



PORSCHE

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The 1998 Porsche 911 Carrera Targa®

The Porsche 911 Carrera Targa®, introduced in 1996, features a unique electric sliding glass roof system with sun visor and separate wind deflector. Nearly the entire roof over the passenger compartment slides down and back to its stowed position under the rear window, providing an open-air feeling much greater than that of a 911 Carrera Coupe with its sunroof open.

Tinted privacy glass, specially treated to block out 100 percent of ultraviolet rays, slides quietly and smoothly at the touch of a button to its stowed position under the rear glass for open-air motoring. A roller blind, for additional privacy and sun protection, can be electrically deployed from its compartment in the roof lining above the windshield. The electric roof is adjustable throughout its entire range of motion.

The Carrera Targa retains the familiar 911 silhouette, and incorporates all the aerodynamic and safety refinements made to the 911. Key features include the 3.6-liter flat-six 282-horsepower engine, six-speed manual transmission, high-performance all-disc brakes with ABS, high-performance tires on alloy wheels, welded unitized body of double-sided galvanized steel, aluminum suspension components, speed-dependent extendible rear spoiler, second-generation side-impact protection, heated windshield washer nozzles, fog lamps incorporated into the front spoiler, and modular polyellipsoid headlamps with a headlamp washer system. Litronic gas-discharge headlamps, which are twice as powerful as halogen headlamps while using 30 percent less electrical current, are optional.

The 1998 Targa will be available with optional child seats which can automatically deactivate the passenger air bags. Created to address the concerns of child air bag safety in two-seat and 2+2 vehicles, the new Porsche child seats will both mechanically and electronically deactivate the passenger air bags when properly installed on the front passenger seat.

**Glass roof
system**

Key features

**Optional
child seats**

The new Porsche child seat line features three different seats designed for three occupant sizes based on body weight: up to 22 lbs. (10 kg), 20 to 40 lbs. (9 to 18 kg) and 37 to 100 lbs. (17 to 45 kg). Each seat is equipped with its own safety belt system including the adapter which inserts into the cross bar buckle common to all three.

Targa® Roof System

The original Targa was introduced by Porsche in 1965 as a viable alternative to a pure convertible. Targa models through 1994 sported a removable roof panel above the passenger compartment, supported in the front by the windshield header and in the rear by wide B-pillars. Some Targa models had flexible, folding rear windows; others had solid rear glass with a built-in rear defroster.

To meet the demands of traditional Targa buyers, Porsche engineers have designed a new model that combines a fully automatic top with sleek 911 looks. Below the window line, the Targa shares its body and platform with the 911 Carrera Cabriolet, including additional body and chassis reinforcements for increased structural rigidity. The roof module, which resembles the Coupe roof in profile, consists of two-layer laminated safety glass, a sun visor, a wind deflector, a rear window and an aluminum frame.

The Targa was designed to provide several advantages, including minimal noise, maximum operating convenience, and no undesirable drafts or turbulence in the passenger compartment with the roof open.

The Targa has a large-area, two-section glass roof. The large glass panel disappears almost entirely beneath the rear window when opened. When the roof switch in the center console is activated, first the front section of the glass roof is raised as a wind deflector (vent position). Then the large glass panel opens and can be stopped at any desired position. The Targa's roof contour offers nearly the same amount of headroom in the rear seats as the Coupe, even with the roof open, and slightly more front seat headroom than the Coupe when the roof is closed. No unpleasant drafts of air occur in the passenger compartment, even when traveling at high speeds with the roof open. The interior noise level is quieter inside the open-top Targa than in a Carrera Cabriolet or a Coupe with a sliding sunroof.

The Targa roof can be opened or closed while the car is moving, so the amount of fresh air can be regulated easily, without having to bring the car to a standstill. The tinted glass roof lends a new feel to driving when it is closed, and the wide field of vision creates a new sense of space, creating the impression of open-top driving. When the Targa roof is closed, the noise level is comparable to the level achieved by the Coupe.

Targa heritage

**Electric roof
system**

The heavily tinted Targa roof affords protection against sunlight and filters out 100 percent of ultraviolet rays. In very bright sunlight, a roller blind can be extended at the touch of a button for extra shade. According to temperature measurements taken in bright sunlight, the Targa interior does not heat up more than the Coupe. Thanks to the design of the water deflection system integrated into the glass roof's seals, opening the glass roof after traveling through rain is no problem. Water flowing off the panel is prevented from dripping inside the car.

The Targa roof is brought into position as a complete module and joined permanently to the body during final assembly. The main components of the roof module are the strong side posts, which are joined together by crossmembers. The rear window of single-plate laminated glass is bonded together with the sheetmetal structure. The wind deflector and glass-panel sunroof are made of seven mm thick laminated glass consisting of two panes of glass three mm thick and several layers of plastic film.

Including the extra-thick glass, three electric motors, a longer rear window wiper, the roller blind and wind deflector, the Targa weighs some 66 pounds (30 kg) more than a standard 911 Carrera, and the strong roof structure provides safety and torsional rigidity. The built-on roof module lends the 911 Targa a distinctive look, which is enhanced still further by specially designed 17-inch Targa wheels.

Varioram™ Induction System

Like all 1998 911 models, the 911 Carrera Targa uses Porsche's traditional 3.6 liter, air-cooled, horizontally opposed, six-cylinder, 282 horsepower (210 kW) engine. The engine redesign in 1995 resulted in a nine percent increase in power without any fuel economy penalty while meeting stringent emission standards. The additional increase in horsepower, with a substantial boost in the engine's mid-range torque curve, has been achieved by the incorporation of Porsche's patented Varioram™ induction system.

Varioram optimizes the engine's volumetric efficiency for high torque output, resulting in quick throttle response and strong acceleration. The system uses variable-length intake pipes and separate, differently tuned air intake systems for medium and high engine speeds, to optimize torque and power output characteristics across the usable engine rpm range. The improved engine uses inlet valves that are larger, 50 mm compared to 49 mm, and exhaust valves that are 43.5 mm instead of 42.5 mm. The camshafts have modified valve timing, and an optimized ignition system has been adopted.

The Varioram system's intake manifold operates with long intake pipes at moderate engine speeds. Cylinder filling is improved by resonance in the individual intake pipes. A significant increase in torque at moderate engine speeds across a relatively wide rpm range results.

Boxer engine

**Varioram™
induction
system**

A set of sliding sleeves which form part of the long intake pipes uncover apertures, located approximately at their centers, at engine speeds over 5000 rpm. This reduces the effective length of the intake pipes and establishes a connection with the resonance compartments.

The alternating intake cycles in the left-hand and right-hand cylinder banks force the air column in the intake manifold to oscillate. These oscillations or resonances are used to achieve optimum torque at the top end of the engine speed range. Resonance charging achieves optimum effect over a narrow rpm range.

The Varioram resonance system is designed to change over quickly between two engine speed ranges. From 5800 rpm up, a resonance flap opens, exposing another resonance cross-section between the resonance compartments of the two cylinder banks. The intake manifold's resonant frequency is then optimized for very high engine speeds.

Combining ram effect charging and resonance charging, a combination unique to the Varioram intake manifold, high torque is produced across the entire engine speed range. Torque is improved by 18 percent at mid-range engine speeds between 2500 and 4500 rpm. A peak output of 229 ft. lbs. (310 Nm) of torque is achieved at 3500 rpm, compared with 193 ft. lbs. (262 Nm) on the earlier engine design. The torque gain is reflected in the acceleration time from 50 mph (80 kph) to 75 mph (120 kph) in fifth gear, which has been reduced by about 18 percent. With Varioram in place, it is possible to drive in a higher gear and with lower engine speeds with no loss in engine flexibility.

Engine output with Varioram has increased from 270 hp (200 kW) to 282 hp (210 kW), and maximum torque from 243 ft. lbs. (330 Nm) to 250 ft. lbs. (340 Nm). The high specific output and exceptional pulling power of the 3.6 liter Varioram engine make the best of everyday driving, with the added benefit of lower fuel consumption.

**Horsepower
and torque
increased**

Emissions System

A monitoring system for all components with exhaust emission control relevance is a feature of all 1998 Porsche 911 engines. Any time the car is driven, the OBD II (on-board diagnostics, second generation) system measures the efficiency of the catalytic converter, identifies misfiring, and monitors the fuel system, fuel tank venting, secondary-air injection, oxygen sensors and other components and systems which affect exhaust emissions.

OBD II

Transmissions

The 1998 Porsche 911 Carrera Targa can be ordered with either a six-speed manual or the four-speed Tiptronic S automatic transmission. Dual-cone synchronizers for first and second gears, along with ball-bearing sleeves which reduce friction and enhance shift precision, are features of the manual gearbox that make shifting action more precise and driving a 911 even more pleasant.

The optional four-speed Tiptronic S on the 911 Targa allows manual upshift and downshift control, but uses an electronic system to shift gears and controls the mechanical lockup clutch in the torque converter. The Tiptronic S control unit features five different adaptive shift programs, which are applied according to the needs of the driver, with a range extending from economy to performance.

The Tiptronic S electronic transmission makes decisions in choosing the right gear based on vehicle and driver behavior. If the driver suddenly takes his or her foot off the accelerator, the Tiptronic S system senses the car is no longer under power, and it will prevent the transmission from shifting up, keeping the current gear engaged. Brake application will likewise make the transmission shift down at an appropriate road speed. Built-in grade detection prevents the transmission from upshifting too soon on uphill and downhill grades. If the wheels should spin on a low-traction surface, the Tiptronic S will upshift earlier, providing engine torque management and enhanced driving stability.

Tiptronic S allows a driver to participate in shifting decisions, choosing the four gears as appropriate. Transmission control on the 911 Targa includes the choice of manual or automatic mode depending on the position of the selector lever. Once selection of the manual mode is made, shifting can be done either by using the upshift and downshift buttons on the steering wheel hub, as on Formula One racing cars, or by using the floor shifter, pushing forward for a higher gear, or pulling back for a lower gear. A six-function computerized driver information center is included on Targa models equipped with the optional Tiptronic S transmission.

Suspension

The Porsche 911 Carrera Targa front suspension is an evolution of the MacPherson-type strut, coil spring and stabilizer bar unit from past 911 models that provides increased stability, excellent handling and ride comfort. Due to design changes made to most suspension components, the suspension system weighs some 6.6 pounds (3 kg) less than its predecessor, thus improving driving characteristics by reducing unsprung weight.

**Six-speed
manual**

**Tiptronic S
automatic
system**

**Front
suspension**

Porsche's Lightweight-Stable-Agile (LSA) multi-link, subframe-mounted rear suspension system has replaced the semi-trailing arms and struts of previous 911 models. Four lateral links in two horizontal planes, which appear like upper and lower A-arms, provide precise wheel control. A refined version of the "Weissach" suspension pioneered on the Porsche 928 helps improve stability by using the outside rear wheel toe-in during cornering. Stability, regardless of side forces, and precise tracking are the system's virtues. The LSA package, in addition to the four links, includes dual gas shock absorbers, coil springs and a rear-mounted forged aluminum subframe.

**Rear
suspension**

Brakes, Wheels and Tires

Porsche cars have made their reputation on their braking as well as their acceleration and cornering, and the 1998 Carrera Targa carries on that tradition. The Targa and all other 911 variants use large-diameter, internally vented and cross-drilled rotors, four-piston calipers and asbestos-free brake pads, augmented by the Bosch ABS 5 anti-lock braking system.

ABS 5

The 1998 Porsche 911 Targa comes equipped with its own special Targa-style 17-inch pressure cast alloy wheels (7J by 17 inches in the front and 9J by 17 inches in the rear) fitted with steel-belted radial 205/50 ZR-17 tires up front and 255/40 ZR-17 rear tires.

17-inch wheels

Interior

The 1998 Porsche 911 Carrera Targa interior features Porsche's 2+2 leather seating package with power height adjustment (optional full electrical adjustment), and a white-on-black instrument panel including five round analog gauges, with the ignition switch to the left of the steering wheel. Targa interior equipment includes dual front airbags, three-point restraints for driver and passengers, automatic temperature control air conditioning, power windows, central locking and alarm system with immobilizer and remote entry system, heated external rearview mirrors, individually folding rear seat backs, leather-covered steering wheel, interior lights with delayed shut off, cruise control, cassette/coin holder and door trim panels with covered armrest bins and open map pockets.

**Standard
equipment**

A six-speaker AM/FM/cassette audio system manufactured by Becker is standard on the Targa. System features include a head unit with removable control panel (for security), electronic tuning and digital display. Available options include an in-dash compact disc player, a remote CD changer, an eight-speaker 150-watt audio system and digital signal processing.

**Audio
system**

Other significant options available for the Porsche 911 Carrera Targa are the Tiptronic S automatic transmission, full-power leather sport seats, Litronic high intensity discharge headlamps, a rear-seat delete package, infrared security system and limited-slip differential with automatic brake differential (ABD).

Options

Warranty

Every new Porsche sports car is covered by a two-year bumper-to-bumper limited warranty with unlimited mileage, which includes Porsche's roadside assistance program. The galvanized body and 26-step paint and anti-corrosion process enable Porsche to warrant each car against rust perforation for 10 years and unlimited mileage. In addition, the paint has a three-year limited warranty.

**New vehicle
warranty**

Leasing and Financing

Leasing, financing and balloon payment plans for new and pre-owned Porsche sports cars are offered by Porsche Credit Corporation. Conventional fixed rate financing is available for new and qualifying used Porsches with standard terms up to 84 and 72 months, respectively. For lease customers, the Porsche Preferred Lease program is available for new and qualifying used Porsches with lease terms as long as 60 months. The Porsche Preferred Lease requires no security deposit and offers free gap protection. An innovative retail balloon loan, Porsche Options, combines the economies of leasing with the benefits of ownership for new and qualifying used Porsches. Porsche Credit Corporation also offers conventional and Porsche Options financing to U.S. customers participating in Porsche Cars North America's tourist delivery program.

**Porsche Credit
Corporation**

All Porsche Credit Corporation programs are subject to credit approval and available only through authorized Porsche dealers in the United States. Certain programs may not be available in all 50 states. Similar programs are available to authorized Porsche dealers in Canada through a Canadian financial organization.

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PORSCHE 911 CARRERA TARGA

1998 Features and Options

Powertrain

- 3.6-liter, 282-horsepower (210 kW), aluminum alloy, twin spark plug, air-cooled, horizontally opposed, 6-cylinder engine with partial engine encapsulation
- Fully integrated electronic ignition and fuel injection system Digital Motor Electronics (DME) with dual knock sensor and hot film air flow sensor systems
- Dual-mass flywheel
- Six-speed manual transmission or optional four-speed Tiptronic S dual-function transmission with console-mounted shift lever and gear selection switches in steering wheel
- Hydraulically activated, single-disc dry clutch
- Varioram™ intake system with variable length intake pipes and resonance chambers

Chassis

- Rack and pinion steering with force-sensitive power-assist
- Fully independent suspension:
Front: MacPherson-type struts, aluminum alloy lower control arms with stabilizer bar
Rear: Aluminum alloy, multi-link LSA axle with toe correction characteristics; stabilizer bar
- Power-assisted, aluminum alloy four-piston fixed caliper, internally ventilated, four-wheel cross-drilled disc brakes with anti-lock braking system (ABS 5) and asbestos free pads
- New Targa-style pressure-cast light alloy wheels with locks:
Front: 7J x 17 with 205/50 ZR-17 steel-belted radial tires
Rear: 9J x 17 with 255/40 ZR-17 steel-belted radial tires
- 19.4-gallon (73.5-liter) fuel tank

Exterior

- Two door Coupe with 2 + 2 seating
- Electronic retractable tinted glass roof with sun visor and wind deflector
- Fog lights integrated into the front apron
- Polyellipsoid headlights with variable focus and washer system
- Third brake light
- Welded, unitized body construction; double-sided, zinc-galvanized steel
- Energy-absorbing bumpers, front and rear
- Second generation side-impact protection
- Speed-dependent extendible rear spoiler
- Heated windshield washer nozzles
- Electrically adjustable and heatable outside mirrors
- Windshield antenna with signal amplifier
- Tinted glass all around and windshield with graduated tint
- Outside door handles painted to match exterior color

Interior

- Airbags for driver and front seat passenger
- Three-point inertia-reel seatbelts, front and rear
- Partial leather reclining bucket seats with electric height adjustment
- Individually folding rear seat backs
- Air conditioning with automatic temperature control

- Particle filters for ventilation system
- Leather-covered steering wheel
- Backlit analog instrumentation with tachometer and gauges indicating oil pressure, oil temperature, oil level and fuel level; corresponding warning lights
- On board diagnostic system (OBD II)
- Trip odometer
- Power windows
- Analog quartz clock
- Brake pad wear indicator
- Mirrors in sun visors
- Interior lighting with delayed shut-off
- Cruise control
- Remote entry and electronic immobilizer system
- Central locking and alarm system
- AM/FM digital display stereo cassette radio with 6 speakers and amplifier
- Cassette and coin holder

Warranties

- Ten-year, rust-perforation limited warranty with unlimited mileage/kilometers
- Two-year, new vehicle limited warranty with unlimited mileage/kilometers, including the Porsche roadside assistance program
- Three-year, limited warranty on paint

Options

- Compact disc player
- Remote compact disc changer
- Hi-fi sound system with 8 speakers; 6x25 watt amplifier
- Digital sound package
- Infrared security system
- "Litronic" high intensity discharge headlights
- Rear window wiper
- Front seats with adjustable heating
- Full power seats for driver and front passenger
- Electric lumbar support for driver and front passenger seats
- Leather sport seats with electric height adjustment for driver and front passenger
- Supple, gathered-leather seat upholstery, front and rear
- Storage compartment in place of rear seats
- Environmentally-compatible, water-based metallic paint
- Motor sound package
- Limited slip differential with automatic brake differential (ABD) traction system (Six-speed only)
- Automatic brake differential (ABD) traction system (Tiptronic S only)
- Sport classic-design pressure-cast light alloy 17-inch wheels with locks
- Five-spoke pressure-cast light alloy 17-inch wheels with locks
- Aero kit front and rear spoilers and rocker panels
- Rim caps with Porsche crest
- Six-function computerized driver information center (standard with Tiptronic S)

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PORSCHE 911 CARRERA TARGA

1998 Technical Specifications

Engine

Type	Six cylinder, horizontally opposed, air cooled
Bore	3.94 in. (100 mm)
Stroke	3.01 in. (76.4 mm)
Displacement	220 cu. in. (3.6 liter)
Compression ratio	11.3:1
Horsepower (SAE Net)	282 hp (210 kW) @ 6300 rpm
Maximum torque (ft. lb.)	250 ft. lbs. (340 Nm) @ 5250 rpm
Maximum RPM	6700

Engine Design

Crankcase	Aluminum alloy
Crankshaft	Forged steel, 8 main bearings
Pistons	Forged aluminum
Cylinder head	Aluminum alloy, crossflow, hemispherical combustion chambers, two spark plugs per cylinder; ceramic-lined exhaust ports
Valve train	Single overhead camshaft, chain driven, hydraulic lifters
Cooling system	Air-cooled, fan is crankshaft-driven via belt
Lubrication system	Dry sump, front oil cooler with temperature-controlled fan
Fuel injection	Digital Motor Electronics (DME) fuel injection and dual ignition systems, with Varioram™ three-stage resonance induction and hot film air flow sensors, both electronically controlled by one DME control unit
Emission system	3-way dual catalytic converters with oxygen sensors; stainless steel core

Electrical System

Battery	12 volt, 75 amp./hr.
Alternator	1610 watt, 115 amp.
Ignition system	Digital Motor Electronics (DME) dual ignition and fuel injection systems with two spark plugs per cylinder and dual knock sensors

Drive Train

Rear-engine, rear-wheel drive, six-speed transaxle or four-speed Tiptronic S dual-function transmission		
Gear ratios:	<u>Manual</u>	<u>Tiptronic S</u>
1st	3.82:1	2.48:1
2nd	2.05:1	1.48:1
3rd	1.41:1	1.00:1
4th	1.12:1	0.73:1
5th	0.93:1	—
6th	0.78:1	—
Reverse	2.86:1	2.09:1
Final Drive	3.44:1	3.56:1

Body

	Unitized, fully-galvanized steel
Corrosion protection	Entire body of hot-dipped and electro-galvanized steel, all panels coated both sides, total immersion pre-treatment, cathaphoretic primer coating, hot-wax cavity-filler, PVC undercoating

PORSCHE 911 CARRERA TARGA

(Continued)

Suspension

Front

Independent MacPherson-type struts with aluminum alloy lower control arms, coil springs, 0.79 in. (20 mm) stabilizer bar (Optional, 0.87 in. [22 mm]); negative steering roll radius

Rear

Independent multi-link with LSA, self-stabilizing toe characteristics, 0.67 in. (17mm) stabilizer bar (Optional, 0.79 in. [20 mm])

Brakes

Front

Power-assisted, dual circuit, four-piston aluminum alloy fixed caliper, anti-lock braking system (ABS 5)

Rear

Vented, cross-drilled discs, 11.97 in. (304 mm)

Vented, cross-drilled discs, 11.77 in. (299 mm)

Wheels

Front

Pressure cast alloy 7J x 17

Rear

Pressure cast alloy 9J x 17

Tires

Front

205/50 ZR-17

Rear

255/40 ZR-17

Steering

Ratio

Rack and pinion, force-sensitive hydraulically-assisted

Turns (lock-to-lock)

16.5:1

Turning circle

2.47

38.5 ft. (11.74 meters)

Capacities

Engine oil

12.15 qts. (11.5 L) [with filter]

Fuel tank

19.4 gal. (73.5 L)

Dimensions

Wheelbase

89.4 in. (2272 mm)

Track:

Front

55.3 in. (1405 mm)

Rear

58.0 in. (1474 mm)

Overall length

167.7 in. (4260 mm)

Overall width

68.3 in. (1735 mm)

Height (unladen)

51.8 in. (1315 mm)

Ground clearance (laden)

4.7 in. (120 mm)

Curb weight:

Manual transmission

3130 lbs. (1420 kg)

Tiptronic S transmission

3186 lbs. (1445 kg)

Performance

0-60 mph*

Manual
5.3 sec.

Tiptronic S

6.3 sec.

0-100 kph*

5.4 sec.

6.4 sec.

Top track speed*

171 mph (275 kph)

168 mph (270 kph)

Coefficient of drag

.33

.33

Fuel Economy

City**

Manual

17 mpg (13.9 L/100 k)

Tiptronic S

17 mpg (13.7 L/100 km)

Highway**

25 mpg (8.6 L/100 k)

24 mpg (8.9 L/100 km)

*Performance data included for comparison purposes only. Porsche recommends obeying all traffic laws.

**1998 fuel consumption estimates. Compare these estimates to other cars. Fuel use will vary with speed, weather and trip length.