FINAL REPORT ON SERIOUS INCIDENT TO M/s AIR ASIA (INDIA) LTD, A320 AIRCRAFT, VT-CCU AND M/s INDIGO, A320 AIRCRAFT, VT-IAR IN DELHI AIRSPACE, ON 29/02/2020

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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/serious 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.

ABBREVIATIONS

AAIB	Aircraft Accident Investigation Bureau
ACC	Area Control
ADC	Aerodrome Control
APP	Approach Control
ATC	Air Traffic Controller
ATPL	Airline Transport Pilot License
CCW	Current Conflict Warning
CPL	Commercial Pilot License
DFDR	Digital Flight Data Recorder
ICAO	International Civil Aviation Organization
NM	Nautical Miles
STCA	Short Term Conflict Alert
TCAS RA	Traffic Collision Avoidance System- Resolution Advisories
TCAS TA	Traffic Collision Avoidance System- Traffic Advisories
UTC	Co-ordinated Universal Time
VHF	Very High Frequency

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FINAL REPORT ON SERIOUS INCIDENT TO M/s AIR ASIA (India) LTD, A320 , VT-CCU AIRCRAFT AND M/s INDIGO, A320, VT-IAR AIRCRAFT AT DELHI AIRSPACE, ON 29/02/2020

1.	Aircraft Type	AIRBUS A320	AIRBUS A320
2.	Nationality	INDIAN	INDIAN
3.	Registration and Call Sign	VT-CCU, IAD776	VT-IAR, IGO2124
4.	Owner	AIR ASIA (INDIA) LTD	Good Fly Leasing Limited
5.	Operator	AIR ASIA (INDIA) LTD	INDIGO
6.	Pilot – in –Command	ATPL	ATPL
	Extent of Injuries	NONE	NONE
7.	Co-Pilot	CPL	CPL
	Extent of Injuries	NONE	NONE
8.	Place of Serious Incident	DELHI AIRSPACE	
9.	Co-ordinates of Serious Incident Site (Location)	DELHI APPROACH	
10.	Last point of Departure	GOA	DELHI
11.	Intended place of Landing	DELHI	CHENNAI
12.	Date & Time of Serious Incident	29.02.2020 AT 1259 UTC	
13.	Extent of Injuries (Crew)	NONE	NONE
14.	Extent of Injuries (Passenger)	NONE	NONE
15.	Phase of Operation	DECENDING	LEVEL FLYING
16.	Type of Incident:	AIRPROX	
(ALL TIMINGS IN THIS REPORT ARE IN UTC)			

SYNOPSIS

On 29.02.2020, a Serious Incident occurred between M/s Air Asia (India) Ltd (Call Sign- IAD776, Type- A320, Registration- VT-CCU) and M/s Go Indigo (Call Sign- IGO2124, Type- A320, Registration- VT-IAR) in Delhi Approach at 1259 UTC.

IGO2124, departed from Delhi Airport for Chennai at 1247 UTC. It came in contact with Delhi Approach Radar while it was climbing to FL90 .Radar Controller gave further climb to FL100.

IAD776 was arriving to Delhi from Goa. It was in contact with Delhi Approach Radar Controller. Controller gave descent to FL110 from FL120. This instruction was acknowledged correctly by flight crew of IAD776.

Due to bad weather, aircraft were diverting from their assigned tracks. Due to which IAD776 and IGO2124 came on reciprocal track. IGO2124 was maintaining F100 and IAD776 was descending to FL110.

After some time, it was observed by controller that IAD776 had descended below assigned level i.e. FL110. Due to which STCA (Predicted) was generated which soon turned to STCA (Violation) by the Automation System.

The minimum separation reduced to 0.5 NM laterally and 600 feet vertically. Separation was restored in 26 seconds.

The occurrence was classified as a "Serious Incident" in accordance with the Aircraft (Investigation of Accidents and Incidents) Rules, 2017. DG, AAIB ordered an investigation into this occurrence vide Order INV/12011/6/2020-AAIB dated 03/03/2020.

1 FACTUAL INFORMATION.

1.1 History of the flight.

On 29.02.2020, a Serious Incident occurred between IAD776 (Type- A320, Registration- VT-CCU) and IGO2124 (Type- A320, Registration- VT-IAR) in Delhi Approach at 1259 UTC. There was moderate traffic at Delhi Approach but due to bad weather, aircraft were diverting from their assigned tracks thus, making it complex traffic.

IAD776 was scheduled to operate its flight from Goa to Delhi and IGO2124 was scheduled to operate its flight from Delhi to Chennai.

At 1244 UTC, IAD776 came in contact with Delhi Approach Controller. IAD776 was cleared for RNAV STAR DIPS5F but it diverted towards its right due to bad weather. IAD776 was given descent to FL140 and subsequently to FL120 and FL110. All instructions given by Approach Controller were readback correctly by IAD776.

At 1247 UTC, IGO2124 departed from Runway 09 for Chennai. Initially, IGO2124 was cleared for FL90. After departure, IGO2124 was handed over to Approach control. Approach Controller gave IGO2124 a further climb to FL100. It was following SID AKRIB 5D.

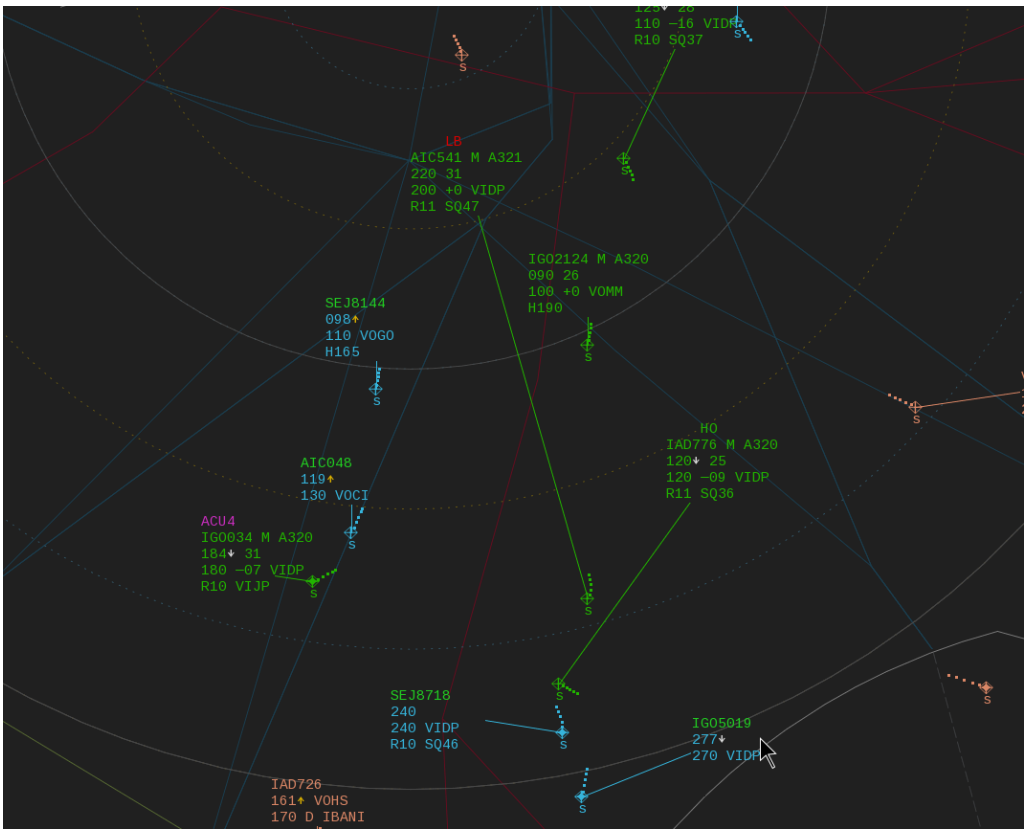

Figure: Initial position of IAD776 arriving Delhi and IGO2124 departing from Delhi

An alert of level burst on IAD776 was displayed on Automation System which was neglected by Controller. At this time, IGO2124 was maintaining FL100 and IAD776 was descending to FL110.

After some time, it was observed that IAD776 descended below the assigned level and came in conflict with reciprocal traffic IGO2124 which was at FL100.

Radar Controller observed the system alerts and tried to resolve but by this time IAD776 reported TCAS-RA. Both aircraft received RA and executed RA manoeuvring.

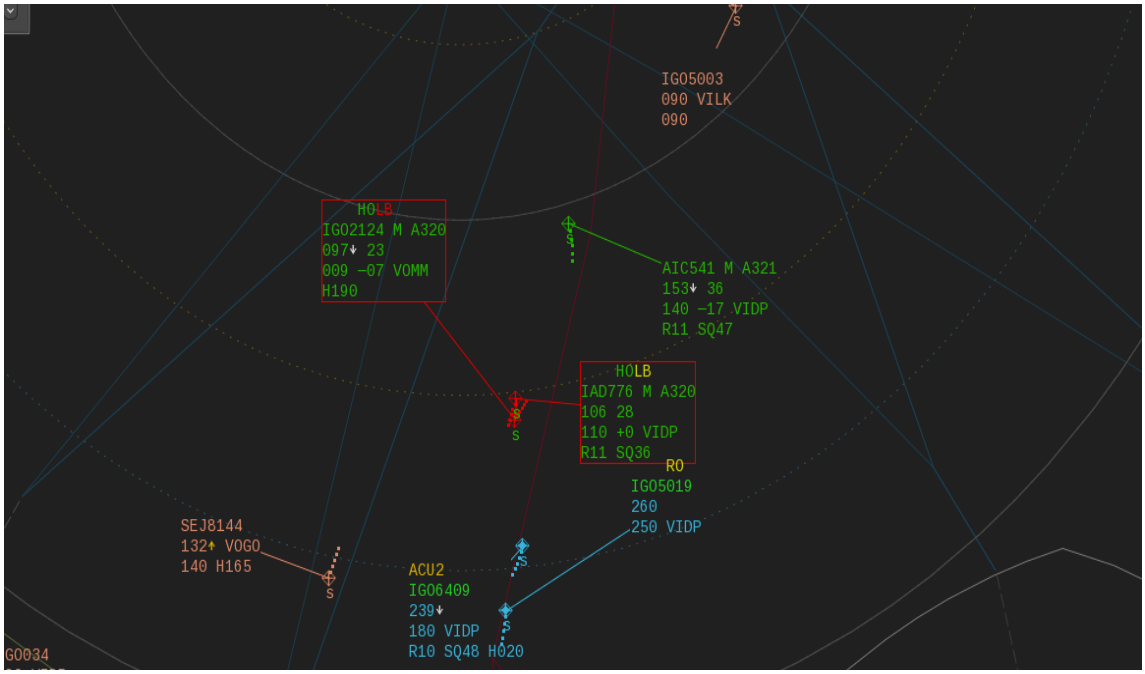

Figure: Showing minimum separation between IAD776 AND IGO2124

The standard separation reduced to 0.5 NM laterally and 600 Feet vertically. Standard separation was restored in 26 sec.

1.2 Injuries to Persons.

NIL

1.3 Damage to Aircraft.

NIL

1.4 Other Damage.

NIL

1.5 Personnel Information.

1.5.1 Air Traffic Controller.

Licence	Terminal
Date of Issue	24.10.2019
Validity	19.05.2034
Endorsements	Aerodrome Control, Approach Control.
Medical Validity	28.12.2021
Date of Last Proficiency Check	Approach Control Surveillance on 14.02.2020
Fatigue factor	No

1.5.2 Flight Crew.

Flight crew of both aircraft held valid licenses and were qualified to operate their respective flights.

Details of Pilot-In Command of IAD776

Date of Birth	26/05/1984
License	ATPL
Date of Issue	04/03/2016
Valid up to	03/03/2021
Category	ATPL
Date of Class I Med. Exam.	13/01/2020
Class I Medical Valid up to	12/01/2021
Date of issue FRTOL License	25/12/2017
FRTO License Valid up to	24/12/2022
Endorsements as PIC	16/01/2019
Total flying experience	5426:50

Total flying experience on type	326:25
Last Flown on type	A320
Total flying experience during last 30 days	65:06
Total flying experience during last 24 Hours	06:17
Rest period before flight	14:42
Whether involved in Accident/Incident earlier	NIL
Date of latest Flight Checks and Ground Classes	ANNUAL LINE CHECK 10/08/2019 ANNUAL GROUND 21/01/2020

Details of Pilot-In Command of IGO2124

Date of Birth	28/10/1969
License	ATPL
Date of Issue	20/06/2015
Valid up to	19/06/2020
Category	PIC
Date of Class I Med. Exam.	22/05/2019
Class I Medical Valid up to	09/06/2020
Date of issue FRTOL License	20/06/2018
FRTO License Valid up to	9/06/2023
Endorsements as PIC	09/05/2017
Total flying experience	7086:28 Hrs
Total flying experience on type	3427:43 Hrs
Last Flown on type	28/02/2020
Total flying experience during last 30 days	50:49 Hrs
Total flying experience during last 24 Hours	4:18 Hrs
Rest period before flight	19:28 Hrs
Whether involved in Accident/Incident earlier	Nil as per record.
Date of latest Flight Checks and Ground Classes	09/11/2019

Details of Co-Pilot of IAD776

Date of Birth	29/07/1987
License	ATPL
Date of Issue	13/01/2020
Valid up to	12/01/2020
Category	ATPL
Date of Class I Med. Exam.	26/07/2019
Class I Medical Valid up to	13/08/2020
Date of issue FRTOL License	18/10/2019
FRTO License Valid up to	23/10/2024
Endorsements as PIC	N/A
Total flying experience	2283:21
Total flying experience on type	2012:49
Last Flown on type	A320
Total flying experience during last 30 days	61:00
Total flying experience during last 24 Hours	06:51
Rest period before flight	17:27
Whether involved in Accident/Incident earlier	NIL
Date of latest Flight Checks and Ground Classes	ANNUAL LINE 30/03/2019 ANNUAL GROUND 19/08/2019

Details of Co-Pilot of IGO2124

Date of Birth	21/11/1991
License	CPL
Date of Issue	18/03/2016
Valid up to	17/03/2021
Category	CPL
Date of Class I Med. Exam.	20/04/2019
Class I Medical Valid up to	19/04/2020
Date of issue FRTOL License	18/03/2016

FRTO License Valid up to	17/03/2021
Endorsements as PIC	N/A
Total flying experience	1791:11
Total flying experience on type	1590:41
Last Flown on type	28/02/2020
Total flying experience during last 30 days	42:50 Hrs
Total flying experience during last 24 Hours	07:28 Hrs
Rest period before flight	21:34 Hrs
Whether involved in Accident/Incident earlier	NIL as per record
Date of latest Flight Checks and Ground Classes	22/02/2020

1.6 Aircraft Information.

Aircraft Information of IAD776

Aircraft Type	Airbus, A-320-214
Registration	VT-CCU
Year of manufacture	2011
MSN	4641
C of A (Date of Issue)	23.05.2017
Date of Last ARC	21.05.2019
ARC due on	21.05.2020
A/F Hours/Cycles since manufacture	32737:42/ 16541
Last periodic servicing and date	Daily check on :29.02.2020
Total flying hours at last periodic inspection	32737:42 Hrs

Aircraft Information of IGO2124

Aircraft Model	A320-232
Aircraft Sl. No.	6275
Year of Manufacturer	2014
Name of Owner	Good Fly Leasing Limited
C of R	4521
C of A	6631
Category	NORMAL
C of A Validity	Valid
A R C issued on	19.09.2019
ARC valid up to	23.09.2020
Maximum Takeoff weight	77000 KG
Last major inspection	3000 FH/ 360 Days Inspection on 21.01.2020.
List of Repairs carried out after last major inspection till date of incidence	NIL

1.7 Meteorological Information.

Meteorological information at time 1232 UTC recorded is as below:-

Wind	030 Degree/ 10Kts
Visibility	1800 Meter
Temp	22 Degree
QNH	1011
WEATHER	BR
CLOUD	CB 3500 SCT 3000 Ft/ 900 M FEW Ft/1050 M BKN10000 Ft/3000 M
TREND	TEMPO 270 Degree15 Kt 25 Kt, Thunderstorm with Rain Gusting

1.8 Aids to Navigation.

All Automation Systems, VHF channel and ATS surveillance system at Delhi Airport were reported to be working normal.

Frequencies of navigation aids are as below:-

Navigation Aid	Frequency
NDB (DH)	202.0 KHz
NDB (DP)	274.0 KHz
DME (DVOR)	1132/1195 MHz (FOR DPN) 1117/1180 MHz (FOR DIG)
DME (IPLM)	1001/1064 MHz
DME (IDGM)	1070/1007 MHz
DVOR (DPN)	116.1 MHz
DVOR (DIG)	114.60 MHz

1.9 Communications.

The VHF channels were working normal. Following are the VHF channels working at Delhi Airport.

ATC POSITIONS	FREQUENCY
ATIS	126.475 MHZ
Emergency	121.5 MHZ
Approach/ Radar	124.2 MHZ 126.35 MHz

IAD776 and IGO2124 were in control of Approach on 126.35 MHz.

Tape transcript of the channels is given below:

TIME (HHMMSS)	UNIT	TRANSMISSIONS
124402-124413	IAD776	RADAR RED KNIGHT SEVEN SEVEN SIX NAMASKAR
	RADAR	AIR INDIA SEVEN SEVEN……..RED KNIGHT SEVEN SEVEN SIX MAINTAIN ONE FIVE ZERO

	IAD776	MAINTAIN ONE FIVE ZERO RED KNIGHT SEVEN SEVEN SIX
124559-124604	RADAR	RED KNIGHT SEVEN SEVEN SIX RADAR...ABLE TO PROCEED TO DP504?
124605-124608	IAD776	STAND BY SIR RED KNIGHT SEVEN SEVEN SIX
124620 124629	IAD776	AFFIRM SIR.... WE CAN PROCEED TO 0P504.... UNTIL 15 MILES... CORRECTION 40 MILES
124630-124631	RADAR	AFTER 40 MILES CONFIRM?
124631-124632	IAD776	AFFIRM
124633-124635	RADAR	ROGER, CONTINUE HEADING SIR
124646-124652	RADAR	RED KNIGHT SEVEN SEVEN SIX.... MAINTAIN HEADING
	IAD776	COPIED SIR RED KNIGHT SEVEN SEVEN SIX
124711-124717	RADAR	RED KNIGHT SEVEN SEVEN SIX DESCEND TO FLIGHT LEVEL ONE FOUR ZERO
	IAD776	DESCEND ONE FOUR ZERO RED KNIGHT SEVEN SEVEN SIX
124841-124847	RADAR	RED KNIGHT EIGHT....RED KNIGHT SEVEN.... RED KNIGHT SEVEN SEVEN SIX ADVISE WHEN ABLE TO TAKE LEFT
125018-125035	IAD776	DELHI RED KNIGHT SEVEN SEVEN SIX ON A HEADING OF ONE ZERO FIVE DUE WEATHER UNABLE
	RADAR	RED KNIGHT SEVEN SEVEN SIX SAY AGAIN HEADING
	IAD776	HEADING OF ONE ZERO FIVE SIR DUE WEATHER
	RADAR	ONE ZERO FIVE WILL TAKE YOU TO FURTHER AWAY FROM DELTA PAPA NOVEMBER SIR
	IAD776	(UNCLEAR)HEADING RED KNIGHT SEVEN SEVEN SIX
125052-125105	RADAR	SPICE JET CORRECTION RED KNIGHT SEVEN SEVEN SIX DELHI RADAR HOW LONG WILL YOU MAINTAIN THIS HEADING?
	IAD776	SIR, YOU CAN GIVE US RECIPROCAL HAEDING SIR RED KNIGHT SEVEN SEVEN SIX
	RADAR	ROGER SIR YOU CAN TURN LEFT
125125425129	IAD776	BREAK BREAK SIR RED KNIGHT SEVEN SEVEN SIX UNABLE LEFT YOU CAN GIVE US RIGHT RECIPROCAL HAEDING.

125133-125137	RADAR	RED KNIGHT SEVEN SEVEN SIX ROGER APPROVED
125235-125241	RADAR	RED KNIGHT SEVEN SEVEN SIX DESCEND TO FLIGHT LEVEL ONE TWO ZERO
	IAD776	DESCEND ONE TWO ZERO RED KNIGHT SEVEN SEVEN SIX
125458-125515	IG02124	DELHI I FLY TWO ONE TWO FOUR
	RADAR	I FLY TWO ONE TWO FOUR RADAR CLIMB TO FLIGHT LEVEL ONE HUNDRED
	IG02124	LEVEL ONE HUNDRED ...SIR WE CAN TAKE RIGHT HEADING… WE CAN TAKE DIRECT AKRIB I FLY TWO ONE TWO FOUR
	RADAR	ROGER PROCEED DIRECT TO AKRIB
125550-125555	IAD776	I DELHIRED KNIGHT SEVEN SEVEN SIX WE CAN TAKE A RIGHT HEADING THREE TWO ZERO
125716-125735	RADAR	RED KNIGHT SEVEN SEVEN SIX TURN RIGHT TURN RIGHT HEADING THREE..... RIGHT HEADING ZERO ONE FIVE
	IAD776	RIGHT HEADING ZERO ONE FIVE RED KNIGHT SEVEN SEVEN SIX
	RADAR	RED KNIGHT SEVEN SEVEN SIX **DESCEND TO FLIGHT LEVEL ONE ONE ZERO** EXPEDITE DESCEND
	IAD776	**DESCEND ONE ONE ZERO**
	RADAR	RED KNIGHT SEVEN SEVEN SIX **DESCEND TO FLIGHT LEVEL ONE ONE ZERO**
	IAD776	**ONE ONE ZERO** EXPEDITING RED KNIGHT SEVEN SEVEN SIX
125845-122848	RADAR	RED KNIGHT SEVEN SEVEN SIX CLIMB TO FLIGHT LEVEL ONE ONE ZERO
125849-125851	IAD776	CLIMB ONE ONE ZERO RED KNIGHT SEVEN SEVEN SIX
125851-125854	RADAR	I FLY TWO ONE TWO FOUR RADAR DESCEND TO FLIGHT LEVEL NINER FIVE
125856-125858	RADAR	I FLY TWO ONE TWO FOUR DESCEND TO FLIGHT LEVEL NINER ZERO
125901-125905	IAD776	(GARBLED) RADAR RED KNIGHT 'SEVEN SEVEN SIX TCAS RA
125905-125909	RADAR	ROGER RED KNIGHT SEVEN SEVEN SIX REPORT CLEAR OF RA
125934-125942	IG02124	DELHI I FLY TWO ONE TWO FOUR CLEAR OF CONFLICT RESUMING NORMAL NAVIGATION CLIMBING TO LEVEL ONE HUNDRED
	RADAR	AFFIRM SIR YOU WERE CLEARED ONE HUNDRED

	IG02124	ROGER SIR
125943-125944	RADAR	RED KNIGHT SEVEN SEVEN SIX RADAR,
	IAD76	GO AHEAD SIR.
125946-125947	RADAR	CONFIRM CLEAR OF CONFLICT?
	IAD776	AFFIRM SIR
125948-125950	RADAR	SIR, YOU WERE GIVEN ONE ONE ZERO ONLY
125950-125953	IAD776	NEGATIVE SIR, YOU HAVE CLEARED US ONE ZERO ZERO
125953-125954	RADAR	NEGATIVE SIR
125955-125957	UNKNOWN	[UNCLEAR]
	RADAR	RED KNIGHT SEVEN SEVEN SIX ROGER
130032-130043	IAD776	DELHI RED KNIGHT SEVEN SEVEN SIX REQUESTING DETAILS OF THE CONFLICTING TRAFFIC
	RADAR	I FLY TWO ONE THREE..... TWO ONE TWO FOUR AIRBUS THREE TWO ZERO DESTINATION CHENNAI
130043-130044	IG02124	SIR TWO ONE TWO FOUR
130107-130114	IG02124	DELHI I-FLY TWO ONE TWO FOUR REQUESTING FURTHER CLIMB
	RADAR	I FLY TWO ONE TWO FOUR RADAR CLIMB TO FLIGHT LEVEL ONE ONE ZERO
	IG02124	CLIMB LEVEL ONE ONE ZERO I FLY TWO ONE TWO FOUR
130145-130150	RADAR	I FLY TWO ONE TWO FOUR CONTACT RADAR ONE TWO FIVE DECIMAL SEVEN
	IG02124	(UNCLEAR) FIVE SEVENI FLY TWO ONE TWO FOUR GOODDAY

1.10 Aerodrome Information

Indira Gandhi International Airport (IATA:DEL,ICAO:VIDP) is a Joint Venture airport being managed by Delhi International Airport Limited (DIAL) and Airports Authority of India. The air traffic services at IGI airport are provided by AAI which includes Aerodrome Control Service (ADC/SMC), Approach Control Service (APP), Area Control Service (ACC), Terminal Approach Radar (TAR) and Route Surveillance Radar Service (RSR). Aerodrome has ARP at 283407N 0770644E. The Aerodrome is operational for 24 Hrs.

IGI airport houses three near converging runways in the westerly direction namely Rwy27, Rwy28 and Rwy29. On the other hand, it has three diverging runways in the easterly direction i.e. Runway 09, Rwy10 and Rwy11.

At the time of serious incident, the mode of operation at IGI airport was easterly, with all three runways being used as:-

I. Runway 11 (runway-in-use) was used for both arrival and departures.

II. Runway 10 was used for arrivals only.

III. Runway 09 was used for departures only.

1.11 Flight Recorders.

Flight Recorders were installed on both Aircraft. There was no reported snag on either of the flight recorder. CVR and DFDR of IAD776 were analyzed for the purpose of investigation.

As per Cockpit voice recorder (CVR):

(i) The Captain was Pilot Flying (PF) and the Co-pilot was Pilot Monitoring (PM), the aircraft was on auto-pilot.

(ii) The crew acknowledged the correct altitude (FL110) which was cleared by ATC.

(iii) The crew did not follow the standard cockpit phraseology (As per OM-A 20.1.1) in ascertaining the level set on FCU. It states that:-

20.1.1 Interruption or Distraction

Misunderstanding of the assigned altitude, Pilot understands and reads back the correct altitude or FL, but select an incorrect altitude or FL on the FCU, for eg.

Because of:

a. Confusion of numbers with another element of the controller's message, (e.g., speed, heading or flight number),

b. Expectation/anticipation of another altitude or FL

c. Interruption/distraction, or

d. Breakdown in crew crosscheck

To minimize these errors Operator gives awareness program which gives emphasis to stick to SOP's which says that

Mutual cross-check and back-up are required. The following recommendations can enhance communications and raise the level of situational awareness of pilots and controllers:

i. Be aware that readback/ hearback errors may involve both the pilot and the controller:

ii. The pilot may be interrupted or distracted when listening to a clearance, confuse similar call signs, forget an element of the instruction or be subject to the bias of expectation when understanding or when reading back the instruction (this bias usually is referred to as wish hearing)

It also gives emphasis to use phraseology when leaving an altitude, announce:

Leaving […] for […], or

Leaving […] and climbing / descending to […],

In this case no confirmation was made and no such use of phraseology were used in case of any confusion.

(iv) IGO2124 initiated proximate traffic callout. Flight crew of IAD776 were monitoring aircraft at 12 O'clock and 7 NM on their display. They were not monitoring IGO2124 as a traffic.

<u>As per DFDR of IAD776</u>

(i) Flight crew selected FL100 on (Flight Control Unit) FCU at time 12:57:28 UTC. However, they read back correctly i.e. descent to FL110 as per CVR and Tape Transcript.

(ii) The crew then commenced descent from FL120 in OPN DES (In this mode the system commands idle thrust and aircraft descends maintaining the target speed, trading height for speed), therefore, the resulting V/S exceeded 700 fpm or more by 12:57:45 UTC and in excess of 1000 fpm at 12:58:00 UTC. The corresponding altitudes were 11814 and 11516 ft respectively. When the aircraft descended through FL110, the rate of descent was 1077 fpm.

(iii) TCAS-TA was generated at 12:58:53 UTC when level of the flight was 10572 feet. TCAS-TA was followed by TCAS-RA at time 12:58:55 UTC.

(iv) Traffic was clear of conflict at time 12.59.21 UTC. Thus, TCAS-RA for IAD776 was active for 26 sec when level of the flight was 10560 feet.

1.12 Wreckage and Impact Information.

NIL

1.13 Medical and Pathological Information.

Flight crew of both aircraft had undergone pre-flight medical (Breath Analyser test) before departure as per requirement of CAR Section 5, Series F, Part III. The test was found satisfactory.

Air traffic controllers were having valid medical assessment report and were fit to perform their duties on their respective channels.

1.14 Fire.

NIL

1.15 Survival Aspects.

The serious incident was survivable.

1.16 Tests and Research.

NIL

1.17 Organizational and Management Information.

1.17.1 Airports Authority of India.

Airports Authority of India (AAI) is a statutory body working under the Ministry of Civil Aviation, Government of India. It provides Communication Navigation Surveillance / Air Traffic Management (CNS/ATM) services over Indian airspace and adjoining oceanic areas.

Training of Air Traffic Controllers are done in Allahabad, Hyderabad and Gondia.

1.17.2 Air Asia (India) Ltd

Air Asia Berhad of Malaysia whose headquarters is at Kuala Lumpur, Malaysia opened a low cost airlines in joint venture with TATA Sons, India. In India, Air Asia is also known as TATA Singapore. Its hubs are at Bangalore and Delhi.

M/s AirAsia (India) Ltd is a Scheduled Operator, with a permit number S-26, valid upto 06 May 2024, operating Airbus A320-200 series aircraft.

1.17.3 Indigo

Indigo is an Indian Airlines based in Gurugram. It has a fleet of Airbus A320 and ATR. Training facility of Indigo for flight crew is at Gurugram, Haryana. It has a fleet of Airbus A320 ceo, A320 neo, A321 neo and ATR72. It is having 260 aircraft operational in 63 Domestic destination and 24 International destination.

1.18 Additional Information.

Statements of flight crew of IAD776

(i) As per PIC (PF), there was bad weather while descending at Delhi and ATC cleared for FL100. However, in ATC tape transcript crew read back correctly i.e. FL110.

(ii) As per FO (PM), Delhi Approach cleared them for DIPAS 5F or Runway 11 and gave descent to FL100 which was readback by both crew. However, no recording confirms the same. They neither crossed checked with ATC nor Monitored the current traffic i.e. IGO2124.

Level burst (LB)

An indication of level burst alert is generated by the Indra Automation System which indicates that the level feed in aircraft by Flight crew is different to what is entered by the controller in its automation system. It is indicated as "LB" in red colour.

1.19 Useful or Effective Investigation Techniques.

NIL

2. ANALYSIS.

On 29.02.2020, a Serious Incident occurred between IAD776 (Type- A320, Registration- VT-CCU) and IGO2124 (Type- A320, Registration- VT-IAR) in Delhi Approach at 1259 UTC.

There was moderate traffic but due to bad weather, aircraft were diverting from their assigned tracks in and around Delhi. Thus, making it a complex traffic. There was three runway Easterly operation going on (i.e. Runway 09,10 & 11 was operational).

IAD776 was scheduled to operate its flight from Goa to Delhi and IGO2124 was scheduled to operate its flight from Delhi to Chennai.

Delhi Approach controller took over watch at 1200 UTC on Freq 126.35 Mhz. At that time, due to bad weather at Delhi, aircraft were unable to follow their respective SID/STARs and were deviating from their desired path.

IAD776 came in VHF contact with Delhi Approach at 1244 UTC. It was maintaining FL150 as instructed by Area Control during change over. IAD776 was cleared for Runway 11 via RNAV STAR DIPAS 5F but it had diverted to its right due to bad weather. IGO2124 was also in contact of Delhi Approach. IGO2124 departed from Runway 09 at 1247 UTC and was following SID AKRIB 5D. IGO2124 was initially cleared to climb to FL90 by Clearance delivery. IGO2124 was requesting deviation to its left heading H180 and subsequently heading H190 from Approach Controller due to weather.

IAD776 was instructed to descent to FL140 by Approach Controller at 1247 UTC. The aircraft wanted to turn left due to bad weather but Controller did not approve as it was

taking the aircraft away from Delhi. However, right deviation was approved by Controller to avoid traffic.

At 12:52:35 UTC, IAD776 was instructed to descend to FL120. At 12:54:58 UTC, IGO2124 was instructed to climb to FL100. Due to bad weather, IGO2124 requested to proceed direct to AKRIB, which was approved by Approach Controller.

Though IAD776 was arrival and IGO2124 was departure but due to weather deviation they became reciprocal to each other's track but they were still vertically separated.

At 12:57:27 UTC, IAD776 was instructed to descend to FL110. This instruction was readback correctly by flight crew of IAD776. In CVR, there were no conversation of descending to FL100 nor the flight crew crossed checked the Assigned level. Flight crew did not use the standard phraseology for leaving flight level or descending to flight level.

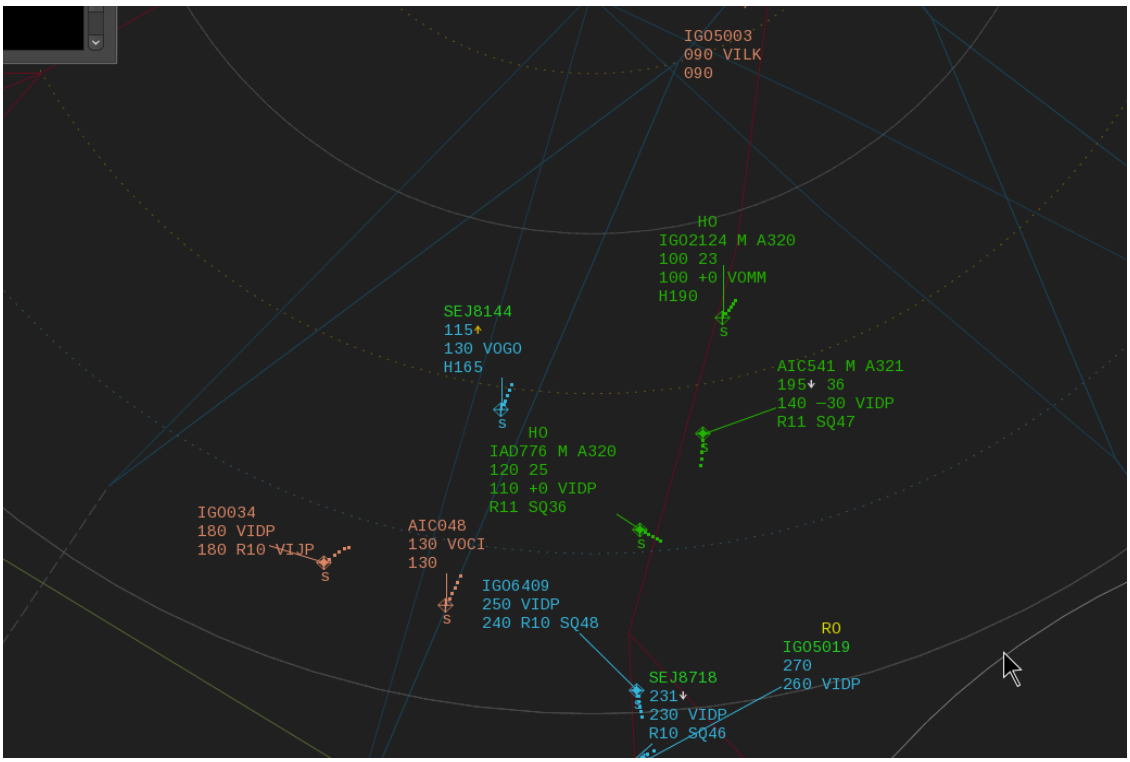

Figure: at 12:57:30 UTC, IAD776 given descent to FL110 and IGO2124 maintaining FL100

After giving descent, it was found that level burst alert had generated by the system which was neglected by the controller.

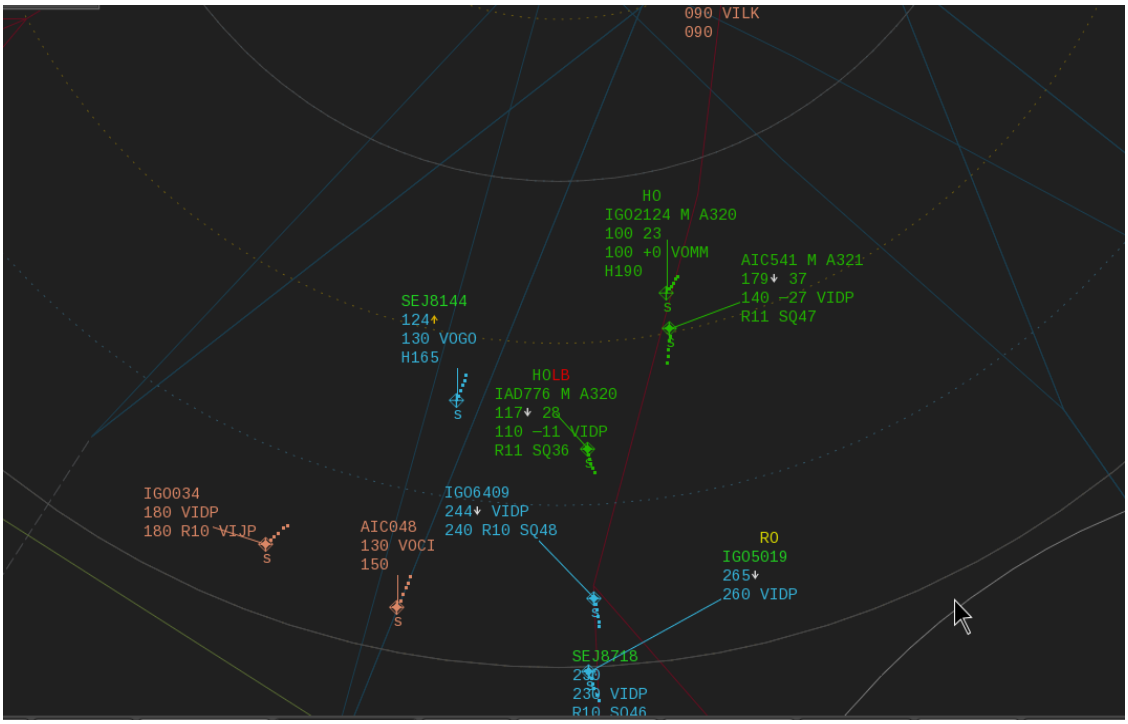

Figure: At 1258 UTC, Level burst (LB) was generated

After sometime, it was observed by controller that IAD776 is descending below its assigned level i.e. FL110. Controller gave avoiding action by instructing IAD776 to climb to FL110 and IGO2124 to descend to FL90, but at 12:58:43 UTC a Short Term Conflict Alert (STCA) was generated by the ATM automation system for a likely conflict between IGO2124 and IAD776.

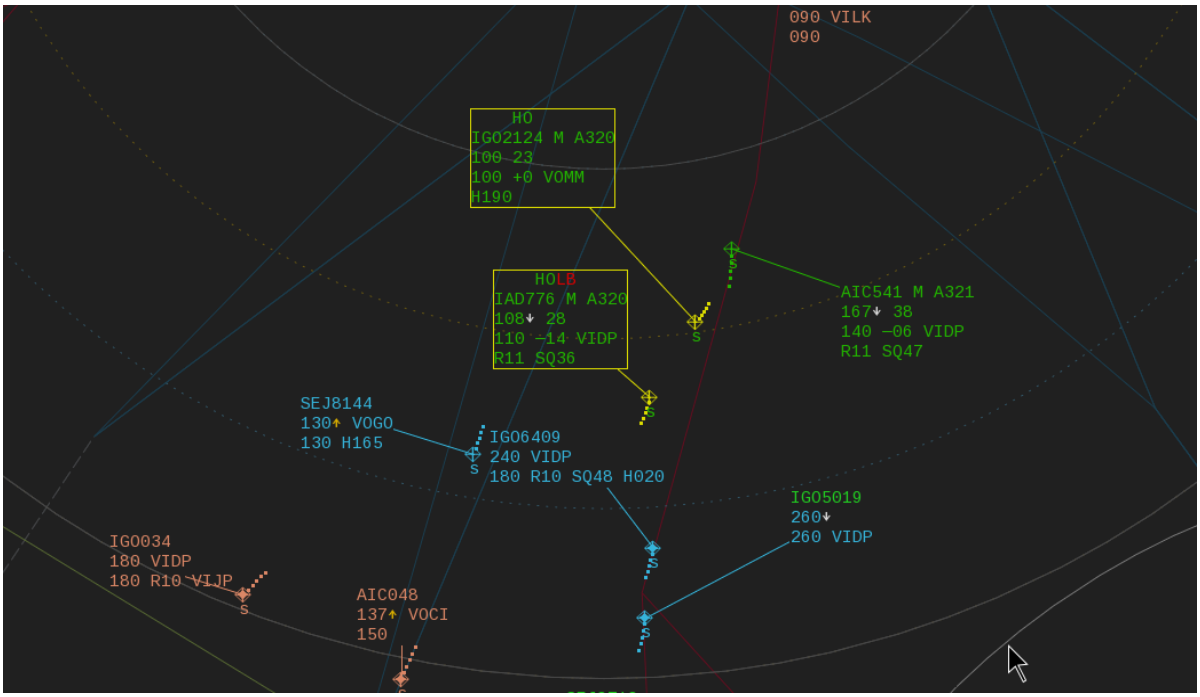

Figure: STCA (Predicted) generated on Automation Screen

At 1259 UTC, IAD776 reported getting TCAS-RA. At the same time, Automation system also notified separation breach (i.e. Alert violation).Both aircraft executed RA manoeuvre. IGO2124 descended as per RA manoeuvre while IAD776 maintained FL106. As per the system at 12:59:28 UTC, both aircraft were clear of conflict.

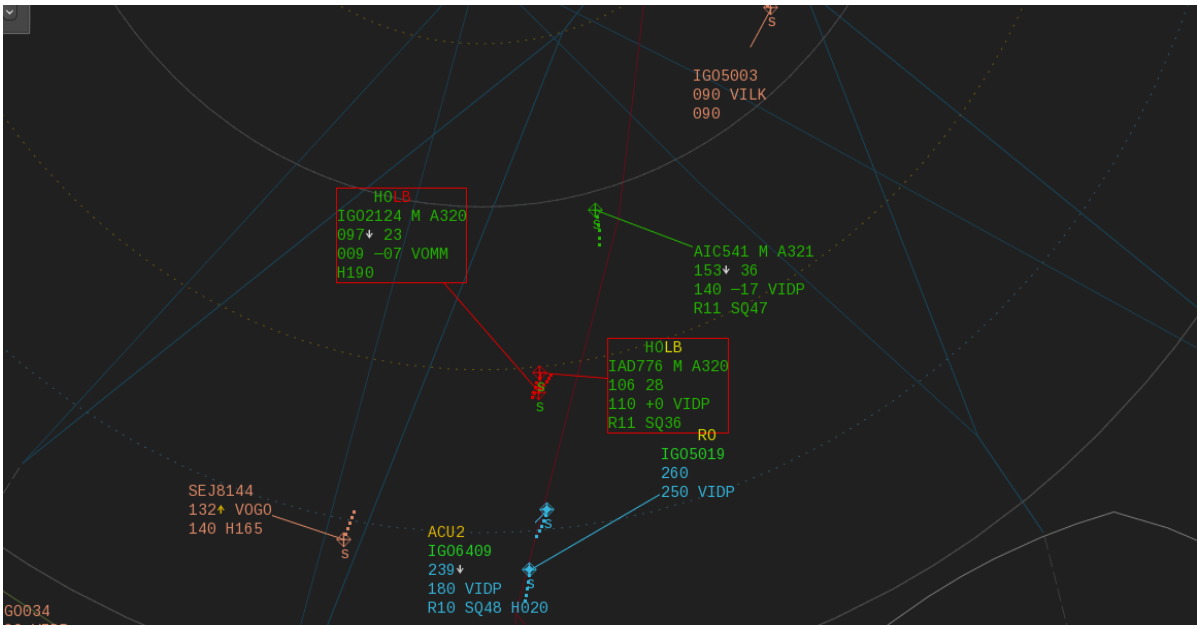

Figure: STCA (violation) generated on Automation System Screen

The standard separation was reduced to 0.5 NM lateral and 600 feet vertical. The standard separation was restored in 26 sec.

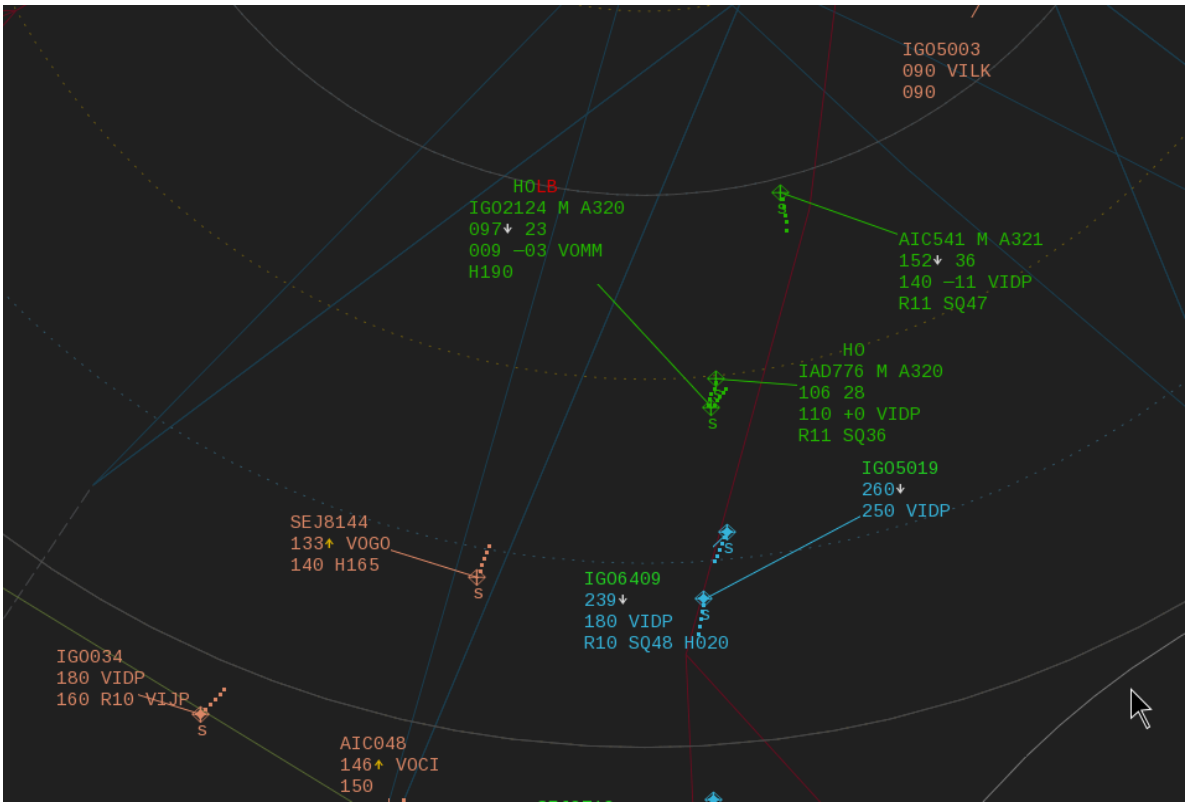

Figure: Showing Clear of conflict, IAD776 maintaining FL106 and IGO2124 descending

After both aircraft were cleared of conflict, controller enquired the reason of decent with IAD776. IAD776 replied that they descended to FL100 as it was instructed by ATC. However, in tape transcript, Flight crew of IAD776 readback descent to FL110.

3. CONCLUSIONS.

3.1 Findings.

i. Flight crew of both aircraft were holding valid ratings to fly the aircraft.

ii. Air Traffic Controller was having valid required ratings.

iii. Flight crews and ATC were not fatigued.

iv. At the time of serious incident, the traffic at Delhi approach unit was moderate.

v. Bad weather was prevailing in and around Delhi. Due to which aircraft were deviating from there desired path thus making the traffic complex.

vi. Three Runway easterly flow was operational.

vii. IAD776 was arrival and it was approaching for Runway 11 via RNAV STAR DIPAS 5F. IGO2124 was departure from Runway 09 and was following SID AKRIB 5D.

viii. Both aircraft were off track due to bad weather. To avoid weather ,they came on reciprocal tracks but were vertically separated.

ix. IGO2124 was maintaining FL100.

x. IAD776 was given descent to FL110 by Approach Controller.

xi. IAD776 readback all the instructions and clearances correct as advised by Approach Controller. Even descent instruction to FL110 was readback correctly.

xii. Captain was Pilot flying and Co-Pilot was Pilot monitoring.

xiii. When descent was given ,Co-Pilot acknowledged FL110. However, an altitude of FL100 was set on FCU.

xiv. IAD776 executed an unauthorised descent below FL110 which IAD776 had readback correctly.

xv. IAD776 descended below assigned level which led to TCAS-RA.

xvi. The predicted STCA warning was generated at time 12:58:43 UTC and got converted to STCA violation at time 12:59:02 UTC.

xvii. The crew as per CVR transcript did not follow the standard inter-cockpit phraseology in asserting the level set on the FCU nor did they cross-verify in case of confusion or before commencing descent.

xviii. ATC tried to resolve the traffic but soon predicted warning got converted to violation and IAD776 reported getting TCAS-RA.

xix. Standard separation of 10 NM laterally and 1000 Feet vertically reduced to 0.5 NM laterally and 600 Feet vertically.

xx. As per ATC tape transcript, though the crew readback descent clearance correctly but in their understanding FL100 was registered.

xxi. Standard separation was restored in 26 sec.

3.2 Probable Cause of the Incident.

i. Unauthorized descend by IAD776, below FL110 in violation to ATC instruction.

3.3 Contributory Factor.

i. Increase in workload in cockpit due to bad weather.

ii. Inadequate monitoring of traffic in close proximity.

4.0 Safety Recommendations.

i. Corrective training to Flight crew of IAD776 may be given by M/s Air Asia as per syllabus and giving major emphasis to Situational Awareness.

ii. Airports Authority of India may advise its controllers to be more cautious for system generated alerts.

(Kunj Lata)
Investigator-in-Charge

(Amit Kumar)
Investigator