



## NEW STYLE AND MORE POWER FOR CLASSIC ALFA ROMEO SPORTS CARS

The New Alfa Romeo Spider and GTV have arrived in Australia with more power from two new engines, including the 3.2 litre powerhouse from the 147 and 156 GTA that makes the new Alfa GTV, at 255 kmh, the fastest-ever road-going Alfa, and more style from the gifted Italian styling house Pininfarina, along with additional equipment and features.

“Alfa Romeo sports cars are the very definition of Alfa Romeo,” says Kevin Wall, General Manager for Alfa Romeo in Australia. “They provide the character, spirit and passion that infuses all of the Alfa Romeo range and in the new Alfa Romeo sports cars all their abilities and skills have been revitalized, refreshed and empowered.”



**Alfa Romeo Australia**



Pininfarina, the Italian styling house that designed and styled the first generation of the Spider and GTV have gifted the new cars with a strong, vital new appearance that enhances the original acclaimed wedge shaped sports cars with the more dominant use of the classic Alfa Romeo shield that is such a strong feature of the present generation of Alfa Romeos.

Under the bonnet there are two new engines, the revolutionary 2.0 litre JTS engine that combines all the benefits of lean burn and direct injection technology with none of the drawbacks to produce a lusty 121 kW, while remaining remarkably frugal.

The quad cam Alfa Romeo V6 engine is nothing short of an automotive legend, from its effortless performance to its throaty, evocative roar under acceleration, it has provided the heart and soul of every Alfa Romeo to which it has been fitted.

In its latest 3.2 litre incarnation it has provided performance and a spirit that has been universally praised in the Alfa Romeo 156 and 147 GTA. Now it is, for the first time, under the bonnet of the Alfa Romeo sports cars, providing them with astonishing performance in every one of their six gears, whether it is the 255 kmh top speed of the GTV or their ability to slash the dash to 100 kmh to just 6.3 seconds.

There are also changes to the Spider and GTV's already talented chassis that boost grip, enhance ride comfort and refine handling, while inside the Spider, the dashboard has a new trim, there's a new centre console with a new integrated audio system, as well as new upholsteries, while outside there are new alloy wheels and paint colours. The hood of the Alfa Spider has also been redesigned to make it quicker and easier to operate, quieter and more insulating when erect.

The new range consists of three Spiders, the Spider JTS, the Spider JTS Lusso and the Spider 3.2 24V V6, while the GTV comes as the Alfa GTV JTS and the Alfa GTV 3.2 24V V6.

The standard Spider JTS has as standard, cloth seats and door panels, front seat-belt pretensioners, driver and passenger airbags, electrically-controlled windows and door mirrors, automatic climate control system, remote central locking and check control for door and boot closure, height and reach



adjustable three-spoked steering wheel, radio and CD player, power steering, headlight alignment corrector, foglights, electronic immobilizer and new-design 205/50/16" light alloy wheels. The Spider JTS Lusso adds Momo leather and an electrically powered roof and this specification is shared with the V6 Spider, but with 225/45 tyres and 17 inch alloy wheels.

The GTV JTS has the same specification as the standard Spider, with the GTV 3.2 24 V6 also gaining Momo leather and 225/45 tyres and 17 inch alloy wheels over the GTV JTS.

Prices for the new Alfa Romeo Spider and GTV open at a recommended retail price of \$55,000 for both the Spider JTS and the GTV JTS, with the Spider JTS Lusso at \$59,990. With the 3.2 litre V6 engine, the Spider 3.2 24V V6 is \$75,500 and the GTV 3.2 24V V6 is \$73,500.

The Spider and GTV join an Alfa Romeo range which, by the end of 2003, will be revitalized and reinvigorated with the Alfa Romeo 147 GTA adding a new performance edge to the 147 range and the arrival of the new Alfa Romeo 156 and 156 Sportwagon and the new 166 sports luxury sedan completing an all-new range.

“Compared to the massive sales success of the Alfa Romeo 147 and the Alfa Romeo 156, the sales of the Alfa Romeo sports cars may seem relatively modest,” says Kevin Wall. “But they are the latest incarnations of a long line of classic sports cars that have made the name Alfa Romeo a byword for style, performance and success, they are the inheritors of a heritage of which other car makers can only dream and the latest models started the Alfa Romeo revolution that has provided a re-birth for one of the most famous names in automotive history and heralded its return to Australia. They are, in short, the heart, soul and the very passion of Alfa Romeo and, therefore, of performance motoring.”



## THE NEW ALFA ROMEO SPIDER AND GTV

### The Full Details

Styled by Pininfarina, the Italian styling house that created the original Spider and GTV, the new Alfa Romeo Spider and GTV made their world debut at the 2003 Geneva Motor Show before a European launch in May 2003

Both models come with a brand-new look, a revised range of specifications and new power units, though their timeless appeal is unchanged: driving satisfaction in a sporty, stylish package.

Even a quick glance at the new Spider and GTV reveals the changes and improvements to the car's exterior appearance. Firstly, the front end is now more imposing and distinctive. This impression of solidity and dynamism is complemented by side pillars that are the source of the traditional V-shape on the bonnet: two converging ribs that delimit and emphasize a central bulge that hints at the presence of the powerful, beefy engine beneath.

The new Alfa Spider and Alfa GTV also preserve the same wedge-shaped line emphasized by a cut-off tail that gives the vehicle body a strong sense of aggression. Similarly, it was decided not to change the strongly raked windscreen and the emphatically shelved side that give both models their slender, dynamic looks. The much-appreciated profile of both sports models has also been kept, including the Alfa GTV's high cut-off end and the open-topped sports car's slender, tapering rear.

The 16" light alloy wheels, on the other hand, are new, as are the three body shade options: Brunello Red, Racing Green and Cobalt Blue.

Several new features have been added inside the new Alfa Spider and Alfa GTV, beginning with a lower driver seating level in relation to the ground (H point) for improved driving comfort. The interiors have also been redefined to make them more stylish and user-friendly. This tendency is evident in the black facia and the brand-new central console panel that houses the minor controls and the new audio system. The lighting on the instrument panel and controls is now red while a new cloth trim is available for seats and interiors. All these factors help emphasize the concept of stylish sportiness that has always typified the Alfa Romeo brand.

The new Alfa Spider and Alfa GTV power units are also bound to arouse plenty of interest. Just for starters, the models now offer two engines that have already met with considerable success on other Alfa Romeo models: the 121 kW 2.0 JTS engine and the legendary 3.2 V6 24V in a new 176 kW form.

The 2.0 JTS (Jet Thrust Stoichiometric) is a revolutionary petrol engine with direct injection that offers a specific power rating in excess of 60 kW/l and a specific torque of more than 100 Nm/l. The second power unit is the spirited 3.2 V6 24V unit, with a power output of 176 kW at 6200 rpm that boasts a torque curve of up to 289 Nm (29.4 kgm) at 4800 rpm and can ensure exhilarating performance during sporty driving and also during everyday use. More specifically, a GTV equipped with this engine reaches 255 km/h, a performance that makes this the fastest on-road car in Alfa Romeo's history.



## THE NEW ALFA ROMEO SPIDER AND GTV

### The Exterior

The new Alfa Spider and Alfa GTV have been redesigned by the Pininfarina Style Centre that was also responsible for the original models. Both models now offer the up-to-the-minute glamour of innovative motifs combined with retro touches.

The roots of this harmonious blend lie in Alfa Romeo's great motoring past. Indeed both models display intrinsic Alfa traits with pride and conviction. Beginning with the triangular front grille that dominates the front and continuing with distinctive diverging ribs that outline a bonnet bulge that offsets the distinctive front grille while visually advertising the presence of a mighty power beneath the bonnet. Lastly, another two motifs typical of Alfa Romeo tradition are a wedge-shaped line enhanced by a cut-off tail that gives the car a markedly aggressive slant - and a pronounced side shelf that makes the car look slender and dynamic.

These are the distinctive traits that the Pininfarina Style Centre has chosen to stress on the new Alfa GTV and Alfa Spider. New parts with great visual impact have also been added. Firstly, the front end has been redesigned to fit in with the current Alfa Romeo image. For example, the shield is similar to those used on recent models in that its upper edge follows the bonnet and then plunges down to break the bumper outline.

The badge at the top centre is also surrounded by a hint of chrome that underscores the strength and communicative value of the signature. Chrome bars stand out against the black background of the grille. These horizontal elements are extrapolated and spread to the side outlets to suggest that the car is well settled and firmly anchored to the ground. Lower down, two separate air intakes are delimited by trapezoid foglights to form the traditional Alfa cloverleaf pattern. When viewed from the side, both models feature a blend of volumes and taut lines reminiscent of the best-looking Alfa Romeos from the past. For example, both cars feature a strongly delimited wedge shape. This is underscored by a strongly raked windscreen that blends into the upper line of the doors to create an elegant dip in the door mirror area.

The lines of the Alfa GTV maintain the same strong rake in the rear side volume while the lower edge of the second side window continues the upper parallel door line to create a sense of overall compactness. The tapered tail on the Alfa Spider inspired the stylists to trace a smooth falling line from the halfway point of the rear volume. This is a clear reference to two of the most famous Alfa Romeo sports cars: the Giulietta Spider and the 'Osso di Seppia' (cuttlefish bone). When the car is closed, the Alfa Spider retains its stylistic sense of proportion because the hood blends into the body.

When both cars are seen from the side, the striking new 16" alloy wheels are immediately obvious, while the sides - when seen in plan view - feature a distinctive pattern of four bulges over the wheelarches: the overall impression is of dynamic cars with a firm grip on the road. Moving on to the rear end, both models can be seen to share certain styling motifs. Examples include a marked horizontal dihedral connecting both boot surfaces that meet at a strong angle; a wraparound rear bumper that houses the number plate holder panel; distinctive individual model badges with elegant italic script derived from the most famous Alfa sports cars.

This is what both models have in common. The Alfa GTV and Alfa Spider naturally differ in their rear box shape: the coupé features a generous, strongly raked rear window that houses the third brake light at the base; the Alfa Spider is distinguished by a U-shaped hood cover that blends beautifully into the body and also houses a third brake light at its base. The styling of the rear end is different in the two models: high and truncated in the GTV, more slender and streamlined in the Spider.



Although created from a common blueprint, each model expresses traditional tenets of Alfa Romeo sportiness from two parallel yet distinctly different aspects. Two cars with quite different styling and missions: the Alfa GTV with 2+2 body is a sports car built for performance while the Alfa Spider only comes in a two-seater version designed for open-topped driving satisfaction aboard a great sports car.

## THE NEW ALFA ROMEO SPIDER AND GTV

### The Interior

The new Alfa Spider and Alfa GTV passenger compartment offers several new features. The driver's seat level in relation to the ground (H point) has been lowered for improved driving comfort. The new Alfa Romeo sports car interiors have also been redefined from the viewpoint of styling and user-friendliness.

The style is designed to reflect the specific personalities of the GTV and Spider and this principle has been followed in the definition of all interior detailing. The first major sign lies in the instruments and controls. The gauges are round and analogue, the outcome of painstaking design for clarity, legibility and elegance. The same approach is evident in new red lighting on controls and instrument panel.

The panel is beautifully designed: the instrument panel faces the driver and is protected by a highly accentuated curved lip that juts over the upper fascia surface. The panel, as before, consists of two main central dials - the speedometer and rev counter - with a central panel in between.

Other new features on the new Alfa GTV and Alfa Spider include a black fascia created to enhance the attractive blend of smooth, rounded volumes. The brand-new central console panel also houses the minor controls and the new audio system. The fascia blends with the central console while the part facing the passenger houses a glove compartment with an interior button for electrical boot opening. Two round adjustable and closable climate control system diffusers are located at either end. Again at either end, the upper face of the fascia houses two fixed climate control system outlets directed to demist the side windows.

The central console extends beyond the gear lever to the area of the tunnel between the front seats. Here is found the cigar lighter, ashtray and controls for electrically adjusting the door mirrors and headlight alignment alongside the handbrake lever. This area also houses the switch for the electric hood on Spiders equipped with this feature.

The new Alfa Spider and Alfa GTV also offer front seats with adjustable reach and backrest rake. Their classic sports seat configuration is evident in the lateral containment features. Seat structure, padding and trim material also assure the highest standards of driving comfort by distributing differential body part pressures optimally over the entire seat. In the Alfa GTV, the configuration of both rear seats reproduces those of the front seats in design and practical features but on a smaller scale. On the Spider version, the space behind the front seats is equipped to accommodate extra luggage that will not fit in the boot.

The trims vary according to version and specification level and take the form of specially made cloth designed for quality and good looks. Alfatex, in particular, makes its first appearance on medium-range versions where this new high-tech cloth is used to trim seats and door panels. The door panels are specifically designed to look like an ideal continuation of the fascia while the lower trim houses a rigid oddment pouch.



The sporty steering wheel is three-spoked and adjustable for height and depth. The steering wheel centre houses an airbag compartment closed by a trapezoid panel that bears the classic Alfa Romeo badge emblem in the centre. The rim is leather trimmed on all Spider and GTV versions.

## THE NEW ALFA ROMEO SPIDER AND GTV

### The New Engines

The true heart and soul of every Alfa Romeo model is its engine. The Alfa Spider and Alfa GTV are no exception. The new models' attractive, personality-packed looks conceal a diverse range of outstanding high-tech power units that all offer superlative performance.

First up, the legendary 3.2 V6 24V unit delivers a power output of 176 kW at 6200 rpm and boasts a torque figure of 289 Nm at 4800 rpm for exhilarating performance on a sporty run but also during everyday use. More specifically, a GTV equipped with this engine reaches 255 kmh, a performance that makes this the fastest road car in Alfa Romeo's history.

The second power unit available for the new models is the 121 kW 2.0 JTS. This is the first direct injection petrol engine with a specific power rating higher than 60 kW/l (82 bhp/l) and a specific torque greater than 100 Nm/l.

Two manual gearboxes are also available: a six speed unit for the 3.2 V6 24v and a five-speed unit for the 2.0 JTS versions.

#### **The 176 kW 3.2 V6 24V engine**

The top-of-the-range power unit for the new sports cars is the scintillating 3.2 V6 24V unit already adopted on GTA versions of Alfa 156 and Alfa 147.

Derived from the now classic three litre V6 24 valve unit - also fitted to the Alfa GTV - the mighty 3.2 is a vigorous and well-rounded power unit. Compared to the 3.0 litre V6 it replaces, Alfa's engineers changed the crankshaft and pistons to increase the cylinder capacity to 3.2 litres and lengthened the stroke to 78 millimetres. This change speaks volumes about the type of performance required because the power could simply have been increased by adjusting the timing, fuel system and electronics.

The fact that cylinder capacity has been increased by lengthening the stroke means that the aim was not simply to obtain out-and-out performance coupled with high power and torque peaks but also an even, gradual power delivery from the lowest speeds. As befits a car capable of thrilling performance that is suited for driving on ordinary roads as well as on the track.

The increase in cylinder capacity is naturally accompanied by a whole set of changes. The intake and exhaust ports have been tuned by applying a new timing pattern, the control unit software has been rewritten and the cooling system has been upgraded with the addition of an engine oil radiator.

The result? Power output is 176 kW at 6200 rpm with a maximum torque of no less than 289 Nm at 4800 rpm. These figures are all it takes to achieve exciting performances and are complemented by a torque curve that permits high values at low speeds. The car can also travel in sixth gear at less than 2000 rpm and unleash extreme performance without changing gear.





Extremely satisfying behaviour, therefore, even during daily use. The self-confessed goal of the Alfa GTV and Alfa Spider is this: to offer sensations unique to a racing car yet still be perfectly serviceable for everyday use.

### **The 121 kW 2.0 JTS engine**

The 2.0 JTS is a top-performing power unit that owes its name of JTS (Jet Thrust Stoichiometric) to its combustion system. As far as the customer is concerned, this means a two litre car that already meets tough Euro 4 emission limits; does not need low sulphur petrol but is able to use normal petrol.

The 2.0 JTS thus represents a true technological leap for Alfa Romeo, its first petrol engine with injectors that work directly inside the combustion chamber. It achieves its end by interpreting the principles of stratified charge and the creation of motion in the mixture inside the cylinder in an entirely original way.

### **Lean burn, but not too lean**

The possibility of injecting petrol directly into the combustion chamber instead of the intake duct has been known since Nikolaus Otto (who took out a patent in 1877) and has been applied for two different purposes over the years. On racing cars in the Fifties and Sixties to increase engine power. More recently (since 1996), to reduce fuel consumption.

Recently, manufacturers have devoted all their efforts in this latter direction and gratifying results have been achieved with the stratified charge method. The principle is simple: instead of injecting all the petrol required to maintain the normal air-fuel ratio of 14.7:1 (stoichiometric) throughout the combustion chamber, only a small amount of fuel is injected that mixes with the air to form a core of almost stoichiometric composition about the spark plug. The resulting mixture is stratified or layered because it is richer where the ignition spark ignites and increasingly lean (more air and less fuel) as it approaches the outside of the chamber.

So far the benefits of this lean burn system, usually applied in the rpm band up to 3000 rpm by other car makers, have amounted to a fuel saving of some 10%. The disadvantages of their systems may be summarised as follows:

- a drop in performance when the car is required to deliver full power (because the ducts and pistons are shaped in a certain way that is essential to reduce fuel consumption at low speeds);
- the need to use sulphur-free fuel;
- the requirement for costly, delicate exhaust gas treatment methods (DENox) to reduce the higher nitrogen oxide emissions generated by the leaner burn.

It goes without saying that Alfa Romeo's approach to the new technology had to be quite different. Category-topping performance and irrepressible driving behaviour have always been essential requirements for all Alfa models.

But what was to stop Alfa from using direct injection to increase engine power and torque in keeping with the sporty applications of this technology. Then, Alfa reasoned, the engine could bring in the stratified charge system to reduce fuel consumption within a restricted rpm band around idle speed.

The result was an entirely original Alfa Romeo approach to applying direct injection in petrol engines. A solution that offered a compromise between the two methods pursued to date. The 2.0 JTS works using a lean burn approach up to around 1500 rpm and this saves fuel, although not as much as on other lean GDI engines. Above this engine speed, the engine burns a stoichiometric air-fuel mixture, i.e. with a normal 14.7:1 ratio between both components. All this means outstanding performance and much better than would be obtained using a normal indirect injection petrol unit.

Firstly, because petrol is injected directly into the combustion chamber instead of the duct it cools intake air





to increase the engine's volumetric efficiency. As temperature drops, the gases increase in density and their volume therefore decreases: this means that more air can be introduced into the combustion chamber.

Power unit susceptibility to knock is also reduced by chamber cooling. It is therefore possible to increase the compression ratio - in this case from 10:1 for the 2.0 T. Spark to 11.3:1 for the 2.0 JTS. This means more power for the new Alfa Romeo engine that is, moreover, able to deliver its power unhindered because the exhaust gas treatment system used on Alfa Romeo models does not generate the strong counterpressures typical of the Nox absorbers used by lean GDIs.

Direct introduction of petrol into the chamber improves power unit response speed to the accelerator control because it is faster overall than a conventional petrol engine.

#### - Benefits: higher performance and lower fuel consumption

Compared to the current 2.0 T. Spark unit and other currently-available direct injection petrol engines, this 2.0 JTS unit offers slightly lower fuel consumption and a generous increase in power and - above all - torque. + 15 bhp and + 25 Nm. To sum up, the 2.0 JTS develops a maximum power of 121 kW at 6400 rpm and a maximum torque of 206 Nm at 3250 rpm. And all this is achieved using petrol currently on sale and current catalytic converters.

#### - A new combustion chamber principle

The new JTS combustion system displays two distinctive features:

- the principle followed to generate the movement that propels the air and fuel mixture toward the spark plug inside the cylinder;
- the range of rotation speeds within which the engine works using a lean burn system.

In other GDI engines, the air's force drags the fuel spray into the area where the ignition spark ignites. This option is determined by a desire to achieve a very lean mixture (up to 60:1) and thus consistent fuel savings. But it brings a need to change the air's motion within the combustion chamber (charge motion) according to rpm level and this complicates the air input mechanisms (throttles, duct closure systems etc.).

In the 2.0 JTS, however, the force of the fuel spray (Jet Thrust) propels the fuel toward the spark plug as it mixes with the air. In this way, we achieve a charge that is less lean overall (the ratio remains constant at all speeds and is 25:1) and less fuel is consequently saved. But the engine's internal mechanism is far less complicated because it lacks systems for altering the air's motion.

The same process of simplification also guarantees the limitation of lean burn technology to rpm levels around idle speed (up to 1500 rpm). GDI engines that use stratified charge within a broader speed band (up to 3000 rpm) must employ modified piston and duct profiles. The resulting shape does not allow power to be optimised at high speeds.

The use of stratified charge only up to 1500 rpm, however, means that the pistons and ducts on the Alfa Romeo 2.0 JTS are hardly altered. Because their shape is more similar to those of current indirect injection engines, they are able to exploit all available power at high speeds.

The addition of an exhaust gas treatment system (Nox absorber) to remove nitrogen oxides is also only required when the lean burn range is extended up to 3000 rpm. This also dictates the use of sulphur-free fuel, i.e. the only type that will not damage the catalytic converter.

The use of stratified charge only at speeds around idle speed, however, allows the 2.0 JTS unit to use a conventional catalytic converter system. This result is also made possible by a more extensive use of exhaust



gas recirculation, which reduces the production of nitrogen oxides (NOx). Because Alfa Romeo engines are fitted with variable valve timing, exhaust gas is recirculated to the intake on the 2.0 JTS directly between the intake and exhaust valves (internal EGR).

**- Engineering: what changes**

The main engineering changes on the 2.0 JTS compared to the corresponding Twin Spark engine affect the cylinder head with Bosch injectors fitted in the chamber, pistons, camshafts and exhaust system. All these components are completely new.

The intake ports are high performance; the fuel manifold is high pressure (common rail type); piston compression ratio is higher - and the exhaust - built to Euro 4 standards - is cascade type.

The exhaust gas treatment system works conventionally despite an unconventional layout: the system no longer consists of a preconverter and a main converter located under the body. Instead it comprises two main catalytic converters built into the manifold (each connected to a double branch that leads to two cylinders). This frees up the space under the body for a silencer that is more permeable and thus more able to reduce counterpressure for fuller engine power delivery.

## **THE NEW ALFA ROMEO SPIDER AND GTV**

### **Travelling in Comfort**

The new Alfa Spider and Alfa GTV have inherited great handling and driving comfort from their predecessors, due above all to the suspension layout adopted. The front suspension is an independent MacPherson system with wishbones and anti-roll bar. The rear suspension is multilink. The multilink configuration assures extraordinary precision, prompt approaches to bends and high stability.

That takes care of the driving satisfaction. But Alfa Romeos must also offer on-board well-being. And that means surrounding the driver and passenger with technologies that ensure the very highest acoustic and climatic comfort. Hence the need to make the interior environment into a cossetting, enveloping living room. So the new Alfa Spider and GTV offer an automatic climate control system and thorough soundproofing thanks to the body's high torsional and flexural rigidity.

Acoustic comfort is also optimal on the open-topped model because the hood comes with improved locks and aerodynamics. Its practical details have also been improved with mechanisms specially designed to make folding and unfolding operations easier, faster and safer.

Interior climate is one of the main comfort factors during a trip and is also very important for interior safety because temperature, humidity and ventilation affect the driver's well-being and thus his level of alertness. And of course the heating and ventilation system is also responsible for demisting the windscreen and side windows.

For this reason, the New Alfa Spider and Alfa GTV come with a sophisticated climate control system that automatically controls temperature, air flow, air distribution, compressor activation and recirculation by means of an electronic control unit.



## Suspension

The front and rear suspension systems on the new Alfa Romeo sports models are derived from those of the original models but offer special settings and a few new mechanical details.

The front suspension is an independent MacPherson system with lower wishbones and a new anti-roll bar for the version equipped with a 3.2 V6 24v unit. Overall suspension geometry aims to achieve high transverse rigidity to ensure the best possible roadholding in critical situations and effective longitudinal flexibility for improved driving comfort. The gas shock absorbers with a segmented intake valve also come with new settings to improve comfort and driving noise levels. Tapered offset springs facilitate steering and reduce noise levels transmitted to the body.

The new Alfa GTV and Spider also come with multilink rear suspension (wheel struts guided by four arms) that offer impeccable roadholding under all driving conditions, particularly over winding roads travelled at speed, for a significant contribution to driving comfort even in extreme conditions. This suspension has also been revised to incorporate new adjustments and shock absorber settings.

Multilink suspension systems are a development of the conventional double-wishbone geometry always adopted on high-performing Alfas. They are remarkable for the fact that their constituent elements - upper triangle, double lower wishbone, and anti-roll bar - are anchored to a light alloy subframe arranged beneath the floorpan.

The most outstanding feature of the Alfa rear suspension is the ability of its drive chain to exploit transverse loads generated in the car while steering that normally tends to trigger vehicle roll to optimise rear wheel working angles. This helps give the car the stability that is so vital during sporty driving at high speed over mixed roads by making it easier to adopt a new trajectory and improving tyre grip.

More specifically:

- during the initial steering stage, the suspension sets up a steering motion out of phase with the front wheels so that the car takes up the new trajectory more rapidly;
- then, as the vehicle takes the bend, the suspension cancels out the rear wheels' out-of-phase steering manoeuvre while the side force exercised on the tyres induces a steering manoeuvre in phase with that of the front wheels. Car handling is thus improved during the first part of the curved trajectory and stability is improved during the next stage.

Further advantages of the rear suspension system on the Alfa GTV and Spider are:

- the ability to optimise the rear wheel camber angle automatically to maximise tyre contact area with the ground. This aids lateral grip and thus roadholding even at the maximum lateral acceleration levels (g forces) achievable by these cars;
- the negative kingpin offset typical of its virtual steering angle that helps the car remain perfectly stable even when braking on bends;
- optimal drive train performance even during sudden emergency manoeuvres to avoid obstacles (sharp steer and countersteer).

## Automatic climate control system

The new Alfa Spider and Alfa GTV come with an automatic climate control system that offers the best comfort and safety conditions. Passenger compartment temperature, humidity and ventilation affect the driver's alertness and well-being - not forgetting that the climate control system is also responsible for demisting the windscreen and side windows.



One of the benefits of the automatic climate control system fitted to the new models is its ability to store a temperature setting and reactivate the system with the same settings even after parking with the engine off. The variable displacement compressor also makes the system very efficient because power uptake is related to the temperature difference between car interior and exterior.

### **Hood**

The Alfa Spider's new hood is truly a thing of beauty. The first of its five steel and aluminium arches is shaped to mould to the upper edge of the windscreen thus continuing the exterior shape seamlessly and making the car more aerodynamic with its hood closed.

The hood features two skins. The outer skin is a multi-layer cloth with good flame resistance while the inner skin effectively soundproofs the passenger compartment. The rear window, in plastic, is secured to the outer skin by zip and Velcro. If required it can easily be removed and replaced.

The hood also offers special features designed to prevent wind noise while driving with the hood closed, even at high speed. For example, the window retaining channels are specially shaped, the mechanisms include gas compensation springs for maximum containment of operating loads which are less than 10 kg at each stage of the folding/unfolding process, spherical hinges that allow the hood to spread out sideways according to whether it is folded or unfolded to make the best possible use of space - and self-centring pin pairs that guide the front and rear hoops into closed position. The rear hoop is released and the automated hood cover opens by means of two pushbutton-operated electromechanical actuators with fallback manual operation in the case of a fault.

The hydraulic circuit also incorporates a total of 6 actuator pistons (2 to open/close the hood cover, 4 to move individual hood hoops) that are operated by six solenoids - plus 4 automatically-operated catches.

### **Car radio**

The new Alfa Spider and Alfa GTV come with a new fully integrated audio system with CD player. The system consists of four speakers and offers a power output of 4x40 Watts. It is complemented by a rear subwoofer, one for the Spider and two for the GTV.

The radio is integral with the dashboard design and located in the middle of the fascia in a position that is convenient for both driver and passenger. It can store up to 30 stations. It offers RDS (Radio Data System) and also TA (Traffic Announcement) and PTY (programme choice option) and a big alphanumerical display. Each time the radio is turned on, the volume is the same as when the set was turned off. The radio with CD player also comes with a 7-band graphic equaliser. This device offers a choice of four equalisation settings: the default setting and also Jazz, Rock and Classic.



## THE NEW ALFA ROMEO SPIDER AND GTV

### Safety

The new Alfa Spider and Alfa GTV offer the most sophisticated devices currently on the market to allow maximum protection for driver and passengers.

Firstly, the braking system is powerful and prompt to respond. The front disc brakes are ventilated with a thickness of 22 mm and a diameter of 284 and 305 mm in the 3.2 V6 24 valve; the rear brakes are 11 mm thick and measure 240 in diameter.

As far as passive safety is concerned, the two new Alfa Romeo sports models offer two front airbags as standard throughout the range. On the active safety front, both models offer ABS with EBD and ASR.

The ASR allows customers the satisfaction of driving in accordance with their own style and at the same time guarantees optimum safety during dynamic car control. The ASR (Anti Slip Regulation) optimises traction at any speed with the aid of brakes and engine control.

The device computes degree of slip on the basis of wheel rpm calculated by the ABS sensors and activates two different control systems to restore grip. When excessive power demand causes both drive wheels to slip (e.g. in the case of aquaplaning or when accelerating over an unsurfaced, snowy or icy road), it reduces engine torque by reducing the throttle opening angle and thus air flow.

If only one wheel slips (e.g. the inside wheel following acceleration or dynamic load changes), this is automatically braked without the driver touching the brake pedal. The resulting effect is similar to that of a self-locking differential.

Another not inconsiderable advantage of the ASR is the lower stress exerted on mechanical parts such as the differential and gearbox due to more effective control of low speed take-off and traction. The ASR is activated automatically whenever the engine is started but must be turned off by means of a switch on the central console to cut out. When the ASR is active, a warning light on the control panel flashes. A control panel warning light comes on (with the switch led off), to indicate system faults or irregularities.

ASR deactivation is required when snow chains are used because the wheel must be able to slip by tiny amounts to pile up the snow so that force can be transmitted to the ground and the ASR tends to avoid this type of action.



## THE NEW ALFA ROMEO SPIDER AND GTV

### The Range

The Australian Alfa Romeo Spider and GTV come with a choice of two power units, with two equipment levels for the GTV and three versions of the Spider.

The standard Spider JTS has as standard, cloth seats and door panels, front seat-belt pretensioners, driver and passenger airbags, electrically-controlled windows and door mirrors, cruise control, automatic climate control system, remote central locking and check control for door and boot closure, height and reach adjustable three-spoked steering wheel, radio and CD player, power steering, headlight alignment corrector, foglights, electronic immobilizer and new-design 205/50/16" light alloy wheels. The Spider JTS Lusso adds Momo Leather and an electrically powered roof and this specification is shared with the V6 Spider, but with 225/45 tyres and 17 inch alloy wheels.

The GTV JTS has the same specification as the standard Spider, with the GTV 3.2 V6 24V also gaining Momo leather and 225/45 tyres and 17 inch alloy wheels over the GTV JTS.



## Full Specification for the New Alfa Romeo Spider

### Alfa Romeo Spider

	Spider JTS	Spider 3.2 V6 24V
<b>Engine</b>		
Type	Four cylinder, transversely installed driving the front wheels, twin cam, four valves per cylinder, single spark plugs	60 degree V6 engine driving the front wheels, quad cam, four valves per cylinder
Cylinder spacing (mm)	90	133
Main bearings	5	4
Cylinder Block	Cast iron with counter rotating balancer shafts	Light alloy
Cylinder Head	Light alloy	Light alloy
Valves	4 per cylinder in 46 degree V shape	4 per cylinder in 37 degree V shape
Timing	DOHC with electro hydraulic variable valve timing	Quad camshaft
Valve adjustment	Automatic with hydraulic tappets	Automatic with hydraulic tappets
Capacity (cc)	1970	3179
Bore/stroke	83 x 91	93 x 78
Power (kW/rpm)	121/6400	176/6200
Torque (Nm/rpm)	206/3250	289/4800
Ignition type	Static electronic digital combined with ignition, knock sensor, 4HV coils and 1 spark plug per cylinder	Static electronic digital combined with ignition, knock sensor, 6HV coils
Firing order	1-3-4-2	1-4-2-5-3-6
Petrol pump	electric, immersed in the fuel tank	
Air filter	dry type with cartridge	
Emission control	three way catalyst with lambda probe	
Lubrication type	Forced feed with adjustment valve and oil/water heat exchanger	
Oil filter	Cartridge	
Cooling type	Liquid cooling with forced circulation by centrifugal pump and sealed circuit, radiator and supplementary expansion tank.	
Cooling control	Thermostat	
Fan	Electric with thermostatic engagement	
Fuel injection	Bosch MED 7.1.1 MPI direct fuel injection	Bosch ME 3.1
<b>Electrical equipment</b>		
Voltage	12V	12V
Alternator	100A	120A
Starter motor	1.4 kW	1.4 kW
Battery capacity	70 Ah	70 Ah
<b>Transmission</b>		
Type	Transversely installed engine driving the front wheels.	
Clutch	Dry single plate with contact bearing and hydraulic control	
Diameter of driven plate (mm)	228.5	235
Clutch lining (mm)	228.5 x 155	235 x 155
<b>Ratios</b>		
1 <sup>st</sup>	3.909	3.500
2 <sup>nd</sup>	2.238	2.235
3 <sup>rd</sup>	1.520	1.520
4 <sup>th</sup>	1.156	1.161
5 <sup>th</sup>	0.919	0.971





6 <sup>th</sup>	~	0.811
Reverse	3.909	3.545
Differential	Front in the gearbox	
Final drive type	Cylindrical	Cylindrical
Final drive ratio	3.733	3.733

### Suspension/Drivetrain

Front suspension	Independent MacPherson strut with lower wishbones and anti roll bar	
Dampers	Hydraulic, telescopic, dual action	
Rear suspension	Independent four link suspension with upper wishbone, two lower links, passive rear wheel steering, coil springs, hydraulic dampers and anti roll bar	
Brakes	Front and rear discs, ventilated at the front, vacuum servo, ABS anti lock brakes	
Disc size (front/rear mm)	284/240	305/240
Brake lining area (front/rear cm <sup>2</sup> )	200/240	240/284
Steering type	Rack and pinion with speed sensitive power assistance	
Steering column	Collapsible with dual adjustment for height and reach	
Turning circle (m)	10.8	
Turns lock to lock	2.2	
Tyres/wheels	205/50 R 16 87Y 16 inch alloy	225/45 ZR 17 91Y 17 inch alloy

### Performance/Fuel consumption

Top speed (kmh)	215	242
0-100 kmh (secs)	8.4	6.8
Urban cycle l/100 km	13.3	19.9
ExtraUrban l/100 km	6.8	9.3
Combined Cycle l/100 km	9.2	13.2

### Dimensions (mm)

Length/width/height	4299/1776/1315	
Wheelbase	2540	
Internal dimensions		
Front waist level	1336	
Rear waist level	n/a	
Front elbow	1382	
Rear elbow	n/a	
Front headroom	945	
Rear headroom	n/a	
Seat travel	200	
Rear legroom	n/a	
Boot (litres)	110	
Height	530	
Max width	1050	
Length	230	

### Capacities

Fuel tank (litres)	70	
Fuel reserve	9	
Oil, sump and filter	4.4	5.6
Oil, Total capacity	5	6.0
Radiator/ water	8.4	11.7
Gearbox/differential	1.75	2.0
Brake system	0.4 kg	0.4 kg
Screenwasher	2	
Power steering	1.3 kg	1.3 kg



Weights		
Payload	260	410
Kerb weight (kg)	1370	1470
Weight distribution (front/rear)	61/39%	TBC
Laden weight distribution (front/rear)	55/45%	TBC

## Trim and equipment for the Alfa Romeo Spider

	Alfa Romeo Spider	
	JTS/JTS Lusso	3.2 V6 24V
<b>Exterior</b>		
Alfa CODE (Immobiliser)	Yes	Yes
Alloy wheels	Yes	Yes
Body-coloured bumpers	Yes	Yes
Electric roof	NA/Yes	Yes
Front Foglights	Yes	Yes
Heated, electric door mirrors	Yes	Yes
Manual roof	Yes/NA	NA
Metallic paintwork	Optional	Optional
Polished stainless steel tail-pipe	Yes	Yes
Power steering	Yes	Yes
Twin headlights	Yes	Yes
<b>Interior</b>		
CD Multi stacker	Optional	Optional
Central Locking	Yes	Yes
Climate Control AirCon	Yes	Yes
Digital Radio CD	Yes	Yes
Electric windows	Yes	Yes
Front, passenger-side courtesy light with reading spotlight and two rear courtesy lights	Yes	Yes
Glove compartment with flap	Yes	Yes
Height/reach adjustable steering column	Yes	Yes
Instrument panel lighting adjustable to three levels	Yes	Yes
Upholstery	Cloth/Momo Leather	Momo Leather
Rev counter	Yes	Yes
<b>Safety and Mechanicals</b>		
ABS + EBD	Yes	Yes
Driver's airbag	Yes	Yes
Front seat-belt electronic pretensioners	Yes	Yes
Headlight alignment adjustment	Yes	Yes
Passenger airbag	Yes	Yes



## Alfa Romeo GTV and GTV V6 Technical Specification

	Alfa Romeo GTV	
	GTV JTS	GTV 3.2 V6 24V
<b>Engine</b>		
Type	Four cylinder, transversely installed driving the front wheels, twin cam, four valves per cylinder, single spark plugs	60 degree V6 engine driving the front wheels, quad cam, four valves per cylinder
Cylinder spacing (mm)	90	133
Main bearings	5	4
Cylinder Block	Cast iron with counter rotating balancer shafts	Light alloy
Cylinder Head	Light alloy	Light alloy
Valves	4 per cylinder in 46 degree V shape	4 per cylinder in 37 degree V shape
Timing	DOHC with electro hydraulic variable valve timing	Quad camshaft
Valve adjustment	Automatic with hydraulic tappets	Automatic with hydraulic tappets
Capacity (cc)	1970	3179
Bore/stroke	83 x 91	93 x 78
Power (kW/rpm)	121/6400	176/6200
Torque (Nm/rpm)	206/3250	289/4800
Ignition type	Static electronic digital combined with ignition, knock sensor, 4HV coils and 1 spark plug per cylinder	Static electronic digital combined with ignition, knock sensor, 6HV coils
Firing order	1-3-4-2	1-4-2-5-3-6
Petrol pump	electric, immersed in the fuel tank	
Air filter	dry type with cartridge	
Emission control	three way catalyst with lambda probe	
Lubrication type	Forced feed with adjustment valve and oil/water heat exchanger	
Oil filter	Cartridge	
Cooling type	Liquid cooling with forced circulation by centrifugal pump and sealed circuit, radiator and supplementary expansion tank.	
Cooling control	Thermostat	
Fan	Electric with thermostatic engagement	
Fuel injection	Bosch MED 7.1.1 MPI direct fuel injection	Bosch ME 3.1
<b>Electrical equipment</b>		
Voltage	12V	12V
Alternator	100A	140A
Starter motor	1.4 kW	1.9 kW
Battery capacity	70 Ah	60 Ah
<b>Transmission</b>		
	Transversely installed engine driving the front wheels	
Clutch	Dry single plate with contact bearing and hydraulic control	
Diameter of driven plate (mm)	228.5	235
Clutch lining (mm)	228.5 x 155	235 x 155
<b>Ratios</b>		
1 <sup>st</sup>	3.545	3.500
2 <sup>nd</sup>	2.238	2.235
3 <sup>rd</sup>	1.520	1.520
4 <sup>th</sup>	1.156	1.156
5 <sup>th</sup>	0.919	0.971



6 <sup>th</sup>	~	0.818
Reverse	3.909	3.545
Differential	Front in the gearbox	
Final drive type	Cylindrical	Cylindrical
Final drive ratio	3.733	3.733

### Suspension/Drivetrain

Front suspension	Independent MacPherson strut with lower wishbones and anti roll bar	
Camber/caster/toe-in	-1° 14' ± 20' / 3° 20' ± 30' / 0 - 2mm	40' ± 20' / 3° 10' ± 30' / 1.5 ± 0.5mm
Dampers	Hydraulic, telescopic, dual action	
Rear suspension	Independent four link suspension with upper wishbone, two lower links, passive rear wheel steering, coil springs, hydraulic dampers and anti roll bar	
Camber/caster/toe-in	0° 55' ± 20' / 0 + 2 mm	2° ± 20' / 2.5 + 0.5 mm
Brakes	Front and rear discs, ventilated at the front, vacuum servo, ABS anti lock brakes	
Disc size (front/rear mm)	257/240	305/240
Brake lining area (front/rear cm <sup>2</sup> )	200/240	240/284
Steering type	Rack and pinion with speed sensitive power assistance	
Steering column	Collapsible with dual adjustment for height and reach	
Turning circle (m)	10.8	
Turns lock to lock	2.2	
Tyres/Wheels	205/50 R 16 87Y 16 inch alloy	225/45 ZR 17 91Y 17 inch alloy

### Performance/Fuel consumption

Top speed (kmh)	220	255
0-100 kmh (secs)	8.4	6.7
Urban cycle l/100 km	13.3	19.9
Extra urban l/100 km	6.8	9.3
Combined cycle l/100 km	9.2	13.2

### Dimensions (mm)

Length/width/height	4285/1780/1318	4285/1780/1318
Wheelbase	2540	2540
Internal dimensions		
Front/Rear waist level	1336/1336	1336/1336
Front/Rear elbow	1382/1242	1382/1242
Front headroom	941	941
Rear headroom	881	881
Seat travel	200	200
Rear legroom	420	420
Boot (litres)	110	110
Height	530	530
Max width	1050	1050
Length	230	230

### Capacities

Fuel tank (litres)	70	70
Fuel reserve	9	9
Oil, sump and filter	4.4	-
Oil, Total capacity	5	7.3
Radiator/ water	8.4	11.7
Gearbox/differential	1.75	1.75
Brake system	0.4kg	0.42 kg
Screenwasher	2	2
Power steering	1.3kg	1.3 kg



Weights		
Payload	410	410
Kerb weight (kg)	1370	1415
Weight distribution (front/rear)	61/39%	63/37%
Laden weight distribution (front/rear)	52/48%	55/45%

## Alfa Romeo GTV: Trim and equipment

	Alfa Romeo GTV	
	GTV JTS	GTV 3.2 V6 24V
<b>Exterior</b>		
Power steering	Yes	Yes
Alloy wheels	Yes	Yes
Twin headlights	Yes	Yes
Front Foglights	Yes	Yes
Alfa CODE (Immobiliser)	Yes	Yes
Body-coloured bumpers	Yes	Yes
Rear wing	Yes	Yes
Heated, electric door mirrors	Yes	Yes
Polished stainless steel tail-pipe	Yes	Yes
Metallic paintwork	Optional	Optional
<b>Interior</b>		
Electric windows	Yes	Yes
Remote central Locking	Yes	Yes
Upholstery	Cloth	Momo Leather
Digital Radio CD	Yes	Yes
CD Multi stacker	Optional	Optional
Height/reach adjustable steering column	Yes	Yes
Climate Control AirCon	Yes	Yes
Rev counter	Yes	Yes
Timed heated rear window	Yes	Yes
Front, passenger-side courtesy light with reading spotlight and two rear courtesy lights	Yes	Yes
Glove compartment with flap	Yes	Yes
Instrument panel lighting adjustable to three levels	Yes	Yes
<b>Safety and Mechanicals</b>		
ABS + EBD	Yes	Yes
Driver's airbag	Yes	Yes
Front seat-belt electronic pretensioners	Yes	Yes
Headlight alignment adjustment	Yes	Yes
Height-adjustable front seat-belts	Yes	Yes
Passenger airbag with disable function	Yes	Yes