

*This press pack accompanied the UK launch of the Camry V6 GXi, part of the second generation Camry range, in February 1989. The model underwent some changes during its time on sale and these can tracked using the Timeline feature on the second generation Camry archive page. Further resources and information about the Camry range are available from the Toyota press office.*

# TOYOTA

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SUNDAY, FEBRUARY 12, 1989**

## NEW CAMRY V6 IS TOP TOYOTA SALOON

A combination of 2.5 litre performance and a luxury specification are the tempting ingredients of the new Toyota Camry V6 GXi which goes on sale from March 22, 1989.

An addition to the revised Camry range, the V6 GXi has a maximum speed potential of 124 mph with the quad cam, 24 valve engine giving 158 bhp with silky smooth delivery and instant response. A four speed, electronically controlled automatic transmission is standard (a manual transmission is not available on the V6). So too are cruise control, air conditioning, power steering, central locking, alloy wheels and electrically controlled sunroof, door mirrors and windows. The all-round disc brakes have anti-lock (ABS) electronic control.

Toyota's top of the range executive saloon has been developed to carry up to five occupants in great comfort. The interior is spacious, luxurious and very well appointed.

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## PRESS INFORMATION

Macpherson strut suspension gives a supple, smooth and very quiet ride linked to safe and predictable handling while a lack of wind noise and specially developed hydraulic engine mounts ensure that passengers travel in a supremely quiet and restful environment.

The Toyota Camry V6 GXi is the most exclusive Camry and will be priced at £16,991 inclusive of car tax and VAT.

### Background

The current Camry body style and configuration was introduced into the UK in January, 1987 using a new two litre, 16 valve twin cam Toyota engine designated 3S-FE, with unique scissors gears to drive the exhaust camshaft off the inlet camshaft. It was specifically developed for everyday, saloon car use to provide ample top end power with extra torque in the low to mid rpm ranges.

Since then, 7,773 Camrys have been registered in Britain. For 1989, Toyota (GB)'s target is 3,500 registrations of which 815 will be the new V6 GXi. The Toyota Camry line-up this year is:

Camry GLi (2.0)	£12,491
Camry GLi Estate (2.0)	£13,211
Camry GLi Executive Estate (2.0)	£15,761
Camry GLi 4WD (2.0 four wheel drive)	£16,864
Camry V6 GXi (2.5)	£16,991

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Automatic transmission is standard on the GLi Executive Estate and the V6 GXi and is an option on the entry model GLi.

Slotting into the upper medium size class, the Camry has always had a reputation for being well engineered, easy to drive, practical and reliable year after year. Using the same basic bodysell and dimensions the V6 GXi adds to the graceful styling with engineering excellence and high quality throughout for effortlessly quiet and smooth motoring. Toyota's world leadership in multi-valve engine technology is evident in all Camry models, but the new V6 engine - the 2VZ-FE - is the latest example and the third Toyota engine to use scissors gear camshaft drive.

The V6 GXi is fitted with a three way catalytic converter for the cleanest possible exhaust emissions and emphasizes Toyota's commitment to a cleaner environment. The Camry V6 is the third Toyota to be equipped with a catalyst as standard (the others are the Celica GT-Four and the Supra Turbo) and it will accept unleaded fuel only.

The V6 GXi is distinguishable from other Camry models by the discreet 'V6' badges on the front grille and rear boot lid, twin exhaust outlets, new alloy wheels, wider 195/60 tyres on 15 inch wheels and detail interior changes. The Camry V6 GXi was the world's first car to have a V6 quad cam, 24 valve engine mounted transversely, with drive through the front wheels.



## 2 litre Camry improvements

Several of the improvements evident in the new V6 GXi have been applied to the two litre, 3S-FE engined Camrys to achieve a quieter, smoother ride, more comfort and easier operation.

Inside, automatic Camrys have a redesigned gear shift lever to improve comfort, grip and feel. Meters and gauges have also been modified for even greater clarity. Several switches have been relocated, including those for cruise control, the heated rear window and the electric door mirrors, while switch design has changed too for even easier location and use.

Windscreen demisting has been improved by modifying the air outlets at the base of the screen and the heater/ventilation control panel has been changed to improve operation and looks. New upholstery material is hard wearing, comfortable and enhances the overall feeling of quality.

Under the bonnet, much work has been done to further reduce noise and vibration to give an even quieter ride. The engine mountings for the 3S-FE engine have been greatly improved and a sealed-in fluid type mount is now used on the right hand side. The engine mount bracket is now aluminium which further reduces the transmission of noise.

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On the left hand side, the engine mount is smaller and its spring rate (in a horizontal plane) has been reduced. On automatic Camrys, a mount stay and four-point fixing of the mount insulator have been adopted to reduce the transmission of gear noise still further. Dynamic dampers have been added to the front and rear mount insulators and the dynamic damper for the rear mount of automatic models has been relocated. All these changes have decreased interior noise in what was already a quiet car, substantially.

On automatic transmission Camry GLi models, a change in gear shift points and lock-up points of the torque converter have resulted in better acceleration performance. Models equipped with ABS brakes now have a load sensing proportioning valve (not GLi 4WD) incorporated in the rear brake circuit.

The front lower suspension arm transverse brace is no longer fixed to the chassis centre member, so even less noise and vibration are transferred to the chassis. In the rear suspension, coil spring rates have been changed to improve comfort and control. Body roll when cornering has been reduced and in the Estate, the difference in the unloaded and loaded ride heights has been minimized.

The 3S-FE engine gives 126 bhp and 132 lb ft torque at 4,400 rpm. All Camry models are comprehensively equipped, with ABS braking standard on the Executive Estate and 4WD as well as on the new V6. Cruise control is also standard on the Executive Estate as is air conditioning.

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TOYOTA CAMRY V6 GXi

The 2VZ-FE engine

First seen in Europe fitted to a Camry saloon at the 1988 Geneva Motor Show, the Toyota 2VZ-FE engine displaces 2,507 cc. It is a V6 configuration with a V angle of 60 degrees to maintain good revolutionary balance. There are four overhead camshafts and four valves per cylinder. 158 bhp is achieved by using advanced technologies for high intake efficiency and a very clean burn in the compact, pent roof combustion chambers with centrally located spark plugs. The intake camshafts are belt driven, while the exhaust cams are driven by the intake cams via scissors gears - a design first seen on the Toyota 3S-FE engine which powers the two litre Camry models and the Carina GL Executive.

Electronic fuel injection uses bi-directional injectors with electronic spark advance. An idle speed control (ISC) system makes idle speed adjustment unnecessary and a high temperature fuel pressure control is fitted for easy starting when the engine is hot. The spark plugs of the V6 are platinum tipped and should only need to be replaced after 60,000 miles.

The 2VZ-FE has been designed and developed to be as quiet and vibration-free as possible. The V6 cylinder layout itself provides the basis for a quiet engine but particular attention has been paid to ensuring a highly rigid cylinder block, and the crankshaft pulley has a dual mode damper.

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The cast iron cylinder block features deep skirts to resist vibration and noise and provide considerable rigidity when the engine is mated to the transmission. The block walls are rounded to help prevent noise transmission and ribbing increases rigidity still further. The ladder type integrated bearing caps help counteract the bending vibration of the crankshaft and the bearing cap bolts have been subjected to plastic region tightening giving stronger and more even tightening of the bolts and more reliability than elastic region tightening.

The 24 valves (two intake and two exhaust per cylinder) are driven directly by the four overhead camshafts so that the valve train operates smoothly throughout the rev range. The intake cams are driven by a timing belt connected to the crankshaft and scissors gears then mesh with the exhaust cams to provide quiet operation and a very compact cylinder head arrangement. The valve included angle of the 2VZ-FE is very narrow at just  $22^{\circ} 30'$ .

Quiet running has been of paramount importance in the 2VZ-FE and the intake cams are driven by a silent running timing belt with excellent durability. A hydraulic automatic tensioner maintains the tension of the belt and contributes to its silent running. The timing belt cover has been developed to assist in the smooth and quiet running of the valve gear. The cover between the belt and the cylinder block is a sandwich damper panel of resin film between steel sheets. Its attachment to the cylinder block and head is a



floating arrangement using rubber bushes. Foam rubber is also used to suppress noise. The front timing belt covers are made of resin, and rubber dampers are used to reduce noise and vibration.

The air intake noise of the engine is reduced by two resonators incorporated into the intake air system. A three-group, L-type electronic fuel injection system is used with an air flow meter measuring the volume of intake air. Fuel is injected into the inlet tracts three times per two engine revolutions into two of the four cylinders to provide a much more accurate air-fuel mixture than simultaneous fuel injection. The result is an efficient burn with quick response and a clean exhaust.

The ignition system is controlled by an electronic control unit (ECU) which monitors vehicle speed, the air flow meter, water temperature, throttle position and the air conditioner in controlling the igniter, coil, distributor and therefore, the operation of the spark plugs.

Noise and vibration is further reduced in the Camry V6 by five engine mountings which would normally support the weight of the engine and transmission, limit movement of the unit through operating torque and absorb vibration. By definition they have to be strong and durable as well as sufficiently elastic to absorb torque reactions and vibrations. But in the Camry V6, Toyota have installed inertial axle support mountings where the weight of the power

unit is carried by two right and left mountings fitted on the inertial axle of the power unit, leaving the other three mountings which do not support the engine's bulk, to be very elastic, absorbing vibration and restraining movement through torque reaction.

Furthermore, the right hand mounting is an hydraulic type and the sealed-in fluid contributes to exceptional absorption of noise and vibrations.

#### Transmission

The Toyota A540E transaxle arrangement is a four speed, electronically controlled transmission. It is a rigid assembly developed to complement the quiet running of the 2VZ-FE engine. The control system is new and gives the smoothest possible gear changes by controlling engine torque at gear change points to give the best integration of engine and transmission. By linking the transmission ECU with the central processing unit of the engine, ignition timing is delayed for an instant at the moment of shift change. The resulting momentary and slight drop in engine torque gives a much smoother change barely perceptible to passengers. A forced kick-down system has been incorporated which comes into play when the driver activates the kick down switch by pushing the throttle pedal to the limit of its travel.

#### Brakes and tyres

Two litre Camrys are fitted with 185/70 HR 14 tyres but the V6 has higher performance and wider, 195/60 VR tyres on

alloy wheels. Whereas drum brakes are employed on the rear of (non-ABS) two litre Camrys, the V6 uses discs all-round (ventilated at the front) with an anti-lock (ABS) system as standard.

The ABS has a three channel control system with speed sensors on each wheel. The ABS computer controls the brake pressure to each wheel independently at the front and on the rear wheels simultaneously to prevent the wheels from locking. The system enables the driver to retain steering control in panic braking situations without affecting stability. A fail safe system allows the brakes to operate conventionally in the unlikely event of an ABS failure and a self-check function informs the computer of the exact malfunction for later service diagnosis.

#### Interior

Inside the Camry V6 GXi, the upholstery is even more luxurious than before and push button heater, air conditioning and ventilation controls are exclusive to the V6. The handbrake lever is trimmed in leather. Several switches have been modified and relocated to ensure even easier use and the automatic transmission shift lever has been reshaped for easier use and greater comfort.

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TOYOTA CAMRY V6 GXi

Standard Equipment

Automatic air conditioning  
Cruise control  
Electric moonroof  
Central locking  
Electric door mirrors  
Heated rear window with timer  
Electric windows  
Tilt adjustable steering column  
Power steering  
Stereo radio/cassette, four speakers  
Adjustable seat belts and rear seat belts  
Alloy wheels  
Anti-lock brakes  
Electric aerial  
Headlamp cleaners  
Remote fuel flap release  
Tinted glass and laminated screen  
60/40 split rear seat  
Retractable rear centre arm rest  
Remote boot lid release  
Four speed automatic transmission  
Two speed plus variable wipers

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## TOYOTA CAMRY V6 GXi

SPECIFICATIONBODY

## Dimensions

Overall length	4520 mm
Overall width	1710 mm
Overall height	1400 mm
Wheelbase	2600 mm
Track front/rear	1470/1440 mm
Ground clearance	170 mm
Luggage space	505 litres (VDA)

## General

5 seater, four door monocoque

## Cd

0.35

## Weights

Kerb weight	1400 kg
Max gross vehicle weight	1820 kg
Fuel tank	60 litres
Towing capacity with brake	1500 kg
without brake	500 kg

ENGINE

## Type

2VZ-FE  
four stroke, petrol (unleaded)  
transverse installation

## Arrangement

Six cylinder, in V formation,  
pent roof combustion chambers

## Bore and stroke

87.5 x 69.5 mm

## Capacity

2507 cc

## Compression ratio

9 : 1

## Valve operation

Four overhead camshafts  
driven by cogged belt and  
scissors gears. Four valves  
per cylinder

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Ignition	Fully transistorised
Fuel system	Electronic fuel injection. L-Jetronic
Power	158 bhp/5,800 rpm
Torque	152 lb ft/4,600 rpm
Fuel	Unleaded, 95 RON

#### TRANSMISSION

Type	A540E electronically controlled automatic with four speeds
Casing	Aluminium alloy
Operation	Single cable
Torque converter	3 element, 1 stage, 2 phase
Ratios: 1st	2.810
2nd	1.549
3rd	1.000
4th	0.734
reverse	2.296
final drive	3.933
Drive shafts	Equal length tubular shafts with two constant-velocity joints

#### CHASSIS

Front suspension	Macpherson struts, coil springs and telescopic, hydraulic dampers
Spring rate	22.5 N/mm
Anti roll bar	24 mm dia.
Rear suspension	Macpherson struts, conical coil springs and telescopic hydraulic dampers
Spring rate	17.8 N/mm
Anti roll bar	14 mm dia.
Brakes	Split diagonal with dual P valve. Vacuum assisted discs ventilated at front. Toyota anti-lock (ABS)

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Wheels and tyres	Alloy wheels 5.5 JJ x 15 195/60 VR 15
Steering	Rack and pinion power assisted
Ratio	17.4:1
Turns lock to lock	2.9
Turning circle	5.3 metres

PERFORMANCE

Max speed	124 mph
0-60 mph	9.8 seconds
0-400 metres	17.2 seconds
Fuel consumption	
Urban cycle	12.6 litres/100 km (22.4 mpg)
Steady 56 mph	7.4 litres/100 km (38.2 mpg)
Steady 75 mph	9.5 litres/100 km (29.7 mpg)

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