



सत्यमेव जयते

**Final Report on Serious Incident between M/s Go Air Ltd. A320-214 &M/s
Jet Airways Ltd. B737-800 at Mumbai on 09.06.2017.**

COMMITTEE OF INQUIRY - VT-WAK

(Dinesh Kumar)
Member

(Dr. Jitender Loura)
Chairman

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 2012, the sole objective of the investigation of a serious incident shall be the prevention of serious incidents and not 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 serious incidents, could lead to erroneous interpretations.

Glossary

AAI	Airports Authority of India
AAIB	Aircraft Accident Investigation Bureau, India
AOP	Air Operator Permit
ATC	Air Traffic Control
ATPL	Airline Transport Pilot Licence
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
COI	Committee of Inquiry
CPL	Commercial Pilot Licence
DGCA	Directorate General of Civil Aviation
DFDR	Digital Flight Data Recorder
DME	Distance Measuring Equipment
HZ	Haze
ICAO	International Civil Aviation Organization
IATA	International Air Transport Association
IFR	Instrument Flight Rule
ILS	Instrument Landing System
LAC	Lower Area Control
NM	Nautical Mile
PIC	Pilot In Command
Pax	Passenger
<i>PANS-ATM</i>	Procedures for Air Navigation Services - Air Traffic Management
QFE	Query: Field Elevation
QNH	Query: Nautical Height
<i>R/T</i>	Radio Telephony
<i>RWY</i>	Runway
SQMS	Standards, Quality Management and Safety
SOP	Standard Operating Procedures
VHF	Very High Frequency
VOR	Very High Frequency Omni Range
UTC	Co-ordinated Universal Time

<u>INDEX</u>		
<u>CONTENTS</u>		<u>PAGE No.</u>
	SYNOPSIS	02
1	FACTUAL INFORMATION	05
1.1	HISTORY OF THE FLIGHT	05
1.2	INJURIES TO PERSONS	09
1.3	DAMAGE TO AIRCRAFT	09
1.4	OTHER DAMAGE	09
1.5	PERSONNEL INFORMATION	09
1.6	AIRCRAFT INFORMATION	10
1.7	METEOROLOGICAL INFORMATION	10
1.8	AIDS TO NAVIGATION	10
1.9	COMMUNICATIONS	11
1.10	AERODROME INFORMATION	11
1.11	FLIGHT RECORDERS	11
1.12	WRECKAGE AND IMPACT INFORMATION	11
1.13	MEDICAL AND PATHOLOGICAL INFORMATION	12
1.14	FIRE	12
1.15	SURVIVAL ASPECTS	12
1.16	TESTS AND RESEARCH	12
1.17	ORGANISATIONAL & MANAGEMENT INFORMATION	12
1.18	ADDITIONAL INFORMATION	12
1.19	USEFUL AND EFFECTIVE TECHNIQUES	12
2	ANALYSIS	13

3	CONCLUSIONS	15
3.1	FINDINGS	15
3.2	PROBABLE CAUSE OF THE SERIOUS INCIDENT	16
3.3	CONTRIBUTORY FACTORS	16
4	SAFETY RECOMMENDATIONS	17
5	APPENDIX (ATC Transcript LAC 133.85 MHz)	i-ii

**Final Report on Serious Incident between M/s Go Air Ltd. A320-214&
M/s Jet Airways Ltd. B737-800 at Mumbai on 09.06.2017.**

1. Aircraft

Type : B737-800 (Jet Airways)/ A320-214 (Go Air)

Nationality : Indian

Registration : VT-JFM (Jet Airways)/ VT-WAK (Go Air)

2. Owner/ Operator : M/s Jet Airways Ltd. / M/s Go Air Ltd.

3. Pilot – in –Command : ATPL Holder for both Jet Airways and Go Air

Extent of injuries : Nil

4. First Officer : CPL Holder for both Jet Airways and Go Air

Extent of injuries : Nil

5. Place of Incident : In the EMRAK Hold (BBB VOR R071/60D FIX)

6. Date & Time of Incident : 09th June 2017, 15:16 UTC

7. Last point of Departure : Shamshabad for Jet Airways and New Delhi for Go Air

8. Point of intended landing : Mumbai for Jet Airways and Pune for Go Air

9. Type of operation : Scheduled Operation for Jet Airways & Go Air

10. Crew on Board : 02+06 (Jet Airways) and 02+04 (Go Air)

Extent of injuries : Nil

11. Passengers on Board : 158 (Jet Airways) and 176 (Go Air)

Extent of injuries : Nil

12. Phase of operation : Both arriving aircraft in descending phase with Lower Area
Control (LAC) - Mumbai

13. Type of Occurrence : Air Proximity

(ALL TIMINGS IN THE REPORT ARE IN UTC)

SYNOPSIS

On 09.06.2017, M/s Jet Airways flight JAI392, aircraft B737-800 from Shamshabad to Mumbai was given Standard Arrival Route (STAR) EMRAK1A and was holding over EMRAK hold and descending initially to flight level FL200 and subsequently to flight level FL190, flight level FL180 and flight Level FL160. (Descending in the Hold “EMRAK” to flight level FL160 and flying outbound easterly)

M/s Go Air flight, GOW171, aircraft A320 from Delhi to Pune came in contact with LAC, Mumbai was given descend to flight level FL210 initially. When GOW171 requested for further request, LAC Controller instructed GOW171 to “Standby for descend due Traffic”.

The automation system generated Predicted Conflict Warning (PCW) for GOW171 and JAI392. LAC Controller instructed GOW171 *“to maintain flight level FL210 on reaching”*. Again the automation system generated PCW for JAI392 and GOW171, to which the LAC Controller again asked GOW171 *“Maintain level 210 on reaching due traffic.”* GOW171 was advised to descend to flight level FL200 and *subsequently to flight level FL100*, which was read back by the Crew of GOW171.

The wrong descend to GOW171 to FL100 (which was above JAI392 and with higher rate of descend) by the LAC (Radar) Controller and loss of situational awareness of the Crew of GOW171, as to the traffic (JAI392) below it, led to breach of standard separation. The Crew of GOW171 failed to appreciate the step descend being given to them and immediately accepted level FL100 given by LAC Controller. The Crew of GOW171 could have clarified from LAC Controller “Confirm FL100” or “Confirm Clear of Traffic now” as the lower level for Pune is FL120 and LAC Controller normally releases the aircraft to Pune above Flight Level FL120.

Both the aircrafts reported getting RA and followed the RA. *The lateral separation between GOW171 and JAI392 was reduced to 2.8 NM when the vertical separation was just 100 feet* as against the standard lateral separation of 10 Nm and standard vertical separation of 1000 feet.

Thereafter the flights were uneventful with no injuries to persons on board either aircraft.



Figure 1: Airprox between GOW171 and JAI392 with vertical and lateral separation as 100 feet and 2.8 NM

Ministry of Civil Aviation constituted a Committee of Inquiry vide Notification no. Av-15013/12/2017-DG dated July 2017 to investigate the cause of the Serious Incident under Rule 11 (1) of Aircraft (Investigation of Accidents and Incidents), Rules 2012 comprising of Dr. Jitender Loura, Assistant Director of Operations (AAIB) as Chairman and Shri Dinesh Kumar, Air Safety Officer (AAIB) as member.

The probable Causative factors for the serious incident were:

1. Issuance of descend clearance to flight level FL100 to GOW171 inadvertently through the level of other aircraft i.e. JAI392 (passing FL178 for FL160 in EMRAK hold).
2. GO Air Crew's failure to analyze the traffic scenario and accept descend below FL200 (without confirming from ATC "Confirm Clear of Traffic" and/or Confirm FL100." as they were continuously being given step descend and were advised twice of the Traffic by the Controller after getting Predicted Conflict Warning) could be a major Contributory Factor.
3. The traffic density, proficiency of Controller coupled with one Radar Controller manning the Lower Area Control (LAC) with Jurisdiction from FL 250 to FL 150 and keeping **Surveillance over 05 (five) Holds simultaneously** could be another contributory factor.

1. FACTUAL INFORMATION

1.1 History of the flight

- 1.1 All automation/VHF/Radar were reported to be working normal.
- 1.2 M/s Jet Airways flight JAI392, aircraft B737-800 from Shamshabad to Mumbai came in contact with Lower Area Controller (Radar Controller) at time 15:07:31 UTC descending passing FL254 and at time 15:11:15 UTC, JAI392 was instructed to **descend to FL200 and Hold at “EMRAK”** by LAC Controller.
- 1.3 M/s Go Air flight, GOW171, aircraft A320 from Delhi to Pune came in contact with LAC Controller at time 15:09:13 UTC while descending to FL250. GOW171 was given descend to FL210 at 15:09:18 and When GOW171 asked for further descend, GOW171 was advised to *“stand by due Traffic”* by LAC Controller at **time 15:11:24 UTC and** was again advised to *“maintain FL210 on reaching”* at **time 15:12:57 UTC. STCA was generated on both the Occasion.**

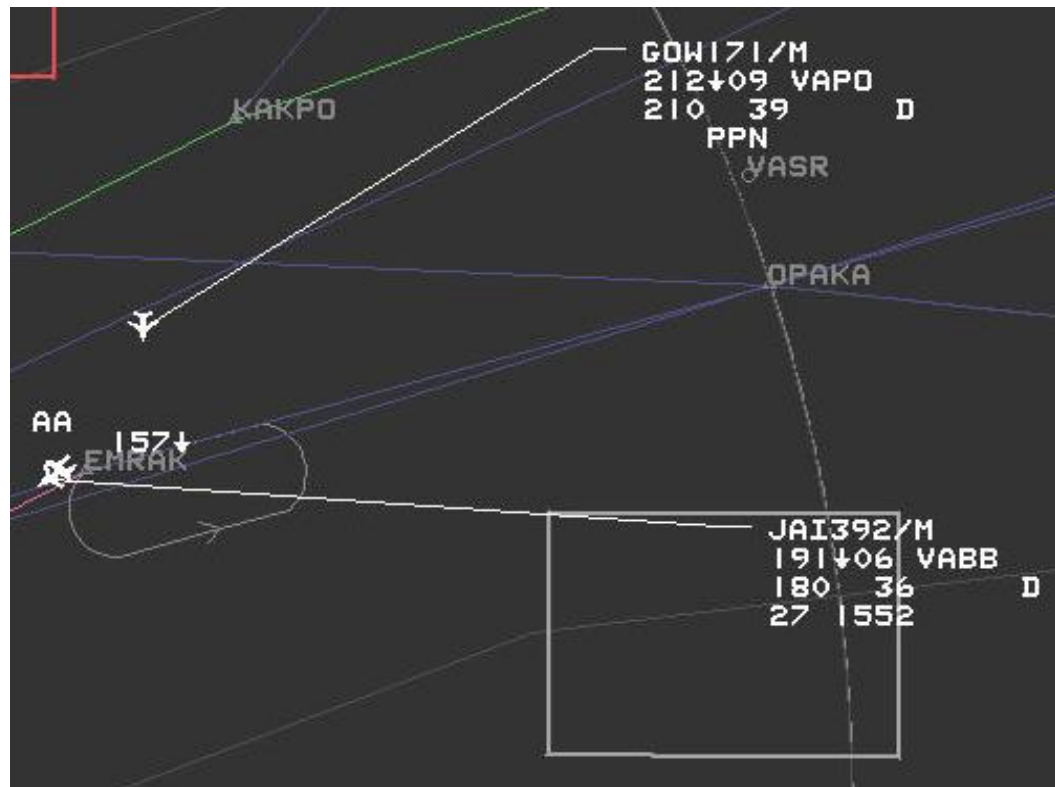


Figure 2: At 15:14:12, after GOW171 advised to maintain FL210 due Traffic

- 1.4 JAI392 was asked to “*remain in the Hold and descend to FL 180*” at time *15:13:28 UTC*. GOW171 was asked to descend to FL200 by LAC Controller at time *15:14:20 UTC* which was read back by GOW171 at time *15:14:22 UTC*.
- 1.5 At time *15:14:25 UTC*, LAC Controller asked **GOW171 to descend to FL100**, (when JAI392 was in the hold and descending to flight level FL 160) and this instruction was read back by GOW171 at time 15:14:28 UTC.
- 1.6 The breach of separation leading to serious incident occurred at time 15:16 UTC where the *lateral/Vertical separation reduced to 2.8 NM and 100 feet* respectively.

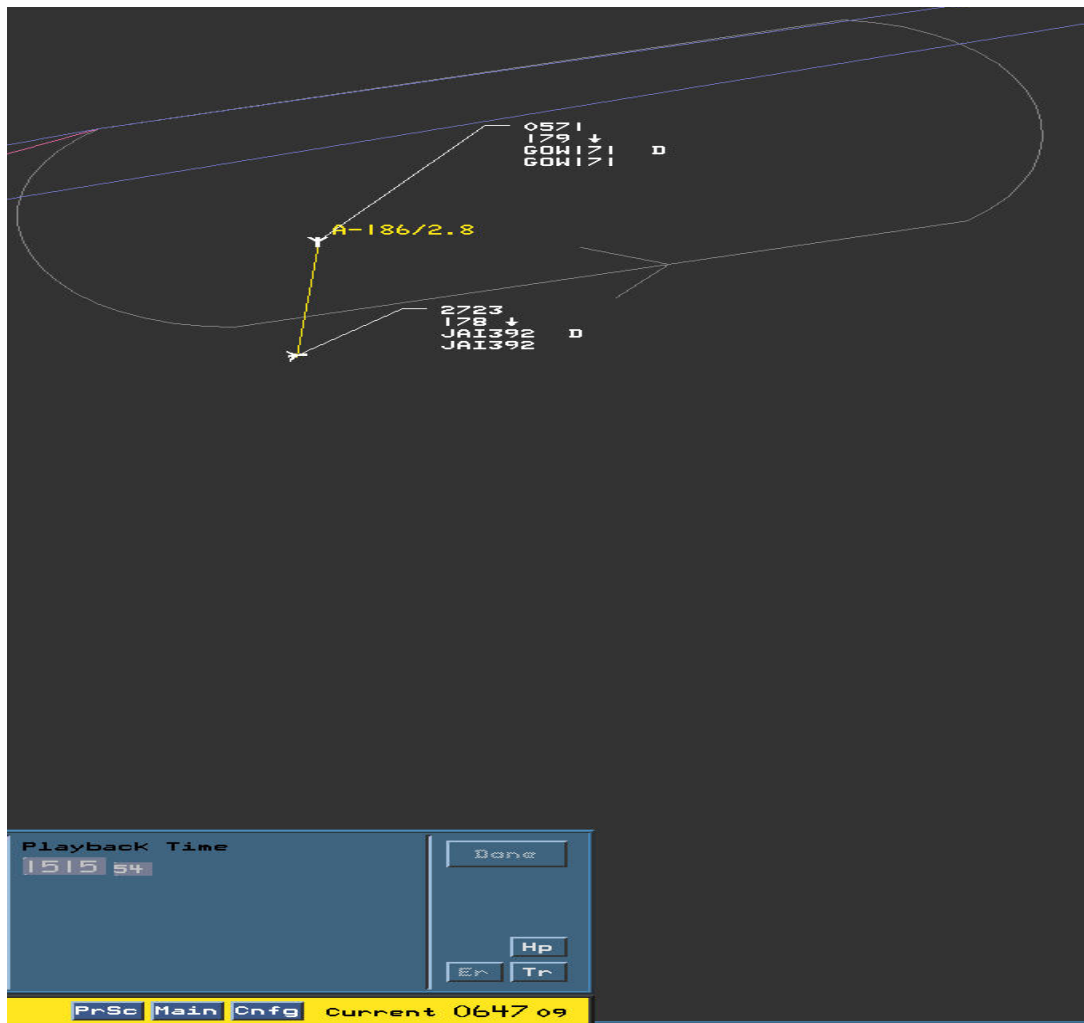


Figure 3: At time 15:15:54, Lateral/Vertical Separation 2.8NM and 100 feet

- 1.7 The LAC Controller is rated for the ADC/SMC, ACC (P), ARSR and ASR¹ units.
- 1.8 From the period 01.12.2016 till 09.06.2017 (the date of serious incident), the **LAC Controller was primarily performing the duties in LAC/ARSR.**
- 1.9 **In over 180 days, preceding date of the serious incident, LAC/ARSR Radar Controller had:**
- 1.9.1 Performed *duty in Tower² only on one occasion for an hour from 1008-1108 UTC on 18.04.17.*
- 1.9.2 Performed duty in ASR only on two occasion on 09/01/17 and 06/06/17.
- 1.9.3 Performed duty in ACC (P) on 8 occasion.
- 1.10 Both the aircraft reported getting TCAS-RA and were observed to follow TCAS-RA on situation display (SD).

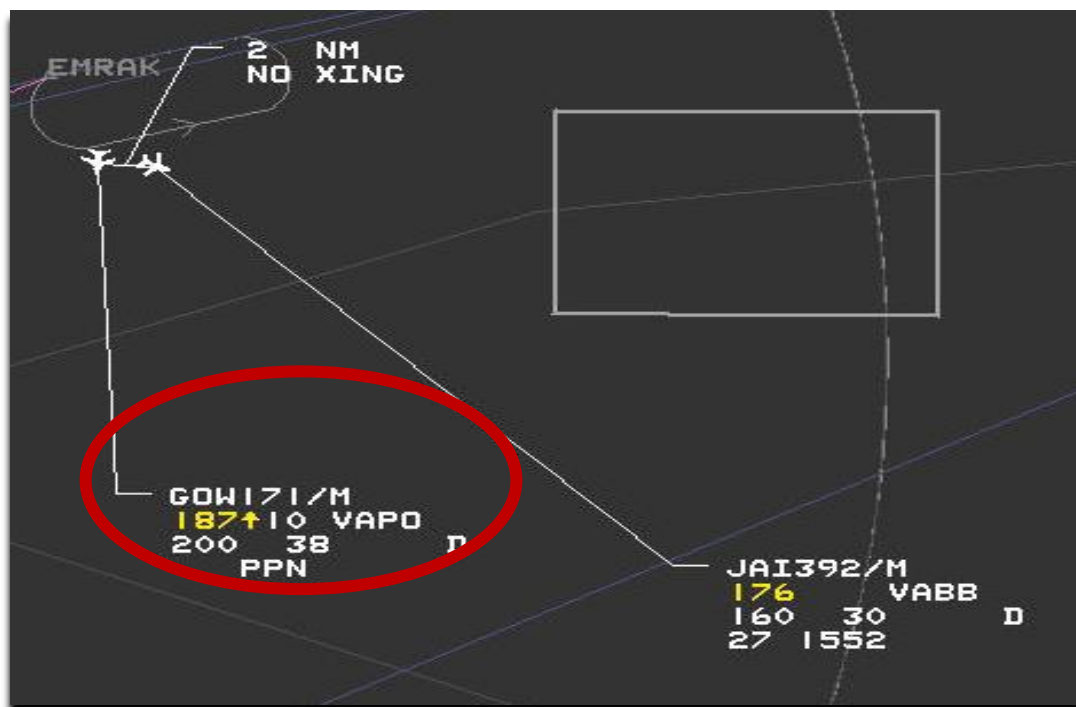


Figure 4: at time 15:16:28, after getting TCAS RA, both aircrafts following TCAS RA.

¹ Controller's training records and AAI Mumbai's confirmation vide email dated 14.03.2019.

² Details of ATC duties performed by involved Radar Controller as provided by AAI, Mumbai.

- 1.11 GOW171 reported RA at time 15:15:47 and was asked to climb to F190 by the LAC Controller at time 15:15:49 and 15:15:55 i.e. post TCAS-RA. The instructions, though, were not contrary to TCAS-RA.
- 1.12 JAI 392 was observed to have TCAS-RA from time 15:15:42 UTC to 15:16:02 UTC³, when JAI392 was passing 17936 feet (i.e. FL179) and the vertical speed (rate of descend) was observed to increase from 1032 feet/min. to 1966 feet/min.
- 1.13 Crew of GOW171 made an entry of TCAS- RA in PDR (Tech Log) and advised AME/Tech personnel to secure CVR⁴ for further use. They expressed their inability to do so and released the aircraft for its next sector.
- 1.14 For east bound flights on W28 overflying Mumbai and landing at Pune “the aircraft Mumbai ACC/APP shall descend⁵ the aircraft to FL120 or a level below FL120 if approved by Pune ATC”.
- 1.15 Thereafter, the flights were reported to be uneventful.
- 1.16 The Radar/LAC Controller was on Channel (133.85 MHz) from 1430-1524 UTC.
- 1.17 The Crew of both the aircrafts operated the respective flights within duty time limitation (DTL) .
- 1.18 M/s AAI allocated the Terminal Stream (TERS)⁶ to the Radar Controller wef 16.10.2017.
- 1.19 No weather deviation was reported.
- 1.20 AAI, Mumbai didn't preserve the ATC tape recordings of LAC and there were issues in the replay due to software compatibility.

³ DFDR data of JAI392.

⁴ Statement of Crew of GOW171.

⁵ Para C(ii) page 6 of Letter of Agreement (LOA) between Mumbai ATC and Pune ATC (IAF).

⁶ AAI Mumbai Letter dated 14th Oct 2017 communicated vide email dated 14.03.2019.

1.2 Injuries to persons

INJURIES	CREW	PASSENGERS	OTHERS
FATAL	Nil	Nil	Nil
SERIOUS	Nil	Nil	Nil
MINOR/NONE	(02+06) Jet Airways (02 +04) Go Air	158 Jet Airways 176 Go Air	Nil

1.3 Damage to aircraft Nil

1.4 Other damage Nil

1.5 Personnel information

Both the flights i.e. JAI392 and GOW171 were operated by scheduled airlines and all the flight crew were appropriately licensed. The crew of both the airlines fulfilled all the requirements for operating the flight.

The Radar/ LAC Controller was authorized to handle R/T in the Radar environment. The Radar/LAC Controller had undergone the proficiency checks in the respective ATC unit and was found proficient⁷ to perform ATC duties.

Radar/LAC Controller in addition to Route Radar (RSR), was rated/authorized for Approach Radar (ASR), Tower, Approach and Area (ACC) units. During the last over 180 days (preceding the date of serious incident i.e. 09.06.2017), the Route Radar/LAC Controller had primarily worked in Route Radar and Area (ACC). The Radar Controller has worked only on two occasions in Approach Radar on 05th June 2017 (for 01 hour from 01:00 to 02:00 UTC) & on 09th January 2017 (for 02:02 hours from 11:42 to 13:43 UTC). The Radar Controller had worked only on one occasion in Tower i.e. on 18th April 2017 for 01 hour from 1008 to 1108 UTC.

⁷ Proficiency Check reports as obtained from GM ATC, AAI, Mumbai Airport.

1.6 Aircraft information

M/s Jet Airways Ltd. B737-800 and M/s Go Air Ltd. A320

Boeing 737-800 aircraft of M/s Jet Airways Ltd., registration VT-JFM (MSN 39067) had been manufactured in year 2013. At the time of serious incident, the Certificate of Airworthiness and Certificate of Registration was current.

The Airbus A320-214 aircraft of M/s Go Air Ltd. Registration VT-WAK (MSN 3900) had been manufactured in year 2009. At the time of serious incident, the Certificate of Airworthiness and Certificate of Registration was current.

1.7 Meteorological information:

Date: 09th June 2017 and Time of Observation: 15:00 UTC

Wind	Visibility	Weather	Cloud	Temp.	Dew Point	QNH
250° 07Kts	3000 meter	HZ (Haze)	SCT (Scattered) 1800 & 2500 ft Few CB 3000 ft Broken 10000 ft. Trend NOSIG, CB to SE Top 7Km	29 ° C	26° C	1005 hPa

1.8 Aids to navigation

All aids to navigation viz., VOR, DME, along with Lower Area Control (LAC) Radar frequency 133.85 MHz were reported working normal.

1.9 **Communications**

During the period of occurrence both the aircraft, B737-800 and A320-214 were in contact with ATC on Lower Area Control (133.85 MHz). There was continuous two-way communication between two aircraft and ATC.

1.10 **Aerodrome information**

Chhatrapati Shivaji Maharaj International Airport, Mumbai (IATA: BOM, ICAO: VABB), formerly known as Sahar International Airport, is the primary international airport serving the Mumbai Metropolitan Area, India. It is the second busiest airport in the country in terms of total and international passenger traffic after Delhi.

The airport is operated by Mumbai International Airport Limited (MIAL), a Joint Venture between the Airports Authority of India and the GVK Industries Ltd led consortium which was appointed in February 2006 to carry out the modernisation of the Airport. The airport has two intersecting runways. Only 1 runway have been upgraded to Code F, which means they can accommodate larger aircraft like the Airbus A380.

The air traffic services at CSM international airport are provided by AAI which includes Aerodrome Control service (ADC/SMC), Approach Control service (APP), Area Control Service (ACC), Terminal Approach Radar (TAR), Route Surveillance Radar Service (RSR) (divided into Lower Area Control and Upper area Control and Oceanic Control Centre (OCC).

1.11 **Flight recorders**

DFDR data of both the aircrafts was made available for analysis. Besides, DFDR data, ATC tape recording of frequency 133.85 MHz (Lower Area Control) were available for analysis. CVR data was not preserved by either of the airline operator.

1.12 **Wreckage and impact information**

There was no damage to either of the aircraft.

1.13 **Medical and pathological Information**

There was no reported adverse medical condition of the cockpit crew of both M/s Jet Airways and M/s Go Air. The Radar Controller was reported to be medically fit to perform ATC duties.

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**

Both the aircraft were operated by the Scheduled Indian registered airlines viz. Jet Airways and Go Air.

The route Radar Controller/LAC Controller was under the administrative control of Airports Authority of India which is responsible for Air Traffic Services at CSI airport including Route Radar Surveillance, Terminal Approach Radar, Area control Service, Approach Control Service, Oceanic Control Centre and Aerodrome Control Service.

1.18 **Additional information** Nil

1.19 **Useful and Effective Techniques** Nil

2. ANALYSIS

The analysis of ATC tape recording of Lower Area Control (133.85 MHz), DFDR data of both the aircrafts, Crew/Controller statements, preliminary inputs from AAI, ATC Log books and Proficiency Check report of Controller reveal that:

- 2.1 All automation/VHF/Radar were reported to be working normal.
- 2.2 JAI392 came in contact with Lower Area Controller descending passing FL254 and was instructed to **descend to FL200 and Hold at “EMRAK”** by LAC Controller.
- 2.3 GOW171 came in contact with LAC Controller descending to FL250. GOW171 was given descend to FL210 . GOW171 was advised to maintain ***FL210 due traffic on two occasions due to generation of Predicted Conflict Warning.***
- 2.4 LAC Controller asked GOW171 to descend to FL100, when the traffic JAI392 was in the hold and descending to flight level FL 160.
- 2.5 The breach of separation leading to serious incident occurred at time 15:16 UTC where the ***lateral/Vertical separation reduced to 2.8 NM and 100 feet*** respectively.
- 2.6 The LAC Controller is rated for the ADC/SMC, ACC (P), ARSR and ASR⁸ units.
- 2.8 From the period 01.12.2016 till 09.06.2017 (the date of serious incident), the **LAC Controller was primarily performing the duties in LAC/ARSR and only one duty in Tower and two duties in ASR/TAR.**
- 2.9 Both the aircraft reported getting TCAS-RA and were observed to follow TCAS-RA on situation display (SD).
- 2.10 GOW171 reported RA and was observed to follow RA (Climb). GOW171 was

⁸ Controller's training records and AAI Mumbai's confirmation vide email dated 14.03.2019.

asked to climb to F190 by the LAC Controller at time 15:15:49 and 15:15:55 i.e. post TCAS-RA. The instructions, though, were not contrary to TCAS-RA, should have been avoided.

- 2.11 JAI 392 was observed to have TCAS-RA from time 15:15:42 UTC to 15:16:02 UTC⁹, when JAI392 was passing 17936 feet (i.e. FL179) and the vertical speed (rate of descend) was observed to increase from 1032 feet/min. to 1966 feet/min.
- 2.12 Crew of GOW171 made an entry of TCAS- RA in PDR (Tech Log) and advised AME/Tech personnel to secure CVR¹⁰ for further use. They expressed their inability to do so and released the aircraft for its next sector.
- 2.13 The Crew of GOW171 failed to appreciate the traffic despite being given step descend due traffic, despite being advised to maintain FL210 due traffic, despite being advised of traffic twice. The error committed by LAC Controller by giving GOW171 descend through the level of JAI392 could have been contained, had the Crew of GOW171 responded by asking ATC- “Whether they are clear of traffic or Confirm descend to FL100 or F120¹¹” (the pre-coordinated level to which Mumbai ATC can descend a Pune bound aircraft before releasing it to Pune ATC). Had the LAC Controller intended to give descend to GOW171 to FL100/F120, he would have used phraseology “GOW171 Clear of Traffic, Descend to FL100/FL120.”
- 2.14 Thereafter, the flights were reported to be uneventful.
- 2.15 The Radar/LAC Controller was on Channel (133.85 MHz) from 1430-1524 UTC.
- 2.16 The Crew of both the aircrafts operated the respective flights within duty time limitation (DTL).
- 2.17 No weather deviation was reported.
- 2.18 ATC tapes were not preserved by AAI, Mumbai and couldn’t be replayed.

⁹ DFDR data of JAI392.

¹⁰ Statement of Crew of GOW171.

3. CONCLUSION

3.1 Findings

- 3.1.1 Both the scheduled flights were under the command of an appropriately licensed ATPL holder and FO being CPL holders and the Radar Controller was authorized to handle the air traffic in Lower Area Control (LAC).
- 3.1.2 The medical of all cockpit crew members as well as Radar Controller was valid.
- 3.1.3 Traffic density with Lower Area Control was moderate/high.
- 3.1.4 All communication facilities including VOR, NDB and LAC frequency 133.85 MHz were reported to be working normal.
- 3.1.5 The crew of GOW171 and JAI392 as well as the Radar Controller were operating within duty time limitation.
- 3.1.6 The Radar Controller was giving step descend to GOW171 and had advised GOW171 twice of the Traffic (JAI392) before giving descend to GOW171 to FL100 (below the level of JAI392).
- 3.1.7 The aircraft GOW171 had to be released to Pune ATC at pre coordinated level after clearing it from the traffic (JAI392) (at FL120 as per LOA) but it appears that inadvertent descend given by the LAC Controller to GOW171 to FL100 through the Level of JAI392 and lack/loss of situational awareness led to the airprox.
- 3.1.8 Crew of GOW171 failed to realize that” the instruction given to them by the LAC Controller to descend to FL100 was inappropriate” (despite being continuously given the traffic information as well as step descend, despite the Crew being familiar with the route and Lower level for Pune).
- 3.1.9 The separation between the two aircrafts was reduced to 100 feet vertically and 2.8 Nm laterally.

3.1.10 AAI allotted the TERS ATC Stream (Terminal- Comprising of Approach Radar (ASR) and Tower) to the LAC Radar Controller i.e. the stream/unit in which the LAC Controller has performed minimal duty (One duty in Tower and Two duties in ASR) during the reference period (from 01.12.16 to 09.06.2017).

3.1.11 M/s GO Air failed to download the CVR despite making an entry in the tech log for the airprox incident.

3.1.12 M/s Jet Airways also failed to download the CVR despite landing at CSM International airport, Mumbai which has the downloading facility.

3.1.13 Weather was not a contributory factor.

3.1.14 ATC tapes couldn't be replayed due to software compatibility issues and the ATC tapes couldn't be preserved by AAI, Mumbai.

3.2 **Probable Cause**

3.2.1 Issuance of descend clearance to flight level FL100 to GOW171 inadvertently through the level of other aircraft i.e. JAI392 (passing FL178 for FL160 in EMRAK hold).

3.3 **Contributory Factors**

3.3.1 GO Air Crew's failure to analyze the traffic scenario and accept descend below FL200 (without confirming from ATC "Confirm Clear of Traffic" and/or Confirm FL100." as they were continuously being given step descend and were advised twice of the Traffic by the Controller after getting Predicted Conflict Warning) could be a major Contributory Factor.

3.3.2 The traffic density, proficiency of Controller coupled with one Radar Controller manning the Lower Area Control (LAC) with Jurisdiction from FL 250 to FL 150 and keeping **Surveillance over 05 (five) Holds simultaneously** could be another contributory factor.

4 **SAFETY RECOMMENDATIONS**

4.1 M/s Airports Authority of India Ltd.

4.1.1 It is recommended that LAC Controller may be subjected to corrective training with emphasis on separation, surveillance, handling of post incident situations/ emergency situation on Simulator, handling of TCAS RA situation post RA etc.

4.1.2 It is recommended that AAI may ensure proper preservation of ATC tapes in future and may have proper arrangements/ compatible software for the replay.

4.1.3 It is recommended that AAI Mumbai may explore the feasibility of sectorisation in the lower Area control with reduced number of holds under jurisdiction of one Radar Controller.

4.2 M/s GO Air Ltd.

4.2.1 It is recommended that the Crew of GOW171 may be subjected to corrective training on CRM, situational awareness (immediately reacting to an inappropriate ATC instruction).

4.2.2 It is recommended that M/s GO Air may ensure the availability of CVR data in future in case of Airprox incident/ TCAS RA incidents.

4.3 M/s Jet Airways Ltd.

4.3.1 It is recommended that M/s Jet Airways may ensure the availability of CVR data in future in case of Airprox incident/TCAS RA incidents.


(Dinesh Kumar)

Member- Committee of Inquiry


(Dr. Jitender Loura)

Chairman-Committee of Inquiry

Place: New Delhi

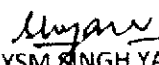
Date: 30.03.2021

TAPE TRANSCRIPT OF 09/06/2017 FROM 1507 TO 1522 UTC

TIME (HHMMSS)	FROM	TEXT
		LAC 133.85
150731	JAI392	MUMBAI JAI392 PASSING FL254
150736	LAC	JAI392 DESCEND TO LEVEL 230
150739	JAI392	230 JAI392
150906	LAC	JAI392 DESCEND TO LEVEL 220 AND MAINTAIN
150909	JAI392	220 AND MAINTAIN JAI392 TOUCH DOWN TIME FOR US SIR
150912	LAC	STAND BY
150913	GOW171	MUMBAI NAMASKAR GOW171 DESCENDING FL250 WITH YOU
150918	LAC	GOW171 DESCEND TO LEVEL 210
150920	GOW171	DESCEND 210 GOW171
150957	LAC	JAI392 DESCEND TO LEVEL 210
151001	JAI392	210 JAI392
151014	LAC	JAI392 TOUCH DOWN TIME 1552
151018	JAI392	1552 COPIED SIR JAI392
151115	LAC	JAI392 DESCEND TO LEVEL 200 AND HOLD OVER EMRAK
151118	JAI392	FL200 HOLD OVER EMRAK JAI392
151124	GOW171	FURTHER DESCEND GOW171
151128	LAC	GOW171 STAND BY DUE TRAFFIC
151139	LAC	JAI392 DESCEND TO LEVEL 190
151142	JAI392	190 JAI392
151257	LAC	GOW171 MAINTAIN LEVEL 210 ON REACHING
151259	GOW171	MAINTAIN 210 GOW171
151322	LAC	GOW171 MAINTAIN LEVEL 210 ON REACHING DUE TRAFFIC
151326	GOW171	ROGER GOW171
151328	LAC	JAI392 REMAIN IN HOLD AND DESCEND TO LEVEL 180
151332	JAI392	REMAIN IN HOLD AND DESCEND 180 JAI392
151420	LAC	GOW171 DESCEND TO LEVEL 200
151422	GOW171	DESCEND 200 GOW171
151425	LAC	GOW171 DESCEND TO LEVEL 100
151428	GOW171	DESCEND 100 GOW171
151452	LAC	JAI392 DESCEND TO LEVEL 160
151454	JAI392	160 JAI392
151512	LAC	GOW171 TURN RIGHT HEADING 270
151517	GOW171	RIGHT HEADING 270 GOW171
151520	LAC	GOW171 MAINTAIN LEVEL 190 TURN RIGHT HEADING 270 MAINTAIN LEVEL 190 MAINTAIN LEVEL 190
151526	GOW171	HEADING 270 GOW171
151528	LAC	JAI392 TURN RIGHT HEADING 180
151530	JAI392	RIGHT HEADING 180 JAI392
151544	LAC	GOW172 RADAR

Angan

151547	GOW171	TCAS RA SIR
151549	LAC	GOW172 CLIMB TO LEVEL 190
151552	GOW171	WE ARE FOLLOWING TCAS RA GOW171
151555	LAC	GOW171 I SAY AGAIN TURN RIGHT HEADING CLIMB TO LEVEL 190
151558	GOW171	RIGHT HEADING CLIMB TO 190 STANDBY SIR
151614	UNKNOWN	---GARBLED---
151619	LAC	CALL SIGN PLEASE
151621	JAI392	392 SIR
151622	LAC	ROGER MAINTAIN 150
151628	GOW171	AND MUMBBAI GOW171
151631	LAC	GO AHEAD
151632	GOW171	WE MANOEUVRE DUE TO RA SIR
151636	LAC	ROGER
151638	JAI392	JAI392 SIR MAINTAINING HEADING 150 DESCENDING TO 160 DUE RA
151645	LAC	JAI392 ROGER DESCEND TO LEVEL 150 NOW
151649	JAI392	DESCEND 150 NOW JAI392
151652	GOW171	--GARBLED--GOW171
151655	LAC	STANDBY
151719	LAC	JAI392 NOW TURN LEFT PROCEED DIRECT TO EMRAK AND REJOIN ARRIVAL
151723	JAI392	TURN LEFT TO EMRAK AND REJOIN ARRIVAL JAI392
151742	GOW171	FURTHER INTENTION GOW171
151747	LAC	GOW171 RADAR
151749	GOW171	GO AHEAD SIR FURTHER INTENTION
151752	LAC	STANDBY PLEASE STANDBY FOR DESCEND AND CONFIRM YOU ARE THE LEVEL YOU ARE GIVEN DESCEND THROUGH
151759	GOW171	SIR YOU ARE CLEARED INITIALLY TO 200 THEN YOU GAVE US A CALL CLEARING TO 100
151808	LAC	GOW170, GOW171 PROCEED TO PPN NOW DESCEND TO LEVEL 120 AND RADAR SERVICE TERMINATED CONTACT PUNA AND GOW171 ROGER RADAR SERVICE TERMINATED FREQUENCY CHANGE TO PUNE APPROVED GOOD DAY
151825	GOW171	OK SIR CHANGING OVER TO PUNE AND WILL BE FILING RA ON LANDING AIRPORT
151830	LAC	ROGER GOW171 DESCEND TO LEVEL 120 GOOD DAY
151832	GOW171	120 GOOD DAY
152119	JAI392	MUMBAI JAI392 CAN YOU CONFIRM THE AIRCRAFT WHICH RECEIVED RA
152125	LAC	THAT IS GOW171 GOING TO PUNE
152128	JAI392	COPIED


 (SHYMSINGH YADAV)
 MGR. (ATM-SQMS)

(ii)