

Northstate Ramblings

A Publication of the Redding British Car Club
January 2003

January meeting: Good Times Pizza, Anderson, 7pm on the 13th

Treasurer's Report

Wow, you guys! I miss one meeting, and it's one when several of you decided to pay your dues early – is there some tax break I'm not aware of? I came home from a Christmas party to have Paul hand over \$120. This is wonderful. What a terrific start to the year, more money in the bank. Also, in November I misreported that there was no activity. Indeed there was, I paid out \$76 for postage. Since then I've only spent money on the Christmas party food – and then not much because those who attended brought lots of good things to eat. Anyway, the following should get us up to date with the finances as of December 31, 2002:

Beginning balance: \$543.27

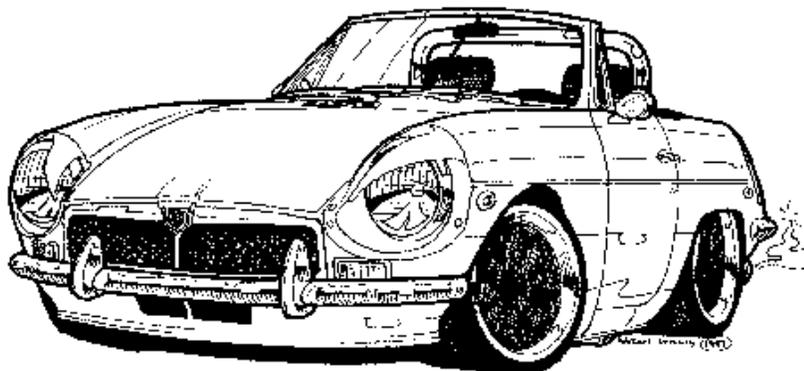
Inflows

120.00
120.00

Outflows

76.00
15.64
91.64

Ending Balance \$571.63



Officer's Corner

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REDDING BRITISH CAR CLUB ACTIVITIES CALENDAR 2003

Ok, this is not the full calendar of events for 2003, but it does represent an honest attempt on the part of the "Shingletown Six" to arrange our events around the dates available (according to the information we had, which was not much!) Anyway, our small committee pondered the input we had heard or been given and came up with the following ideas:

DATE	EVENT	CHAIR/TRIPMASTER
January 13	Meeting: GoodTimes Pizza	Gary
January 25	Tune Up Clinic	Paul
February 10	Kevin Kay Tour (in lieu of meeting)	Gary
February 15	Sweethearts Run and Wine Exchange	Harry
March 10	Meeting: GoodTimes Pizza	Gary
March 22	Member Shop Tour	Paul
April 11	Kool April Nites Parade	Chip
April 14	Meeting: GoodTimes Pizza	Gary
April 27	Wildflower Tour	Eric
May 12	Meeting: Convention Center Lawn with DentPro Demonstration	Gary
May 18	Dixon Swap Meet and Show	Harold
May 24	Dunsmuir Car Parade and Show	Kevin
June 9	Meeting: Convention Center Lawn	Gary
June 22	Chico British Car Meet	Paul

All of the above are subject to approval, since all of the responsible parties have not yet been contacted. The other ideas proffered include Thunderhill Raceway trip (CSRG vintage races), autobody fillers seminar, Dent Pro demonstration, Racing Lecture (Tony R.), Ladies' event, & Heldelburgers. We will discuss these and other ideas at the January 13 meeting, 7pm at Good Times Pizza. See you there!



Editor's note: the following is reprinted by permission of the authors and, though specifically pertaining to Sunbeam Tigers, contains information anyone with a BritCar could use. Thanks to the Tiger guys for their insights!

Tech Tips

Tiger & Alpine Cooling Tales Are All Hot Air

Contact the Authors,

"Tiger Tom®" Ehrhart and Chuck King at TEAE@aol.com

There are many tales (pun intended) about Tiger and Alpine overheating scenarios and even more cures. The Tiger community is abound with antidotes that profess successful cures for overheating. Few are embraced collectively by the Tiger marque. There is an ongoing, sometimes heated (pun intended), dialogue regarding the "best" cooling system design approach. Little has been done to objectively and factually define effects of the various overheating cures and make recommendations for the marque ...until now.

During the summer and fall of 2000 an engineering study under controlled and documented conditions was performed to validate, debunk and identify the most practical cures for overheating at idle and typical interstate driving conditions. No effort was expended to address cooling during application of continuous high power high speed racing conditions. However, the outcome of our study may reinforce some of these conditions.

We measured and quantified cooling effects like running the heater, opening the hood, adding LAT fender vents, blocking the space in front of the horns, high volume water pumps, water wetters, a variety of radiators, electric and engine driven fans, shroud design, smaller water pump pulleys, etc.

Before proceeding, the reader needs to know our definition of overheating. For purposes of this study, we have designated overheating as the condition where water temperature caused a carbureted car to perform erratically at idle (about 215° F) because of fuel percolation in the carburetor. While this study was primarily for Tiger overheating, some data and results apply to Alpine's as well.

MISSION

Our purpose for this study was to dispense with the myriad of Tiger community antidotes and factually determine the most effective and practical cooling system design that reduces overheating during idle and typical interstate highway driving conditions for a stock Tiger. The results will be shared with the Tiger and Alpine marque with the intent that this data will help unify the Tiger marque to a commonly accepted approach towards cooling system design.

PROGRAMME OVERVIEW

Our initial attempt was to produce a cooling system design that would have the capacity to maintain engine temperature of 180° F at 85° F plus ambient temperatures during idle and interstate speeds. We changed our idle expectations to approximately 200° F during the testing process. We focused on three areas of the cooling system.



1. Air flow management
2. Radiator design
3. Water distribution (circulation), i.e. from engine to and from radiator.

We tested the following popular cooling system variables using temperature, humidity and air velocity measurement equipment with calibration traceable to National Institute of Science and Technology (NIST).

- Engine driven fans: Stock, Derale, Flex-a-lite, Ford Maverick stock and increased pitch, Imperial
- Electric fans: 10" and 12" Junk yard specials and new aftermarket
- Water Pumps: Stock, High Vol Milodon, Stewart
- Water pump pulley: Stock and Ford Fairmont
- Shrouds: Stock , modified stock & custom fabricated
- Radiators: Stock, CX & FX type cores, triple and single pass, Aluminum Fluidyne & Griffin
- Engine compartment venting: Horn openings open and closed, LAT type fender port open and closed, Hood open & closed, space between radiator and cross member open and closed.
- Miscellaneous: Heater On and Off, Red Line Water wetter

SUMMARY OF RESULTS

There was no one "magic bullet" that cured overheating. But, we have identified a variety of specific changes that when combined as part of the cooling system will reduce or even eliminate your overheating problem. We produced the most cooling gains through improved airflow management. Radiator design, while important, produced only moderate improvements among a variety of designs. To the dismay of many readers, aluminum radiators were not king of the hill from a cooling prospective. Without airflow improvements, our least measurable gain was via the water circulation system, i.e. radiator single/triple pass, high Volume pump, redistribution of water flow in the engine or to radiator. However, our observations suggest higher volume water pumps may have a positive effect.

Results of this cooling study represent only some of the cooling improvements possible. This test is incomplete. Hot weather required to perform tests came to an end during the cooler fall months. We were unable to evaluate all the variables we planned to test.

The following cooling system variables when used in unison produced the most significant cooling improvements on our test Tiger. See [Figure 1](#) for idle and [Figure 2](#) for interstate stock and improved test results.



- Engine driven fan: 15" Derale fan #17015 (No fan modifications required. Requires very careful engine placement with the likely addition of spacers on front engine mounts for rack clearance. Also, the relationship of the shroud position to fan blades also requires special attention. We do not have temperature measurements with this fan, but it will perform better than

the increased pitch Ford Maverick fan. Ford Maverick C9DZ-8600-A with increased pitch was a good performer but is no longer available. See [FAN AIRFLOW](#) at end of result summary.

- Electric Fan: Any 10" to 12" diameter, ideally less than six blades. The larger the diameter the better. The 11 1/2" Geo Prism/Toyota Corolla w/AC was our junkyard winner. Electric fans typically produced significantly more airflow when moved approximately 3/4 to 1" away from radiator. An electric fan is not needed except when vehicle is in extended stationary idle in extremely high ambient temperatures. Water pump pulley: 1978 to 82 Ford Fairmont 6 cyl, 5 3/16" diameter. (Increases fan/pump speed 12% over stock.)
- Shroud: Enclosed custom or stock (Seal area between shroud edge and radiator. Bend for uniform fit around fan blade tips.)
- Radiator: 1 7/8" FX & 2" CX type brass core radiators (single pass) provided the best performance at idle. The FX, CX and Griffin Aluminum radiator provided the best performance at moderate interstate speeds (63MPH). Additional testing needs completed to determine the desirable core thickness and type for higher interstate speeds, power applications and airflow enhancements.
- Engine compartment venting: Close space between radiator and crossmember. Close space in front of horns.

The following produced **insignificant or immeasurable cooling** improvement compared to stock cooling system.

- Engine driven fans: Flex-a-lite #414 or #1314 , 14" or smaller diameter.
- Electric fans: Typically, fans with more than 7 blades of the same diameter were significantly less efficient at cooling and airflow. Some were also much louder and the high pitched noise was irritating.
- Water Pumps: Stock, High Vol Milodon, Stewart. We did not measure a significant cooling difference with any of the three pumps tested. However, we believe there may be an advantage at idle with the use of a high volume pump when combined with interactions of other cooling system enhancements.
- Radiators: Our results indicate the popular Griffin and Fluidyne radiators did not perform as well as the stock, FX and CX cores we tested. The Griffin did not perform as well as a stock radiator after some cooling system improvements were made. However, it was one of the best performers on the interstate. The Fluidyne was similar to stock at idle and a moderate performer on the Interstate. Based on observations and test measurements, it is our opinion that thick cores, 2" or greater, aluminum or brass, radiators impede the airflow required for efficient heat transfer at idle and road speed compared to thinner designs. The thick core radiators will likely work well under high power applications at high speeds where air pressure is available to force air through the radiator.
- Engine compartment venting: Idle or Interstate temp did not change with LAT type fender well ports open or closed in a stock cooling system configuration. Cooling effects of open or closed ports have not been determined since increased airflow enhancements have been made. Contrary to popular perceptions, our data indicates the Tiger's tight engine compartment is not a major restriction to airflow through the radiator at idle or interstate speeds.
- Miscellaneous: Turning the heater blower on high at Idle reduced Idle temp only 1° F. Test was not performed at interstate speeds.

The addition of Red Line Water Wetter did not produce measurable temperature changes at Idle or on the Interstate.

Making a variety of engine/radiator/expansion tank/water pump water distribution changes did not improve cooling. In fact, some changes caused the idle temperature to increase.

Car Wash Humor.... Make as much noise as you want!



REDDING BRITISH CAR CLUB



ANNUAL CHRISTMAS LIGHT TOUR AND PARTY

By Gary D. Hartley

In the Midwest, where I grew up, we always made a big deal out of having a “White Christmas,” and I think I watched that movie every year as I grew up. Bing Crosby crooned out the song while the slopes of Vermont (I think it was Vermont, anyway) piled up enough snow to keep the skiers happy. In those days, there were no snowboards and we were spared comments like “Dude, did you see me land that 360?” Ah, those were the days.

You might have noticed the lack of British cars in that movie, as they were never expected to run in inclement weather. We had our own storm system around the night of the party, and predictably there were no BritCars on hand, save the intrepid Discovery of Paul and Barbara. The Hartleys’ “Kenosha Land Rover” also did just fine, thank you, despite rain and high winds for several days before the event. Not so with the Christmas lights, however, as the three adventurous families found out (Heidels, Hartleys, Snyders). The few displays that did not blow down still showed signs of weather wear, and we dodged branches and shingles on the ground the whole trip.



Later, Woodward’s beautiful home was a welcome solace. Plenty of ham, snacks, desserts and drinks greeted us, along with the smiling faces of many other party goers. The turnout was perhaps a bit suppressed by the weather, but a good time was had by all. The most popular gifts to be exchanged were a candle/fountain set and a model Jaguar E-Type. The snake was sadly missed, having succumbed to a serious accident (and no small amount of derision) the prior year. You may be wondering, “what will take its place as the ‘white elephant’ gift next year?” I think I know...

As always, the gathering proved a good time for catching up, reviewing the events of the year, and exchanging warm greetings of the season. We truly have a special group of people in this club, and I feel privileged to be a part of it. The best of 2003 to all of you from all of us (Gary, Eileen, Matt, Mitchell, Suzanne, Scott and Molly)!