IIIRace Louvers

Professional R&D - Wind Tunnel Tested - Track Proven

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Hood Shootout



Subaru BRZ Wind Tunnel Test Data Hood Extractors & Fender Vents Vs Radiator Exit Ducting

Welcome to Race Louvers. Here we tested a Subaru BRZ. The car was equipped with a laid forward radiator and exit ducting to the hood. All of the radiator air ingested exited the car thru this duct to the hood. This was our baseline run 1. Test run 2 we removed the radiator exit duct so the back of the radiator was open to the engine bay and added our Race Louver hood vent, we also removed the fender liner and added our Race Louver rear lower fender vent. This allowed the radiator air to exit thru the hood and fender louvers.

The goal of this test was to see how effective radiator exit ducting is compared to good hood and fender extractors. As seen on TV most high end forms of motorsports use fully ducted inlet and outlet systems as its generally more efficient, just remember these are ground up professionally built cars by highly knowledgeable and trained people. However in reality we live in a world where most of us amatuer racers may not have the skills or knowledge to do it as well and on top of that we are modifying a production car into a race car and packaging issues come into play as well. So the first question we wanted to answer is can the average track car person build an exit duct setup as good as the pros? Not likely. The second question was can our Race Louvers hood and fender extractors be just as good as the average track person's radiator exit duct setup? Yes, and maybe a tic better. So the reality for the average racer is Race Louvers hood and fender extractors are just as effective if not better and are a much easier project.

Test car prep level:

- Subaru BRZ
- Front splitter
- Two diy splitter tunnels about 5x12"ea
- Rad tilted fwd with FM intercooler in front of rad
- Rad ducted to grill and also to hood
- Two side coolers with side grill inlets
- Diy fender liners
- RL rear lower fender louvers
- Full flat bottom, center exhaust open
- Flat but angled rear diffuser not curved
- alum wing

Hood vents tested:

- Full radiator exit ducting to hood.
- Race Louvers hood and fender extractor

Test procedure:

- Simply remove rad exit duct, add hood and fender louvers.

Conclusions:

- Race Louvers hood and fender extractors netted more front downforce, better cooling and is a much easier project then full radiator exit ducting.
- Another thing to consider is full radiator exit ducting isolates the engine bay from any kind of cooling airflow thru it for engine components, headers, turbos, floor boards etc

Video here: https://www.youtube.com/watch?v=ZTta8rQBkXY

 Wind Front Downforce
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Speed (80/100/120 mph)





Speed (80/100/120 mph)





Speed 85 mph





unnel Dedictor Coefficient of Dressures

85 mph

Fig 4. Front, Rear, Differential Radiator Pressures

	A	В	С	D	W	Х	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	Ale	▶ 8B	BC	BD 📢	 CO
1				ronta		REG	UIRED	SPEED IN	PUT >>	MPH =	100			(Lbs@2	9.92"hg,	60 F)		AERO	DYNAMIC		53			5
2					DRAG	DRAG	RELATI	VE DRAG		LBS Force	ce at Speed	d	RE	RELATIVE FORCE (lb)			L/D	BALANCE	BALANCE	LAT	ssure: C	P = DP/q =	PLOC	
3	Comments	RUN	Pt.	REF	HP	lb	∆нр	∆Drag (lbs)	Total	Front	Rear	Side	∆Lift Total	∆Lift Front	∆Lift Rear	∆Side Force	.ift/Dra	% Front	Overall % Front	Δ L	Rad In	Rad Out	Diff	% Gai
4	BRZ as raced, baseline	1	AVE														-0.46	48.1%	48.1%		.412	083	.494	0
5	rad exit duct, fender liners, no fender vents		1	- 20		-											-0.46	47.8%	47.8%	1.00	.412	082	.494	1
6	wing 0 deg		2														-0.46	48.3%	48.3%		.411	083	.494	
7			3																					
8			4																					
9	remove fender liners, add fender vents,	2	AVE	1			0.6	2.3	Ē.				-24.2	-28.1	3.9	4.4	-0.57	61.9%	61,9%	b.1	.341	251	.592	19%
10	remove rad exit duct, add race louvers hood		1	1		- 1	· · · · · · · · · · · · · · · · · · ·	0 000000						000000	1	201 - 555 M	-0.58	61.6%	61.6%		.341	251	.591	00000000
11	vents		2						2								-0.57	62 1%	62 1%		341	. 252	592	

Raw Wind Tunnel Data



Laid Forward Radiator, Full Exit Duct To Hood.

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Race Louvers Hood & Fender Vents, No Radiator Exit Duct.



