



**Final Investigation Report**  
**on**  
**Serious Incident of Airprox between**  
**M/s Indigo A320 aircraft VT-IAV (Flight IGO6261) and**  
**M/s Air Asia India Ltd. A320 aircraft VT-HYD (Flight IAD773) at**  
**Mumbai Airspace on 21 March 2022**

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## **FOREWORD**

*In accordance with Annex 13 to the Convention on International Civil Aviation Organization (ICAO) and Rule 3 of Aircraft (Investigation of Accidents and Incidents), Rules 2017, the sole objective of the investigation of an Accident/Incident shall be the prevention of accidents and incidents and not to apportion blame or liability. The investigation conducted in accordance with the provisions of the above said rules shall be separate from any judicial or administrative proceedings to apportion blame or liability.*

*This document has been prepared based upon the evidences collected during the investigation, opinion obtained from the experts and laboratory examination of various components. Consequently, the use of this report for any purpose other than for the prevention of future accidents or incidents could lead to erroneous interpretations.*

## Contents

GLOSSARY .....	4
SYNOPSIS .....	6
1. Factual Information .....	7
1.1 History of Flight .....	7
1.2 Injuries to persons .....	8
1.3 Damage to Aircraft.....	8
1.4 Other damage.....	8
1.5 Personnel Information.....	8
1.6 Aircraft Information .....	11
1.7 Meteorological Information .....	11
1.8 Aids to Navigation.....	11
1.9 Communications .....	11
1.10 Aerodrome Information.....	13
1.11 Flight Recorders .....	13
1.12 Wreckage and Impact Information.....	13
1.13 Medical and Pathological Information .....	13
1.14 Fire .....	13
1.15 Survival Aspects .....	13
1.16 Tests and Research.....	13
1.17 Organizational and management information .....	14
1.17.1 M/s Interglobe Aviation (Indigo).....	14
1.18 Additional Information .....	19
1.18.1 DGCA CAR Section 5, Series C, Part I.....	19
1.19 Useful or effective Investigation Techniques .....	20
2. Analysis.....	21
2.1 General.....	21
2.2 Non-adherence to Standard Operating Procedures .....	21
2.4 Circumstances leading to the incident.....	24
3. Conclusion.....	25
3.1 Findings .....	25
3.2 Probable cause of the incident .....	27
4. Safety Recommendations .....	27
• Appendix – Radar Snapshots from 155140 UTC to 155324 UTC .....	36

## GLOSSARY

AAIB	Aircraft Accident Investigation Bureau
AMSL	Above Mean Sea Level
ARC	Airworthiness Review Certificate
ASR	Airport Surveillance Radar
ATC	Air Traffic Control
AUW	All Up Weight
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
F/O	First Officer
FCOM	Flight Crew Operation Manual
FCTM	Flight Crew Training Manual
Hrs	Hours
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
LLZ	Localiser
MATS	Manual of Air Traffic Services
MEL	Minimum Equipment List
MLG	Main Landing Gear
MTOW	Maximum Take Off Weight
NM	Nautical Miles
PA	Passenger Address
PF	Pilot Flying
PIC	Pilot in Command
PM	Pilot Monitoring
QRH	Quick Reference Handbook
RA	Radio Altitude
SB	Service Bulletin
VMC	Visual Meteorological Conditions
VOR	VHF Omni directional Range
UTC	Universal Time Coordinated

**Serious Incident of Airprox between M/s Indigo A320 aircraft VT- IAY (Flight IGO6261 ) and M/s Air Asia India Ltd. A320 aircraft VT-HYD (Flight IAD773) at Mumbai Airspace on 21 March 2022**

1.	Aircraft		<b>Indigo</b>	<b>Air Asia</b>
		Type	Airbus A320	Airbus A320
		Nationality	Indian	Indian
		Registration	VT-IAY	VT-HYD
2.	Operator		M/s Interglobe Aviation	M/s Air Asia India Ltd.
3.	Country of Manufacture		France	France
4.	Pilot – In - Command		ATPL holder	ATPL holder
	Extent of Injuries		Nil	Nil
5.	Co-pilot		CPL holder	ATPL holder
	Extent of Injuries		Nil	Nil
6.	Extent of Injuries to passengers & Cabin Crew		Nil	Nil
7.	Last point of Departure		Delhi	Delhi
8.	Intended landing place		Mumbai	Goa
9.	Phase of operation		Descent	Cruise
10.	Date & Time of Incident		21.03.2022 & 1552 UTC	
11.	Place of Incident		Mumbai Airspace	
12.	Type of Operation		Scheduled Passenger Flight	
13.	Type of Occurrence		Infringement of Separation Minima (Air Proximity)	

(All the timings in this report are in UTC unless otherwise specified)

## SYNOPSIS

On 21 March 2022, M/s Indigo Airbus A320 aircraft VT-IAV was operating flight IGO6261 from Delhi to Mumbai and M/s Air Asia Airbus A320 aircraft VT-HYD was operating flight IAD773 from Delhi to Goa. The aircraft VT-HYD (IAD773) was cruising at FL360, when it came in contact with Mumbai Radar at 154907 UTC after being changed over from Ahmedabad. The aircraft VT-HYD was advised to proceed direct to waypoint MABTA maintaining FL360. The aircraft VT-IAV (IGO6261) was maintaining FL380 when came in contact with Mumbai Radar at 155045 UTC. After coming in contact with Mumbai Radar and being identified by the Mumbai Radar, the aircraft VT-IAV requested for descent. The Radar controller gave descent instructions to VT-IAV as "IFLY 6261 Roger descend to flight level 370". However, the descent instruction was readback incorrectly by the flight crew as "descent level 310 IFLY6261 confirm" and the same was also acknowledged by the radar controller as "IFLY6261 Affirm". Thereafter, the aircraft VT-IAV started descending at a fast rate.

PCW (Predicted Conflict Warning) was generated when the radar controller was giving heading instructions to the aircraft VT-IAV. The controller checked the data block of flight IGO6261 and observed that the pilot selected altitude (which is displayed on CCWS) was FL310. The radar controller then instructed IGO6261 to check the selected altitude by transmitting "*IFLY6261 Mumbai now turn right fly heading 217 and maintain flight level 370 on reaching sir and check your selected altitude 370 was the cleared level*". However, there was no response from the flight crew of IGO6261 for this transmission. The radar controller again transmitted IGO 6261 to maintain FL370 and again there was no response from the aircraft. By the time the aircraft IGO6261 responded to the subsequent call given by the radar controller it informed that it has already crossed FL370 and has reached FL360 i.e., the same level as that of Air Asia flight IAD773 which was cruising at FL360. Thereafter, CCW (Current Conflict Warning) was generated. The standard vertical and lateral (radar) separation got reduced to 'Zero' feet and 3.8 NM respectively.

The occurrence was classified as Serious Incident and an investigation was ordered vide No. INV-12011/3/2022-AAIB dated 29.03.2022 under Rule 11 (1) of Aircraft (Investigation of Accidents and Incidents) Rules, 2017.

Unless otherwise indicated, recommendations in this report are addressed to the regulatory authorities of the State having the responsibility for the matters with which the recommendation is concerned. It is for those authorities to decide what action is taken.

## 1. Factual Information

### 1.1 History of Flight

On 21 March 2022, M/s Indigo A320 aircraft VT-IAV was operating flight IGO6261 from Delhi to Mumbai and M/s Air Asia A320 aircraft VT-HYD was operating flight IAD773 from Delhi to Goa.

The aircraft IAD773 was maintaining FL360 and came in contact with Mumbai Radar at 154907. At time 155040, the controller instructed IAD773 maintaining FL360 to proceed to waypoint MABTA to facilitate direct routing & descend of IGO6261 which was maintaining flight level 380 as both the aircraft were one over the other.

The aircraft IGO6261 was maintaining FL380 when came in contact with Mumbai Radar at 155045. As per the statement of crew of IGO6261, the PIC of the flight was the Pilot Flying (PF) and the Co-pilot was the Pilot Monitoring (PM) for this flight. Before top of descent, the co-pilot left the cockpit to use LAV. During this time the PIC was communicating with ATC, Mumbai. On the request made by the PIC for descent, at 155105, Mumbai Radar gave descent to FL370. However, at 155111, the PIC readback the descent clearance as “Descend level 310 IFLY6261 confirm” to which the controller also confirmed as “IFLY6261 Affirm”. Accordingly, the PIC set the descent level as FL310 on FMS and the aircraft started descending at faster rate. At 155142, the controller started giving heading instructions to IGO6261 during which Predicted Conflict Warning (PCW) was generated in the automation system at 155147. The controller then immediately checked the data block of IGO6261 and observed that the pilot selected altitude was FL310 instead of FL370. The controller continued the transmission to IGO6261 and informed the same. The transmission given by the controller was *“IFLY6261 Mumbai now turn right fly heading 217 and maintain flight level 370 on reaching sir and check your selected altitude 370 was the level cleared”*. The controller inadvertently gave heading as 217 instead of 210. However, there was no response from the flight crew of IGO6261 to this transmission. At 155201, the controller gave another transmission to IGO6261 to maintain FL370, but there was still no response from the aircraft IGO6261.

Meanwhile, in the cockpit, the co-pilot re-entered the cockpit and took the co-pilot seat. Immediately thereafter, the PIC handed over the controls to co-pilot and left the cockpit to use LAV. At 155206, the controller gave another call to IGO6261 which was acknowledged by the co-pilot. The controller asked IGO6261 to maintain FL370, however, the co-pilot informed that the aircraft (IGO6261) has already crossed FL370 and are at FL360 now. The aircraft IGO6261 thereafter levelled off and was maintaining FL360. At 155217, Current Conflict Warning (CCW) was generated. To resolve the conflict, the controller then gave transmission to Air Asia aircraft IAD773 which responded immediately and at 155222, instructed them *“IAD773 turn left fly heading 120”* which was immediately readback by the aircraft. The controller then gave descent to IAD773 as *“IAD773 Mumbai descend to flight level 350”*. As per the instruction, the aircraft IAD773 descended to FL350. By this time the CCW warning went off and the aircraft were clear of conflict when IGO6261 was maintaining FL360 and IAD

was descending passing FL351 with heading 120. The IAD773 was given further descent to FL320 by the controller. On observing that the aircraft are now clear of conflict the controller also gave further descent to IGO6261.

The Investigation has revealed that the standard vertical and lateral (radar) separation got reduced to 'Zero' feet and 3.8 NM respectively against the standard prescribed separation in this airspace of Vertical 1000 feet and Lateral 10NM. Refer Appendices for Radar Snap Shot between 155140 UTC to 155324 UTC.

None of the aircraft reported TCAS. There was no injury to any of the occupant on board in both aircraft. There was no damage.

## **1.2 Injuries to persons**

There was no Injury to any occupant on board in both the aircraft.

## **1.3 Damage to Aircraft**

Nil

## **1.4 Other damage**

Nil

## **1.5 Personnel Information**

### **1.5.1 Crew Information - IGO6261**

#### **1.5.1.1 Pilot – In Command (IGO6261)**

Age	31 Years
License	ATPL
Date of Issue	28/11/2017
Valid up to	27/11/2022
Category	Multi-Engine Land
Date of Class I Med. Exam	06/09/2021
Class I Medical Valid up to	17/09/2022
Date of issue FRTOL License	05/07/2020
FRTOL License Valid up to	04/07/2025
Total flying experience	5111:42 Hrs
Total flying experience on type	637:40 Hrs
Total flying experience as PIC on type	455:54 Hrs
Last Flown on type	21/03/2022
Total flying experience during last 1 year	462.04 Hrs
Total flying experience during last 6 Months	280.28 Hrs
Total flying experience during last 90 days	123.40 Hrs
Total flying experience during last 30 days	54.17 Hrs
Total flying experience during last 07 Days	04:19 Hrs
Total flying experience during last 24 Hours	04:19 Hrs
Rest period before flight	22:02 Hrs
Whether involved in Accident/Incident earlier	No



Date of latest Flight Checks, Ground Classes & Refresher	Flight Check: 22/07/2021 Refresher: 04/06/2021
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#### 1.5.1.2 Co-Pilot (IGO6261)

Age	38 Years
License	CPL
Date of Issue	26/07/2018
Valid up to	25/07/2023
Category	Multi-Engine Land
Date of Class I Medical Exam	26/07/2021
Class I Medical valid up to	31/07/2022
Date of issue FRTOL License	29/04/2021
FRTOL License valid up to	28/04/2026
Total flying experience	1585:10 Hrs
Total flying experience on type	1135 Hrs
Last Flown on type	20 March 2022
Total flying experience during last 1 year	478.05
Total flying experience during last 6 Months	308.56
Total flying experience during last 90 days	175.53 Hrs
Total flying experience during last 30 days	60.41 Hrs
Total flying experience during last 07 Days	08:30 Hrs
Total flying experience during last 24 Hours	04:16 Hrs
Rest period before flight	13:54 Hrs
Whether involved in Accident/Incident earlier	No
Date of latest Flight Checks, Ground Classes & Refresher	Flight Check: 20/09/2021 Refresher: 13/12/2021

#### 1.5.2 Crew Information – IAD773

##### 1.5.2.1 Pilot – In - Command (IAD773)

Age	33 years
License	ATPL
Date of Issue	30/09/2014
Valid up to	29/09/2026
Category	Aeroplane
Date of Class I Med. Exam	17/06/2021
Class I Medical Valid up to	16/06/2021
Date of issue FRTOL License	06/03/2009
FRTOL License Valid up to	05/03/2024
Total flying experience	5310 Hrs
Total flying experience on type	1026 Hrs
Last Flown on type	21/03/2022
Total flying experience during last 1 year	497:35 Hrs
Total flying experience during last 6 Months	328:05 Hrs
Total flying experience during last 90 days	140:42
Total flying experience during last 30 days	68:40 Hrs

Total flying experience during last 07 Days	20:00 Hrs
Total flying experience during last 24 Hours	06:15 Hrs
Rest period before flight	15:03 Hrs
Whether involved in Accident/Incident earlier	No
Date of latest Flight Checks, Ground Classes & Refresher	Flight Checks: 23/11/2021 Ground Classes: 12/07/2021

#### 1.5.2.2 Co-Pilot (IAD 773)

Age	30 Years
License	ATPL
Date of Issue	15/06/2021
Valid up to	14/06/2026
Category	Aeroplane
Date of Class I Medical Exam	28/01/2022
Class I Medical valid up to	03/02/2023
Date of issue FRTOL License	25/02/2013
FRTOL License valid up to	24/02/2023
Total flying experience	2553 Hrs
Total flying experience on type	2353 Hrs
Last Flown on type	21/03/2022
Total flying experience during last 1 year	414:34 Hrs
Total flying experience during last 6 Months	267:10 Hrs
Total flying experience during last 90 days	127:15 Hrs
Total flying experience during last 30 days	61:50 Hrs
Total flying experience during last 07 Days	12:17 Hrs
Total flying experience during last 24 Hours	03:50 Hrs
Rest period before flight	18:07 Hrs
Whether involved in Accident/Incident earlier	No
Date of latest Flight Checks, Ground Classes & Refresher	Flight Checks: 07/11/2021 Ground Classes: 09/07/2021

#### 1.5.3 Air Traffic Controller

Nationality	Indian
Age	37 years
License	Air Traffic Controller
Date of Issue & Validity	14/10/2019 & Valid
Station	VABB (Mumbai)
Unit/Ratings	Area Control Procedural Area Control Surveillance Oceanic Control
Date of Medical Exam & Validity	17/12/2021 & Valid
English Proficiency Level	6

The incident occurred when the controller was providing area control surveillance services. Controller's last proficiency check was carried out on 03 September 2021 in Area Control Surveillance Unit.

## 1.6 Aircraft Information

### 1.6.1 Indigo Flight IGO6261 (VT-IAY)

The aircraft is Airbus Model/type A320. The aircraft with registration VT-IAY is registered to be operated by M/s Indigo. All the relevant documents/certificate for operation of the aircraft were valid as on date of incident.

### 1.6.2 Air Asia flight IAD773 (VT-HYD)

The aircraft is Airbus Model/type A320. The aircraft with registration VT-HYD is registered to be operated by M/s Air Asia, India. All the relevant documents/certificate for operation of the aircraft were valid as on date of incident.

## 1.7 Meteorological Information

Following METAR was issued at Mumbai (VABB) on 21.03.2022 between 1530 UTC to 1630 UTC.

Time (UTC)	Winds (°/Knots)	Visibility (Meters)	Weather	Clouds	QNH (HPa)	Temp/ DP (°C)
1530	320/06	3000	Haze (HZ)	No Significant Cloud (NSC)	1008	29/23
1600	010/04	3000	HZ	NSC	1008	29/23
1630	340/06	3000	HZ	NSC	1008	29/23

## 1.8 Aids to Navigation

All Navigational Aids available at Mumbai airport and both the aircraft were reported to be serviceable.

## 1.9 Communications

At the time of incident both the aircraft were in contact with Mumbai Area Control on frequency 132.7 MHz. There was two-way communication between the aircraft and ATC. No abnormality was reported in any communication system.

Following is the salient transcript of ATC tape of communication between the aircraft (IAD773 & IGO6261) with Mumbai Area Control at frequency 132.7 MHz.

TIME (HHMMSS)	FROM	TEXT
154733	RSR	IAD773 MUMBAI
154820	RSR	IAD773 MUMBAI
154855	RSR	IFLY6261 MUMBAI
154907	IAD773	MUMBAI NAMASKAR IAD773
154947	IAD773	MUMBAI NAMASKAR IAD773
154952	RSR	IAD773 MUMBAI
154956	IAD773	CHANGED OVER FROM AHMEDABAD LEVEL 360 ON SQUAWK 0553 IAD773
155001	RSR	ROGER SQUAWK 0313
155004	IAD773	0313 IAD773
155033	RSR	IAD773 MUMBAI IDENTIFIED CONFIRM FLIGHT LEVEL 360
155038	IAD773	I CONFIRM SIR IAD773

TIME (HHMMSS)	FROM	TEXT
155040	RSR	PROCEED DIRECT MABTA
155042	IAD773	DIRECT TO MABTA IAD773
155045	IGO6261	MUMBAI IFLY6261 NAMASKAR LEVEL 380
155048	RSR	IFLY6261 MUMBAI IDENTIFIED FLIGHT LEVEL 380 CLEARED VIA IGBAN 2A ARRIVAL RWY 27
155055	IGO6261	CLEARED IGBAN 2A RWY 27 IFLY6261 REQUESTING DESCENT
155105	RSR	IFLY6261 ROGER DESCEND TO FLIGHT LEVEL 370
155109	AIC774	REQUESTING LEVEL UPTO 350
155111	IGO6261	DESCEND LEVEL 310 IFLY6261 CONFIRM
155114	RSR	IFLY6261 AFFIRM
155116	IGO6261	ROGER
155142	RSR	IFLY6261 MUMBAI NOW TURN RIGHT FLY HEADING 217 HEADING 217 AND MAINTAIN FLIGHT LEVEL 370 ON REACHING SIR AND CHECK YOUR SELECTED ALTITUDE 370 WAS THE CLEARED LEVEL
155201	RSR	IFLY6261 MAINTAIN FLIGHT LEVEL 370 370
155206	RSR	IFLY6261 MUMBAI
155208	IGO6261	GO AHEAD PLEASE IFLY6261
155211	RSR	MAINTAIN FLIGHT LEVEL 370 370
155213	IGO6261	SIR LEVEL 360 NOW IS CROSSED 370
155218	RSR	ROGER IAD773 MUMBAI
155221	IAD773	GO AHEAD SIR
155222	RSR	IAD773 TURN LEFT FLY HEADING 120
155225	IAD773	CLEARED 120 IAD773
155234	RSR	IAD773 MUMBAI DESCEND TO FLIGHT LEVEL 350
155238	IAD773	350 NOW IAD773
155254	RSR	IAD773 MUMBAI
155256	IAD773	GO AHEAD SIR IAD773
155257	RSR	IAD773 DESCEND TO FLIGHT LEVEL 340 CORRECTION 320 NOW
155302	IAD773	320 NOW IAD773
155311	RSR	IFLY6261 MUMBAI
155313	IGO6261	GO AHEAD PLEASE MAY WE DESCEND FURTHER IFLY6261
155315	RSR	IFLY6261 MAINTAIN 360 AS OF NOW
155322	IGO6261	LEVEL 360 IFLY6261 HOW DO YOU READ SIR
155329	RSR	IFLY6261 READABILITY ZERO FIVE SIR
155333	IGO6261	COPIED
155347	RSR	IAD773 NOW TURN RIGHT HEADING 160
155350	IAD773	RIGHT HEADING 160 IAD773
155411	RSR	IFLY6261 MUMBAI
155413	IGO6261	GO AHEAD PLEASE IFLY6261
155415	RSR	IFLY6261 DESCEND TO FLIGHT LEVEL 34 CORRECTION DESCEND TO FLIGHT LEVEL 350
155423	IGO6261	DESCEND LEVEL 350 IFLY6261
155428	RSR	IFLY6261 DESCEND TO FLIGHT LEVEL 330 NOW
155432	IGO6261	DESCEND LEVEL 330 IFLY6261

### **1.10 Aerodrome Information**

Mumbai Airport is known as Chhatrapati Shivaji Maharaj International Airport. The IATA Location Identifier Code is BOM and ICAO Location Indicator Code is VABB. Mumbai Air Traffic controlling unit is divided mainly into Tower, Approach, Area, Oceanic etc. which are operational 24x7. Further, Area Control is divided into Area North ACC (N), Area South ACC(S) and Area West ACC (W). The incident took place in the Area North ACC (N) control.

The airport has two intersecting runways with orientation 09/27 and 14/32. Runway 09/27 is the primary runway and runway 14/32 is used only when the main runway is unavailable. The arriving Indigo aircraft IGO6261 was expecting arrival on runway 27 at Mumbai.

### **1.11 Flight Recorders**

Both the aircraft were equipped with Flight Recorders i.e., Digital Flight Data Recorder (DFDR) and Cockpit Voice Recorder (CVR).

#### **1.11.1 Cockpit Voice Recorder (CVR)**

The CVR recording of the incident flight was not preserved as both the aircraft continued their scheduled flights and the crew were not aware of the airprox incident at that time. Also, there was no TCAS generated on either of the aircraft during the incident. Therefore, the CVR recording was not preserved after landing.

#### **1.11.2 Digital Flight Data Recorder (DFDR)**

DFDR data of both the aircraft was provided and the data of the incident flight were analysed and used in the investigation to corroborate with the other available evidences in order to confirm the findings and other factors leading to the incident.

### **1.12 Wreckage and Impact Information**

Not relevant as there was no damage to either of the aircraft.

### **1.13 Medical and Pathological Information**

The co-pilot of IGO6261 had undergone pre-flight Breath Analyser (BA) Test and PIC of IGO 6261 signed a declaration as per DGCA order – 15031/4/2020-DAS dated 29 March 2020, before operating their respective flights.

### **1.14 Fire**

There was no fire.

### **1.15 Survival Aspects**

The incident was survivable.

### **1.16 Tests and Research**

Nil

## **1.17 Organizational and management information**

### **1.17.1 M/s Interglobe Aviation (Indigo)**

M/s Indigo is a Scheduled Operator which is based in NCR region. Training facility of Indigo for flight crew is at Gurugram, Haryana. M/s Indigo has a fleet of Airbus A320 CEO, A320 NEO, A321 NEO and ATR-72 aircraft.

#### **1.17.1.1 Operations Manual of M/s Indigo**

Para 17.1.9.13 of Operations Manual Part A lays down the responsibility for R/T communication as given below:

##### **17.1.9.13 Responsibility for R/T**

The PM shall be responsible for operating the R/T in the normal course of flight. However, this does not restrict the PF from carrying out R/T Monitoring. R/T is responsibility of both the pilots. When PM is handling the R/T, the PIC should exercise supervisory role.

Chapter 5, Para 5.0 of Operations Manual Part A, lays down the procedures regarding Radio Listening Watch to be maintained by the crew as reproduced below:

##### **5.0. RADIO LISTENING WATCH**

An airplane shall not be flown on an IFR flight within controlled airspace unless a continuous listening watch is maintained on the appropriate VHF radio frequency. A two-way communication must be established with the appropriate air traffic control unit.

It is the responsibility of the PIC to ensure that at least one crew member continuously monitors the appropriate ATC frequency at all times.

The flight crew shall maintain a radio listening watch on the frequencies appropriate for the area of operation and as required by the applicable authorities.

Para 17.2.5.4 of Operations Manual Part A lays down procedures regarding ATC & flight crew communication as reproduced below:

#### 17.2.5.4 ATC/ Flight Crew Communication

The primary way the Flight Crew and ATC communicate is by voice. The safety and efficiency of taxi operations at aerodromes with operating control towers depend on this “communication loop.” Controllers use standard phraseology and require readbacks and other responses from the Flight Crew in order to ensure that clearances and instructions are understood. In order to complete the “communication loop,” the controllers must also clearly understand the Flight Crew’s read back and other responses. The Flight Crew can help enhance the controller’s understanding by responding appropriately and using standard phraseology. The approved flight crewmember training programs, and operational manuals provide information for Flight Crew on standard ATC phraseology and communications requirements. Some of the most important guidelines that contribute to clear and accurate communications are included here.

- i) Maintain a “sterile” cockpit. Flight crewmembers must be able to focus on their duties without being distracted by non-flight related matters, such as eating meals, engaging in non-essential conversation, or reading material not related to the safe and proper operation of the aircraft.
- ii) Use standard ATC phraseology at all times in order to facilitate clear and concise ATC/ Flight Crew communications.
- iii) Focus on what ATC is instructing. Do not perform any non-essential tasks while communicating with ATC.
- iv) Readback all hold short and runway crossing instructions and clearances, including the runway designator.

**Note:** Air traffic controllers are required to obtain from the pilot a readback of all runway hold short instructions. Pilots shall not use ‘readback/ hearback’ philosophy as an error checking mechanism. In the current environment with the ATC also being in a high workload situation, pilots need be advised that ATC may not always be able to catch or process an incorrect readback at all times.

- v) Readback all takeoff and landing clearances, including the runway designator.
- vi) Clarify any misunderstanding or confusion concerning ATC instructions or clearances to the satisfaction of all Flight Crewmembers.

Para 17.3.8 of Operations Manual Part 'A' provides detailed procedures for flight crew to follow when leaving the cockpit and transferring the charges of PF/PM. The relevant portion is reproduced below:

### **17.3.8 Crew members at their stations**

#### **a) Cockpit crew**

The PIC shall always occupy the airplane left seat and the co-pilot the right seat. However, Co-Pilots doing command training and PIC under check are permitted to occupy the left seat when flying with Trainers during SLF/ Route Checks.

Flight Crew required to be on the flight deck shall be at their "stations" and prohibited from vacating the seats during the critical phases of flight (i.e. below 10,000ft). They shall also remain at their "stations" during cruise except when their absence is necessary in connection with the performance of the duties or for physiological needs. No flight crew will leave his/ her station during the flight without the permission of the PIC. In giving such permission the PIC shall ensure that at least one Pilot remains in control at all times. He shall have unobstructed access to the flight controls and remain alert to the situation in the cockpit.

#### **b) Cockpit crew absence from flight deck**

Whenever the PIC leaves the flight deck for any reason he will instruct the Co-Pilot on how the flight is to be conducted in his absence.

The Co-Pilot shall be in-charge of the airplane and shall remain at his station until the PIC returns and resumes command.

Each Pilot shall advise the other if any changes are made in the selection of radio communication and navigation frequencies.

Procedure to be followed when one crew leaves the cockpit and when cabin crew wants to enter the cockpit are given in para 17.3.10.9.

#### **c) PF/ PM Duties transfer**

To transfer control, flight crewmembers must use the following callouts:

##### **i) To give control**

The pilot calls out "YOU HAVE CONTROL". The other pilot accepts this transfer by calling out "I HAVE CONTROL", before assuming PF duties.

##### **ii) To take control**

The pilot calls out "I HAVE CONTROL". The other pilot accepts this transfer by calling out "YOU HAVE CONTROL", before assuming PM duties.



Para 17.3.10.9, Sub-para 'b' of Operations Manual Part A lays down procedures for flight crew/cabin crew to follow when leaving or entering the cockpit. The relevant portion of the procedure is reproduced below:

**b) Cockpit occupants exiting Flight Deck during flight:**

The cockpit occupant will call the cabin on the interphone prior to exit and proceed as under:

- i) Once the forward area is secured as per the above procedure, the Cabin crew will press '#' on the CDLS key pad and look up into the Cockpit Door Surveillance System camera, for the cockpit crew to identify her. The PIC will ensure the forward area is secured as described above, and then open the cockpit door. The Cabin crew will enter the cockpit if required (at least two occupants are required in the cockpit – one operating pilot and the Cabin crew, or one operating pilot and another authorized cockpit occupant). The Cockpit occupant will then exit the cockpit.
- ii) When the cockpit occupant wishes to re-enter the cockpit, he/she shall ensure that the forward area is secure as described above, and then press the '#' on the CDLS key pad and look up into the camera. The PIC/ First Officer will open the cockpit door once it is confirmed that the forward area is secure, and the cockpit occupant will re-enter (and allow the Cabin crew to exit the cockpit).
- iii) If a cockpit jump seat occupant unfamiliar with company procedures is on board, the PIC is to brief him/her accordingly, and the Lead Cabin crew is to facilitate entry and exit if required so as to ensure cockpit security.

Para 2.1.4.4.2, Sub-para 'b' of Operations Manual Part 'B' stipulates about procedures for rate of descent restriction. The relevant portion of the procedure is reproduced below:

**b) Vertical Speed**

Flight Crew are to restrict the aircraft Rate of Climb/ Descend to 1500 feet/min or less, by 2000 feet to the assigned altitude/ flight level. In case of a late intervention to arrest a high ROC/ ROD, the option of push to level off followed by setting appropriate V/S may be exercised.

Para 34.8.3.1 of Operations Manual Part A gives the list of occurrences which requires downloading of CVR. The relevant portion of the procedure is reproduced below:

#### **34.8.3.1 Occurrences Requiring CVR Downloading**

Occurrences requiring CVR down loading, the PIC must make an entry in the Flight Record Book. This will enable the AME to take necessary action to download the CVR. When required CVR shall be removed from the aircraft at the earliest opportunity.

CVR shall be removed in case of the following incidents:

- Any failure of aircraft primary structure.
- Damage which necessitates repair before further flight due to ingestion, collision, meteorological conditions, hard or overweight landing, overheating, incorrect technique or practices etc.
- Any incident where any minor injury is sustained by a passenger or member of the crew while on board the aircraft e.g. injury to a passenger as a result of turbulence, scalding of a member of the cabin staff as a result of faulty design, inadequate servicing or the in correct handling of galley equipment.
- Declaration of an emergency situation.
- An emergency evacuation of the aircraft.
- Fire or Explosion.
- Fire or Smoke warning.
- In-flight engine shut-down or significant loss of power.
- Significant leakage of fuel, hydraulic fluid or oil.
- Smoke toxic or noxious fumes in crew, passengers or freight compartments.
- Abandoned take-off. (Except that the take-off was rejected due to ATC instructions before reaching 100 kts (IAS) in accordance with Para 2.2.5.1, Chapter 02, Operations Manual Part B).
- Unintentional deviation from the intended track or attitude, caused by a procedural, systems or equipment defect.

- Precautionary or forced landing.
- Balked landing and Bounced Landing
- Unintentional contact with the ground, including touch down before the runway threshold.
- Over-running the ends or sides of the runway or landing strip.
- The separation between the aircraft was less than prescribed for the situation.
- Runway obstructed by foreign objects.
- All undershoots/overshoots or aircraft leaving the runway paved areas.
- Collision between moving aircraft and vehicles or any other ground equipment.
- Difficulty in controlling intoxicated, violent or armed passengers.

Besides the above occurrences, Regional Air Safety Office(s) of the DGCA may direct for removal of Cockpit Voice Recorder on any other occasion. Chief of the Flight Safety in consultation with the Regional Air Safety Offices may also require removal of CVR at any other occasion for investigation/ Inquiry.

Director of Air Safety (DGCA) or Regional Controller of Air Safety in Consultation with Director of Air Safety (DGCA) may exempt the removal of CVR in extraordinary situations. Record of such cases shall be maintained by the respective Regional Offices.

The Chief of Safety may take decision regarding removal of CVR in cases of low speed abandoned take off due ATC instructions, wildlife incursion and bird hit.

### **1.17.2 Airports Authority of India (AAI)**

The Air Traffic Services at Mumbai are being provided by Airports Authority of India (AAI). AAI was constituted to provide Air Traffic Services over entire Indian Air Space which comprises of providing air traffic control service, advisory service, flight information service, alerting service, etc. It is entrusted with the responsibility of creating, upgrading, maintaining and managing civil aviation infrastructure both on the ground and air space in the country. It is governed by a board of directors, consisting of whole-time members, as well as part-time members, appointed by the Government of India.

#### **1.17.2.1 Manual of Air Traffic Services, Part I (MATS I)**

MATS I gives standardize procedures for air navigation/air traffic services which is uniformly applied throughout India.

Para 4.11.7.5 of MATS I gives the procedure to be followed by the crew & controller for read-back of clearances given by the controller. The relevant portion of the procedure is reproduced below:

4.11.7.5	<u>Read-back of clearances</u>
4.11.7.5.1	<p>The flight crew shall read-back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:</p> <ul style="list-style-type: none"> <li>a) ATC route clearances;</li> <li>b) clearances and instructions to enter, land on, take off from, hold short of, cross, taxi and backtrack on any runway; and</li> <li>c) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions, and, whether issued by the controller or contained in automatic terminal information service (ATIS) broadcasts, transition levels.</li> </ul> <p><i>Note: If the level of an aircraft is reported in relation to standard pressure 1013.2 hPa, the words "FLIGHT LEVEL" precede the level figures. If the level of the aircraft is reported in relation to QNH/QFE, the figures are followed by the word "FEET", as appropriate.</i></p>
4.11.7.5.2	Other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.
4.11.7.5.3	The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and take immediate action to correct any discrepancies revealed by the read-back.
4.11.7.5.4	Transfer of communication shall be segregated from instructions requiring read-back by the flight crew and therefore, transmitted separately.
4.11.7.5.5	Voice read-back of controller-pilot data link communications messages shall not be required.

### 1.17.3 Air Asia

Air Asia, India is also known as TATA Singapore. Its main base is at Bangalore and Delhi. M/s Air Asia (India) Ltd is a Scheduled Operator, with Air Operator Permit Number S-26, which is valid up to 06 May 2024. It operates fleet of Airbus A320-200 series of aircraft.

### 1.18 Additional Information

#### 1.18.1 DGCA CAR Section 5, Series C, Part I

Para 9 of DGCA CAR Section 5, Series C, Part – I gives the list of occurrences where CVR is required to be removed. The details of the Para are reproduced below:

#### 9. Removal of CVR for the purpose of investigation

9.1 In case of the accident/serious incidents CVR shall be removed from the aircraft at the earliest opportunity.

9.2 CVR shall be removed in case of the following incidents:

- Any failure of aircraft primary structure.
- Damage which necessitates repair before further flight due to ingestion, collision, meteorological conditions, hard or overweight landing, overheating, incorrect technique or practices etc.
- Any incident where any minor injury is sustained by a passenger or member of the crew while on board the aircraft e.g. injury to a passenger as a result of turbulence.
- Declaration of an emergency situation.
- An emergency evacuation of the aircraft.
- Fire or Explosion.
- Fire or Smoke warning.
- In-flight engine shut-down or significant loss of power.
- Significant leakage of fuel, hydraulic fluid or oil, smoke, toxic or noxious fumes in crew, passengers or freight compartments.
- Unintentional deviation from the intended track or attitude, caused by a procedural error, systems or equipment defect.
- Precautionary or forced landing.
- Balked Landing in unpaved area.
- Bounced landing with consequential damage.
- Rejected take-off required to be reported.
- Unintentional contact with the ground, including touch down before the runway threshold.
- Over-running the ends or sides of the runway or landing strip.
- The separation between the aircraft was less than prescribed for the situation.
- Runway obstructed by foreign objects.
- All undershoots/overshoots or aircraft leaving the runway paved areas.
- Collision between moving aircraft and vehicles or any other ground equipment.
- Difficulty in controlling intoxicated, violent or armed passengers.
- In case of pilot incapacitation

9.3 Besides the above occurrences, Director Air Safety, DGCA (HQ) may direct for removal of Cockpit Voice Recorder on any other occasion.

9.4 Director of Air Safety/Regional Controller of Air Safety in Consultation with DAS (HQ) may exempt the removal of CVR in extraordinary situations. Record of such cases shall be maintained by the respective Regional Offices.

9.5 Approved Chief of Flight Safety may take decision regarding removal of CVR in cases of low speed rejected take-off except in case of procedural error, wildlife incursion and bird hit.

#### **1.19 Useful or effective Investigation Techniques**

Nil

## **2. Analysis**

The analysis was carried out based on the available evidences such as Crew & Controllers Statements, ATC Tape, DFDR data, etc. Due to non-availability of CVR recordings the statements given by the crew could not be corroborated.

### **2.1 General**

2.1.1 Both the aircraft were having valid C of R, C of A and all other relevant certificates were valid at the time of incident. All concerned Airworthiness Directives, mandatory Service Bulletins, and DGCA Mandatory Modifications on both the aircraft and its engines were complied with as on date of event.

2.1.2 The crew of both the aircraft were having valid licenses and fulfilled all other requirements to operate the flight. Their medical and all trainings were current as on date of occurrence. The crew of Indigo were paired for the first time to operate the flight. However, they both have operated to Mumbai before.

2.1.3 The ATC controller was having valid license and was qualified to operate RT on Mumbai Area Surveillance Control as on date of incident.

2.1.4 The weather at the time of incident was fine with visibility above minima and winds calm.

### **2.2 Non-adherence to Standard Operating Procedures**

#### **2.2.1 Crew of IGO 6261**

The aircraft IGO6261 was maintaining FL380, when it came in contact with Mumbai Area Control. Before top of descent the co-pilot who was performing the duties of PM left the cockpit to use LAV. During this time PIC was communicating with ATC. PIC requested for descent for which the controller gave descent to FL370, however, the PIC made a readback error and readback the descent clearance as “Descend level 310 IFLY6261 confirm” to which the ATC controller also confirmed as “IFLY6261 Affirm”. There was no aircraft at that time under the jurisdiction of area controller with similar call sign and no aircraft was given descent clearance to FL310 which could have resulted in confusion for descent clearance or read back/hear back error. The readback error made by the PIC could be because of confirmation bias on the part of PIC, as she thought that the descent clearance would have been more as she did not observe any traffic below. This also indicates that PIC was probably not monitoring the navigation display properly, else the aircraft IAD773 which was maintaining FL360 could have been identified by the PIC on the NAV display. The PIC then set the descent level as FL310 & accordingly set the rate of descent (ROD) as 2624 fpm (feet per minute) on FMS and the aircraft started descending at a faster rate. The ROD went up to a maximum value of 2648 fpm which was way above the maximum ceiling of 1500 fpm as per the SOP. The controller then gave heading instructions to IGO6261 and informed about the wrong altitude (310) selected by the PIC instead of 370 after Predicted Conflict Warning (PCW) was generated in the automation system. However, there was no response from the flight crew of IGO6261 to this

transmission. Thereafter, the controller gave another transmission to IGO6261 to maintain FL370, but there was still no response from the aircraft IGO6261. This implies that the crew were not maintaining the listening watch to the transmission made by the controller. This probably happened when the co-pilot re-entered the cockpit and immediately thereafter, the PIC handed over the controls to co-pilot and left the cockpit to use LAV. Meanwhile, the controller gave another call to IGO6261 which was acknowledged by the co-pilot. The controller asked IGO6261 to maintain FL370, however, the co-pilot informed that the aircraft (IGO6261) has already crossed FL370 and are at FL360 now. The aircraft IGO6261 thereafter levelled off and was maintaining FL360. Had the crew of IGO6261 maintained the listening watch to the transmission given by the controller after the read back error (by the crew) and hear back error (by the controller) the breach of separation, i.e., the incident could have been avoided. The rate of descent set by the crew of IGO 6261 was also way higher than the maximum allowed considering the cleared level of 370. This further aggravated the situation as the aircraft started descending at a faster rate which could have been arrested in time if the crew had maintained listening watch to the transmission given by the controller after readback/hearback error.

After the incident, no FSR was raised by the crew as no TCAS was generated during the incident and also crew were not informed by the controller about the breach of separation.

### **2.2.2 ATC Area Controller**

The controller gave IAD773 which was maintaining FL360, direct routing to MBATA (waypoint) in order to facilitate IGO6261's descent which was bound for Mumbai. On the request made by the crew of IGO 6261, the controller gave descent to FL370, however, the crew of IGO6261 made a readback error and readback the cleared level as FL310. The controller did not correct the readback error made by the crew and confirmed the read back error made by crew to descent to FL310 instead of FL370. The hear back error made by the controller could be because there was an intermediate call by another aircraft (AIC774) after the controller gave the descent clearance to IGO6261 and the readback by the crew of IGO6261 to the descent transmission given by the controller. There was no aircraft at that time under the jurisdiction of involved area controller with similar call sign and no aircraft was given descent clearance to FL310 which could have resulted in confusion for descent clearance or read back/hear back error. However, when the controller was giving heading instructions to IGO6261 during which PCW warning was generated, he immediately checked the data block of IGO6261 and observed that the pilot selected altitude was FL310 instead of FL370. The controller continued the transmission to IGO6261 and informed the same to the crew by transmitting "IFLY6261 Mumbai now turn right fly heading 217 and maintain flight level 370 on reaching sir and check your selected altitude 370 was the level cleared". The controller intended to give heading 210 instead he gave 217 inadvertently. However, there was no response from the flight crew of IGO6261 to this transmission. Thereafter, the controller gave another transmission to IGO6261 to maintain FL370 but there was still no response from the aircraft IGO6261. Meanwhile, the

controller gave another call to IGO6261 which was acknowledged by the co-pilot. The controller asked IGO6261 to maintain FL370, however, the co-pilot informed that the aircraft (IGO6261) has already crossed FL370 and are at FL360 now. Thereafter, CCW warning was generated. To resolve the conflict, the controller then gave transmission to Air Asia aircraft IAD773 which responded immediately and instructed it "IAD773 turn left fly heading 120" which was immediately readback by the aircraft. The controller then gave descent to IAD773 as "IAD773 Mumbai descend to flight level 350". As per the instruction, the aircraft IAD773 descended to FL350. By this time the CCW warning went off and the aircraft were clear of conflict when IGO6261 was maintaining FL360 and IAD773 was descending passing FL351 with heading 120. However, the controller did not inform the aircraft IGO6261 about the level breach done by it after it responded to his transmission and also thereafter. No TCAS was generated on either of the aircraft, hence, no FSR was raised by the crew of both the aircraft.

Hearback error made by the controller contributed to the occurrence with the fact that it further confirmed the readback error made by the crew of IGO6261 to descent to FL310 instead of FL370. However, after the hear back error, when the PCW warning was generated, the controller continued to transmit to IGO6261 to maintain FL370 when there was no response from IGO6261 by the time the aircraft IGO6261 responded the CCW warning was generated and the separation was breached. To resolve the potential conflict, the controller could have instructed IAD773 instead of calling IGO6261 repeatedly when there was no response from them aircraft as PCW warning was already generated. Further, the controller did not inform the aircraft IGO6261 about the level breach, which resulted in non-reporting of event/raising a FSR by the crew of IGO6261/IAD773 as no TCAS was generated. This further resulted in non-removal of CVR for the purpose of investigation.

### **2.3 Non - Removal (or downloading) of CVR**

Para 9 of DGCA CAR Section 5, Series C, Part – I gives the scenarios in which CVR is to be removed. Para 9.1 states that CVR shall be removed in case of accidents/serious incidents.

The problem arises when there is an airprox occurrence (like the subject incident) which takes considerable time to establish that the occurrence falls under the category of serious incident. By the time the occurrence is classified, the CVR recording of the event is lost unless any TCAS is generated during the event.

Para 9.2 of the said CAR gives the list of incidents where CVR is required to be removed (Refer Para 1.18.1 of the report). This requirement has been made part of Operations Manual of M/s Indigo (Refer para 1.17.1.1 of the report) also. One of the requirements given for removal of CVR in the list is

*"The separation between the aircraft was less than prescribed for the situation."*

There are two possible scenarios for the above situation:

- **TCAS is generated:** In this case, the pilot comes to know that the separation may have been breached which is less than the prescribed value and the crew accordingly raises the FSR. Accordingly, CVR can be removed or downloaded as per the requirement.
- **No TCAS is generated:** In this case, when no TCAS has been generated the only possible way the crew could be aware of the situation is when they are informed by the controller about the breach of separation. Scrutiny of MATS I revealed that there is no such procedure prescribed, where the controller is required to inform the aircraft about the breach of separation or even the fact that the level has been breached by the aircraft. However, as a practice the controllers generally inform the aircraft about the level breach irrespective of whether it resulted in breach of separation or not.

In the subject incident, the controller tried to inform the aircraft IGO6261 during the first transmission after the read back/hear back error that the cleared level was FL370 and subsequently instructed the aircraft to maintain FL370 during the second transmission, but there was no response from the aircraft to both of these transmissions. However, the crew responded to the third transmission after which the controller instructed the crew to maintain FL370, but the aircraft by that time had crossed FL370 and was approaching FL360 which they maintained thereafter. The controller did not inform the crew about the level breach done by them or the breach of separation at any point of time after the contact with the aircraft was established. Hence, the crew of IGO6261 was unaware of the situation/event and did not raise any FSR after landing. This resulted in non-removal of CVR as per the prescribed procedure. Hence, CVR was not available for investigation which was a very crucial evidence for establishing the findings/circumstances leading to the incident. A documented procedure in this regard i.e., a procedure for controller to inform the aircraft about the level breach or breach of separation could have resulted in timely removal/downloading of CVR after the aircraft arrived at Mumbai.

#### **2.4 Circumstances leading to the incident**

The controller gave IAD773 which was bound for Goa and maintaining FL360, direct routing to MBATA (waypoint) in order to facilitate IGO6261's descent which was bound for Mumbai. The aircraft IGO6261 was maintaining FL380 when it came in contact with Area Control (North). Before top of descent the co-pilot who was performing the duties of PM left the cockpit to use LAV. Hence, PIC was communicating with ATC. PIC requested for descent for which the controller gave descent to FL370, however, the PIC made a readback error and readback the descent clearance as FL310 instead of FL370 given by the controller. The controller did not correct the readback error made by the crew and rather confirmed the read back error made by crew to descent to FL310. Further, the PIC was not monitoring the NAV display properly otherwise the aircraft IAD773 which was maintaining FL360 could have been spotted and PIC could have acted accordingly. The PIC then set the descent level as FL310 & accordingly set rate of descent on FMS which was higher than the prescribed value for the cleared level of FL370. This further aggravated the situation as the aircraft started descending at a faster rate



and it took considerably less time to breach the cleared level of FL370. Subsequently, PCW warning was generated when the controller was giving heading instruction to IGO6261. The controller continued the transmission and informed IGO6261 to check the cleared level once he observed that the pilot selected level was FL310 and not FL370. After getting no response from the aircraft, the controller made another transmission to IGO6261 to Maintain FL370. There was no response from the aircraft for this transmission also. The crew of IGO6261 were not maintaining the listening watch as probably during this time the co-pilot re-entered the cockpit and immediately thereafter, the PIC handed over the controls to co-pilot and left the cockpit to use LAV. The controller also kept on calling IGO6261 even when it was not responding to the transmission rather than instructing IAD773 to avoid the potential conflict as PCW has already generated and the aircraft IGO6261 was descending at a faster rate. However, by the time the co-pilot responded to the transmission made by the controller the CCW warning was generated and breach of separation has occurred wherein the standard vertical and lateral (radar) separation got reduced to 'Zero' feet and 3.8 NM respectively. The controller thereafter resolved the conflict by instructing IAD773 which responded immediately to the instructions given by the controller.

### **3. Conclusion**

#### **3.1 Findings**

1. Both the aircraft were having valid C of R, C of A and all other relevant certificates were valid at the time of incident. All concerned Airworthiness Directives, mandatory Service Bulletins, and DGCA Mandatory Modifications on both the aircraft and its engines were complied with as on date of event.
2. The crew of both the aircraft were having valid licenses and fulfilled all other requirements to operate the flight. Their medical and all trainings were current as on date of occurrence. The crew of Indigo were paired for the first time to operate the flight. However, they both have operated to Mumbai before.
3. The ATC controller was having valid license and was qualified to operate RT on Mumbai Area Surveillance Control as on date of incident.
4. The weather at the time of incident was fine with visibility above minima and did not contribute to the incident.
5. No abnormality was reported in any communication system.
6. For IGO6261, the PIC was PF and co-pilot was PM.
7. The aircraft IAD773 was maintaining FL360 when came in contact with Mumbai Area Control (North) and IGO6261 was maintaining FL380 when came in contact.
8. At top of descent, the co-pilot (PM) left the cockpit to use LAV and all the communication with ATC was carried out by PIC (PF).

9. PIC requested for descent and made a readback error by calling out cleared level as FL310 instead of FL370 given by the controller.
10. Controller did not correct the readback error made by the PIC and instead confirmed the cleared descent level as FL310 when the PIC confirmed it during readback.
11. There was no aircraft at that time under the jurisdiction of involved area controller with similar call sign and no aircraft was given descent clearance to FL310 which could have resulted in confusion for descent clearance or read back/hear back error.
12. The PIC set the descent level as 310 and accordingly set the descent rate on FMS which was higher than the prescribed value for cleared level of FL370.
13. The aircraft started descending at a faster rate and it took considerably less time to breach the cleared level of FL370.
14. PIC was not properly monitoring the navigation display otherwise the aircraft IAD773 which was maintaining FL360 could have been traced.
15. PCW warning was generated when the controller was giving heading instructions to IGO6261 after which he continued the transmission and informed IGO6261 to check the selected level.
16. The crew of IGO6261 were not maintain the listening watch and did not respond to the transmissions made by the controller to maintain FL370 which was non-adherence to the SOP.
17. The crew were not maintaining the listening watch as probably during this time they were busy in handing over/taking over procedure because after co-pilot re-entered the cockpit, immediately thereafter, the PIC handed over the controls to co-pilot and left the cockpit to use LAV.
18. The controller kept on calling IGO6261 even when it was not responding to his transmission rather than instructing IAD773 to avoid the potential conflict as PCW has already generated and the aircraft IGO6261 was descending at a faster rate.
19. By the time the co-pilot responded to the transmission made by the controller the CCW warning was generated and breach of separation has occurred.
20. The IGO6261 maintained FL360 thereafter.
21. The standard vertical and lateral (radar) separation got reduced to 'Zero' feet and 3.8 NM respectively.
22. The controller thereafter resolved the conflict instructing IAD773 to turn left heading 120 and thereafter to descent to FL350. The crew of IAD773 responded immediately to the instructions given by the controller.

23. The CCW warning went off and the aircraft were clear of conflict when IGO6261 was maintaining FL360 and IAD773 was descending passing FL351 with heading 120.
24. The controller did not inform the crew of IGO6261 about the level breach done by them or the breach of separation at any point of time after the contact with the aircraft was established.
25. The crew of IGO6261/IAD773 were unaware of the situation/event and did not raise any FSR after landing. This resulted in non-removal of CVR as per the requirement laid down in the relevant DGCA CAR & OM of operator.
26. CVR recording of the event was not available for investigation.
27. Scrutiny of MATS I revealed that there is no such procedure where the controller is required to inform the aircraft that there was breach of separation or the level has been breached by the aircraft.

### **3.2 Probable cause of the incident**

The breach of separation occurred due to non-adherence of SOP on the part of flight crew of IGO6261, wherein they were not maintaining listening watch when the area controller transmitted multiple times to maintain FL370 after PCW warning was generated.

#### **Contributory Factors**

- Readback error made by the flight crew of IGO6261 to the cleared descent level of FL370 given by the controller.
- Controller not correcting the readback error made by the flight crew of IGO6261 and confirming the cleared descent level as FL310 instead of FL370.
- Crew of IGO6261 were busy in handing over/taking over controls as PIC immediately left the cockpit after co-pilot re-entered the cockpit, which probably led to crew not maintaining listening watch at critical situation.
- Loss of situational awareness on the part of controller who kept on calling IGO6261 which was not responding instead of shifting focus and instructing IAD773 to avoid potential conflict as PCW warning has already generated with aircraft IGO6261 descending at a faster rate.
- High Rate of Descent of IGO6261 which was higher than the prescribed limit for descending to FL370 due to the readback/hearback error.

### **4. Safety Recommendations**

It is recommended that

- 4.1 M/s Indigo may issue an advisory to all their flight crew to ensure that they maintain listening watch to the ATC at all times during the flight.

- 4.2 M/s Indigo may advise all their flight crew to properly monitor all available resources to ensure that there is no discrepancy in the cleared level given by the controller.
- 4.3 DGCA may formulate a procedure as deemed fit (in the form of CAR/Circular, etc.) wherein it is ensured that there is a considerable time gap between the crew leaving the cockpit such that when one of the crew leaves the cockpit then the other crew is not allowed to leave the cockpit immediately after that crew re-enters the cockpit.
- 4.4 DGCA may advise AAI to formulate a procedure and include it in MATS I, as per which the controller should inform the aircraft about the breach of separation or level breach involving the aircraft.

*K. Ramachandran*

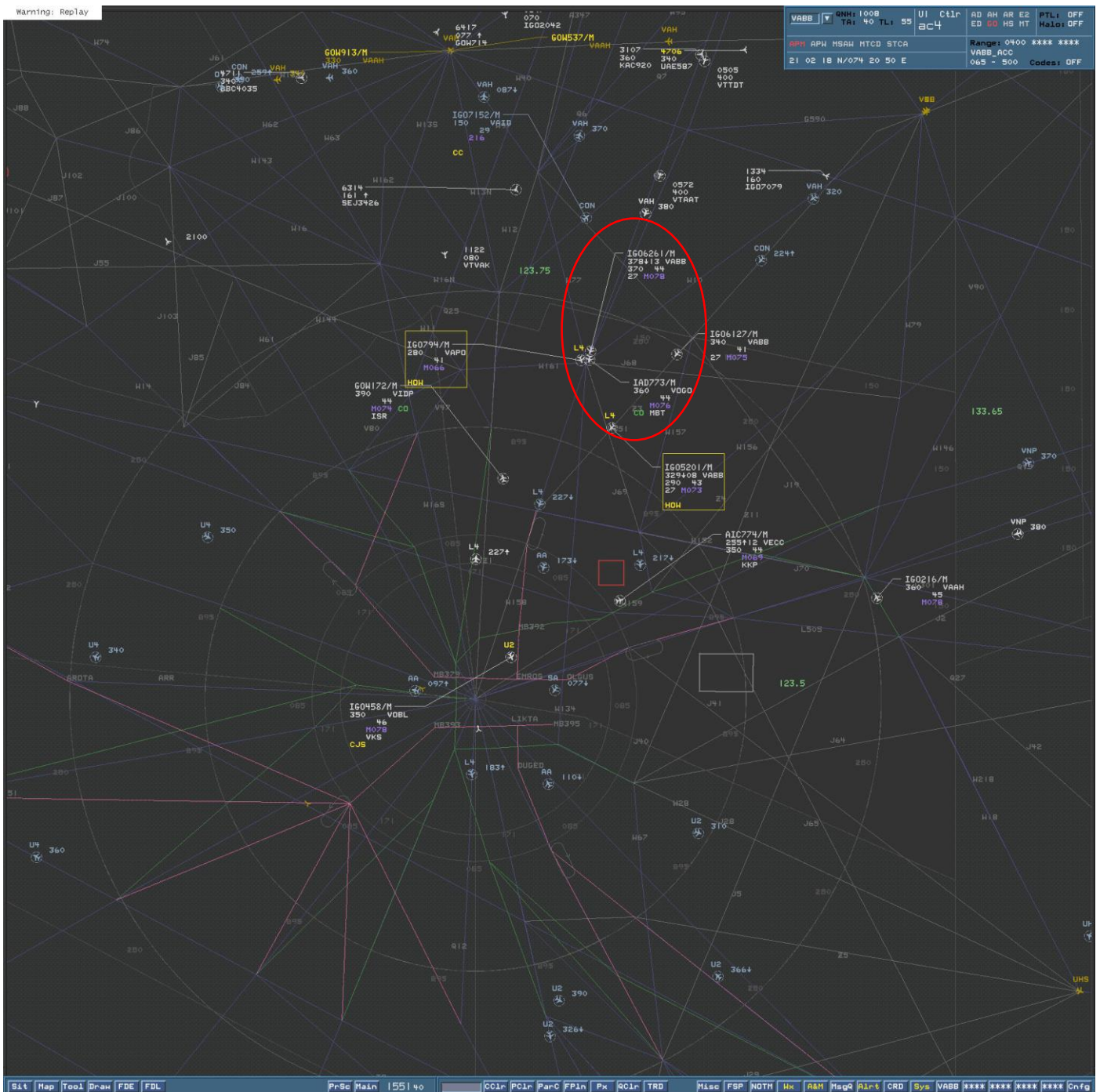
**(K Ramachandran)**

**Investigator – In - Charge**

**Date: 06 February 2023**

**Place: New Delhi**

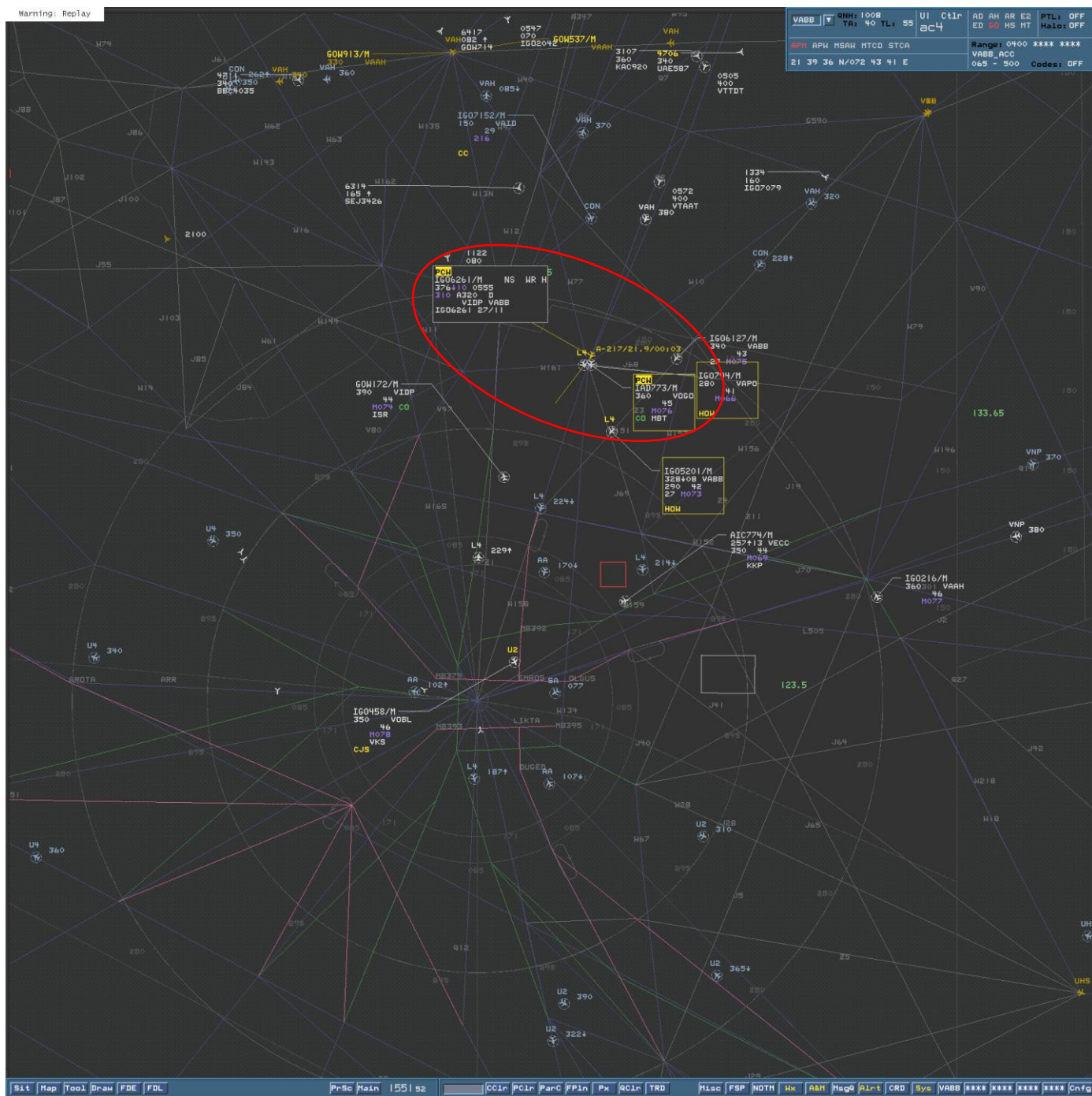
# **RADAR SNAPSHOTS FROM 155140 UTC TO 155324 UTC**





**PCW warning was generated at 155147 UTC**







## CCW Warning was generated at 155217 UTC

















***The Breach of Separation was resolved at 15:53:24 UTC***

