# FINAL INVESTIGATION REPORT ON GROUND INCIDENT TO M/s. JET AIRWAYS B737-700 AIRCRAFTS REGN.VT-JGX & VT-JGY AT DELHI AIRPORT ON 07.05.2017.

1. Aircraft	Туре	: Boeing		
Model		: B737-75R (Both)		
	Nationality	: INDIAN		
	Registration	: VT-JGX and VT-JGY		
2. Name of th	ne Owner	: M/s. Echelon Ireland Madison One Limited, Ireland		
		(For both)		
3. Name of t	he Operator	: M/s. Jet Airways (India) Limited, for both the aircraft.		
		(For both)		
4. Pilot – in –	Command			
	License No.	: ATPL Holder (VT-JGY)		
	Extent of injuries	: Nil		
	License No.	: ALTP Holder (VT-JGX )		
	Extent of injuries	: Nil		
5. Co-Pilot				
	License No.	: ATPL Holder (VT-JGY)		
	Extent of injuries	: Nil		
	License No.	: CPL Holder (VT-JGX)		
	Extent of injuries	: Nil		
6. Passengers:				
On bo	bard	: 118 (VT-JGX) and 129 (VT-JGY)		
Exten	t of injuries	: Nil.		
7. Place of incident		: Delhi		
8. Date & Tir	ne of Incident	: 07.05.2017 Approx. 0930UTC		
9. Last point of departure		: Delhi		
10. Point of intended landing		: Patna (VT-JGY) and Srinagar (VT-JGX)		
11. Nature of Operation		: Scheduled Operation		
12. Phase of Operation		: Taxing		
13. Type of incident		: Ground Incident		
14. Aircraft Damage		: Minor		

#### SYNOPSIS:

On 7<sup>th</sup> May 2017, M/s. Jet Airways Boeing 737-700WL aircraft VT-JGY Operating service 9W-730, sector Delhi to Patna, while taxing on Taxiway 'Z' to 'Z3' holding point for Runway 29, hit with the another aircraft of M/s. Jet Airways Boeing 737-700WL aircraft VT-JGX Operating Service 9W-603, sector Delhi to Srinagar which was on taxiway 'Z4' short of holding point Runway 29 at around 0930UTC.

Both the aircrafts received minor damages. Right wing tip of aircraft VT-JGY and Left side elevator of VT-JGX sustained damages.

The occurrence was notified to DGCA, India and the investigation was instituted under rule 13(1) of the aircraft (Investigation of accidents and incidents) rule 2012 by appointing inquiry officer.

The investigation has revealed that Non adherence to the ATC instructions and company SOPs while manoeuvring on the taxiway by the VT-JGY operating crew has resulted in to the incident.

## **1.** FACTUAL INFORMATION

#### 1.1 *History of the flight.*

On 07<sup>th</sup> May 2017 at around 0840UTC, M/s. Jet Airways B-737-700WL aircraft VT-JGX departed from Bay No D37L for its Delhi-Patna sector Operating Service 9W-730 operation from Indira Gandhi International Airport, New Delhi to Jay Praksh Narayan Airport, Patna, Bihar. As per the taxi route clearance by ATC for Runway 29 via taxiway 'S3', 'Z', 'Z4' holding point Runway 29, the aircraft VT-JGX taxied and was on taxiway 'Z4' short of holding point Runway 29 with parking brakes set.

Another B737-700WL aircraft VT-JGY of M/s. Jet Airways departed from Bay No.D43 for its Delhi-Srinagar sector Operating Service 9W-603 from Indira Gandhi International Airport, New Delhi to Sheikh Ul-Alam International Airport, Srinagar, J&K. Controller cleared the aircraft via taxiways 'S3', 'Z', 'Z4' holding point Runway 29. VT-JGY aircraft acknowledged and started taxing as per the taxi clearance passed by the controller. However, after completing taxiway 'S3' and while taxing on taxiway 'Z', the aircraft requested for taxiway 'Z3' instead of taxiway 'Z4' holding point runway 29. Taxiway 'Z3' is ahead of taxiway 'Z4'. The aircraft was cleared for Z3 with the condition once clear of their company aircraft holding on holding point Z4.

With VT-JGX holding on taxiway 'Z4' for Rwy29 departure, VT-JGY aircraft, taxied on taxiway 'Z' to taxiway 'Z3' behind VT-JGX, resulted starboard side of VT-JGY winglet entangled with Portside elevator of VT-JGX .

VT-JGX's LHS elevator got damaged and few scratches found on lower spar skin and LH stabiliser leading edge. Winglet of VT-JGY's more than half portion of the upper side got damaged and detached.



Fig.1:- Detached portion of winglet of VT-JGY intact with the elevator if VT-JGX



Fig.2:- Damaged winglet of VT-JGY



Fig.3: Debris collected from Taxiway Page **3** of **18** 



Fig.4: Rear view of VT-JGY and VT-JGX position from Taxiway Z (post incident)



Fig.5: side view of VT-JGX holding position (post incident)

The Commander of the flight VT-JGY was a Line Training Captain (LTC) and occupied the RH seat to conduct airfield clearance of the captain under check who was on LH side. During preflight, it was planned to take Z4 intersection departure Rwy29. While taking on 'Z', noticed series of departures ahead of them, hence, decision was taken to use 'Z3' intersection. While crossing 'Z4' intersection, aircraft slowed as company aircraft was holding short offset to the right and little short of Runway 29. As they were clear of the aircraft VT-JGX, gave a clear call to the Pilot Flying, who continued taxi. At that point they felt a sudden jerk and the aircraft was brought to the complete stop and ATC was notified.

Commander also informed that the instructions given by ATC did not mention that they should wait for the aircraft to enter the runway. Instructions only mentioned once clear of the aircraft continue taxi. Hence, as per their judgement and perception they were clear of the aircraft on Z4, so they continued taxi. Captain who was under check on VT-JGY taxied the aircraft as per the RH side commander, right clearance. However, on felt a jerk, the captain stopped the aircraft. The Aircraft at Z4 intersection appear at an angle and holding Short of Rwy29. It appear clear to him, hence continued taxi.

VT-JGX crew commented that for taxi, got the taxi clearance via 'S3''Z''Z4' holding point Runway29. During taxi on Z, they were advised by Delhi ground to hold short of Runway29 on Z4 and monitor Delhi tower 125.85. When they were holding short of Runway 29 on Z4 with parking brake set, where they could visually see the Runway holding stop bar following the taxi line, they felt a jolt and vibration on the aircraft.

#### 1.2 Injuries to persons.

Injuries	Crew	Passengers	Others
Fatal	Nil	Nil	Nil
Serious	Nil	Nil	Nil
Minor/None	Nil/15	Nil/247	

#### 1.3 Damage to aircraft.

- a. VT-JGX aircraft received the following damages;
  - i. LHS elevator damaged between station 23170 and 26545.
  - ii. Few minor scratches found on lower spar skin and LH stabilizer leading edge between LE station 31923 to 33653.
  - iii. Upper beam has crack of length 4.5 inch starting 2.8 inch from outboard end & lower beam has crack length of 5.45 inch starting 2.25 inch from inboard end.

## b. VT-JGY damages:

RH winglet more than half upper portion of wing tip got detached and stuck in the elevator of VT-JGX.

#### 1.4 Other damage.

Nil

## 1.5 Personnel information:

1.5.1 Pilot – in - Command:-

## a. <u>PIC of VT-JGX</u>

Gender /Age/ DOB	: Male/ 34Years/ 29-03-1983			
License	: ATPL Holder			
Date of Issue	: 28-02-2013			
Valid up to	: 27-02-2022			
Category	: Aeroplane			
Class	: Multi engine land			
Endorsements as PIC	: 19-09-2014			

Date of Med. Exam	: 06-10-2016
Med Exam Valid up to	: 05-10-2017
FRTO Date of Issue	: 01-02-2007
FRTO Valid up to	: 31-01-2022
Total Flying Experience	: 6100Hrs
Experience on Type	: 4000 Hrs.
Experience as PIC on Type	: 2200 Hrs.
Total Flying Experience durin	g last 180 days : 371:38 Hrs
Total Flying Experience durin	g last 90 days : 163:56 Hrs
Total Flying Experience durin	g last 30 days : 62:04 Hrs
Total Flying Experience durin	g last 07 days : 12:25 Hrs
Total Flying Experience durin	g last 24 Hours : 03:09 Hrs

# b. <u>PIC of VT-JGY</u>

Gender/ Age/ DOB	: Male/41Years/24-12-1975
License	: ATPL Holder
Date of Issue	: 16-08-2007
Valid up to	: 15-10-2020
Category	: Aeroplane
Class	: Multi engine land
Endorsements as PIC	: 03-09-15
Date of Med. Exam	: 12-09-2016
Med Exam Valid up to	: 12-09-2017
FRTO Date of Issue	: 05-02-1997
FRTO Valid up to	: 28-10-2021
Total Flying Experience	: 11057Hrs
Experience on Type	: 10702Hrs
Experience as PIC on Type	: 7677Hrs
Total Flying Experience during last 180 days	: 381:48Hrs
Total Flying Experience during last 90 days	: 192:10Hrs
Total Flying Experience during last 30 days	: 49:55Hrs
Total Flying Experience during last 07 days	: 16:50Hrs
Total Flying Experience during last 24 Hours	: 04:20Hrs

## 1.5.2 Co-Pilot

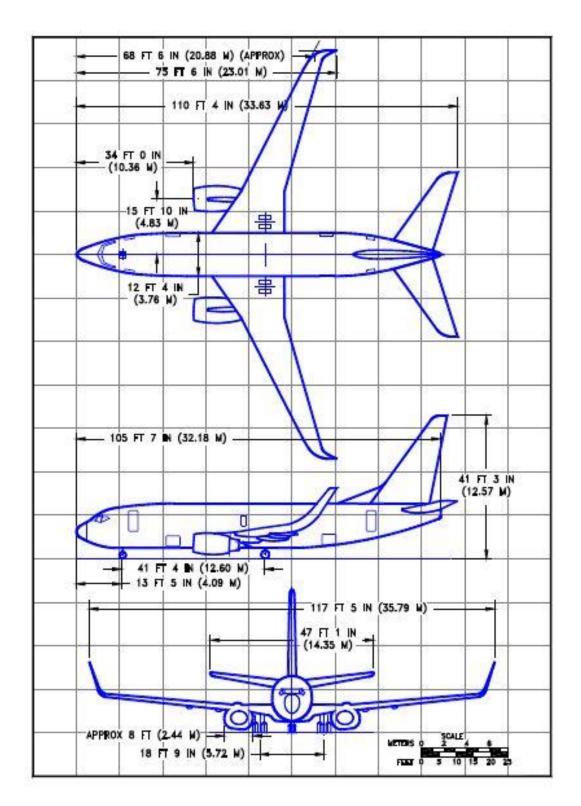
## a. <u>Co-Pilot of VT-JGX</u>

Gender/Age/DOB	: Male/35years/04-03-1982
License	: CPL Holder
Date of Issue	: 26-08-2011

Valid up to	: 25:08-2021
Category	: Aeroplane
Class	: Multi engine land
Date of Med. Exam	: 16-08-2016
Med Exam Valid up to	: 15-08-2017
FRTO Date of Issue	: 26-08-2011
FRTO Valid up to	: 25-08-2021
Total Flying Experience	: 738hrs
Experience on Type	: 518:34Hrs
Experience as PIC on Type	: NA
Total Flying Experience during last 180 days	5 : 372:33Hrs
Total Flying Experience during last 90 days	: 213:18Hrs
Total Flying Experience during last 30 days	: 67:23Hrs
Total Flying Experience during last 07 days	: 13:56Hrs
Total Flying Experience during last 24 Hours	s : 03:00Hrs

# b. <u>Co-Pilot of VT-JGY</u>

Gender/Age/DOB	: Male/36years/03-07-1980
License	: ATPL Holder
Date of Issue	: 19-03-2013
Valid up to	: 18-03-2022
Category	: Aeroplane
Class	: Multi engine land
Endorsements as PIC	: 21-05-2015
Date of Med. Exam	: 01-02-2017
Med Exam Valid up to	: 04-02-2018
FRTO Date of Issue	: 19-04-2007
FRTO Valid up to	: 18-04-2022
Total Flying Experience	: 6086:00
Experience on Type	: 4200:00Hrs
Experience as PIC on Type	: 1432:00Hrs
Total Flying Experience during last 180 days	s : 385:35Hrs
Total Flying Experience during last 90 days	: 194:07Hrs
Total Flying Experience during last 30 days	: 52:36Hrs
Total Flying Experience during last 07 days	: 17:48Hrs
Total Flying Experience during last 24 Hours	s : 0:00



B737-700 aircraft with winglet has got dimension of length of 33.63meters and Breath of 35.79meters. Elevator total dimension 14.35meters.

## <u>VT-JGX</u>

 Aircraft
 : B737 – 75R

 MSN No.
 : 34805

Year of Manufacture	:	2007
Regn. Mark	:	VT-JGX
C of A Valid upto	:	21/08/2017
C of R Valid till	:	21/08/2019
Total Airframe Hours	:	28850:22 Hrs.
Engine Type/ Model	:	CFM56-7
LH Engine S.No.	:	906459
RH Engine S.No.	:	894842
LH Engine Hours	:	21902Hrs.
LH Engine Cycles	:	9462 Cycles
RH Engine	:	28328 Hrs.
RH Engine Cycles	:	22218 Cycles

Last Major Inspection carried out was A22 check on 26.04.2017 & Extended Transit Inspection carried out on 05/05/2017 at TSN/CSN: 28836:31/22671 at Delhi. All the applicable Airworthiness Directives, Service Bulletins, Mandatory Modifications on the aircraft engines were complied. Aircraft was not released under MEL or carry forward snag for the incident sector.

## <u>VT-JGY</u>

Aircraft	:	B737- 75R
MSN No.	:	34806
Year of Manufacture	:	2007
Regn. Mark	:	VT-JGY
C of A Valid up to	:	09/10/2017
C of R Valid till	:	10/10/2019
Total Airframe Hours	:	27605:28 Hrs.
Engine Type/ Model	:	CFM56-7
LH Engine S.No.	:	894938
LH Engine Total Hours	5:	30367Hrs.
LH Engine Cycles	:	19756 Cycles
RH Engine S.No.	:	960460
RH Engine total Hours	5:	22265Hrs.
RH Engine Cycles	:	9581 Cycles

Last Major Inspection carried out was A20 check on 22.02.2017 & Extended Transit Inspection carried out on 07/05/2017 at TSN/CSN: 27605:28/21687 at Delhi. All the applicable Ads, SBs, Mandatory Modifications on the aircraft engines were complied. Aircraft was not released under MEL or carry forward snag for the incident sector.

## 1.7 Meteorological Information

The incident happed during daytime. Weather conditions prevailed at the time of occurrence was dry and fine. Wind was 280/ 05Kts and Visibility was 4500m haze weather.

## 1.8 Aids to Navigation

All the Ground aids were available with serviceable conditions.

#### 1.9 Communications

Throughout the operations two way communications was fully existed with both the aircrafts.

#### ATC Tape transcript (on 121.625 MHz):

At 091242z JAI730 informed SMC from Bay No.D37L ready for push back and start-up and push back and start-up facing east D4.

At 091659z, JAI 603 from D43 requested for push back and start-up. SMC has replied that standby number 2. Number 1 will shortly taxi out which was acknowledged by the aircraft.

At 091747z, JAI730 requested Taxi for Z4 intersection. SMC approved S2-Z-Z4 holding point 29. When JAI read back, SMC corrected as S3 which was again read back by the aircraft as S3.

At 091834z, JAI603 was cleared for pushback and start-up approval facing East, Position D4 and clear for taxing behind of their company aircraft. At 092329z, JAI603 requested for Z4 intersection accordingly, SMC cleared the aircraft for taxi via S3-Z2-Z4 Holding point Runway 29. At 092657z, JAI603 expressed their willingness to take Z3. SMC approved Z3 and instructed continue Z-Z3- Holding point Runway 29, once clear of company holding for Z4. JAI603 replied as "We are once clear of company cleared to taxi Z-Z3- Holding 29. However, at 092815z, JAI603 informed to SMC that they seemed to have clipped a company Tail. SMC enquired JAI603 to confirm all operations normal. JAI603 replied Negative and they would like to taxi back to bay.

## 1.10 Aerodrome Information

Indira Gandhi International Airport, Delhi, is the international airport serving the city of Delhi. The Airport is at an elevation of 777 feet above Mean sea level. The Airport has three runways. Airport is equipped with VOR, DME, navigation and ILS CATIIIB landing aids.

The airport has separate terminals for handling Domestic, General Aviation, and International Operations including cargo operations.

#### NOTAM A0279/17

NOTAM A0279/17 allows the aircrafts to use Rapid exit taxiways 'Z3' and 'Z4'of Runway 11/29 for line-up and entry through Z3 and Z4 Taxiways to enter into Runway 11/29.

NOTAM is given as: A0279/17 1703161200/PERM RAPID EXIT TWY Z3 AND Z4 AVBL AS ENTRY TWY FOR DEP FM RWY 29 FOR ALL TYPES OF ACFT DRG CAT-I CONDITIONS. INT DEP FM RWY 29 VIA TWY Z3 (TORA 3260 M) AND TWY Z4 (TORA 2860 M) AVBL.

As per new permanent NOTAM, effective from  $16^{th}$  March 2017 1200UTC onwards, the rapid exit taxiway Z3 and Z4 available as entry for taxiway for departure from Runway 29 for all types of aircraft during CAT – I conditions.



Fig.6:- Bay No.D37L and D43 and route S3

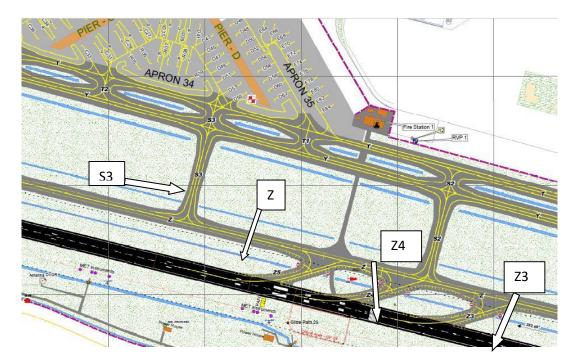


Fig.7:- Taxiways S3-Z-z4 and Z3

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Fig.8:- Taxiways Z-z4 and Z3 with markings



Fig.9: Taxiways Z4 and Holding point markings

## 1.11 Flight Recorders.

## 1.11.1 CVR Data:-

## A. VT-JGX CVR Transcript:

As per the CVR data, observed that JA730 departed from Bay No. D37L. Route check was on. Aircraft initial cleared for Runway 29 was approved via 'S3' turn left on 'Z'

holding point 'Z4'. Aircraft pushed back after parking brake was released. On completion of push back, Engine no.02 started first followed with number 1 engine. As per the instruction, aircraft taxied and was holding on taxiway Z4 short of holding point 29. Within 23seconds, crew realised another aircraft hit their aircraft from behind. VT-JGX crew reported the ground collision to ATC.

## A. VT-JGY CVR Transcript:

CVR of 9W-603 implies that crew requested for start-up on bay number D43. ATC informed that company aircraft taxing. Behind push back facing east of 'D'. After 6minutes, again aircraft requested for taxi. Ground control passed taxi clearance via 'S3', 'Z', 'Z4' holding point Runway29. Subsequently, Aircraft requested for 'Z3' intersection and controller replied as approved continue 'Z3' holding point Runway 29 once clear of company holding point 'Z4'. Aircraft read back as "Jet airways 603, once clear of company, clear to taxi Z, Z3 holding point 29." A hit sound was also found recorded in the CVR.

1.11.2 DFDR Data:

## A. VT-JGX DFDR Data Analysis:

As per the DFDR data, the aircraft followed the routing cleared by the ground controller. Maximum ground speed found recorded was 26Kts. At the final halted position the heading was 180Deg. N1 for both the engine found almost same there was no difference in the engine performance. Application of brake were also normal and attained maxi brake pressure Main Left of 2880PSI & Brake Pressure Main Right was at 2900psi.

## B. VT-JGY's DFDR Analysis:-

As per the DFDR data, the aircraft start taxi with 38.13% N1 of Engine No.1 and 36.5% N1 of Engine No.2 with the aircraft heading 101Deg. Aircraft followed the taxi routing cleared by the controller. Maximum ground speed found recorded was 19Kts. Aircraft ground speed reached minimum low of 04kts and stopped and at the time the N1 was 31.5% and 31.88% of engine 1 and engine 2 respectively with Brake Pressure on Main Left was 712PSI and 858PSI. Mostly there were no remarkable heading changes. Heading changes were from 103 to 102 and back to 103and then to 104 Deg.

## 1.12 Wreckage and Impact Information.

Other than VT-JGX's LHS elevator and VT-JGY's Wingtip damages no other damages.

## 1.13 Medical and Pathological Information.

After Pre-flight medical check-up, crew were cleared for the operations.

#### 1.14 Fire

There was no fire.

## 1.15 Survival Aspect:

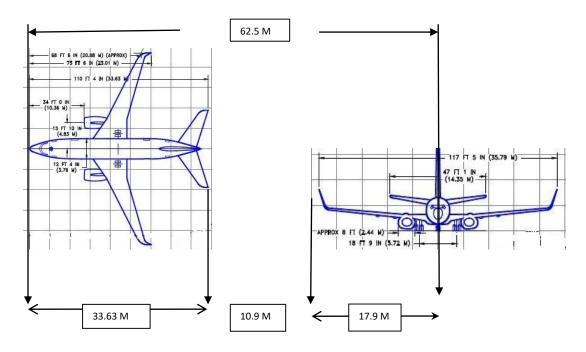
The incident was survival.

## 1.16 Organisational and Management Information.

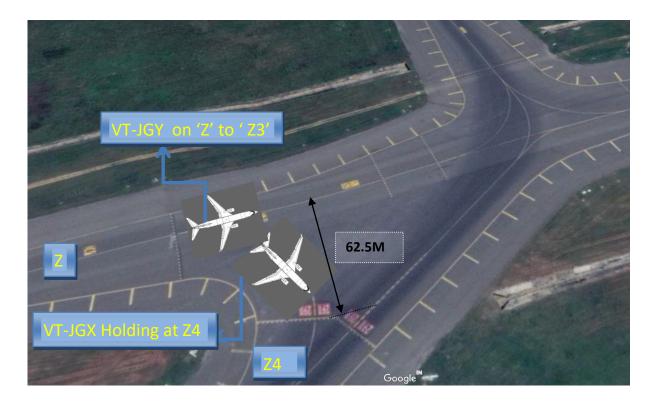
M/s. Jet Airways was incorporated as a limited liability company on 1 April 1992. It started operations as an air taxi operator on 5 May 1993 with a fleet of four leased Boeing 737-300 aircraft. The airline was granted a scheduled airline status on 14 January 1995. It began full-fledged operations in 1995 with international flights added in 2004. M/s. Jet Airways is a major Indian international airline based in Mumbai.

## 1.17 Tests and Research.

Distance existing between Z taxiway centre line and Z4 holding point was found as 62.5 meters.



Aircraft clearance between both the aircraft of similar type were check and observed that had it been the first aircraft, ie, VT-JGX, exactly on the holding point, the second taxied aircraft, ie., VT-JGY, might have got wing tip clearance of 10.9m.



Measurement of taxiway of Z, Z4.

As stated earlier, the actual distance measured between Taxi way centreline and Z4 holding point marking was 62m. As VT-JGX was having length of 33.63m, the remaining distance available was approximately 28m for taxing aircraft on taxi way Z. However, as per the ICAO DOC9157, Table 4.1, the minimum separation required is 26m. This indicates that the aircraft VT-JGX was holding well ahead of the Z4 holding point and there was no required clearance available to VT-JGY to taxi.

## 1.18 Additional Information:

## 1.18.1 <u>SOPs</u>:

As per the Flight Crew Training Manual, during Taxi, If any crewmember is in doubt regarding the clearance, verify taxi routing with the assigned clearance or request clarification. Stop the airplane if the clearance is in doubt.

## 1.18.2 Line Training Captain:

As per DGCA CAR SEC 7 Series I Part II, The appointment of Line Training Captains is an operator's function and responsibility for standards rests with the post holder Training of the operator. Approval/authorization of DGCA is not required for LTCs. The number of LTCs depends on the requirement of line training needs of the operator. They shall be capable of instilling high standard of discipline among the flight crew and shall have balanced attitude towards them. The seniority, the position in the organisation and remuneration received by the pilots shall not be the consideration for authorization as LTCs.

## 1.18.3 PRIVILEGES OF LTCs

(a) Line training including SLF and (b) Line checks and assessments when authorized by the operator, except PIC upgrade route checks

## 1.19 Useful or Effective investigation Techniques used

NIL.

## 2. ANALYSIS

## 2.1. Operational Aspect:

On 07<sup>th</sup> May 2017 at around 0840UTC, M/s. Jet Airways B-737-700WL aircraft VT-JGX, Operating service JAI730 departed from Bay No D37L for its Delhi-Patna sector. As per the taxi route clearance by the SMC at 091747UTC, the aircraft taxied via 'S3', 'Z' and holding on'Z4' for Runway 29 departure with parking brakes set.

Another B737-700WL aircraft VT-JGY of M/s. Jet Airways departed from Bay No.D43 for its Delhi-Srinagar sector with an Operating Service 9W-603. At091834UTC, VT-JGY was cleared for taxing behind their company aircraft. On obtaining taxiing clearance, the aircraft started taxing to S3, Z, Z4 holding point Runway 29. But, at 092657UTC, after completing S3 and while taxing on Z, the aircraft requested for Z3 instead of Z4. Z3 taxi way is ahead of Z4. The aircraft was cleared by the SMC for Z3 once clear of company, holding point Z4 which was read back correctly by VT-JGY.

From the photographs it could be noticed that the aircraft VT-JGX was offset to the right of its track and not exactly on the holding point. DFDR of VT-JGX also confirms that the final heading of the aircraft was 180Deg.

From the DFDR of VT-JGY, it has been noticed that the aircraft never stopped on the taxiway while taxing till they hit their company aircraft VT-JGX except there was a reduction in ground speed. Maximum taxi speed recorded during the ground manoeuvre was 19Kts. mostly upon witnessing VT-JGX; aircraft ground speed reduced to 04kts and continued forward motion just few seconds prior to the ground collision. There were no significant heading changes noticed during the ground manoeuvre especially while taxing from "Z" to "Z3". The data shows that the heading changed from 103 to 102 and back to 103and then to 104 Deg.

This shows that there was no effort made by the crew of VT-JGY to adhere to the SMC instruction and to follow Flight Crew Training Manual (FCTM) guidelines to manoeuvre the aircraft. Also, the decision made by the RH side captain autonomously without properly assessing the prevailing condition.

From the actual measurements, the distance between, taxiway 'Z4' holding point and taxiway 'Z' centreline found as 62.5meter. As calculated under 1.17 paragraph, had there been VT-JGX was exactly on the holding point, there would have been enough (approx. 10.9 meter) clearance existed.

As per the permanent NOTAM pertaining to Z3, Z4 rapid exit taxiway (A0279/17), effective from 16<sup>th</sup> March 2017 1200UTC onwards, the rapid exit taxiway Z3 and Z4 available as entry for taxiway for departure from Runway 29 for all types of aircraft during CAT – I conditions. Accordingly, the aircrafts were asked to enter via Rapid exit taxi way, Z4 holding point Rwy29. As crew were also aware of the NOTAM, crew followed the Controller's taxi clearance routing to enter Runway 29 for their departure.

Ground controller gave conditional clearance thorugh Z3 holding point 29 once clear of their company aircraft holding for Z4 which was acknowledged by the JAI603 properly. FCTMs guidelines for the crew also insist that during Taxi, if any crewmember is in doubt regarding the clearance, verify taxi routing with the assigned clearance or request clarification. Even though, crew were aware of VT-JGX presence on Z4 at an angle and holding Short of RWY 29, VT-JGY crew maneuver the aircraft by keeping all the the above defences aside.

Also, the VT-JGY crew taxied behind the active aircraft without the knowledge of VT-JGX, which was waiting in number 1 position for clearance and to open power to taxi into runway could endanger safety of the aircraft and its occupants.

From the above, it is clear that because of inadequate wing tip clearance, the starborad side winglet of VT-JGY aircraft hit the aircraft of VT-JGX portside elevator. VT-JGY crew taxied the aircraft violating the ATC instruction and company SOPs while manoeuvring on the taxiway resulted in to the incident.

## 2.2 Maintenance Aspect:

The aircraft was maintained properly and all the required applicable scheduled inspections were complied. All the SBs, SL, ADs etc were found complied with. Hence, maintenance aspect was not a contributory factor.

## 2.3 Weather Aspect:

Weather during the time of incident was fine. The incident occurred during the day light at around 0930UTC. There was no rain or visibility problem. Hence, weather was not a contributory factor.

## 3. CONCLUSION:

## 3.1 FINDINGS:

- 1. The aircraft was full airworthy conditions.
- 2. Operating Crew were qualified to operate the flight.
- 3. The captain of the VT-JGY occupied the RH side as it was the route check for the other crew who occupied the LH side.
- 4. The aircraft VT-JGX taxied via 'S3', 'Z' and holding on 'Z4' for Runway 29 departure with parking brakes set.
- 5. After obtaining taxiing clearance, the aircraft VT-JGY started taxing to S3, Z, Z4 holding point RWY29. However, after completing S3 and while taxing on Z, the aircraft requested for Z3 instead of Z4.
- 6. SMC gave conditional clearance to VT-JGY for taxiway Z3 once clear of company aircraft holding point Z4, which was read back by the crew properly.
- 7. There was a permanent NOTAM existed to use the taxiway Z3 and Z4 for departure on RWY29 through RET Z3 and Z4.
- 8. Ground controller gave all the instructions as per the existing NOTAM and proper guidance was provided to the departing aircrafts.
- 9. VT-JGX was holding on Taxiway Z4 little short of Runway 29 and at an angle offset to right and VT-JGX crew could see the runway holding point stop bar i.e. the aircraft

was not exactly on the holding point and which was holding well behind the holding point.

- 10. VT-JGY crew did not make any efforts to assess the safe distance /clearance availability before taxing behind VT-JGX.
- 11. While VT-JGY aircraft, taxiing on Z to Z3 with VT-JGX on Taxi way Z4 waiting for takeoff clearance for RWY29 departure, starboard side winglet entangled with portside elevator of VT-JGX.
- 12. Time of the occurrence was in the day time and the Visibility at the time was good.

## 3.2 Probable Cause:

Non adherence of the ATC instructions and company SOPs while manoeuvring on the taxiway by the VT-JGY operating crew has resulted in the incident.

#### 4. Safety Recommendations:

Action as deemed fit by DGCA may be taken against the involved crew for their lapses.

(R. RASENDRON) (R.Rajendran) Inquiry Officer