



सत्यमेव जयते

GOVERNMENT OF INDIA

DIRECTORATE GENERAL OF CIVIL AVIATION

**FINAL INVESTIGATION REPORT ON THE GROUND INCIDENT OF WING TIP STRIKE
BETWEEN VT-ISS OF M/S INDIGO AND VT-TGG OF M/S AIR INDIA EXPRESS DURING
TAXING AT KOLKATA ON 27.03.2024.**

O/o Dy. Director General of Civil Aviation (ER)

Air Safety Directorate, NSCBI Airport,

Kolkata – 700052

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FOREWORD

This document has been prepared based upon the evidences collected during the investigation and opinion obtained from the experts. The investigation has been carried out as per DGCA order issued under Rule 13(1) of the Aircraft (Investigation of Accidents and Incidents), Rules 2017; and format of the report is as per Annex 13 to the convention on International Civil Aviation Organization (ICAO).

The investigation is conducted not to apportion blame or to assess individual or collective responsibility. The sole objective is to draw lessons from this incident which may help to prevent occurrence of such incidents in future.

LIST OF ABBREVIATIONS USED IN THE REPORT

AAI	Airports Authority of India
ARP	Aerodrome Reference Point
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATPL	Airline Transport Pilot Licence
CCIC	Cabin Crew In-charge
CPL	Commercial Pilot Licence
CVR	Cockpit Voice Recorder
DFDR	Digital flight data recorder
DGCA	Directorate General of Civil Aviation
DME	Distance Measuring Equipment
DP	Dew Point
DVOR	Doppler Very High Frequency Omni Range
FDTL	Flight and Duty Time Limitation
FO	First Officer
hPa	Hectopascal (unit of atmospheric pressure)
HZ	Haze
ILS	Instrument Landing System
IST	Indian Standard Time
Kg	Kilogram
KT	Knots
M	Meter
NOSIG	Nothing Significant
NSC	No Significant Cloud
MHz	Mega hertz
PF	Pilot Flying
PIC	Pilot-in-Command
RH	Right Hand
RWY	Runway
SCT	Scattered
SMC	Surface Movement Control
SOP	Standard Operating Procedure
UTC	Coordinated Universal Time
VHF	Very High Frequency

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TAXING AT KOLKATA ON 27.03.2024.**

1.	Aircraft	Type	Scheduled
		Nationality	Indian
		Registration	VT-ISS / VT-TGG
		Model	Airbus 320N / Boeing 737-8
2.	Owner/operator		M/s Indigo / M/s Air India Express Ltd
3.	Pilot-in-Command (VT-ISS / VT-TGG)	License	ATPL / ATPL
		Extent of Injuries	Nil / Nil
4.	Co-pilot (VT-ISS / VT-TGG)	License	CPL / ATPL
		Extent of Injuries	Nil / Nil
5.	Passengers	Number	146 / 169
		Extent of Injuries	Nil
6.	Date & Time of Incident		27.03.2024; 0527 UTC Approx
7.	Place of incident		Kolkata Aerodrome
8.	Last point of departure		Kolkata
9.	Point of intended landing		Darbhanga / Chennai
10.	Type of operation		Scheduled Flight
11.	Type of flight		Domestic Flight
12.	Phase of operation		Taxi
13.	Type of incident		Ground collision Wing tip strike

(All timings in the report are in IST unless or otherwise specified).

Synopsis:

M/s Indigo aircraft VT-ISS (A320Neo) flight 6E-6152 was scheduled to operate sector Kolkata-Darbhanga on 27.03.2024. M/s Air India Express aircraft VT-TGG (B737-8) flight AXB1886 was scheduled to operate sector Kolkata-Chennai on 27.03.2024. After startup, M/s Air India Express flight AXB1886 was instructed to taxi to holding point RWY 19R via TWY N4, A1, A, and was holding at holding point A of RWY 19R. It stopped much behind its assigned holding point A RWY 19R at 05:25:15 UTC. Simultaneously, M/s Indigo flight IGO6152 after its startup and pushback was also given taxi to holding point RWY 19 R via TWY N4, N and was taxiing on TWY N4 at 05:25:15 UTC when AXB1886 had stopped short of its assigned holding point A. At 05:26:41 UTC, IGO6152 crossed AXB1886 and at about 05:27:25 UTC, AXB1886 reported ground hit by Indigo aircraft on its left wing. Both aircraft were thereafter given follow me service and came back to their respective assigned bays.

The passengers of both the aircraft were deplaned. No injuries were reported to passenger or crew of either aircraft.

The DG, CA has instituted investigation into the incident to investigate the cause of the incident by appointing Investigator-in-charge vide order no DGCA-15024/5/2024-DAS dated 04.04.2024 under Rule 13(1) of Aircraft (Investigation of Accident and Incidents) Rules 2017. The incident involved wing tip strike between an Indigo aircraft which was taxiing and an Air India Express aircraft holding at holding point. The ground incident was caused due to an error of judgement made by Crew of IGO6152 while taxiing. SOP not being followed and deficient monitoring by ATC combined with misjudgement and lack of situational awareness of on part of involved flight crew are contributory factors.

1. Factual Information

1.1. History of Flights:

1.1.1. Flight Crew of Indigo Flight IGO6152 had planned for four sectors on the day of incident and had completed CCU-RPR-CCU and were proceeding to DBR which was the incident flight. Flight crew of Air India Express flight AXB1886 had operated sector MAA-CCU and were proceeding to MAA which was the incident flight. AXB1886 requested pushback and startup at 0511 UTC, which was approved by Kolkata SMC. Pushback and startup to IGO6152 was also approved by SMC at 0516 UTC. AXB1886 was to operate sector Kolkata-Chennai while IGO6152 was scheduled to operate sector Kolkata-Darbhanga. SMC at 0518 UTC issued instruction to AXB1886 to taxi to holding point RWY 19R via F1-F-N4-N. At about 0520 UTC, AXB1886 requested departure from A intersection which was approved by SMC and revised taxi instruction were issued to AXB1886 for taxiing via F1-F-N4-A1-A and to hold at holding point RWY 19 R on TWY A. IGO6152 requested for taxi at about 0520 UTC and SMC instructed taxi to holding point RWY 19R via F1-F-N4-N. At about 0524 UTC, AXB1886 after being instructed to hold at holding point TWY A RWY 19R, was handed over to Kolkata Tower for further instructions. At 0526 UTC, AXB1886 came in contact with Kolkata tower and reported holding at A RWY 19R. At 0527 UTC, AXB1886 reported being ground hit by Indigo aircraft on their left to tower. Kolkata tower immediately advised AXB1886 to contact SMC. At about 0527 UTC, AXB1886 contacted SMC and reported ground hit by Indigo aircraft and confirmed their decision to return to bay. Meanwhile at about 0528 UTC also requested SMC that they would like to return to bay due to ground hit. Subsequently AXB1886 was given instruction to taxi back to Bay 22 and IGO6152 was instructed to taxi back to Bay 23 with the assistance of follow-me services. There

was no fuel spillage or oil leakage evident at site of incident. However, a broken section of winglet of VT-TGG was recovered by Aerodrome operator at the site.

1.2. Injuries to Persons:

Injuries	Crew	Passengers	Others
Fatal	Nil	Nil	Nil
Serious	Nil	Nil	Nil
Minor/None	Nil/(06/06)	Nil/(146/169)	

1.3. Damage to the Aircraft:

On M/s Air India Express Aircraft VT-TGG, it was seen that a portion left wing tip (winglet) was broken off and the honeycomb structure of the winglet was exposed. Winglet replacement was carried out by M/s AIESL as per AMM on 29.03.2024. CRS for VT-TGG was issued on 29.03.2024.

M/s Indigo aircraft VT-ISS had damages on its RH wing leading edge sharklet and after inspection as per AMM, the damage was found out of SRM limit. After removal, a new RH sharklet assembly was installed on VT-ISS.



Damage to VT-TGG winglet



Close-up of damage to VT-TGG



Damage to VT-ISS winglet



Close-up of damage to VT-ISS

1.4. Other damages:

Nil.

1.5. Personnel information:

1.5.1. Pilot- in-Command (AXB1886):

Age	48 Years / Male
Type of licence	ATPL
Date of Issue	31.08.2018
Valid upto	30.08.2028
Date of last Class 1 Medical Assessment	27.07.2023
Medical Exam validity	06.08.2024
FRT0 Licence issued on	16.04.2019
FRT0 Licence valid up to	22.08.2023
Total Flying Experience	6100 Hrs
Total Flying Hours as PIC on type (last 1 year)	714 Hrs
Total flying experience in last 30 days	75 Hrs
Total flying experience in last 7 days	24 Hrs
Total flying experience in last 24 hrs.	2:30 Hrs

1.5.2. First Officer (AXB1886):

Age	43 Years / Male
Type of licence	ATPL
Date of Issue	03.06.2022
Valid upto	02.06.2027
Date of last Class 1 Medical Assessment	06.03.2024
Medical Exam validity	01.04.2025

FRT0 Licence issued on	07.09.2021
FRT0 Licence valid up to	06.09.2026
Total Flying Experience	3000 Hrs
Total Flying Hours as PIC on type (last 1 year)	125 Hrs
Total flying experience in last 30 days	55 Hrs
Total flying experience in last 7 days	20 Hrs
Total flying experience in last 24 hrs.	2:30 Hrs

1.5.3. Pilot- in-Command (IGO6152):

Age	33 Years / Female
Type of licence	ATPL
Date of Issue	24.05.2019
Valid upto	23.05.2024
Date of last Class 1 Medical Assessment	17.06.2023
Medical Exam validity	21.06.2024
FRT0 Licence issued on	20.04.2017
FRT0 Licence valid up to	19.04.2027
Total Flying Experience	4234:12 Hrs
Total Flying Hours as PIC on type (last 1 year)	485:59 Hrs
Total flying experience in last 30 days	57:09 Hrs
Total flying experience in last 7 days	16:10 Hrs
Total flying experience in last 24 hrs.	3:16 Hrs

1.5.4. First Officer (IGO6152):

Age	33 Years / Male
Type of licence	CPL
Date of Issue	18.05.2016
Valid upto	11.05.2027
Date of last Class 1 Medical Assessment	17.08.2023
Medical Exam validity	19.08.2024
FRT0 Licence issued on	18.05.2016
FRT0 Licence valid up to	17.05.2026
Total Flying Experience	620:12 Hrs
Total Flying Hours as PIC on type (last 1 year)	131:25 Hrs
Total flying experience in last 30 days	41:52 Hrs
Total flying experience in last 7 days	14:30 Hrs
Total flying experience in last 24 hrs.	3:16 Hrs

Both flight crew of IGO6152 had undergone pre-flight BA test at Kolkata on 27.03.2024. Both flight crew of AXB1886 had undergone pre-flight BA test at Chennai on 27.03.2024. The results of these PFME tests were negative.

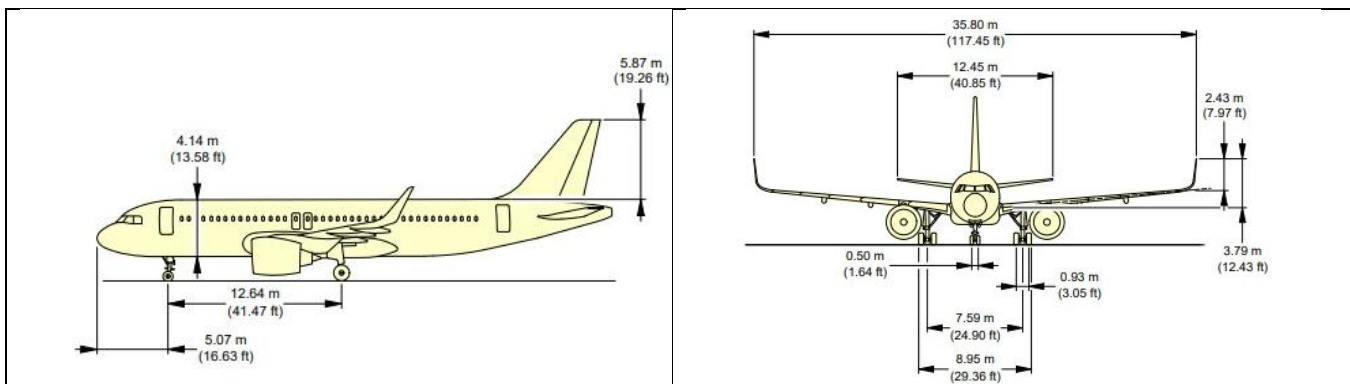
1.6. Aircraft information:

1.6.1. Aircraft information of VT-ISS:

AIRCRAFT:- VT-ISS		
Manufacturer		Airbus S.A.S., Toulouse, France
Type		Airbus A320-251N
Owner	Address	Celestial Aviation Trading 32 Ltd, Aviation House, Shannon, Co. Clare, V14 AN29, Ireland
	Nationality	Irish
Operator	Address	Interglobe Aviation ltd, Upper Ground Floor, Thapar

		House, Gate No 2, Western Wing, 124 Janpath, New Delhi, India - 110001
	Nationality	Indian
Manufacturer Serial no.		10332
Year of Manufacture		2020
Certificate of Airworthiness		No 7392 C.A. 23 issue dt 23.12.2020
Airworthiness Review Certificate		Dt of expiry – 16.11.2024
Category		Normal; Passenger/Mail/Goods
Certificate of Registration		5289 valid till 07.12.2028
Minimum Crew Required		Two
Maximum All Up weight		74000 Kg
Last major inspection		The last C check was carried out from 6 th to 9 th November 2023 and A2 & A4 checks carried out on 04 th March 2024.
Airframe Hrs since new		11489:10 as on 04.03.2024

Aircraft dimensions of VT-ISS (A320N): The A320 narrow bodied aircraft is of category code C (wingspan greater than equal to 24 but less than 36 m). The aircraft length is 37.57 m and its other dimensions are depicted below:

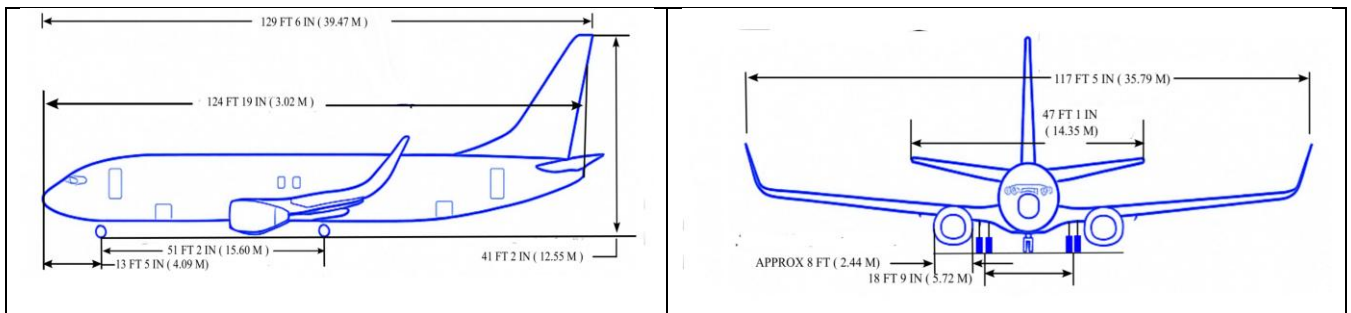


1.6.2. Aircraft information of VT-TGG:

AIRCRAFT:- VT-TGG		
Manufacturer	The Boeing Company, United States of America	
Type	B 737-8AL	
Owner	Address	ALAFCO IRISH AIRCRAFT LEASING EIGHT LIMITED 2 nd Floor, Block 5, Irish Life Centre, Abbey Street Lower, Dublin 1, Ireland

	Nationality	Irish
Operator	Address	TATA SIA Airlines Ltd, 1 st Floor, Old Operations Building, Air India Complex, Old Airport, Santa Cruz (East), Mumbai, Maharashtra, India 400029
	Nationality	Indian
Manufacturer Serial no.		39065
Year of Manufacture		2014
Certificate of Airworthiness		7240 dated 20.08.2019
Airworthiness Review Certificate		7240 valid till 20.08.2024
Category		Normal; Passenger/Mail/Goods
Certificate of Registration		5137/2 valid till 19.04.2026
Minimum Crew Required		Two
Maximum All Up weight		79015 Kg
Last major inspection		The last C check was carried out on 18 th March 2024.
Airframe Hrs since new		33112:33 as on 18 th March 2024.

Aircraft dimensions of VT-TGG (B737-800): The B737-800 narrow bodied aircraft is of category code C. The dimensions are depicted below:



1.7. Meteorological information:

1.7.1. Meteorological Information at Kolkata Aerodrome at 05:00 UTC (10:30 IST)

Wind: 280/03 KT	Visibility: 4000 Metres	Weather: HZ
Cloud 1: NSC		Cloud 2:
Cloud 3:		Cloud 4:
Temperature: 31° C		QNH : 1014 hPa 29.97 INS
Dew Point: 25° C		QFE : 1014 hPa 29.94 INS
Trend : NOSIG		

1.8. Aids to Navigation:

1.8.1. Kolkata aerodrome is equipped with navigational aids like Localizer, Glide Path, DVOR and DME.

1.9. Communication:

1.9.1. There was two-way communication between AXB1886, IGO6152 and Kolkata ATC. Tape transcripts and CVR replay indicate the communication was clear and unambiguous.

1.10. Aerodrome information:

1.10.1. Basic information:

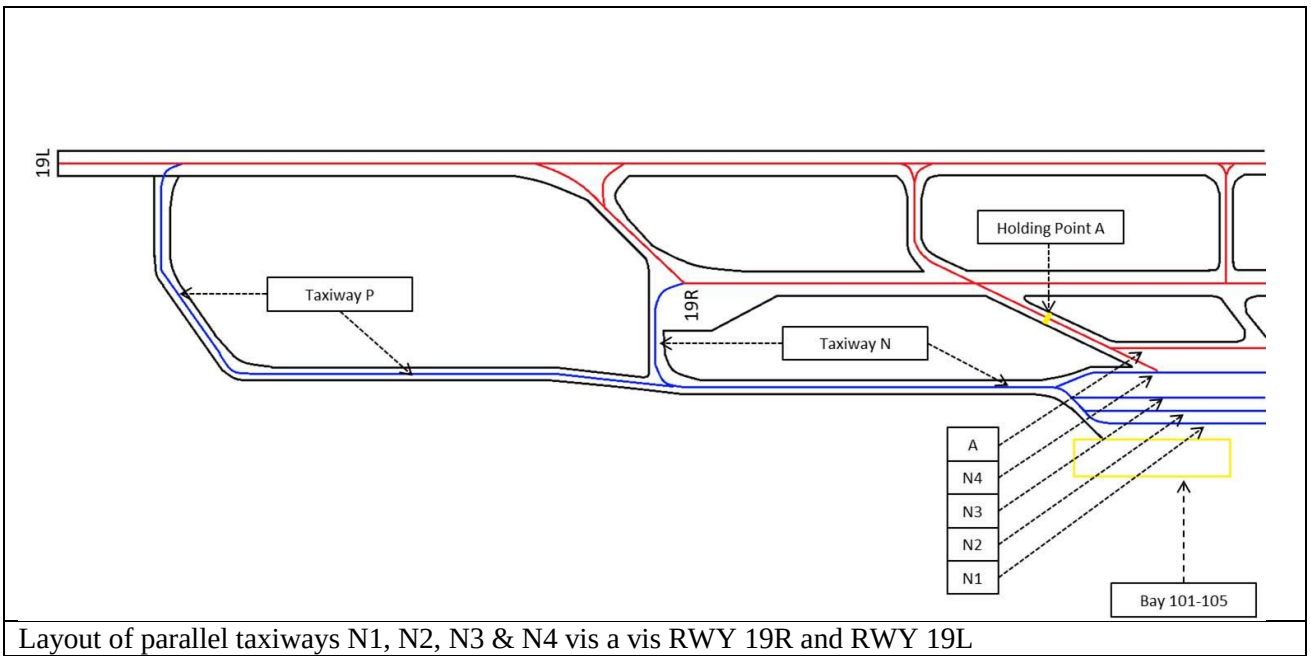
NSCBI Aerodrome (VECC) located in Kolkata and is about 15 Km from the Howrah Railway Station. The aerodrome is operated and maintained by M/s Airport Authority of India and is spread over 1577.3 acres. Kolkata aerodrome has two parallel runways, 19L-01R as the primary runway and 19R-01L as the secondary runway. The main runway is equipped with CAT-III lighting system on 01R approach and CAT-II lighting system on 19L approach to provide visual aids to aircraft during low visibility conditions. The secondary runway is provided with CAT-I lighting system on 19R side and simple approach lights on 01L side. The ARP co-ordinates are 22° 39' 14" N & 088° 26' 48" E.



Fig 2. Google earth image of NSCBI Aerodrome, Kolkata

1.10.2. Parallel Taxiways in Kolkata Aerodrome (N1, N2, N3 & N4) and it's SOP:

SOP for parallel taxiways N1, N2, N3 and N4 for their use commenced on 21.08.2023. The SOP was created to facilitate quick and safe movement of aircraft on the parallel taxiways N1, N2, N3 and N4 which merge into a single taxiway N further connecting to the end of secondary runway RWY 19R. The end of TWY N merges into TWY P which continues further to connect to the beginning of primary runway RWY 19L.



The SOP lays down the use of parallel taxiways based on aircraft dimension (aircraft code), the combination of which is tabulated below:

RWY in use	Type of Aircraft in Operation	Taxiway in use	No of taxiway in simultaneous use	Remarks
Primary Runway 19L-01R	All Code-C	N1, N3 & N4	03	N2 cannot be used
	Code-E and Code-C	N2 – Code-E N4 – Code-C Or N2 – Code-C N4 – Code-E	02	N1 and N3 cannot be used
	Code-E and Code-C	N1 – Code-C N4 – Code-E	02	N2 and N3 cannot be used
Secondary Runway 19R-01L	All Code-C	N1, N3 & N4	03	N2 cannot be used
	Code-E and Code-C	N2 – Code-E N4 – Code-C	02	N1 and N3 cannot be used

For departure aircraft, one of the conditions laid down is that simultaneous operations on portion of TWY A (between TWY F and 19 R holding point) and TWY N4 shall not be permitted.

1.11. Flight recorders:

1.11.1. Both VT-ISS and VT-TGG were equipped with CVR. However, CVR recording for the incident was not available for the aircraft VT-TGG for this sector and the previous sector MAA-CCU. CVR recording downloaded/provided was for sectors previous to MAA-CCU of 27.03.2024.

1.11.2. Both VT-ISS and VT-TGG were equipped with DFDR.

1.12. Wreckage and impact information:

There was no wreckage.

1.13. Medical and pathological information:

NA

1.14. Fire:

There was no fire or smoke during or after the incident.

1.15. Survival aspects:

The incident was survivable.

1.16. Tests and research:

Nil

1.17. Organizational & Management information:**1.17.1. M/s Indigo**

The owner and operator of VT-ISS is M/s Interglobe Aviation Pvt Ltd (Indigo), which is a scheduled airlines based at Gurugram, India. M/s Indigo is headed by a CEO with numerous executives reporting to him including the president and COO who is also the Accountable Manager.

Training and Evaluation Programme of M/s Indigo:

M/s Indigo inducts Junior First Officers and provides them with ground training including Induction, SEP drills, initial DGR and initial AVSEC training. The ground training facilities are at Gurugram, Bengaluru, Hyderabad, Mumbai and Kolkata. This is followed by Simulator Training at approved Simulator facilities such as Airbus New Delhi, FSTC Gurugram, ACAT Chennai among others. Simulator training is further followed by line training which includes base training, supernumerary flights, SLFs and SLF release check and one company release route check. Recurrent trainings are also provided to flight crew including Annual Ground Refresher, PBS+IR/PPC Simulator Recurrent training, SEP Drill, DGR, AVSEC and Annual Line Check.

1.17.2. M/s Air India Express

The other aircraft VT-TGG is owned and operated by M/s Air India Express Ltd, which is also a scheduled airlines based at Delhi, India. M/s. Air India Express Ltd is headed by Managing Director (MD) and has Board of Directors functioning as Apex Body. Air India Express started its

operations on 29 Apr 05 as a fully owned subsidiary of Air India Ltd and is operating a fleet of Boeing 737 and Airbus A320 series aircraft. Air Operator Certificate number (AOC) is S-14 and valid up to 21 April 2028.

Training and Evaluation Programme of M/s AIXL:

AIXL training programme, approved by DGCA, consists of Ground & Flight Training, and evaluations to ensure that flight crew members are competent to perform the assigned duties. The standards for flight crew training and evaluation includes:

- (a) Standardized procedures for training & conduct of evaluations.
- (b) Standards to check each pilot's competence to execute normal and non- normal procedures. The Instrument Rating Tolerance limits given in CAP 7200, Forms CA40/41, CA 42 shall be used as reference while training and evaluating each pilot's competence.
- (c) For the purpose of the test or check, the weather shall be simulated at or below the weather minima for the type of approach being carried out and to be within the approved aircraft operational envelope and consistent with the guidelines of the DE Manual CAP 7200.
- (d) Procedures for corrective training and subsequent re-evaluation to achieve or maintain required standards.

1.17.3. M/s Airports Authority of India

The operator of Kolkata Aerodrome is M/s Airports Authority of India, which is a Public Sector Undertaking and a Mini-Ratna. After induction, ab-initio course at ATSC.

Training and Evaluation Programme of ATCOs in M/s AAI:

The Airports Authority of India (AAI) provides Air Navigation Services across the entire Indian airspace. Air Traffic Controllers (ATCOs) are recruited through a nationwide competitive examination. The minimum qualification for induction is B.Sc. with Physics or Mathematics or B.E./B.Tech. in any discipline.

Once inducted, ATCOs undergo structured and comprehensive training as follows:

1. Initial Training (ATSTO): Newly recruited ATCOs are trained at Air Traffic Services Training Organisations (ATSTOs) for a period of approximately six months. This training covers Aerodrome Control and Approach Control operations.
2. Posting to ATS Stations: Upon successful completion of initial training, ATCOs are posted to various ATS stations across India. At the station level, they undergo orientation training specific to that station's procedures and operational environment.
3. On-the-Job Training (OJT): Each ATCO is assigned an On-the-Job Training Instructor (OJTI) and placed on shift duties. The ATCO undergoes OJT for the rating(s) required at that station – Aerodrome Control, Approach Control, or both – depending on the ATS units available.
4. Area Control Course: ATCOs are later deputed to ATSTOs for a two-month Area Control (ACC) course. After successful completion, they are again put on OJT for Area Control rating, subject to the availability of an ACC unit at their station.
5. Surveillance Course: Following ACC training, ATCOs attend a two-month Surveillance course at ATSTO, equipping them with the skills to operate surveillance-based ATC services.
6. Specialist Courses: In addition to the above, ATCOs may attend specialist courses such as PNS OPS, PBN, AIS, and other operational specializations, based on organizational requirements.
7. Continuous Professional Development: ATCOs regularly participate in refresher training, sensitization sessions, and simulation-based exercises to maintain operational proficiency and preparedness for handling unusual or emergency situations.

This structured training pathway ensures that ATCOs remain proficient, compliant with international standards, and capable of delivering safe and efficient air navigation services.

1.18. Additional information:

1.18.1. Guideline for using TWY A when RWY 19R/01L in use (MATS 2):

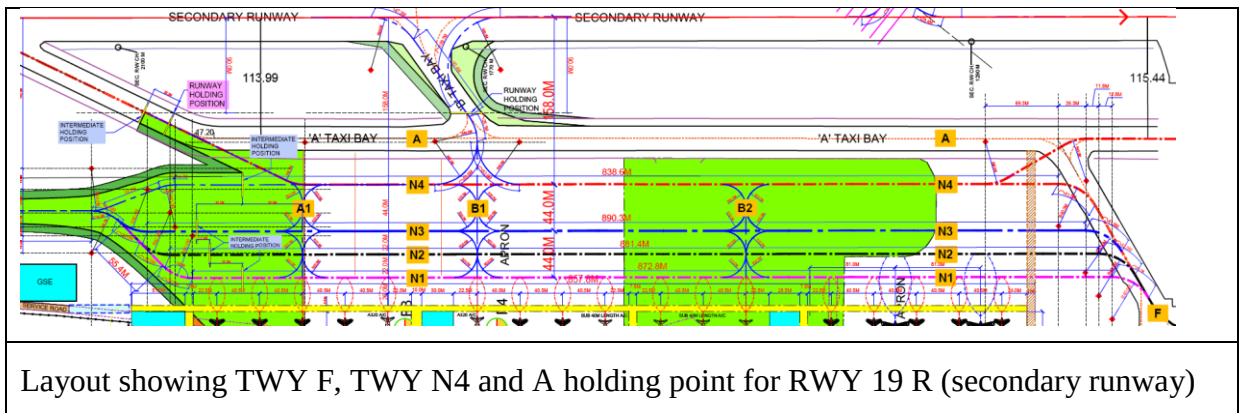
Para 6.3.2 of MATS 2 Kolkata Aerodrome outlines the following regarding use of TWY A.

- Runway 01L/19R (secondary) is classified as non-precision instrument runway; existing distance between the runway centreline and the parallel taxiway A is only 116 M instead of minimum requirement of 172.5 M. It would be necessary to have an ATC procedure to ensure that taxiway A is not in use whenever the secondary runway is declared in use.

- The parallel taxiway A which is only 116 M from runway 01L/19R (secondary runway) falls within the declared runway strip of 152.5 M width on either side of the runway centreline. The declared runway strip of 152.5 M towards taxiway A (west side) is not available.
- In continuation to the operational circular No 19 of 1999 and 17 of 2002, to meet the requirement of minimum separation distance between taxiway centre line and runway centreline as specified in Annex 14 Vol-1 page 3-22, table 3-1, code letter D, it is further stated that while aircraft arrival/departure in vogue on RWY 19R/01L no aircraft shall be permitted for taxiing on taxi track A. *However, aircraft can be held on taxiway holding position A and C for runway 19R/01L.* Initial taxi may be given from aircraft stand up to short of A on taxi track F and G during movement period.

1.18.2. Information from M/s AAI SOP: M/s AAI SOP dated 21.08.2023 for utilization of parallel taxiways N1, N2, N3 & N4 para 10 pg 2 states the following:

“Simultaneous operations on portions of TWY-A (between TWY-F and 19R holding position) and TWY-N4 shall not be permitted.”



1.18.3. NOTAM in existence at the time of incident: NOTAM A0553/24 was in effect at the time of incident. As per the NOTAM, TWY A-N4 junction was not available for operations. TWY N4 and TWY A1 were available upto Code C aircraft only.

1.18.4. Approval Process of Operations on Parallel Taxi Lanes at Kolkata Aerodrome:

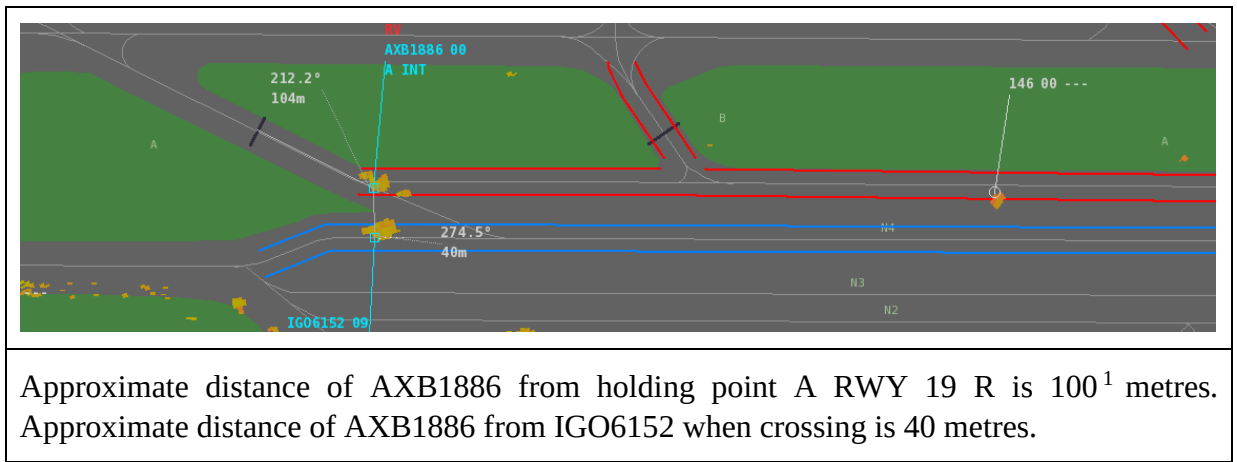
Initially, Approval for Airside Capacity Enhancement for NSCBI Airport (Concept/Design & Execution level) was granted by DGCA vide letter dated 30.10.2019. Thereafter an Ex-Post approval for execution of Airside Capacity Enhancement phase II at NSCBI Airport, Kolkata was granted by DGCA vide letter dated 23.06.2023.

A workshop on Airside Capacity Enhancement at NSCBI Airport, Kolkata was held on 26.06.2023 where commissioning of parallel taxiways was also discussed. Hazards pertaining to parallel taxiways N1-N4 such as movement of CFTs across them and their mitigation were discussed.

Inspection of Airside Capacity Enhancement at NSCBI Airport, Kolkata was carried out by DGCA from 28-31 July 2023. One of the observations made was non-documentation in form of SOP the use of permissible combination of parallel taxiways N1-N4. Thereafter as a part of ATR, M/s AAI created an SOP to facilitate ATCO's to issue instruction to taxing aircraft depicting all possible combination of parallel taxiways N1, N2, N3 & N4.

Approval for Commissioning of Airside Capacity Enhancement including TWY N1, N2, N3, N4, N & P was granted by DGCA vide letter dated 16.10.2023.

1.18.5. Information from ASMGCS Replay: AXB1886 started rolling from its assigned bay at around 05:20:10 UTC and proceeded towards TWY F. It was seen taxing at an approximate speed of 12 Kts. Meanwhile IGO6152 also started rolling at about 11:21:20 UTC and was taxing on the same path as AXB1866 at a speed of about 10 kts. At about 05:22:40 UTC, AXB1886 had reached the start of TXY F and IGO6152 was way behind and yet to reach G intersection. AXB1886 reached the start of TXY N4 at about 05:23:07 UTC and IGO6152 at that time was yet to cross G intersection. By the time IGO6152 reached the start of TXY F at about 05:24:14 UTC, AXB1886 was still on TWY N4 and yet to reach its assigned holding point A for RWY 19 R. IGO6152 reached the start of TWY N4 at about 05:24:40 UTC and at that time AXB1886 was still taxing on TWY N4 and was yet to turn right to reach its assigned holding point A. At about 05:25:16 UTC, AXB1886 turned right towards holding point A RWY 19 R and stopped way behind its assigned holding point. IGO6152 while taxing on TWY N4 reached the turn intersection for holding point A at about 05:26:28 UTC on its way towards TWY N. At about 05:26:41 UTC, it crossed the stationary AXB1886 which was to its right, at a speed of 9 kts. IGO6152 then stopped at beginning of TWY N at about 05:27:10 UTC.



1.18.6. Information from statements of Flight Crew:

Flight crew of both AXB1886 and IGO6152 had provided their statements pertaining to the incident. The excerpts from their statements are as below:

Excerpt from Statements of Flight Crew of IGO6152: PIC stated that they were parked at stand 56L and after getting pushback clearance for RWY 19R, they were given taxi instructions via F1-F-N4-N to holding point RWY 19R. PIC started Eng#1 and planned to start Eng#2 on N4. Air India Express aircraft was ahead of them which was given clearance for A intersection RWY 19R. While crossing N4, they observed Air India Express aircraft holding at A of RWY 19R at an angle of 45° from them. While crossing the Air India aircraft, PIC reduced taxi speed and asked for right clearance from FO. On being given clearance from FO “Clear Right Side”, PIC continued slow taxi to join N from N4. Soon after PIC heard hitting noise and FO confirmed wings of both the aircraft had touched each other. PIC immediately stopped, checked all operations normal and informed ATC regarding incident and returned back to bay 23.

FO in his statement mentions that he was to operate IGO6152 with PIC from CCU to DBR and that it was their third sector of the four planned (CCU-RPR-CCU-DBR-CCU). After startup and pushback, PIC briefed FO that they will be doing a single engine taxi for RWY 19R via F1-F-N4-N. Also, PIC told FO that they will start second engine on N4 and FO was starting the second engine after reaching N4. FO was also monitoring RT and that it was clearly transmitted to Air India Express to taxi via A1 and hold short of A, but Air India Express was holding short of A1. When Eng#2 was started (on N4), PIC remarked to FO that ABX1886 ‘is a little close’ and took slight left from centreline. FO states he was continuously monitoring right side thereafter and

¹ ASMGCS Data

when their wingtip was clear of the tail of AXB1886, he called 'CLEAR RIGHT SIDE'. As AXB1886 was at a 45° angle from their aircraft and speed was 5-6 kts, FO assumed that their aircraft would not hit the stationary aircraft (AXB1886). However, their aircraft wingtip came in contact with winglet of stationary aircraft (AXB1886).

Excerpt from Statements of Flight Crew of AXB1886: PIC states that they were operating sector MAA-CCU-MAA and did pre-flight checks including checking of CBs and walkaround. This was their first domestic sector MAA-CCU in AIXL for both PIC & FO. Aircraft landed safely in CCU after completing sector MAA-CCU. After pushback in CCU for subsequent flight, ATC gave clearance for full length departure on RWY 19R. However, they requested for A intersection departure and ATC instructed them to hold short of RWY 19R on A. PIC states that they were holding at holding point A RWY 19 R about 20-30 metres behind the holding point, keeping a margin of safety. They were approximately holding for 10 minutes due another aircraft lined up on runway doing warm up checks. Thereafter they experience a jolt in their aircraft and came to know from their Cabin Crew that an Indigo aircraft had hit their winglet. After informing ATC, they requested for turnback to bay dur to their aircraft winglet broken.

FO commenced flying for AIXL in Jan 2024 and there were scheduled to fly sector MAA-CCU-MAA. This was the first time he was flying this sector. Flight from MAA-CCU sector was normal and all checks and procedures were carried out as per SOP and checklist. For CCU-MAA sector, they were chocks off at 0509Z. Initially they were cleared for full length departure however as per their request, ATC cleared them for A intersection departure. Taxi instructions were F1-F-N4-A1 and hold at holding point A RWY 19R and taxi instructions were carried out as per procedure. They were holding about 3-4 metres behind holding point A CAT I RWY 19R. While holding at about 0535Z, they experienced a sudden jolt and vibrations in their aircraft and noticed one Indigo aircraft passing on their left. They were informed by their CCIC that port winglet of their aircraft was hit and damaged by the passing Indigo aircraft. As there were on TWR frequency, they were not aware of any aircraft taxiing behind them. After the incident, they taxied back to parking Bay 22 after informing ATC.

1.18.7. Information from CVR Replay of IGO6152 (VT-ISS) on 27.03.2024:

IGO6152 after starting the APU, requested pushback and startup from ATC, which was approved. They also requested for A intersection departure. Thereafter IGO6152 started eng#1. Meanwhile AXB1886 was given taxi to holding point RWY19R via F1-F-N4-N which was read back.

AXB1886 requested A intersection for take-off, which was approved by ATC. IGO6152 also requested taxi and was given taxi via F1-F-N4-N to holding point RWY 19R by ATC. IGO6152 crew were then in the process of starting eng#2 and were discussing asking for A intersection departure. However, since there was no ATC feedback regarding A intersection departure to IGO6152, they updated for full length departure and were in process of carrying out departure change checklist, which was thereafter completed. Meanwhile AXB1886 reported holding at A for RWY 19R. Later, during taxing PIC of IGO6152 is heard asking for clearance from FO, probably referring to AXB1886 on its right, and after approximately 10 seconds the FO is heard responding 'Clear Captain'. After another 12 seconds a scraping sound is heard and PIC is heard enquiring 'have we hit' to which FO responded 'hit and broken off'. FO immediately asks PIC to stop the aircraft and PIC concurred. Both AXB1886 and IGO6152 requested Ground (SMC) for return to bay.

1.18.8. Information from Techlog of VT-TGG:

From the Techlog records of VT-TGG, it is seen that the following sectors were operated on the preceding days with different sets of flight crew:

SNo	Date	Sector	Flight No	Flight Crew
1	26.03.2024	Dubai-Trivandrum	IX-544	Different Set of Flight Crew
2	26.03.2024	Trivandrum-Chennai	IX-2333	Different Set of Flight Crew
3	27.03.2024	Chennai-Kolkata		Flight Crew of AXB1886
4	27.03.2024	Kolkata-Chennai		Flight Crew of AXB1886
5	31.03.2024	Kolkata-Trivandrum		Different Set of Flight Crew

From the Techlog page Sno 45 (VT-TGG) for sector Kolkata-Chennai dated 27.03.2024, in rectification column "SSCVR downloading carried out and loaded to server" entry is made dated 29.03.2024. The "SSCVR was replaced as per AIXL callout dt 29.03.2024" entry is made for date 30.03.2024.

1.18.9. Inhouse Investigation by M/s AIXL regarding loss of CVR data:

After receiving intimation from M/s AIXL regarding unavailability of CVR recording for the incident flight and the previous sector (Chennai-Kolkata), M/s AIXL was instructed to carry out an in-house investigation regarding loss of CVR data. The report submitted is reproduced below:

Brief of CVR Removal:

Subsequent to incident on 27th March 2024 at Kolkata, a work order was issued to remove the CVR and download the recording. Work order (Ref: AIXL/MCC/2024/024 dated 29.03.2024) was completed through task card (Ref: TC-282590-24/1). The downloaded data was successfully monitored for quality and found satisfactory.

Analysis

1. On further evaluation of flight recording, it was observed the recording is available is pertaining to TRV-MAA operated on 27.03.2024.
2. Aircraft movement was identified for correctness of downloading.

Date	Sector
27.03.2024	TRV-MAA
27.03.2024	MAA-CCU
27.03.2024	CCU-MAA(incident flight)

3. As per SOP:
 - i. Preliminary Preflight procedure, CVR CB to be position to IN position before Pre-flight procedure.

1.4 Preliminary Preflight Procedure (Captain or First Officer)

This shall be carried out as per the current FCOM, Normal Procedures. The information contained in the subsequent paragraphs is provided to supplement the FCOM.

- For aircraft without the VOICE RECORDER switch, position the CVR CB in.

- ii. Secure Procedure:

1.47 Secure Procedure

This shall be carried out as per the current FCOM, Normal Procedures.

- Pullout the CVR CB on airplanes not fitted with VOICE RECORDER switch or call “Auto”.

On review of facts, following are the salient points:

- Crew of TRV-MAA had completed secure checklist and left the cockpit.
- CVR recording towards the end reflect discussion on maintenance action among Engineers/Technician.
- No recording is available for flight MAA-CCU in the downloaded data.

Conclusion

Most possible cause of loss of CVR data of incident flight may be non-adherence to company SOP on placement of CVR CB before flight.

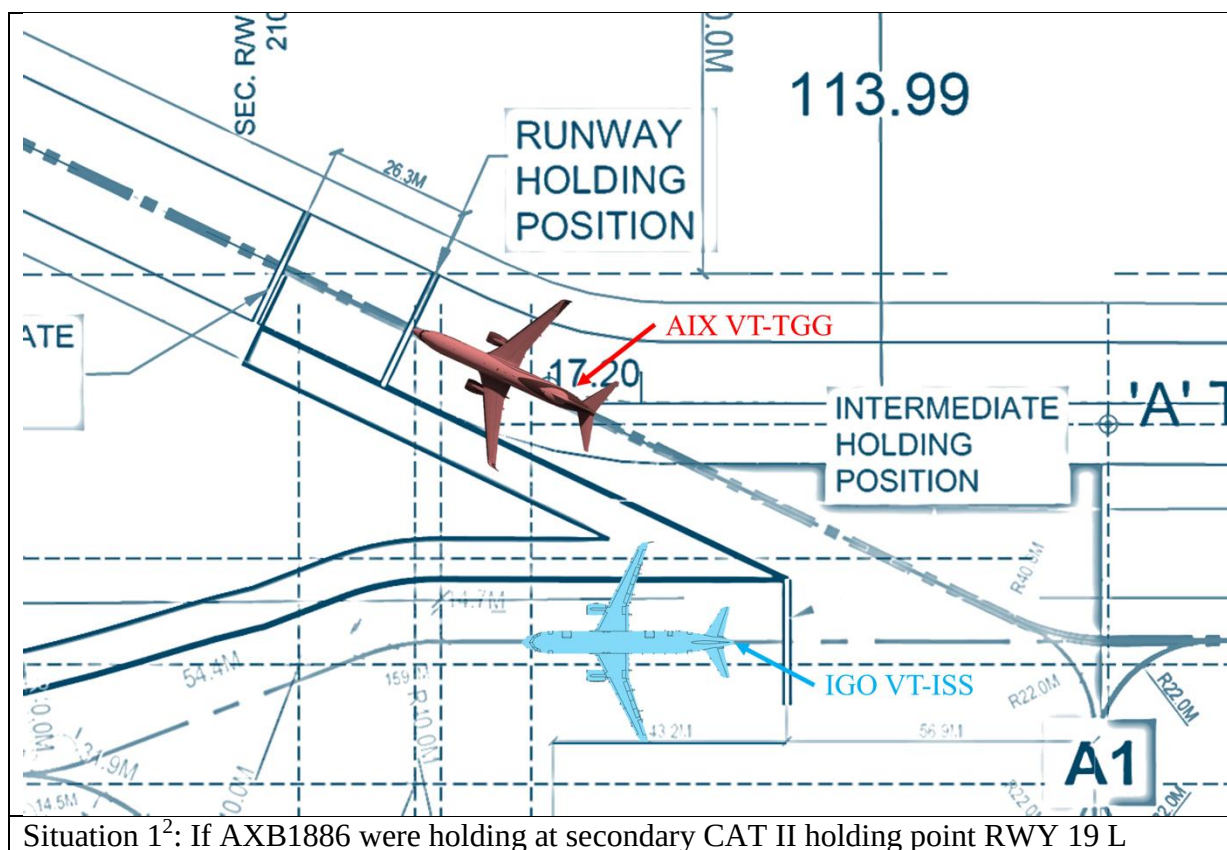
1.18.10. Information from the SMC and Tower Tape Transcript:

From the SMC tape transcript, it is seen that AXB1886 was given startup and pushback approval at 051237 UTC, IGO6152 was given this approval at 051641 UTC. AXB1886 was instructed by SMC to taxi to holding point RWY 19R via F1-F-N4-N at 051847 UTC, which was acknowledged. At 052003 UTC, AXB1886 requested SMC for A intersection take-off, and SMC thereafter revised taxi instruction to F1-F-N4-A1 for holding point A RWY 19R. At 052047 UTC, SMC instructed IGO6152 to taxi via F1-F-N4-N to holding point RWY 19R, which was acknowledged. At 052132 UTC, SMC instructed AXB1886 to hold at holding point A RWY 19R, which was acknowledged. SMC thereafter instructed AXB1886 to changeover to 118.1 MHz (Tower Control) at 052459 UTC which was acknowledged. At 052732 UTC, AXB1886 intimated SMC that while holding at holding point A, they were hit by an Indigo aircraft on their left. Also at 052858 UTC, SMC asked IGO6152 to confirm all operations normal to which IGO6152 responded that they were ground hit and would like to return to bay. SMC instructed IGO6152 to continue taxi via N to hold at RWY 19R holding point N at 052926 UTC.

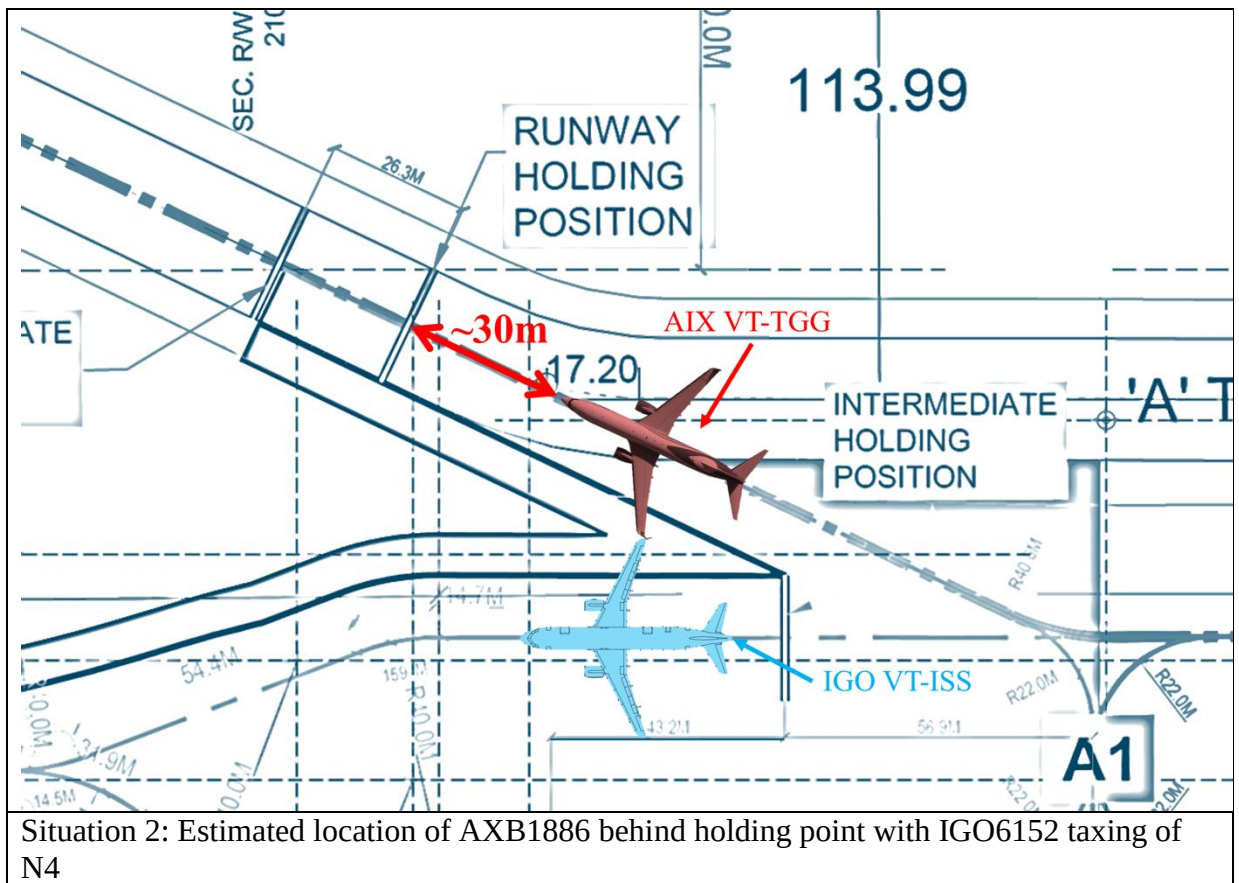
From the Tower Tape Transcript, it is seen that at 052626 UTC, AXB1886 informed Tower that they were holding at holding point A RWY 19R. Later at 052700 UTC, AXB1886 informed Tower that they were hit by an Indigo aircraft on their left. Tower requested AXB1886 to confirm if all Operations were normal at 052902 UTC to which AXB1886 replied in negative and that they will be taxiing back. Tower advised AXB1886 to continue taxi via RWY 19R and vacate via TWY C. Thereafter Tower advised IGO6152 to enter runway and continue taxi via RWY 19R to vacate via C.

1.19. Useful or effective investigation techniques:

1.19.1. Location of AXB1886 & IGO6152 near point of collision:



² Figures and aircraft are not to exact scale



From situation 1 pictorial representation, it is seen that if AXB1886 were at its assigned holding point A RWY 19R (CAT I), IGO6152 while crossing it on taxiway N4 would have ample clearance from the stationary aircraft AXB1886. From the situation 2 representation where IGO6152 wing tip comes in contact with AXB1886, the aircraft AXB1886 would have to be approximately 30 metres behind the CAT II holding point of RWY 19L. It is also seen AXB1886 is positioned at an angle to the passing Indigo flight IGO6152. Visually, the angle seems to be approximately $40^{\circ} - 45^{\circ}$.

2. Analysis:-

2.1. ATCO Aspect to the incident:

The ground controller (SMC) had given instruction to AXB1886 to taxi to holding point A for RWY 19R via F1-F-N4. While AXB1886 was holding at holding point A of RWY19R, SMC had also given taxi instruction to IGO6152 to taxi to holding point RWY 19R via F1-F-N4-N for a full-length departure. The taxi instruction to IGO6152 was not in accordance to M/s AAI SOP for utilization of parallel taxiways N1, N2, N3 & N4, which prohibits simultaneous operations on portions of TXY A and TXY N4. AXB1886 while holding at A RWY 19R was in contact with Tower controller. From ASMGCS replay and supporting statements it is understood that AXB1886 was standing much behind its assigned holding point and was about 30 metres behind CAT II holding point RWY 19 L. This was not noticed by the tower controller who perhaps did not monitor on ASMGCS or take position report from AXB1886 regarding its correct holding point and AXB1886 was holding for about 10 minutes. Incorrect taxi instructions issued by SMC Controller to IGO6152 and deficient monitoring of holding position of AXB1886 by Tower Controller were contributory factors to the incident.

It is also noted that as per MATS 2 of Kolkata Aerodrome, when RWY 19R is in use, taxi operations on A is not allowed however an aircraft is allowed to hold at holding point A RWY 19R. This might create an element of ambiguity for ATCO as while MATS 2 Kolkata Aerodrome permits holding of aircraft at A during operations on RWY 19R, SOP for utilization of parallel taxiways prohibits simultaneous operations on TWY A till holding pint A and N4.

2.2. Pilot handling of the aircraft VT-TGG (AXB1886) during taxing:

Flight crew of AXB1886 were operating sector MAA-CCU-MAA for the first time for M/s AIXL. Further the FO of this flight was operating this sector for the first time. Flight crew after receiving taxi instructions F1-F-N4-N for taxi to holding point RWY 19R, had requested for A intersection departure. This was agreed to by SMC and a revised taxi instruction of F1-F-N4 to holding point A of RWY 19R was issued. AXB1886 after reaching end of N4 stopped much before the holding point A about 30 metres the CAT II holding point RWY 19 L and was holding for approximately 10 minutes before the incident took place due to another aircraft was lined up on RWY 19R carrying out warm up checks. PIC of AXB1886 in his statement has mentioned that they were holding about 20-30 metres behind holding point, citing safety margins. FO in his statement mentions they were holding 3-4 metres behind CAT I holding point. However, ASMGCS data indicates that AXB1886 was holding about 30 metres behind the CAT II holding point RWY 19 L

and approximately 100 metres behind the CAT I holding point. This indicates lack of situational awareness on the part of the flight crew of AXB1886.

2.3. Pilot handling of the aircraft VT-ISS during taxiing:

Flight crew of IGO6152 had initially asked for A intersection departure but were given taxi instructions F1-F-N4-N to holding point RWY 19 R. IGO6152 was following the path of AXB1886, which had vacated N4 towards A holding point RWY 19R when IGO6152 was taxiing on N4 behind AXB1886. While approaching AXB1886, PIC of IGO6152 had asked FO for clearance from AXB1886 on its right and had doubted sufficient clearance from the stationary aircraft. Thus PIC moved IGO6152 a bit to the left from centreline while taxiing. FO in the process of ascertaining clearance of IGO6152 from AXB1886 had checked for clearance from tail of AXB1886 which it passed first and gave CLEAR RIGHT SIDE call to the PIC. After about 12 seconds had elapsed, IGO6152 right wingtip scraped against AXB1886 left winglet, causing the incident. This is corroborated from the CVR replay of IGO6152 wherein PIC of IGO6152 is heard asking for clearance from FO, probably referring to AXB1886 on its right. FO after checking for positive clearance with tail of AXB1886 probably did not anticipate requiring further clearance check from AXB1886. From the CVR replay when FO gives the call '*Clear Captain*', a scraping sound is heard after 12 seconds and PIC exclaimed '*have we hit*' to which FO responded '*hit and broken off*'. From the available evidences, it is inferred that Flight Crew of IGO6152 were aware of the impediment in form of aircraft VT-TGG holding to their right and made efforts to manoeuvre their aircraft safely, which was unsuccessful. Error of judgement on part of flight crew of IGO6152 regarding clearance of their aircraft VT-ISS from the stationary aircraft VT-TGG (AXB1886) during taxiing is the cause of the incident.

2.4. Circumstances leading to the incident:

Flight crew of AXB1886 after being given taxi instructions F1-F-N4-N by SMC asked for A intersection departure and revised taxi instruction F1-F-N4 to holding point A RWY 19R was given by the SMC. Thereafter IGO6152 was given taxi instruction F1-F-N4-N by the SMC for a full length departure on RWY 19R. Simultaneous operations on TXY A till holding point A RWY 19R and N4 is not allowed as per M/s AAI SOP. This fact was possibly missed out/overlooked by the SMC controller. As M/s AIXL aircraft AXB1886 neared holding point A RWY 19R, it stopped way behind its assigned holding point. This was also not effectively monitored by the Tower Controller when it was handed over AXB1886 for further instructions. M/s Indigo aircraft IGO6152 while taxiing on N4 and when nearing AXB1886 positioned at an angle, misjudged the

clearance available for safe taxiing and its right wingtip hit the left wingtip of stationary aircraft AXB1886.

3. Conclusion:

3.1. Findings:

3.1.1. M/s Air India Express flight AXB1886 was due to operate sector Kolkata-Chennai on 27.03.2024 while M/s Indigo flight IGO6152 was due to operate on sector Kolkata-Darbhanga.

3.1.2. Flight crew of AXB1886 and IGO6152 had valid licence and authorizations, and had undergone pre-flight BA test that day with negative results.

3.1.3. The runway in use at Kolkata airport the time of the incident was RWY 19 R, which is the secondary runway.

3.1.4. SMC controller gave instruction to AXB1886 to hold at holding point A RWY 19R via F1-F-N4 for its departure. SMC controller also gave taxi instruction F1-F-N4-N to reach holding point RWY 19R for full length departure.

3.1.5. While AXB1886 was holding at A RWY 19R, IGO6152 was taxiing on N4 and crossed AXB1886 on its right while taxiing.

3.1.6. AXB1886 was holding way behind its assigned holding point A RWY 19R and was holding there for about 10 minutes. They were also operating sector MAA-CCU-MAA for AIXL for the first time.

3.1.7. IGO6152 while crossing AXB1886 on its right, misjudged the clearance available from VT-TGG holding at its right and struck its wingtip while taxiing and caused damages to both aircraft.

3.1.8. SMC controller had issued instructions to IGO6152 to taxi via TWY N4 while AXB1886 was holding at A RWY 19R, which was not in accordance with M/s AAI SOP for operations on parallel taxiways N1, N2, N3 & N4.

3.1.9. Tower Controller did not monitor holding position of AXB1886 at holding point A RWY 19R, after being handed over by SMC controller.

3.2. Probable cause of the incident:

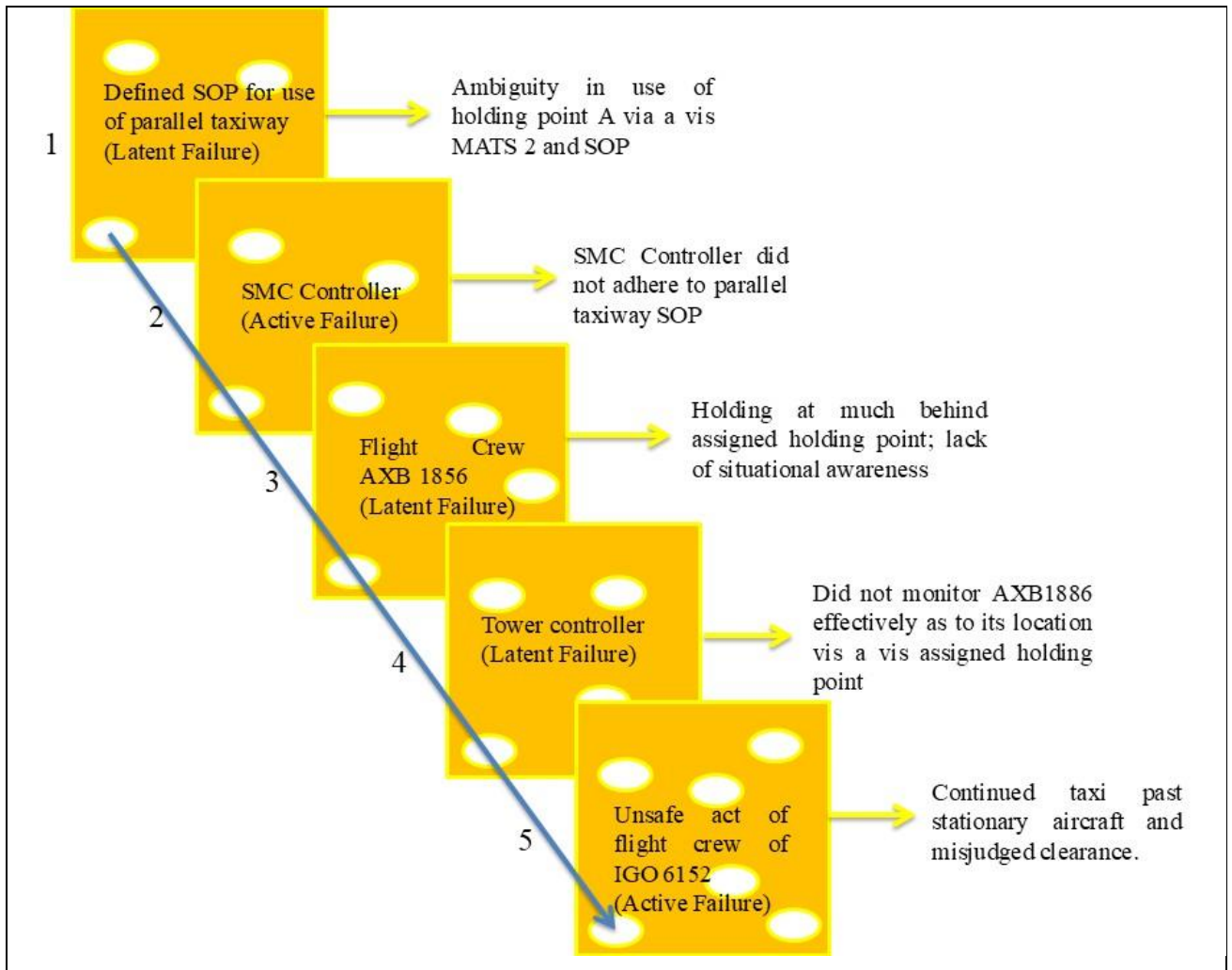
The incident can be attributed to a chain of errors/oversight culminating in this ground incident of wingtip strike between the stationary Air India Express aircraft VT-TGG and the taxiing Indigo Aircraft VT-ISS at Kolkata airport on 27.03.2024. The probable cause of the incident is the error of judgement made by Crew of IGO6152 while taxiing regarding the availability of sufficient clearance from the stationary aircraft AXB1886 which was holding at A intersection RWY 19R.

The contributory factors to this incident are listed below:

- i. SMC controller issuing taxi instructions to IGO6152 to taxi on N4 while AXB1886 was holding at holding point A RWY 19R was in contravention of their SOP for utilization of Parallel Taxiways N1, N2, N3 & N4 dated 21.08.2023.
- ii. VT-TGG (AXB1886), was holding much behind its assigned holding point A RWY 19R, which resulted in minimal clearance from VT-ISS (IGO6152) which was taxiing on N4 as per ATC instructions.
- iii. Deficient monitoring by Tower controller of AXB1886, as it was holding way behind its assigned holding point A RWY 19R.
- iv. Ambiguity in use of holding point A as defined in MATS II Kolkata Aerodrome and the SOP for utilization of Parallel Taxiways N1, N2, N3 & N4 dated 21.08.2023.

This is also diagrammatically depicted by the Swiss Cheese Model⁴ in the figure below wherein the various imperfections in the defensive layers (SOPs and systems) aligned perfectly to culminate in the ground incident. The latent conditions in the form of SOP, procedures, decision making and oversight by key monitoring personnel are all contributory factors to the ground incident with the active failure of judgement error by flight crew of IGO6152 during taxiing being the probable cause of the incident.

⁴ James Reason: The Contribution of Latent Human Failures to the Breakdown of Complex Systems; Phil. Trans. R. Soc. Lond. B 1990 327, 475-484



4. Safety Recommendations: -

- 4.1. Corrective training for all involved flight crew in view of the findings above.
- 4.2. Corrective training for involved ATCOs in view of the above findings.
- 4.3. SOP for utilization of parallel taxiways may be revisited in view of defined use of Taxiway A in MATS 2 Kolkata.
- 4.4. Any other action as deemed fit by competent authority in view of the findings above.

(Signature)

(Abhijeet Banerjee)
Assistant Director of Air Safety
(Investigator in-Charge)

Place: Kolkata
Date: 10.11.2025

Appendix - Photographs













