



ARCC UPDATE

June 2016

President's Letter

by Alex Csank, Vankleek Hill

Alfisti,

Summer is just around the corner as I write this letter. And summer is the time of year we all get to play with our magnificent little Italian machines! Unfortunately, I haven't yet been able to really enjoy my GTV6, as Diane and I are extremely busy moving into our new home. Well, actually it was built in 1900, but it is new to us. Most of my driving has been at the wheel of my '99 Jeep Grand Cherokee, loaded to the gills with various bits of our stuff (it's amazing how much stuff fits into my old Jeep!), or driving a borrowed Ram 2500 diesel pick-up with a trailer being towed behind it, thanks to the kindness of a close friend. Occasionally I have been driving Diane's Abarth for fun, while my GTV6 is temporarily off the road. Besides having to have the ignition and all other locks changed after someone stole my keys out of the (previously) unlockable trunk (don't ask ... it's a verrrry long story!), I'm also trying to get the Alfa fixed so it will pass the strict Ontario safety and emissions requirements, as our move is taking us out of Quebec and into Ontario, just across the provincial boundary. Apparently, in Ontario I'll need high beams, a working windshield washer pump, a muffler without holes in it and some other stuff. Quebec is probably the easiest province in which to own a vintage car, as there are NO annual inspections ... at least not yet!

My summers are always very busy, volunteering with the Canadian Coast Guard Auxiliary and running a local Search and Rescue and Emergency Response team, in addition to my responsibilities to all of you ARCC members and working at planning the combined ARCC and AROC USA convention for July 2017. Adding our move on top of all that is just a bonus, I guess!

Because our new home in Vankleek Hill is roughly halfway between Montréal and Ottawa, Diane and I have been traveling to and from both

cities for various reasons. Taking a little time off from our moving responsibilities, we joined up with the Montréal FIAT Club and another club called Fiat Alfa Romeo Quebec (FARQ) for a fun rally on a cold day in the middle of May. The turnout was small because of the cold weather and we were the only participants from CARM, but we had fun nonetheless. Later, on a very hot and sunny Saturday at the end of May, we joined up with the Alfa Romeo Club of Ottawa (ARCO) and the Italian Car Club of Ottawa (ICCO) for their 12th annual Spring BBQ, where not only were there some fabulous older Alfas, but also a 4C and a 4C Spider made appearances, as did such classics as a 20V 5-Cylinder FIAT Coupe, a Lancia Delta Evo II, a FIAT/Siata Spring, two FIAT 600 Multiplas (Multiplae?), and a DeTomaso Mangusta, to mention just a few!



Photo by Alex Csank.

We had fun meeting everyone and were made to feel very welcome. Everyone in the Ottawa region was getting ready for their annual Italian Car Parade, held on the day before Father's Day.

Hopefully, some of you will be attending the annual AROC USA convention in Nashville. These conventions are a real blast! I strongly encourage you to attend if you can. Don't forget that next year's convention will be held in Montréal, and we are hoping you will join us. We are planning a similar event to the very successful *Alfa Canadese 2012* convention, and

will need your help to develop and organize the event.

Soon, our Montréal, Ottawa and Toronto clubs (CARM, ARCO and ARCC Toronto) will be holding our 4th annual *Raduno Estivo* this coming July. This event is our summertime 'regional convention', held in and around the Kingston area, which is a good meeting point for members from the three clubs. Scheduled for the weekend of the 15th through the 17th of July, join us for some great Alfa fun! As in the past, each city will plan their own Saturday driving tour from their home city and ending at our selected hotel in Kingston. Others may wish to drive to Kingston on Friday and take advantage of some free time from Friday evening until we all meet up on Saturday at a restaurant in Kingston for our annual *Raduno Estivo* dinner. Afterwards, we'll drive back to our night's accommodations for a nightcap, some tire kicking and to tell a few stories, before packing it in for the night. On Sunday morning immediately following breakfast, we are planning a fun and educational Gimmick Rally, followed by a light hearted Concours. We'll end our *Raduno* with a relaxed awards lunch, and then each club and its members will head home, individually or in groups.

To help us plan for the numbers of expected attendees, please let me know if you are planning to attend (you won't be locked into your reservation) by filling out the enclosed form and either mailing or scanning it and sending it to me. For mail, please use the following address: Alex Sandor Csank, P.O. Box 866, Vankleek Hill, ON K0B 1R0, or send the scanned form to alfaromeodriveralex@gmail.com. I appreciate your assistance. You can also find the form on our web site as a link from the *Raduno Estivo* entries in the events calendars for both Montréal and Toronto.

As always, please keep sending me your feedback, and also your photos, articles and ideas for the newsletter. George Beston is always looking for your input for upcoming editions.

Until next month,
Rev high!

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Toronto Pancake Drive

by George Beston, Cobourg

This was the third annual Victoria Day Pancake Drive and it was our privilege to organize the event and host the Ontario Fiat Club and Italian Car Day enthusiasts to join us.

The timing of this event fortunately coincided with one of our best days of the spring. We enjoyed sunny, clear skies all through the day.

We started in Vaughan and headed north along the old highway 27 route. There must be 5 or 6 east-west valleys in the moraine between Vaughan and Cookstown, and the view of the countryside with the freshly emerged greenery was a real treat.



Photo by Ken Lee.

We stopped at the Hot Stacks Family Restaurant in Cookstown, on Hwy 27 just north of Hwy 89. The food is outstanding at this place for quantity, quality and price. A regular breakfast plate is about eight or nine dollars and could easily provide enough food for two adults and a child. Don't go there without an appetite!



Photo by Ken Lee.

After a good visit and a look around the parking lot at all the beautiful Italian cars, we followed Frank on a very pleasant hour and a half drive through the Alliston area and points south, ending up at a Tim's just south of Nobleton.

Our thanks go out to Frank Scalisi for his work in organizing and leading this event.

Car Battery Basics

by Elio Comello, P.Eng., Camlachie

Cautionary Notes: *Lead acid car batteries contain dangerous and toxic materials and can produce explosive and flammable gasses if subjected to excess charge or discharge when accidentally in short circuit or grounding. A fully discharged battery can freeze, causing the battery case to crack. Only qualified persons should handle, test, charge and properly dispose of lead acid primary car batteries.*

Introduction

The inventor of rechargeable lead-acid batteries for commercial use was Frenchman Gaston Planté in 1859. He was no doubt heavily influenced by the work of an Italian, Count Alessandro Volta (1745-1827) father of the voltaic cell. The volt, the international measure of electromotive force is named in honour of this Italian physicist. This article is intended to give ARCC members insights to understanding lead-acid primary batteries and the primary electric power circuit of pre-1994 vehicles.

Most, if not all, pre-1994 Alfas came with “conventional” a.k.a. “flooded plate” lead-acid batteries. These had access plugs for each cell for inspection, adding liquid or measuring electrolyte specific gravity. Today they are almost impossible to obtain, replaced by the “low maintenance” or “sealed” design. (“sealed” is a misnomer as no lead acid battery can be totally sealed, so designers add a valve to control venting.) The sealed battery of today contains less electrolyte than the flooded type. Electrolyte is impregnated into a moistened separator, so acid spillage and physical orientation are not limitations. It has the ability to internally combine oxygen and hydrogen that evolves from operation to create water, preventing plates from drying during charge cycling.

A sealed battery design is a poor candidate for the fast charge we were familiar with using the flooded plate design of the past, especially when considering the potential damage to electronic systems from a fast charge. Sealed batteries should be charged at a low rate over a period of hours and topped up every 6 months if idle.

For winter storage of a good, fully charged battery, disconnect one battery pole connection. It will most probably start your car in spring without issue. Smart and trickle chargers connected for long periods are beyond this article’s scope.

Battery Basics

A 12-volt car battery is made up of 6 separate cells or compartments, each independent but connected in series inside the battery case. At each end is a connecting point (bolted pad or post), one marked positive (+) (red) and the other negative (-) (black). Posts are different diameters, with the positive post being larger. Each cell consists of two plates with an electrolyte, sulphuric acid (H₂SO₄) providing an electric path between them. The plates are lead grids which hold lead oxide (PbO₂) on their surface for the positive plate, and metallic lead (Pb) on the negative plate. As the cell discharges, electrons are forced by the electromotive potential (voltage) of the different plate materials to flow from the battery through the external electrical load. The discharge current results in lead sulphate being formed on the negative lead plate and a chemical reaction reducing the lead oxide from the positive plate and sulphate from the electrolyte. As lead sulphate is deposited, the specific gravity of the electrolyte decreases. When charging, electrical current reverses this reaction which is the mechanism to store energy. These electrochemical reactions repeat themselves depending on whether the battery is being charged or discharged. Hydrogen, oxygen and heat are also generated. Here’s the chemical equation of the discharge reaction. The charging reaction is the reverse.



Battery voltage and state of charge

The batteries of the past allowed measuring acid specific gravity, which is good measure of battery charge status. Since this is not an option in today’s batteries, we must rely on measuring battery voltage. To do this, an accurate digital voltmeter is required. To measure voltage across the two battery terminals (turn engine off, shut off all electric usage, let car battery rest for 1 to 2 hours). The following chart relates battery terminal voltage readings at 80°F to % charge. (Approx. lower by 0.01V per 10 degrees F drop).

Battery Terminal Voltage	% Charge
12.66	100
12.45	75
12.24	50
12.06	25
11.89	0

Note: After a period of charging, battery terminal voltages will measure higher for a time. Let the battery rest for 1-2 hours to get an accurate, stable voltage reading.

The Alfa Workshop Manual for the Series 3 (S3) Spider contains a similar table in section 05-02. Interestingly the manual states: “The battery is flat if a voltage of less than 12.30V is recorded”.

Battery Life

Battery life is shortened by temperatures above 77°F. For every 15° rise above this temperature the battery life is halved. Vintage Alfas, mostly not daily drivers, driven for only a short drive with the A/C on, have batteries that almost never reach full charge. This chronic undercharging leads to a condition called “sulfation” (insoluble crystal formation on the plates) which reduces battery performance and life.

North American market Alfas are loaded with electrical accessories not common in European home market versions (e.g. A/C and other accessories). Even in the “OFF” position many models of our pre-1994 cars consume power – the radio and clock are the main culprits. If a battery goes flat and is not recharged fully in a few days, its future is not assured and it would be wise to replace it (at around \$120, cheap insurance!)

Capacity, Internal Resistance and Self Discharge

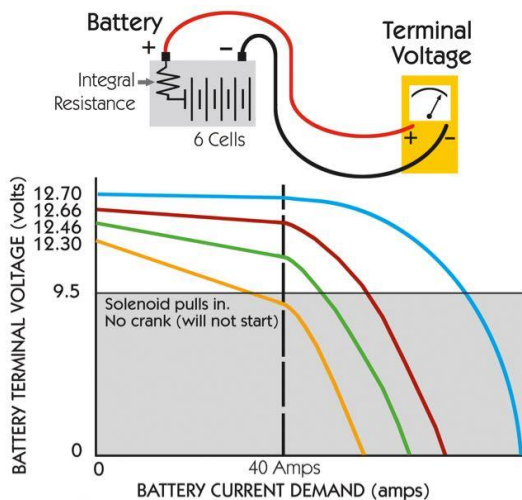
Even though a battery may appear charged from the voltage readings, you must consider its ability to deliver power demand. As a battery ages, changes develop that reduce its ability to deliver current because of increased internal resistance. Capacity is reduced by deactivation and shedding of active plate materials, sulfation, acid stratification, and surface charge. As these processes happen internally a battery can begin to self discharge. Load testing is beyond the scope of basic maintenance, so this article will avoid explaining it.

An easy method to understand internal resistance is to picture an electrical resistance inside the battery. The effect is, the more current drawn, the more voltage is lost across this internal resistance. So, under high current draw (e.g. starting) battery terminal voltage drops reducing the battery’s ability to deliver power.

Example

My Spider’s starter draws 38 amps. The battery reads 12.6 volts at no load, but at a load of 38 amps it loses 0.8 volts due to internal resistance, so only 11.6 volts are available at the battery terminals at this current load. More current to the starter is required. The increased current need further drops the voltage. Since Power = Volts x Amps, the reduced volts necessitate more amps to achieve power. A specification to note:

minimum starter solenoid voltage requirement to pull in at 80°F is 9.5 volts (S3 Spider models). The solenoid pulls in at 9.5 volts, connecting the starter drawing 38 amps which drops the voltage below 9.5 volts so the solenoid drops out or chatters. Something we have all observed.



When buying a battery, get one with the highest Cold Cranking Amperage rating. CCA is defined as the minimum current a fully charged battery can deliver at 0°F without falling below 7.2 volts. Although you may not need the maximum CCA because your Alfa is not started in cold weather, it provides a measure of reserve energy capacity as the battery ages and deteriorates.

How Cold Affects Battery Performance

Available Power From Battery	Temperature	Power Required To Crank Engine
100%	80°F / 27°C	100%
65%	32°F / 0°C	155%
40%	0°F / -22°C	210%
25%	-20°F / -32°C	350%

Charts by Elio Comello and Dave Hammond.

Importance of Voltage

Alfas with ECU’s (Electronic Control Units) require power for the ignition and fuel injection electronics during cranking to start the car. When cranking the engine over, energy is drawn from the battery. The more energy consumed, the lower the available voltage for the next try. Bosch ECU’s are known to require a minimum in the range of 10.3 volts to 10.5 volts in order to “wake up” and function. The engine may crank over, but if voltage drops below critical minimum voltage need of the ECU, it may not start.

The battery uses a negative connection to the car body as a universal ground for all electrics. You will recall that the engine is supported on rubber mounts. The only way the starter, alternator, etc.

can find the negative connection is through the flexible ground strap from the transmission shroud to the car body. Any connection in the primary power circuit that is not very low resistance (i.e. a good connection) will add resistance and cause a voltage drop to the device needing power.

Battery voltage is also affected by the ability and health of the alternator (post-circa 1967) or generator (circa 1967 and earlier). The stock alternator on my S3 Spider is rated at 55 amps @ 6,000 rpm, and two-thirds of that output, 36.6 amps at 2,000 rpm. With air conditioning, power windows, a big stereo and upgraded (but DOT approved) Hella headlamps, coupled with infrequent (and often short) drives, it's no surprise that the battery seldom gets fully charged. Common causes of low output by the alternator are: belt slipping when loaded, diode or voltage regulator defects, and worn brushes. S3 Spider alternator upgrades are both advisable and inexpensive; just take the unit to a local shop and have it upgraded it to 70 amps. After upgrading my Spider's alternator, I found that the wire gauge of the red charging wire from the alternator charging circuit was restrictive. Rather than changing to a bigger gauge stiff wire, I paralleled the existing wire, which provided a reading of 0.5V more on the instrument panel voltmeter.

Verifying the Charging System

With the car running, the voltage regulator should put out 13.7 to 14.7 volts @ 3,000 rpm:

- 13.7 volts with a hot engine and full loads; A/C, high beams and blower at least.
- 14.7 volts with a cold engine and all electrical accessories turned off.

These voltages are measured at the battery terminals with your digital voltmeter.

I have omitted comment on exotic and expensive Absorbent Glass Mat (AGM) batteries in yellow and red colors, looking like six packs, because I would recommend these batteries only for specialized applications such as the extreme vibration and g-forces of a race car.

Ciao for now, and keep those batteries charged!
Elio

There's a hole in my bucket! by George Beston, Cobourg

That's the title of an old song recorded by Harry Belafonte about the little things that can go wrong and prevent a person from making any

progress. This became a persistent ear worm with me over the last month.

After experiencing some overheating in my Spider last season, I resolved to do something about it. The problem was a stuck thermostat. Not just any old thermostat, but one of those screw-in thermostats that was OE on my Spider Junior. It blocks off coolant without any provision for bypass flow. So, I resolved to install a later manifold on my Spider's 1750 engine to ensure that there was bypass coolant flow no matter what, and that the thermostat would be much easier to access and change if necessary in the future.

That sounds pretty simple, so over the winter I bought a newer-style intake manifold with thermostat, a new top rad hose, a bypass hose, some inlet gaskets and an intake manifold gasket. Here are some of the hang ups encountered along the way.

A new water pump was required. I was counting on using a good used pump I have that fits an Alfetta engine. Too bad its rad hose connection was at the wrong angle. The cure was to get a new one in record time (3 days) from Highwood in the U.K.

A new fan belt was required. The new pump has a slightly larger pulley than the old one. The old belt was just too short to fit over the pulleys. The right length belt was found on my third trip to a local PartSource store. Thanks to an obliging counter person, I only ended up paying for the one I kept.

A new heater hose was required. The old one simply wouldn't seal at the water pump end no matter how tight the clamp was. Fortunately, all I needed was two and a half feet of generic hose to resolve this, but it meant draining most of the coolant out. And yes it would have been a lot easier to replace with the manifold off the engine.

The temperature gauge wire needs extending. With the older manifold, the sensor is toward the rear of the engine; with the new one, it's at the front. So, I had to root around for some suitable wire and splice in an extra foot or so.

On a pre-start test of my reconnected fuel lines, I found that gasoline was dripping out of one of the filter connections because it had been jostled in replacing the heater hose.

Finally, everything is working and nothing is leaking, but that was three weeks after I wanted to be done!

Upcoming ARCC Events

Regional representatives are requested to send your 2016 events calendars to the secretary or the editor for inclusion in the next issue.

Club Alfa Romeo de Montréal

Date	Time	Event
1 st Saturday	Monthly	Alfas & Espresso, LaSalle Alfa
May 15		Gimmick Rally
May 22		St Lambert Antique Auto Show
May 29		Road Adventure
June 11		Grand Prix Barbeque
June 19		Fathers' Day Veterans Tribute Car Show
July 24		Meet with Scuderia Alfa Romeo
August 21		Wine Tour
Sept 10-11		Lake Placid Road Trip
October 3		Vineyard Tour
October 16		Fall Colours Drive
November 26		Holiday Party

Regional Events – Eastern Region

Date	Time	Event
June 17-19		Italian Car Day, Ottawa
June 12-19		AROC Convention, Nashville
July 3		FIAT Breakout, Montréal
July 15-17		Raduno Estivo, Kingston
July 27-31		Fiat Freakout, Auburn Hills
August 6		Italian Car Day, Woodbridge
September 25		Raduno Montebello

Alfa Romeo Club of Canada

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Alfa Romeo Club of Edmonton

Date	Time	Event

Calgary Alfa Marque Society

Date	Time	Event

Toronto Chapter

Date	Time	Event
May 23	9 am	Victoria Day Pancake Drive
June 5	10 am	Canadian Warplane Drive
June 7	7 pm	Cruise Night
June 17-19	TBD	Vintage Festival & Drive
June 26	10 am	Rattlesnake Run
July 5	7 pm	Cruise Night
July 10	10 am	Sun Collision Event
August 2	7 pm	Cruise Night
August 21	10 am	Italian Gathering
September 6	7 pm	Cruise Night
September 11	10 am	Wine Tour & Drive
October 4	7 pm	Cruise Night
October 16	9 am	Fall Colours Drive
November 26	6 pm	Holiday Dinner Party

Alfa Romeo Club - Ottawa

Date	Time	Event
April 19	6 pm	ARCO AGM
May 28	2 pm	Car Christening and BBQ
October 16	10 am	End of Season Drive and BBQ
February	7 pm	Annual Pot Luck Dinner

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