

Triumph TRumpeter



OFFICIAL NEWSLETTER OF

THE DESERT CENTRE - TRIUMPH REGISTER OF AMERICA

JULY MEETING JULY MEETING - July 11, Kachina Inn, 1102 N. Central, 8:00 PM - JULY MEETING

FROM THE PREZ.....

Greetings to all! The long, hot summer has arrived and DCTRA has shut down to endure the heat. Among the summer projects I know of, Bob Schaller is having his TR3A repainted and Tom Larsen is actually going to finish the TR4 he claims to own. (I really think he's going to put some Triumph badges and IRS on the Buick, then disconnect 4 spark plug wires.) As previously mentioned, we will continue our monthly meetings (SECOND TUESDAY OF EACH MONTH) at the KACHINA INN, just for an excuse to have dinner out with good friends.

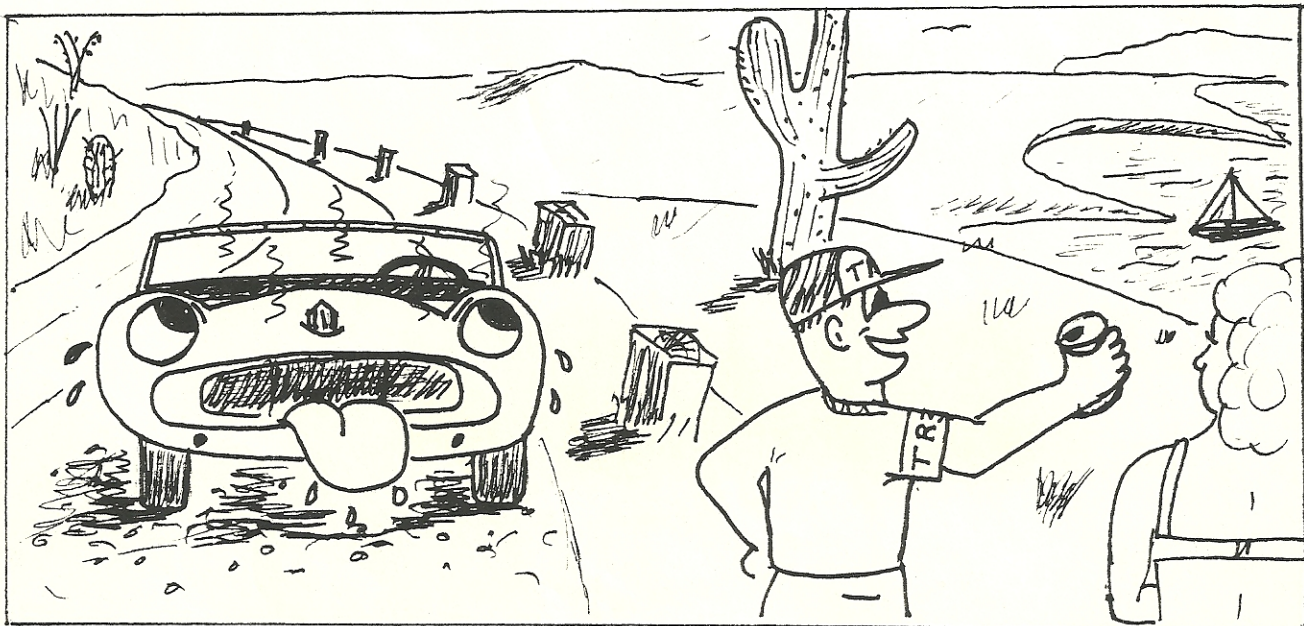
On the late Racing News front.....some people with money have assumed control of the Firebird Lake acreage (located off the Maricopa Road exit of I-10 South) and are constructing an all-new facility for several kinds of competition. When the plant is finished, there will be a drag strip, a 3/8 mile paved oval, a 1.8 mile road course (!), a 1/4 mile clay oval, a 5-mile off-road course for motorcycles and dune buggies, and of course the existing water oval for boat races. The new name is Firebird International Raceway, and you can expect to see the first races there in September. It is encouraging to see this development, as Phoenix has needed a truly first-class automobile racing facility for a long time.

For news closer to your heart, the TRA WEST 1983 is scheduled for OCTOBER 21, 22, and 23 in DEL MAR, CALIFORNIA. Del Mar is located just North of San Diego on the coast. Event headquarters will be the Del Mar Inn, possibly the finest hotel in all of California. Triumph Register of Southern California is hosting the event, and my sources tell me that they have planned a weekend of fun and frolic. Make your plans now, as this year's TRA WEST promises to be even better than last years. Details will be coming along soon, so watch your mailbox and this space.

Hope to see you all at the meeting on July 11!

LET's KEEP 'EM ROLLING!

TOM



"Boy, what a drive! You'd never believe it's 116° today!"

TRTRTRTRTRTRTRTRTRTRTR
TRIUMPH WORKSHOP
by
BOB SCHALLER
TRTRTRTRTRTRTRTRTRTRTR

SUMMER HAS ARRIVED

In bygone times, in the summertime desert, a horse would go until he fell dead, a mule went just until he had decided enough was plenty, but the jackass had more sense than to go out in the heat at all. Since our cars don't have even the brain of a stupid horse, it is up to us to baby them through the trying times of summer.

Metals are created, transformed and destroyed by heat. The very description of an auto engine as "internal combustion" tells us that management of heat is what makes the contraption function.

Man has learned to create temperatures from absolute zero, where all molecular motion ceases (about 460° below Zero) to near the millions of degrees of the core of the sun (Hydrogen Bomb) and control them to a certain extent. However in practical terms, man and his creations live in, by comparison, a very narrow temperature range, mostly between -65° F to about 1800° F. Steels have a glass like shatterability at -65°, turn into dough at about 1800° and then to liquid at something above 2500° F. Just raising the temperature of steel from say 80° degrees to 400° degrees and holding at that point for about three hours significantly changes the characteristics of the metal. Now I didn't really intend to get into a technical discussion of metallurgy, but it does provide some support for what follows.

With a gasoline fueled engine the temperature range permitted is drastically reduced. Below -45 gasoline will not evaporate, hence the carburation will not function and the engine will not start. At the other end gas boils at about 200° and burns near 3300 degrees. Running a four cylinder engine at 3000 rpm generates 12000 little hot fires each minute and releases enough heat to warm a 2000 sq ft house on a cold winter day. Only about 30% of this heat is turned into the work of pushing the car down the road and the rest must be rejected by one means or another:

1. The water cooling system
2. Convection off the engine itself, mainly the exhaust manifold, piping and the oil pan.
3. That which is carried off by the flow of the exhaust gasses.
4. All of these aided by the motion of the car through the air mass.

So much for the technicalities, sketchy as they may be. So what does all this mean to a boiled over TR driver? It merely tries to lay some of the background to explain some of the complex effort and decisions that need to be made to keep the engine living in the temperature range required for efficiency, long life and basic survival. All of this was the design problem that faced the manufacturer/engineers and comes out to you as a "good car" that starts easily, and functions in the manner intended and expected. From then on it is up to us to keep the machine in a functional state.

Southwestern states are probably one of the most severe environments that any car must live in, especially in the middle months. If any part of the heat rejection system is not carrying out its share of the load, ole buddy, you have troubles! So then, lets take a look at what we can do.

1. Instruments:

With inaccurate instrumentation you are blind to what is really going on under the hood. Gauges wear out just like anything else but are easily replaced and also easily checked for accuracy by the simple method of pulling out the temperature pick-up bulb and immersing it in rapidly boiling water. In Phoenix at altitude of about 1220 feet water boils at 210 degrees and your gauge should read that. If it does it is probably close

enough for jazz throughout its range of indication. Don't be surprised if the 20 year old lies to you. In spite of the penchant for "originality" it is highly recommended that you replace any defective gauges with a Stewart-Warner 80000 series. They are accurate, long lived and withstand the high vibration environment of automobile service.

While on the subject of gauges, get an oil temp gauge also, since your 7 quart oil supply (vs only 9 for water) supplies much of the cooling you need to know what it is doing also. A 15 mile trip around town in July will show oil temps of over 210 degrees and oil ceases to do its job above 230 degrees. This also makes a hell of a case for adding an oil cooler to your system.

2. Western states water supplies contain an inordinate amount of salts which when heated precipitate out to form an insulating scale on the inside of all water passages which effectively reduces the heat rejection rate of the radiator. This must be cleaned out regularly. It also corrodes any aluminum parts in the cooling system, mainly the thermostat housing. A better solution is one of 50% glycol antifreeze and 50% distilled water after you have thoroughly cleaned the water passages. Don't get trapped by "if a little is good, a whole lot must be better" DO NOT USE 100% ANTIFREEZE!!! Its boiling point is less than that of just water. Only when mixed with water does the boiling point rise to a respectable value. Pressurizing the system to 7 pounds with a proper radiator cap also helps raise the boiling point. Here again, don't go higher than the 7 pounds as the radiator is not designed to tolerate more than that for very long. The final addition is that of a recovery bottle. Caps have a notoriously short effective life and are also cheap so each spring put on a new one. Following this should give you the best of all worlds as far as coolant solutions go.

3. Coolant Passages

The path followed by the coolant circulating the system must be kept free of obstruction.

a. Blow the bugs out of the radiator fins and straighten bent fins for free as possible air flow.

b. Repair leaks. A slightest drip indicates that the system is incapable of maintaining pressure and the boiling point drops losing all advantages gained by the pressure rise in the system.

c. Soft mushy hoses will collapse when accelerating and reduce the coolant flow to unacceptable levels. Fresh live hoses are a must.

d. Fan belt condition and TENSION must be maintained. The pump consumes considerable horsepower and the load on the belt is much greater than you expect since it is also pulling the parasite generator.

e. The water jacket portion of the engine will fill with sediment, rust particles and sand. We have seen engines that the space around the cylinders was more than half full of this mud. Sadly, the only cure for that is a complete teardown of the engine so it can be dug out. This is also a good argument for the 50-50 water (distilled) antifreeze solution.

f. The bypass

This little jewel was designed to function with a "no longer available" skirted thermostat. (There were a few around last year but they are not in your local parts house). In merry England and cooler climates of the rest of the world this bypass is a desirable feature giving a faster warmup, quicker response from the heater, etc. but with the nonskirted type of thermostat the bypass does not get shut down when the thermostat opens as originally designed. Consequently, there is always a certain percentage of the coolant that never gets to the radiator but merely chases its tail through the engine. In an Arizona July that is akin to an extra hole in the head you can do without so plug off the passage. The hole in the water pump body where the bypass hose attaches will accept a 3/8 NPT pipe tap and put in a BRASS pipe plug and replace the hose. Then ALL the coolant will go through the radiator. The flow restriction afforded by the thermostat is also important

as it prevents the coolant from passing the radiator too quickly as time in passage effects the amount of heat rejected and lowers the temperature at the water pump pick up point.

g. Fan

What a joke this thing is.... For city driving it just won't move enough air to keep the engine temperature within acceptable limits. We have replaced many with different substitutes and have come to conclusions about an excellent replacement. Early replacements were of an after market variety, made of fiberglass, had six blades and were a Dat-sun item. They had the distinct disadvantage of being difficult to mount on a TR, requiring an adapter to be machined and the center hole altered. A couple of moulded plastic fans as used on Fiats and other aftermarket items have disintegrated in service, so don't waste your money on one of these. The best solution has been that of the original fan used on the 122S Volvo. It is all metal, six bladed, has the proper center hole size, proper outside diameter and the only modification is to redrill (relocate) two of the four mounting holes. Not only that, it is the least expensive of the three types. They are available from the Volvo dealers.

4. Problem Identification

Suprisingly enough, some of us have trouble really determining whether or not there is a problem. What is really good or bad and by what standards do you make that judgement. With a TR you can expect, and it was designed so, to run coolant temperatures of 175° minimum and near 200° maximum WITHOUT BOILING, either going down the road or more importantly, when the engine is first shut off. A properly sealed, pressurized system with overflow recovery should not lose significant amounts of coolant from day to day. Large losses over a short period of time spells trouble somewhere as does instant boiling when the engine is shut off after a hot run. Of course the catastrophic failures like leaking water pumps, blown hoses are easy to spot but most often not anyone thing is the primary cause of cooling troubles. It usually turns out to be a combination of several, any one of which by itself would not be a significant problem. Two or three separate things added up though can create an overall failure of the system to do its job.

Another factor not normally considered is you yourself. Once upon a time the throttle control was not on the floor but either on the steering column or in some other now strange place. Once it was put on the floor board a driver's right foot became an instant enemy and has remained so to this day. Among all the other stinkers he can create with it, cooling troubles are on the list. What the hell does the accelerator pedal have to do with cooling off the engine? Simply this -- if the heat is not generated in the first place, you don't have to remove it.

A. Back off - Wide open throttle positions at low engine speeds is plain and simple abuse of the machinery. Manifold vacuum drops to zero the carbs are nonfunctional for a short period of time, you suck in raw fuel that washes the oil off the cylinder walls and what's important in this discussion, the combustion temperatures go out of sight off the top of the scale creating excess heat that has to be rejected from the system.

B. Drive in the highest possible gear for the shortest possible time. Don't run for distances at low traffic speeds in second or third when it will pull smoothly in a higher notch. The TR is far from being anemic by any standard and will run along at 25 mph in fourth as long as you don't jam open full throttle and expect it to respond. By gently opening the throttle it will walk right out at traffic speeds and no one is going to run over you. A TR is not one of these sickly modern econoboxes that need to be propelled across town using the gear shifter as an oar. Keeping to the minimum the number of revolutions of the engine per mile reduces the number of "little hot fires" previously mentioned and reduces the total amount of heat the cooling system must handle; be your own and your TR's best friend.

Not connected to cooling systems but in the event of some uneducated slob putting down your little English beast just ask him if he noticed that 9 of the first 10 finishers at Indy this year were designed and built in England and especially for the Great American Go Around In Circles affair. Since Indy has long past being a race and merely an Enduro it speaks well for the English capability of building long lasting high performance machinery.