



**COMISIÓN DE
INVESTIGACIÓN
DE ACCIDENTES
E INCIDENTES DE
AVIACIÓN CIVIL**

Report IN-007/2016

Incident involving a Boeing 737-800 aircraft, registration LN-NHG, operated by Norwegian, and a paraglider, on approach to the Malaga airport (Spain), on 12 March 2016



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DE ESPAÑA

MINISTERIO
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COMISIÓN DE INVESTIGACIÓN
DE ACCIDENTES E INCIDENTES
DE AVIACIÓN CIVIL

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Foreword

This report is a technical document that reflects the point of view of the Civil Aviation Accident and Incident Investigation Commission (CIAIAC) regarding the circumstances of the accident object of the investigation, and its probable causes and consequences.

In accordance with the provisions in Article 5.4.1 of Annex 13 of the International Civil Aviation Convention; and with articles 5.5 of Regulation (UE) n.º 996/2010, of the European Parliament and the Council, of 20 October 2010; Article 15 of Law 21/2003 on Air Safety and articles 1, 4 and 21.2 of Regulation 389/1998, this investigation is exclusively of a technical nature, and its objective is the prevention of future civil aviation accidents and incidents by issuing, if necessary, safety recommendations to prevent from their reoccurrence. The investigation is not pointed to establish blame or liability whatsoever, and it's not prejudging the possible decision taken by the judicial authorities. Therefore, and according to above norms and regulations, the investigation was carried out using procedures not necessarily subject to the guarantees and rights usually used for the evidences in a judicial process.

Consequently, any use of this report for purposes other than that of preventing future accidents may lead to erroneous conclusions or interpretations.

This report was originally issued in Spanish. This English translation is provided for information purposes only.

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Abbreviations

00 °C	Degrees centigrade
AENA	Aeropuertos Españoles y Navegación Aérea
AIP	Aeronautical information publication
APP	Approach control
ARP	Aerodrome reference point
ATC	Air traffic control
ATPL(A)	Airline Transport Pilot License (Airplane)
CTR	Control zone
ENAIRE	Air Navigation Services Provider
FL	Flight level
ft	Feet
GND	Ground
h	Hour(s)
hPa	Hectopascal(s)
ILS	Instrument landing system
IR	Instrument rating
km/h	Kilometers per hour
LEMG	Málaga Airport (Spain)
m	Meter(s)
NM	Nautical(s) mile(s)
N	North
QNH	Altimeter subscale setting to obtain elevation when on the ground
RWY	Runway
SSP	State Safety Programme
TWR	Control tower
UTC	Coordinated Universal Time
W	West

Synopsis

Owner and operator:	Norwegian
Aircraft:	Boeing 737-800, LN-NHG
Date and time of incident:	Saturday, 12 March 2016; at 14:53 UTC ¹
Site of incident:	Approach to the Malaga airport (LEMG)
Persons onboard:	6 crew and 180 passengers. No injuries reported
Type of flight:	Commercial Air Transport – Scheduled – International – Passenger
Phase of flight:	Approach
Date of approval:	27 July 2016

Summary of incident

On Saturday, 12 March 2016, there was an incident between a Boeing 737-800 aircraft, operated by the airline Norwegian, and a paraglider while on approach to the Malaga airport. The aircraft was making an approach to runway 13 at this airport when, at 6,800 ft, the crew had to make a turn to avoid a paraglider that was in an area not authorized for this activity. The crew continued the descent and made the landing without further incident.

¹ All times in this report are in UTC.

1. FACTUAL INFORMATION

1.1. History of the flight

On Saturday, 12 March 2016, a Boeing 737-800, registration LN-NHG and operated by the airline Norwegian, had to make an evasive maneuver due to the presence of a paraglider while on approach to the Malaga airport.

The aircraft had departed from London (United Kingdom) en route to Malaga (Spain). During the approach phase to runway 13 at the Malaga Airport, while at an altitude of 6,800 ft, the crew stated that they had to make a right turn to avoid a paraglider that was flying in the vicinity. The paraglider, in turn, also turned right to avoid the aircraft.

After the incident the aircraft continued with its descent and landed normally on runway 13. There were no injuries and the aircraft was not damaged.

1.2. Injuries to persons

Injuries	Crew	Passengers	Total in the aircraft	Others
Fatal				
Serious				
Minor				Not applicable
None	6	180	186	Not applicable
TOTAL	6	180	186	

1.3. Damage to aircraft

The aircraft was undamaged.

1.4. Other damage

There was no damage of any other type.

1.5. Personnel information

1.5.1. Information on the crew of aircraft LN-NHG

The captain, a 45-year old Belgian national, had an airline transport pilot license (ATPL(A)) issued by the Belgian Civil Aviation Authority on 20 October 2006, and a class-1 medical

certificate that was valid until 29 September 2016. He had a total of 6,185 flight hours, of which 5,630 had been on the type.

The ratings noted on the license were:

- B737-300-900 valid until 31 March 2016.
- IR valid until 31 March 2016.

The first officer, a 30-year old Irish national, had an airline transport pilot license (ATPL(A)) issued by the Irish Civil Aviation Authority on 9 September 2013, and a class-1 medical certificate that was valid until 17 May 2016. He had a total of 4,020 flight hours, of which 3,800 had been on the type.

The ratings noted on the license were:

- B737-300-900 valid until 31 October 2016.
- IR valid until 31 October 2016.

1.6. Aircraft information

The aircraft with registration LN-NHG is a Boeing 737-800 with serial number 41139 and outfitted with two CFM 56-7B26E engines. It had certificates of airworthiness and registration issued by the Norwegian Civil Aviation Authority that were valid until 11 and 12 August 2016, respectively.

The airworthiness review certificate had been issued on 11 August 2015 and was valid for one year.

The last maintenance actions, carried out on 7 March 2016, had involved removing residue from deicing fluids, a check of the radome and broadband antenna, and cleaning of the underside of the fuselage, flaps and engine fairings.

1.7. Meteorological information

Based on information provided by Spain's National Weather Agency, visibility at the site of the incident was good at the surface, with clear skies, a temperature of around 16 °C, a QNH of around 1,019 hPa, a relative humidity of 60% and variable winds, predominantly from the southeast (around 140°), of moderate intensity (about 20 km/h) and gusting to 30 km/h.

1.8. Aids to navigation

The radar records obtained from the air navigation services provider (ENAIRE) allowed investigators to determine the aircraft's progression during the incident.

1.9. Communications

Below is a transcript of the communications related to the incident and which were held between the aircraft crew and approach control:

- 14:45:12 IBK9BV Málaga approach, buenas tardes. IBK9BV descending flight level 150 direct OMIGO.
- 14:45:21 APP Hello IBK9BV, radar contact, descend flight level 60 flight direct to NEPUR.
- 14:45:28 IBK9BV Descend flight level 70 and flight direct NEPUR IBK9BV.
- 14:45:46 IBK9BV Málaga approach IBK9BV, we have ground contact, we can accept any short may be 15 or 5 miles short final.
- 14:45:57 APP Roger, you may fly 15 miles IBK9BV.
- 14:46:02 IBK9BV 15 miles final. Gracias IBK9BV.
- 14:50:05 APP IBK9BV, descend 5,500 ft QNH 1,020 when intercept you are cleared ILS runway 13.
- 14:50:15 IBK9BV Altitude 5,500 ft, 1,020 on the QNH, cleared ILS runway 13 IBK9BV.
- 14:53:23 Approach, IBK9BV, we have paraglider pretty close to us here.
- 14:53:34 APP Paraglider which position please?
- 14:53:36 IBK9VB Exactly what we are 6,800 ft.
- 14:53:40 APP Same altitude?
- 14:53:42 IBK9VB Same altitude, yes, and there's a some much below (...) at our altitude.
- 14:53:49 APP OK, we'll have any notice about that. I'll check.
- 14:53:55 IBK9BV Thank you for your information, that was very close.
- 14:55:28 APP IBK9BV contact tower 118.150 bye bye.
- 14:55:32 IBK9BV 118.150 Thanks for your help. Buenas tardes IBK9BV.

1.10. Aerodrome information

Not applicable.

1.11. Flight recorders

It was not deemed necessary to request the information contained in the recorders of aircraft LN-NHG from the airline Norwegian, since the radar information provided by ENAIRE was sufficient.

1.12. Wreckage and impact information

Not applicable.

1.13. Medical and pathological information

Not applicable.

1.14. Fire

Not applicable.

1.15. Survival aspects

Not applicable.

1.16. Tests and research

1.16.1. *Report from the captain of flight IBK9BV*

In his safety report, the captain of flight IBK9BV stated the following:

Returning from Gatwick, and on approach to the Malaga Airport, we were cleared to 5,500 ft 15 NM away on final to runway 13. I was the pilot in command and the autopilot was disengaged. At 7,000 ft the first officer and I saw something in

front of us, and we thought it was a bird. A second or two later we identified it as a paraglider. I instantly made a right turn at a 30° bank angle to avoid a collision. The paraglider also turned to its right and passed within 100 m of our left wing. We then contacted the tower to report the presence of the paraglider at 6,800 ft and 5 NM east of point NEPUR. The tower confirmed they had no reports of paragliding activity in that area.

We would probably agree with the person in the paraglider that it was our lucky day. I cannot begin to imagine what would have happened if the autopilot had still been engaged or if we had not looked outside. We definitely would not have been able to make the evasive maneuver.

The landing was normal, with no comments from the passengers.

1.16.2. *Information from the Andalusian Air Sports Federation*

The Andalusian Air Sports Federation was asked about flight activity in the area of the incident. The President of the Paragliding Technical Commission at the Federation stated that no official activities are carried out in prohibited or restricted flight areas without authorization. On the weekend of the incident there were no competitions in the area due to weather.

He also noted that Valle de Abdalajís is a usual paragliding flight area that is very popular among foreign pilots who are not Federation members, and who thus have no knowledge of the Federation's instructions regarding flying in that area.

1.16.3. *Information provided by AENA*

On 5 January 2016, Malaga airport officials sent letters to the Valle de Abdalajís town hall and to the local government office in Malaga, informing them of reports received from aircraft crews regarding the presence of paragliders and paramotors in Valle de Abdalajís, inside the Malaga Airport CTR, pointing out the risk this poses to air navigation and requesting that this type of flight activity be limited.

The letters also referenced similar letters dated 22 June and 20 November 2015 sent to these bodies, requesting information about said flight activities, letter that went unanswered.

On the day of the incident there had been no requests to reserve airspace in the area to carry out flight activities.

1.16.4. Radar images

The following sequence of images shows the flight of IBK9BV during its approach to the Malaga Airport.

Figure 1 shows the aircraft established on the initial segment of the approach to runway 13, proceeding to point OMIGO on heading 186 and cleared by ATC to descend to FL 70.

The crew were cleared by APP to descend to FL 60 and proceed direct to point NEPUR.

They then requested to proceed to short final, and were cleared by APP to 15 NM, as shown in figure 2.

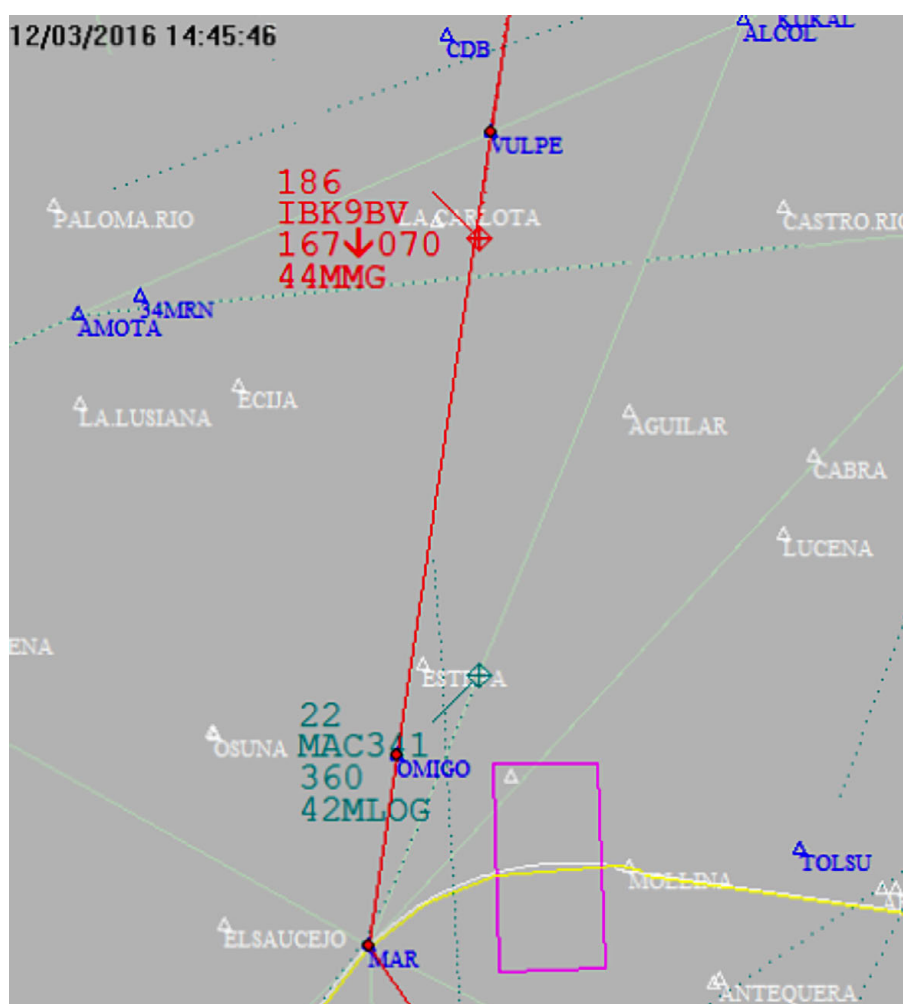


Figure 1. Flight IBK9BV on approach

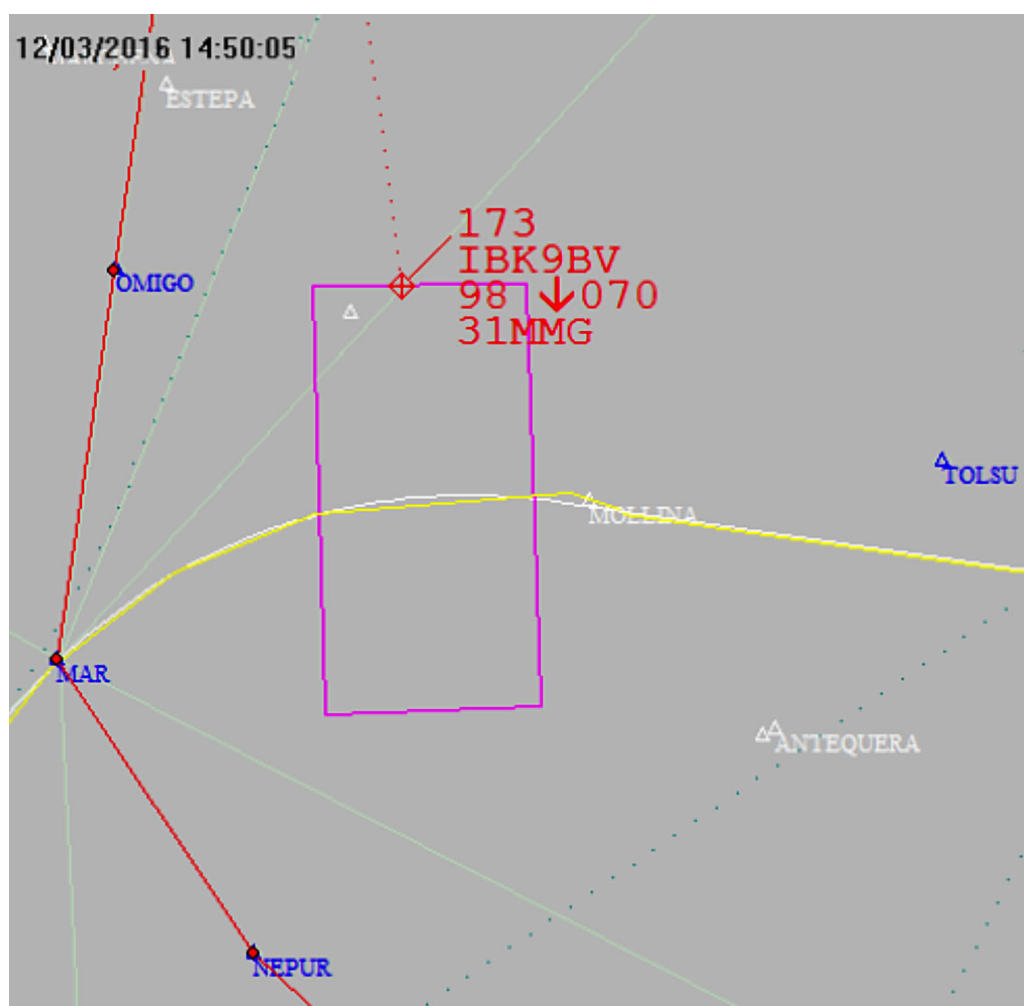


Figure 2. ATC cleared direct to ILS RWY 13

They were later cleared to descend to 5,500 ft and to proceed to RWY 13 upon intercepting the localizer.

At 14:53:23, while continuing to descend on heading 173, the crew reported to APP control the presence of a paraglider in front of the aircraft. Figure 3 shows that their approximate position at that time was 6.2 NM east of point NEPUR at an altitude of about 7,000 ft.

The paraglider's position could not be determined from the radar images, which did not record any returns from the paraglider.

To avoid colliding with the paraglider, the pilot made a right turn. Figure 4 shows the change recorded in the radar tag for the aircraft's heading as a result of the turn.

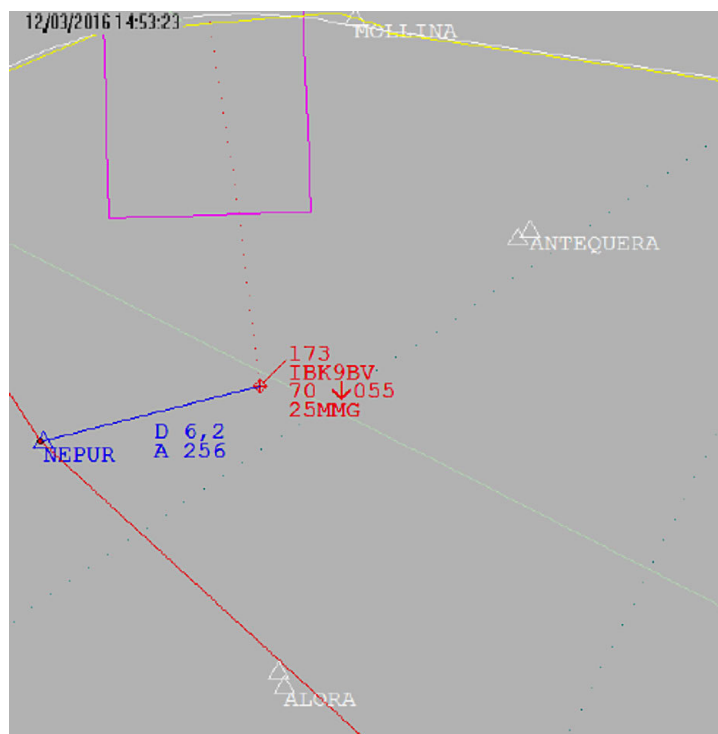


Figure 3. IBK9BV reports presence of paraglider

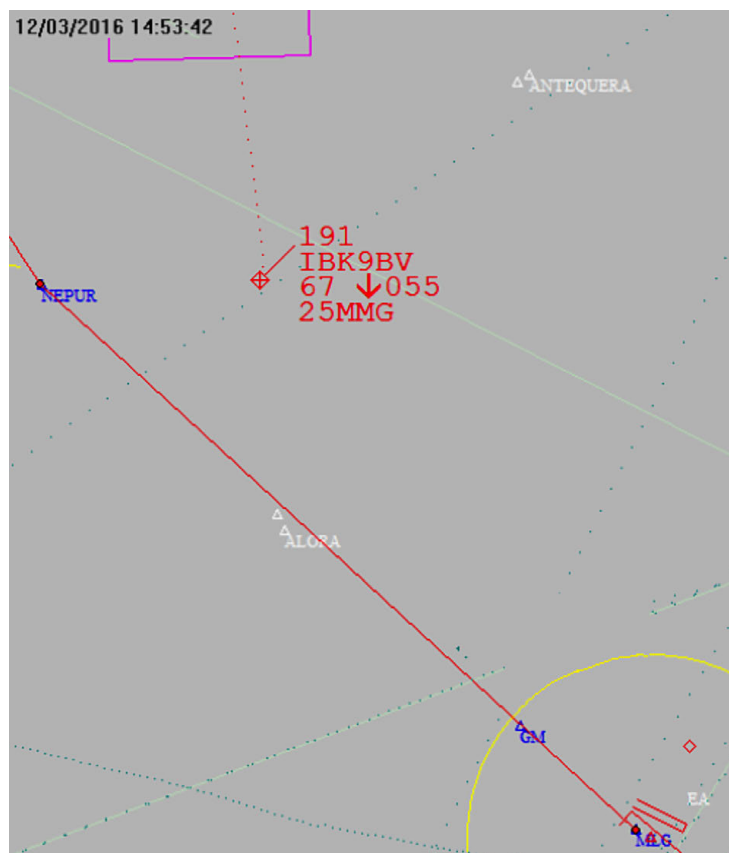


Figure 4. Change in aircraft's course

According to information provided by the crew, the paraglider also turned to its right, with the closest point of approach occurring at a relative distance of some 100 m.

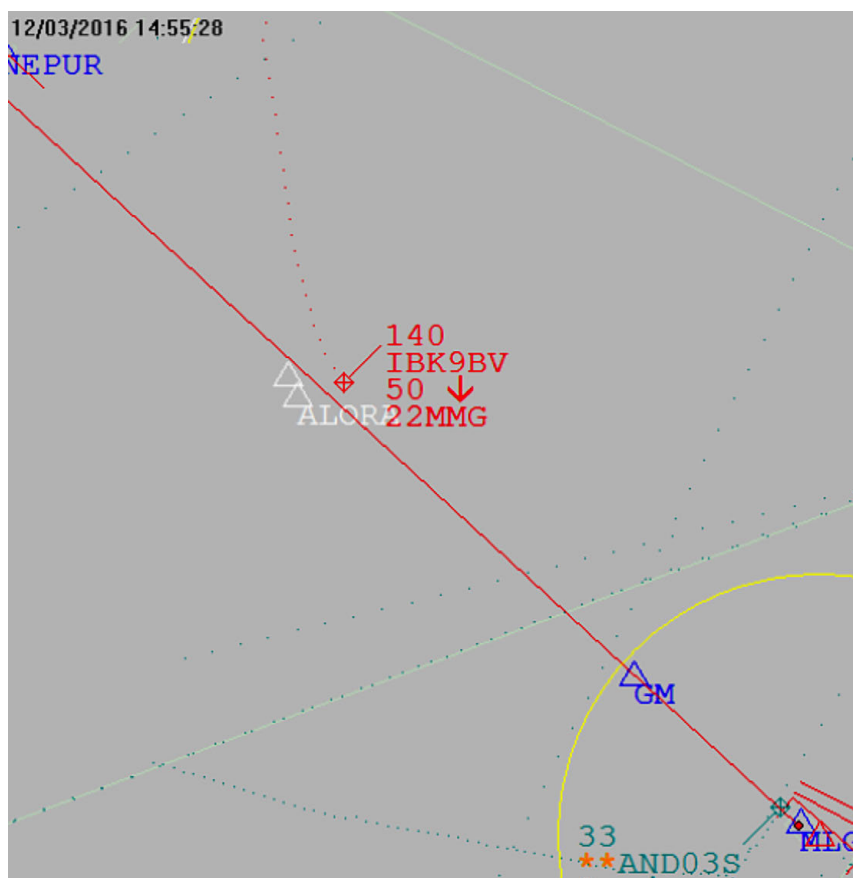


Figure 5. IBK9BV joins the final segment of the approach

After the incident, the crew resumed the flight until they intercepted the runway 13 localizer. They then completed the approach and landing normally.

1.17. Organizational and management information

Not applicable.

1.18. Additional information

1.18.1. Instrument approach chart

Below is the instrument approach chart for runway 13 at the Malaga airport.

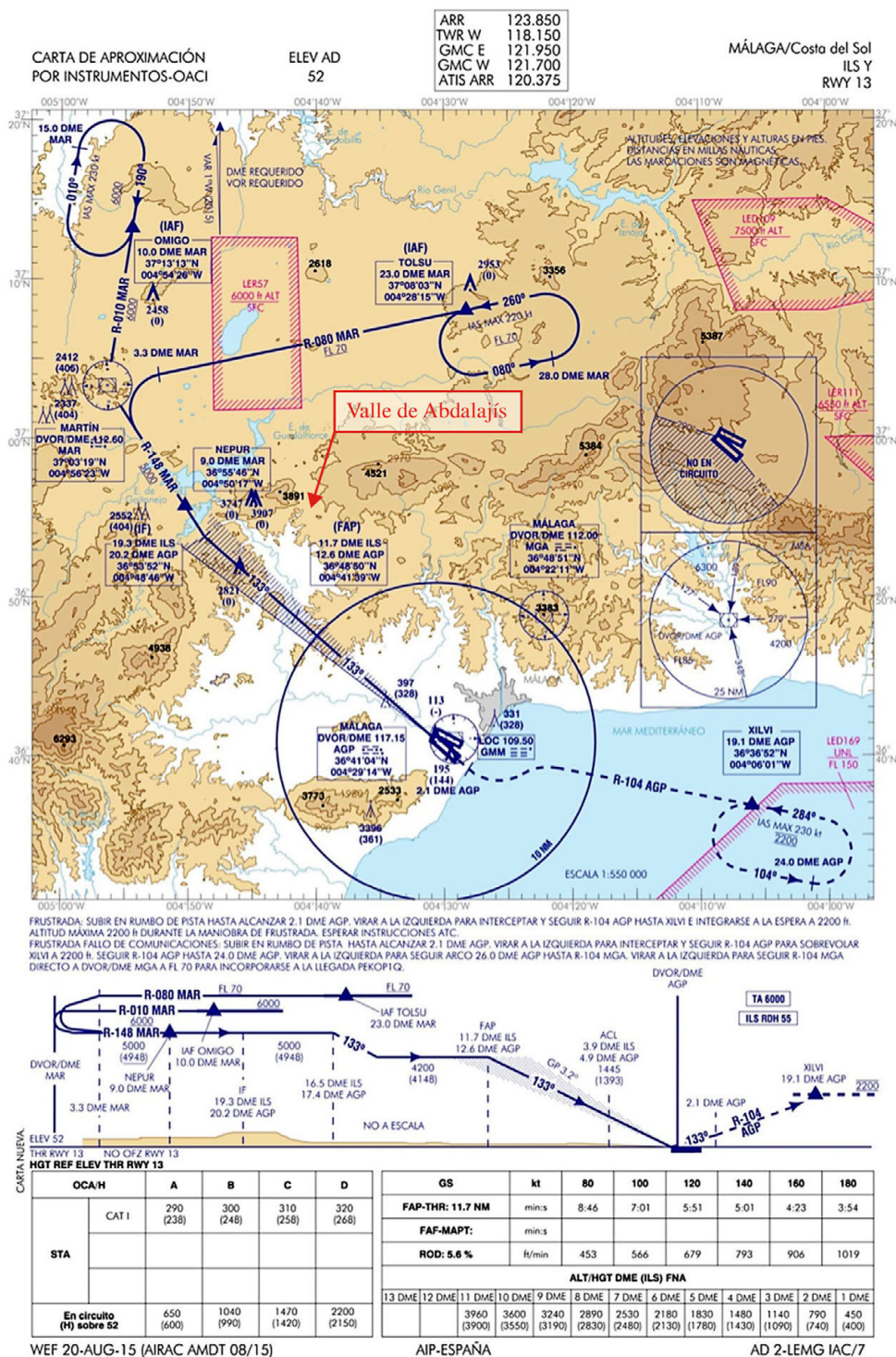


Figure 6. Instrument approach chart for LEMG-RWY13

1.18.2. Visual approach chart

Below is the visual approach chart for the Malaga airport, which shows the control zone for this airport.

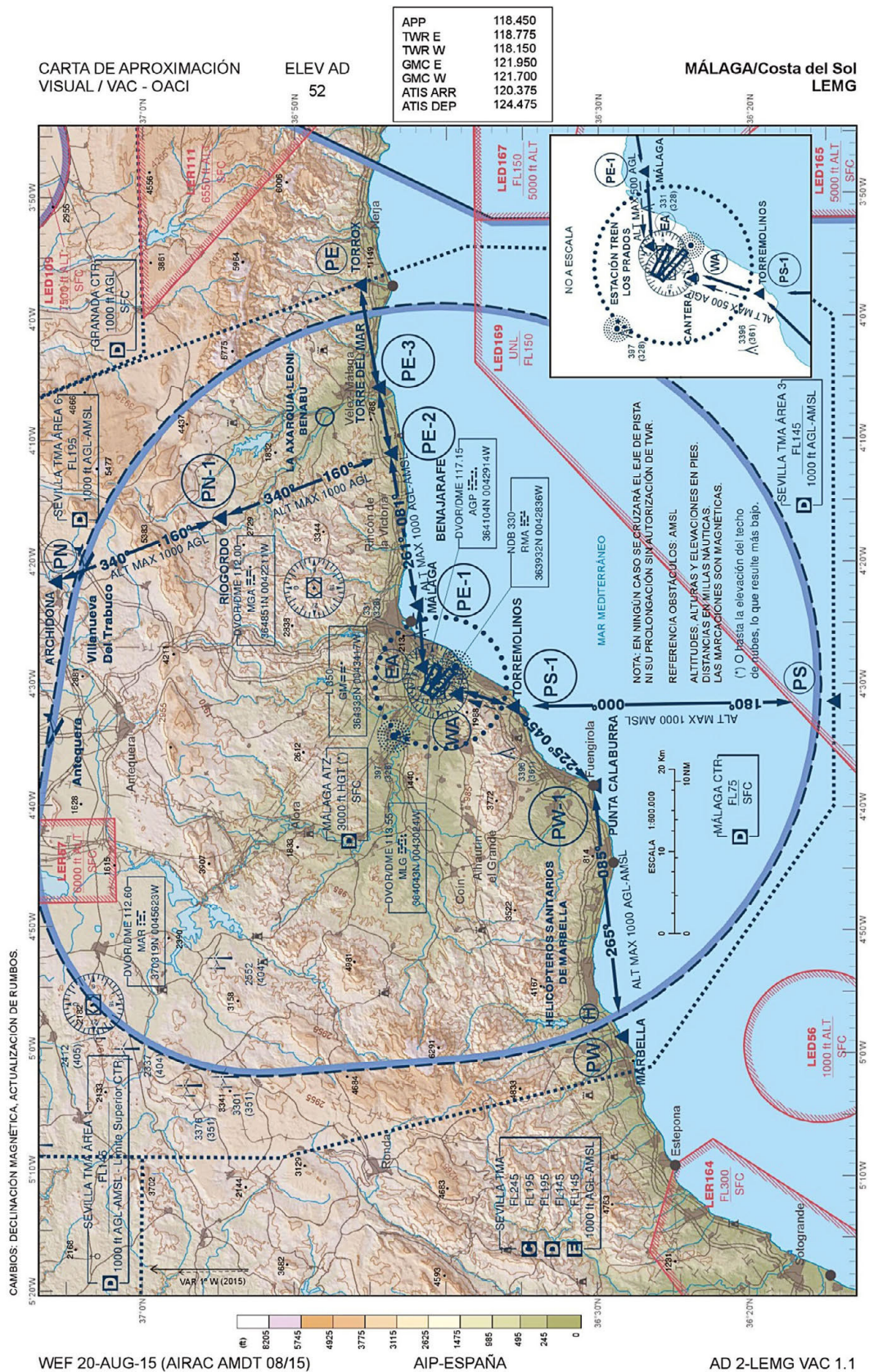


Figure 7. LEMG visual approach chart

Based on information obtained from the AIP, the CTR has the following characteristics:

- Airspace class: D.
- Vertical limits: GND/SEA – FL75.
- Lateral limits: space included within two circular areas, one to the north with a 15-NM radius and centered at 365221N 0044332W, and one to the south with a 25-NM radius and centered at the ARP, joined by their outer tangents.

1.19. Useful or effective investigation techniques

Not applicable.

2. ANALYSIS

The communications provided by ENAIRE reveal that the Norwegian B-737-800 from London contacted Malaga approach control at 14:45:12.

At 14:45:57 it was cleared by APP to proceed on final at 15 NM and at 14:50:05 it descended to 5,500 ft to intercept the runway 13 ILS. The aircraft started the descent as shown in figure 2.

At 14:53:23 the crew detected a paraglider in their way, and as a result the pilot made a right turn to avoid it, as is evident from a comparison of figures 3 and 4. These images show how the aircraft altered its heading from 173 to 191 due to this turn, as indicated by the captain in his statement. According to the report made by the crew, they were at an altitude of 6,800 ft. The paraglider was not detected by the radar and thus was not recorded in the images, meaning that its position can only be estimated based on the information provided by the crew.

Immediately after the encounter, the crew corrected their course and continued on the approach to intercept the runway 13 ILS.

At 14:55:28 the aircraft was instructed by APP to contract the TWR. The crew completed the approach and landed on runway 13 at LEMG without further incident.

3. CONCLUSIONS

3.1. Findings

- The flight crew of aircraft LN-NHG had valid and in force licenses.
- The aircraft's documentation was also valid and in force.
- Visual conditions were in effect.
- The approach made by aircraft LN-NHG to runway 13 at the Malaga airport was recreated by using the radar data.
- The paraglider's position was estimated based on the crew's statement, since the flight of the paraglider was not recorded by the radar.
- Given the proximity of the paraglider to the aircraft during its descent, the pilot in command made a right turn at an altitude of 6,800 ft, as per the crew's statement.
- After the incident the crew completed the approach and landed normally.

3.2. Causes/Contributing factors

The incident was caused by the presence of a paraglider in the aircraft's flight path inside an area that was off limits to the paraglider. It occurred as the aircraft was on approach to runway 13 at the Malaga Airport and forced the crew to make an evasive maneuver by turning right.

4. SAFETY RECOMMENDATIONS

- REC 54/16.** It is recommended that Spain's National Aviation Safety Agency take the mitigative measures deemed necessary involving the State Safety Program (SSP) so as to mitigate the risks associated with the presence of paragliders in this unauthorized area.
- REC 55/16.** It is recommended that Spain's National Aviation Safety Agency increase its oversight of the Valle de Abdalajís area to detect the presence of unauthorized aircraft within this airspace.

