ALFA OCCIDENTALE

Issue 16, July – August 2018

H A P P Y B I R T H D A Y A L F A !

This photo of an Alfa 24 HP is produced in memory of Alfa's birth in the year, 1910. Our club celebrates that event each year in late June with the annual AROCA WA Birthday Dinner (held on the 23rd June this year). The Alfa 24 HP is 4.1-litre, four-cylinder passenger car; the first model of which was produced by Italian car manufacturer ALFA (Anonima Lombarda Fabbrica Automobili). Later, in 1919, ALFA became known as Alfa Romeo. The Alfa 24 HP was introduced in 1910, the foundation year of ALFA, and it was produced until 1914. On 14 May 1911, the Alfa 24 HP made its racing debut in the 6th Targa Florio. A pair of special 24 HP "tipo corsa" were built for the occasion with 2-seat baquet bodywork, an additional 30-litre fuel tank behind the seats, two spare tyres and an engine tuned to 45 bhp (34 kW) at 2,400 rpm. Weighing in at 870 kg (as opposed to the 1,000 kg torpedo-bodied standard 24 HP), the car had a top speed of 110 km/hour. However, both Alfa 24 HP drivers (Nino Franchini and Ugo Ronzoni) had to retire on the third and last lap of the Targa Florio course — Franchini due to an accident; Ronzoni from physical exhaustion.

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Dear Western Australian Alfisti,

This is the 16th edition of ***ALFA OCCIDENTALE*** – the electronic newsletter of the Alfa Romeo Owners Club of Australia (WA Division). Should any club member have a contribution that you would like to see included in future editions of this newsletter, please note they would be most welcome. Please send articles, photos, used car ads., etc., C/-: *secretaryarocawa1@gmail.com*
This edition of Alfa Occidentale outlines the club's upcoming 2018 schedule, including information on our next competition, social and club driving events.

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2018 AROCA WA COMMITTEE

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Montreal prices are rising quickly across Australia and elsewhere. Your Alfa Montreal stories are sought for the next edition of Alfa Occidentale.
Did you ever own a Montreal?
What can you tell club members about your Montreal experiences?

ALFA OCCIDENTALE
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W A A L F A C L U B N E W S & U P C O M I N G E V E N T S S U M M A R Y

In this issue, you will find an article that was first published in the Autumn 2018 edition of the AROCA NSW magazine, "Amatori Alfa". It is a Buyers and Owners Guide for the 939 series Alfas, written by AROCA club member (Canberra Chapter), Martin Leaver. The NSW Division and Martin have given AROCA WA permission to republish this article in Alfa Occidentale #16.

This edition of the magazine also offers a review of the annual birthday dinner with a photographic essay on the Saturday 23rd June night held at Acqua Viva on the Swan River. Congratulations go to club life members, John Schoen and Glen Phillips who won AROCA WA's major Club awards for 2018, the Club Championship and the Spirit of the Club, respectively.

A review of the status of Cooperative and Autonomous Vehicles (CAV) developments is also included in this edition of the magazine. It follows a talk on the topic given by Greg Smith at the WA Alfa club's July club meeting which was held at the Light Car Club of WA on 3rd July.

importantly, this issue also includes another call for you to pay your 2018 annual membership subscription fees which, you should note, were due by 30th June. For 2019, the subscription fee remains at the same level as it has been for a number of years, i.e., $80.00. The committee notes that over 70 members had renewed their memberships by the end of June 2018.

SPECIAL NOTE FOR OWNERS OF CONCESSIONALLY REGISTERED VEHICLES:

If you own a concessionally licensed vehicle that is listed on the AROCA WA members list, then you should have updated your register information and have paid your 2019 membership subscription before 30 June 2018 in order that the registration of that vehicle remains current.
The WA government has become very strict about this matter. If, for whatever reason, you omitted renewal of your membership, please make sure, for your own security, that you do renew it very soon.

Also included in this edition of the magazine is a second call for Nominations for the 2019 AROCA WA committee. Ideally, the club would like to see multiple nominations offered for all club committee positions. Please note that the AGM at which the 2019 committee will be elected is to be held on Tuesday 4th September 2018 at the WA Light Car Club's meeting rooms in Bayswater.

You will also find the latest update of the 2018 program for AROCA WA presented below. Please consider attending as many of the club's upcoming events as you can. Additional details concerning these events are provided in this edition of the magazine.

- The **"Cars and Coffee"** Sunday mornings continue to grow in attendance. Many highly interesting cars have been present at recent WA events. "Cars and Coffee" occurs approximately monthly. (Note that the next gathering will be on Sunday 22nd July). If you want your pride and joy to be shown in a good position in the vehicle display, we recommend you arrive early, before the official start time of the event which runs from 8:30 - 10:30 at the University of Western Australia, in Car Park 3 next to the UWA staff club, off Hackett Drive, Nedlands, 6009. + Google Map

- The Italian Festival Track Day is again scheduled at Barbagallo raceway in mid-September. This annual event is one where numerous AROCA WA members compete, display their cars and socialize with members of other WA-based Italian car clubs.

- The Como Rotary Club's Classic Car Day is set for Sunday 7th October. See details later in this issue.

- The Rotary Italian car day will be held on Sunday 4th November, again at Gloucester Park. More details to be advised later.

- AROCA WA is the organizer for the 2018 Pasta Run. Many members of all WA Italian car clubs usually attend this annual morning run and the pasta lunch. The lunch date and event venue now will have to change, so keep watch for the adjusted calendar date and venue.

- The club is running two weekends away during 2018. The first was held late in February, and went north to visit the very notable private Vincent motorcycle collection, housed in Jurien Bay. The second weekend run will be to Dwellingup in August. Watch for further details which will be provided in an email circular to members,

- This is the first notice that the AROCA WA Christmas lunch will be held at "Acqua Viva on the Swan" restaurant on Sunday 9th December 2018

- The inter-club competitive point-to-point program for 2018 continues. Competition Secretary, Ivan Olsen's calendar of events is provided below. Contact him should you wish to participate in any of the upcoming events.

- Please note that, in 2019, Alfesta will be held on the Mornington Peninsula in Victoria over the Easter long weekend which runs from 19 to 22 April. As 2019 is the 50th anniversary of AROCA, this will be a big year for the Alfa club, both in Victoria (where it started) and nationally. The WA committee wonders whether members would like to consider travelling to this event and/or to the Phillip Island classic event which will be held a couple of weeks earlier? A convoy is possible, given sufficient interest. Please let a committee member know if you are contemplating attendance and might be interested in joining a Nullabor crossing.

2018 CLUB BIRTHDAY DINNER

The club's annual dinner, in celebration of the birthday of the Alfa Romeo marque, again was held at "Acqua Viva on the Swan" in Nedlands on Saturday June 23rd.

Both the dinner itself and the venue, the Acqua Viva restaurant, situated on a pier perched above the Swan River, were excellent.

About 60 guests attended.

Two of the club's long-standing life members were awarded AROCA WA trophies for 2018.

John Schoen (above) received the 2018 club championship trophy.

Glen Phillips (adjacent) won the "Spirit of the Club" award.

A selection of photos is shown below that illustrates how much everyone enjoyed the club's 2018 birthday dinner.

Given the success of this Birthday dinner, the club now plans to also hold its annual Christmas lunch at "Acqua Viva on the Swan" on 9th December.

We hope to see as many WA Alfa club members as possible at that final event for calendar 2018.








A L F A 9 3 9 S E R I E S

O W N E R S & B U Y E R S G U I D E

By Martin Leaver, Canberra Chapter, AROCA NSW

This article first appeared in the AROCA NSW Division Magazine "Amatori Alfa", Autumn 2018 issue. Martin Leaver is the author of this comprehensive review. It is republished here, with his permission. (Note that Martin can be contacted by email at canberra@alfaclubnsw.org.au)

On 11th May 2011, I bought my first Alfa Romeo. In the intervening seven years, while still owning this first car, I also owned two others. Recently, on 12th May 2018, I replaced my black, 2006-build, 159 Q4 manual with a blue Giulia Veloce automatic.

So why a 159? I had owned a 1998 BMW 528i that was written off by another driver running a red light at some road works, and I had a decent insurance payout looking for a home. A BMW 330i manual was my first-thought, but, after looking around, I found that 159s had depreciated rather more than I had expected and it became another option. I have been a consistent reader of car magazines and so I had a pretty good idea about the reputation of the 159. That could be roughly summarised as good ride and handling, but that the car's weight hurt its performance and fuel economy, while the interior space was quite poor.

I wanted something interesting and in a manual after seven years with an "excellent-for-1996" BMW automatic. The Q4 was four-wheel drive, which I hadn't owned before, with a rear torque bias and a fair bit more power than the BMW. I test drove a car at Gulson, in a car that had been traded-in on another 159 and was able to decide that something a bit different from a BMW was the way to go – a change is as good as a holiday – especially as I could get something newer, and for less money.

I found a car for sale in Brisbane. It had a fairly high specification, with factory body kit and 19" wheels that weren't listed in the owner's manual at that time - and with an upgraded stereo system option too. Originally the car was listed at $85,000, though Ian, the previous owner, had bought it for about $10k off, replacing his Golf R32. I bought the car for $29k, knowing that it had an oxygen sensor error.

The car had been enjoyed by Ian, but not really pampered during its first 79,000 km. It came fitted with some relatively cheap tyres and the service intervals were quite wide (the computer has adjustable reminders that allow up to 30,000 km intervals to be set).

A few days after purchase, the car failed its ACT registration inspection due to the dealer-fitted window tinting being too dark. I had that re-done in Canberra, however, one of the windows failed again. I was allowed to get the car registered nonetheless. So, after seven years of varied motoring, including quite a few repair bills, here is my guide to the 939 series.

History and Design

The 159 replaced both the 156 and the 166 models. It shares its name with the 159 Alfetta that Juan Manuel Fangio won his first world championship with in 1951, following the 905 Alfa 33 in honouring a successful racing car. The original 159 was based on the 158 model, with the 158 nomenclature standing for a 1.5 litre, 8-cylinder engine.

The styling had begun with the Alfa Romeo Brera concept from the great master Giorgetto Giugiaro. The Brera concept, named after an area of Milan, was based on a Maserati 4200, and that car was much longer than the transverse-engine layout production car. Although the proportions ended up quite different, most of the styling details carried over into the production Brera and into the 159 and Spider. The 159 also shares similar proportions to the earlier 156, both being transverse engine cars, pushing the front wheels rearwards and having short, high boot lids. The facelifted 159 picked up headlights influenced by the Brera concept to create a stronger link between the old and new models.

The design and engineering of the 159 has little in common with earlier Alfa Romeo models. Alfa has an extensive history of making extended use of the chassis platforms across several models. The 116 Alfetta chassis carried through from the early 1970s into the early 90s across many models. The Alfa 33 retained much of that Alfasud engineering. Much of this was due to a lack of money to come up with new designs, so new components would be engineered into the old design. Some of the changes can result in a bit of a "grandfather's axe", but the 937 GT, which ran until 2010, can trace its chassis origins back to the 1988 Fiat Tipo. Through successive developments of the 145, 155, GTV and 156/147, the Tipo Duo platform was updated with different suspension designs. The front suspension used in the 159 is a similar concept to the 156 design, but it is not a carryover component.

Instead, the 159 and the related Brera and Spider were the only cars made on a platform that was jointly developed with General Motors. In March 2000, General Motors and Fiat had formed an alliance with a plan for GM to take over control of Fiat's automotive businesses. However, 5 years later, GM finally announced that it was paying Fiat $2bn to not take over the company. In the meantime, Alfa Romeo and GM had developed a new premium platform, with the 159 being the smallest model to use that design. Larger GM designs were to follow, but the car was too expensive to manufacture at a mass-market price point and no GM models were ever released.

There were several consequences that resulted from the deal, including giving Fiat the cash to buy Chrysler after the global financial crisis. The 159's chassis was quite heavy for the size of the car and the car also had compromised interior space. Thus the 159 was strong and rigid to cope with future crash standards while carrying the weight of larger GM models. To meet the relevant emissions standards, design investment was put into the GM High Feature V6 engine and some updating of the existing GM four-cylinder engine, ultimately used in the 156 JTS.

The weight of the 159 is often criticised. For the 2008 update, Alfa Romeo made a concerted effort to reduce that weight by fitting aluminium parts, replacing steel, but with the wider track width and improved suspension design, compared to the 156, the main effects of the weight gain had been on acceleration and fuel economy. The stiffer body structure had helped the ride quality compared to the earlier cars as well.

Adjacent and below: Engine bays of the Brera 2.2 JTS (top), Brera V6, Brera 2.4 JTDM and 1 750 TBi (bottom).

Engines

The V6 engines in the top-of-the-range 159, Brera and Spider had an Australian connection. Holden was given the responsibility for much of the engineering work for the smaller versions of the engine (2.8, 3.0 and 3.2 litre). The engine blocks were cast in a GM factory in Mexico, with the crankshafts coming from USA or Canada. These blocks were machined in Melbourne and the engine was assembled with Alfa

Romeo specification pistons. I have heard that once the engines reached Italy, the cylinder heads were removed and sent back to Melbourne, with Alfa Romeo specific units fitted instead, but I have not been able to verify this. While the Wikipedia article on the Alfa Romeo JTS engine says that the Alfa modifications include the Twin Phaser variable valve timing, this was standard on the GM engines and, having replaced the relevant parts on my car, I sourced GM parts that were identical to the Alfa components.

The pistons may have been sufficient to achieve the higher compression ratio used in the Alfa Romeo engine (11.25:1 compared to 10.3:1), and the intake and exhaust systems were to Alfa's design. For a 60° V6, Alfa changed every major component that would affect the sound. In November 2017, I drove a Commodore SV6 and, by the feel and sound, you would have no idea that it shared the crankshaft with a 3.2 JTS engine.

The early High Feature V6 engines had a weakness due to the timing chain design. Until April 2007, when a new design was used, the timing chains could stretch significantly, and combined with wear on the chain tensioning pads, this could result in engine problems. In my car, the engine was just noisy due to chain tension, but, in some cars, there can be enough slack for the chain to generate camshaft position errors – the camshaft timing is out relative to the crankshaft – resulting in a loss of power. The same problem applied to the 2.2 JTS engines, but I don't know if or when any change to the timing chain was made.

For some Alfisti, the 159 is dammed by its American-Australian engines and, in their minds, it cannot compete with the 'Busso' V6 that ran from the late 1970s until the GT 3.2L was retired in 2010. In appearance, the 3.2 JTS cannot compete with the chromed intake runners of the transverse, front wheel drive versions of the Busso engine. However, in terms of sound, it isn't so clear cut. With those chromed intake runners, the Busso lost some of the magic of the earlier versions in the GTV6, 90 and the 2.5 and the 3.0 litre 75s. It isn't uncommon for Busso 3.2 owners to fit modified exhausts and air intakes, but in my experience of comparing standard cars, it is mostly at idle that a difference is noticeable between a GT and a 159 Q4. Being a much more modern design, featuring continuously variable valve timing on the inlet and exhaust camshafts and direct fuel injection, the 3.2 JTS has more torque everywhere in the rev range compared to the 3.2 Busso. Unfortunately, that performance advantage of the engine is hidden by the heavier weight and the significant power loss through the four-wheel drive system.

The 2.2 litre petrol engine does not have an Australian connection, being related to an Opel/Vauxhall engine. The 1.9 litre and 2.4 litre diesels were both Fiat Group designs and share the same bore and stroke, with the 5-cylinder 2.4 running a slightly lower compression ratio, which probably allowed higher boost pressures to increase the peak power output.

The 2.4 JTD was upgraded to the JTD-M specification in 2008, with the engine gaining 7kW, which took the output to 154 kW. Australia did not get the 2.0 diesel that replaced the 1.9 in Europe.

Suspension

The 939 series featured a fairly advanced suspension layout for the time, which was reflected in the added cost of the Premium Platform that it was based on. The front suspension was a development of the 156 design, with upper and lower control arm suspension. The basic design is a variation on the classic double wishbone that is still used in Formula 1, with the main change being the lower arm, which is only a half-wishbone.

The lower control arm features a very large bush where it joins the chassis behind the engine, and, as this rubber bush ages, precise control of the wheel alignment is lost. Replacement with an original equipment part is one option, or a polyurethane bush can be used in its place. Powerflex makes bushes for the front upper control arms that allow camber and castor adjustment. I had these fitted to my car to reduce the negative camber when I had Eibach coil springs fitted. The grease used to lubricate them works its way out of the bush and they get noisy. Leave it too long and the bush will try to rotate on its hexagon fixing shaft. There isn't much point changing the upper bushes unless you are lowering the car as the main alignment benefit comes from refreshing the lower control arms or fitting the rigid bushes.

The rear suspension has a mixture of lateral and trailing links, commonly called a multi-link system. Multi-link designs have the potential to provide quite complex control over camber and toe as the wheel rises and falls, providing a passive rear steering effect. The Alfa Romeo design for the 159 appears to be based around a trailing arm to provide a constant track width with the lateral links designed to control camber during the wheel stroke (bump and rebound). A similar concept appears to have been used on the Giulietta (940) rear suspension, but, probably due to it being a cheaper car, the Giulietta uses a MacPherson strut front suspension.

I had replaced the springs since I thought that, after 100,000 km, it was worth replacing the dampers and so I decided to change them at the same time. This gave my car a slightly lower ride height than the Ti models that came later.

Wheels and tyres

On release, the Australian cars were available with either 17" or 18" alloy wheels. Some, such as my car, came with a body kit and 19" wheels that were later made standard on the Ti models. The wheels were an unusual pitch circle diameter of 5 x 110 mm, which meant that they are not interchangeable with earlier Alfa Romeos, although the Giulietta and Giulia, but not the 4C, have used this size. The models such as the 3.2 V6 and the 2.4 litre diesel have large Brembo brake callipers that only just clear the wheels. For anyone interested in replacing the wheels, there are only limited options that will fit over the brakes and meet the PCD and offset requirements.

The tyres are generally an unusual size. In the case of the 235/40/19 tyres on the Ti models, the only other factory fit possible seems to be the front tyre on an Aston Martin. The tyres in this size are about twice the price of the 245/40/19 size. This will increase the rolling diameter of the tyre, which makes

the odometer read low, but the speedometer is now much more accurate on my car. If your springs and bump stop are in good health, then the larger tyres are fine, but with any sagging, there can be clearance problems. 245/35/19 tyres are better on diameter, but unfortunately these aren't legal as their load rating is too low.

Models and variations

Photos adjacent and above: on the first page of this article, the 195 Q4 manual, on this page (top) the Spider, middle, the Brera Coupe, and (bottom), the 159 Sportwagon.

The 939 series came in four general body styles, the 159 sedan and the Sportwagon, the Brera Coupe and the Spider (but, no, it is not a Brera Spider). During development of the Spider, which was built by Pininfarina, it was known as the 946, but when the production run commenced, it became part of the 939 series.

The Australian release in 2006 started with the 159 and Brera in June, and the Spider came four months later. Australian cars initially came with a choice of three engines, 2.2 and 3.2 litre petrol engines, a five-cylinder, 2.4 litre diesel, and with 6-speed manual transmissions. Australia did not get diesel engines in either the Brera or Spider, but they were available in both body types in Europe. In early 2007, a 6-speed automatic transmission, known as the Q-Tronic, became an option for the 2.4 diesel and 3.2 JTS V6. A Selespeed automated manual became an option on the 2.2 litre four cylinder and a 1.9 litre four-cylinder diesel was introduced solely as an automatic. The manual gearboxes, coded M32 in the 2.2 litre and F40 in the 2.4 litre diesel and 3.2 litre V6 were shared with various General Motors cars. They offer a much shorter movement than the C630 gearbox in the 156, 147 and 916 series GTV and Spider V6 engine cars. The F40 transmission is regarded as quite robust, much more so than the C630, which was often affected by differential failure.

Along with the 1.9 litre diesel and automatic transmissions, 2007 also brought the 159 Sportwagon and, towards the end of that year, the option of the Turismo Internationale (Ti) pack. The Ti models were fitted with 20 mm lower suspension, 10-spoke 19" alloy wheels, silver mirrors and more supportive seats than the standard 159 models. Once they became available, the Ti became the most popular model of the 159 in Australia.

For 2008 there was a significant re-engineering of the front sub-frame, replacing steel components with aluminium in an effort to reduce the weight of the car. In parallel with these structural changes, there were some specification reductions, such as changing the standard electric seats in the higher spec models to manual adjustment to save a further 20 kg or so. Also introduced was the e-Q2 limited slip differential, which worked as a form of traction control that could also brake the inside wheel to slow it down and so aid turning. Late 2008 saw the debut of the Brera Ti, which had a similar additional equipment to the 159 Ti.

Adjacent photo: the 159 Spider with its canvas top.

In 2009, the 1750 TBi engine was added to the available options, with a power output of 147 kW, with the earlier 2.2L and 3.2L JTS engines being eventually phased out of production leaving the TBi and some of the diesel options. A notable UK-only model was the Brera S, which was developed by Prodrive of World Rally Championship and Alfa Romeo 1990s British Touring Car Championship fame. The Brera S featured revised springs and dampers, but lost the glass sunroof to save weight, and the V6 was the only front-wheel drive, also saving weight and reducing driveline losses – about 65 kg for the Q4 system.

Driving and ownership experience

My own experience of driving 939 series cars has only been in the V6-engined cars and some riding in a few diesels. Starting with the engine, the V6 delivers a nice sound, but for those coming from a 156 GTA, a GT, or a 916 Spider or GTV, the comparison really needs to be made with the Brera and Spider with their quad exhaust pipes and not with the 159 itself. The 159's exhaust sound is sporty for a luxury sedan, in that you can hear it humming along on the highway, but it isn't loud enough to be intrusive on a cruise. Above idle, I found that the engine noise is quite similar to the later Busso V6 cars, which isn't surprising as the fundamental 60° V6 is the same and the other aspects that affect the sound are all designed by Alfa Romeo in both engines. If you want more noise though, modified intake and exhaust systems are available.

The petrol engines produce strong torque from low down in the rev range, making them easy to drive. The V6 is equally happy up at its 6,800rpm red-line, and the clutch and gearbox make changing easy, although, when cold, the gearbox in the V6 can be a bit stiff. The Q-Tronic gearbox can be a bit slow to change gear if using the paddles. The V6 runs a lower cut out of 6,200 rpm in first gear and I remember trying full throttle acceleration in a Brera Q-Tronic and finding that second gear had to be selected by 4,000 rpm to get into second gear. If you try to do it later, you would get third gear as the car changes up by itself, even though it is in manual mode, and then it again responds to the paddle engagement.

Of the diesels, the 5-cylinder is much more prevalent and has a more interesting sound than the 4-cylinder car due to the harmonics associated the extra cylinder. The 5 also offers the option of both manual and automatic transmissions. The Sportwagon variant is often a 5-cylinder diesel automatic, if you go looking at the cars for sale. One seller of a 3.2 Ti Sportwagon manual thought his car was so rare that the initial asking price was $38,000.

Four-cylinder petrol engine cars are more common than the V6s – Q4 models were 50 per cent more expensive than the 4-cylinder variants – and I know some owners who feel that the engine doesn't sound like an Alfa Romeo should, either in 2.2 JTS form or in the 1750 TBi that came later. The TBi sold in relatively small numbers as demand for the 159 was dropping, but it does deliver strong performance, due to its 147 kW output - and it has the lightest weight of any of the 939 variants. Although the engine power is well down relative to the 191kW V6, the losses through the driveline are less, so especially

once rolling, the front wheel drive TBi can match or even better the V6 Q4 in acceleration. What it misses out on though is the handling balance that is provided by the 4WD system, and so more care is needed with traction out of corners.

As standard, the 159 offers better ride and handling than the 156 or other earlier cars, which is a consequence of the more rigid frame and the more advanced suspension design. The Q4 also provides the benefit of rear-biased four-wheel drive. The end result is a car that flows beautifully with the front and rear feeling in sync with each other, avoiding the feeling that the rear is reacting after the front and affecting the overall balance. The suspension comes from a firm damping and softer spring end school of suspension tuning, so the low speed ride can be a little jiggly compared to some other cars. However, above 60 km/h, the ride is really good and much better than that of the 156/147/GT models.

The interior space of the 159, Brera and Spider is good up front, but it is fairly tight in the back. In the case of the Spider a couple of small storage bins are provided. For me, a key downside of the 159, Brera and Spider at launch were the seats, which lacked good side bolsters. Anyone who has just come from a 156 GTA, GT or a Giulia Veloce will notice a marked difference. The previous owner of my car had worn through the leather on the bolsters in a couple of places, possibly from studs on jeans. I decided that I would get them reupholstered and at the same time I had additional foam added to the bolsters to make them more supportive. The seats in the Ti versions of the 159 are better. The Brera and Spider shared a different seat design with an integrated headrest. The Brera Ti also introduced a revised seat with more bolstering, and this was also available in the Spider from about 2008, but not necessarily in all cars. The Brera and Spider often came with some interesting interior colour schemes that often seem unrelated to the exterior colour. One I call strawberries and cream. A blue and tan combination is another common one.

Adjacent photos: 159 Ti seats (top) and Brera Ti seats with moulded headrests (lower).

In terms of relatively modern electronics, such as Bluetooth and parking sensors, automatic wipers, and light sensing headlights, they are all present, but they didn't work that well compared to other similar era cars. Alfa went with Microsoft's "Blue and Me" for the Bluetooth phone connectivity, which a lot of owners didn't like. Quite a few V6 cars, being more expensive to start with, have been retrofitted with aftermarket satellite navigation systems, and these may include a reversing camera. Another way of looking at it is that, if you have your seat belt on while driving, the only time you'll get a warning chime is when the rear parking sensors are detecting something behind you while reversing. Compared to current cars, the lack of nagging, while still having most electronic conveniences, could be quite attractive for some.

The Brera is best treated as a two-seater car and, in that context, the luggage capacity is quite good. It is likely to be sufficient for almost any holiday away, if staying in hotels. The Spider's boot is much smaller and for longer trips it requires careful planning regarding what to take with you.

Costs…

As a second-hand car that will be at least seven years old, a 159, Brera or Spider is not likely to be a cheap car to run. The diesels can be quite economical on fuel, but if you are running a 3.2 V6 Q4 automatic in Sydney traffic, then you might expect about 20 litres per hundred kilometres. The claimed

city cycle is 18.4 l/100 km, and, as always, the official figures are generally better than you will obtain. Driving around Canberra in a Q4 manual, I tended to get about 14 l/100 km, while freeway running was about 9.5 l/100 km (on a good day). Other highways tended to end up above 10, even though the average speed was less.

Tyres, though much cheaper per kilometre than fuel, can be relatively expensive. A wheel alignment that gives good steering will tend to wear out the inside edges of the front tyres. I found that I went through the front tyres more than twice as fast as rear ones. With the 939, it is definitely worth checking on wheel alignment regularly to ensure that everything is in good order.

Alfa parts aren't cheap, and this can affect insurance premiums. As everyone lives at a different address, has varying driving histories, etc., the individual quotes will obviously vary.

Parts, when things wear out, or fail, they are generally best sourced from one of the UK shops as the prices are competitive and shipping seems to be a bit faster than are continental options. With the JTS engines, since the major metal bits are GM parts, if something needs replacing then a US-based or European GM parts specialist may get you a much better price than through Alfa for exactly the same bit.

Things to look out for:

The general reputation of the 939 in user car guides is that the perceived quality – what things are like to touch, panel gaps, etc., and the reliability of the cars - is an improvement over earlier Alfa Romeos including for a 156, 147 or GT of a similar age.

Adjacent photos: (Top) "strawberries & cream" interior; (centre) unusual blue & tan/orange interior; (lower) 159 non-Ti seats.

The GM-derived engines are known for stretched timing chains and camshaft position errors. Because of the variable valve timing, the engine management system monitors the camshaft timing and it gets concerned if there are inconsistencies. If the difference is larger than can be accommodated, then the performance also suffers. A few things can occur with these engines and their chains. Besides the chains stretching under load, problems with the oil supply to the chains can result in chains tearing up the slipper pads that these chains run over. As the pads wear down, the hydraulic tensioners can reach the end of their range of motion and the chain loses tension. With my car, the issue seemed to be more about the slipper pads, which resulted in a noisy engine, as my mechanic did point out to me. Another cause of camshaft position error is failure of the solenoids that control oil flow into the variable valve timing actuators, otherwise called the camshaft

variators. Oil flows into the cam gears, changing the angle between the chain teeth and mount on the camshaft. If the solenoid doesn't work correctly, then the camshaft angle will be wrong at some engine speeds.

On the V6, GM Holden changed the timing chain material in April 2007, but I don't know if it is possible to determine the age of the car's engine externally. The V6 runs three chains, with a short one from the crankshaft to an intermediate gear and then a chain for each bank. Determining the exact fault requires the chain to be inspected, which involves taking the V6 out of the car, so I ordered all of the parts that contact the chains and replaced the lot.

As the engine is dropped out of the car from underneath, it is really a minimum of a four-day job to do all of the work with a mechanic. The four cylinder is an easier job and involves fewer parts, but it is still expensive to do. If you are considering an early 939 petrol version, then ensure that there are no fault codes and that the engine is running quietly. A Holden specialist is an option for checking this as chain replacements were common in the VZ and early VE Commodores, and, having a longitudinal engine, this work could be done within the car. Short oil change intervals seem to help too, so checking the service history can be another guide. A 2008 or later car will reduce the risk, but these are rarer, and, with many being Ti models, they may be more expensive.

Coil packs – i.e., an individual coil for each cylinder, rather than running a distributor – are a potential trouble area. I replaced all six twice in my time with the car. It is also important to ensure that the spark plugs are in good shape. The JTS engine design works the spark plugs quite hard, with relatively high pressures at ignition. In extreme cases, a failing of the coil pack can result in a short onto the cylinder head and a car that won't go. The rear bank of cylinders is a bit difficult to access, which makes changing the rear plugs a long process. This is still better than if there is a problem with the rear pre-catalytic converter lambda sensor, as to change that means removing the engine.

The GM petrol engines have a common fault with the oil temperature/level sensor that is located in the front side of the sump. The sensor provides an electronic dip stick reading on start-up (not every time though) on the display panel between the speedo and tacho and it also drives the oil temperature gauge in the centre console. This gauge is replaced in the diesels and TBi with a turbo boost gauge. Between the gauge and the sensor, you can find erroneous temperature readings, varying oil levels from completely empty to excessive and oil weeping from the sensor's seal on the sump. As the sensor is fitted from the inside of the sump, the only way to fix it is to remove the sump. About the only time it might be worth doing this is if you are taking the engine out to change the timing chain.

The diesel engines are mostly known for exhaust gas recirculation valve, diesel particulate filter and air inlet swirl-inducing flap problems, but otherwise they seem ok. Proper servicing by a diesel specialist is needed to clean the soot out of the engine, of course. You can more read elsewhere about diesels. I don't know that much about them and I'm not planning on owning one. The diesels do run a cam belt, so these are usually changed during normal servicing, and you should look for a recent water pump replacement at the same time. Manual diesels are reported to be at risk of problems with the dual-mass flywheel.

Used car reviews in the UK have mentioned that the automatic transmissions give more problems than the manuals, especially in the four cylinder diesel. The 2.2 JTS Selespeed has had problems similar to the 156 Selespeed, so, although these are fixable and many cars do run fine, it is probably a brave choice to buy one.

Ti cars are known to suffer from cases of cracked rear coil springs. I don't know why, but this should be picked up fairly easily. The Ti cars run at a lower ride height, so the front spoiler and undertray can get damaged fairly easily over kerbs and speed bumps if the driver is unfamiliar with the car, or not too careful.

The other main chassis concern involves rust on the steering rack and the suspension subframe. In Europe, the front subframe that supports the engine and lower suspension arms is known to rust quite easily, but that can occur in Australia too, especially if moisture gets trapped somewhere. The Spider may have problems with its roof mechanism, such as rubbing on the roll hoops while raising and lowering, or, perhaps, even failing to move.

My car had two cooling system pipe leaks – in different places – but I haven't heard of this being common. Also a little unusual, was having a gearbox mounting bolt fail. These two faults might be the consequence of driving fast around bumpy bends, as the suspension, being loaded with the cornering forces, has less capacity to absorb the bumps and this transfers more force to the car.
My main problem was with the fuel pump and/or fuel delivery. This seems to be a known problem in Australia and South Africa, but it is not common in Europe. Most cars don't have problems, and from what I recall, it has only been on the Q4 cars, which have the driveshaft reducing the tank capacity from 70 to 69 litres. However, my Q4 did have several. The first may be attributable to damage due to running out of petrol while going up a hill, but for the others, it has been harder to diagnose the true cause. The main difficulty is that, except for the pump with a return valve problem that made starting difficult, other problems only showed up after an hour of driving – the constant pump action was sucking something up and blocking the pick-up point on the integrated filter. So, if buying a car privately, you could try a direct question regarding whether the car has had a fuel pump problem and see what the answer and the body language may be like.
The electrical and electronics are not bulletproof, but I've not seen evidence of any particular trend. I had an electric window mechanism fail. Thankfully, it struggled up to the closed position on its last gasp. I also had an intermittent problem with some of the driver assistance features not being available, such as the hill holder, cruise control or stability control. I suspect that these all may be related to a brake pedal sensor or something similar, but it happened rarely and so I didn't investigate it.

Modifications
If you love the look of a 159 or Brera, but still want a bit more? I haven't looked too hard, but there doesn't appear to be an extensive array of choices, probably reflecting the relatively low power-to-weight ratio to start with and then the lack of a US market. This means that there are fewer potential buyers. There are also various aftermarket exhaust system options for anyone who wants more of the classic Alfa sound.
Suspension modifications can include the previously mentioned polyurethane bushes, noting that these have a tendency to become noisy, on to electronically adjustable coil-over spring-damper systems, such as the Bilstein PSS14. After you have overcapitalised with a supercharger installation, it migth be best to go with the KW Hydraulic Lift System to ensure that you can avoid scraping the nose over kerbs and speed bumps.
Wheels and tyres are not often replaced, except for other 159 wheels due to the unusual size. Also there are not many options that clear the brake callipers on the V6 and 2.4 diesel models. BBS makes a suitable option I'm aware of, but there are not many suitable replacements for the 19 inch wheels.
A common interior modification is to replace the radio unit and retrofit a satnav system - and possibly a reversing camera too. The hole in the dashboard is the same as in an Audi model, so you may find an Audi A6 bezel in the parts list for your satnav installation. Getting the satnav to work with the steering wheel buttons does take a bit of effort. So when I had mine installed, the installation cost was $800. By comparison, I was told that, in another vehicle where the installation was relative easy - such as a Toyota Hi-Lux, the cost would only be $200.
If I had the space to keep one, and the money to get it engineered properly, I'd look at getting a 3.2 L Ti converted into a rear wheel drive car. By removing the front and centre differentials and the front drive shafts, there would be a weight saving of about 50 kg and the power to the wheels would increase by at least 20 kW. The steering would also benefit from not having to handle the engine torque.

What model to buy?
Everyone will have different preferences as to what to look for in a car, so there will be different priorities regarding performance, fuel economy, space and handling. As a stylish, comfortable highway cruising car, the diesels make some sense, but the heavier engine and front wheel drive does bring with it a handling penalty. You'll save fuel in the city too, but this isn't the ideal operating environment for a diesel. And that is really the main argument for the 2.2 JTS, as it lacks the sound, performance and

handling of the V6, but it does get better fuel economy. However, the JTS is limited to the choice of the manual and Selespeed transmissions. In Australia, the choice with the Spider and Brera is easier as no diesels were sold here.

For the enthusiast driver, the best choices are the manual versions of the 3.2 JTS and the TBi in Ti trim; made in 2008 or later, to feature the lighter front subframe and the e-Q2 differential. The TBi benefits from being the lightest of the 939 series and has strong torque across the rev range. The Ti provides a revised suspension set up and more supportive seats. With the 3.2 JTS and the JTD-M, getting a later car means getting a revised engine specification, providing a stronger timing chain in the petrol version and more power in the diesel.

If you are looking for a Sportwagon, the 2.4 diesel automatic seems to be the most common specification, and it could be a long wait to find a 2008+ 3.2 Ti manual wagon. The TBi version was introduced in February 2011, and was only available as a special order, so there will not be many of those cars about. By that point, the 2.4 diesel and 3.2 V6 were restricted to automatic transmissions only, based on buyer demand.

At the moment, there are approximately 150 of the 939 series cars for sale in Australia. Some will have shiny red paint on 19-inch wheels and look stunning. The Ti models with their slightly lower suspension have a great stance. The metallic blue used for the Brera and Spider is another great colour.

When I first saw my car being driven towards me, I knew that I was doing the right thing buying it, just looking at it with its Alfa Motorsport body-kit, black paint, tinted windows and big wheels. However, if you don't like the look, then it probably is harder to appreciate the rest of the car. Nonetheless, it potentially has a lot to offer someone who is willing to put in the maintenance effort into keeping a 939 series vehicle on the road. Chris Hedges, a respected Canberra mechanic described the 159 as a nice car, but a bit flawed. Graeme, who is the new owner of my car, now says, "I just love driving it!"

Above photo. Brera concept car with "scissor" doors.

Note an error in dates appears in the above ad. – it should read Sunday July 22nd.

The committee of AROCA WA is very supportive of the new **"Classic Cars & Coffee"** Sunday morning **(**approximately) monthly event. Attendees of recent meetings have commented on how worthwhile this event is. A large number of impressive Classic Cars can be viewed, encompassing almost all marques.

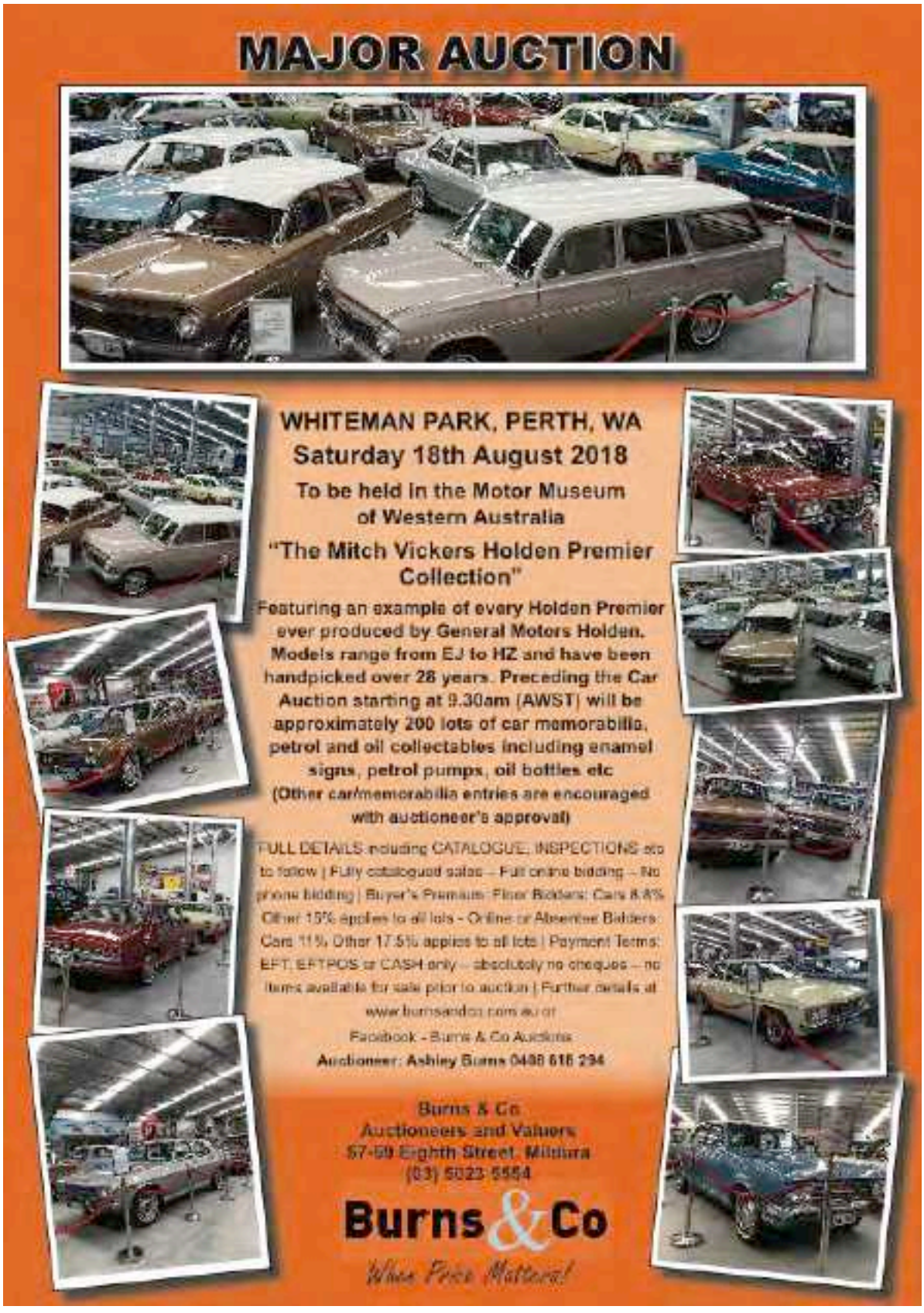
With that in mind, AROCA WA club members might wish to attend an upcoming Cars & Coffee display. In addition, members might wish to consider lunch or a brunch after "cars & coffee".

Please see the events calendar above which lists 2018 dates of Classic Cars & Coffee.

Note that the next event will be held Sunday, July 22nd. It will run from 8:30 am - 10:30 AM, at the University of Western Australia, Car Park 3 (next to the UWA staff club) which is off Hackett Drive in Nedlands, WA, 6009.

Please also note that it would be a wise choice to get to this event early. Classic Cars & Coffee is rapidly becoming an extremely busy event for Perth auto enthusiasts.

View this google map reference should you need to find event location details. + Google Map


MAJOR AUCTION
WHITEMAN PARK, PERTH, WA
Saturday 18th August 2018
To be held in the Motor Museum of Western Australia
"The Mitch Vickers Holden Premier Collection"
Featuring an example of every Holden Premier ever produced by General Motors Holden. Models range from EJ to HZ and have been handpicked over 28 years. Preceding the Car Auction starting at 9.30am (AWST) will be approximately 200 lots of car memorabilia, petrol and oil collectables including enamel signs, petrol pumps, oil bottles etc
(Other car/memorabilia entries are encouraged with auctioneer's approval)
FULL DETAILS including CATALOGUE, INSPECTIONS etc to follow | Fully catalogued sales – Full online bidding – No phone bidding | Buyer's Premium: Floor Bidders: Cars 8.8% Other 15% applies to all lots - Online or Absentee Bidders: Cars 11% Other 17.5% applies to all lots | Payment Terms: EFT, EFTPOS or CASH only – absolutely no cheques – no items available for sale prior to auction | Further details at www.burnsandco.com.au or
Facebook - Burns & Co Auctions
Auctioneer: Ashley Burns 0488 616 294
Burns & Co
Auctioneers and Valuers
57-59 Eighth Street, Mildura
(03) 5023 5554
Burns & Co
When Price Matters!

C O M O R O T A R Y C L U B
C L A S S I C C A R S H O W

SUNDAY 7TH OCTOBER 2018

WESLEY COLLEGE, SOUTH PERTH

The Rotary Club of Como is holding its Annual Classic Car Show at Wesley College, South Perth on Sunday 7th October 2018.

On display will be around 200 classic, vintage, exotic and luxury cars. Car registration is free through the Como Rotary Car Show's website. (which was still in preparation at the time of Alfa Occidentale #16's publication).

Spaces will be reserved for a number of AROCA WA members' vehicles to exhibit their Alfa Romeos in a sectioned part of the display area. More details are to come in due course.

All proceeds from this Classic Car Show will be to the benefit of various South Perth community charities which are supported by Rotary and Wesley College.

NOMINATIONS CALLED FOR THE 2018-19 AROCA WA COMMITTEE

Election of committee at the AGM on 4th September 2018; 7.30pm

Venue: WA Light Car Club, 22 Moojabing St, Bayswater

Dear AROCA WA club member,

The WA Alfa Club's activities "don't just happen". They depend on active club members being prepared to contribute to the running of the club, either as an officer holder, or as a general committee member. You are invited to nominate yourself, or another club member, for election onto the Club Committee for next year using the Nomination Form provided below.

As a WA Alfa Club Committee member, you have the opportunity to help improve club activities. At the same time, you can enjoy the camaraderie of engaging with other dedicated Alfa enthusiasts who all working towards the success of the club. You are encouraged to seek election, or perhaps to work with the committee in another volunteer role.

In the coming year, the club anticipates that there may be a few committee retirements. Other committee members may need to resign due to work or relocation issues. It is a great time for you to consider helping the club achieve its next level of Alfa Romeo auto enthusiast activity.

We currently seek multiple nominations for all of AROCA WA's committee positions.

Nomination Form 2018 – 2019 AROCA WA Committee

Name of Nominee: ..... **Nominee's Membership #:** .....

Note: *A person being nominated should be a financial member of AROCA WA. He or she is hereby nominated for one (or more) of the following position(s).*

(Please Circle)

President	**Secretary**	**Treasurer**
Membership Secretary	**Social Secretary**	**CMC Representative**
CAMS Representative	**Web master**	**Competition Secretary**
General Committee Member (x 2)		**Club Shop**

Nominated by: .....

Membership number: .....
Person being nominated (may nominate self) being a financial member of AROCA WA

Seconded by: .....

Membership number: .....
Being a financial member of AROCA WA[1]

Acceptance of Nomination:

I accept nomination for the position(s):

Name: _____

Date: _____

Signature: _____
(Signature of person being nominated)

Nominations should be emailed to the current Club Secretary.

E**mail**: ***secretaryarocawa1@gmail.com***

Or mailed to the postal address shown immediately below.

Mail to: **The Secretary, AROCA WA,**
P.O. Box 8231,
Perth Business Centre,
WA, 6849.

Nominations should be received by 1st September 2018.

[1] *Note that a "financial member" above named as a nominee, nominator and/or seconder, for the purpose of this nomination, is limited to being either a Full, Associate, or Life Member.*

AROCA WA EVENTS CALENDAR 2018

Event	Event Date	Event Coordinator
~~**JULY AROCA CLUB NIGHT**~~ ~~*"Cooperative and Autonomous Vehicles"*~~ ~~*WA Light car Club, Bayswater*~~	~~*Tuesday, 3rd July 2018; 19:00*~~	~~*Greg Smith / Andrew Murray*~~
MID-WEEK RUN SOUTH *Mid-week run for the lucky idle or retirees. (Details TBD)*	*Wednesday, 11th July 2018*	***POSTPONED***
INFORMAL ALFA RUN *3rd Sunday in the month informal run*	Sunday, 15th July 2018	See announcement in this newsletter
"CLASSIC CARS AND COFFEE" *At UWA, Crawley, 08:30-10:30AM*	Sunday, 22nd July 2018	(Carpark #3 Hackett Drive, Crawley) **+ Google Map**
AUGUST AROCA CLUB NIGHT Venue to be determined	Tuesday, 7th August 2018	TBD
DWELLINGUP WEEKEND RUN *Weekend country run and country dinner country for AROCA WA members.*	Details and August date to be finalised	Andrew Murray
INFORMAL ALFA RUN *3rd Sunday in the month informal run*	Sunday, 19th August 2018	The weekend run may replace this August run
AROCA WA 2018 ANNUAL GENERAL MEETING *AGM and club night, WA Light Car Club Moojebing Street, Bayswater.*	Tuesday, 4th September, 2018	Andrew Murray
"CLASSIC CARS AND COFFEE" *At UWA, Crawley, 08:30 - 10:30AM.*	Sunday, 9th September 2018	(Carpark #3 Hackett Drive, Crawley) **+ Google Map**
INFORMAL ALFA RUN *3rd Sunday in the month informal run*	Sunday, 16th September 2018	See announcement in this newsletter
ITALIAN FESTIVAL TRACK DAY *Barbagallo Raceway, Wanneroo*	Sunday, mid-September 2018	Details TBA
COMO ROTARY CLASSIC CAR SHOW *Wesley College, South Perth*	Sunday, 7th October 2018	Richard Peirce
"CLASSIC CARS AND COFFEE" *At UWA, Crawley, 08:30 - 10:30AM.*	Sunday, 14th October 2018	(Carpark #3 Hackett Drive, Crawley) **+ Google Map**
INFORMAL ALFA RUN *3rd Sunday in the month informal run*	Sunday, 21st October 2018	See announcement in this newsletter
ROTARY ITALIAN CAR DAY *Gloucester Park*	Sunday, 4th November 2018	Andrew Murray Details TBA
ANNUAL PASTA RUN *AROCA WA is again organizing this year's event for the WA Italian car cubs*	Sunday, 18th November 2018 (tentative date)	Rod Quinn, Details TBA
INFORMAL ALFA RUN *3rd Sunday in the month informal run*	Sunday, 18th November 2018	Pasta run to replace the informal run for this month
"CLASSIC CARS AND COFFEE" *At UWA, Crawley, 08:30 - 10:30AM.*	Sunday, 18th November 2018	(Carpark #3 Hackett Drive, Crawley) **+ Google Map**

AROCA WA CHRISTMAS LUNCH *"Acqua Viva on the Swan" restaurant, Broadway Nedlands*	Sunday 9th December 2018	Nick Rahimtulla
INFORMAL ALFA RUN *3rd Sunday in the month informal run*	Sunday, 16th December 2018	See announcement in this newsletter
"CLASSIC CARS AND COFFEE" *At UWA, Crawley, 08:30 - 10:30AM.*	Sunday, 30th December 2018	(Carpark #3 Hackett Drive, Crawley) **+ Google Map**

Be sure to mark these dates in your diary!

A R O C A A C T I V I T I E S A R O U N D A U S T R A L I A

AROCA SA

15 July 2018	MSCA Super Sprint round 3	*Mark Thomas (Competition secretary) 0423.792.150*
28 July 2018	Annual Presentation Dinner (Tea tree gully golf club)	*Steve Weedon (0403.968.721)*

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AROCA QLD

29 July 2018	Numimbah Valley run, Beaudesert to Uki.	*John Anderson (President) 0416.171.773*
26 Aug 2018	Peak crossing charity run, joint with the Queensland Jaguar club	*Tony: eandftyperegister@gmail.com*
1-2 Sept 2018	Super Sprint series B, Round 4	*Morgan Park, Warwick*

AROCA VIC

21 July 2018	Alfetta display and Show 'n' Shine	*Claude Botti, (0418 540 016)*
22 July 2018	2018 Sprint round 7, Broadford	*Neil Choi (0433.116.647)*
1 Sept 2018	2018 Sprint round 8, Sandown	*Neil Choi (0433.116.647)*

AROCA NSW

09 Sept 2018	Supersprint round 5, GP circuit	Alfio Musumeci, 0408 000 500
12 August 2018	Shannons display day, Sydney Motorsport Park, Eastern Creek.	Tony Wise, 0417 211 848
30 Sept 2018	SuperSprint round 6 Amaroo South	Alfio Musumeci, 0408 000 500

Check these interstate AROCA links for other upcoming events:

AROCA: http://www.alfaclub.org.au
NSW AROCA: http://www.alfaclubnsw.org.au
AROCA QLD: http://www.arocaqld.com
AROCA SA: http://alfaclubsa.org.au
AROCA VIC: http://www.alfaclubvic.org.au

Alfa Romeo Owners' Club of Australia (Victoria Division) presents

ALFESTA 2019

Alfa Romeo Club Nationals

In conjunction with AROCA 50th anniversary

Mornington Peninsula Victoria

Wine & Dine, Observation Run, Show & Shine, Gala Dinner

Easter 19th - 22nd April 2019

All info: Alfesta2019.alfaclubvic.org.au

C L U B C O M P E T I T I O N C H A M P I O N S H I P

Alfa Romeo Owners Club WA Competition Championship 2018

Round	Date	Event	Club	Activity	Location
1	24/2	Point to Point	WA Sporting Car Club	Various	Barbagallo Raceway
2	17/3	Speed Event Series	Motoring South West	Hill Climb	Collie
3	18/3	Speed Event Series	Motoring South West	Super Sprint	Collie
4	31/3	Point to Point	WA Sporting Car Club	Various	Barbagallo Raceway
5	8/4	Northam Flying 50	Vintage Sport Car Club	Regularity	Northam
6	22/4	Point to Point	WA Sporting Car Club	Various	Barbagallo Raceway
7	2/6	Albany Windfarm	Great Southern Street Machine	Hill Climb	Albany
8	3/6	Albany Classic	Vintage Sport Car Club	Regularity	Albany
9	7/7	Point to Point	WA Sporting Car Club	Various	Barbagallo Raceway
10	22/9	Speed Event Series	WA Sporting Car Club	Hill Climb	Jack's Hill
11	4/10	Speed Event Series	Speed Event	Hill Climb	Meelup Beach Road
12	2/12	Vintage Stampede	Vintage Sport Car Club	Regularity	Barbagallo Raceway

For Competitors to enter any of the above events, you need to log on the respective website (see below) and fill in your forms and make arrangement for the necessary payments as requested by the organising entity.

WA Sporting Car Club: https://www.wascc.com.au

Speed Event Series: http://speedeventseries.org

Vintage Sport Car Club WA: http://www.vsccwa.com.au

When entering an event please contact the Competition Coordinator with the result of the event. Points will be allocated based on the number of entrants in the event.

Six of the above event will count towards the Competition Club Championship.

Competition Coordinator contact details

Ivan Olsen 0418921225

ivan.olsen@mragroup.com.au

AROCA WA'S MONTHLY INFORMAL CLUB RUN PROGRAM

DATES: Every third Sunday of the month
TIME: 09:30am for coffee with a 10:00am tour departure
STARTING POINT: Boatshed café, South Perth. See: *https://goo.gl/maps/KVSxLuP4Atx*

Since the 3rd Sunday April informal run, the club uses only one starting point for all participants. Every Alfa club 3rd Sunday informal run in 2018 will start from the South Perth foreshore at 10:00AM.

Park in the Coode Street car park, near to the Boatshed café and the water ramp in the park.

Arrive early and enjoy coffee at the café before departure.

These informal trips should depart soon after 10:00am on each date. The intention is that the run can commence once participating members decide to depart from the starting point. Note that individuals or informal groups can do this as soon as they like after 10:00. The event may involve only an individual vehicle or club member drivers in small groups, who should feel free to decide upon an appropriate trip itinerary on the day.

BACKGROUND TO THE INFORMAL RUN PROGRAM:

The committee commenced the informal program of club runs in February 2017. The concept is that all members, but especially those with concessionally-licensed vehicles, now have an additional monthly informal run opportunity when they can individually and legally exercise their "limited license" vehicles on the 3rd Sunday of each month.

Meanwhile, the Alfa club's normal annual program of longer runs and lunches continues unchanged, This new and very informal program is an additional opportunity for you to drive your WA-registered concessionally-licensed vehicle.

CLUB RUN DATES: ***Third Sunday of each month***
except whenever a significant club event is scheduled the same day.

AROCA WA - END FY 2017-18
FINANCIAL REPORT 30 JUNE 2018

INCOME		
Membership – Family	$	5,680.00
Mystery Weekend	$	
Italian Car Day Breakfast	$	360.00
Birthday Dinner	$	3,000.00
Social Events/ Pasta Run	$	4,760.00
Xmas Lunch	$	1,950.00
Merchandise Sales/ Door sale	$	484.50
Club Meeting Drinks/ Food	$	
Advertising	$	882.00
Bank Interest	$	1.68
Transfer from Investment A/c	$	1,500.00
SUB TOTAL	**$**	**18,618.18**
EXPENDITURE		
CAMS- CMC Subscription	$	675.00
Pasta Run Deposit	$	4,550.00
Postage/Petties/Rental	$	348.70
Birthday Dinner	$	5,550.00
Merchandise	$	74.00
Rent LCC 2016/2017	$	420.00
Italian Car Day	$	450.00
Club Meeting Food/Drinks/AGM	$	382.50
Website	$	134.50
Trophies	$	423.20
Investment Account	$	4,000.00
Christmas Function	$	1,962.00
SUB TOTAL	**$**	**18,969.90**
EXCESS INCOME/EXPENDITURE	**-$**	**351.72**
BANK RECONCILIATION		
Opening Balance	$	1,459.71
Receipts	$	18,618.18
Payments	$	18,969.90
BALANCE	**$**	**1,107.99**
INVESTMENT ACCOUNT		
Opening Balance	$	15,489.68
Transfer from main account	$	4,000.00
Transfer to Main Account	- $	1,500.00
Interest	$	91.61
BALANCE	**$**	**18,081.29**

AROCA (WA) TREASURER'S ANNUAL REPORT FOR END FY2017/18

- In 2017, the club's Christmas lunch nearly broke event. While it was subsidised by the club, but for only $12.00, given the success of this event.
- However, the club did subsidise the recent Alfa Romeo birthday dinner held on June 23rd to the extent of $2,550.00. All attendees agreed that this was an excellent dinner evening.
- The 2017 annual pasta run made a small profit of $210.00.
- As of June 1, 2018, 71 of the club's 2017/18 AROCA WA members have renewed their subscriptions for the financial year 2018/19. This number does not include life members.
- There is other income from website advertising which is still to arrive for 2018/19.
- Overall, the club is in a very healthy position with $18,969.90 currently held in its investment account.
- Meanwhile, all outstanding accounts have been paid, including rent for the light car club meeting roomsin Bayswater; for the club's Perth BDC post box rental and for the club's CAMS and CMC subscriptions for the upcoming financial year.

Nick Rahimtulla, Treasurer
30th June 2018

COOPERATIVE & AUTONOMOUS VEHICLES

This article reports on a presentation made by Greg Smith at the 3rd July 2018 club meeting of AROCA WA. The report is partly based on information made available by Cohda Wireless Pty Ltd.

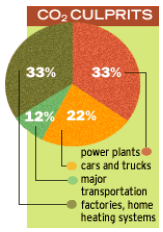
Road transport suffers from a number of issues related to safety, mobility and the environment. Every year, 1.25 million people die on roads around the world. Traffic accidents cost most countries around 3% of their GDP. Road congestion also impacts on productivity and costs about 1% of GDP. In addition, road transport is a major contributor to CO2 emissions.

A CRITICAL SOCIETAL CHALLENGE FOR TRANSPORTATION

Occupant Safety
- EU: 39,000 deaths pA
- US: 37,000 deaths pA
- US: 5.8M accidents cost $230 Billion pA
- Reaching plateau for safety improvement

Road Congestion
- US: $87.2 B pA cost
- EU: 1% GDP cost
- Lost hours

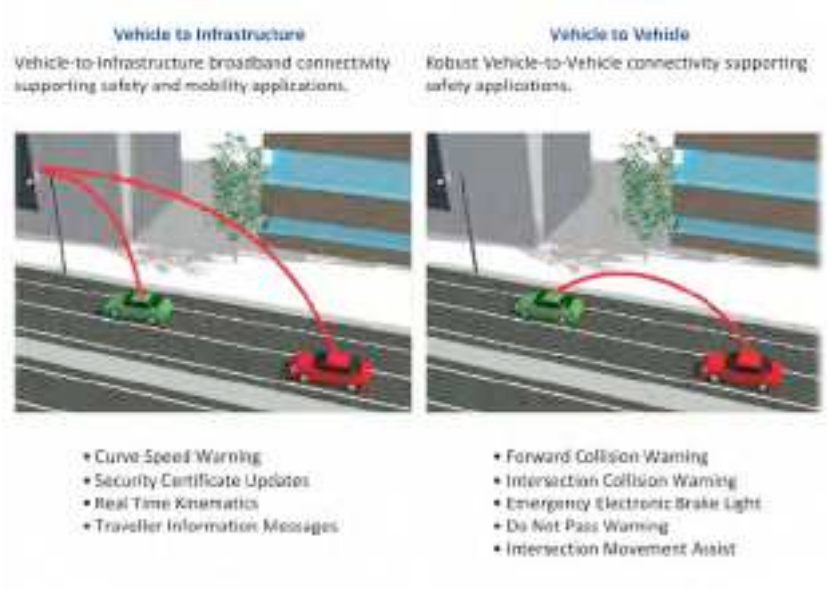
Environment
- Wasted fuel
- CO_2 emissions & air quality
- Fossil fuel dependence



2012 data

Connected Vehicles are seen by both the USA's Department of Transport, (USDOT) and by the European Commission as the best candidate technology to address this growing problem.

Over the last 10 years, the Adelaide-based early-stage company, Cohda Wireless Pty Ltd (Cohda), has established itself as a leading global supplier of innovative Connected Vehicle solutions that permit travelling vehicles to connect with other vehicles, other road users, and/or with Smart City infrastructure. These connections are collectively called "V2X" (i.e., vehicle-to-anything). V2X spans Vehicle-to-Vehicle (V2V), Vehicle-to-Infrastructure (V2I), and the Vehicle-to-Pedestrian (V2P) spheres. V2X allows vehicles to 'talk' between each other, to Smart Cities, and to vulnerable road users in order to avoid accidents, reduce congestion and increase efficiency.



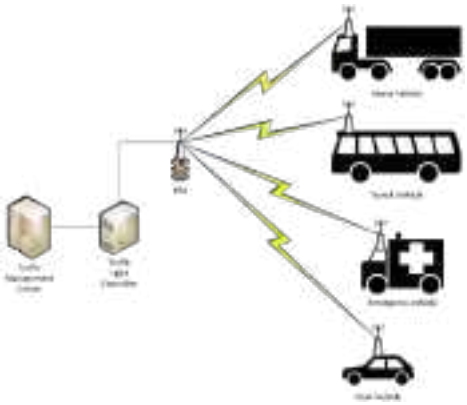
What comes first? …… The Chicken or Egg Problem

Around the world, road operators do have a conundrum to solve in order to realize all the benefits of Connected & Autonomous Vehicles; they must deploy roadside infrastructure to support this system. However, it is hard to justify the cost of the required infrastructure deployment before there are vehicles on the roads that are able to make use of it.

To address this conundrum, Cohda developed a three phase "Smart City Architecture". In the first phase, foundation applications which generate immediate net benefits to the road operator are deployed. This means that the infrastructure is already in place once V2X Connected Vehicles hit the road (in Phase 2), or, later, when Connected Autonomous Vehicles also roll out commercially (in Phase 3). For the road operator to unlock all the benefits which are enabled by new vehicles in the second and third phases of implementation, the road operators' installed infrastructure should only require the remote installation of additional software to be fully effective.

Smart City Architecture Example: Freight Signal Priority Trials Underway in Sydney

S M A R T C I T Y A R C H I T E C T U R E



- Traffic management and efficient mobility now a critical problem for many rapidly growing cities.
- The aim is reduced cost of congestion
- Major smart city program awards made for a number of US and European cities
- Freight signal priority currently undergoing trials in Sydney and elsewhere
- Longer-term, autonomous vehicles evolution and the impact on traffic congestion is advocated, but is TBD.

In New South Wales, it was noted in 2014 that the annual cost of congestion in Sydney was then $5.1B. It is forecast to increase up to $8.8B by 2020. Cohda has responded with a three phase Smart City architecture proposal (as mentioned above) and has worked with Transport for NSW (TfNSW) to identify a range of the most likely near-term benefits.

In USA, USDOT trials have estimated the benefits of Freight Signal Priority (FSP) to be a 27.6% reduction in trip time for the heavy vehicles travelling on equipped corridors. Meanwhile, light vehicles on the same routes also benefit from similar travel time reductions. For Sydney, this translates to an annual benefit of about $13.5k per heavy vehicle. The net benefit to the NSW Economy from the system is positive after only two years, while the cost of the system is modest.

A total of 120 traffic signals on three freight corridors in Sydney (on Parramatta Road, St Georges Road, and Pennants Hill Road) have been equipped with Cohda's road side units (RSUs). A fleet of 115 Linfox trucks have been equipped with on-board units (OBUs). This trial will be completed in July 2018.

Meanwhile, Cohda is also running a C-V2X signal priority trial with Telstra for the DPTI in South Australia, and a transit signal priority trial with Yarra Trams for VicRoads in Victoria. Discussions are underway with Transport WA.

Another example: Autonomous Underground Mining Trucks

In 2014, a project between Rio Tinto and Cohda was commenced for automated collision avoidance in underground mining. This project first demonstrated underground positioning and

communications in a mine in NSW and followed that by an initial deployment in a copper mine in Utah. These deployments have shown that collision avoidance based on open automotive V2X standards can be used quite successfully in underground mining.

In the next phase of these trials, "V2X-Locate" has enabled determination of the location of vehicles and tags in mines to allow vehicles to avoid collisions with other vehicles and with any personnel who may be on foot. These units are being integrated into the mine's automation control system to give a real time view of all equipment in the mine.

Autonomous Vehicles on the Road

There are numerous outstanding problems facing the mass market for autonomous vehicles: major ones seen today are highly accurate vehicle location, sensor fidelity and installed vehicle cost.

FIVE LEVELS OF AUTONOMATION

The adjacent photos were taken from the front and internal cameras of an Uber autonomous vehicle travelling on autopilot along a roadway in Tempe Arizona when it ran into a pedestrian pushing his bicycle across the road.

- Vehicle location – autonomous vehicles need to know their position to a high degree of accuracy everywhere they drive – even in tunnels, underground carparks, and urban canyons. While Global Navigation Satellite Systems (GNSS), when combined with dead reckoning and/or real time kinematics, may be able to achieve this under open sky conditions, or for short periods of

time when the sky is occluded, they cannot achieve the required accuracy everywhere that these vehicles drive. While onboard HD maps, allow a vehicle to position itself relative to the map using LiDAR or camera sensors, the vehicle must have continuously updated maps for everywhere it drives, resulting in recurring expense.

- Sensor fidelity – existing sensor suites for autonomous vehicles – cameras, sonar, radar, LiDAR, etc., –all operate in"line-of-sight" conditions and cannot sense all of the threats that a human driver could. As such, the autonomous vehicles that use these sensors cannot be better than a perfect human driver. Given that human drivers around the world are involved in the deaths of around 1.25M people a year, even being as good as a perfect human driver can't be good enough.
- Vehicle cost – the current prototypes of autonomous vehicles consist of a supercomputing core processor surrounded by a plethora of expensive sensors. Such a deployment model may be suitable for a fully autonomous Tesla, but their use in a fully autonomous Ford Fiesta is another matter altogether. Cohda believes that if mass market vehicles are to be autonomous then the price of the sensor suite must go down, while the reliability continues to improve.

Innovative Australian Solutions Are Being Provided

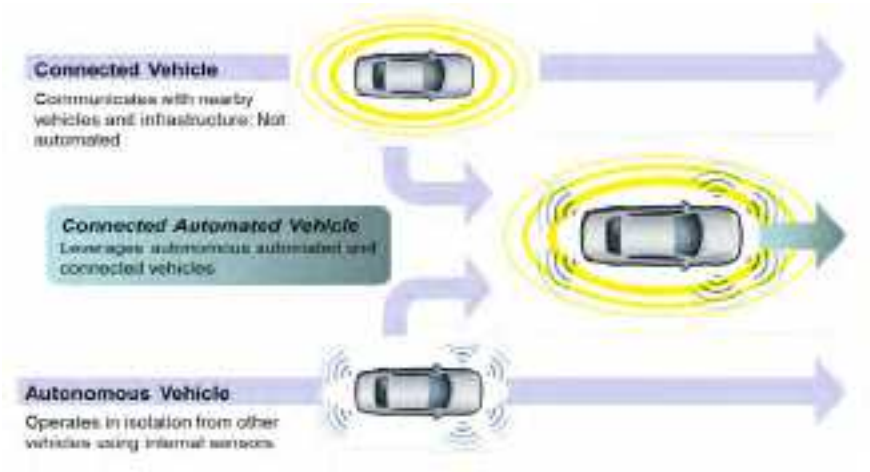
"V2X-Locate" is Cohda's unique solution for determining vehicle position with sub-metre accuracy everywhere, even in tunnels, underground carparks and urban canyons. It does this by accurately determining the range to RSUs on the roadside and then triangulating. V2X-Locate, when fused with GNSS (to provide vehicle position on open highways where RSUs are sparse but open sky conditions are good) is the lowest cost vehicle positioning solution for autonomous vehicles which meets all the requirements. Since V2X-Locate is just another software application that runs on the V2X hardware which is already fitted in vehicles, it is lower cost than a LiDAR/HD map solution (which would also require an ongoing subscription in order to access map updates).

V2X-Radar is another unique Cohda solution for detecting objects around the vehicle that makes use of V2X technology. V2X-Radar offers a 360-degree sensor that can detect threats that other sensors cannot, including those dangerous threats that are not within the vehicle's line-of-sight. As V2X-Radar is another additional software application that runs on V2X hardware, it is a sensor with low incremental cost. Thus V2X-Radar sould become an interesting addition to the potential sensor suite of the autonomous vehicle.

Building autonomous vehicles that are self-contained and which only operate in isolation is akin to saying that desktop computers are good, but there is no value in networking them together. Cohda's CAV Apps exploit the vehicles network effect to improve performance and lower the cost of autonomous vehicles, thus, in the future, making affordable mass market autonomous vehicles possible.

Cohda recently purchased two autonomous vehicles and negotiated access to test tracks and public roads in that South Australia for Cohda's testing program. A key focus will be to use these autonomous vehicle test platforms to develop affordable CAV solutions, determining (for example) if a V2X system, fused with a camera system, is able to reliably offer a safe, low-cost autonomous vehicle. Cohda's CAV applications also provide features that cut across all required autonomous driving attributes, including security, privacy, and functional safety.

Cooperative and Autonomous Vehicles into the Future



The Cooperative and autonomous vehicles market is gradually nearing a turning point where widespread availability of these technologies will become commonplace. Cooperative technology, which incorporates Cohda hardware, firmware and software was first commercially launched in the 2016 Cadillac for cooperative driving. Beyond 2020, Cohda technology will be available in all VW cars. Many other automotive manufacturers are now considering the launch of cooperative features in their cars early in the next decade.

Meanwhile, there has been a rapid growth in the availability of "driver assist" technologies (which don't require cooperative features between vehicles). They leave the driver in charge, but provide assistance for new features such as emergency braking, lane change assist, assisted parking, etc. This is effectively what the Society of Automotive Engineers (SAE) define as "level 1" in the 5-level SAE scale of autonomous driving.

While there are numerous active trials of fully autonomous vehicles underway (at levels 4 and, some potentially, at 5 on the autonomous driving scale) around the world, these have not all been without incident; as the Uber incident photos above graphically depict on one deeply concerning occasion.

The ultimate requirements for totally safe autonomous driving on roads which are also occupied by human drivers and their cars are still being defined. It appears that we are moving towards a phase where the development of new road rules may become required in the future. However, these prospective rules and the philosophy behind our future road transportation system is still in early characterisation at present.

C A V R & D A T C O H D A W I R E L E S S

- Cohda Wireless has purchased two "Level 5 Capable" autonomous driving development platforms.
- Retrofitted by AutonomouStuff, these Lincoln MKZs have a full range of sensors (Cameras, RADAR, LiDAR, GNSS), a high performance processing platform, and a drive-by-wire-kit.
- Capability to develop and test CAV products, focussing on "sensor fusion" to effectively lower cost but also to improve cooperative and autonomous driving reliability.

Greg Smith, July 2018

M E M B E R S H I P R E N E W A L I S N O W D U E

Dear Western Australian *Alfisti*,

The Alfa Club is seeking to increase the number of active members in the club among Western Australian Alfisti.

Whether you wish to become a new member, or you if have yet to pay your AROCA WA Subscription for the upcoming financial year, please complete the information request shown over-page and pay your subscription amount to the club, following either of the methods outlined below.

The annual fee again is $80.00 for FY 2018/19.

Please note that the membership renewal date for all existing members is 30th June of each year.

You can either pay this subscription fee by cheque, making it payable to AROCA WA and then mailing it C/- The Secretary, AROCA WA, P.O. Box 8231, Perth BC, WA, 6849.

Alternatively (or from the club's point-of-view, preferably), you can pay the amount directly by making an electronic transfer into the club's bank account using the following details:

Account Name: AROCA WA. **BSB: 736-054** **Account No.: 070313**.

(Do note that if you are paying electronically, you should include your surname in the payment reference and also advise the club of your payment via an email.)

Membership Fee: **$80 (1st July 2018 - 30th June 2019)**

Associate Mbr Fee: **$80 (1st July 2018 - 30th June 2019)**

We look forward to seeing you at our future events.

With best wishes,

Andrew Murray.
President, AROCA WA.

FIRST NAME(S): _____

SURNAME: _____

PARTNER'S NAME: _____

ADDRESS: _____

_____. **POSTCODE:** _____

LANDLINE: _____ **MOBILE:** _____

EMAIL: _____

NEW MEMBER, CURRENTLY PAID-UP MEMBER (OR PAST MEMBER):

MEMBER NUMBER: _____

CURRENT MEMBER: YES NO **PAST MEMBER: YES NO**

LAST YEAR AS AN AROCA WA MEMBER: _____

ALFA ROMEO (AND OTHER VEHICLES) OWNED:

Manufacturer	Type	Year	Colour	Registration OR Concession Plate # *(if applicable)*

Please complete the above form and email it to AROCA WA at *secretaryarocawa1@gmail.com*

NOTE:
If you are a concessional registration plate holder, note that data on your concession registration has to be provided annually by the club to fulfill Western Australian state regulatory requirements. The due date for this information provision falls immediately after 30th June. Therefore, be sure to renew your membership before the end of the financial year in order that your concessional vehicle registration remains current.