



ALFA ROMEO AUSTRALIA

NEW TURBO ENGINE FOR ALFA 159 BOOSTS PERFORMANCE, CUTS FUEL CONSUMPTION AND SLASHES EMISSIONS

The new Alfa Romeo 1750 TBi engine may resurrect a name from the Italian car maker's illustrious history, but there is nothing old school about its performance with the new turbo charged engine clipping more than a second off the Alfa Romeo 159's zero to 100 kmh time, saving more than a litre of fuel over 100 kms on the combined fuel test and as well as meeting the tough, new EuroV emission standards, it reduces CO2 emissions by near 30 grams every kilometer.

Replacing the 2.2 litre JTS power unit, the new 1750 TBi engine is not just lighter, smaller and more compact. With 147 kW, compared to 136 kW for the 2.2 engine, it is considerably more powerful and with 320 Nm of torque at just 1400 rpm, the new engine delivers the sort of straight line performance – 0-100 kmh in 7.7 seconds – and in-gear urgency expected from a 3.0 litre engine. At the same time this remarkable new engine sips the fuel, with a combined fuel figure of just 8.1 litres per 100 km and with a CO2 figure of 189 g/km has a considerably smaller impact on the environment than the car it replaces.

This substantial gain in engine efficiency has been achieved with an advanced ignition control solutions including direct fuel injection, two continuously variable valve timing units, a turbocharger and a revolutionary scavenging control system.

The new Alfa Romeo 159 1750 TBi is available in two versions, the comprehensively equipped standard package for the Alfa Romeo 159 and the 159 Ti 1750 TBi with its distinctive sporting edge bringing the 159's abilities into even sharper focus.

The standard 159 equipment package includes a handcrafted Italian leather interior, which includes the steering wheel and gear knob. Safety technology includes seven airbags, Cruise Control, fog lights, ABS with EBA and HBA, VDC with hill holder and sensors for the automatic wipers and lights. Convenience features include electrically heated and operated mirrors, remote central locking, electric windows and rear parking sensors. Comfort is ensured with Dual zone climate control air conditioning, while the standard Blue&me telematics system and its voice activated Bluetooth system combines safety and convenience.

With such performance on hand and the use of a classic Alfa Romeo engine name, derived from the 1968 Alfa Romeo 1750 Berlina, it is highly appropriate that for the Australian market the Alfa Romeo 159 1750 TBi carries another historic badge, Ti, and the comprehensive performance orientated equipment packed it provides.



For more than 50 years the most sort-after Alfa Romeo models have been those that have worn the 'Ti' badge which indicates an Alfa Romeo with an even more sharply defined sporting edge. First seen in 1950, the Ti badge, which stands for *Tourismo Internazionale*, has been used to denote an Alfa Romeo version that has been equipped to meet the needs and desires of driving enthusiasts to produce a car that offers more driving excitement and a more sports-orientated image, but also at a value for money price.

The most significant under the skin change is the fitment of sports suspension that lowers the 159 by 20 mm and which provides the 159 with a sharper turn-in response from the steering and less body roll, but without the harsh ride that afflicts some sports suspension systems. This more able chassis is further enhanced by the standard fitment of 19 inch alloy wheels with 235/40 x 19 low profile tyres to provide additional roadholding performance. So that 159 Ti stops as well as it goes, Brembo brakes are standard and they are painted in Alfa Romeo red to highlight their presence and performance.

To further enhance the hunkered down stance of the 159 Ti provided by the sports suspension, the new model is fitted with subtle yet effective body kit, with burnished aluminium finish door mirrors completing the exterior transformation into a 159 Ti.

The inside of the 159 is transformed by the Ti package into a driver focused cockpit of black leather and dark finish materials highlighted by red stitching for the leather and red highlights for the instruments. The sports seats, which are electrically operated and heated, are upholstered in hand-crafted soft Italian leather with the legendary Alfa Romeo logo stitched in red on both the front and rear seats. The same leather and red stitching is used on the steering wheel and the six speed manual gearbox's gear lever.

The dashboard is trimmed in a unique burnished aluminum that has been darkened so as to show off the red-ringed instruments that are unique to the Alfa Romeo 159 Ti. Aluminium is further used for the drilled sports pedals – an essential icon of Italian sports cars – and the unique Alfa Romeo 159 Ti door sill trim strips which, like the exterior, carry the classic Ti insignia.

The Alfa Romeo 159 1750 TBi is in showrooms across Australia in time for Christmas with a recommended retail price of \$49,990 for the standard 159 1750 TBi, while the 159 Ti 1750 TBi is priced at \$54,480 not including statutory charges, delivery and dealer costs.

The technology behind the performance of the Alfa Romeo 1750 TBi engine

The new Alfa Romeo 1750 TBi engine is a remarkable tour de force. On one hand it offers the performance of a 3.0 litre V6 engine, in terms of top speed, straight line acceleration and in-gear performance. But, weighing in at around 100 kg less than a 3.0 litre V6 and with the efficiency of a compact four cylinder engine, it also offers outstanding fuel economy and low emissions. This unique combination has been achieved through a range of new technological solutions.

Scavenging technology

The engine's brilliant performance is largely the result of using scavenging technology to



maximize torque even at very low speeds, making it incredibly responsive and confining the notion of turbo lag to the history books.

Effective scavenging is achieved by continuously monitoring and optimising the engine operating parameters such as fuel dosage, the position of the two variable valve timing units, the ignition advance and the injection timing. In practice, it is possible to define valve overlap angles and times with extreme precision, generating a direct air flow from the intake manifold to the exhaust manifold and driving the turbocharger in very short times. This new system therefore makes far better use of the turbocharger than conventional turbo petrol engines. It is controlled by an innovative ECU installed with ultra-modern engine parameter management software. In this way, the maximum torque at 1,400 rpm is 70% greater than that of a conventional turbo engine and response times have been more than halved, closely approaching those of a naturally aspirated engine.

Direct injection

Direct injection reduces temperatures in the combustion chamber through fuel evaporation, dramatically reducing the likelihood of detonation. This allows superior performance to be achieved even at quite high compression ratios (around 9.5) and guarantees low fuel consumption at partial throttle settings.

Direct injection is essential for reducing emissions through an advanced, dual-injection system. Precise control over the moment fuel injection takes place also ensures that no fuel arrives directly at the exhaust during the scavenging phase, which would compromise the functioning of the catalytic converter. Finally, the second-generation injection system features a new, high-pressure pump (capable of managing fuel pressures of 150 bar) and innovative seven-hole injectors capable of guaranteeing perfect fuel vaporisation under all engine operating conditions.

Dual variable valve timing

The two continuous variable valve timing units on the intake and exhaust camshafts optimise valve timing at all engine speeds and loads, minimising both fuel consumption and emissions. With the two valve timing units linked to the turbocharger, it is possible to manage the scavenging strategy by establishing the ideal valve opening and closing overlap. When the driver demands a sudden increase in torque, the system ensures rapid response even at very low revs.

Turbo

The engine is fitted with a next-generation turbocharger linked to an innovative pulse converter exhaust manifold that optimises the use of exhaust pressure waves to increase torque at low engine speeds. Both the manifold and the turbine are made of microcast steel to withstand the very high operating temperatures (up to 1020 °C) needed to reduce fuel consumption while driving at medium-high speeds on motorways.

Thermal fluid dynamics

The intake ducts are designed and optimised through the use of mono- and three-dimensional computing technologies that have enabled them to reach the level of turbulence needed to obtain high combustion efficiency. This has made it possible to create both an optimal mixture of air and petrol and fast combustion with reduced cyclical dispersion even at low



revs. The design of the combustion chamber has also been optimised by extending the squish areas and minimising the ratio between surface area and volume, to the benefit of combustion. Lastly, the exhaust ducts have been designed to work in sync with the exhaust manifold and to maximize its pulse converter effect.

Friction

The entire engine has been designed to minimize power losses through friction. The pistons feature rings with low tangential load, and advanced materials have been used to minimize wear. The cylinder head incorporates roller rocker arms that have reduced sliding contact losses at 2,000 rpm by 65% compared with the old Twin Spark cylinder heads. Optimised crank design based on a very long connecting rod and a fairly short piston stroke has minimised the vibrations normally associated with straight-four engines at high speed. In this way, balancing countershafts can be dispensed with, further improving engine consumption.

Performance

The scavenging technology and an innovative management system enable the engine to set new performance benchmarks. Specific torque is exceptional at 185 Nm/l, one of the highest figures for any modern engine. Maximum torque of 320 Nm is reached at only 1,400 rpm, a remarkably low engine speed for the petrol engine. This guarantees superb acceleration and allows you to drive in a relaxed manner without having to change down frequently. Finally, the engine reaches a high specific power of 115 hp/l at the relatively low speed of 4,750 rpm and keeps this power level constant up to 5,500 rpm.

Emissions

Thanks to a dual injection system and the high start pressure, a relatively small catalytic converter is sufficient to ensure compliance with Euro 5 emission standards, which benefits performance and economy as well as offering weight savings.

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2011 Alfa Romeo 159 Specifications

Alfa 159 1750 Tbi Alfa 159 1750 Tbi Ti	Alfa 159 2.4 JTD Alfa 159 Sportwagon 2.4 JTD	Alfa Romeo 159 3.2 V6 JTS Alfa 159 Sportwagon 3.2 V6 JTS
Six speed manual	Q-Tronic Automatic	Six speed manual: Sedan Q-Tronic Auto with Q4: Sedan/Sportwagon
<ul style="list-style-type: none"> ▪ 1742cc ▪ 4-cylinders, 16 valves ▪ Power: 147 kW @ 5000rpm ▪ Torque: 320 Nm @ 1400rpm ▪ Timing gear: DOHC, continuous dual VVT ▪ Transmission: 6-speed manual ▪ Top speed: 235 kmh ▪ Acceleration 0-100: 7.7 secs ▪ Fuel consumption: <ul style="list-style-type: none"> ○ in town: 11.8 l/100 km ○ out of town: 6.0 l/100 km ○ combined: 8.1 l/100 km ○ CO₂: 189 g/km 	<ul style="list-style-type: none"> ▪ 2387cc ▪ 5-cylinders, 20 valves ▪ Power: 154 kW @ 4000rpm ▪ Torque: 400 Nm @ 2000rpm ▪ Timing gear: DOHC ▪ Transmission: 6-speed manual/6-Speed Q-Tronic ▪ Top speed: 225 kmh (Sportwagon) 223 kmh ▪ Acceleration 0-100: 8.3 seconds 8.5 (Sportwagon) ▪ Fuel consumption l/100 km: <ul style="list-style-type: none"> ○ in town: 11.4 11.6 (Sportwagon) ○ out of town: 5.8 (Sportwagon) 5.9 ○ combined: 7.9 (Sportwagon) 8.0 l ○ CO₂: 208 (Sportwagon) 210 g/km 	<ul style="list-style-type: none"> ▪ 3195cc ▪ 60 degree V, 6-cylinders, 24 valves ▪ Power: 191 kW @ 6200rpm ▪ Torque: 322 Nm @ 4500rpm ▪ Timing gear: 4 OHC, continuous dual VVT ▪ Transmission: 6-speed manual/6-speed Q-Tronic automatic & 4-wheel drive ▪ Top speed: 244 kmh/237 kmh (Sportwagon) 237 ▪ Acceleration 0-100: 7.0 seconds/7.2 secs (Sportwagon) 7.3 ▪ Fuel consumption: <ul style="list-style-type: none"> ○ in town: 16.9/18.2 l/100 km (Sportwagon) 18.3 ○ out of town: 8.4/8.6 l/100 km (Sportwagon) 8.6 ○ combined: 11.5/12.1 l/100 km (Sportwagon) 12.2 ○ CO₂: 273/286 g/km (Sportwagon) 288

Standard Equipment Package	1750 Tbi Ti, 2.4 JTD Ti, V6 Ti
<ul style="list-style-type: none"> ▪ Leather Upholstery ▪ Front and rear electric windows ▪ Dual Zone climate control ▪ Remote central locking with immobiliser ▪ Electric heated and folding door mirrors ▪ 7 airbags, including driver's knee bag ▪ Electronic key and start button ▪ Stereo radio/CD with steering wheel audio controls ▪ Leather steering wheel and gearknob ▪ Fog lights ▪ Cruise control ▪ ABS with EBD and HBA ▪ VDC with hill holder ▪ 18" alloy wheels ▪ Visibility pack (rain and dusk sensors) ▪ Rear parking sensors ▪ Hands free Bluetooth telephone connection with USB i-Pod connection <p>Additional for V6</p> <ul style="list-style-type: none"> ▪ Xenon headlights with washers 	<ul style="list-style-type: none"> ▪ Sports Suspension, lowered by 20 mm ▪ 19 inch alloy wheels ▪ 235/40 x 19 tyres ▪ Brembo Brakes, calipers painted red ▪ Body kit ▪ Burnished aluminium door mirrors ▪ Sports leather seats ▪ Red stitching on seats, gear knob, steering wheel. ▪ Darkened aluminum alloy dashboard trim ▪ Red trimmed instruments ▪ Alloy pedals ▪ Alloy door sill trim panels ▪ Black roof lining ▪ Electric front seats with driver's side memory



Alfa Romeo 159 1750 TBI

Technical specifications

Nr. cylinders, arrangement	4 cylinder in-line, twin cam, transverse forward mounted
Bore x stroke (mm)	83.0 x 80.5
Displacement (cc)	1742
Compression ratio	9.5:1
Max. power EEC kW (HP)	147 (200) at rpm 5000
Max. torque EEC Nm (kgm)	320 (32.7) at rpm 1400
Valve gear (drive)	Belt drive, 16 valves, hydraulic tappets with roller rocker arms
Fuel system	Turbocharger
Emissions control	Euro5

Electrical system (12V)

Battery: capacity (Ah)	90
Alternator (A)	120

Transmission

Drive	Front wheel drive
Gearbox	Manual 6-speed
1st gear	3.818 : 1
2nd gear	2.158: 1
3rd gear	1.475: 1
4th gear	1.067 : 1
5th gear	0.875 : 1
6th gear	0.744 : 1
Reverse	3.545 : 1
Final drive	3.941: 1

Wheels

Tyres	Ti Spec: 235/40ZR19
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Steering

Steering system	Rack and pinion with hydraulic power steering
Turning circle between kerbs (m)	11.1

Suspension

Front	Independent double wishbone suspension, torsion bar with ball joint ends
Rear	Independent multi-link system

Brake (disc) diameter

Front: Ø (mm)	Diam. 330 x 28 ventilated discs; fixed, radial calliper in aluminium with 4 x 42 mm opposed pistons
Rear: Ø (mm)	Diam. 292 x 22 ventilated discs; 42 mm floating combination caliper

Body - Dimensions

Nr. seats / Nr. doors	5/4
Length / Width (mm)	4660 / 1828
Empty height (mm)	1422
Wheelbase (mm)	2703
Front/rear track, empty (mm)	1555



Capacity of luggage compartment (L) **405**

Volumes - Weights

Fuel tank (l) **70**
Weight in running order DIN (kg) **1430**

Performance - Consumption

Top speed (kph) **235**
Acceleration 0 to 100 kph (seconds): **7.7**
Standing kilometre (seconds): **28.9**

Consumption (l/100 km):

urban **11.8**
extra-urban **6.0**
combined cycles **8.1**
CO emissions (g/km), urban **273**
CO emissions (g/km), extra-urban **140**
CO emissions (g/km), combined **189**