

Incident Final Report

INCID 02/05 - QTR8505

1 Factual information

1.1 History of the flight

Qatar Airways Flight QTR8505 was operated by CIELOS DEL PERU S.A. (REPUBLICA DEL PERUDGAC of PERU AOC certification no. 003) which is wet leased to QATAR Airways under the approval of the Civil Aviation Authority of Qatar (ref. CA/ASD/QR/OPS/087/05).

Flight was planned to operate from Macau International Airport (VMMC) to Karachi Quaid-E-Azam International Airport (OPKC) on 09 Nov 2005. Estimated time of departure was 1205 UTC but was delayed until 1400 UTC due to loading of cargo. Actual block out time was 1340UTC and airborne time was 1402UTC.

Flight was originally planned on runway 16 with flap setting of 17 degrees. The flight actually departed on runway 34 with 14 degrees of flap setting. The take off on runway 34 a wind of 140/07 knots gave an effective tail wind of approximately 5 knots. The aircraft used almost the whole length of the runway for its take-off roll. The climb angle was very flat. The aircraft was observed barely clear of the end of the runway.

The METAR at the time of Macau International Airport was as follows:
091400z 13011KT 100v160 7000 FEW 010 25/23 Q1013 NOSIG=.

At 140253 (UTC), the remote monitoring system for ILS equipment showed alarms for the Localizer component of the ILS and the system was automatically shutdown.

At 140306 (UTC), QTR8505 was transferred to Zhuhai APP.

At 142130 (UTC), the maintenance team confirmed that one of the elevated approach lights (APH2/32), near field monitor antenna of ILS Localizer and one of the antenna elements of the ILS Localizer are damaged and the wreckage are spread towards the end of Runway 34 and the service road.

At 142730 (UTC), the Macao Tower Supervisor confirmed with Zhuhai App whether the QTR8505 was under the control of Guangzhou ACC. And requested Zhuhai App to inform Guangzhou and thus the pilot of QTR8505 that it was suspected that it damaged the localizer antenna because of the aircraft attitude during initial climb. It was necessary to check the aircraft.

At 143512 (UTC), the Zhuhai APP confirmed with Macao Tower Supervisor that QTR8505 has been informed via Guangzhou ACC.

At 1732 (UTC), AFTN message from VGZRZQZX was received, stating that information was passed to QTR8505 and captain reported aircraft operation was normal.

At 2020 (UTC), QTR 8505 landed at Karachi Quaid-E-Azam International Airport (OPKC).

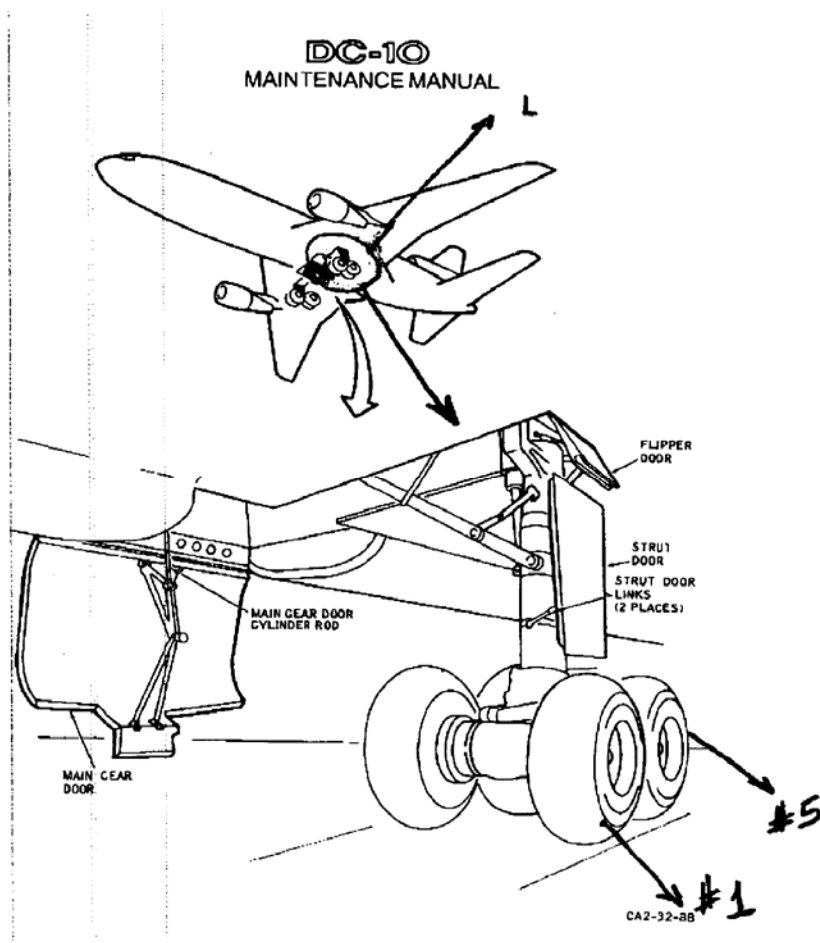
1.2 Injuries to persons

The following table should be completed in numbers:

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor/None	0	0	0

1.3 Damage to aircraft

According to information provided by Cielos Airlines, the DC 10-30F aircraft, after aircraft arrival in Karachi, Pakistan, were found with cuts in two tyres, forward left (#1) and rear left (#5). The #1 tyre (Picture 1.3-1) showed a cut on the inner side wall and the #5 tyre showed a cut on the tread, neither compromising the pressure holding capabilities. No other damage to the aircraft was identified. The aircraft backed to service after respective wheel change.



Picture 1.3-1



Picture 1.3-2

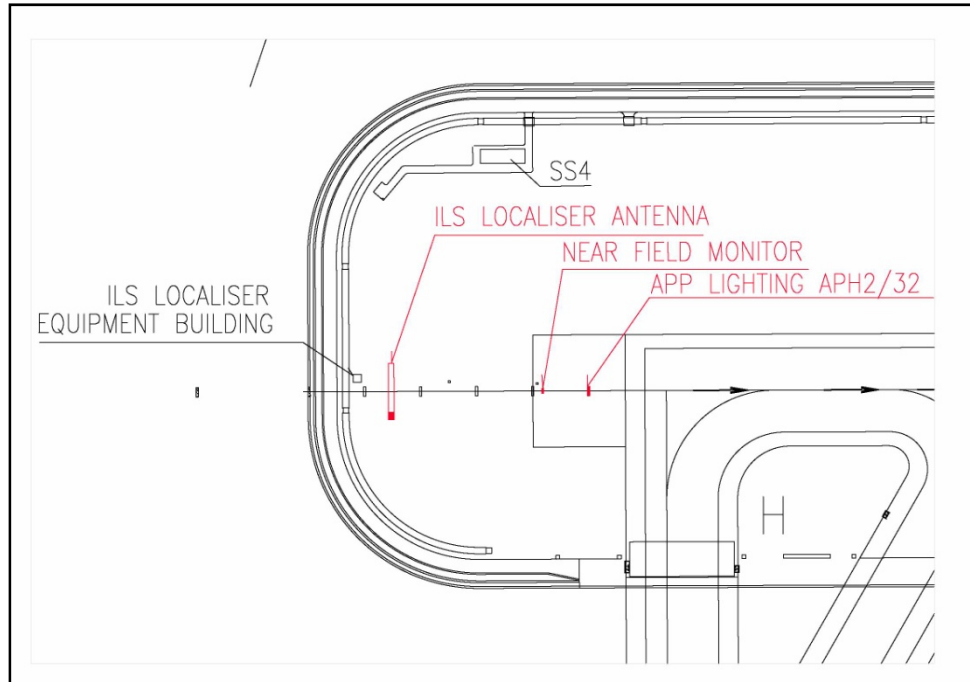


Picture 1.3-3

After the incident, the AACM considered the occurrence as a serious incident. As the State of Occurrence authority, the AACM intended to institute an investigation into the circumstance of this incident according to ICAO Annex 13. Request has been sent to the State of Operator, Peru DGAC delegating part of the investigation, including assessment of aircraft damage caused by this incident. However, the request has not been responded by Peru DGAC so far.

1.4 Other damage

At the end the RWY 34, one of the elevated approach lights (APH2/32), near field monitor antenna of ILS Localizer and one of the antenna elements of the ILS Localizer (together with the associated red obstacle lighting) are damaged and the wreckages are spread towards the end of Runway 34 and the service road.



Picture 1.4-1 Location of Damage ILS equipment and runway lighting



Picture 1.4-2 APP Lighting APH2/32



Picture 1.4-3 APP Lighting APH2/32



Picture 1.4-4 Near Field Monitor



Picture 1.4-5 Near Field Monitor



Picture 1.4-6 ILS Antenna element



Picture 1.4-7 wreckages of ILS elements



Picture 1.4-8 wreckages of ILS elements

1.5 Personnel information

Without the cooperation from the State of Operator, the AACM has no assess to most of the Personnel information. Request has been sent to Peru DGAC requesting the following factual information and no response from Peru so far:

- Names and ages;
- Validity and type of licences and ratings;
- Flight experience, details and types flown, hours on the type, total hours, details of recent training and mandatory and periodic checks; experience on route or aerodrome involved in the accident;
- Duty and rest periods;
- Significant medical history and medical checks.
- A brief statement of the qualifications and experience of cabin attendants, including evacuation drills, should also be given, as well as pertinent information regarding other personnel such as air traffic services, maintenance, etc., when relevant to the accident.

1.6 Aircraft information

Aircraft Type	: McDonnell Douglas DC-10-30F
Registration	: N614GC
Aircraft S/N	: 46931
Category	: Transport
Flight No.	: QR 8505
CoA	: FAA non-expiry Standard Airworthiness Certificate issued on 06/01/01
Operator	: Operated by Cielos Del Peru and wet leased to Qatar Airways under the approval of the Civil Aviation Authority of Qatar (re. CA/ASD/QR/OPS/087/05)

Without the cooperation from the State of Operator, the AACM has no assess to most of the aircraft information. Request has been sent to Peru DGAC requesting the following factual information and no response from Peru so far:

- Airframe/engine history – total flying hours since manufacture, since overhaul and since last periodic inspection
- Compliance of aircraft/engine maintenance schedule
- Compliance status of Airworthiness Directives
- Engine health monitoring
- Aircraft maintenance log
- Any outstanding defects prior to the occurrence
- Assessment of damage caused by this incident
- Flight recorder records

1.7 Meteorological information

The METAR at the time of Macau International Airport was as follows:
091400z 13011KT 100v160 7000 FEW 010 25/23 Q1013 NOSIG=.

1.8 Aids to navigation

All NAVAIDs is under normal operational condition.

After this incident, the remote monitoring system for the ILS equipment of the RWY 34 showed alarms for the Localizer component of the ILS and the system was automatically shutdown.

1.9 Communications

The Air Traffic Control and other operation communications relevant to the circumstances of the incident is normal operation.

1.10 Aerodrome information

RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	16	34
True & MAG BRG	161° GEO/163° MAG	341° GEO/343° MAG

Dimensions of RWY (m)	3360 x 45	3360 x 45
Strength (PCN) and surface of RWY and SWY	PCN 66/R/B/W/T	PCN 66/R/B/W/T
THR coordinates	22° 09' 38.31" N 113° 35' 14.14" E	22° 08' 17.46" N 113° 35' 43.91" E
THR elevation and highest elevation of TDZ of precision APP RWY	20 ft	20 ft
Slope of RWY-SWY	0°	0°
SWY dimensions (m)	60 x 45	60 x 45
CWY dimensions (m)	60 x 45	60 x 45
Strip dimensions (m)	3510 x 300	3510 x 300
OFZ	YES	YES

DECLARED DISTANCES

RWY Designator	TORA (m)	ASDA (m)	TODA (m)	LDA (m)	Remarks
1	2	3	4	5	6
16	3225	3285	3285	2865	Displaced THR : 360 m
34	3300	3360	3360	2930	Displaced THR : 370 m

APPROACH AND RUNWAY LIGHTING

RWY Designator	APCH LGT type LEN INTST	THR LGT colour WBAR	VASIS (MEHT) PAPI	TDZ LGT LEN	RWY Centre Line, LGT Length, spacing colour, INTST	RWY edge LGT, LEN spacing colour, INTST	RWY End LEN, spacing colour WBAR	SWY LGT LEN colour	Remarks
16	SIAL 600 m LIH	GREEN -	PAPI Both / 3° (70.87 ft/ 21.60 m)	NIL	2865 m, 30 m*, LIH	3460 m, 60 m White - 2280 m Yellow - 600 m LIH	Red -	60 m Red	* ICAO standard colour coding
34	CAT 1-2-3 420 m LIH	GREEN -	PAPI Right / 3° (65 ft/ 19.81 m)	900 m	2930 m, 30 m*, LIH	3460 m, 60 m White - 2340 m Yellow - 600 m LIH	Red -	60 m Red	

According to the AIC 06/96, dated 17 Jun 1996, concerning the “Use of Referential Runway”, the preferential runway in Macau International Airport is RWY 34, within the limits of a wind intensity (actual and/or forecasted) of no more than 10 knots as tail wind component.

1.11 Flight recorders

Without the cooperation from the State of Operator, the AACM has no assess to any information about the flight recorders.

1.12 Wreckage and impact information

1. No wreckage or parts liberated from the subject aircraft was identified on the runway.
2. The wreckages of the ILS antenna elements and runway lightings are spread towards the end of Runway 34 and the service road.

1.13 Medical and pathological information

Without the cooperation from the State of Operator, the AACM has no assess to any information about the Medical and pathological information.

1.14 Fire

No Fire during this incident.

1.15 Survival aspects

Without the cooperation from the State of Operator, the AACM has no assess to any information about Survival aspects.

1.16 Tests and research

No related tests and research was performed.

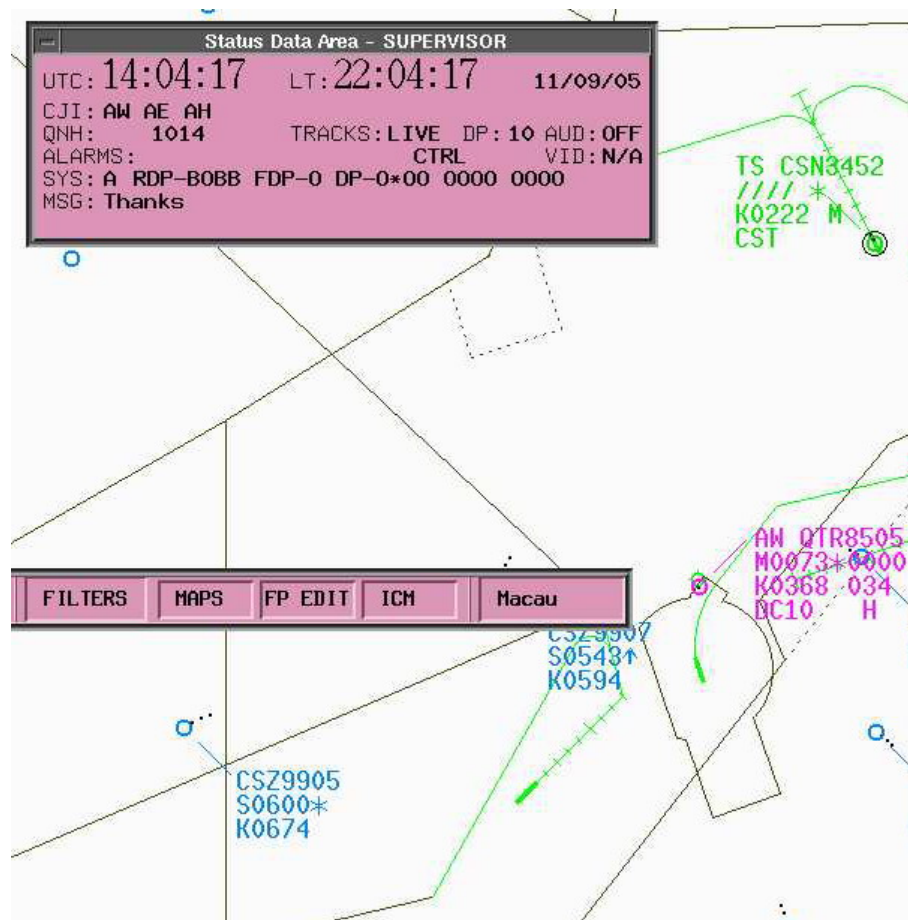
1.17 Organisation and management information

QTR8505 was operated by CIELOS DEL PERU S.A. (REPUBLICA DEL PERUDGAC of PERU AOC certification no. 003) which is wet leased to QATAR Airways under the approval of the Civil Aviation Authority of Qatar (ref. CA/ASD/QR/OPS/087/05).

1.18 Additional information

The radar record for the whole period of the incident moment is provided by Zhuhai Terminal Air Traffic Control and the play back of radar data was performed in Zhuhai.

As shown by the radar play back at 140417 (UTC), QTR8505 appeared in the radar display with deviated flight path to the SID for Runway 16.



Picture 1.18-1 Extraction of radar replay

2.- ANALYSIS

1. The Macau International Airport and all the NAVAIDS related to this flight is under normal operational condition.
2. The preferential runway in Macau International Airport is RWY 34, within the limits of wind intensity (actual and/or forecasted) of no more than 10 knots as tail wind component.
3. According to the information from Cielos Airlines, the planned flag setting is 17 degrees on runway 16 but the actual flag setting is 14 degrees on runway 34 with effective tail wind of approximately 5 knots.
4. According to the information from Cielos Airlines, actual take off weight was 544719 lbs, the maximum take off weight for the aircraft is 572000 lbs, zero fuel weight was 379510 lbs, the maximum zero fuel weight for the aircraft is 401100 lbs and the aircraft was properly loaded and trimmed correctly.
5. Fuel on board was 165200 lbs at take off and the required fuel for the trip was 162576 lbs as per computer flight plan.
6. Landing weight was 407119 lbs and the maximum for the aircraft is 421000 lbs. All of the weights for the flight were within limits of the aircraft under conditions presented at Macau International Airport.
7. All cargo was re-weighed at the destination to ensure that there was no overweight condition.
8. Upon arrival at Karachi, inspectors from Pakistan Civil Aviation inspected the aircraft and found cuts on two left main tires.

3.- CONCLUSIONS

3.1. Findings

- 3.1.1. Loading for the flight was within authorized weight limits, and the aircraft was operating within prescribed centre of gravity limits.

- 3.1.2. Adequate meteorological information was provided to the flight crew prior to departure.
- 3.1.3. The flap setting was inappropriately calculated with respect to the loading weight and wind conditions.
- 3.1.4. Handling of the flight by Macau ATC was in order. Coordination of Macau ATC with adjacent ATC units were made in a timely manner to alert the incident aircraft as well as the consequentially affected arrival aircrafts due to un-serviceability of ILS.

With limited information, it is not possible to confirm the follow statements, namely:

- 3.1.5. The pilots were properly licensed and qualified to operate the flight. There was no evidence suggesting any pre-existing medical or behavioural conditions that might have adversely affected the flight crew's performance during the flight.
- 3.1.6. The aircraft behaved normally during the take-off roll with no system anomaly found.
- 3.1.7. For the purpose of training, the company procedures in flap setting are not sufficiently clear in its description.
- 3.1.8. The flight crew had not been provided with sufficient technical and guidance information, nor was there clear evidence that they were adequately trained to operate the aircraft.
- 3.1.9. The flight crew had clear justification about the reject take off procedures/limits with respect to the declared distances as well as physical dimensions of the airport runways.
- 3.1.10. After parking, the "Push to Erase" button on the CVR was operated. This contravenes the company's instruction with regard to preservation of flight records.

3.2. Causes

With the evidence as documented in the available information, the performance of the aircraft was degraded translating into longer take-off roll distance due to incorrect flap setting (14 degrees) for the tail wind condition (140/07 knots).

3.3. Contributing Factors

The flight crew had not been provided with sufficient technical and guidance information nor were they adequately trained to apply the correct flap setting for take-off.

4.- SAFETY RECOMMENDATIONS

Operating procedures for take off and flap setting should be reviewed to ensure that procedures conform with [some standards/manual].

This information should be disseminated to flight crews and reviewed in recurrent training ground school.

5.- APPENDICES

1. Traffic Form of QTR8505 from ADA
2. Aircraft Identification Form from ADA
3. QTR8505 Flight Plan
4. ILS NOTAM
5. Pre-Flight Bulletin
6. Weather Information
7. Weight and Balance Manifest from Menzies
8. ATC Watch supervisor log
9. ILS alarm Log
10. Qatar Airways Non scheduled Freighter Application
11. Transcription – ATC & pilot
12. Description of Conversation – ATC and related entities
13. AACM letter to Perú DGAC