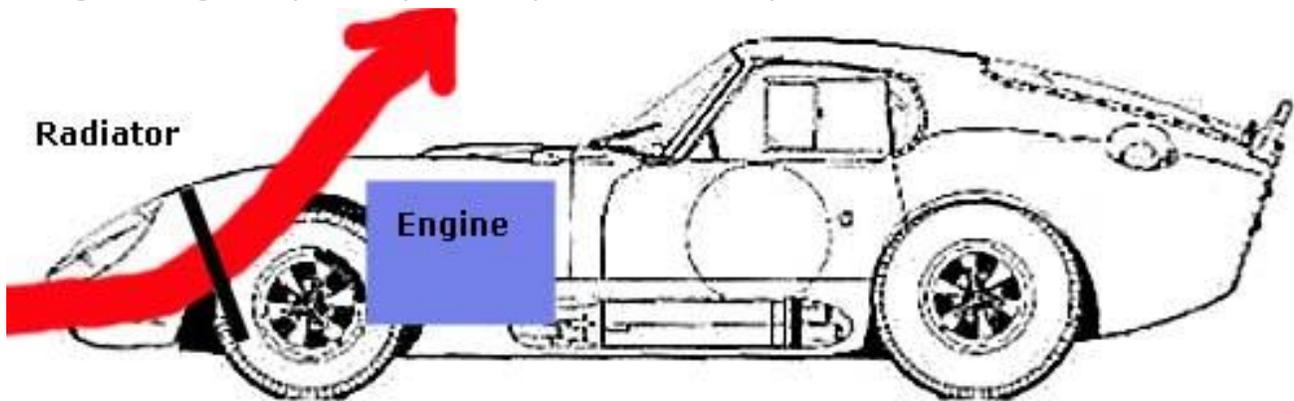


Daytona Coupe Cooling – Part 2

Dave Martin – April 2013

Recap: When I wrote about this last August I was trying to overcome a basic problem with the airflow through the engine bay in a Daytona Coupe – there isn't any.

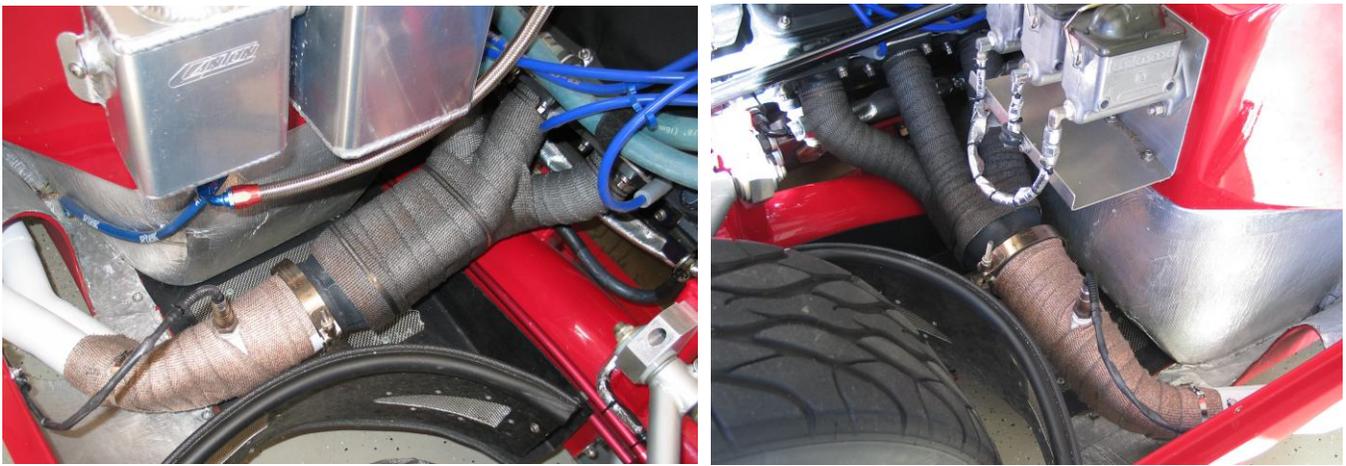


With a set of thermal couples and an IR gun I took a set baseline data in the garage, recording temperatures every 5 minutes from a cold start. I set the thermal couples on top of the left valve cover, on the center master cylinder, the center carburetor bowl and 1" in front of the air filter at the front of the engine. I used the IR gun to measure temperature at the O2 bungs on both side pipes and of course the temperature gauge in the car.

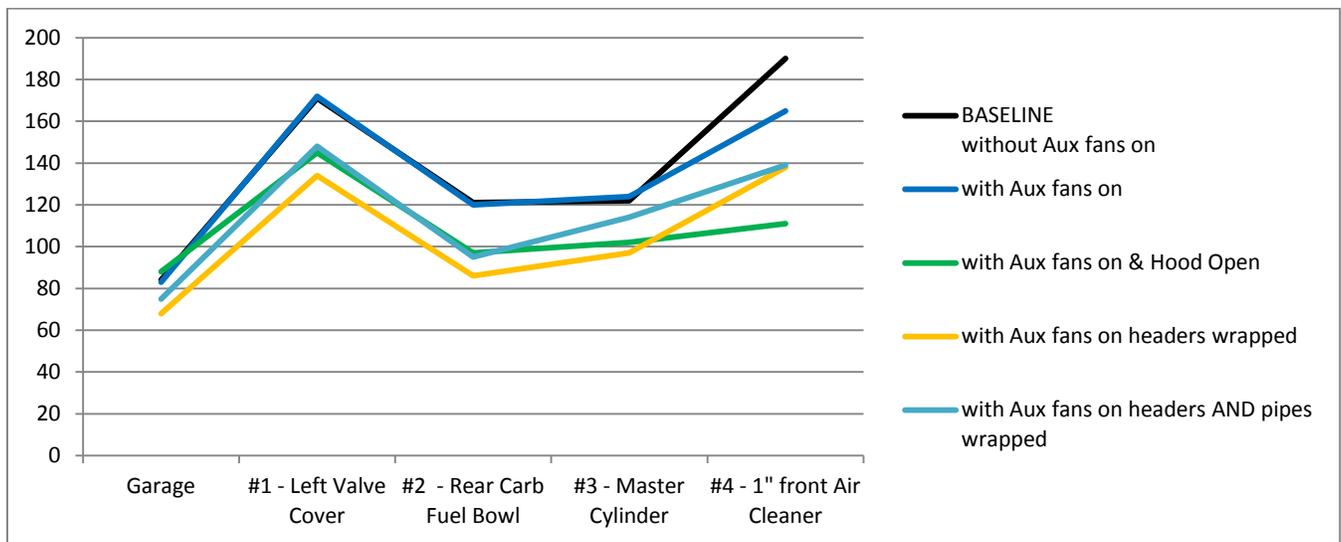
Surprising me most was the air temperature in the front of the carburetors at idle (84 degree outside air temp but 190 at about 1" in front of the air filter housing at the front of the motor). Really hot air coming into the carburetors is not a good thing.

Based on the data I added a set of 4 inch auxiliary fans just in front of the engine to try and get some airflow going back on either side of the motor. The auxiliary fans help the overall cooling but it is not enough to overcome the basic problem of the side pipes radiating in an enclosed space and the Coupe air flow design – it only delays the temp rise. It pointed me to the next logical step – wrap the headers. The general concern is that wrapping your headers, while accomplishing the task of reducing heat, also reduces the life of your headers. That is true and in wet/cold climates it's really bad as it keeps the moisture next to the header and destroys it from hiding. Since I'm in Southern California where the air is warm and there's little moisture, along with the number of miles I put on my car, it's an acceptable tradeoff.

I selected Thermo-Tec's new Generation II Copper wrap as my choice and decided to take the time to do it right. I removed the headers from the car – I found a header bolt that had fallen out in back so it was a good thing – so that I could support the headers in a clamp while I wrapped them. I then sprayed them with Thermo-Tec's High Heat coating in Black, which was the original color of the headers. After installation I had to season the wrap so I started up the car and moved it out of the garage with the hood up so it could smoke for a while. The next day I retook the temperature data and saw a small improvement across all points. I next wrapped the pipes from the header collector down to where they exit the body, effectively wrapping everything under the hood and took a last data set.



Under hood temperatures have cleaned up nicely with the “in front of air cleaner” being reduced by over 50 degrees. Adding a cold air box now makes a lot more sense and since I’ve got the air moving under the hood I’m not worried about cooking the engine even moor by covering up the only exit at the back of the hood.



Looking at the final data, I saw an overall improvement of 20 degrees at the temperature gauge in the cockpit at the 15 minute after start time as compared to when I started this entire exercise. I’m waiting for summer to really put it to the test but so far I’m happy with the results. I’ve also noticed less overshoot after a high speed run. Meaning that after I get off the freeway I no longer see a tremendous temperature spike as the engine tries to shed it heat at the off ramps stop light. Now it pops up about 5 degrees and then stabilizes. I also notice a smoother acceleration with the heat being directed farther away from the motor. Could be my imagination but the motor just feels better.

Location	Delta Baseline to full wrap		
	@ 5 Min	@ 10 Min	@ 15 Min
Garage	-8	-9	-9
#1 - Left Valve Cover	-15	-24	-23
#2 - Rear Carb Fuel Bowl	-17	-23	-26
#3 - Master Cylinder	-4	-4	-8
#4 - 1" front Air Cleaner	-31	-59	-51
Cars Gauge	-5	-8	-20
Left Collector	-160	-165	-160
Right Collector	-165	-158	-135