheels of the left leg of the main landing gear passed over the edge of the approach lights, with the fact that the right wheel of the left leg of the main landing gear passed over the approach lights with a break in them and slight damage to the concrete structure. The right leg of the main landing gear passed directly next to the approach lights, damaging part of the concrete structure of the center row of the approach lights. In the end, a pillar was missing - the monitor antenna support of the Instrument Landing System (ILS) ILS 12R with the monitor antenna in its place remained a concrete embankment with torn cables, and 145 meters from the end of the asphalt surface after the PCC. A few meters after the foundation, a pipe was found in the ground about 60 centimeters deep, with a round bottom, with a part of the plane's formwork in the immediate vicinity. The support of the monitor antenna, with a total length of 5 meters, is placed on an arable surface outside the airport security-restrictive zone (about 60 meters from the fence located about 175 meters from the end of the asphalt surface in the continuation of the PCC), with a curve at about 90 centimeters from the top of the support and traces of paint from the plane. Only a long sleeve for fixing the antennas is poured on the support itself. Parts of the antenna were spilled over the entire surface after the impact. The same led to heavy ILS category from 3 to 1. During the inspection, it was found that in the left wing root damage and in the left wing itself there are parts of the system of the mentioned antenna for instrument landing at the airport with the cuff for fixing the antenna. On the ground itself, from the first row of approach lights, next to the PCC, small parts of the aircraft's formwork were poured, while after the carrier of the monitor antenna of the instrument landing system, parts of the plane's formwork and structure were poured.
Behind the base of the antenna support:, and immediately before the ground descent towards the road along the fence and the fence safety-restrictive zones of the airport, about 160 meters from the end of the concrete surface, traces of the rear part of the plane's fuselage touching the ground were found, where the plane did not come into contact with the raised ramp, which was about 4 meters above the raised part of the ground and about 10-12 meters after the point where the fuselage touched the ground.
No traces of the wheels of the front-nose leg of the landing gear were found on the ground, while the traces of the wheels of the main landing gear were found after the first row of approach lights in the direction of flight, and before the antenna support.
By checking the aircraft during the flight, no problem was found with the engines or other systems.

On the basis of the above, it cannot be concluded that the plane took off from the ground surface located in the continuation of the PCC, during which there was a slight separation of the front leg of the landing gear near the roof of the PCC, which then hit the control boxes approach lights, while the wheels of the main landing gear, still carrying most of the load, went along the ground surface, bringing vibrations to the entire plane. In rotation, the plane

GOOGLE TRANSLATED

hit the fuselage and root of the left wing on the support of the monitor antenna of the instrument system for landing, which is a steel tube of great strength and mass, with strong hardening, which caused the mentioned damage in that part of the plane, with a broken antenna, the old part of which remained inserted in the plane. The carrier broke off from the ground with a curve as a result of the plane hitting it, and due to the received energy bounced off the ground into the air (with a hole in the ground), damaging the left wing of the horizontal stabilizer, after which it fell about 90 meters from the ground in the direction flight of the plane.

PROBABLE CAUSE

One of the probable causes of this accident is the inadequate estimation of parameters for take-off during the pre-flight preparation of the flight crew of the aircraft, and after the decision to take off from the PCC length compared to the initial plan.

SECURITY PPEPOPUKE

Главни истражитељ

Проф. Др Небојша Петровић

Center for research necpeha u caobpahajy of the Republic of Serbia huh issue safety recommendations by completion of this investigation accident.

GOOGLE TRANSLATED

GOOGLE TRANSLATED