

ALFA TAKES A MORE AGGRESSIVE STANCE WITH THE ALFA 156



The Alfa Romeo 156, already acclaimed as one of the most beautiful cars of all time, has been given an aggressive new appearance by the car designer elected as Designer of the Century, Giorgetto Giugiaro, while changes under the skin have boosted its applauded handling and roadholding and the interior has received a luxury makeover.

And, not to be left out, Alfa Romeo is being aggressive with the price, with no changes despite all the improvements meaning that the new Alfa Romeo 156, fully equipped with Momo leather still starts at \$49,950.

There are few tasks harder for a designer than adjusting a design that was so right to start with and which clearly was designed as a complete entity without spoiling the overall shape or making the changes look like tacky add-ons.

Alfa Romeo Australia



This was a fact clearly understood by Giorgetto Giugiaro who, despite being a legend in car design, recognized the challenge that faced him with the Alfa Romeo 156.

"The reinterpretation of such successful and brilliant design as the Alfa 156 meant that the changes had to convey a new spirit that was not in the original a car," says Giorgetto Giugiaro. "For this reason we chose to go with maximum determination to give it a level of aggression that would provide even greater appeal. Hence the decision to model the exterior shape not just to bring it up to date but also to adjust the ratios of the 156's volumes and sizes."

"The new Alfa 156 forcefully expresses all the new creative vitality of the brand, a stronger interpretation of Alfa's special way of appreciating motor cars that is so very far from thinking of them as simply useful means of transport. The changes to the 156 are a visual interpretation of the changes to Alfa Romeo since the original Alfa 156 was launched, a new level of style, a new level of aggression and a larger and more purposeful role in life," says Giorgetto Giugiaro.

The key changes are a completely restyled front ahead of the A-pillar with significant changes to the grille, which is now bigger and features new design headlights. The lower bumper area is also narrower than on the previous version. The end result is a front end that simultaneously oozes performance, aggression and classic class.

At the rear, the Giorgetto Giugiaro's Italdesign team has gone for style. The tail-lights have thus been slightly reworked so that their lower part is emphasized by two slight side-whiskers and the upper part by a motif that frames the Alfa logo and emphasizes the rear bonnet volume.

Giorgetto Giugiaro's changes to the Alfa 156 respect distinctive brand features, emphasize the features of a successful model and confirm, once again, the profitable relationship that Alfa Romeo has enjoyed with the great master of his trade, who was voted 'Designer of the Century' by more than 120 international journalists and his peers at Las Vegas in 1999.



Even Alfa Romeo's colour palate now reflects the heritage of the company with names that are drawn from its unique history. These include the non-metallic colours of Alfa Red, Carrara White and Kyalami Black. Eleven shades are metallic: Siena Red, Stresa Green, Light of Amalfi Green, Taormina Blue, Capri Blue, Daytona Blue, Le Castellet Blue, Gonzaga Grey, Vesuvius Grey, Lipari Grey and Jarama Black.

But the changes to the 156 are not a triumph of style over substance. There have also been changes to the interior and the chassis that enhance the Alfa Romeo 156 ownership experience. The interior has also been enhanced by major and minor styling changes that alter its appearance with the aim of increasing the sensation of light and elegance while pursuing the close family ties with the Alfa 166 and the Alfa 147.

The facia has been completely revised and its good looks have been enhanced by a selection of three colour combinations available to special order: black on beige, black on grey, dark grey on light grey. The existing sporty black facia complements these alternatives. The New Alfa 156 is the only car in this market sector to offer a leather-trimmed facia, ideal for sporty yet sophisticated customers.

The centre of the facia reveals another new detail. The upper part features a multifunction display in an innovative, up-to-date design, while the lower part contains a built-in radio and mono-zone or automatic dual zone climate control system controls according to the specification. The radio, complemented by a CD player, also offers an outstanding sound system designed and built for the passenger compartment that consists of six speakers and delivers a powerful output of 4x40 Watts.

Features such as the upper central air diffuser outlets and seat adjustment controls have been carried over from the previous model. The outstandingly ergonomic position of the mirror and



foglight controls is also unchanged. The same applies to the central console where the sensation of space has been increased by oddments compartments.

The exterior and interior have thus been revised in a quest for the sporty elegance that has always been written into Alfa's DNA.

The chassis of every Alfa Romeo is also a core value in its DNA and the Alfa 156 has been acclaimed from day one for its dynamic combination of comfort and sporting response from the steering, suspension and brakes. Changes have been made to the Alfa Romeo 156 to enhance this, with the most substantive being the use of a new vacuum cast aluminium cross member at the rear, that is stronger, more rigid and lighter. In addition more compliance has been built into the suspension mounts to enable them to provide better insulation from road surface irregularities, but without reducing the responsive nature of the chassis.

For the Australian market the engine choice remains the benchmark lean burn, direct injection 2.0 litre 121 kW JTS engine, with the choice of five speed manual or Selespeed sequential manual gearbox or the 2.5 litre 142 kW version of Alfa Romeo V6 engine which is equally legendary for its performance as for the sonorous growl it makes under acceleration. The V6 is partnered with either the Q-system automatic gearbox or a six speed manual.

THE ALFA ROMEO JTS ENGINE: DELIVERING THE LEAN BURN PROMISE

It has long been known that lean burn technology and direct fuel injection held out the promise of better fuel economy, lower emissions and more power and torque for a given engine capacity.

However, until now, the drawbacks of poor high engine speed performance, the requirement for low-sulphur fuel and the requirement for extensive emission equipment to cut the nitrogen oxide emissions (and which lead to nitric acid rain) have proven substantial barriers to putting this technology in production.



But for Alfa Romeo, renowned for its highly efficient engines – the 2.0 litre Twin Spark engine, with 114 kW was, until the arrival of the JTS, one of the most efficient and highest specific output engines in the world – direct injection and lean burn technology offers a significant step up in efficiency, emissions and performance.

That Alfa Romeo has met its targets is clearly illustrated by the figures. The JTS engine has exactly the same capacity as the Twin Spark engine it replaced, yet power is up from 114 kW to 121 kW; torque rises from 187 Nm to a remarkable 206 Nm. The engine meets the new ultra tough Euro 4 emissions standards and yet, despite the performance gains, fuel consumption stays virtually the same.

On the road this translates into providing the Alfa 156 with more tractable performance in all the gears, a smoother torque and power curve delivers more refined performance and, in raw figures, top speed rises from 216 to 220 kmh and the zero to 100 kmh time is cut from 8.6 to 8.2 seconds.

So how has Alfa Romeo managed to achieve what other car makers have been trying to do for decades?

Alfa Romeo's answer is as simple as it is sophisticated. At low engine speeds, which the engine operates for the major part of the time, it operates as a lean burn engine, while at higher engine speeds it progressively switches to a normal fuel air mixture to provide the top end performance so beloved of Alfa Romeo drivers. The latter is both enhanced and enabled by the use of direct fuel injection, with the fuel pumped directly into the cylinder head around the sparkplug, boosting volumetric efficiency and performance.



With regard to emissions, the combination of the direct injection and lean burn only at lower engine speeds means that No_x emissions are similar to normal engines and the large No_x catalyst converters are that are typically needed and which reduce performance with high back pressures are not required. The absence of these catalysts also means that JTS owners do not have to worry about high sulphur fuel.

In all, the Alfa Romeo JTS engine is a technical tour de force and is worthy successor to the array of advanced, high performance engines on which Alfa Romeo has built its reputation.

VALUE FOR MONEY MOVES HAND IN HAND WITH PERFORMANCE AND STYLE

If there is another facet to Alfa Romeo's believe that style must not subjugate substance it is in the area of value for money and safety.

Take safety first. As it always should be. In addition to an agile, responsive drivetrain and chassis helps avoid accidents, a host of electronic aids further lift the 156's active safety game. ABS brakes of course, but they sixth generation with EBD and EBA. The chassis is enhanced with VDC, while the engine uses ASR and MSR to enhance grip and traction in treacherous conditions.

Air bags – and smart ones at that – abound, with a total of six inside, front, side and curtain bags are all standard. There is also an anti-fire system that cuts off the fuel in the event of an accident, along with impact absorbing body sections surrounding the rigid safety cage.

For standard equipment, the Alfa Romeo 156 lacks nothing. The windows, mirrors, locks and steering are all power operated. The wipers are rain sensing and the cruise control is standard. A high power Blaupunkt audio system is integrated into the dashboard, as are the controls the split micro climate control ventilation system that enables each side of the interior to have its own temperature. Alloy wheels are standard, as is hand crafted Momo eather, which is a classic combination of leather comfort and Italian style. The steering wheel in all versions has controls for



the audio system mounted on it and in the JTS manual is in classic Alfa wood, while the other versions are leather trimmed and hand stitched.

The new Alfa Romeo 156 range opens with the Alfa Romeo 156 JTS and this model is available with a choice of a five speed manual gearbox at \$49,950 or with Alfa Romeo direct-from-Formula One Selespeed sequential manual gearbox at \$52,950. Fitted with a revised version of Alfa Romeo legendary V6 engine, the Alfa Romeo 156 V6 24V is now priced at \$57,500 with the six speed manual gearbox and \$59,950 with the unique Q-System automatic gearbox with its "H-Gate" operation.

"The original Alfa Romeo 156 was acclaimed as the perfect sports sedan when its was launched," says Kevin Wall, General Manager for Alfa Romeo in Australia. "Remarkably Giorgetto Giugiaro and Alfa Romeo have managed to improve on perfection, both in looks and under the skin, while retaining a level of value for money which its rivals simply cannot match. In Australia, as around the world, the Alfa Romeo 156 has enabled Alfa Romeo to enter the 21st Century with renewed strength and vitality. The new Alfa Romeo 156 can only continue and grow Alfa Romeo unique reputation for performance, style and luxury."



The New Alfa Romeo 156

Design integrity leads to sustained success

The New Alfa 156 replaces a model that has been reaping sales success and prestigious awards for five years. Suffice it to say that during this time the car has been the first choice of more than 540,000 customers throughout more than 80 countries.

This makes it the current widest selling Fiat Auto model in the world. The car now occupies an enviable position in European segment D, where it has easily tripled the Alfa Romeo share: from 0.7% in 1996 to 2.5% by the end of April 2003 with a peak of 3.6% in 2000. It also boosted overall brand sales, which rose - in Europe - from 117,500 in 1996 (0.9%) to 202,100 in 2001 (1.4%). 2002 also closed with sales of 170,000 cars (1.2%).

It is also interesting to note the sales mix of engines and specifications recorded during 2002. In Europe, for example, Alfa 156 and Sportwagon equipped with JTD engines accounted for 76% of sales while sports versions (2.0 JTS manual and Selespeed gearbox, 2.5 V6 and GTA) represent more than 11% of the total. In Australia the majority of sales have been for the JTS version with, when supply permits, the Selespeed taking up to 80 per cent of sales, making Australia one of the world's key markets for the sequential manual gearbox.

European customers were equally divided between those who chose the saloon (51%) and those who prefer the Sportwagon version (49%), compared to around 10 per cent opting for the Sportwagon in Australia.

All in all, the Alfa 156 has lived up to its promise and managed to achieve major goals. The credit is definitely due to the model's solid grounding: the best of Italian design combined with state-of-the-art engineering and a wide range made up of a host of versions with different power units and gearboxes. These have been complemented by a steady flow of new features to keep the public's attention.

The Alfa 156 was introduced to the international press in Lisbon on 9 October 1997. This was the turning point of Alfa's sales fortunes and image. At that moment, Alfa Romeo reclaimed its own long tradition and its rightful place within the pantheon of prestige sports car manufacturers.

Alfa Romeo did not have to wait for long to see the results. The new car won appreciation from the press, who voted it 'Car of the Year 1998' (this award was followed by another 35 more accolades). The other motor manufacturers also had to sit up and take notice. It did not take them long to follow suite and extend their ranges to include the Common Rail turbodiesel engines you first saw on the Alfa saloon.

These results were already gratifying enough. But Alfa Romeo continued to improve its model. This was borne out by the Alfa Sportwagon in 2000, a car whose shape and content immediately singled it out as much more than an ordinary station wagon version of the Alfa 156.

Then came the 156 Selespeed, equipped with a 2.0 Twin Spark 16v and a robotised gearbox with steering wheel controls. These were then joined by another Alfa 156 with 2.5 V6 24v engine that offered customers Alfa Romeo's version of automatic transmission, a device created to ensure maximum comfort under all conditions but able to guarantee all the driving satisfaction of a manual device when required.

The Alfa Romeo 156 arrived in Australia 1999, following the marque's return to Australia with the Spider and GTV and providing it with a new impetus and a new respect for Alfa Romeo's abilities.



In 2002, the revised Alfa 156 and Sportwagon arrived - together with the Alfa 156 GTA - another stage of the progress that saw an increase in the comfort and safety content, more creature comforts and the introduction of a brand-new petrol engine with direct injection, the 2.0 JTS. Not to mention the fact that a few months later saw the world debut of the brand new 103 kW 1.9 JTD Multijet 16v, forerunner of the second Common Rail turbodiesel generation for the European market.

Now it is the turn of the New Alfa 156 and Sportwagon to confirm the model's vitality. These two cars, reinterpreted by the famous designer Giorgetto Giugiaro, maintain the car's underlying attribute of a vivacious personality coupled with outstanding dynamism. This vitality is the secret that has turned positive, immediate acclaim into lasting success.

The Alfa Romeo 156's Awards

CAR OF THE YEAR 1998 - (Chosen by a panel of 56 journalists from 21 European countries)

CAR OF THE YEAR IN DENMARK 1998

TECHNICAL INNOVATION AWARD - COMMON RAIL 1998 - (Autocar - Great Britain)

VOITURE D'ESSAI DE L'ANNEE 1998 - (Auto 2 - Magyar Hirlap - Hungary)

AUTO EUROPA 1998 - (U.I.G.A.- Italy)

AUTO PIU' BELLA DEL MONDO 1998 - (Automobilia - Italy)

TROPHEE DU DESIGN 1998 - (Automobile Magazine - France)

COCHE DEL ANO 1998 - (ABC - Panel of 104 journalists - Spain)

COCHE DEL ANO 1998 - (Motor Mundial - Spain)

COCHE INNOVADOR 1998 - (Car and Driver - Spain)

COCHE DEL ANO 1998 IN CATALUNA - (Radiomotor and Telemotor - Spain)

COCHE DEL ANO COMO INNOVATION TECNICA 1998 - (Malaga Motoring Journalist Association - Spain)

EUROPEAN AWARD OF AUTOMOTIVE DESIGN 1998 - (Panel of Belgian journalists sponsored by Dominique Fontignies - Belgium)

THE BEST PERFORMANCE IN STYLING - THE MOST BEAUTIFUL STYLING DETAIL, THE MOST BEAUTIFUL INTERIOR 1998 (Autovisie - Holland)

CAR OF THE YEAR 1998 - (Auto - Yugoslavia)

CAR OF THE YEAR 1998 - (Huan - Association of Motoring Journalists - Croatia)

CAR OF THE YEAR 1998 - (Autoklub - Croatia)

CAR OF THE YEAR 1998 - (Auto Magazin - Slovenia)

DIE BESTEN AUTOS 1998, PAUL PIETSCH PREIS - (Innovation prize for Common Rail, (Auto Motor und Sport - Germany)



DREAM CAR OF THE YEAR 1998 - (Auto Moto - Poland)

CERCHIONE ARGENTEO 1998 - (Auto Moto - Poland)

BEST COMPACT EXECUTIVE 1998 - (What Car - UK)

CARRO DO ANO / TROFEU VOLANTE DE CRISTAL - CARRO EXECUTIVO DO ANO / TROFEU DO AUTOMOVEL 1998
(Autosport Volante - Portugal)

AUTO 1 1998 - Chosen by readers of trade press in 8 European countries including the eleven that take part in electing 'Auto 1 1998' (organised by their partner magazine Auto Bild): Auto Oggi (Italy) - Auto Week (Holland) - Auto Plus (France) - Auto Tip (Czech Republic) - Auto Show (Turkey) - Auto Swiat (Poland) - Auto Blic (Croatia) - Auto Nea (Greece).

AUTO 1 EUROPA 1998 - (Panel of engineers, drivers and journalists from the 11 European magazines headed by Auto Bild)

AUTO ROKU '98 V CESKE REPUBLICE - (Panel of 25 journalists from motoring magazine - Czech Republic)

FAVOURITE CAR 1998 - (chosen by 125,000 readers of Auto Roku - Czech Republic)

MEILLEURE VOITURE DE L'ANNEE 1998 - (Steering Committee of A.F.P.A - France)

PRIX DE L'INNOVATION TECHNIQUE POUR LE COMMON RAIL 1998 - (A.F.P.A. - France)

'THE BEST 1998 CARS - MEDIUMS FAMILIARS SEGMENT' - (Auto-Hoje readers panel - Portugal)

VOITURE DE L'ANNEE 1998 - (chosen by readers of 'Auto Moto' - Luxembourg)

TOWCAR OF THE YEAR 1998 - ('Kampeer en Caravan Kampioen' - Holland)

AUTO TROPHY 1998 - (Auto Zeitung - Germany)

BEST COMPACT EXECUTIVE CAR 1998- (Autoexpress - UK)

CAR OF THE YEAR 1999 - (South African Guild of Motoring Journalists)

Le Auto che preferisco 2000 (medium-categories) - (Italy - Quattroruote)



The New Alfa Romeo 156

The Perfect Design enhanced by a legend

The New Alfa 156, created by the legendary hand of Giorgetto Giugiaro, represents an ideal marriage between sportiness and elegance, performance and formal balance. All the hallmarks of the brand, in other words.

The famous designer explains: "It is not easy to revise the architecture of a hugely successful car. It was a real challenge but in the end we succeeded in giving this model even greater appeal. We achieved this by making the front end more desirable through significant changes to the grille".

The Italdesign team blended the grille even more into the shape of the car's front end to emphasize its importance and its sporty nature. Changes to the headlights give the new model an additional sporty flavour. Not to mention the fact that the homogeneity, fusion and integration now so evident at the front add undeniable sporting grit and breeding. Giorgetto Giugiaro continued: "The grille is bigger and reshaped and the headlights feature round chrome-plated parts on a black ground and are joined by a single glass lip. The lower part of the bumper has also been reduced in width compared to the previous version to increase the sporty, aggressive feel. These were the key aims of Alfa Romeo's restyling brief, apart from full respect for distinctive brand features. All the horizontal lines at the front converge on the grille at an angle to increase the sense of potency".

At the rear, Giugiaro's team has gone all out for class and elegance. The tail-lights have thus been slightly reworked so that their lower part is emphasized by two slight side-whiskers and the upper part by a motif that frames the Alfa logo and emphasizes the rear bonnet volume. The Italian designer concludes: "The reinterpretation of a winning model such as the Alfa 156 had to convey maximum determination and aggression to add even greater appeal. Hence the decision to model the exterior shape to bring it up to date and also to adjust the volumes and sizes, and the work that had already gone into the development of today's car helped us to enhance the appeal of this great product".

And so yet another challenge has been taken up and won. This new success confirms a profitable collaboration that has continued for more than thirty years and saw Alfa Romeo and the master craftsman voted 'Designer of the Century' by more than 120 international journalists at Las Vegas in 1999. His production models for Alfa Romeo include the 2000 and 2600 Sprint (1960), the Giulia GT (1963), AlfaSud (1971), Alfetta GT/GTV (1974) and AlfaSud Sprint (1976). These were joined by prototypes and special versions: 2000 Spring (1962), 2600 HS (1963), Giulia Sport Special Canguro (1964), 33 Iguana (1969), Caimano (1971), New York Taxi (1976), Scighera/Gt (1997) and the gorgeous, multi award-winning Alfa Brera (2002).

At the launch of the New Alfa 156, Alfa Romeo is adopting new colour naming references that respect historical brand values. The body shades that interpret the exclusive style of an Alfa Romeo in sporty, dynamic fashion are named after the many circuits where Alfa cars have triumphed, from the early road races to recent wins with the 156 GTA. Colours that are reminiscent of a more classic style are named after Italian places and names that best express the thrill of being Italian and its positive values of elegance, beauty and taste.

This is the philosophy underlying the 16 model colours. Three are non-metallic: Alfa Red, Carrara White and Kyalami Black. Eleven shades are metallic: Siena Red, Stresa Green, Light of Amalfi Green, Taormina Blue, Capri Blue, Daytona Blue, Le Castellet Blue, Gonzaga Grey, Vesuvius Grey, Lipari Grey and Jarama Black. Lastly, two are metallescent: Nuvola Blue and Nuvola White. Four of these colours are also brand new: Light of Amalfi Grey, Lipari Grey, Capri Blue and Siena Red. The first two, one light and other dark, are warm shades that ideally reflect the Brand's exclusive feel of sporty elegance. Capri Blue is a more sophisticated colour, ideal for versions of the new model that need to make an impression. Last but not least, Siena Red adds a touch of elegance to the colour that is traditionally most dear to the Brand.



The New Alfa Romeo 156

JTS: Setting a new performance standard

Alfa Romeo cars have always been distinguished by their up-to-date power units and scintillating performance, a motoring tradition that fills many pages of the international motoring history books and remains alive in the New Alfa 156.

The heart under the bonnet of the new 156 is the revolutionary 2.0 JTS, forerunner of a new direct injection petrol power unit family that will equip brand models from now on. In addition the legendary Alfa Romeo V6 engine has been upgraded with more performance and lower emissions to translate heritage into a 21st century power unit.

Performance engines, therefore, that also offer moderate fuel consumption and respect for the environment. These engines come with efficient, precise gearboxes, such as the innovative Selespeed system that offers a revised operating strategy for greater driving satisfaction in complete safety.

JTS: Alfa Romeo's interpretation of the direct injection petrol engine

At its first outing in autumn 1997, the Alfa 156 immediately won the hearts of public and experts alike for its good-looking styling, thrilling performance and on-road behaviour and also for its sophisticated engineering, so perfectly consistent with the brand's great motorsport tradition. This was the first car in the world to be fitted with common rail direct injection turbodiesel power units. The engineering principle that was subsequently to win such success with other manufacturers.

The Alfa 156, aiming for more engineering excellence, now offers another world first: the first direct injection petrol engine with a specific power greater than 60 kW/l (82 bhp/l) and a specific torque of more than 100 Nm/l. An ultra-high performance power unit that takes the name of JTS (Jet Thrust Stoichiometric) from its specific combustion system, an acronym that is destined to identify an entire family of future Alfa Romeo engines.

As far as the customer is concerned, this means a two litre car that:

- Already meets stringent Euro 4 emission limits;
- Does not need low sulphur petrol but is able to use the normal petrol already on sale in Australia, Europe and the United States.

The New 156 is the first petrol engine from Alfa Romeo (and indeed Fiat Auto) with injectors that work directly in 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 and more recently from since 1996 to reduce fuel consumption.

Recently, manufacturers have devoted all their efforts to this latter direction and good 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, have amounted to a fuel saving of some 10 per cent. The disadvantages 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 that is difficult to find in Europe and practically unknown Australia and in the US;
- The requirement for exhaust gas treatment methods (DE- No_x) 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 Romeo models.

But what was to stop Alfa Romeo from using direct injection to increase engine power and torque in keeping with the sporty applications of this technology? Then, Alfa's engineers reasoned, the stratified charge system could be brought in 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 New Alfa 156 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 petrol direct injection engines. Above this rpm, 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. This is much better than would be obtained using a normal indirect injection petrol unit.

Firstly, because petrol injected directly into the combustion chamber instead of the duct 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 the 156 does not generate the strong back-pressure typical of the No_x catalysis used by lean petrol DI engines.

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

Benefits: higher performance and lower fuel consumption

Compared to the 2.0 Twin Spark unit and other currently-available direct injection petrol engines, the 2.0 JTS unit fitted to the New Alfa 156 offers slightly lower fuel consumption and a generous increase in power and – above all – torque. The new JTS engine has exactly the same capacity as the Twin Spark engine it replaces, yet power is up from 114 kW to 121 kW; torque rises from 187 Nm to a remarkable 206 Nm. 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 Gasoline Direct Injection (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 - the charge motion - according to rpm level and this complicates the air input mechanisms, such as throttles, duct closure systems etc.

On 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, it achieves 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 2.0 JTS Alfa Romeo 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 (No_x catalyst) to remote 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 fitted to the New Alfa 156 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 (No_x). 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 back pressure for fuller engine power delivery.



The New Alfa Romeo 156

The Alfa Romeo Selespeed Gearbox

Following its success on the Alfa 156 and Sportwagon and then on the Alfa 147 2.0 Twin Spark, the Selespeed gearbox is again playing a significant role in the new range, especially in Australia where it accounts for up to 80 per cent of sales.

The system is unchanged from the changes made in 2002 to enhance operating functionality when the device is used in 'CITY' mode. In this setting, the driver can now change a gear, to perform an overtaking manoeuvre, for example, without coming out of City mode.

The Selespeed unit fitted to the New Alfa 156 is therefore even more sophisticated and offers customers the possibility of discovering an easy, sporting, convenient and safe way of driving in all situations.

Easy, because the gearbox, with its robotised gear shift and clutch control, can be manoeuvred using two paddles behind the steering wheel or a sequential gear stick control on the tunnel between the seats.

Sporting, because it allows fast, accurate gear changes for improved performance.

Convenient, because it is less tiring than a conventional gearbox. The system lacks a clutch pedal and gears are easy to engage: there is no risk of grinding gears or slipping the clutch and the engine never stalls accidentally. The transmission also ensures smooth shifts and gradual torque delivery to the wheels. And of course the Selespeed converts into a relaxing automatic transmission that is ideal around town when in CITY mode.

The Selespeed is also very safe. It boasts an array of features designed to prevent the driver from making incorrect commands. It also allows the driver to maintain full control of the wheel even during gear changes when the driver does not have to take a hand away from the steering wheel to reach the gear stick. Without a clutch pedal, the driver is also more firmly anchored in the seat on corners because he can brace himself with his free leg.



The New Alfa Romeo 156

Sports Car Response from the Chassis

The New Alfa 156 confirms success of the geometry adopted on the previous model with its specific configuration of 'high' dual wishbone suspension at the front, MacPherson type rear suspension with transverse links of different lengths.

The choice of double wishbone geometry for the front suspension is Alfa Romeo's response to a specific requirement. What was wanted was a system that minimised yaw, responded with superlative precision to steering, threw in extra special traction and combined all these gifts with the ability to absorb and dampen road surface irregularities as effectively as the most comfortable cars in its class. With a double wishbone format, it becomes possible to allow the wheel considerable freedom of movement in the direction of motion without detriment to tyre grip on bends or to steering.

The car's road manners needed to be supported by a rear end that would provide super-stable handling at high speeds combined with the agility demanded of a true sports car on 'close mixed' routes, which is why Alfa Romeo opted for MacPherson type suspension with asymmetrical arms and refined elastokinetics. On the New Alfa 156 the rear suspension is connected to the chassis by a new vacuum-cast aluminium cross-member.

The MacPherson strut offers several advantages: low weight, comfort (guaranteed by ample wheel freedom and by its longitudinal flexibility) and ample scope for set-up modulation.

In addition, the special front and rear suspension geometry make it possible to endow the various joints, including the steering ball joints, with a new carefully calibrated degree of 'give' without impairing steering precision. The combined effect of all these devices is superlative noise containment, combined with a capacity to absorb the tiny road surface irregularities that so often make for irritating bodyshell rattle.

Front Suspension

The high double wishbone used on the front suspension is geometrically the most sophisticated way of reconciling ultra-flexible wheel travel with optimised control over tyre operating conditions. The development was a joint effort by the Fiat Research Centre and Alfa Romeo's Design Engineering and Experimental Unit.

The double wishbone structure consists of a cast iron lower link, a steel upright and a light alloy upper link, with the coaxial spring-damper assembly connected to the bodyshell via a flexible bushing and to the lower arm via a light alloy fork. To save space and enhance structural rigidity, the upper link is articulated onto an aluminium 'shell' anchored to the body to support the upper anchorage point of the spring-damper unit.

The suspension layout was designed to allow for camber recovery by the wheel in its roll and steer movements without altering kingpin offset (i.e. the distance between the centre of the tyre tread and the point of intersection between road surface and steering axle) in all load conditions.

The forward tilt of the upper link also makes it possible to control the kingpin angle (the transverse tilt of the steering axle) in even the most critical running conditions. This helps to maintain optimum front tyre grip even during rapid steering manoeuvres and also improves steering smoothness.

It all makes a significant contribution to the car's driveability and road manners:

- Optimised tyre grip;
- Superb cornering in all load conditions;
- Improved drive even in the most difficult conditions;



- Precise, sensitive steering even on tight bends and windy roads;
- Progressive steering wheel action with evenly increasing pressure right down to borderline grip conditions;
- Pronounced anti-dive effect (preventing the front end dipping under braking) and anti-lift (preventing lift during acceleration);
- Elimination of steering reactions if one of the front wheels loses contact with the road during acceleration;
- Natural steering wheel self-centring on emerging from a bend and immediate realignment.

Rear Suspension

This layout is particularly advanced in both geometry and construction terms. It is based essentially on a telescopic vertical strut with a coaxial spring, two long transverse links and a longitudinal strut. The telescopic upright incorporates a pressurised dual-rate damper with a distinctly offset coil spring to minimise friction. The damper stop also comes into play in the final suspension travel phase and is made of 'Cellasto', a special closed-cell polyurethane that retains its smoothly flexible action over time. The two transverse links are pressed out of high tensile steel and are of different lengths in order to exploit the system's elastokinematic properties to produce a tiny steering effect.

Toe-in is regulated by a cam system on the rear link that is lighter and simpler to repair than a traditional screw system. The two transverse arms and the anti-roll bar supports are anchored to a new vacuum-cast light alloy sub-frame which weighs about 1.8 kg less than a conventional steel cross-member.

Alfa engineers have taken particular care over the way the suspension system is connected to the frame, aiming for maximum geometrical precision combined with minimum transmission of noise and vibration. All bodyshell anchorage points are very solid and equipped with special fitments like the 'shell' used on the front damper spring assembly and the way the damper attachment to the rear upright is separate from the spring support.

In order to optimise the system's absorption of tiny asperities in the road surface, friction has been minimised by using bushings with fluid-dynamic properties on the front upper wishbone and the anchorage points for the longitudinal struts at the rear, as well as Teflon seals for the damper rods.



The New Alfa Romeo 156

More Safety – VDC, EBA, MSR & 6 Airbags

The new Alfa Romeo 156 employs the most sophisticated devices currently on the market allow maximum protection for driver and passengers. On the active safety front, the New Alfa 156 offers: VDC with Emergency Brake Assist for total control of car dynamic stability under all conditions. As far as passive safety is concerned, the array of features is complemented by front airbags, front sidebags and window-bags.

VDC with Brake Assist

To ensure absolute mastery of the car under all conditions, however extreme, the entire New Alfa 156 range is fitted as standard with VDC (Vehicle Dynamic Control) with an emergency brake assist device (EBA).

This innovative device cuts in under extreme conditions when car stability is at risk and also helps the driver control the car. As befits a true Alfa, the VDC is a sporting device that allows outstanding roadholding. It allows the driver to experience the full pleasure of controlling the car as long as conditions are normal and only cuts in when the situation is just about to become critical.

The VDC is permanently engaged.

The MSR (Motor Speed Regulator) cuts in when the gear is shifted down abruptly under conditions of low grip. This device restores torque to the engine to prevent the wheel skidding as a result of lock.

To achieve this result, the VDC continually monitors tyre grip in both longitudinal and lateral directions. If the car skids, it cuts in to restore directionality and ride stability. It uses sensors to detect rotation of the car body about its vertical axis (yaw speed), car lateral acceleration and the steering wheel angle set by the driver (which indicates the chosen direction). It then goes on to compare these data with parameters generated by a computer and establishes – via a complex mathematical model – whether the car is cornering within its grip limits or if the front or rear is about to skid (understeer or oversteer).

To restore the correct trajectory, it then generates a yawing movement in the opposite direction to the movement that gave rise to the instability by braking the appropriate wheel (any of the four wheels) individually and reducing engine power via the throttle. This is the key attribute of the device designed by Alfa Romeo engineers. It acts in a modulated fashion on the brakes to ensure the action is as smooth as possible and the drive is not therefore disturbed. The engine power reduction is contained to ensure outstanding performance and great driving satisfaction at all times.

As it carries out its complex task, the VDC stays in constant communication with the brake sensors and engine control unit but also with:

- The Body computer that constantly exchanges information with the ABS, engine management unit and automatic transmission unit;
- The electronic throttle (that communicates with the ABS in turn);
- The control panel (active warning lights);
- The steering wheel and steering column (via the steering sensor);
- A gyroscopic sensor installed on the passenger compartment floor to record car yaw and lateral acceleration.

The VDC fitted to the New Alfa 156 also comes with an emergency brake assist device. The function is carried out electronically by the ABS control unit and is referred to as EBA (Emergency Brake Assistance). In panic braking situations, most drivers recognise a situation of danger and press the brake pedal very quickly. But not, however, with sufficient force. This is because people, unless they are professional drivers, are used to applying a certain load to the brake pedal. Because people tend to switch to autopilot mode when they carry out repetitive actions, the same level of



force tends to be applied in all circumstances.

On the New Alfa 156, however, the Brake Assist device cuts in at this point. Although the pressure on the pedal is unchanged, the car is decelerated by the same amount as it would be if it were braked with all the necessary force. The figures: If an average load of 9 Kg is applied to the brake pedal, the HBA reduces the stopping distance by 35%.

And there is more. Panic brake assist devices can even help experienced drivers who brake quickly and apply the correct amount of force in emergencies. This is because the system reduces braking attenuation time in all cases, i.e. the period between the time when pressure begins to be applied to the pedal and the moment when the circuit reaches maximum pressure and is able to offer maximum performance. This means that a vital tenth of a second is gained. At 100 km/h, this means nearly three metres (2.8) and more than three and a half metres (3.6) at 130 km/h.

Window-bags

These airbags are fitted as standard on all versions and drop down along the windows to safeguard the passengers' heads in the case of side impact. Compared to other solutions, the window-bags adopted on the New Alfa 156 are more protective (because they always take up the correct position), faster to inflate and less invasive for passengers.

They open from top to bottom and do not involve a risk of secondary damage to occupants' arms. They also effectively safeguard the heads of front and rear passengers because they extend along the entire width of the window and ensure protection even during rollover.

Two bags (one on the right and the other on the left) are located under the roof rails where they are folded into a closed compartment. At the appropriate moment, the covering bends open to allow the bags to expand and drop downward.



The New Alfa Romeo 156

More comfort, More convenience

The New Alfa 156 inherits from its predecessor an interior that is able to ensure all the comfort you expect from a sports saloon in terms of user-friendliness and space available to driver and passengers. It also offers all the extra systems and devices that have been made available by technological advances: bi-zone automatic climate control system, Cruise Control, new instrument panel, radio with steering wheel controls and a sophisticated Hi-Fi system.

Bi-zone automatic climate control system

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 156 comes 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. It also acts as a bi-zone climate control system, i.e. able to ensure two different temperatures simultaneously: one in the right part of the passenger compartment and the other in the left.

The Alfa 156 also implements an equivalent temperature climate control strategy. It records internal and external temperature by means of certain sensors and assesses the sensation of thermal well-being experienced by passengers, i.e. the energy exchange between human body and passenger compartment that is affected by humidity, temperature and treated air flow.

Another sensor located in a central position at the windscreen base records solar radiation on the car and the angle at which the rays strike the passenger compartment. This allows the system to prevent an excessive increase in temperature inside the car caused by the sun and thus to inform the climate control system in time.

All these parameters are monitored continuously and used to update the distribution, ventilation and mixing automatically. Air temperature at the outlets and fan speed are therefore adjusted to ensure passengers experience the desired sensation of thermal well-being (achieved by setting the required temperature). The result is a constant climate, even with significant changes in external conditions.

The system may be adjusted to one of seven set combinations to allow air taken into the car to reach all areas of the passenger compartment. The system also offers three possible temperature settings: 'LO' (maximum cooling), 'HI' (maximum heating) and 'MAX DEF' (fast defrost).

The possibility of altering interior temperature gradually, half a degree at a time, makes for outstanding climatic comfort. The knob can be used to bring about a temperature change of 16°C, with a maximum temperature difference of 7 degrees between the left and right areas.

Manual adjustment is used for: setting the interior temperature (right and left), voluntary air flow distribution changes, fan speed (if air flow is to be altered) and fan deactivation, compressor deactivation (in practice, the system works in the same ways as an automatic heater), recirculation control and the 'MAX DEF' function for fast defrosting.

Manual choices always over-ride automatic settings. They are also indicated by deactivation of the Full Auto led and stored until the user cancels the command. Each time the system is turned on, it returns to the conditions saved upon deactivation, except for the 'MAX DEF' function, which is zeroed. The entire system can also be turned off manually to deactivate the air conditioning system fully.



Cruise Control

The New Alfa 156 is fitted as standard with Cruise Control, a system that helps the motorist to manage vehicle speed and improve traveling comfort. The device allows a cruising speed set by the driver to be maintained automatically by governing the engine throttle directly.

The device is controlled by means of a lever on the column switch with two wheels. The first is turned to ON to activate the system while the second (actually a manual accelerator) must be moved to the plus (or minus) sign to achieve the required speed. When the control is released, the car continues to travel at the saved speed without the driver pressing the accelerator pedal.

The Cruise Control system can work within the entire range of rpm levels allowed by the engine, but only at speeds over 30 km/h. It is therefore advisable to turn it on only if road conditions allow the set value to be maintained in safety.

When the accelerator pedal is pressed (during overtaking, for example), the Cruise Control system is temporarily disabled even though the system stays on. The car therefore accelerates as required, but the system automatically restores the car to the stored speed as soon as the pedal is released. For obvious safety reasons, the device is released automatically when the driver presses the brake or clutch pedal.

In this case, you can go back to the preset speed by pressing the RECALL button at the end of the Cruise Control stalk. Turn the wheel OFF and turn off the engine to deactivate the Cruise Control finally and cancel all previous settings. A warning light on the multifunctional display indicates system operation or deactivation status.

Multifunctional display

The multifunctional display in the middle of the New Alfa 156 facia performs the twofold function of providing the driver with information on the main trip parameters and providing instant feedback on car faults and action required.

The device provides access to several menus (with submenus) that speak the motorist's language (the choice is between Italian, English, Spanish, Portuguese, French, German and Dutch) and offer the benefits of a host of functions and information. For example: data, outdoor temperature, speed limit setting, fault display etc. The customer can also use the Trip computer to find out a set of data from a previous trip or the current journey: fuel consumption (instantaneous and average), average speed, remaining range, journey time (since the trip started) and kilometres covered.

Integral radio with steering wheel controls

The New Alfa 156 offers - as standard throughout the range - a built-in radio with CD player that is a carefully put together sound system designed and adjusted to suit the passenger compartment that comprises six speakers and offers a power output of 4 x 40 Watts. It is also more easily operated with finger tip controls on the steering wheel meaning key functions can be operated without the driver having to take their hand from the steering wheel.

The radio is integral with the dashboard design and located in the middle of the facia in a position that is convenient for both driver and passenger. It can store up to 30 stations. It offers RDS (Radio Data System), TA (Traffic Announcement) and PTY (programme choice option) options in addition to an automatic device that adjusts the volume to the car speed and a large alphanumeric display. Each time the radio is turned on, the volume is the same as when the set was turned off. The device is equipped with controls for an external CD stacker.

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 motorist can also choose special effects or adjust and save the sound parameters.



The New Alfa Romeo 156

The New Interior

As with the exterior styling, the New Alfa 156 interiors have also been altered by major and minor changes, but the passenger compartment still displays the same smooth, unbroken lines of the previous model and Alfa has not attempted to improve on the distinctive traits that have always distinguished the Alfa 156: the attention devoted to the driver's cockpit and the classic, uncluttered control panel.

But the New Alfa 156 adds important new features to the classic Brand and model details. The aim: to increase the sensation of light and elegance while pursuing the close family ties with the Alfa 166 and the Alfa 147.

The fascia has been completely revised and made even better looking by three optional colour trims: black on beige, black on grey, dark grey on light grey. The current sporty black fascia complements these alternatives. The New Alfa 156 is the only cars in this band to offer a leather-trimmed fascia, ideal for sporty yet sophisticated customers.

The fascia is treated with a special laser technology that creates surface micro roughness that alters the way light is refracted and makes the material more pleasurable to the touch.

The middle of the display, at the top, also features a new multifunction display of innovative and up-to-date design. The device fulfils the twofold function of informing the customer of the main trip parameters (Trip computer) and also indicates any car faults quickly and accurately together with information on the action required.

The built-in radio and controls for the automatic dual zone climate control system are located low down in the middle of the fascia and produced with a sophisticated design. In detail, the radio, complemented a CD player, also offers an outstanding sound system designed and adjusted to the passenger compartment that consists of six speakers and delivers a power output of 4x40 Watts. The radio may also be activated by controls on the steering wheel. The cars retain their big upper central diffuser air outlets with horizontal and vertical adjustment modes.

The steering wheel button panels, climate control system and gearbox control panels and the dial frames are also in grey while the fascia outlet surrounds and door handles are chrome. The outstandingly ergonomic position of the mirror and foglight controls is also unchanged. The same applies to the central console where the sensation of space has been increased by oddment compartments.

A passenger compartment full of new features with linear styling in the very best Alfa Romeo tradition and the spirit of a fast, powerful sports car. This is borne out, for example, by the red instrument panel, the range of brand new design steering wheels combined with special gear knobs and electrical radio controls.



The 2004 Alfa Romeo 156: TECHNICAL SPECIFICATIONS

	Alfa 156 2.0 JTS	Alfa 156 2.5 V6 24V		
	Manual/Selespeed	Manual/Q-System automatic		
ENGINE				
	4, in line, 2 counter-rotating shafts, front transverse driving the front wheels	6 in 60° V, front transverse, driving the front wheels		
Bore x stroke (mm)	83 x 91	88 x 68.3		
Capacity (cc)	1970	2492		
Compression ratio	11 : 3	10.3 : 1		
Max power output kW/rpm	121/6400	141/6300		
Max torque Nm/rpm	206/3500	218/5000		
Timing system (drive)	20HC (toothed belt) 4 valves per cylinder and electronic variable valve timing	20HC per bank, hydraulic tappets (toothed belt) 4 valves per cylinder		
Cylinder spacing (mm)	90	133		
Main bearings	5	4		
Cylinder block	Segmented cast iron	Light alloy		
Cylinder head	Regenerated aluminium, incorporating a water pump and plastic variable geometry manifold.	Light alloy		
Number of valves per cylinder	4	4		
Valve position	In 47 degree V	In 37 degree V		
Timing gear	Twin overhead camshafts with hydraulic tappets, electro-hydraulic variable valve timing from the camshaft driven by the Motronic control unit	Twin overhead camshafts per bank with hydraulic tappets		
Timing control	Toothed belt	Toothed belt		
Ignition type	Static, electronic digital with ignition and knock sensor, 4 HT coils fitted in the head, one spark plug per cylinder	Static, electronic combined with injection with two knock sensors, 6 HT coils fitted in the head, one spark plug per cylinder.		
Lubrication	Forced feed with geared pump, water/oil heat exchanger, cartridge oil filter			
Fuel system	Bosch Motronic MED 7.1.1 phased electronic multipoint fuel injection with electronic injection combined and ignition variable layout intake manifold	Bosch Motronic ME 3.1 electronic multipoint fuel injection electronic injection combined with ignition		
ELECTRICAL EQUIPMENT				
Battery: capacity (Ah)	60	70		
Generator (A)	90	120		
TRANSMISSION				
Drive	Front			
	Manual	Selespeed	Manual	Q-System automatic
Gearbox: 1st	3.909 : 1	3.909 : 1	3.500 : 1	3.900 : 1
2nd	2.238 : 1	2.238 : 1	2.235 : 1	2.228 : 1
3rd	1.520 : 1	1.520 : 1	1.520 : 1	1.447 : 1



4th	1.156 : 1	1.156 : 1	1.156 : 1	0.062 : 1
5th	0.946 : 1	0.946 : 1	0.971 : 1	-
6th	-	-	0.816 : 1	-
Reverse	3.909 : 1	3.909 : 1	3.545 : 1	4.261 : 1
Final drive	3.563 : 1	3.563 : 1	3.937 : 1	3.095 : 1
Clutch Diameter (mm)	230		235	NA
Lining Dimensions	230 x 155		235 x 155	NA

TYRES AND WHEELS

Tyres	205/55 VR16	205/55 VR16
Wheels	Alloy 6½x16	Alloy 6½x16

STEERING

Steering box	rack and pinion with power steering	rack and pinion with power steering
Turns lock to lock	2.2	2.1
Turning circle (m)	11.1	11.6

SUSPENSION

Front	Independent, double wishbones with double trailing arm and anti-roll bar on ball joints
Rear	Independent, MacPherson type with lower side rods and reaction struts, anti-roll bar on ball joints

BRAKES

Front: dia. (mm)	Disc 284 (ventilated)	Disc 284 (ventilated)
Rear: dia. (mm)	Disc 276	Disc 276

BODY - DIMENSIONS

No. of seats	5	5
No. of doors	4	4
Length/width (mm)	4435/1743	4435/1743
Height (mm)	1430	1430
Wheelbase (mm)	2595	2595
Front/rear track (mm)	1511/1498	1511/1498
Luggage capacity (l)	378	378

CAPACITIES - WEIGHTS

Fuel tank (l)	63	63	
Kerb weight DIN (kg)	1285	1355	1385
Max. towable weight (kg)	1300	1400	

PERFORMANCE AND FUEL CONSUMPTION

	Manual	Selespeed	Manual	Q-System Automatic
Top speed (km/h)	220	220	230	227
Acceleration (s)				
0-100 km/h	8.2	8.2	7.3	8.5
0-1000 m	29.8	29.8	27.8	29.0

EU Fuel Consumption (l/100 km)

urban cycle	12.2	12.2	17.5	17.5
out-of-town cycle	6.6	6.6	8.5	8.8
combined cycle	8.6	8.6	11.8	11.9



Alfa Romeo 156 JTS: Standard equipment and options

✓ standard 0 optional ~ not available

	Alfa 156 2.0 JTS Alfa 156 JTS Selespeed	Alfa 156 V6 24V Manual/Q System
EXTERIOR		
Alarm	0	0
Alloy Wheels	✓	✓
Body Kit with front and rear splitters	0	0
Body-coloured bumpers	✓	✓
Central locking	✓	✓
Central locking with remote control with side light actuation warning	✓	✓
Door mirrors, heated, electrically operated and body coloured	✓	✓
Electric front windows	✓	✓
Electric rear windows	✓	✓
Metallic paintwork	0	0
Polished stainless steel tail-pipe	✓	✓
Headlight washers	✓	✓
Side Skirts	✓	✓
Sports spoiler	0	0
Sunroof	0	0
Wipers, Automatic rain sensing, two speed with 4 intermittent settings and smart wash	✓	✓
INTERIOR		
Analogue clock	✓	✓
Audio controls on the steering wheel	✓	✓
Audio system, Blaupunkt Digital CD player, amp/speakers	✓	✓
Automatic climate control system with twin zone temperature setting	✓	✓
Boot and fuel filler flap opening from inside	✓	✓
Check control	✓	✓
Cruise control	✓	✓
External temperature gauge	✓	✓
Front seats with adjustable lumbar support and centre armrest	✓	✓
Front, passenger-side courtesy light with reading spotlight and two rear courtesy lights	✓	✓
Glove compartment with flap	✓	✓
Height-adjustable driver's seat	✓	✓
InfoCentre Readout with outdoor temp, trip computer, check control.	✓	✓
Instrument panel lighting adjustable to three levels	✓	✓
Steering Wheel	Woodtrim/Leather	✓



Metallic gray instrument and control background	✓	✓
Pouch on back of front seat squab	✓	✓
Rear armrest with ski tunnel	✓	✓
Rev counter	✓	✓
Steering wheel with height and axial adjustment	✓	✓
Timed heated rear window	✓	✓
Titanium effect centre console	✓	✓
Upholstery, Momo leather	✓	✓
Velour carpets	✓	✓
SAFETY/MECHANICALS		
ABS + EBD + EBA	✓	✓
Airbag, Driver	✓	✓
Airbag, Passenger	✓	✓
Airbag, Side	✓	✓
Airbag, Window	✓	✓
Alfa Code Security Immobilizer	✓	✓
ASR/MSR	✓	✓
Foglights, front	✓	✓
Foglights, rear	✓	✓
FPS (Fire Prevention System)	✓	✓
Front seat-belt electronic pretensioners	✓	✓
Headlight alignment adjustment	✓	✓
Headlight wash/wipe	✓	✓
Height-adjustable front and rear head-restraints	✓	✓
Height-adjustable front seat-belts	✓	✓
Power steering	✓	✓
Rear door child safety locks	✓	✓
Side impact air bags	✓	✓
Third brake light	✓	✓
VDC	✓	✓