



## **FINAL REPORT**

**Incident of SriLankan Airlines Flight UL606, Airbus Industries A330-343, bearing registration 4R-ALR from Bandaranaike International Airport, Katunayake, Sri Lanka to Kingsford Smith International Airport, Sydney, Australia at FL390 over Indian Ocean at coordinates -7.823044,101.449898 on 21<sup>st</sup> March 2021**

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**List of Abbreviations**

AP	-	Auto Pilot
ATPL	-	Airline Transport Pilot Licence
BEA	-	Bureau of Enquiry and Analysis for Civil Aviation Safety
CAASL	-	Civil Aviation Authority of Sri Lanka
CMB	-	Colombo
CP	-	Cruise Pilot
DGCA	-	Director General of Civil Aviation
DAR	-	Digital Access Recorder
DFDR	-	Digital Flight Data Recorder
ECAM	-	Electronic Centralized Aircraft Monitor
FC	-	Flight Cycle
FCU	-	Flight Control Unit
FCOM	-	Flight Crew Operating Manual
FDA	-	Flight Data Analysis
FDM	-	Flight Data Monitoring
FH	-	Flight Hours
FL	-	Flight Level
FMGEC	-	Flight Management Guidance and Envelope Computer
F/O	-	First Officer
FOM	-	Flight Operation Manual
Ft	-	Feet
hrs	-	hours
JATSC	-	Jakarta Air Traffic Service Center
MET	-	Meteorological / meteorology
MOR	-	Mandatory Occurrence Report
MSN	-	Manufacturer Serial Number
NTSC	-	National Transportation Safety Committee
P1	-	Captain or Commander
PF	-	Pilot Flying
PIC	-	Pilot in Command
PM	-	Pilot Monitoring
SLA	-	SriLankan Airlines
SMS	-	Safety Management System
SOP	-	Standard Operating Procedures
UTC	-	Coordinated Universal Time
VCBI	-	Bandaranaike International Airport, Katunayake, Sri Lanka
YSSY	-	Kingsford Smith International Airport, Sydney, Australia



**Incident of SriLankan Airlines Flight UL606, Airbus Industries A330-343, bearing registration 4R-ALR from Bandaranaike International Airport, Katunayake, Sri Lanka to Kingsford Smith International Airport, Sydney, Australia at FL390 over Indian Ocean at coordinates -7.823044, 101.449898 on 21st March 2021**

## 1. Introduction

The incident was notified to the Civil Aviation Authority of Sri Lanka by Flight Operations of Sri Lankan Airlines on 02<sup>nd</sup> April 2021, via email together with the Mandatory Occurrence Report (MOR). The incident was not notified through a MOR during the stipulated time. As per the Airline, the incident on level bust or the altitude deviation was observed on 02<sup>nd</sup> April 2021, during the FDA analysis done by the Flight Operations Section.

On receiving the MOR, the three flight crew members were immediately grounded as per the powers vested upon the DGCA. The DGCA appointed a team to investigate this incident with a view to prevent the recurrence of similar events in future.

The investigation team notified the incident to Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA- France), being the State of Manufacturer and the State of Design and requested assistance based on the "Declaration of Intend" between CAASL and BEA-France, to obtain DAR analysis in order to continue the investigation, as the DFDR data was not available due to the late submission of the MOR.

Accordingly, they appointed an investigator as an accredited representative, and an adviser from Airbus to assist the investigation.

### 1.1 Synopsis

On March 21<sup>st</sup> 2021, SriLankan Airlines, Flight UL 606 was scheduled to depart from Bandaranaike International Airport, Katunayake, Sri Lanka, (VCBI) at 2330 UTC, to Kingsford Smith International Airport, Sydney, Australia (YSSY). The actual time of departure was at 2350 UTC.

This flight was a three crew operation with a Captain, Cruise Pilot and a First Officer. There were nine passengers and seven crew on board. The weather conditions and visibility was good at the time of departure from VCBI, and the flight commenced with no defects.

The first segment was operated by the Captain and the Cruise Pilot. The second segment where the subject incident occurred was operated by the Cruise Pilot and the First Officer. The third segment was operated by the Captain and the Cruise Pilot.

After approximately 3 hrs, the operating crew of the first segment had changed seats for rest purposes. For the second segment of the flight, the F/O (Cruise pilot) took over the left seat as the PM, while the relieving F/O seated on the right hand seat and acted as the PF. The PIC had gone to the cabin to take his rest.

At FL 390, at about 0310 UTC, the aircraft had experienced Autopilot disconnections followed by an altitude loss of about 1540ft at a rate of descent of 5700ft/min over Jakarta FIR.

The flight crew had not reported this incident to the Flight Safety Section of the Airline. The incident was detected by the Flight Safety Section during the routing FDA monitoring. Subsequently MORs were filed by the operating Flight Crew, and submitted to the CAASL through the Airline on 2<sup>nd</sup> April 2021.



## 1.2 Objective

The objective of this investigation is to prevent the recurrence of similar incidents in future.

## 2. Factual Information

Operator	:	SriLankan Airlines Ltd Airline Centre Bandaranaike International Airport Katunayake Sri Lanka
Registered Owner	:	HKAC Leasing Ltd
Aircraft Make and Model	:	Airbus, A330 -343 (MSN 1689)
Aircraft Nationality	:	Sri Lanka (4R)
Aircraft Registration	:	4R-ALR
Place of Incident	:	at Flight level 390 over Jakarta FIR
Date and Time	:	21 <sup>st</sup> March 2021 at 03:10 (UTC); 08:40hrs (Local time)
Local time zone	:	+ 0530hrs

### 2.1 History of Flight

SriLankan Airlines aircraft, Airbus A330 bearing the registration 4R-ALR was scheduled on 21<sup>st</sup> March 2021, for Colombo (CMB) – Sydney (SYD) - Colombo (CMB) flight. Flight UL606 was scheduled to depart on 21<sup>st</sup> March 2021 at 2330 UTC.

The Pilot in Command (PIC) and the Cruise Pilot (C/P) flew the first segment of the flight and, it was uneventful.

During cruise at the beginning of the second segment, the PIC had gone back to take his rest. The C/P moved to the Left Seat, then remains as Pilot Monitoring (PM) and the First Officer (F/O) seated on the right seat then acted as Pilot Flying (PF).

The aircraft was in cruise at FL390. Auto Pilot 2 and both FDs were engaged in ALT CRZ/NAV mode. Auto Thrust was in active mode and Mach was managed at M 0.81. At about 03:10 UTC, AP 2 had disconnected with the master warning sounding. The aircraft, started to descend below the selected FCU altitude. A few seconds later AP 1 was engaged by the CP from the left seat. The aircraft was still in a descent. Subsequently, AP 1 also disengaged and the master warning was triggered. Few seconds later AP 2 engaged by the F/O (PF). The aircraft lost altitude and descended approx. 1540ft at a rate of 5700ft/min on the VSI (Vertical Speed Indicator). Then AP2 was re-engaged by the cruise pilot in open climb mode and the aircraft commenced climb to FL 390.

**2.2 Injuries to Persons: Nil****2.3 Damage to Aircraft: Nil****2.4 Other Damages: Nil****2.5 Personnel Information:****2.5.1 Flight Crew - Pilot-In-Command**

Licence : Valid ATPL (ATPL/A/728) issued by the DGCA Sri Lanka; valid till 21<sup>st</sup> Aug 2021.

Age : 34 years, Male

Aircraft Ratings : A320 issued on 13<sup>th</sup> June 2017; A330 issued on 24<sup>th</sup> April 2014 (24<sup>th</sup> Jan 2019)

Flying Experience : Total: 8,251 hrs.  
Total P1: 2,860 hrs.  
Total P1 on A330: 1,538 hrs.

**2.5.2 Flight Crew - First Officer (Cruise Pilot)**

Licence : Valid ATPL (ATPL/A/785) issued by the DGCA Sri Lanka; valid for Life time.  
Medical validity -06<sup>th</sup> April 2022

Age : 31 years, Male

Aircraft Ratings : A320 issued on 19<sup>th</sup> April 2016  
A330 issued on 26<sup>th</sup> May 2017  
PIC A330 Rating, restricted to Operate during Cruise phase on 01<sup>st</sup> August 2019

Flying Experience : Total: 4,961 HRS  
Total P2: 2,080 HRS  
Total P1 (under supervision): 2,400 HRS  
Total on A330: 880 HRS

**2.5.3 Flight Crew - First Officer**

Licence : Valid ATPL (ATPL/A/883) issued by the DGCA Sri Lanka; valid till 07<sup>th</sup> Oct 2021

Age : 32 years, Male

Aircraft Ratings : A320 issued on 09<sup>th</sup> August 2017  
A330 issued on 09<sup>th</sup> October 2020

Flying Experience : Total: 2,460 hrs.



Total P2: 2,278 hrs.

Total P2 on A330:184 hrs.

## 2.6 Aircraft Information

Type and Model : Airbus A330-343

Manufacturer's Serial No. : 1689

Certificate of Registration : No 287, Registered in Sri Lanka Civil Aircraft Register

Certificate of Airworthiness : No. 241 Valid till 28<sup>th</sup> Dec 2021

Total Airframe Hours : 23272.03 FH/ 4216 FC (as at 21<sup>st</sup> March 2021)

Engines : 02 numbers, RR Trent 772B-60

Engine	Serial Number	Total Cycles	Total Hours
No. 1	42670	4216	23272.08
No. 2	41618	6139	32722.98

Weight and Balance : The aircraft was properly loaded.

**2.7 Meteorological Information:** The prevailing weather conditions at the time of the incident were good. The MET forecasts were available to the crew through the weather reports.

**2.8 Aids to Navigation:** Not applicable

**2.9 Communication:** Flight crew stated that they had communicated with Jakarta Air Traffic Service Center (JATSC) after the incident to inform of the altitude deviation via HF transmission. The investigation team requested the ATC transcript from the JATSC through the National Transportation Safety Committee (NTSC), Republic of Indonesia. However, the communication during the time of the incident was not recorded.

**2.10 Aerodrome Information:** Not applicable

**2.11 Digital Access Recorders:** The recordings of Digital Flight Data Recorder and Cockpit Voice Recorder were not available for the investigation due to the non-reporting by the flight crew within the stipulated time. The DAR data was available and shared with BEA - France to obtain the decoded data readouts for the investigation.





**2.12 Wreckage and Impact Information:** Not applicable

**2.13 Medical and Pathological Information:** Not applicable

**2.14 Fire:** Not applicable

**2.15 Survival Aspect:** Not applicable

**2.16 Test and Research:**

**2.17 Organizational and Management Information:**

2.17.1 The Operator, SriLankan Airlines Ltd

2.17.1.1 SriLankan Airlines Flight Operation Department is responsible for safe and efficient operation of flights in compliance with applicable regulations. The Department has qualified technical crew and ground staff to carry out their respective duties.

2.17.1.2 SriLankan Airlines fleet are maintained by SriLankan Airlines Ltd in accordance with the scope of the approval granted in its MOE (Maintenance Organization Exposition) by CAASL. Engineering and Maintenance Division of SriLankan Airlines Ltd is a holder of EASA (European Aviation Safety Agency) Part 145 maintenance organization approval.

2.17.2 The Regulator, Civil Aviation Authority of Sri Lanka.

2.17.2.1 CAASL is responsible for the registration and issuance of certificate of airworthiness to aircraft, licensing of personnel, certification of air operators and continued post certification surveillance. It is also responsible for the certification and surveillance of aeronautical service providers.

**2.18 Additional Information:** Nil.

**2.19 Useful or Effective Investigation Techniques:** the reported and contributory events for the incident were simulated in the A330 Simulator by the investigation team to verify the flight crew's statements.



### 3. Analysis

#### 3.1 Flight Crew

##### 3.1.1 PIC

It is the responsibility of the PIC to report occurrences that are detrimental to the safety of the flight. At the time of the incident, the PIC was on his scheduled rest in the cabin. The operating crew had not observed the exact altitude deviation which occurred in RVSM airspace. The briefing done by the operating crew to the PIC on his return to the flight deck after his rest, did not reflect the seriousness of the incident.

It was revealed that the cruise pilot had briefed the PIC on accidental disconnection of the AP 2 by the F/O, and the altitude loss of the aircraft, but not specifically mentioned the exact altitude lost.

The PIC did not discuss the incident with the operating crew nor did he consider filing a MOR, though it is mentioned that “altitude deviation of more than 500ft” is a reportable incident under Chapter 13 of SLA FOM.

##### 3.1.2 Cruise pilot

As per the Company FOM, a Cruise Pilot is a First Officer who is suitably qualified to relieve the Pilot in Command during the cruise phase. When a Cruise Pilot is occupying the left seat, he has to perform PM duties and the First Officer has to perform PF duties. Further, the Cruise Pilot makes operational decisions on flight level changes, weather avoidance and direct routings etc.

During the incident of the AP2 disconnection and subsequent altitude loss, the Cruise Pilot engaged AP1. 10 seconds later AP1 too disengaged. Subsequently, 3 seconds later AP1 was re-engaged. But the cruise pilot did not take control of the aircraft by mentioning “I have control” as per Company SOPs.

The cruise pilot took control of the FCU without any cross-checks or callouts. Further he did not observe the vertical speed displayed and the change in the altimeter reading. He was unaware of the exact altitude deviation, and was more focused on the speed indications. When the First Officer made over-riding inputs, the Cruise Pilot did not establish who had control of the aircraft, until recovery back to FL 390.

After the incident in the cruise phase, he had advised Jakarta ATC, about the altitude deviation.

However, he did not involve the F/O in the discussion when the PIC returned to the flight deck. He briefed the PIC in Sinhala language which is not an accepted aviation language and did not mention the exact altitude lost.

When the PIC was on rest during the cruise, the cruise pilot is considered to be the PIC for that segment. However such responsibility has not specifically laid down in the Company SOPs where the Cruise Pilot is entrusted with the duties of the PIC such as reporting on incidents/ submission of MORs at that time. It was revealed that recurrent training on mandatory report submission had not been conducted by the Company with respect to the operating crew.

### 3.1.3 First Officer

The First Officer had not handed over control to the Cruise Pilot when the meal was served to him. Further there was no laid down procedure of handing over controls when a crew member is served a meal.

During the investigation it was revealed that the First Officer had no coordination with the Cruise Pilot during the incident. He had not shown assertiveness as to the actions to be taken in such situation. Further as the PF, he had no knowledge of the altitude loss of the aircraft due to the AP disconnections.

As revealed in the DAR analysis, there was a sharp nose down input recorded on the First Officers side stick which resulted in the AP2 disengagement, the master warning being triggered and the aircraft deviating below the selected FCU altitude.

First Officer had not participated during the briefing done by the Cruise Pilot. After the PIC occupied the left seat, the First Officer had briefed him about the incident, but had not mentioned the exact loss in altitude.

It was revealed that the First Officer was not aware on mandatory reporting criteria under Company FOM.

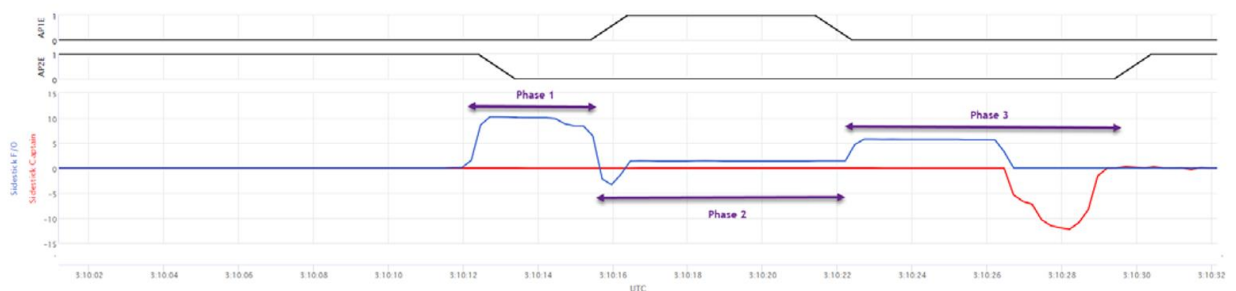
It was evident, that there was a lack of situational awareness by the Cruise Pilot and First Officer.

## 3.2 DAR data analysis

3.2.1 It was revealed through the Report submitted by the BEA after the analysis of DAR data, the flight control systems, including the side sticks, were functioning properly during the pre-flight checks and for the rest of the flight.

As per the analysis of DAR parameters, the incident can be elaborated in 3 main phases starting from 03:10:11 UTC;

- Phase 1 (from 03:10:11 UTC to 03:10:15 UTC): Auto Pilot 2 (AP2) disconnection
- Phase 2 (from 03:10:15 UTC to 03:10:22 UTC): Auto Pilot 1 (AP1) engagement
- Phase 3 (from 03:10:22 UTC to 03:10:30 UTC): Auto Pilot 1 disconnection





**3.2.2 Phase 1: from 03:10:11 UTC to 03:10:15 UTC (T0):** at 03:10:11 UTC, a sharp nose down input was recorded on the F/O side stick. The recorded deflection reached up to +10.2° within 1s and remained at this value during 2s before decreasing to +8.4°. AP2 disengaged, Master Warning triggered for 4s. Both elevators deflected up to +2.1° (nose down deflection). Pitch angle started to decrease from +2.8° (nose up) to -1.1° (nose down) and descent rate started to increase. Aircraft deviated below the selected FCU Altitude. On the roll axis, a slight deflection of the F/O side stick was also observed, by around +0.2°.

The Standard Operating Procedure to disconnect the Autopilot (AP) in the FMGECs is through the instinctive disconnect pushbutton located on each side stick. All other means which could cause an AP disconnection (side stick input, FCU, failure, etc) are considered as "involuntary" disconnection and generates the message "AUTO FLT AP OFF" in the PFR. As this message is present in the PFR, the AP disconnection was considered as "involuntary" by the A/C.

As per logic, the PRIMs ask for Autopilot disconnection when a side stick is deflected for more than 5° in Pitch and 6° in Roll. To disconnect the Autopilot through the side stick input, the 3 PRIMs have to detect the side stick deflected. The Autopilot remains engaged as long as one PRIM authorizes the engagement. Flight Guidance Envelop 2 (FGE2) trouble shooting data (TSD) analysis indicates that AP disconnection occurred upon F/CTL disengagement request (sent through hard wired discrete) from the 3 PRIM computers at 03:10:12 UTC.

**3.2.3 Phase 2: from 03:10:15 UTC to 03:10:22 UTC (T0+4s):** at 03:10:15 UTC, a pitch-up order by -3.3° was recorded on the F/O side stick. At same time, a left roll input was recorded on the F/O side up to +2.9°. 1s later, AP1 was engaged. On the Pitch axis, F/O side stick was then recorded deflected constantly at +1.4° for 5 seconds. On the Roll axis, F/O side stick was recorded deflected constantly at around +0.2° for 5 seconds.

(Note: As mentioned previously, these side stick deflections were not sufficient to disengage AP1.)

**3.2.4 Phase 3: from 03:10:22 UTC to 03:10:30 UTC**

**(T0+11s):** at 03:10:22 UTC, a sharp nose down input was recorded on the F/O side stick up to +5.8° for 4s. AP1 disengaged. Master Warning triggered for 8s. Then Pitch attitude decreased down to -5.3°. Descent rate reached -5700ft/min. Open Climb (OP CLB) mode engaged.

- FGE1 TSD analysis indicates that AP disconnection occurred upon F/CTL disengagement request (sent through hard wired discrete) from the 3 PRIM computers at 03:10:24 UTC

(Note: In the PFR, the message "AUTO FLT AP OFF" is displayed once and not twice because messages are not repeated within the same minute.)

**T0+15s: at 03:10:26 UTC,** F/O side stick was released at 0° on both Pitch and Roll axis. At the same time, a nose up input was recorded up to +12.2° on Captain side stick. Both elevators deflected around -2.9° (nose-up), then pitch angle started to increase from -5.3°. At 03:10:27, Captain side stick input was progressively released. At 03:10:29 UTC, AP2 was re-engaged in OPCLB / NAV modes.



### End of the event

**T0+39s: at 03:10:50 UTC**, altitude reached its minimum at 37,460ft STD (Selected altitude = 39,000ft) then started to increase. Aircraft then climbed back to FL390 at 03:12:14 UTC (T0+1m3s). End of flight was performed uneventfully.

### 3.3 Crew Resource Management

The Cruise Pilot and First Officer as operating flight crew had not displayed the expected level of competency. There was poor crew coordination during the incident. Both operating flight crew had not followed specific SOPs for handing over or taking over controls as stipulated in Chapter 10.3.10 (C) xix of Part A of Company FOM.

Furthermore, both were unaware of the exact altitude loss in RVSM airspace at the time of the incident. They did not discuss or re-evaluate the incident, to determine whether this incident is required to be reported or not.

There were two separate briefings regarding the same incident to the Captain by the Cruise Pilot and First Officer. Captain did not discuss the incident together with F/O and C/P.

### 3.4 Previous defects on Auto Pilot

ECAM Alert on AUTO FLT AP OFF has been triggered twice in the same aircraft over the past two months during cruise, prior to the incident flight. These ECAM Alerts were not associated with any Centralised Maintenance System (CMS) fault message. There were no failure messages recorded on the two previous PFR's, associated to "AP off". As per the records of the Operator, there were no reported defects on AP functions and AP related modification or system upgrade had not been carried out since January 2021.

## 4. Conclusion

### 4.1 Findings

#### 4.1.1 Aircraft

- a) The aircraft had a valid Certificate of Airworthiness and a valid Certificate of Registration
- b) There were no reported previous defects on the same aircraft on AP.
- c) The maintenance records indicated that the aircraft was equipped and maintained in accordance with approved procedures.

#### 4.1.2 Flight crew

- a) Flight crew had valid licences.
- b) The fact that the misjudgment of the operating crew on the exact altitude loss within RVSM airspace and non-briefing of this actual altitude loss mislead the PIC in not raising a MOR within stipulated time. This is a non-compliance to the paragraphs of FOM – Part A under Chapter 2.3.3 (r) (xiii) and Chapter 13.1.3 (d) (ii) (q) and Implementing Standard 006 on Mandatory Occurrence Reporting.
- c) There was no MOR raised by the operating flight crew of the incident during the stipulated time and they were unaware of the reporting criteria in Chapter 13.1.3 of Company FOM - Part A, especially for altitude loss in RVSM airspace.
- d) Both operating flight crew had not followed relevant SOP for handing over or taking controls. This is a non-compliance to Chapter 10.3.10 (c) xix of Company FOM-Part A.



- e) There was inadequate monitoring of the vertical speed and altitude scales on the PFD by both operating crew during the time of the incident.
- f) Cruise Pilot and First Officer's actions and statements displayed poor knowledge and understanding of the situation.

#### 4.1.3 Cruise Pilot

- a) Cruise Pilot was transfixed on the speed increment while failing to observe the vertical speed indication and the change in altimeter reading.
- b) Cruise Pilot did not insist the PIC to file a MOR.
- c) The briefings by the Cruise pilot to PIC was in Sinhala and not in an aviation language, which is a non-compliance to Chapter 1.1.1 of Company FOM- Part A. Further, the three flight crew did not discuss the incident together.
- d) During the interview of the Cruise Pilot he stated that the loss in altitude was approximately around 800 to 1000 feet. However, Cruise Pilot had communicated with Jakarta ATC just after the altitude deviation but he did not advise the exact altitude loss.

#### 4.1.4 First Officer

- a) The side stick input in relation to the AP 2 disconnection had been recorded on the F/O's side stick.
- b) AP 1 was engaged by the cruise pilot. Which was disconnected due to sharp nose down command by the F/Os side stick.
- c) The F/O did not hand over controls to the Cruise Pilot when the meal was served to him. Further there was no laid down company procedure of handing over controls when a crew member is served a meal.

#### 4.1.5 Airline

- a) The Airline had not conducted recurrent training on mandatory occurrence reporting requirement to the operating crew.
- b) There was no Company SOP in relation to the handing over of the control during meal time.
- c) There was no stipulated procedure in the Company FOM regarding responsibility of filing a MOR, by any operating flight crew member.



## 4.2 Probable cause(s)

- 4.2.1 The disconnection of the AP on both occasions was caused by a force applied to the F/O's side stick. A warning was triggered as this was not the recommended procedure to disconnect the AP.
- 4.2.2 Poor situational awareness and non-adherence to SOPs in handing over and taking over of controls culminated in the AP disconnection on two occasions and which resulted in loss of altitude.

## 5. Safety Recommendations

### 5.1 The Operator

- 5.1.1 The Operator shall ensure that the pilots are trained on Mandatory Occurrence/incident reporting and be included in recurrent SMS training modules applicable to all flight crew.
- 5.1.2 The Operator shall ensure that all operating flight crew are aware of the incident reporting criteria in Chapter 13 of Company FOM -Part A, especially for altitude loss in RVSM airspace.
- 5.1.3 The Operator shall introduce SOPs on handing over of controls when meals are served.
- 5.1.4 The Operator shall amend the procedures on Mandatory occurrence/ incident reporting responsibility to any operating flight crew.
- 5.1.5 The Operator shall ensure that briefings among the crew is done in the English language.
- 5.1.6 The Operator to ensure in the event of any reportable occurrence, the operating senior flight crew member to brief other flight crew member(s) who were not in the flight deck.
- 5.1.7 The Operator to ensure the relevant SOPs in handing over/taking over control of the aircraft is followed as stipulated in Chapter 10.3.10 (c ) xix of Company FOM- Part A.
- 5.1.8 The Operator shall address the lack of situational awareness among the flight crew during such incidents through trainings.
- 5.1.9 The Operator shall ensure that there is adherence to CRM among operating flight crew.
- 5.1.10 The Airline shall ensure that all operating flight crew, undergo training on Upset Recovery.

### 5.2 Recommendations already issued to Cruise Pilot, during the investigation

- 5.2.1 The Cruise Pilot shall be trained on the following areas, with special emphasis on "Upset Recovery Techniques":
- I. Training on Mandatory Occurrence Reporting, CRM, SMS and Management skills.
  - II. Training on Upset Recovery Techniques
  - III. Training on SOPs (special attention to : callouts, reading the FMA, handing over and taking over control, instrument scanning, being aware of aircraft parameters and spacial situation)
  - IV. Training on handling the automation during mode reversion situation.



- 5.2.2 The Airline shall not be utilized this Cruise Pilot (FO) for Cruise Pilot duties until the Airline has conducted a suitable evaluation and that satisfactory evaluation is submitted to the CAASL. Until this criteria is fulfilled, he shall not be assigned any cruise pilot duties or to sit on the left-hand seat.
- 5.2.3 The Airline shall conduct a Simulator evaluation with regard to Aircraft Upset Recovery prior to him being utilized as a First Officer occupying the R/H seat, which shall be monitored by Designated Flight Operations Inspector of CAASL.

### **5.3 Recommendations already issued to First Officer, during the investigation**

- 5.3.1 The Airline shall ensure that the First Officer to undergo two separate psychological assessments in coordination with the Airline and the Senior Civil Aviation Inspector (Aviation Medicine) of CAASL.
- 5.3.2 Upon the reports of psychological assessments, DGCA to take appropriate actions.