BAAI

BUREAU OF AIR ACCIDENT INVESTIGATION

BAAI.

C/O Ministry for Tourism

233 Republic Street

Valletta VLT 1116.

17th September 2019

Hon. Minister Konrad Mizzi,

I have the pleasure to submit a safety investigation report for the loss of separation between a Boeing 737-800, Reg No. TC-JHM and a Boeing 737-800, Reg No. EI-DHW which happened on the 17th of Janwary 2019 at Luqa Airport.

Sincerely yours

Capt. Frank Zammit

Chief Investigator of Air Accidents

BAAI

BUREAU OF AIR ACCIDENT INVESTIGATION

This investigation has been conducted in accordance with *Annex 13 to the ICAO Convention on International Civil Aviation*, *EU Regulation No 996/2010* and *The Civil Aviation (Investigation of Air Accidents and Incidents) Regulation; Legal Notice 16 of 2013*.

Under these Regulations, the sole objective of the investigation of an accident or incident is the prevention of accidents and incidents in the future. It is not the purpose of this investigation to assign fault or blame and the reporting process should not be used to determine liability.

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A safety investigation report for the loss of separation between a Boeing 737-800, Reg No. TC-JHM and a Boeing 737-800, Reg No. EI-DHW

1.0 General Information.

Location: Malta International Airport	**Accident Number:** BAAI/SIR-001-2019
Date & Time: 17th January 2019, approximately 19:57 hrs (Local)	**Registration:** Turkish Airlines, Reg. No. TC-JHM Ryanair, Reg. No. EI-DHW.
Aircraft Reg No: 1) B737-800, Reg. No. TC-JHM 2) B737-800, Reg. No. EI-DHW	**Aircraft Damage:** 1) Air craft Reg. No. TC-JHM suffered minor damage to the left horizontal stabilizer; 2) Aircraft Reg. No. EI-DHW suffered minor damage to the left winglet.
Defining Event: Loss of separation on the ground, resulting in an aircraft collision.	**Injuries:** No injuries reported.

2.0 Synopsis

A Boeing 737-800 Reg No. TC-JHM, flight number TK1372 reported that while holding on taxiway 'D' (Delta), the aircraft had been hit by another aircraft, also a Boeing 737-800, Reg. No. EI-DHW, flight number FR9874 which had just taxied from behind through taxiway 'C (Charlie) direction towards Stand 6. When questioned by ATC, EI-DHW replied that they were not aware they hit anything. An inspection vehicle was sent on site. This confirmed that indeed TC-JHM had signs of damage on the left elevator (shown in Fig. 1). The EI-DHW winglet was later found to have suffered minor damage shown in Fig. 2.

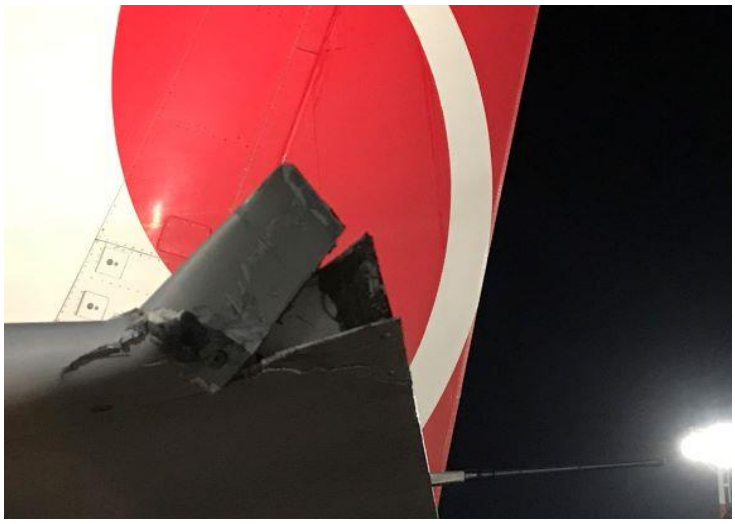

Fig. 1 Damage sustained by the Boeing 737-800, Reg. No. TC-JHM.

Fig. 2: Damage sustained by the Boeing737-800, Reg. No. EI-DHW

3.0 Factual Information

Aircraft and Owner/Operator Information

Aircraft 1	Aircraft 2
Aircraft Make: Boeing 737	**Aircraft Make:** Boeing 737
Model/Series: 737-800	**Model/Series:** 737-800
Aircraft Category: Twin jet engine airplane	**Aircraft Category:** Twin jet engine airplane
Landing Gear Type: Tricycle	**Landing Gear Type:** Tricycle
Seats: 151-159 (adjustable depending on business class seats)	**Seats:** 189
Registration: TC-JHM	**Registration:** EI-DHW
Registered Owner: N/A	**Registered Owner:** N/A
Operator: Turkish Airlines	**Operator:** Ryanair

Meteorological Information

Conditions at Accident Site: Visual conditions clear
Condition of Light: Dark
Lowest Cloud Condition: N/A
Lowest Ceiling: N/A
Wind Speed/Gusts: / Turbulence Type/Severity: N/A
Forecast/Actual: N/A
Wind Direction: N/A
Forecast/Actual:/ N/A
Altimeter Setting: Temperature/Dew Point: N/A
Precipitation and Obscuration: None

Airport Information

Airport: Malta International Airport
Runway Surface Type: Tarmac
Airport Elevation: 300 ft
Taxiway of interest: 'C' (Charlie) / 'D' (Delta) junctio
The aircraft dimensions are shown in Fig. 3. Fig. 4 and Fig. 5 show the setting of the accident and its relation to ATC tower respectively.

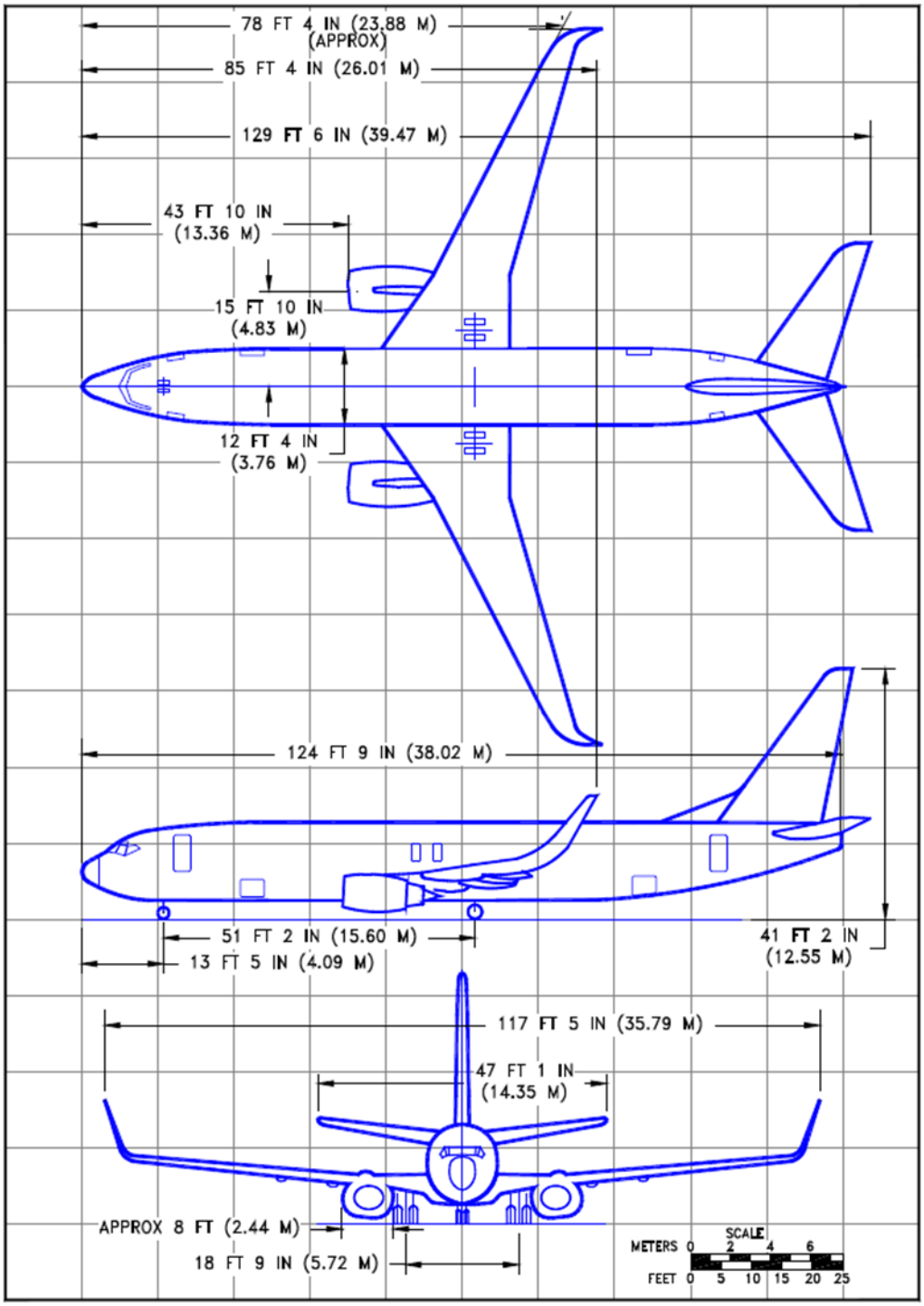

Fig 3. Overview of the aircraft dimensions

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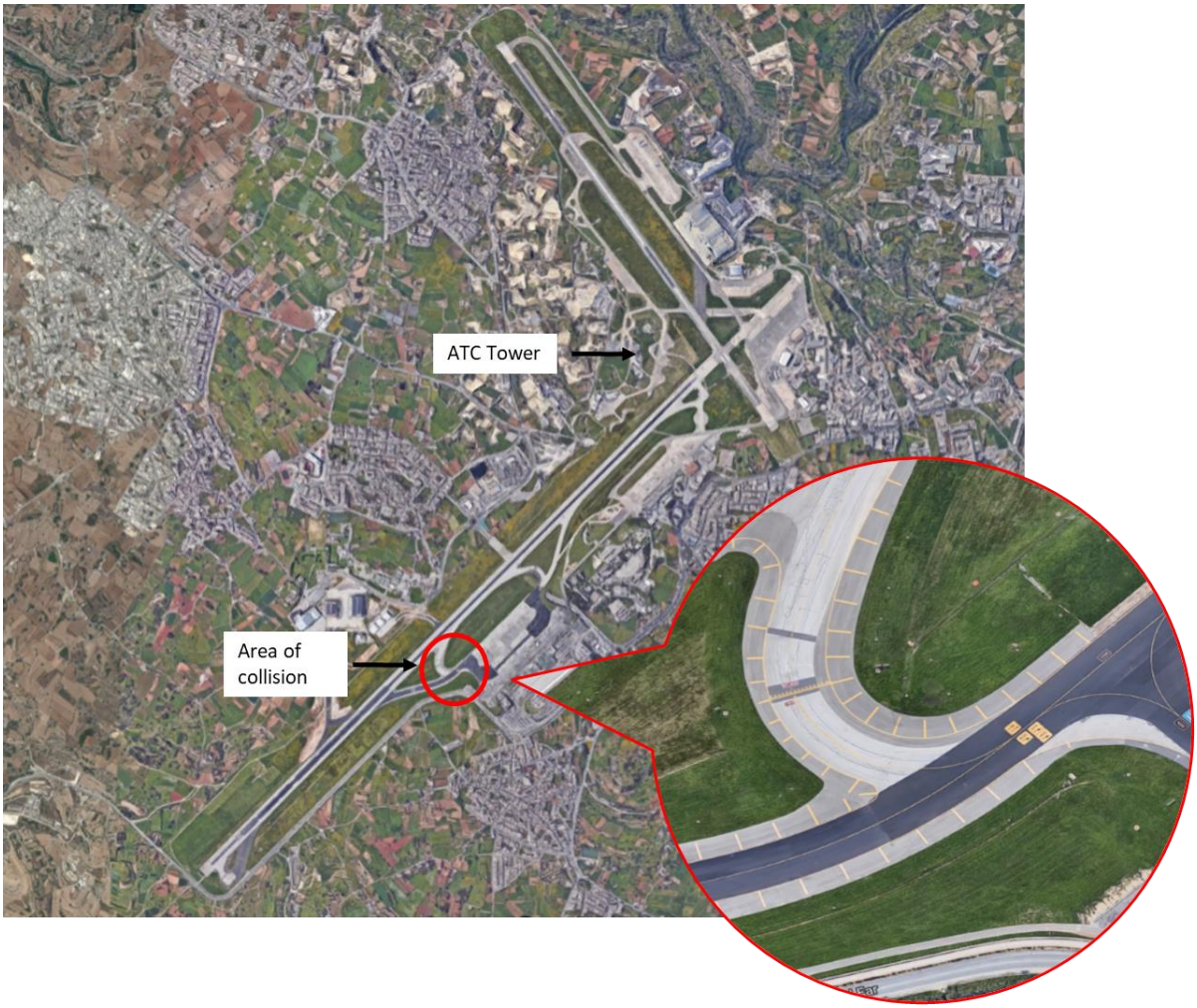

Fig. 4. Overview of the runway with insert area of interest.

Fig. 5. Schematic of the ATC tower in relation to the area of collision.

4.0 *Findings*

4.1 Airport design

The airport construction, markings and lighting were found to be according to ICAO standard *(Ref. ICAO ANNEX14 and ICAO document number 9157 part2)*. A Cat. 4C aircraft holding on Holding point "D" (Delta)[1] would not present a problem to an aircraft of the same category while taxiing on Taxiway "C" (Charlie). Fig. 6 shows how under normal circumstances a separation distance of ca. 20m would be maintained, once the aircraft position is at the stop marker.

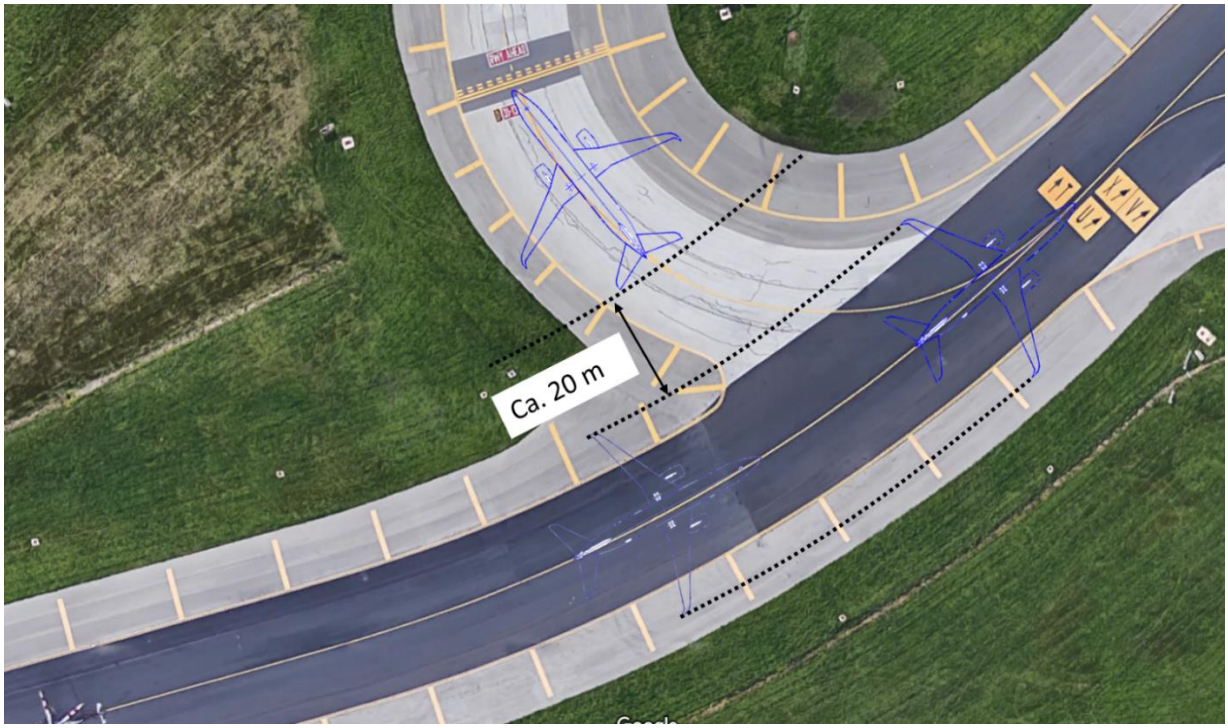

Fig. 6: Schematic showing the separation distance of 20m for two aircraft in their designate positions.

4.2 Aircraft positions

The flight crew of both aircraft were interviewed at the airport by the BAAI investigator after the incident. The investigation revealed that the flight crew of TC-JHM were not familiar with the Airport and unsure of their exact position while holding on Holding

[1] *Taxiways "E" (Echo) and "F" (Foxtrot) were not in use at the time of the incident due to maintenance/construction works leaving only taxiways "C" (Charlie) and "D" (Delta) to enter/exit Park 9.*

point "D" (Delta). This can be confirmed by the ATC transcript of a conversation between the TC-JHM and another aircraft which was cleared to Taxi via "C" (Charlie) after the incident occurred.

ATC Transcript 19.59:14
Acft3 from RYR40RA he looks....it is a bit difficult to judge, he does look a bit slightly back of the holding point. Would appreciate if he could taxi a bit forward a bit more now.
Acft1 err Ryanair I will go further up. I am about ten (10) feet from the holding point but will go further up. Thanks.

The crew of TC-JHM was asked to confirm that they had done a pre-flight briefing including a chart briefing before departing their parking position; the crew replied in the affirmative as this was a normal procedure.

Luqa International Airport is a simple airport to operate from. [2]Taxing is not complicated; taxiways, runways and markings are up to standard and the distance to the active runway (*RWY31/13*) from "Park 9" (*the parking position*) is short. The lit stop bar on the designated holding point "D" (Delta) is visible from the flight-deck. Therefore, stopping at the correct holding position should not have posed any difficulty, especially if a proper chart briefing has been completed before departure.

Further investigation revealed that the reason why the captain of TC-JHM stopped before reaching the hold position over Taxi-way "D" is because of the cautionary signage on the AIP chart (*Ref Appendix 4*). He continued to say that he was concerned that the aircraft (*or any part of it*) could interfere with aircraft manoeuvring on the runway.

"I wanted to keep the holding line well in sight and ahead of the nose of the airplane barring any instruction to the contrary from ATC. This conforms to good airmanship, FAA and DGCA regulations and THY training." [3]

While it is difficult to conclude with certainty the exact distance between the TC-JHM and its designated holding position at the time of the collision, this investigation finds that if both aircraft were positioned on the centre-line, (*as per procedure*), TC-JHM would have to have been approximately 22m (*72ft*) further back from its designated

[2] *Luqa International Airport is a Class B airport and taxing procedures and marking are in accordance with ICAO SARPs*
[3] *The reaction and Pilot's report by the Captain of TC-JHM is attached in Appendix 2*

holding point 'D' (Delta) at the time of the collision. According to the ATC transcript above, the flight crew of TC-JHM thought they were only 3m (10ft) away from the correct holding position.

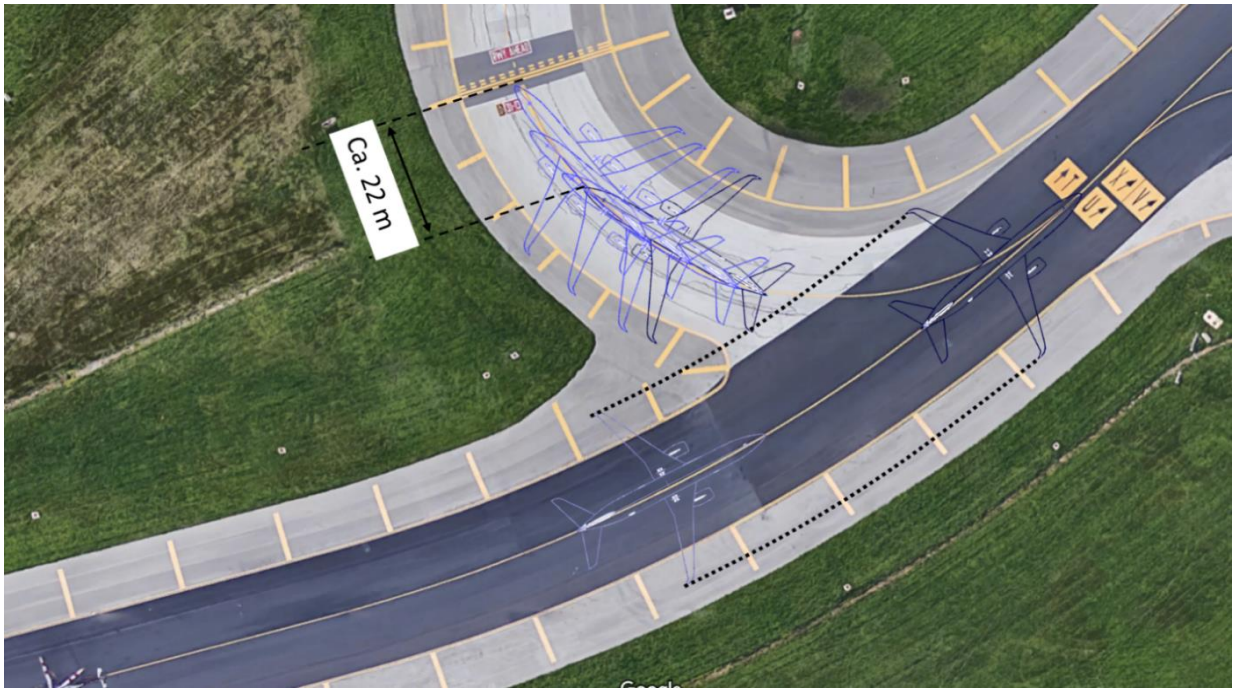

Fig. 7: Schematic showing that if both TC-JHM and EI-DHW were on their respective centreline, TC-JHM had to be ca. 22m further back from its designate holding position for a collision to take place

4.3 Human factors.

As stated above, the BAAI investigator petitioned the EI-DHW and the TC-JHM flight crew for an interview which was met by a request by the flight crew of EI-DHW to be given priority as they had a flight to catch as passengers[4]. Further investigations revealed that the EI-DHW flight crew were scheduled to operate FR 9875 - MLA to BRI on 17/01/19 scheduled time of departure 20:30 hrs. The actual on block time of FR 9874 (*Callsign RYR6P*) BRI to MLA 17/01/19 was 19:58 hrs UTC, giving the crew 32 minutes of turnaround time which is 7 minutes more than what is normally allocated by the Operator.

[4] *Following this occurrence, the crew of EI-DHW had been temporally taken off the roster.*

According to the CVR, while taxing on taxiway "C" (Charlie), the flight crew of EI-DHW showed some concern about the position of the TC-JHM which was holding too far back from the correct holding position on "D" (Delta). It has been proven that it is particularly difficult to judge distances and clearance along the wing especially at night; the crew of EI-DHW thought they had enough clearance, but they did not. Taxiing can be very demanding on the crew because of the dimensions and shape of a passenger aircraft, therefore it is fundamental to safety in aviation to stop taxiing when in doubt and only continue after making sure that it is safe to do so.

4.4 ATC

It must be appreciated that due to the distance of the tower from holding position "Delta" (1.9 km), and the fact that a ground radar facility is not available at the airport, the ATC controller relies on the flight crew's reported position to control the movement of aircraft on the ground. To be able to do that, ATC personnel must assume that the flight crew's reported position is correct. With TC-JHM reported to be holding on "D" (Delta), ATC cleared EI-DHW to taxi via "C" (Charlie).

Flight crew are aware of the fact that ATC will not issue a clearance, unless in their opinion it is safe to do so. This may have unintentionally provided the flight crew of EI-DHW with a false sense of security. Nevertheless, it must be emphasised that any ATC clearance must be executed safely, and any ATC clearance is only secondary to safety. At this point, EI-DHW_taxiing should have stopped, inform ATC of the actual position of TC-JHM and wait for further instructions.

4.5 Aircraft Design

The Boeing 737-800 makes use of winglets to improve the aircraft performance by reducing drag. This in turn reduces fuel burn and associated emissions. The winglets on this aircraft model, add approximately 5 feet to the airplane's total wingspan *(2.5 feet on each side)*; from 112 feet 7 inches to 117 feet 2 inches and each winglet adds 8 feet 2inches to the height of the wing tip. However, the winglets do not extend perpendicular to the horizontal. Their complex geometry is such that it extends outwards, upwards, and backwards. It should be noted the winglets extend beyond the height of the aircraft elevator of the same aircraft type as well as other types of larger aircraft, as shown in Fig. 3.

Fig.8.: The Boeing 737-800. Copyright © Boeing

This is not the first incident that a Boeing 737-800 aircraft has been involved in a winglet collision. Reference is made to similar incidents at night and *daylight[5] conditions such as those that occurred in Dublin airport, Ireland on 7 October 2014 (AAIU Report No. 2015-019), and again on 1 April 2015 (AAIU Preliminary Report No. 2015-005); as well as in Seville airport, Spain on 13 April 2012 (A-016/2013).

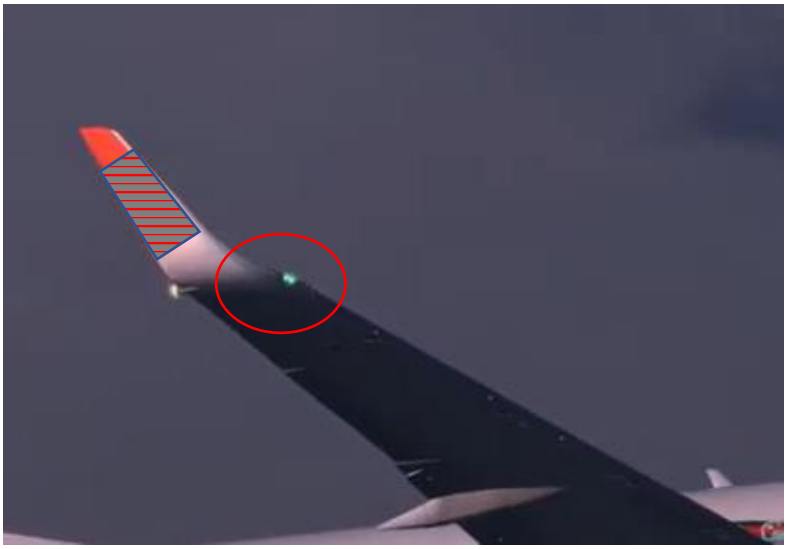

Fig. 9 Position of the Navigation Lights

[5] *On September 12, 2017, during daylight, a Boeing 737 winglet collided with a Boeing 767 elevator. This serious incident is like the one in this report in that the Ryanair crew reported that they did not feel the impact. Quote: the flight crew of the B737 reported that they did not feel an impact but were told by ATC that the collision had occurred.Ref.*https://dms.ntsb.gov/pubdms/search/hitlist.cfm?docketID=60873&CFID=2694702&CFTOKEN=4a8840563641 00a5-D06A2613-DC6B-3A0D-3AD46FCA17DEF5E4 *Although the winglet design in this footage is slightly different from the one in this report, it highlights the difficulty of a B737 crew to judge the position and height of comparable winglets.*

This investigation notes that the winglet tip is at 133° from the forward direction (Fig.10) i.e. the pilot's normal eye position, and barely visible from the pilot's seated position. Focusing on the wing tip detracts attention from the pilots main visual ahead. Previous accident reports concluded that the human's ability to gauge distance accurately is limited to about 10m. However, the winglet tip is at a line-of-sight distance of approximately 27m from the pilot' position in the flight-deck, as shown in Fig. 10. Beyond 10m, humans rely on visual cues for their everyday life, such as the pre-existing knowledge of an object's size, *(which is then used to gauge distance).* Nevertheless, this may become insufficient to assess complex geometries such as the winglet. This is made more difficult whilst the aircraft is moving, with obstructed views and while doing other taxiing procedures.

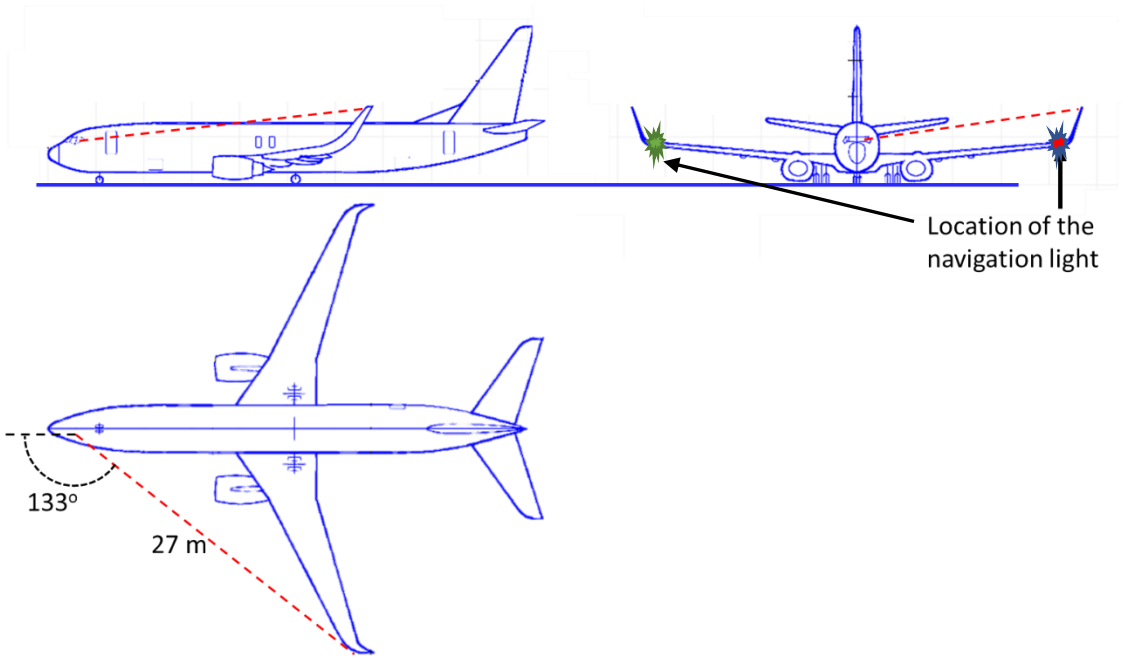

Fig. 10: Schematic showing the line of sight distance between the pilot and winglet tip, and the location of the navigation light. Copyright © Boeing

Furthermore, the investigation notes that the navigation lights of the Boeing 737-800 are situated at the bottom part of the wing before the protruding winglets. At night, or in poorly lit areas, pilots often use the navigation lights as a reference to judge the length and height of the wings. The position of the navigation lights on the aircraft does not help the pilot to make a good judgement of the true length and height of the entire wingspan (*including the winglet*), and obstacle clearance from the winglet.

4.6 Summary

The Bureau of Air Accidents Investigations (BAAI Malta) has determined the probable cause of this incident to be TC-JHM holding further back (22 meters) from the designated holding position on holding point "Delta", and the EI-DHW proceeding to taxi on taxiway "Charlie" behind it after receiving clearance by ATC.

It must be emphasised that it is the pilots' ultimate responsibility to ensure the safety of the aircraft and an ATC clearance should only be executed if it is safe to do so. While holding positions should be strictly adhered to, the decision to proceed with any ATC clearance lies with the pilot in command.

5 Recommendations

The ATC tower is approximately 1.9km away from the accident site. Throughout the course of this investigation it was found that ATC personnel have limited visibility of the area where the collision took place. This problem is compounded particularly in the dark or when visibility conditions are poor.

Recommendation 1:

It is recommended that additional support in the form of ground radar, vision cameras and infrared cameras are set up to assist tower personnel.

Operating a modern aircraft with large wingspan and winglets is challenging because judging distances between winglets and other objects is on the verge of physical limits of human capability. Pilots are therefore urged to err on the side of caution and safety.

Previous safety recommendations by NTSB, seeking that both the FAA and EASA consider the installation of wingtip proximity warnings and related pilot aids have not been acted upon. However, the benefits of blended wings and winglets in reducing fuel consumption will undoubtedly see an increase of similar devices installed in new

aircraft. This will increase the risk of similar incidents in the future. It is conducive that such incidents also have an associated cost and therefore the use of anti-collision aids on the ground should be reassessed.

Recommendation 2

It is recommended that the FAA and EASA reassess the need for mandatory winglet tip proximity warnings (for B737-800 comparable winglets), together with additional pilot aids and anti-collision aids on the ground.

Furthermore, the navigation light is an obvious reference point for pilots when operating the aircraft on the ground at night or in poor lit areas. The navigation light should represent the true span and geometry of the aircraft wing and be made visible from the pilot seating position. This will also assist the crew of other taxiing aircraft to judge the position and height of a B737-800 winglet.

Recommendation 3:

It is hence recommended that the aircraft manufacturer would consider placing the navigation lights ***at the tip of the winglets****.*

ABBREVIATIONS

ATC	-	Air Traffic Control
ATIS	-	Automatic Terminal Information Service
“C”	-	Charlie (Aviation Phonetic Alphabet)
“D”	-	Delta (Aviation Phonetic Alphabet)
ICAO	-	International Civil Aviation Organization
LMML	-	Malta International Airport ICAO Code
MATS	-	Malta Air Traffic Services
MTOW	-	Maximum Take-off Weight
NOSIG	-	No Significant Weather
PPL(A)	-	Private Pilot Licence (Airplane)
QNH	-	Atmospheric Pressure adjusted to Mean Sea Level
SEP(Land)	-	Single Engine Piston (Land)
VFR	-	Visual Flight Rules
WGS84		World Geodetic System 1984

APPENDIX 1

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Figure 3. Overview of the aircraft dimensions (page 6);
Figure 8. The Boeing 737-800 (page 11); and
Figure 10. Schematic showing the line of sight distance between the pilot and winglet tip, and the location of the navigation light. (page 13)

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APPENDIX 2

Reaction by the Captain of TC-JHM

Sirs:

As I am sure you are aware, I was Captain and person responsible for the Conduct of TK 1372 on 18 Jan 2019, Malta to Istanbul. In addition to the safety reports and other documents submitted. Upon some reflection about the event, I would like to submit this letter to you both and the attached analysis by me of the event. Both can either be discarded or added to the safety report that I wrote.

I would also like to state in this letter that in my view the First Officer, Cabin Chief, and Cabin crew performed well. They followed THY procedures, they did everything I asked them to do and, in my view, brought credit on themselves, the training department, and the organization.

Thank you both for taking the time to read this. To keep this small I did not resubmit any previous pictures. I hope it is helpful. It is an honor serving you both and the airline.

Signed electronically

The Captain's name has been erased to satisfy GDPR requirements.

Aircraft TC JHM
Location Malta Airport,
Aircraft a Boeing 738 had taxied from parking position 3 on Apron 9 to hold line taxiway Delta, following instructions from LUQA ground control. It was a two engine taxi. As I recall it was a left turn out of parking space 3 where we joined Victor, Uniform and Delta taxiway. Operations were normal and standardized. Meteorological conditions were not a factor as ground visibility was superb.

The aircraft arrived at hold line Delta at approximately 2005 hours with a Ryan Air B737 on short final. The first officer notified the Tower (not ground control) that we were holding short at Delta. Parking brake was set, and the crew proceeded to await the Ryan air landing. There was some discussion as I recall about how long we would wait and if a cabin announcement should be made.

The Ryan B737 was told to exit at Charlie and then both the FO and I noticed the lights of a second aircraft. I watched the Ryan airplane exit on Charlie. And I think I either remarked or thought that he was moving quickly but soon lost interest in watching him.

the first indication we had of contact was the airplane shaking violently. I have heard the cockpit voice recording of both the Ryan Air B737 and American Airlines B767 that had a ground incident in Barcelona Spain during 2011…and what we were hearing, and feeling was very close to that. I believe I remarked on the similarity but did say something to the affect that "he hit us". The movement of the plane I believe lasted 2-4 seconds. The time of impact was around 2008.

As I recall about that time, I believe the Number 2 F/A in the aft cabin chimed the Cabin Chief and they begin to talk. I asked the First Officer to talk to the Cabin chief (the conversation was in Turkish) and the number 2 and tell me what was being reported.

When the Barcelona incident occurred and two years ago when it was reviewed in the THY CRM course, I had made some decisions as to how I would respond if I thought an aircraft I was in command of had been hit in the tail by another airplane. Along with verifying no fire indication it seemed that checking hydraulic fluid status (i.e. check for leakage), looking at bleed pressure (to verify no wing body overheat indication or loss in pressure due to a puncture), fuel status (to note no massive decrease in tank quantity indicating an open fuel line) as well as conversations with the aft cabin manager…would give some indication of cabin and system integrity.

The FO did not report that the number 2 was talking about a cabin breach, nor were there any indications of fire (either from fire warning or the tower) , nor did any of the systems I looked at indicate any issues. Based on those things I never considered an emergency evacuation. I don't believe that the airplane moved on its gear (i.e. had any nose pivot). I did not feel any such movement NOR did the view outside the cockpit change noticeably. I looked at the heading indicator but could not note any heading change because I had not been aware of what it was before the impact.

At that point I told the tower (the FO was still talking to the Chief) that I thought we had been hit by the Ryan Air plane and requested a ground inspection. The tower agreed. As time passed, I begin to think that maybe I had overreacted. It occurred to me that the Ryan B737 had needed to go "up the hill" and might have used excessive power to taxi, and I might have

been feeling the jet wash. I recall talking to the FO about that.

By this time the second Ryan airplane had landed and had exited at Charlie. The tower asked him to report any damage. There was some discussion from him about asking me to reposition forward a little more.

I was concerned about violating the stop bar…but moved the plane what I felt was about 1 meter. The picture of the stop bar that I submitted was taken before airplane movement.

The Second Ryan B737 went passed us, then as it went up the hill, I started to believe that we had clearly been hit, as his jet wash was noticeable but nothing like had been felt. It took some time for the inspection to come, which confirmed my theory more and more, because I suspected that they had first proceeded to the Ryan B737 and had seen damage.

Finally the truck came, I could see from the cockpit the lights of the inspection, and we were told that there was elevator damage. I had been careful not to move the flight controls incase there was flight control damage, but suspected that he really meant horizontal stabilizer instead, as the elevators are shielded some by the swept back of the Horizontal stab.

When we taxied back I only used tiller incase the rudder had been hit.

We (the FO) made several cabin announcements. I made one.

There were no personal injuries. The FO, Cabin Chief and Cabin Crew stayed calm. They supported me well. The post event paperwork went as one would expect. The Malta Inspector (Captain Frank Zammit) was professional as were the airport police. There was a brief meeting with the Ryan Air Captain who came to our plane (we never went to the Ryan Air plane). It was cordial, professional although I think he misstated things to me a bit when he said he “felt nothing”.

All paperwork was filled out at the airplane EXCEPT the incident form. We (the FO and I) got four of them out of the folder and had started to fill them out as soon as we got inside the terminal, when the local manager called, and we went to her office. She had a form, so we used it. The phone in the documents pouch worked well.

The irony is that the geometry of the ground incident is almost exactly replicating the Barcelona event; with the exception of the direction of travel of the Ryan Aircraft.

Cause of the event:

TCJHM was positioned at the hold line with parking brake set. From my point of view the main concern with the hold line is not to interfere with aircraft circulating on the runway at any time or enter any part of the airplane onto the runway. I wanted to keep the holding line well in sight and ahead of the nose of the airplane barring any instruction to the contrary from ATC. This conforms to good airmanship, FAA and DGCA regulations and THY training.

The Ryan air pilot in command failed to give the right of way to JHM parked at the holding line and was negligent in the duty to maintain clearance from a non-maneuvering aircraft.

Contributory cause of the event:

LUQA ground control should have used Taxiway Charlie for aircraft back taxing and Delta for aircraft leaving the runway.

Suggestions for future training

1. Scenarios like this should be interwoven into simulator training. While I thought a lot about the Ryan/AA accident immediately after it happened. I had not thought much of it since, except when we had the THY CRM class which covered it. I firmly recall the discussion in the class and that discussion had sparked some additional thought on the matter. This was helpful to me in dealing with events.

2. I assume that this will be the subject in the safety publication. I would suggest that this be discussed in cabin crew refresher as well.

APPENDIX 3

Reaction by the operator of EI-DHW to the draft report:

Further comment;

It became clear during the investigation that although the airport design might appear to be simple, WIP status was not properly reflecting that particular taxiway as a hotspot and that the airport lighting design was a contributing factor in reducing the overall visibility.
RYR note Taxiway D was not designated as a hotspot on the navtech plates therefore crew would have no information to suggest a collision risk existed with an aircraft holding on Taxiway D. The report does not determine a definitive reason for TC JHM holding so far from the holding point as to impede traffic taxiing behind nor does it definitively state the stop bar was in use on taxiway D.

Ryanair notes no reference appears to be made in the report to the ground lighting conditions in the area of the collision. Ryanair further notes that according to the airport operator a Safety Risk Assessment on the programme of works was conducted by Ryanair was not represented.

Response by BAAI to the operator of EI-DHW

With reference to the Safety Investigation Report for the loss of separation between Boeing 737-800, Reg. No. TC-JHM and a Boeing 737-800, Reg. No. EI-DHW;

The comments that have been sent to Capt. Frank Zammit, were reviewed by the review board of the BAAI.

The board has advised on the following comments:

1) We are aware that both airlines involved have a professional internal structure and would therefore hold internal reviews and continuous training to their crew. We therefore consider no need to specify further recommendations to the airlines.

In response to the comment:

1) **That the junction is not marked as a hotspot on the AIP chart;**

The particular taxiway and junction between Taxiway C and Taxiway D is not considered a hotspot. On the other hand, the taxiway intersection between Hold D and RWY 31/13 is marked as an area requiring cautionary attention on AIP chart AD2-LMML-MISC-ARSA-1. Please find the chart attached.

3) That the lighting may have been a contributing factor;

There were no reported Airfield Lighting failures at the time of the accident. We are not aware that throughout the many years that the airport has been in operation, there has been any complaint that the lighting design has interfered with the safe taxiing of aircraft using TWY C and/or TWY

D. Furthermore, pilots' operation at night is considered to be part of their normal operating conditions. The lighting is therefore not considered as a contributing factor.

4) That the report does not determine the definitive reason for the TC JHM holding so far from the holding point;

Correspondence with the Turkish airline captain resulted that the captain "wanted to keep the holding line well in sight" thus making sure that his aircraft would not interfere with the Runway. The response by the Turkish airline captain is also included in the appendices of this report.

5) That a safety risk assessment on the programme of works was conducted, and Ryanair was not present;

Further investigation and correspondence with MIA, resulted in the following:
"the works associated with rehabilitation works on Taxiway E under AIPSUP 2019-001, which works are clearly unrelated to the root cause of this accident. The design of the AIPSUP was fully discussed and coordinated with Malta Air Traffic Services and the Aviation Regulator (TM-CAD)"

We further wish to advice that all correspondence and remarks will be listed as part of the Appendices in the report.