



Ministry
of Defence

MINISTRY OF DEFENCE
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THE RT HON TOBIAS ELLWOOD MP
PARLIAMENTARY UNDER SECRETARY OF STATE AND
MINISTER FOR DEFENCE PEOPLE AND VETERANS

Our ref: PQW/17-19-2018-08617/ap

24 July 2018

Thank you for your Parliamentary Question of 28 June 2018, in which you requested information from the Aircraft Data Recorder (R-ADR) of Tornado ZD812 which crashed on 3 July 2012.

You requested information covering the period of 10 seconds before the collision and 30 seconds after. Unfortunately, we do not hold the full extent of your request, as the R-ADR only recorded data for six seconds after the collision. The data for both the 10 seconds prior, and the six seconds after, the collision can be found in Annex A enclosed.

I hope this is helpful. A copy of this letter will be placed in the Library of the House.

Yours sincerely,

THE RT HON TOBIAS ELLWOOD MP

Martin Docherty-Hughes MP
House of Commons
London
SW1A 0AA

ANNEX A
 PQW/17-19/2018/08617Q

	a	b	c	d	e	f	g
TIME*	BHC*	RHT*	RAC*	ROR*	ASC*	PAC*	CPR*
2161	768	928	52	-1.8	444	4	0
2161.063				-1.15			
2161.125				-1.15			
2161.188				-0.5			
2161.25				0.15			
2161.313				0.15			
2161.375				0.8			
2161.438				1.45			
2161.5				1.45			
2161.563				1.45			
2161.625				2.1			
2161.688				2.1			
2161.75				2.1			
2161.813				2.1			
2161.875				2.1			
2161.938				2.1			
2162	768	928	55	2.1	444	4	0
2162.063				2.1			
2162.125				1.45			
2162.188				1.45			
2162.25				1.45			
2162.313				1.45			
2162.375				1.45			
2162.438				1.45			
2162.5				1.45			
2162.563				1.45			
2162.625				1.45			
2162.688				1.45			
2162.75				1.45			
2162.813				1.45			
2162.875				0.8			
2162.938				1.45			
2163	768	937	57	1.45	446	3.7	0
2163.063				1.45			
2163.125				1.45			
2163.188				1.45			
2163.25				1.45			
2163.313				1.45			
2163.375				0.8			

2163.438				0.8			
2163.5				0.8			
2163.563				0.8			
2163.625				0.8			
2163.688				0.8			
2163.75				0.15			
2163.813				0.15			
2163.875				0.15			
2163.938				0.15			
2164	768	937	58	-0.5	446	3.5	0
2164.063				-0.5			
2164.125				-0.5			
2164.188				-1.15			
2164.25				-1.15			
2164.313				-1.15			
2164.375				-1.15			
2164.438				-1.8			
2164.5				-1.8			
2164.563				-1.8			
2164.625				-1.8			
2164.688				-1.8			
2164.75				-1.8			
2164.813				-1.8			
2164.875				-1.8			
2164.938				-1.8			
2165	768	928	58	-1.8	446	3.5	0
2165.063				-1.8			
2165.125				-1.8			
2165.188				-1.8			
2165.25				-1.8			
2165.313				-1.8			
2165.375				-1.8			
2165.438				-1.8			
2165.5				-1.8			
2165.563				-1.8			
2165.625				-1.8			
2165.688				-1.8			
2165.75				-1.8			
2165.813				-1.8			
2165.875				-1.8			
2165.938				-1.8			
2166	768	937	57	-1.8	446	3.7	0
2166.063				-1.8			
2166.125				-1.8			

2166.188				-1.8			
2166.25				-1.8			
2166.313				-1.8			
2166.375				-1.8			
2166.438				-1.8			
2166.5				-1.8			
2166.563				-1.8			
2166.625				-1.15			
2166.688				-1.15			
2166.75				-1.15			
2166.813				-1.15			
2166.875				-1.15			
2166.938				-1.15			
2167	768	937	56	-1.15	446	3.7	0
2167.063				-1.15			
2167.125				-1.15			
2167.188				-1.15			
2167.25				-0.5			
2167.313				-0.5			
2167.375				-0.5			
2167.438				-0.5			
2167.5				-0.5			
2167.563				0.15			
2167.625				0.15			
2167.688				0.15			
2167.75				0.15			
2167.813				0.15			
2167.875				0.15			
2167.938				0.15			
2168	768	937	57	0.15	446	3.5	0
2168.063				0.15			
2168.125				0.15			
2168.188				0.15			
2168.25				0.15			
2168.313				-0.5			
2168.375				-0.5			
2168.438				-0.5			
2168.5				-0.5			
2168.563				-1.15			
2168.625				-1.15			
2168.688				-1.15			
2168.75				-1.15			
2168.813				-1.15			
2168.875				-1.8			

2168.938				-1.8			
2169	768	937	57	-1.8	448	3.5	0
2169.063				-1.8			
2169.125				-1.15			
2169.188				-1.15			
2169.25				-1.15			
2169.313				-0.5			
2169.375				-0.5			
2169.438				0.15			
2169.5				0.15			
2169.563				0.15			
2169.625				0.15			
2169.688				0.15			
2169.75				0.15			
2169.813				0.15			
2169.875				0.15			
2169.938				0.15			
2170	768	937	57	-0.5	448	3.3	0
2170.063				-0.5			
2170.125				-0.5			
2170.188				-1.15			
2170.25				-1.15			
2170.313				-1.15			
2170.375				-1.15			
2170.438				-1.15			
2170.5				-1.8			
2170.563				-1.8			
2170.625				-1.8			
2170.688				-1.8			
2170.75				-1.15			
2170.813				-1.15			
2170.875				-1.15			
2170.938				-1.15			
2171	768	937	57	-1.15	448	3.3	0
2171.063				-1.15			
2171.125				-0.5			
2171.188				-0.5			
2171.25				-0.5			
2171.313				-0.5			
2171.375				0.15			
2171.438				0.15			
2171.5				0.15			
2171.563				0.8			
2171.625				0.8			

2171.688				-10.25			
2171.75				-21.3			
2171.813				-13.5			
2171.875				-11.55			
2171.938				-7.65			
2172	768	937	57	2.75	446	3.3	0
2172.063				17.7			
2172.125				26.15			
2172.188				30.05			
2172.25				39.8			
2172.313				52.15			
2172.375				56.7			
2172.438				58.65			
2172.5				63.2			
2172.563				69.05			
2172.625				72.3			
2172.688				76.2			
2172.75				82.7			
2172.813				91.15			
2172.875				98.3			
2172.938				104.8			
2173	896	0	57	109.35	428	0	0
2173.063				109.35			
2173.125				104.8			
2173.188				97.65			
2173.25				88.55			
2173.313				75.55			
2173.375				63.2			
2173.438				50.85			
2173.5				40.45			
2173.563				32.65			
2173.625				27.45			
2173.688				26.15			
2173.75				26.8			
2173.813				30.05			
2173.875				35.9			
2173.938				43.05			
2174	640	0	0	50.2	412	0	0
2174.063				58			
2174.125				64.5			
2174.188				70.35			
2174.25				75.55			
2174.313				79.45			
2174.375				82.05			

2174.438				82.05			
2174.5				81.4			
2174.563				80.1			
2174.625				76.85			
2174.688				72.95			
2174.75				69.7			
2174.813				66.45			
2174.875				63.2			
2174.938				60.6			
2175	512	371	0	58.65	396	0	1
2175.063				57.35			
2175.125				55.4			
2175.188				54.75			
2175.25				54.75			
2175.313				54.75			
2175.375				54.75			
2175.438				58.65			
2175.5				62.55			
2175.563				65.8			
2175.625				69.05			
2175.688				73.6			
2175.75				76.85			
2175.813				78.15			
2175.875				79.45			
2175.938				80.1			
2176	256	107	0	79.45	382	0	1
2176.063				78.15			
2176.125				76.2			
2176.188				73.6			
2176.25				71.65			
2176.313				65.8			
2176.375				61.9			
2176.438				57.35			
2176.5				50.2			
2176.563				45			
2176.625				40.45			
2176.688				36.55			
2176.75				33.3			
2176.813				30.7			
2176.875				28.75			
2176.938				28.1			
2177			0	28.75	366		1
2177.063				28.75			
2177.125				27.45			

2177.188				20.95			
2177.25				316.05			
2177.313				329.7			
2177.375				331.65			
2177.438				244.55			

***Key:**

TIME - Elapsed time in secs from the start of the recording.

BHC - Baro Height Coarse in feet.

RHT - Radio Altimeter Height in feet.

RAC - Roll Angle in degrees.

ROR - Roll Rate in degrees per second.

ASC - Air Speed Calibrated in knots.

PAC - Pitch Angle in degrees.

CPR - Cabin Pressure discrete indication of CABIN caption on the Central Warning Systems. 1=ON, 0=OFF.

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Written questions and answers

Q Asked by **Martin Docherty-Hughes** (West Dunbartonshire)

Asked on: 28 June 2018

Ministry of Defence

Commons **158761**

Tornado Aircraft: Accidents

To ask the Secretary of State for Defence, if he will place into the Library, information on the (a) barometric altitude, (b) radio altitude, (c) bank angle, (d) bank rate, (e) speed, (f) pitch angle and (g) cabin pressure data from the aircraft data recorder (R-ADR) of Tornado ZD812 on the 3 July 2012, from 10 seconds before the collision to 30 seconds after, at the normal sample rate.

A Answered by: **Mr Tobias Ellwood**

Answered on: 04 July 2018

I can confirm that the Ministry of Defence holds some of the requested information from the aircraft data recorder (R-ADR). The R-ADR only has recorded data for six seconds after the collision. This information is currently being compiled into a presentable format and I will write to the hon. Member in due course.