

Report of Captain Fintan Ryan ME, Chartered Engineer  
Specialist Field: Flight Operations  
Defendant: Baroness Caroline and Mr John de Robeck

"Maximum demonstrated cross wind component – 10k<sup>15</sup> (12 mph)"

## 6. The Nature of Gliding

### 6.1. *Flying a glider*

The pilot of a glider has to be towed at walking speed to the runway or strip. This is because it is necessary to have someone walk with the aircraft holding up the wing. Otherwise, one of the wings would drop and drag along the ground because generally there are no wheels to support the wings on a glider. For an aerotow using a tug aircraft, which is the launching method used in Gowran Grange, a towrope has to be attached to connect the tug aircraft to the glider.

The glider pilot's options on landing depend inter alia, on the availability of rising air<sup>16</sup>, and the wind direction and speed. In general, there is a maximum distance he can glide but can shorten this distance by using airbrakes etc. For this reason gliders occasionally land in fields away from their base because of weather changes or misjudgement of the approach.

After landing, the glider must be approached by a vehicle to tow it clear of the landing strip and back to the launching or dispersal area. The tow back is at walking speed, say 3 mph and can take up to 5 minutes at Gowran. If the operations are confined to a runway it means the movement rate is severely restricted.

---

<sup>15</sup> k = knots = nautical miles per hour 1k  $\approx$  1.15 mph.

<sup>16</sup> Sometimes called "thermals."

### 7.2.3. When Things Go Wrong

"In recent years, *Premature Terminations of the Tow* (PT3) have been a leading cause of glider accidents and pilot fatalities, second only to stall / spin related events. In spite of accident prevention efforts devoted to preventing this type of occurrence, the accident rate for launches of all types, aerotow, ground, and self-launch remains exceptionally high."<sup>18</sup>

Because the tug aircraft tows the glider through the air at a slower speed than the tug has been designed for, its engine cooling arrangements are not optimum and the engine is inclined to overheat more easily than if the aircraft was operating normally and not towing a glider. This means that tug pilots as well as managing the towing operation must keep a close eye on cylinder head temperature to check for overheating of the engine.

During the launch the glider usually becomes airborne before the tug and if the tug has to abandon takeoff for any reason, the glider pilot must exercise considerable skill to avoid colliding with the tug aeroplane. The US Federal Aviation Agency's "Glider Flying Handbook" lists five different emergencies that may occur during an aerotow launch relating to towrope release, towrope breaking and power failure. There is the added complication at Gowran, where animals are involved and where a sheep can easily run into the towrope or the glider without the pilot of the tug aircraft fully appreciating what is happening. After glider landing accidents (circa 80%), aerotow accidents are the next most common at about 7.5%.<sup>19</sup>

---

<sup>18</sup> Excerpt from report of the US Soaring Safety Foundation.

<sup>19</sup> US Figures 2002 - 2004



Report of Captain Fintan Ryan ME, Chartered Engineer  
Specialist Field: Flight Operations  
Defendant: Baroness Caroline and Mr John de Robeck

### *7.3. The Situation at Gowran Grange*

The extended centreline of runway 03 passes directly over the Punchestown Racecourse and Event Complex, See Figure 6. Aeroplanes towing gliders fly over the complex each time they takeoff from Runway 03, the runway running roughly from south to north. When the opposite runway, 21 is in use the gliders and aeroplanes make their approach to land over the Punchestown complex.



**Figure 6 Piper Cub Towing Glider Over Punchestown Complex**

#### **7.3.1. Rules of the Air**

Rule 3 of the Rules of the Air<sup>20</sup> states, inter alia:

##### **3. Minimum heights**

(1) Except as permitted by the appropriate authority or as hereinafter provided aircraft shall not be flown:

(a) over congested areas of cities, towns or settlements or over an assembly of persons,<sup>21</sup> at less than:

---

<sup>20</sup> STATUTORY INSTRUMENTS S.I. No. 72 of 2004 IRISH AVIATION AUTHORITY (RULES OF THE AIR) ORDER, 2004.

Report of Captain Fintan Ryan ME, Chartered Engineer  
Specialist Field: Flight Operations  
Defendant: Baroness Caroline and Mr John de Robeck

(i) a height of 450 metres (1,500 ft) above the ground or water.

### **7.3.2. Is it Safe?**

Is towing a glider over an assembly of people normal aviation practice? Peter Denman, Chairman, Dublin Gliding Club, in a letter to Charles Murless, Chief Executive of Punchestown Racing in October 1999 states:

"The tug lands trailing a towrope; any powered aircraft may experience engine failure on take off, gliders may have to abandon a takeoff low down or may have to make a low undershoot approach. These carry an element of risk."

I agree with the statements above and furthermore say that I believe that towing a glider over an assembly of people is hazardous, unsafe and not normal aviation practice. There are other problems too, unique to towing gliders, such as towrope breaking and the fact that the pilot of the glider is effectively in control and could if not operating properly cause the tug aircraft to nosedive into the ground. The risk is increased because of the nature of the runway, which does not meet the requirements or recommendations laid down by competent authorities. See also 7.2.3

### **7.3.3. Noise Problems**

Because the tug aircraft engine is providing the power not only for itself but also for the towed glider, it is working very hard. The rate of climb of the tug glider combination is also very low. The above combination means, for an observer on the ground, the engine is noisier for longer, and will cause annoyance to local people as well as disturbing animals such as horses that might be participating in an equestrian event at Punchestown.

---

<sup>21</sup> For the purposes of the Act Punchestown would qualify as an Assembly of persons when holding an event.



Report of Captain Fintan Ryan ME, Chartered Engineer  
Specialist Field: Flight Operations  
Defendant: Baroness Caroline and Mr John de Robeck

#### *7.4. Opinion on Takeoff and Landing over Punchestown*

It is my professional opinion that the practice of taking off and landing with gliders in tow or in free flight over the assembled crowds in Punchestown during events is extremely hazardous and potentially catastrophic and poses an unacceptable risk to the people attending the event as well as to the pilots in the aeroplanes and gliders.

### *8. The Lease and Actual Usage*

#### *8.1. My Visits to the Aerodrome*

I visited Gowran Grange on six occasions<sup>22</sup> with the permission of the owner and in accordance with the lease. Three of my visits were during weekday mornings when I made detailed observations and measurements including a survey of the vertical profile of the runway. I also took the photographs included in this report. On three occasions I visited the aerodrome at the weekend and observed and photographed the operations from the field itself and from nearby.

---

<sup>22</sup> 12/03, 04/04, 10/04, 11/04, 16/04, 18/04.

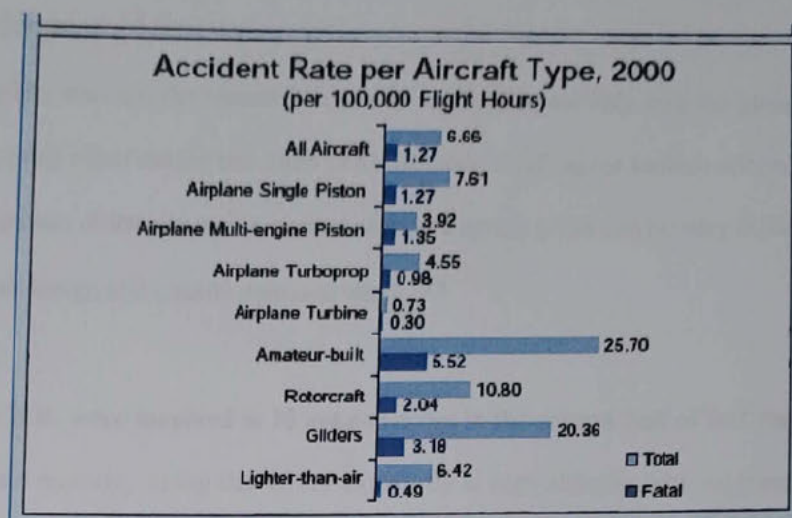


Figure 9 US Accident Statistics 2000

In the period 1991 to 2001 there have been 476 reportable accidents involving UK gliders of which 35 were fatal killing 42 people in all<sup>28</sup>. The average rate of fatal accident per 100,000 hours flown is 2.3, which is more or less in line with the US experience. For comparison, over the same period there were no fatal accidents to public transport aircraft.

There are currently about 18 Piper Cub aircraft registered in Ireland. In the last 6 years there have been four reported accidents to Piper Cubs, all non-fatal, including one related to fuelling at Gowran Grange. See Fuelling Accident at Gowran Grange, 11.3. The other three related to crosswind, unsuitable runway and dropping of a towed banner.

<sup>28</sup> UK CAA CAP 735 Aviation Safety Review 1992 - 2001



Report of Captain Fintan Ryan ME, Chartered Engineer  
Specialist Field: Flight Operations  
Defendant: Baroness Caroline and Mr John de Robeck

#### *10.4. Horses*

Horses have a tendency to bolt and would be very difficult to control in the situation that exists at Gowran Grange. Training of horses is one of the matters mentioned in the lease.

#### *10.5. Fencing*

The use of fencing for licensed aerodromes is mandatory to ensure that livestock is always separated from moving aircraft. The same safety considerations apply to unlicensed aerodromes.

I have inspected frangible fencing similar to that which the Defendant was erecting on the 27<sup>th</sup> February 2004 when the Dublin Gliding Club obtained an interim injunction preventing the Defendant from doing so and I can confirm that this type of fencing is safe and suitable fencing to erect in order to comply with the mandatory requirements to always have livestock separated from moving aircraft.

#### *10.6. Opinion on Animals*

It is my professional opinion and that of the Irish Aviation Authority<sup>33</sup> that a physical barrier is essential and should be erected to separate the aircraft movement area from livestock nearby. The operational procedures at Gowran Grange as they exist pose an unacceptable risk to participants and are not safe. The refusal of Dublin Gliding Club to erect a frangible fence and/or to permit the erection of a frangible fence prevents the granting of a license by the Irish Aviation Authority to the Defendant to have the aerodrome licence as is required under the lease and the Orders made by the Circuit Court on the 19th March 2002.

---

<sup>33</sup> "Aircraft must be separated from the aircraft movement area by an appropriate physical barrier." Letter to defendant from Pieter Van Veltzen of IAA re Licensed Aerodromes, 1 December 2003, Appendix 3.

Report of Captain Fintan Ryan ME, Chartered Engineer  
Specialist Field: Flight Operations  
Defendant: Baroness Caroline and Mr John de Robeck

### *11.3. Fuelling Accident at Gowran Grange*

There was an accident to one of the club tug aircraft, EI-BIK, during fuelling at Gowran Grange on the 15<sup>th</sup> August 2003 at 1800h.<sup>34</sup> One cause of the accident was the failure of a weld on a throttle cable support. The manufacturer did not recommend that such a critical support should be welded. According to the report, it was not possible to determine who carried out the repair. The second cause was the inappropriate and unsafe parking of the aircraft, close to and facing the fuelling facility.

## *12. Site Required for Busy Glider Aerodrome*

Ideally a glider site should be level, at low altitude, large enough and have a shape suitable to allow takeoffs in all directions. It should be clear of all controlled, restricted and prohibited airspace and have high hills or mountains nearby to allow for hill soaring. It should also be within easy driving distance from the population that it is intended to serve. For noise reasons it should be away from houses, especially housing estates and areas where activities would startle livestock, especially horses. For safety reasons it should be clear of areas where crowds of people are assembled. It should have no high obstacles in the vicinity. Gowran Grange has only two of these characteristics (i.e. close to Dublin and hills nearby) and is deficient with regard to the other characteristics.

---

<sup>34</sup> Air Accident Investigation Unit Report No: 2003/0049 attached as Appendix 4

