

# Alfa Romeo

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The Montreal at Forty \* Milano Matters \* Sud Sprint 6C  
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# Fabulous at Forty



## Bruce Taylor describes the challenges and rewards of Alfa Romeo Montreal ownership

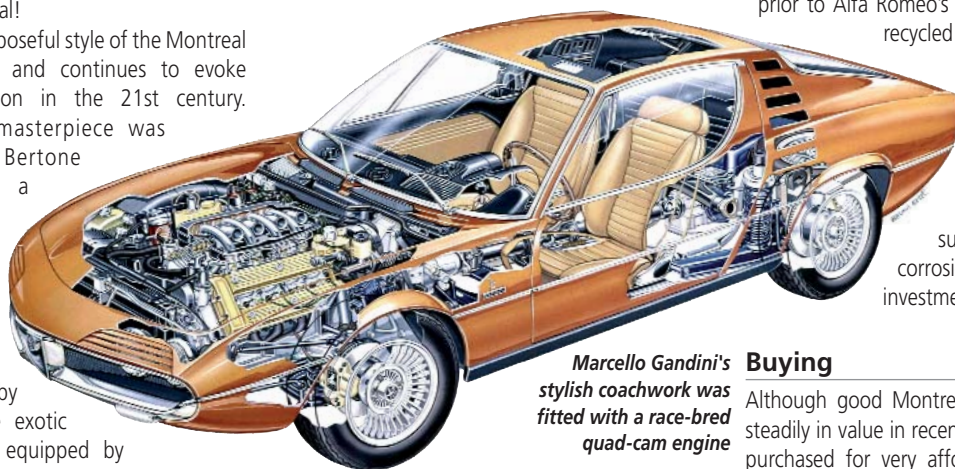
To mark its centennial anniversary in 2010, Alfa Romeo commissioned one hundred original artworks from one hundred renowned artists, illustrators and photographers. These talented professionals had an abundance of inspiring subject matter to choose from, for in the preceding one hundred years Alfa had manufactured over 400 types of automobile, ranging from the modest 12 HP A Series to the agile new *Giulietta* and the prodigious *8C Spider*. Many of these cars were sporting models equipped with splendid motors and stylish coachwork, and several types were victorious in competition and became motoring legends. So it is astounding to note that no less than 13 of the 100 selected artworks featured the Alfa Romeo Montreal!

For the elegant, purposeful style of the Montreal has enduring appeal, and continues to evoke admiration and passion in the 21st century. Marcello Gandini's masterpiece was expertly sculpted by Bertone Carrozzeria and, in a traditional design house that spurned mass production methods, each car was individually assembled with simple jigs and hand finished by skilled craftsmen. The exotic coachwork was then equipped by Alfa Romeo with a magnificent 2593cc 200hp race-bred V8 engine, a domesticated version of Carlo Chiti's Autodelta design that had powered the Tipo 33/2 to victory in its very first competition at Fléron. The graceful lines of the powerful Montreal coupé combine machismo with a uniquely subtle

European class, and the car is exciting to drive and turns heads wherever it appears.

### Forty plus

Forty years ago this month, the first production Montreals were launched on the home market in Italy. The original show cars had met with universal acclaim at Canada's Expo 67 World Fair, and a preproduction version of the Montreal had been much admired when it was revealed at the Geneva Salon in April 1970. But labour and planning problems at the factory in Arese, combined with technical issues, had delayed the production of the vehicle by 12 months.



Marcello Gandini's stylish coachwork was fitted with a race-bred quad-cam engine

In May 1971, Montreals were demonstrated to international motoring journalists at Alfa Romeo's proving ground at Balocco. Production quickly ramped up, and by the end of the year over 650 cars had been built. During 1972, by far the most

successful year, demand for the Montreal was strong and over 2300 cars were made before the oil crisis precipitated a sudden decline in sales. According to the Arese factory records, a total of 3917 Montreals were built between 1971 and 1977, comprising 3737 LHD (105.64) and 180 RHD (105.65) versions.

Although a few unofficial conversions were made earlier, the records show that most of the RHD cars were manufactured from 1973 to 1975. It's worth noting that today the cars manufactured prior to 1 February 1975, or that were first registered before 1 August 1975, do not require to pass a full emissions test, just a visual exhaust check.

The Montreal body shells were manufactured prior to Alfa Romeo's imprudent experiment with recycled steel, and they were treated with zinc phosphate and resin undercoat in Bertone's advanced finishing plant at Grugliasco. As a result, many of these cars have survived with very little corrosion and are a sound investment today.

### Buying

Although good Montreals have been appreciating steadily in value in recent years, fine cars can still be purchased for very affordable prices. Since major body work (such as a full bare-metal respray) can be quite expensive, it is generally wise to pay the extra for a car that is already in excellent condition, rather than buy a cheaper vehicle requiring extensive restoration.

While there are numerous happy British owners

of LHD cars, when buying a Montreal in the UK it is worth seeking a RHD model unless it will be used frequently on the continent. Apart from driving convenience and safety, RHD Montreals have the advantage of being equipped with a worm-and-roller ZF steering box, which does not suffer from the fatigue-cracking problem that afflicts many of the recirculating-ball Burman boxes fitted to the LHD cars. However, in some cases a broken steering box can be repaired by a specialist welder, and stronger reproduction boxes have also been produced in cast iron and aluminium alloy. One series was made using the alloy from old Alfa Romeo 4-cylinder engine blocks, which is of excellent quality!

Rather few changes were made to the Montreal during its six year production run, so that when choosing a car its condition is much more important than its year of manufacture. But tall drivers should look out for one of the cars built from late 1975 onwards. These were fitted with a narrower rear seat squab, allowing the driver's seat to be moved further back to create additional legroom. (In spite of the car's 2+2 homologation in some countries, the rear seat is in any case only really suitable for luggage). A very small number of Montreals were equipped with factory-fitted sun roofs.

From late 1972, engines with improved emission characteristics were fitted to the Montreals for certain markets, and by May 1973 they were being fitted to all vehicles. These engines, which can be distinguished by an "S" in the Engine No., were fitted with Spica injection pumps having different cam profiles, and with Magneti Marelli S127D distributors having a different mechanical advance characteristic from the earlier type S127C.

When inspecting a Montreal, check that the heart-shaped centrepiece of the radiator grille is undamaged. This chrome-plated mazak alloy casting is easily fractured in the event of a minor collision, and today only reproduction parts are available to replace it. On some Montreals, both side wings of the heart have been removed to disguise the fact that one of them has broken!

When starting the engine for a test drive, check that the red "Aliment" lamp flashes for a moment and then goes out. If this lamp illuminates while the car is being driven it warns of low fuel pressure, which may be caused by failing fuel pumps or partially blocked filters. It's also important to open the cap of the oil reservoir to check whether there is

any smell of fuel, or sign of "mayonnaise". The former may indicate that the Spica pumping elements are worn and leaking, whereas the latter can be symptomatic of a defective bearing on the idler shaft that drives the water pump. The bearing is inexpensive, but replacing it is quite a major operation.



**Mechanical fuel injection, tungsten crankshaft counterweights and a dry sump make for a compact motor**

## Tuning

The Montreal engine has an undeserved reputation for being complex, temperamental, and difficult to keep in good running order. This stems largely from lack of knowledge about how to tune the Montreal's mechanical fuel injection system, which differs somewhat from that of the 4 cylinder Spica-injected cars that were exported to the US. Excellent cars have even changed hands at very low prices because "the Spica has some problems", when a few checks and adjustments were all that would have been required to put the vehicles in order!

While the repair and recalibration of defective Spica pumps is a job for a specialist, routine tuning requires few special tools and is well within the capability of any Montreal owner. The procedure can be summarised as follows:

First clean and lubricate the distributor advance mechanism, since the grease becomes sticky with age, preventing the weights from retracting smoothly after a fast run. Adjust the contact breakers so that the two ignition circuits are phased by exactly 45° at the distributor, and then set the ignition timing for an advance of 30° at 4500rpm.

After cleaning the air intake manifolds, adjust the throttle limit screws so that the relay crank is

horizontal at idle and rotates through 78° to full throttle. Now adjust the length of the throttle control rod such that the butterflies for cylinders 7 and 8 just fully close at idle, and set the butterflies for cylinders 5 and 6 by the central adjusting screw. Then adjust the length of the throttle tie rod to set the butterflies for cylinders 1 and 2, and finally set those for cylinders 3 and 4 by the central screw. Adjust the alignment of the accelerator cable bracket for smooth operation, and set the cable adjuster and floor stop such that full throttle is obtained when the pedal is fully depressed, while there is a little slack at idle.

Now check the characteristic of the Spica thermostatic actuator (TA), by measuring the plunger extensions at room temperature and in a boiling water bath. If it is a little out of spec, the offset can be compensated for in the next step, but if the glycol operating fluid has leaked seriously the TA must be replaced or rebuilt.

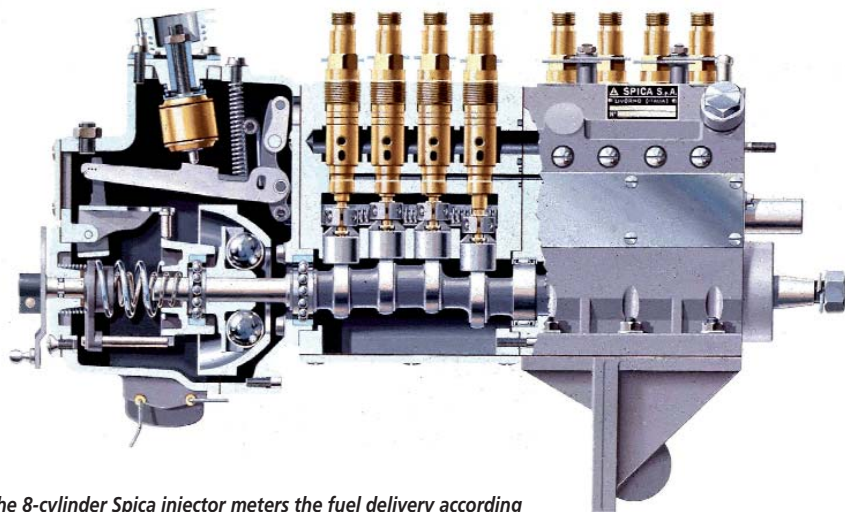
With the Spica link rod disconnected, the cam centring screw under the TA plunger should now be adjusted for a reference gap of 0.5mm, using a 27mm dummy TA for pumps with a red dot or no dot, and a 28.7mm one for the later yellow dot models. The dummy TA should then be replaced by a 29mm one, and the Spica link rod reconnected and adjusted for a reference gap of 0.5mm for pumps without a colour dot, or 1.2mm for "S" engine pumps with either a red or yellow dot.

Having set the Spica temperature compensator, adjust the fuel cut-off solenoid (FCS) to optimise the running mixture at 2500rpm. Check that the FCS is energised when the accelerator is released at high speed, and deactivated again when the engine speed falls below 1400rpm. Finally adjust the idling airflow by the single equaliser at the rear of the air cleaner of early Montreals, or the twin equalisers on the air intakes of later cars.

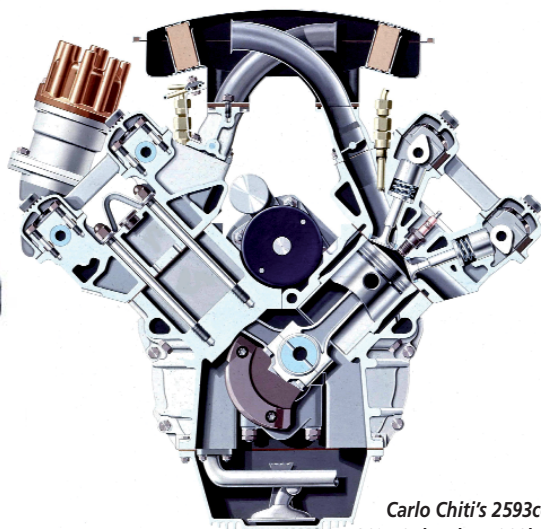
Since each of the tuning adjustments relies on the correct execution of the preceding one, it is important to do them in order. Trying to tinker with one parameter to correct an observed problem, such as rich running or bad idling, is unlikely to achieve the desired result because of the interrelationships between each of the adjustments.

## Maintenance

While the Montreal requires routine maintenance at much more frequent intervals than modern Alfas, the



**The 8-cylinder Spica injector meters the fuel delivery according to engine speed and temperature, throttle angle, and barometric pressure**



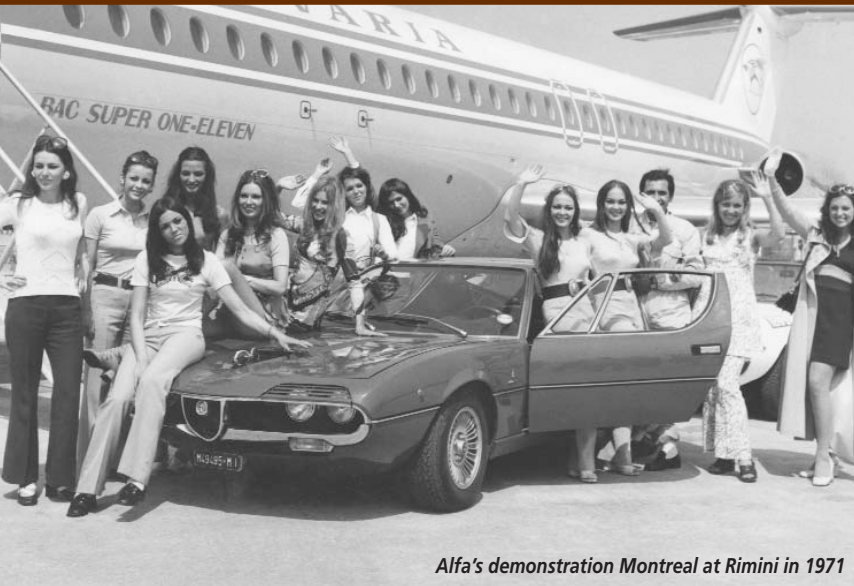
**Carlo Chiti's 2593cc 90° V8 develops 200hp**



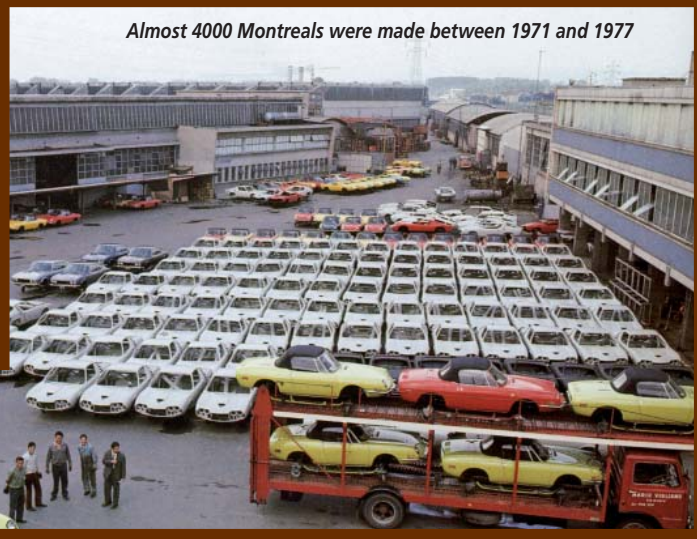
*Bertone crafted the Montreal bodies by hand*



*The preproduction Montreal created a sensation at Geneva*



*Alfa's demonstration Montreal at Rimini in 1971*



*Almost 4000 Montreals were made between 1971 and 1977*



*The Montreal bodies were finished at Grugliasco in parallel with Fiat Dino coupés*

work is quite straightforward. It is particularly important to verify the integrity of the fuel hoses regularly. Since the twin electric pumps located behind the right rear wheel continuously circulate a large volume of fuel through the Spica for cooling purposes, a leak in the engine compartment may immediately cause a devastating fire.

Since Montreal engines are now more than 35 years old, oil contamination is an issue, and changes at 3000km intervals are recommended. Each refill requires 10 litres of oil, but unless the engine has been rebuilt it is more important to change the oil frequently than to use an expensive type formulated for modern engines. The use of a small (96mm) diameter filter allows it to be replaced without detaching the front anti-roll bar. Be sure to run the engine for a few minutes before checking the oil level with the reservoir dipstick, because the oil tends to gravitate slowly to the dry sump when the car is not in use!

The Spica lubricating circuit has an additional oil filter that is integrated with the front support of the pump. This should be changed regularly, since a blocked filter can result in severe damage to the Spica shaft. The filter housing is easily accessible, and reproduction elements are readily available. Reproduction air filters have also been made, and these can be reused if blown clean with compressed air at intervals.

Because of the very tiny clearances in the Spica pumping elements, it is essential that fine particulate contaminants be removed from the fuel. Both the main fuel filter in the engine compartment and the one in the fuel tank should be replaced frequently with 10-micron elements. The original Bosch electric fuel pumps with integral pressure relief valves are no longer obtainable, but the pair can be replaced by a single Walbro 250l/h pump with an external bypass regulator that returns excess fuel to the top of the tank.

The valve clearances should be checked at 12,000km intervals. To reduce camshaft wear, an engine oil additive can be used to compensate for the low ZDDP levels in modern oils. The Montreal engine has hardened valve seats that are compatible with modern unleaded fuel formulations. Hence no lead fuel additive is necessary, although some owners put a little MMO in the fuel with a view to improving the lubrication of the Spica cylinders.

Unlike the cam belts of modern engines, the Montreal timing chains require no maintenance apart from occasional retensioning. However, the synthetic rubber faces that are bonded to the chain guides deteriorate with time, and can eventually disintegrate. Reproduction chain guides have been manufactured, including an improved version with longer-lasting PTFE facings. The alternator and Spica drive belts should be replaced every 42,000km, taking care to maintain the injection timing.

Cylinder head gaskets and engine gasket sets are readily available for the Montreal, as are drive shaft guibos, clutches and the many suspension components that are common to other 105-series cars. The longer Montreal clutch slave cylinder is difficult to source, but the original one can usually be resleeved if it becomes worn or pitted. With its



**Almost 200 RHD engines were manufactured**

crossplane crankshaft and large twin pipes, the exhaust note of an accelerating Montreal engine is exhilarating. A wide range of aftermarket exhaust systems is available, including stainless steel systems and versions with dual or quad tips.

Many of the electrical components of the Montreal, such as the starter, alternator, voltage regulator and radiator fan, are Bosch products that were fitted to other vehicles. However, the capacitor discharge ignition units were rather novel in the early 1970s, and the same model was used in very few other cars. Because these units have a simple design, and are assembled from discrete components, they can be dismantled for repair. However, if authenticity is not a concern, they can alternatively be replaced by more modern multiple spark ignition units, using either the original breaker points or an optical trigger.

In addition to replacements for the vulnerable radiator heart and front spoiler, reproductions have been made of several internal and external trim parts for the Montreal. These include the brackets for the door locking rods, the mouldings for the headrest adjusters, and the synthetic panel surrounding the gear lever, all of which are easily cracked or broken.

## Modifications

While some owners prefer to keep their Montreals as original as possible, it is possible to improve the performance and reliability of the car by a few modifications. The brakes can be readily upgraded by replacing the front callipers with modern ones, or with the 4-pot types fitted to the Alfa 6 or certain BMW E23 7-series cars. The handling can be improved by fitting modern gas shock absorbers and firmer front springs. For a more radical improvement in road holding, several handling kits are available for the Montreal, comprising complete sets of new shocks, springs, and front and rear anti-roll bars of different stiffness from the originals.

Other common modifications include the replacement of the fixed seatbelts by inertia reel ones, and the exchange of the thin-rimmed steering wheel that was fitted to most RHD cars for a model with a thicker rim or smaller diameter. A change of road wheels and tyres can radically alter the handling and style of the car, and Compomotive has just manufactured a batch of 7Jx15in replica wheels for the Montreal as replacements for the original 6.5Jx14in Campagnolo *turbinas*.

If the water pump bearing has to be replaced, the

opportunity can be taken to drill the timing cover to provide additional lubrication for it. The cover can also be machined to accept a larger roller bearing, and the shaft collar replaced by a stainless steel one that is more corrosion resistant. The addition of reinforcing plates to the chassis at the point of attachment of the steering box can reduce the flexing that is a factor in the failure of the Burman box casting.

There is sufficient meat in the Montreal engine block to allow it to be bored out to 3 litres, although significant increases in engine power can also make upgrades to the clutch and gearbox necessary. Other major engine modifications include the

replacement of the Spica fuel injection system by Dell'Orto, Keihin or Weber carburettors, or by a modern electronic fuel injection system with programmable engine management.

## Support

In the past, lack of information about the Montreal frustrated many owners and discouraged others from purchasing the car. *Practical Classics* even described it as a "Stunning looker, sounds good on paper but complex engine scares everyone". But in recent years the situation has changed radically. With the publication of the 320-page *Veloce book Alfa Romeo Montreal – The essential companion* (ISBN 1845841581), detailed information about tuning, maintaining and improving the car has become readily available at last.

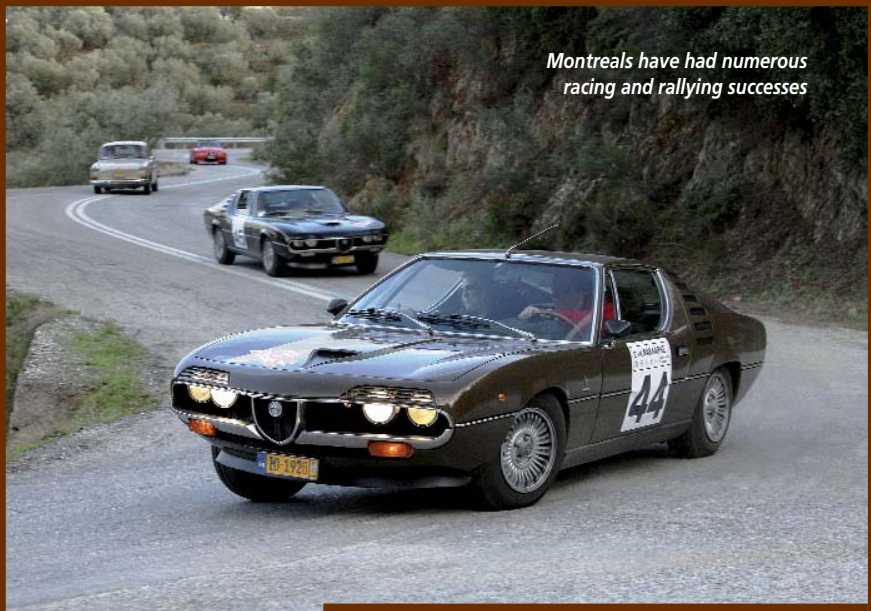
Today, there are several hundred Montreals in excellent condition, and they are maintained and driven by some of the most dedicated, passionate, friendly and co-operative Alfisti on the planet. Support is provided by the comprehensive Alfa Romeo Montreal Website (<http://www.alfamontreal.info>), which is continually expanded and updated, and currently hosts over 2000 photos and drawings. The Montreal internet forum (<http://autos.groups.yahoo.com/group/alfamontreal/>) founded in July 2000 now has over 1000 members, and the forum archives include over 30,000 messages. The forum is a great way for Montreal owners to exchange technical information, news, anecdotes, and tips about parts sources, restoration and maintenance.

The Montreal is a very fast and comfortable car that is immensely enjoyable to drive for long high-speed trips. Every year a lively International Montreal Meeting is organised in different locations by the Montreal Register Europa, which has members in 16 countries. As reported in the December 2010 issue of *Alfa Romeo Driver*, the very successful 24th meeting was held in Switzerland, and it was attended by a record 121 participants from 13 nations. The 25th meeting will be held in Finland from 30 June to 3 July 2011, and full details of the programme are available on the Montreal Website. These meetings are always very enjoyable, confirming that the challenges posed by maintaining a Montreal are very largely outweighed by the pleasure and rewards of ownership.

Bruce Taylor



*Fine style maintains its appeal in 2011*



*Montreals have had numerous racing and rallying successes*

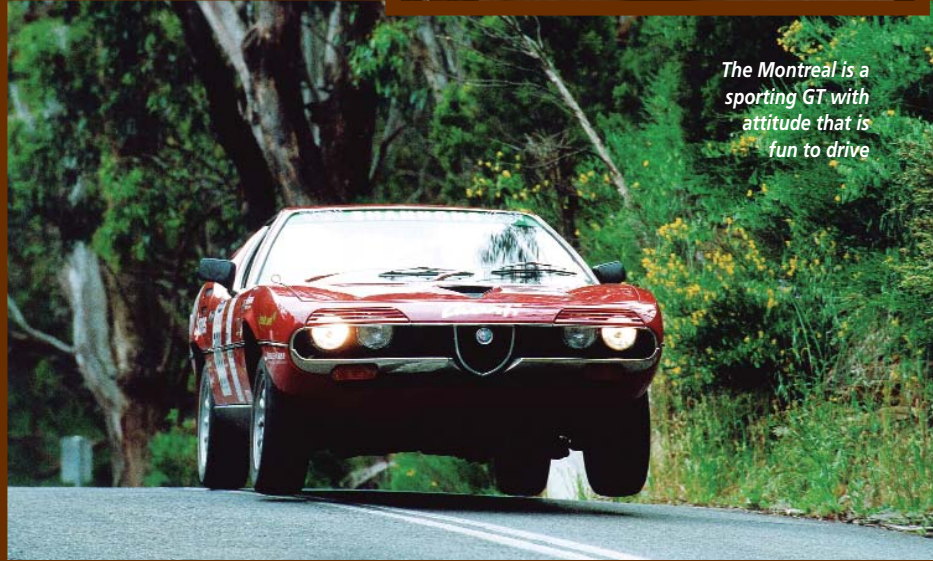
*Photos courtesy Automobilitismo Storico Alfa Romeo, Centro Documentazione, Bertone Carrozzeria, Michael Francis, Robert Di Girolami, Nils-Gunnar Hagmer, Tim Jones, Manuel Kurth, Bruce Taylor, Thorsten Weigl, George Zachopoulos*



*Right: The Jaeger instruments are grouped neatly behind the Hellebore steering wheel*



*Elegant curves and sophisticated slats*



*The Montreal is a sporting GT with attitude that is fun to drive*



*Popular European Montreal meetings are held every year*