CIVIL AVIATION AUTHORITY OF VIETNAM

FINAL REPORT[1]
INVESTIGATION RESULT OF SERIOUS INCIDENT ON 29/12/2018 AT CAM RANH INTERNATIONAL AIRPORT

Hanoi, March 2019

[1] This report was implimented based on the sub Convention 13 of International Civil Aviation Organization and decree 75/2007/ND-CP in aircraft incident and accident investigation.

TABLE OF CONTENT

I. Incident information

1.1 General information

- Flight number: VJ689;
- Date/time of incident: 25/12/2018;
- Location of Incident: Cam Ranh International Airport;
- Aircraft Operator: VietJet Aviation Joint Stock Company;
- Type of operation: Commercial air transport;
- Departure: Cam Ranh International Airport;
- Arrival: Tan Son Nhat International Airport;
- A/C type: A320;
- A/C Registration: VN-A695.

1.2 History of Flight

Based on data analysis of the flight data recorder (see Appendix I), the cockpit voice recorder, and the recording of conversations between ATC and flight crews (see Appendix II) and results of interviews with the flight crew, specifically as follows:

- The A/C take-off from Cam Ranh International Airport at 11:16:25 (UTC).

- At 11:19:20, at an altitude of 6700ft (pressure altitude), GREEN system hydraulic pressure began to gradually decrease. At an altitude of 8000ft, an ECAM warning appeared: "GREEN HYDRAULIC LOW PRESSURE" and a MASTER CAUTION warning appeared.

- Flight Crews makes the decision Air return to CXR airport.

- At 11:50:05, the aircraft touched down and landed at the new runway which was not yet in operation.

1.3 Damage to aircraft and other damages

The incident did not damage to aircraft and people.

1.4 Flight Crew information

1.4.1 Captain

+ Year of Birth: 1963;
+ Total flight hours/ on A320: 10674 hours/ 4908 hours (until 25/12/2018);
+ Expiry dates of licenses and competency:
    - License Expiry: 31/08/2022;
    - A320/321 Aircraft Type Competency Expiry: 31/07/2019;
    - Medical Certificate Expiry: 28/02/2019.
+ Training requirements ensure compliance with regulations.

1.4.2 First Officer

+ Yeah of Birth: 1997;
+ Total of flight hours/ on A320: 559 hours / 350 hours (until 25-Dec-2018);
+ Expiry dates of licenses and competency:
    - License Expiry: 31/03/2022;
    - A320/A321 A/C type Competency Expiry: 30/11/2019;
    - Medical Certificate: 31/03/2019.
+ Training requirements ensure compilance regulations.

1.5 Aircraft Information

- Aircraft Type: A320-214;
- MSN: 3646;
- Date of Manufacturer: 17/10/2008;
- Aircraft Registration: VN-A695;
- Airworthiness Certification Exp. Date: 28/04/2019.
- The technical status of the aircraft before the flight VJ689 with no damage which can affect to flight safety.

1.6 Meteorological Information

According to the Terminal Aerodrome Forecast (TAF) at CXR Airport, weather forecast from 00:00 to 24:00 on 25-Dec-2018, the weather conditions at the airport are good. Visibility is 10km, with wind speed is 10 knots, wind direction of 40^0. The cloud covers 3/8 of the sky at an altitude of 1300ft above ground level.

242337Z TAF VVCR 242300Z 2500/2524 04010KT 9999 SCT013=

According to the Meteorological Aerodrome Report (METAR) at CXR Airport10:00 local time, the weather is good, with visibility of 10km. Wind speed is 8 knots from the direction of 30^0, varying between 70^0 tới 360^0. Few clouds were observed at an altitude of 1700ft above ground level, with a temperature of 31^0C, a dew point temperature of 31^0C, and atmospheric pressure at the airport of 1012 mb.

250301Z METAR VVCR 250300Z 03008KT 360V070 9999 FEW017 31/23 Q1012 NOSIG=

1.7 Runway and Navigation Information

Runway CHC02 is approved for the precision approach system CAT I, with a length of 3048 meters, width of 45.72 meters, and a north direction of 18^0. It is equipped with an Instrument Landing System (ILS), VHF Omnidirectional Range (VOR), Distance Measuring Equipment (DME), and Non-Directional Beacon (NDB), and has runway edge lights.

1.8 Flight Recorder

The Aircraft VN-A695 is equipped with a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR). Following an incident, both FDR and CVR

equipment were downloaded and sent to the Civil Aviation Authority of Vietnam (CAAV) for decoding and analysis in good technical condition (See Appendix II for more details).

1.9 Damage to Aircraft and maintenance information

Following the incident, VietJet Engineering Team inspected the aircraft according to the AMM (Aircraft Maintenance Manual). They found that the swivel joint at the flexible hose connecting to the right-hand main landing gear (RH MLG) door actuator was broken, leading to a hydraulic leak. This resulted in a loss of pressure in the green hydraulic system.

The Civil Aviation Authority of Vietnam (CAAV) reviewed all maintenance records, maintenance requests, and maintenance documentation related to the swivel joint, and found that Vietjet Air had fully complied with all requirements from the Airbus aircraft manufacturer.

II. Analysis

- After the incident, VietJet suspended the Flight crews operating flight VJ689 immediately while the Civil Aviation Authority of Vietnam (CAAV) investigated to determine the cause of the incident.

- Based on the incident information, CAAV assessed this as a serious incident (Class B) and proceeded with the following investigation steps:

- Establishment of an incident investigation team according to decision No. 2493/QĐ-CHK on 25/12/2018, approved by the Director General of CAAV.

- Conducted interviews with the Flight crews immediately after the incident.

- Collected communication record between air traffic controllers (ATC) and the crew.

- Collected flight records, training records, and flight hour logs of the crew.

- Analyzed data from the Flight Data Recorder and Cockpit Voice Recorder.

- Assigned a flight supervisor to observe the runway warning signs (observed from the cockpit of the aircraft landing at CXR Airport) and to observe the verification of the ability to detect the wrong runway when landing at CXR Airport (observed from the air traffic control tower at CXR Airport).

- The results of the information gathering, evaluation process, and analysis of the incident by the Investigator during each phase of flight VJ689 are as follows:

2.1 Takeoff and Climb Phase

Flight VJ689 (A/C A320, registration number VN-A695) from CXR-SGN take-off at 11:16 AM on 25-Dec-2018, with the take-off conducted by the Captain and until reaching an altitude of 8000ft, a MASTER CAUTION warning appeared, and then an ECAM warning appeared: “GREEN HYDRAULIC LOW PRESSURE” (loss of pressure in the green hydraulic system). The crew performed the abnormal procedure and then decided to return to CXR for landing.

The crew contacted the air traffic control tower (ATC) at CXR Airport to

report the aircraft's status and request permission to return for landing at CXR Airport.

The crew requested to maintain flight level FL120 (altitude 12,000 feet) and requested radar vectoring to the Cam Ranh VOR (CRA). The air traffic controller agreed to the crew's request. The crew then requested direct routing to the CXR VOR and requested to maintain flight level FL130 (13,000 feet). The air traffic controller issued clearance for the crew to proceed to the CXR VOR and maintain flight level FL130. The aircraft continued to hold at the CXR VOR to assess the situation and prepare for the landing approach procedure.

2.2 Descent and Landing Approach Phase

Information from the cockpit voice recorder data (CVR) indicated that the crew did not complete all steps of the standard landing preparation procedure as specified in the current Standard Operating Procedures (SOP) of VJC. Specifically, the crew did not conduct a briefing regarding the approach method, nor exchange information about the airport and runway before descending for landing.

At 11:36 AM, the crew requested to descend to 5000ft heading 110, which was approved by the air traffic controller.

At 11:43 AM, the crew reported their position to the air traffic controller, stating they were approaching CR021. The air traffic controller reiterated clearance for approaching the ILS Z RWY02 and requested the crew to report when established on the final approach segment. The crew acknowledged receipt and complied with the air traffic controller's instructions.

At 11:45 AM, the approach controller (APP) issued instructions requesting the crew to contact the tower controller at Cam Ranh Airport (TWR). The crew acknowledged receipt and complied with the approach controller's instructions.

According to Flight Data Recorder data and Airfase data, it showed that the crew did not follow any specific landing approach method (Instrument Flight Rules (IFR) or Visual Flight Rules (VFR)). Specifically, during the intermediate approach phase (IF), before turning onto the final approach segment, the crew armed the approach mode but did not activate the ILS approach, resulting in the LOC and ALT G/S signals appearing on the Primary Flight Display (PFD) for only 2 seconds. Subsequently, the data showed that the crew switched to heading mode and selected a non-automatic altitude to initiate descent (Open Descent). During the final approach segment, the crew disengaged autopilot 1 (AP1) at 04:47:33 when the aircraft was above 2200ft to descend (as the aircraft was higher than the standard glide path at an altitude of 2268ft).

At altitudes of 1873ft and 1097ftt, the crew successively disengaged flight director 1 and 2. At this point, the localizer deviation was -2.35 dots.

At 115ft altitude, an audible warning sounded indicating the aircraft's altitude was below the required glide path of the ILS Z R02 approach (GLIDESLOPE, GLIDESLOPE), with a deviation of -2.8 dots.

At 11:49 AM, the aircraft was at 100ft altitude with a localizer deviation of -

4.1 dots.

At 11:50 AM, the aircraft touched down and landed on the runway that was not in use (to the right of runway 02).

According to cockpit voice recorder data, it showed that when the aircraft was preparing to flare at approximately 20ft altitude, the crew realized they had landed on the unused runway but did not initiate a go-around procedure as required, although it was still possible to execute a go-around (prior to reverse thrust deployment).

III. Conclusion

3.1 For the Flight Crew

a) Data from the aircraft parameter recording device showed that the aircraft loss pressure in the green hydraulic system (GREEN HYDRAULIC LOW PRESSURE); however, it was only a MASTER CAUTION warning, not yet a MASTER WARNING. The captain's assessment of the situation and decision to return to Cam Ranh Airport for landing indicates inadequate situation assessment by the captain (as with the "Green Hydraulic Low Pressure" malfunction, the aircraft did not require an emergency landing and could have continued to Tan Son Nhat Airport for landing, where conditions regarding equipment, and maintenance personnel were sufficient to troubleshoot A/C).

b) The flight crew did not follow the correct landing approach procedure in Vietjet's approved Standard Operating Procedures:

+ They did not exchange information (briefing) about Cam Ranh Airport and the runway during the landing approach.

+ The flight crew did not comply with the clearances of ATC: They did not perform the Instrument Landing System (ILS) when landing as clearance from ATC.

+ The flight crew did not follow any specific landing approach method (either Instrument Flight Rules (IFR) or Visual Flight Rules (VFR)).

c) The flight crew disregarded warning signs such as the runway landing prohibition sign and decided to land despite not having PAPI lights.

d) Resource management and crew coordination (CRM) to ensure flight safety were not good.

e) The captain did not proactively provide sufficient information to the investigation team.

3.2 For Air Traffic Control (ATC)

a) The air traffic controller in charge of the approach did not receive any report from the flight crew regarding the establishment of ILS. However, still transferred to the tower controller without questioning the flight crew about the ILS establishment.

b) The air traffic controller did not detect the aircraft landing incorrect on the runway until the aircraft touched down (despite visual observation and the use of binoculars to monitor the aircraft during landing approach).

IV. Safety Recommendations

4.1. Vietjet Aviation Joint Stock Company

a) Regarding the documentation system:

- Supplement and verify the procedure for transitioning from Instrument Flight Rules (IFR) to Visual Flight Rules (VFR).

- Review and update standard operating procedures documentation, including content requiring pilots to cross-check information about the designated runway after receiving instructions from air traffic control (ATC), specifically requiring the pilot monitoring to repeat the designated runway instructions with the pilot flying and with air traffic control personnel.

b) For the Flight Crew:

- Implement a retraining program for the crew of flight VJ689, focusing on the following areas:

+ Re-training on all standard operating procedures (SOP) according to Vietjet's approved documentation.

+ Training on crew resource management (CRM) capabilities.

+ Re-training on Flight Path Management, Manual Control and Automation.

+ Specifically for captains, training on Leader and Team Work, Problem Solving and Decision Making, Situation Awareness, Workload Management.

+ Re-training for the Flight crew on the A320/321 aircraft systems and warning levels (MASTER CAUTION, MASTER WARNING)... to ensure that the crew is competent in assessing technical situations and thereby ensuring confidence in making appropriate decisions.

+ Additional training on transitioning from Instrument Flight Rules (IFR) to Visual Flight Rules (VFR).

+ Supplementary training on ATPL knowledge related to safety regulations, runway markings, taxiing, and the aircraft's autopilot system.

- Conduct debriefing sessions and communicate the investigation findings to the entire flight crew and relevant personnel.

- Temporarily suspend the flight crew license for the captain of the flight until the following conditions are met:

+ Vietjet completes the re-training as required (based on the result of re-training report from Vietjet).

+ The captain must retake the competency and skill test conducted by the Civil Aviation Authority of Vietnam (CAAV) to regain certification.

4.2 Vietnam Air Traffic Management Corporation (VATM)

- Re-training for air traffic control (ATC) related to requests for accurate ILS establishment.

- Disseminate this incident to all air traffic controllers to prevent similar occurrences.

- Research, evaluate, and review the establishment of Ground Control appropriate to the current flight activities and the trend of flight operations growth to

reduce workload for Ground Control Watch Team, thus enhancing their ability to monitor flight activities.

- Review Operational Manuals and Contractual Documents between APP Cam Ranh and TWR Cam Ranh, modifying any inappropriate content regarding the Control Transfer Agreement between APP Cam Ranh and TWR Cam Ranh.

- Urgently invest in Primary and Secondary Surveillance Radar (PSR/SSR) systems at Cam Ranh Airport to enhance monitoring capability.

- Allocate, balance, and arrange the Air Traffic Control Watch Team reasonably. Based on the competency level of the Air Traffic Control Watch Team, flight operation status, and meteorological conditions, allocate the Air Traffic Control Watch Team appropriately to ensure experienced personnel are stationed effectively and safely during shifts.

4.3 Civil Aviation Authority of Vietnam - Airport Management Division

- Evaluate the information provision system, safety warning signs, and, if necessary, supplement solutions to prevent recurrence of incidents resulting from confusion in runway identification.

4.4 Civil Aviation Authority of Vietnam - Flight Safety Standards Division

- Monitor closely the preventive actions of Vietjet, Vietnam Air Traffic Management (VATM) as stated in this conclusion;

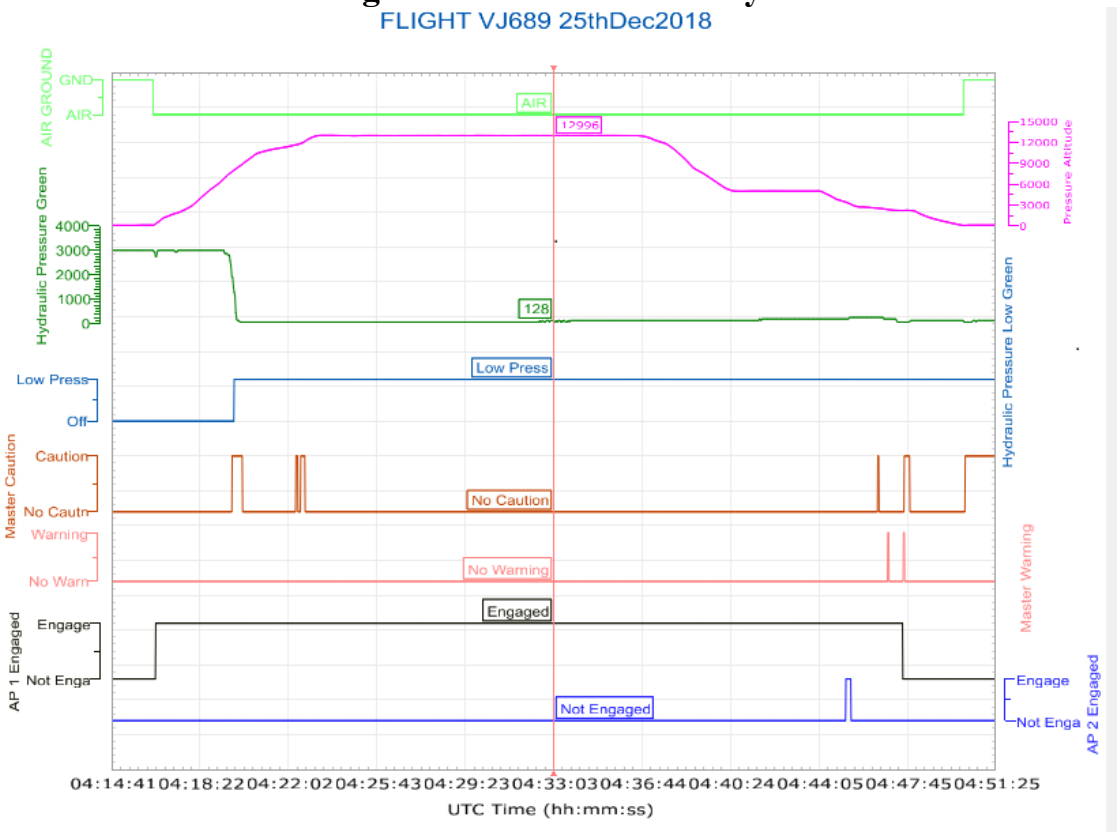
- Conduct special monitoring of Vietjet (completed by January 15, 2019);

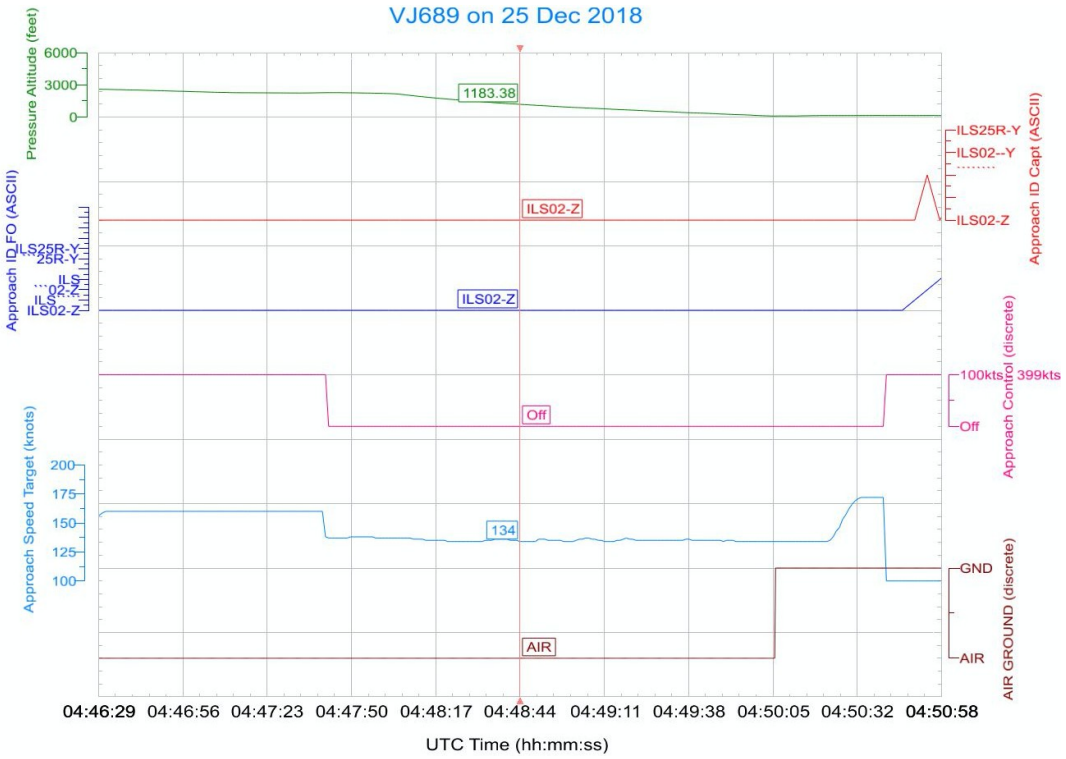
- Coordinate with CAAV inspector to handle violations regarding non-compliance with proper aircraft operation procedures by the flight crew.

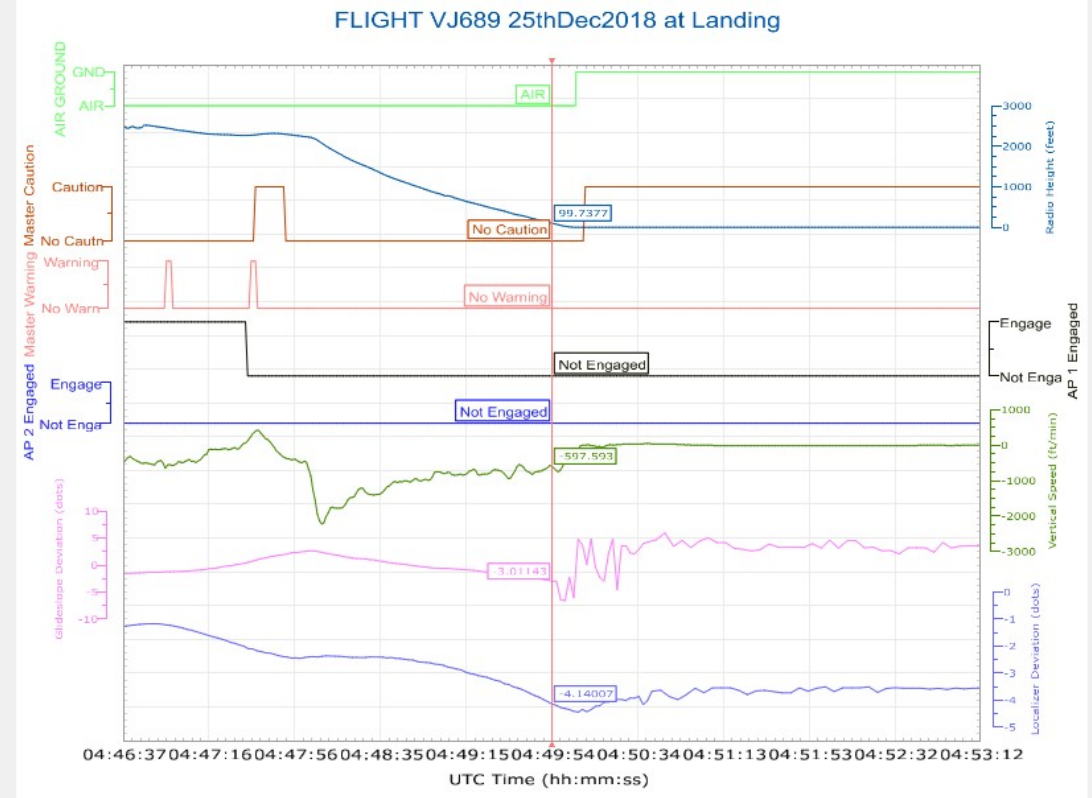
4.5 Civil Aviation Authority of Vietnam – Inspectorate

- CAAV Inspector will review and impose administrative penalties as prescribed for individuals involved in violations.

Appendix I
Flight Data Recorder Analysis






FLIGHT VJ689 25thDec2018 at Landing
AIR GROUND
GND
AIR
AIR
Master Caution
Caution
No Caution
No Caution
99.7377
Radio Height (feet)
3000
2000
1000
0
Master Warning
Warning
No Warn
No Warning
AP 2 Engaged
Engage
Not Enga
Not Engaged
Not Engaged
AP 1 Engaged
Engage
Not Enga
Glideslope Deviation (dots)
10
5
0
-5
-10
-597.593
Vertical Speed (ft/min)
1000
0
-1000
-2000
-3000
3.01143
Localizer Deviation (dots)
0
-1
-2
-3
-4
-5
-4.14007
04:46:37
04:47:16
04:47:56
04:48:35
04:49:15
04:49:54
04:50:34
04:51:13
04:51:53
04:52:32
04:53:12
UTC Time (hh:mm:ss)

Appendix II

The recording of communication between the air traffic controller and the flight crew

Thời gian	Cơ quan	Nội dung
04:19:04	APP	VJC689, identified, cancel restriction
	VJC689	Cancel restriction VJC689.
04:21:05	VJC689	VJC689 we have hydraulic.
04:21:11	VJC689	Control VJC689, request to maintain FL120 and radar vector to VOR, we are hydraulic problem.
04:21:32	APP	Say your intention.
04:21:35	VJC689	VJC689 request to maintain FL120, and request proceed back to CRA VOR.
	APP	VJC689, approved stop climb at FL120 and proceed CRA VOR.
04:21:53	APP	VJC689, do you need any priority or declared anything?
04:21:58	VJC689	VJC689: standby, request to direct CRA VOR
	APP	Approved, direct to CRA VOR
	VJC689	Direct to CRA VOR, maintain FL130.
	APP	Confirm maintain FL130?
	VJC689	Affirm
04:22:21	APP	Approved, VJC689 maintain FL130.
04:22:55	APP	VJC689 can you say again the reason?
	VJC689	We have recognized hydraulic failure
04:23:04	VJC689	Request to hold over VOR, FL130.
		Approved, FL130. Hold over CRA VOR. And how long can you expect?
04:23:15	APP	Can you expect how long?
	VJC689	Standby, I call you back. Give me about 10 minutes.
04:28:25	APP	VJC689 Any news, sir?
04:30:05	VJC689	Stand by sir we are continue holding sir
		Roger
04:36:00	VJC689	VJC689 request descend, we are ready for….
	APP	Do you want to make ILSZ R02 again?
04:36:18	APP	VJC689, CR APP, identified, now flight heading, correction descend to 5000ft, direct to CR025.
04:36:27	VJC689	Direct to CR025 and descend to 5000ft, VJC689
04:37:47	VJC689	VJC689 request heading 110
04:37:52	APP	VJC689 heading 110 approved and report when ready for approach
04:39:19	APP	VJC689 how long will you keep heading
04:39:25	VJC689	ready for right turn now, VJC689
	APP	VJC689 turn right to CR021, clear for ILSZ R02 report establish
	VJC689	Turn right and direct to CR021, clear for ILSZ R02, VJC689
04:39:43	APP	VJC689, do you need any assistance?
	VJC689	negative VJC689
	APP	roger
04:43:05	VJC689	VJC689, approached CR021
	APP	VJC689, clear for ILSZ R02, report establish
	VJC689	cleared ILSZ R02, report establish, VJC689
04:45:49	APP	VJC689, contact TWR 118.2 goodbye
	VJC689	VJC689, contact TWR 118.2

Appendix III
The cockpit voice recorder Analysis

SPEAKER	CVR	UTC	FLIGHT CREW CONVERSATIONS (INTERPHONE & P.A)	RADIO COMMUNICATIONS
P1	1:31:34.000	4:34:43.000	I inform you that due to technical problem, which I believe you will agree with me that I need to report again back to our original station Cam Ranh for our materials to look at	
P1	1:32:24.000	4:35:33.000	Approach checklist	
P2	1:32:43.000	4:35:52.000	Approach checklist completed	
P1	1:32:45.000	4:35:54.000	Okay, check	
P2	1:32:46.000	4:35:55.000	Request to descent to 5000ft	
P1	1:32:50.000	4:35:59.000	Yeah, ok	
P2	1:33:10.000	4:36:19.000		689 Cam Ranh approach indentify now fly descent to 5000ft directly to Romeo 025
ATC	1:33:19.000	4:36:28.000		Okay direct to Romeo 025 and descent to 5000 VJ689
P2	1:34:44.000	4:37:53.000		689 heading 110 approved
P1	1:34:47.000	4:37:56.000	Ready	
P1	1:35:02.000	4:38:11.000	So we have no auto-brake but one braking, green hydraulic slum slow so I will configure earlier	
P1	1:35:23.000	4:38:32.000	QNH	
P2	1:35:24.000	4:38:33.000	1012	
P1	1:35:25.000	4:38:34.000		
P2	1:35:26.000	4:38:35.000	12	
P1	1:35:54.000	4:39:03.000	I am not descending man because we (*) the hydraulic just like that I would like to go back by the way	
ATC	1:36:10.000	4:39:19.000		689, How long will you come here for descending?
P1	1:36:15.000	4:39:24.000	Ready for right turn now	
P2	1:36:16.000	4:39:25.000		Ready for right turn now VJ689
ATC	1:36:19.000	4:39:28.000		689 turn right to charlie romeo 021, clear for ILS 02
P2	1:36:24.000	4:39:33.000		Turn right and go to charlie romeo 021 VJ689
ATC	1:36:34.000	4:39:43.000		VJ689 do you need any assistance
P1	1:36:37.000	4:39:46.000	Ah, negative sir	
P2	1:36:40.000	4:39:49.000		Negative VJ689
ATC	1:36:41.000	4:39:50.000		Roger
P2	1:37:22.000	4:40:31.000		Air China 454 descend to level 110

ATC	1:37:26.000	4:40:35.000		Confirm 453 descend to level 110
P2	1:37:30.000	4:40:39.000		Confirm
ATC	1:37:30.500	4:40:39.500		Check
P2	1:37:31.000	4:40:40.000		Air China 453 110 and report speed
ATC	1:37:35.000	4:40:44.000		(*) descent level 110
P2	1:37:40.000	4:40:49.000		Confirm speed 250
ATC	1:37:42.000	4:40:51.000		Stay at 300
P2	1:37:46.000	4:40:55.000		Roger reduce to 250
ATC	1:37:47.000	4:40:56.000		Roger (*)
P1	1:37:59.000	4:41:08.000	We have no auto-brake, we have no normal brake so we have only alternate brake.	
P2	1:38:05.000	4:41:14.000		Ok
ATC	1:38:08.000	4:41:17.000		781 Cam Ranh approach
ATC	1:38:11.000	4:41:20.000		781 (*) 10km 017 (*)
P1	1:38:22.000	4:41:31.000	Flap 1	
P1	1:38:26.000	4:41:35.000	10kts	
P1	1:39:03.000	4:42:12.000	Does she speak dialect?	
P1	1:39:05.000	4:42:14.000	Do you speak Vietnamese	
P2	1:39:06.000	4:42:15.000	Yes	
P1	1:39:09.000	4:42:18.000	Do you speak dialect in Vietnamese?	
P2	1:39:11.000	4:42:20.000	Yes, I'm Vietnamese	
P1	1:39:14.000	4:42:23.000	We're just doing a normal return, ok. They're preparing but	
P1	1:40:53.000	4:44:02.000	Can you call him	
P1	1:40:55.000	4:44:04.000	Flap 2	
P2	1:40:57.000	4:44:06.000	Check	
P2	1:41:03.000	4:44:12.000		Air China 453 descent to 7000ft
ATC	1:41:08.000	4:44:17.000		Descent to 7000ft Air China 453
P1	1:41:12.000	4:44:21.000	You prepare the cabin but we not on emergency yet ok. We are not on emergency, we're just comming back.	
P2	1:41:24.000	4:44:33.000		VJ731 descent to 5000, clear for ILS to runway 02 (*)
ATC	1:41:33.000	4:44:42.000		Descend to 5000 clear for ils localizer reduce to minimum approach speed VJ731
P1	1:41:42.000	4:44:51.000	Ok we do know to the (*) but if we do landing gear preparing	
P2	1:41:47.000	4:44:56.000	So we don't need	
P1	1:41:48.000	4:44:57.000	We don't need ok	
P1	1:42:05.000	4:45:14.000	cat 3 figure not recap 2 alright	
P2	1:42:07.000	4:45:16.000	Yes sir	

P1	1:42:17.000	4:45:26.000	I will intercept	
P1	1:42:19.000	4:45:28.000	heading	
P1	1:42:22.000	4:45:31.000	I will go by need selected	
ATC	1:42:41.000	4:45:50.000		VJ689 contact tower 1182 goodbye
P2	1:42:44.000	4:45:53.000		1182 thank you (*) VJ689
ATC	1:42:59.000	4:46:08.000		VJ698 correction 689 Cam Ranh tower update wind 060 degrees 11kts runway 02 clear to land
P2	1:43:09.000	4:46:18.000		Clear to land runway 02 VJ689
P1	1:43:15.000	4:46:24.000	Get down	
P1	1:43:20.000	4:46:29.000	yeah we're close	
P1	1:43:24.000	4:46:33.000	Flight control speed regular check	
P2	1:43:26.000	4:46:35.000	Check	
P1	1:43:33.000	4:46:42.000	OK no landing gear	
P2	1:43:35.000	4:46:44.000	no landing gear	
	1:43:48.000	4:46:57.000		Master Warning
P1	1:43:50.000	4:46:59.000	Ok gear down now	
P2	1:43:51.000	4:47:00.000	OK sir	
P2	1:43:55.000	4:47:04.000	1	
P2	1:43:56.000	4:47:05.000	2	
P2	1:43:58.000	4:47:07.000	3	
P1	1:43:59.000	4:47:08.000	Ok go after (*)	
P2	1:44:00.000	4:47:09.000	OK	
P1	1:44:18.000	4:47:27.000	Ok landing gear down..	
P2	1:44:19.000	4:47:28.000	OK	
P2	1:44:20.000	4:47:29.000	speed check	
P2	1:44:22.000	4:47:31.000	Flaps 3	
P1	1:44:22.800	4:47:31.800	Flaps 4	
P2	1:44:23.000	4:47:32.000	speed check flaps 4	
	1:44:26:112	4:47:34.000		AP Disconnect
P1	1:44:35.000	4:47:44.000	4100	
P2	1:44:41.000	4:47:50.000	ok 4100 landing gear not closed (*)	
P2	1:44:50.000	4:47:59.000	landing gear	
P1	1:44:51.000	4:48:00.000	Check	
P2	1:44:53.000	4:48:02.000	ok good, landing checklist sir	
P1	1:44:54.000	4:48:03.000	Ok	
P2	1:44:59.000	4:48:08.000	Cabin crew this is for landing, thank you	
P2	1:45:17.000	4:48:26.000	Cabin crew	
P1	1:45:17.700	4:48:26.700	Adviced	
P2	1:45:18.000	4:48:27.000	Autothrust	
P1	1:45:19.000	4:48:28.000	SPEED	
P2	1:45:19.700	4:48:28.700	Autobrake	
P1	1:45:21.000	4:48:30.000	Autobrake is as rqrd	
P2	1:45:24.000	4:48:33.000	ECAM memo	

P1	1:45:27.000	4:48:36.000	ldg no blue	
P2	1:45:28.000	4:48:37.000	Ok landing checklist completed	
P1	1:45:37.000	4:48:46.000	(*)	
P1	1:46:03.000	4:49:12.000	So we still have reverser right	
P2	1:46:05.000	4:49:14.000	Yes sir	
ATC	1:46:09.000	4:49:18.000		VJ689 confirm on localizer on run 02
P2	1:46:13.000	4:49:22.000		Confirm VJ689
ATC	1:46:23.000	4:49:32.000		VJ731 contact tower 1182 goodbye
P2	1:46:26.000	4:49:35.000		confirm contact tower 1182 VJ731 thank you
P2	1:46:32.000	4:49:41.000		VJ689 request QNH
ATC	1:46:34.000	4:49:43.000		(*) VJ731 ILS runway 02
ATC	1:46:37.000	4:49:46.000		VJ731 command power continue approaching runway 02
P2	1:46:42.000	4:49:51.000		Continue runway 02 VJ731
	1:46:44.000	4:49:53.000	Glideslope, glideslope	
P2	1:46:46.000	4:49:55.000	VJ689 request QNH	
ATC	1:46:48.000	4:49:57.000	QNH 1010	
	1:46:51.000	4:50:00.000	40	
	1:46:52.000	4:50:01.000	30	
	1:46:53.000	4:50:02.000	20	
	1:46:53.700	4:50:02.700	Retard	
	1:46:54.000	4:50:03.000	Retard	
	1:46:55.800	4:50:04.800	Retard	
P2	1:47:01.000	4:50:10.000	Reverse on	
P1	1:47:02.000	4:50:11.000	Sh$t wrong runway	
ATC	1:47:30.000	4:50:39.000		VJ689 Hold position
P2	1:47:32.000	4:50:41.000		Hold position VJ689
ATC	1:48:01.000	4:51:10.000		VJ731 go around
ATC	1:48:18.000	4:51:27.000		đường băng 02 vẫn đang trống này VJ731
ATC	1:49:30.000	4:52:39.000		VJ616 maintain flight level 130 and hold over charlie romeo 021 due to we have problem
ATC	1:50:50.000	4:53:59.000		stand by for futher information
?	1:50:52.000	4:54:01.000		and the reason for that mam
ATC	1:50:56.000	4:54:05.000		we have trafic land wrong runway
ATC	1:51:01.000	4:54:10.000		VJ731 continue taxi (*) charlie 4 32 stand number 14
?	1:51:07.000	4:54:16.000		5574 parking 14 VJ731
ATC	1:51:38.000	4:54:47.000		VJ689 do you request any assistance
P2	1:51:43.000	4:54:52.000		negative request for taxi
ATC	1:51:45.000	4:54:54.000		VJ689 copy for standby
ATC	1:52:21.000	4:55:30.000		VJ616 come and approach
ATC	1:52:27.000	4:55:36.000		how long can you hold

?	1:52:29.000	4:55:38.000		30 minutes VJ616
ATC	1:52:32.000	4:55:41.000		Copy 30 minutes
P2	1:56:35.000	4:59:44.000		standing by for futher instruction VJ689
ATC	1:56:38.000	4:59:47.000		VJ689 copy
ATC	1:59:48.000	5:02:57.000		VJ689 thả khách xuống
P2	1:59:51.000	5:03:00.000		ok
P2	1:59:52.000	5:03:01.000	we're waiting for outside	
?	2:01:00.000	5:04:09.000		ground to cockpit, can we access the stair sir
P1	2:01:13.000	5:04:22.000		yeah go ahead
?	2:01:24.000	5:04:33.000		the stair is coming sir
?	2:01:33.000	5:04:42.000		please turn off the light
?	2:02:30.000	5:05:39.000		taxi light and uh ok the light is off
P1	2:02:52.000	5:06:01.000	we were distracted the gear and the glideslope	
P2	2:03:01.000	5:06:10.000	but we established before right, we establish localizer before	
P1	2:03:11.000	5:06:20.000	because the glideslope start giving me (*)	