CAMS

5TH CATEGORY - HISTORIC RACING

GROUP Nc

APPROVED VEHICLE SPECIFICATION

This form details the approved specifications of individual vehicle models in the 5th Category Historic car group. To be issued with an Historic Log Book, cars need to comply with these specifications, the physical appearance shown in the illustrations and the general historic rules as detailed in the current CAMS Manual of Motor Sport.

Make of Car: Porsche **Model:** 911 S

Period of Original Manufacture: September 1969 - August 1971

General Comments : The Porsche cars that raced in touring car events in Australia in 1970/71 were the 2.2 litre 911 S models in manufacture from September 1969 to August 1971. This model meet the touring car eligibility requirements at the time.

CAMS Historic Group: Nc

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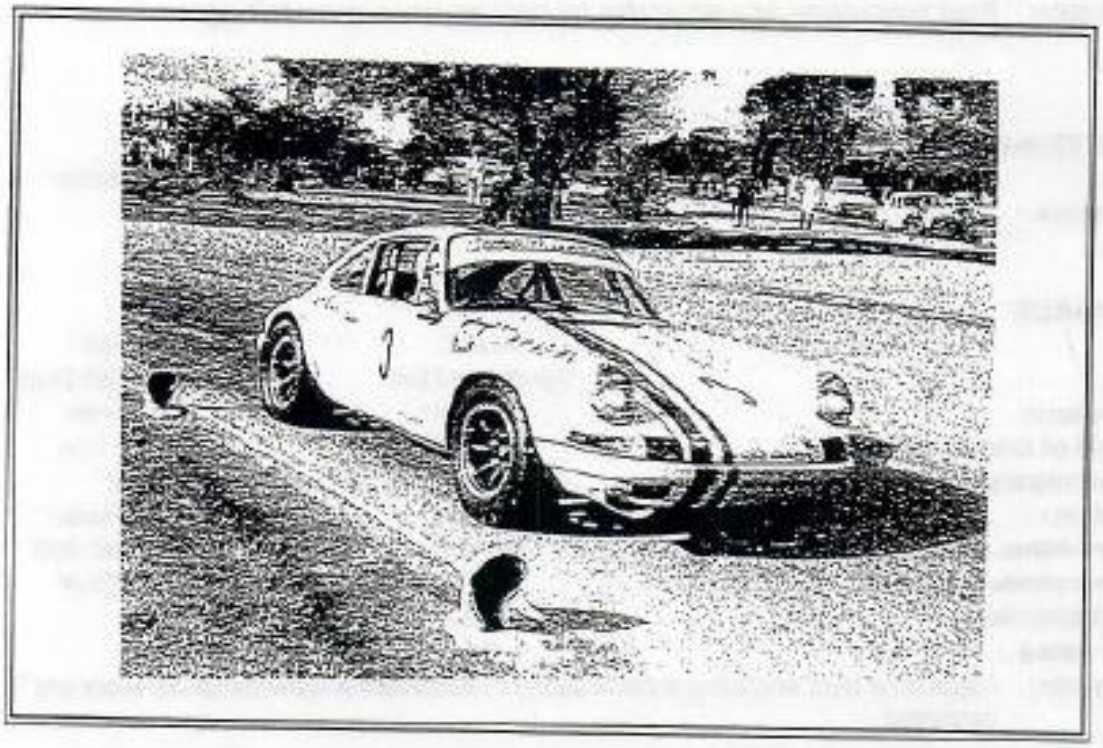

SECTION 1 - CHASSIS

1.1 CHASSIS FRAME

Description: Uritary Construction

Period of Manufacture: Sept 1969 - August 1971

Manufacturer: Porsche AG

Chassis no. from: Acceptable Prefix numbers 91101/91111, 91102/91112 and 91103/91113

Chassis no. location: Front Luggage Compartment

Material: Steel

Comments: Basic body shell was the same for all coupe models (911T, 911E and 911S) manufactured during this period. NOTE : Special lightweight competition versions available from the factory (using thinner gauge sheet metal for body panels and with such fittings as standard seat belt mounts, heater ducts, glove box door etc omitted) are not eligible under Group Nc regulations.

1.2 FRONT SUSPENSION

Description: Independent by McPherson Strut

Spring medium: Longitudinal Torsion Bar

Damper Type: Telescopic Hydraulic **Adjustable:** Yes

Anti-sway bar: Standard **Adjustable:** No

Suspension adjustable: Yes

Comments: Front suspension fully adjustable for camber, caster, toe-in and ride height.

1.3 REAR SUSPENSION

Description: Independent by Trailing Control Arms

Spring medium: Transverse Torsion Bars (1 per side)

Damper type: Telescopic Hydraulic **Adjustable:** Yes

Anti-sway bar: Yes **Adjustable:** No

Suspension adjustable: Yes

Comments: Rear suspension fully adjustable for camber, toe-in and ride height

1.4 STEERING

Type: Rack & Pinion **Make:** Porsche

Comments:

1.5 BRAKES

	Front	Rear
Type:	Ventilated Disc	Ventilated Disc
Dimensions:	282 mm	290 mm
Material of drum/disc	Cast Iron	Cast Iron
No. cylinders/pots per wheel:	2	2
Actuation:	Hydraulic	Hydraulic
Caliper: Make, Material, Type:	Ate Alloy	Ate Cast Iron
Master cylinder make: Ate	**Type:**	Tandem/Dual
Adjustable bias	No	
Servo Fitted	No	

Comments: Adjustable bias and other modifications in accordance with Group Nc rules are permitted.

SECTION 2 - ENGINE

2.1 ENGINE

Make:	Porsche		
Model:	911Sc (Internal Designation 911/02)		
No. cylinders:	6	Configuration:	Horizontal Opposed
Cylinder Block-material:	Magnesium Alloy	Four Stroke	
Bore - Original:	84 mm	Max. allowed:	85 mm
Stroke - original:	66 mm	Max. allowed:	66 mm
Capacity - original:	2195 cc	Max. allowed:	2247 cc
Cooling method:	Air/Oil		
Identifying marks:			

Comments: Note 85 mm bore is prescribed Porsche factory maximum.

2.2 CYLINDER HEAD

Make:		Porsche			
No. of valves/cylinder-		Inlet:	1	Exhaust:	1
No. of ports total:		Inlet:	6	Exhaust:	6
No. of camshafts:	2	Location:	Overhead	Drive:	Chain
Valve actuation:		Rocker Arms			
Spark plugs/cylinder:		2			
Identifying marks:					

Comments: Single overhead cam on each bank of cylinders operating valves by rocker arms.

2.3 LUBRICATION

Method:	Dry Sump	Oil tank location:	Right Rear Fender
Dry sump pump type:	Gear Type	Location:	Engine Crankcase (internal)
Oil cooler standard:	Yes	Location:	Engine & Front Right Fender
Comments:			

2.4 IGNITION

Type:	Dual Ignition - capacitor discharge type
Make:	Bosch
Comments:	

2.5 FUEL FEED

Carburettor: Make:		Model:		No:	Size:
Fuel injection Make:	Bosch		Type:	Mechanical Twin Row 6 Plunger Pump	
Supercharged:	No				

Comments:

SECTION 3 - TRANSMISSION

3.1 CLUTCH

Make: Fichtal & Sachs **Type:** MFZ 225 KL Diaphragm
No. of Plates: One
Actuation: Cable
Comments

3.2 TRANSMISSION

Type: Manual Transaxle
Make: Porsche **Model:** 911/01
No. forward speeds: 5 **Gearbox location:** Front of Rear Axle
Gearchange type and location: Manual, Floor mounted, central
Case material: Aluminium
Comments: Note : Model 915 transaxle (magnesium casing) is not eligible as this transaxle was introduced with the 2.4 litre version of the 911, which model is not eligible for Group Nc.

3.3 FINAL DRIVE

Make: Porsche **Model:** 911/01
Wheel drive method: Spiral Bevel C/W and Pinion to Rear Wheels
Ratios: Various
Differential: Limited Slip **Type:** Multi Plate Adjustable
Comments:

3.4 TRANSMISSION SHAFTS (EXPOSED)

Number: 2 **Location:** To Rear Wheels
Description: Each shaft fitted with two constant velocity joints
Comments:

3.5 WHEELS & TYRES

Wheel type: **Original:** Forged **Material:** **Original:** Alloy
Allowed: **Allowed:** Alloy
Fixture method: Studs **No. studs:** 5 per wheel

	FRONT	REAR
Wheel dia. & rim width		
Original:	6" x 15"	7" x 15"*
Allowed	7" x 15"	7" x 15"
Tyre section:		
Original:		
Allowed:	7" x 15"	7" x 15"

Aspect ratio - minimum: 60%
Comments: *All four road wheels used required to be "identically similar". Wheel/tyre combination must lie within the periphery of body plan.

SECTION 4 - GENERAL

4.1 FUEL SYSTEM

Tank Location: Front Capacity: 62, 80 or 110 Litre

Fuel pump, type and location: Dual Electric Pumps Make: Bosche
Mounted front luggage compartment

Comments:

4.2 ELECTRICAL SYSTEM

Voltage: 12 Alternator fitted: 770W

Battery Location: Front Luggage Compartment

Comments:

4.3 BODYWORK

Type: 2 Door Coupe Material: Steel/Fibreglass

No. of seats: 2 x 2 No. doors: 2 - Aluminium door skins

Comments: The following light weight panels may be fitted but are not compulsory :
Front Fenders - Fibreglass (integral flaring to cover permitted width tyres is permitted).
Rear Fenders - Steel. Fitment of factory style steel flares permitted to cover permitted width tyres : (such flares must be integrally fitted to fenders with no joins visible externally).
Front Bonnet - Fibreglass (permitted fuel filling through bonnet)
Front & Rear Bumpers - Fibreglass
Door skins and rear bonnet - Aluminium

NOTE

No Front Air Dams No Rear Spoiler/wings
No Replacement of Window Glass with Plastic

4.4 DIMENSIONS

Track - Front: 1374 mm Rear: 1355 mm

Wheelbase: 2268 mm Overall length: 4163 mm

Dry weight: 960 kg

Comments: Maximum permitted track increase under Group Nc regulations is 50mm

4.5 SAFETY EQUIPMENT

Fire extinguisher required
Seat belt required
Rollbar required
Electrical cut off switch required
Safety fuel tank optional

General description: Types 911 S-2.2/2.3

Coachwork and chassis

For the 1970 racing and rally season, the 2.2-litre 911 S became the base for most competition versions. While the engine was kept almost standard for rally work (as in the case of the Safari rally), the racing version had its capacity increased by 52 cc while its power went up from 180 to 240 bhp. The racing 911 S (internally known as 'ST') differed from the standard model in several ways: thin gauge sheet metal was used for the roof panel, for both rear side panels and for the seat pan back and side panels. The following body parts were deleted: the seat slide supports on the central backbone, all standard seat belt anchorage points, the heater ducts, the ashtray, the glove box lid and the tubes for the front and rear cover opening cables. Door and bumper decorative mouldings were also deleted, as were the front and rear cover locks, the foglight recess covers, the front torsion bar protections, the covers giving access to the rear torsion bars and the sun visor on the passenger side. Sheet metal joints were not filled, the body was not undersealed and both the rubber and sound damping felt mats were deleted. Even the paint was kept as thin as possible to reduce weight.

Parts were available for further lightening and modifications, such as: plastic front cover, plastic front and rear bumpers, front mudguard extensions, aluminium doors of which the frame was 0.75 mm thick steel, and Plexiglas for all windows, except the windscreen.

The front end of the car was stiffened by a transverse bar between the strut consoles in the luggage compartment. A special rally or circuit fuel tank of 80 or 110 litres capacity (17.6 or 24.2 gallons), which could be filled through an aperture in the front cover, was available to replace the standard 62-litre (13.6-gallon) tank with filler in the left front mudguard. For rallies, forged light alloy wheels with a 152 mm (6-inch) wide rim at the front and 178 mm (7-inch) at the rear were used, while 178 mm and 228 mm (9-inch) wide rims were fitted for circuit work. Further optional competition equipment included a supplementary petrol-electric heater (rallies only), a ventilating fan, two Recaro sports seats, tape to cover the moulding fitting holes, simplified internal trim, thinner windscreen glass, lighter knee protection padding, rubber fasteners for front and rear covers, a supplementary battery (rallies only), an aluminium roll-over bar, a space-saver spare tyre, and steel mudguard side extensions to cover the wider rear wheels.

For long distance rallies, such as the Safari, the special preparation of the 911 S was as follows. The lightened standard body was further reduced in weight by the use of glass-fibre reinforced plastic components, such as the front cover and the front and rear bumpers. All glass areas were Plexiglas, except for the windscreen. The co-driver sat in a sports seat and the driver in a Recaro bucket. Further equipment included: a reading lamp, a Speed Pilot, a socket for a portable lamp, air horns, Plexiglas covers for the additional lights, 100-watt headlight bulbs, a large map pocket, a tool bag secured to the rear bulkhead, three jacks, complete rally tools, a special tool for quick-changing the front suspension struts, two fire extinguishers, a fire extinguishing jet in the bell housing, a straight-through silencer, a wire mesh protection for the oil tank, and splash flaps at the rear.

The normal production running gear was little changed. The front suspension used the standard torsion bars as well as the standard 15 mm (0.6 inch) diameter anti-roll bar. Toe-in was zero, camber −30'. Koni front struts were used and in many cases the standard brakes were replaced by those of the 908.02 racing model. The rear suspension torsion bars (23 mm/0.9 inch diameter) and anti-roll

bar (16 mm/0.6 inch diameter) were also standard parts. Basic settings for the rear axle were also standard with 0° toe-in and –1°30' negative camber. The dampers were Koni, aluminium brake calipers replaced the cast iron originals, and the hub studs were longer than standard.

Some special equipment was used for the Safari rally, such as reinforced Koni 'tropical' shock absorbers, while the wishbones, the steering and its linkage were reinforced; 20 or 21 mm diameter (approximately 0.8 inch) front torsion bars were used. There were reinforced rear semi-trailing links and attachment brackets. In contrast with the racing version, there was no special protection for the brake pipes, but the front strut consoles were reinforced and both the front and rear running gear were protected by an aluminium underpan. Spare clutch and throttle cables were fitted and the cog-belt driving the injection pump was enclosed in a protective cover.

Engine

For rallies, the 2,195 cc engine remained as standard, developing 180 bhp at 7,200 rpm. The racing version had its cylinder bores increased by 1 mm to raise the capacity to 2,247 cc. With a compression ratio of 10.3:1 it produced 240 bhp at 7,800 rpm. The crankcase was pressure cast in magnesium alloy. The cylinders had chromium-plated bores and the cylinder heads were of aluminium alloy. The forged crankshaft ran in eight bearings. The connecting rods were steel and thin shell bearings were used both for the main bearings and big ends. The engine had dry sump lubrication and was fed through two electric fuel pumps. Injection was by a Bosch twin-row, six-plunger pump, while the twin ignition system was also of Bosch manufacture.

Transmission

The five-speed gearbox and differential unit were mounted in a single casing. Various gear sets were available. The final drive was by spiral bevel and crown wheel through a limited slip differential of Powr-Lok pattern. The wheels were driven through half-axles incorporating two constant velocity universals, also taking up the length variations. The single plate dry clutch was reinforced.

Porsche ST-2.2, a lightweight version of the 911 S-2.2.

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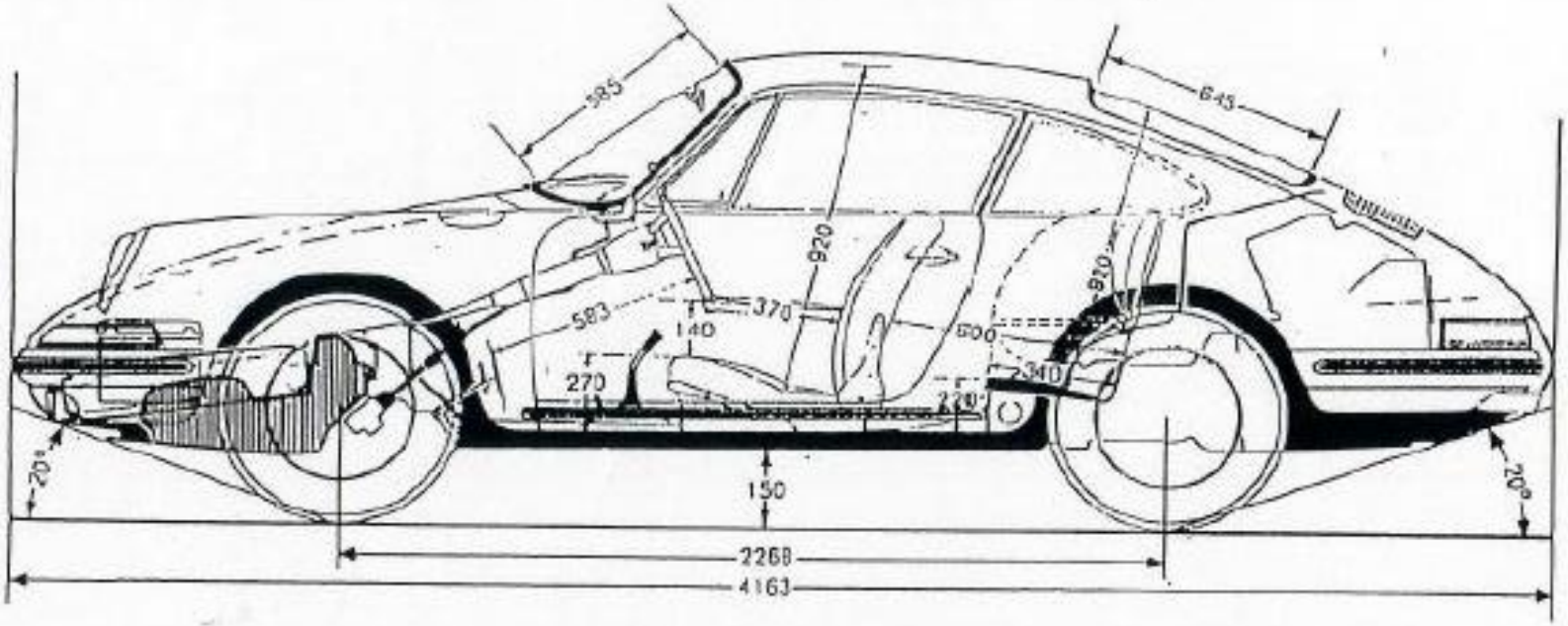
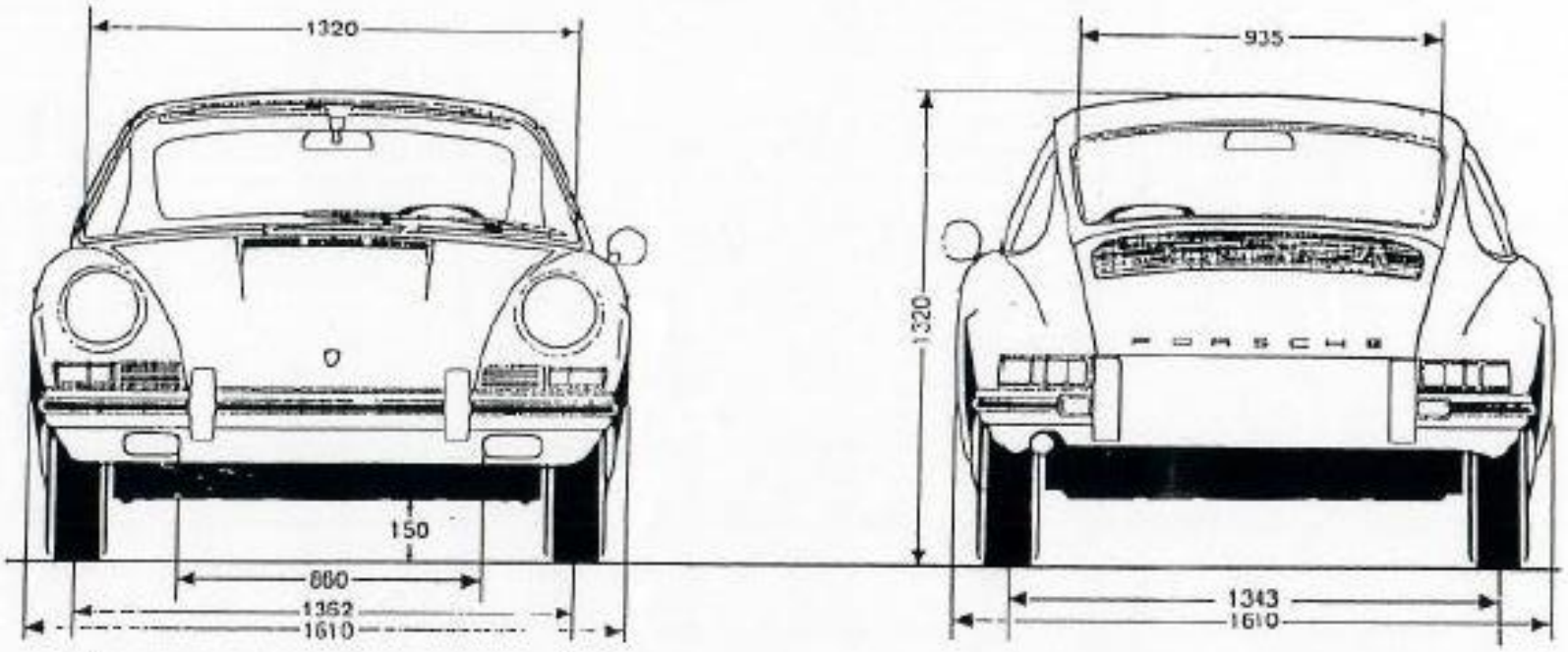
Body Dimensions for Type 911 (from 1969-models)

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FURTHER TECHNICAL INFORMATION ON PORSCHE 911 MODELS GENERALLY WILL BE FOUND ATTACHED TO THE SPECIFICATION SHEET COVERING THE CAR UNDER HISTORIC GROUP SB.