



ReVerie & Oakley Design Wind Tunnel Test Session 17/12/2007

Overview

A standard Porsche 911 997 GT3 was tested at MIRA and data was recorded to create a comparison to the reverie modified Porsche 911 997 GT3. The modifications improve down force and give a better aerodynamic balance.

Modifications:

Front Splitter, Front Air Exit Grille, Wing Mirror Covers, Rear Spoiler & Rear Intake Scoop.

Car Setup & Ride Heights

The standard Porsche 911 GT3 and was set to 128mm front and 150 mm rear. Test A of the modified Porsche was set to 114mm front and 140mm rear. Test B was set to 126mm front and 152mm rear.

Testing

The total extra down force applied to the car is 800%. Various different setups were tested to achieve the highest down force, optimise aerodynamic balance in line with the centre of gravity and achieve the best possible lift over drag performance.

Aerodynamics

From all the modifications the only additional drag is 8.1% which is minimal compared to the extra down force. The modifications moved the balance from 9% front to 43%. **470% more front Downforce.**



Reverie / Oakley Design MIRA Windtunnel and Testing Session at MIRA

Table of Coefficients

Car	Configuration	CD	CL	CLf	CLr	%Front Aero	Lift/Drag	Frontal Area
Standard GT3 Porsche 911 997	Standard Ride Height Front: 128mm Rear: 150mm	0.308	-0.011	-0.001	0.010	9.09%	-0.04	1.960 (m^2)
Reverie Modified GT3 Porsche 911 997	Modified Ride Height A Front: 114mm Rear: 140mm	0.327	-0.089	-0.039	0.050	43.82%	-0.27	1.960 (m^2)
	Modified Ride Height B Front: 126mm Rear: 152mm	0.335	-0.099	-0.042	0.056	42.42%	-0.30	1.960 (m^2)
GT3 Cup Car Porsche 911 997	Standard GT3 Cup Car Ride Height Front: 103mm Rear: 120mm	0.339	-0.219	0.076	0.295	-34.70%	-0.65	1.960 (m^2)

		static	static	static		
Static Weight In Kilograms		Front load	Front Load	Rear Load	Fuel (g/L)	737.22
Standard Cars Weight	1463.4	39.21%	573.8	889.6	Fuel Weight 3/4 tank	44.233 KG
Modified Cars Weight	1429.3	38.48%	550	879.2	Fuel Weight 1/2 tank	29.489 KG
Cup Car Weight	1180.1	37.81%	446.2	733.9	N/A	

Modified Car has roll cage fitted (+60kilos), lighter rear exhaust, carbon fibre wheels

The offset of the wheels was modified to give wider track, but rim & tyre sizes as std car

Modified car has 14.74 kilos less fuel

Forces, N at 84.1mph

Wind Speed (MPS):	37.62		Drag	Total Df	Front Df	Rear Df	O/A balance^	FrontalArea	AdditionalDra g	Additional D/Force
Standard GT3	Standard Ride Height	Newtons	523.30							
Porsche 911 997	Front:128mm Rear: 150mm	Kilogram s	0	-18.689	-1.699	-16.990	9.09%	1.960m^2	0.00%	0%
			53.343	-1.905	-0.173	-1.732				
Reverie Modified GT3	Modified Ride Height A	Newtons	555.58	-						
			1	151.213	-66.262	-84.951	43.82%	1.960m^2	6.17%	709.09%
	Porsche 911 997	Front: 114mm Rear: 140mm	Kilogram s	56.634	-15.414	-6.755	-8.660			
		Modified Ride Height B	Newtons	569.17	-					
Front: 126mm Rear: 152mm	Kilogram s	3		168.203	-71.359	-95.145	42.42%	1.960m^2	8.77%	800.00%
			58.020	-17.146	-7.274	-9.699				
GT3 Cup Car	Standard GT3 Cup Car	Newtons	575.96	-						
			9	372.086	129.126	501.212	-34.70%	1.960m^2	10.06%	1890.91%
			58.712	-37.929	13.163	-51.092				
Porsche 911 997	Front: 103mm Rear: 120mm	Kilogram s								

Forces, N at 100mph										
Wind Speed (MPS):	44.704		Drag	Total Df	Front Df	Rear Df	O/A balance^	FrontalArea	AdditionalDrag	Additional D/Force
Standard GT3 Porsche 911 997	Standard Ride Height	Newtons	738.93							
	Front:128mm Rear: 150mm	Kilograms	4	-26.390	-2.399	-23.991	9.09%	1.960m^2	0.00%	0%
			75.325	-2.690	-0.245	-2.446				
Reverie Modified GT3 Porsche 911 997				-		-				
	Modified Ride Height A	Newtons	784.51	213.52		119.95				
	Front: 114mm Rear: 140mm	Kilograms	8	3	-93.566	7	43.82%	1.960m^2	6.17%	709.09%
			79.971	-21.766	-9.538	-12.228				
				-		-				
	Modified Ride Height B	Newtons	803.71	237.51	100.76	134.35				
	Front: 126mm Rear: 152mm	Kilograms	1	4	4	2	42.42%	1.960m^2	8.77%	800.00%
			81.928	-24.211	-10.272	-13.695				
GT3 Cup Car Porsche 911 997				-		-				
	Standard GT3 Cup Car	Newtons	813.30	525.41	182.33	707.74				
	Front: 103mm Rear: 120mm	Kilograms	7	1	4	5	-34.70%	1.960m^2	10.06%	1890.91%
			82.906	-53.559	18.587	-72.145				

Wind Speed		Forces, N at 150mph								
(MPS):			Drag	Total Df	Front Df	Rear Df	O/A balance^	FrontalArea	AdditionalDrag	Additional D/Force
Standard GT3 Porsche 911 997	Standard Ride Height	Newtons	1662.60							
	Front:128mm Rear: 150mm	Kilogram s	1	-59.379	-5.398	-53.981	9.09%	1.960m^2	0.00%	0%
Reverie Modified GT3 Porsche 911 997	Modified Ride Height A	Newtons	1765.16		-					
	Front: 114mm Rear: 140mm	Kilogram s	5	-480.427	210.524	-269.903	43.82%	1.960m^2	6.17%	709.09%
	Modified Ride Height B	Newtons	1808.34		-					
	Front: 126mm Rear: 152mm	Kilogram s	9	-534.408	226.718	-302.291	42.42%	1.960m^2	8.77%	800.00%
GT3 Cup Car Porsche 911 997	Standard GT3 Cup Car	Newtons	1829.94							
	Front: 103mm Rear: 120mm	Kilogram s	1	1182.174	410.252	1592.427	-34.70%	1.960m^2	10.06%	1890.91%

Wind Speed (MPS):		Forces, N at 186mph								
			Drag	Total Df	Front Df	Rear Df	O/A balance^	FrontalArea	AdditionalDra g	Additional D/Force
Standard GT3 Porsche 911 997	Standard Ride Height	Newtons	2556.38							
	Front:128mm Rear: 150mm	Kilogram s	9	-91.300	-8.300	-83.000	9.09%	1.960m^2	0.00%	0%
Reverie Modified GT3 Porsche 911 997	Modified Ride Height A	Newtons	2714.08		-					
	Front: 114mm Rear: 140mm	Kilogram s	8	-738.697	323.69	-414.998	43.82%	1.960m^2	6.17%	709.09%
	Modified Ride Height B	Newtons	2780.48		-					
	Front: 126mm Rear: 152mm	Kilogram s	8	-821.696	348.59	-464.798	42.42%	1.960m^2	8.77%	800.00%
GT3 Cup Car Porsche 911 997	Standard GT3 Cup Car	Newtons	2813.68	1817.69	630.79	2448.48				
	Front: 103mm Rear: 120mm	Kilogram s	8	2	7	9	-34.70%	1.960m^2	10.06%	1890.91%