

Captain [REDACTED] report to NTSB
December 18, 2022
Depart OGG 0031Z/1431L
Position: Pilot Flying

I was Captain on United 1722 (B777-200) December 18, 2022 from OGG to SFO, and was acting as pilot flying. I was well rested and fit to fly that afternoon, and the F/O stated the same. Maui was experiencing heavy rain and gusty winds at times. Before arrival at the airport, I received a thorough briefing from the Dispatcher about the weather threats that afternoon. We eventually agreed upon an alternate route that might help alleviate the need for weather deviations during climb and initial level off. Upon arrival at the aircraft, I first talked with the Purser who informed me of a turbulent descent and arrival into Maui earlier that afternoon (our flight was their second leg of a "turn" from SFO). I briefed him on all the specifics of the flight as well as having the Flight Attendants remain seated on climb out. There were no maintenance items noted on the flight plan and the maintenance documents showed only minor deferrals in the cabin. The general condition of the aircraft was acceptable for the flight ahead. During the pre-flight setup, the F/O made me aware of an incident earlier that morning involving a Hawaiian Airlines aircraft experiencing a possible severe turbulence event upon descent. We discussed this event and the need for vigilance not only during takeoff, but initial climb into convective weather conditions as well. The F/O had difficulty receiving the ATIS and had to call ground to get the current weather. Maui was indeed experiencing heavy rain, but the winds were relatively calm (below 10kts) with RWY 20 in use. The F/O has extensive experience flying in the Hawaiian Islands and made mention of how unusual it was to use RWY 20. We completed our normal briefings before pushback and added the specifics of the weather threats for the takeoff and climbout. Sabre performance returned FLAPS 20 with a reduced thrust setting. Based on the winds showing only a slight crosswind, I elected to stay with FLAPS 20 and the reduced thrust setting. We briefed PWS and windshear precautions as well, and now RWY 02 was in use.

During taxiout, there were several aircraft ahead of us, and ground control made a call of LLWS advisories now in effect with several aircraft inbound experiencing gains and losses in airspeed. I elected to do a MAX thrust takeoff instead of reduced, and we verbally reviewed PWS and active windshear recovery procedures. We did not change takeoff airspeeds and used the reduced thrust V speeds – as per Flight Manual guidance. We were given clearance to "line up and wait" on RWY 02 behind an Airbus A321 that just departed, WX radar was on, and we held for approximately 2-3 minutes in position. During takeoff roll, I had my windshield wipers on high for the heavy rain. Acceleration was rapid, yet we had no non-normal airspeed fluctuations noted by the F/O. Rotation and initial climb were normal, but we soon began to encounter rapid airspeed fluctuations with light turbulence that became more moderate as we climbed. I noticed the aircraft reach thrust reduction and acceleration altitude (which were the same in this case) and I lowered the nose slightly to begin the acceleration. I called for FLAPS 5 and noticed VMO/MMO moved opposite to my expectation (towards the Speed Bug instead of a higher speed). Airspeed began to accelerate rapidly, and based on the rate of increase, I anticipated a Flap overspeed. I reduced the power manually (overriding the autothrottle servos), but not enough to incur a reversal in IVSI towards a descent. We were still a positive climb. The reduction in power was to reduce the extent of the Flap overspeed and slow the airspeed acceleration trend. We ended up over speeding the flaps by approximately 10-15 kts as I recall. My next cause of action was to quickly find out the status of the flaps and if there was a mechanical failure. I glanced over to the Flap indicator and noticed

the Flaps were at 15 instead of 5 as I had asked for. I would note that the selection of retracting the flaps from 20 to 5 is a normal and acceptable line operation procedure, and in my experience the most common, however, to the best of my knowledge there are no flight manual restrictions on retracting the flaps from 20 to 15. There were no EICAS messages or chimes noted at that time. I immediately called again for FLAPS 5 and repeated the call at least once more. I saw the F/O's hand move towards the Flap handle and made the selection. There were no abrupt or excessive control inputs made at anytime, but I noticed the aircraft in an immediate and significant nose down attitude with a slight bank. Airspeed was rapidly rising, and I began to hear the EGPWS calls of "Terrain, Terrain, Pull Up". As I began a pull on the control wheel to get the nose back above the horizon on the PFD, I initially reduced power to reduce airspeed acceleration. I quickly reversed into full power (to the stop) to begin the full CFIT recovery maneuver - taking care to make sure the speedbrakes were still stowed as well. Once I noticed the rapid change in IVSI towards a climb trend I lowered the nose towards the Flight Director commands to resume the normal profile. I don't recall when the flaps were requested and moved to position 1, but I did call for the flaps to be completely retracted and the after takeoff checklist, shortly thereafter. The autopilot was soon engaged as well. We resumed the climb and were immediately faced with the expected threats of continued moderate turbulence and weather deviations in the climb to altitude.

Once we were safely established in the climb, I called the Purser to get a report on the condition of the passengers, crew, and aircraft status. He stated that everyone was ok and the aircraft was fine internally with no perceived damage. I elected to continue onward to SFO based on my best judgement and assessment of no aircraft damage overall, no internal damage, and no injuries to passengers or crewmembers reported. Once enroute, the F/O and I did a long and thorough debrief of the incident and he made notes of all pertinent factors and details to add to our FSAP reporting. We made specific note of the initial Flap selection, the resulting Flap overspeed, unusually extreme weather for the Hawaiian Islands in general, reports and possible encounter of LLWS, and conditions encountered shortly after takeoff. We sent a writeup and notes to TOMC enroute about the Flap overspeed. I continued constant contact with the Flight Attendants enroute to check on their condition and concerns, and that of the passengers as well. Nothing adverse was noted in the condition of aircraft, crew, and passengers throughout the flight. The remainder of the flight was uneventful and we arrived in SFO that night with no further incident. Before deplaning, we were met by a mechanic and briefed him on details of the aircraft condition and Flap overspeed.

NTSB Report – First Officer [REDACTED] Statement

UAL 1722 Dec 19th 2022 (Zulu) ≈ 0035Z

Route: PHOG – KSFO Boeing 777-200A

Captain: Pilot Flying

First Officer: Pilot Monitoring

Weather: PHOG 190054Z 14009KT 3SM +RA BR BKN009 OVC020 19/18 A2977 RMK AO2 SLP085 P0020
T01940183 PHOG 182354Z 32010KT 3SM +RA BR BKN009 OVC020 20/18 A2976 RMK AO2 SLP081 TS
OHD MOV NE P0027 60140 T02000183 10233 20200 56022

Fitness for flight: I arrived to the hotel shuttle well rested and ready for the flight. Our show time for the flight was just past noon, so I bought a sandwich and coffee at the airport for lunch.

Flight Planning: We discussed the significant weather around the islands in the shuttle to the airport. We reviewed the flight release and called the dispatcher to discuss the routing options. Reports of moderate to severe radar returns with light to moderate turbulence were all over the islands, including the departure corridor. Low Level Windshear was not reported at this time, but we discussed the possibility of it being a threat.

Pre-flight: The ATIS was inoperative and there was significant rainfall at the Maui airport. There were no significant delays, maintenance issues, or unusual matters to cause a distraction. I received a text message while returning into the aircraft cabin from my preflight walk around from a friend that mentioned Hawaiian Airlines had just encountered severe turbulence which caused multiple injuries. I texted my friend back thanking him for the update, turned my phone off before entering the flight deck, and spoke to the Captain about it.

Pre-flight of Flight Attendants: We decided in the shuttle to tell the Flight Attendants to remain seated due to the significant weather until we were clear. After the text message I got, we both decided to remind the Flight Attendants. I remember speaking with the Purser about what I had heard and for them to stay seated and safe.

Narrative of events and response: During pushback from the gate, we heard Maui Tower reporting winds shifting from 030 to 190 as two Hawaiian aircraft departed with LLWS warnings in affect. We left the flap setting at 20 and removed the takeoff thrust derate in the Takeoff Reference Page 1/2 and manually entered V1, VR, and V2 speeds for a derate takeoff, per United SOP.

Winds on Takeoff roll reported at 140/10 on Runway 02. Climbing through about 1,200ft, I heard the Captain announce “Flaps 15” as Maui Tower switched us to HCF Departure. I selected Flaps 15 and checked in with HCF Departure climbing through ≈ 1,400ft and into IMC. HCF responded “Climb and maintain 16,000ft” and advised moderate to extreme precipitation all quadrants and any weather deviations were approved. I noticed our airspeed holding just below max Vfe, ≈ 178KTS, selected WXR on the EFIS Control Panel, and then adjusted the altitude in the altitude window on the MCP. At this point we were climbing through 2,000ft, and I noticed our pitch slowly decreasing, but still maintaining a positive pitch angle. The following happened within 10-15 seconds. The Captain announced “Flaps 5”

and I heard “Don’t Sink” at the same time. The pitch angle decreased further towards a 00 pitch angle and our airspeed increased rapidly through the current Vfe limit.

At this point I knew the Captain was having difficulty with airspeed control and I noticed our pitch turn to a negative pitch angle. I queried the Captain on what was happening. I couldn’t be certain what the Captain was dealing with, since I saw no windshear indications and heard no immediate response from the Captain after my query. I wasn’t sure if there was an instrumentation error on my flight instrument displays and was confused about how he was responding to the increase in airspeed and the aircraft pitch attitude. Very shortly after calling “Flaps 5”, the Captain announced “Flaps 1”. I selected Flaps 1 and noticed our airspeed continue to increase as the yoke moved forward, pitching the nose down and the thrust stayed at a climb power setting with the Captain overriding the thrust levers slightly. I glanced over to cross-check the Captain’s PFD and his handling. Instantly after looking over, I sensed cloud movement out the forward window, indicating a cloud breakout. I instantly recognized the severity of our situation, looked down and noticed our airspeed 20-30 knots past the Vfe limit, with the altimeter falling, and the pitch around -8 degrees to -10 degrees nose down. I announced “Pull Up, Pull Up, Pull Up, Pull Up” many times as the GPWS annunciated. The Captain then brought the yoke aft, increasing our pitch angle, pulled the thrust to idle, then as the aircraft began a positive pitch trend, the Captain then increased thrust to maximum, and called “Flaps Up” performing an escape maneuver. In the same moment, I checked the speed brakes and heard “TERRAIN, TERRAIN, PULL UP, PULL UP” as our descent stopped and reversed trend around 800ft on the radar altimeter. Our pitch increased to over 20 degrees nose up and our airspeed trend reversed and then held at around 230kts as our Vfe limit went to the Flaps Up normal limit.

The Captain returned to a normal climb attitude and power setting and called for the After Takeoff Checklist and engaged the autopilot. We continued to maneuver around several large weather cells as we climbed up to cruise and prepared to enter Oceanic airspace. I thought the flight was OK to continue to SFO since the aircraft gave no indication of a malfunction and I thought the situation was due to the severity of the weather around the Hawaiian Islands.

Flight Crew Debrief Narrative: Once we got around the weather and up to cruise, we debriefed the departure and event. The Captain said he never announced Flaps 15, but asked for Flaps 5 twice, indicating a miscommunication on our flap retraction. The Captain said he was focused on the flap setting and was looking at our EICAS waiting for a flap malfunction to appear and was unaware of our pitch attitude until I queried him. The Captain said he did pitch forward, but didn’t think he pitched forward enough to cause such a dramatic pitch change and concluded we must have hit windshear or a downdraft. Neither of us heard or witnessed the Predictive or Reactive windshear warnings but we did hear the GPWS cautions and warnings. Neither of us witnessed airspeed trend or VSI indications of a windshear event.