

944 CHALLENGE TECHNICAL SPECIFICATIONS

REFERENCE:

CAMS Online Manual of Motorsport, Section 7, Group 2B Marque Sports

AUTHORITY:

This document was approved by the 944 Racing Association Committee by circulation vote on 10th August 2012

ACTION:

This document is the definitive Specification Document for cars competing in the aPorschePart 944 Challenge.

Porsche 944 2.5L SOHC

The basic premise of the 944 Challenge series was to develop an enjoyable, low cost and affordable racing series in near standard Porsche 944 vehicles (as per "Porsche 944 Models Dimensions and tolerances" WKD 423 320). The specifications for the series have evolved since inception over 10 years ago and now references the Confederation of Australian Motorsport Group 2B Technical Regulations for Marque Sports Cars and the 944 Challenge series technical specification document.

Unless specifically permitted under the Group 2B Technical Specifications and the 944 Challenge technical specification document, no additional modifications are allowed to the standard vehicle or the original vehicle components. Where any discrepancy exists between any restriction, dimension or component specified in the Group 2B Technical Specifications and the 944 Challenge technical specification document, that specified in the 944 Challenge technical specification document shall take priority.

For convenience, the general section numbering in the present document is intended to follow that of the Group 2B Technical regulations.

Last Revision Date	Section	Details of Last Change
02DEC2012	1.2	"This clause" was "1.1"
	2.6	"Note these requirements" removed
	3.1	"Reinforcement of fully sprung components of the bodyshell/chassis is not permitted." Added
	3.2	"Sump guards may not extend rearwards past the rearmost edge of the front suspension cross member." Added
	3.3	or any aerodynamic devices
	4.1k iv	"See section 7.2" added
	4.11	All engine intake air must pass through the ø70mm tube.
	4.3, 4.4	"Not applicable." Was "no additional restrictions"
	4.6	"The exhaust is free from the first flange joint." Deleted
	4.6	"and must not be modified in any way.." added
	4.6	. The exhaust must exit after the rear wheels
	5	No additional restrictions added
	6.1	"Additional hoses" was "An additional hose"
12JAN2013	6.1	The location of the radiator must remain as standard
	10.2	Reference to A048 tyres removed
	7.1	Deleted "lever an its"
	7.1	Added Over select stops may be added to the internals of the gearbox
	7.2	Clarified clutch measurements and definition
	7.3	Replaced May be replaced with mechanically Diameter and weight.
	10.1	Added Magnesium wheels are not permitted
14.1	Deleted Purchased at the event	

1 Definitions

- 1.1 No additional restrictions
- 1.2 The VIN prefix used by the manufacturer for identification of eligible vehicles is:-
Porsche 944, VIN prefix WPOZZZ94Z or WPOAAO94.

Cars with identification plates with other than the above codes are not necessarily prohibited from use, provided that the specifications of the car are in compliance with those of the cars identified in this clause.

1.3-1.6 No additional restrictions.

2 Regulations

2.1-2.6 No additional restrictions

3 Bodywork and Dimensions

- 3.1 Strengthening: Seam welding of the body shell is not permitted. Reinforcement of fully sprung components of the bodyshell/chassis is not permitted.
- 3.2 Bumper bars and embellishments: Rear bumper bar or a fibreglass replica must be retained.

Sump guards may not extend rearwards past the rearmost edge of the front suspension cross member.
- 3.3 Front air dam: Front bumper/fascia must be either standard, or a fibreglass replica of that fitted to the 944 turbo model. Front air dams or any aerodynamic devices may not be added.
- 3.4 Rear aerodynamic devices: The rear spoiler must be either standard, or a fibreglass replica thereof. Additional rear spoilers / wings must not be added.
- 3.5 Cockpit covering: Not applicable.
- 3.6 Timing device: No additional restrictions
- 3.7 Sound Deadener: No additional restrictions
- 3.8 Windscreen, windows and mirrors: The rear hatch must be the retained standard glass component. Additionally, rear hatch restraints must be fitted to each side of the hatch, either in addition to, or replacing, the standard latch mechanism to prevent the hatch opening no more than 250mm.
- 3.9 Removable panels: See 3.8 above regarding rear glass hatch.
- 3.10 Wheels and Tyre clearance: The body width is to be a maximum of 1740 mm, as measured above the centre line of the front and rear axles. Wheel arches may not be flared.
- 3.11 General:
 - (i) Minimum Racing Weight is 1100 kg
 - (ii) Towing points must be made of a non-rigid material eg. Webbing.

4 Engine

- 4.1 General: The complete engine assembly must remain standard and unmodified, save as specified in 4.1 to 4.7 below.
 - a. Blueprinting and balancing of components is permitted.
 - b. The fuel rail may be replaced by one of free design.
 - c. Crankshaft: Cross-drilling is permitted only to aid lubrication.

- d. Camshaft The camshaft may be either type 155.05 or 155.09.
- e. A type 155.05 cam may be modified to type 155.09 specifications or a new billet ground to type 155.09 specifications by the approved supplier.
The approved supplier is: Clive Cams
Factory 4, 35-37 Clyde St
Ferntree Gully 3156
Ph. 03 9758 5977.

Each re-ground camshaft shall be stamped by the supplier with an identification number and grinders make.

- f. The keys and keyways of the standard camshaft timing sprocket may be modified provided camshaft timing remains standard. The timing belt cover may be removed or replaced by a custom made part.
- g. The following items may be replaced by mechanically and functionally identical substitute components.
- i. Pistons and rings
 - ii. Bearings
 - iii. Valve springs
 - iv. Piston pins
 - v. Bolts and fasteners
 - vi. Gaskets
 - vii. Valves
 - viii. Spark plug leads
 - ix. Ignition Coil
 - x. Alternator
 - xi. Electrical Wiring
- h. The following specifications shall apply to engines.
- i. Bore 100.50 mm Maximum
 - ii. Stroke 78.9 mm \pm 0.1
 - iii. Compression Ratio 11.5:1 Maximum
- i. Throttle body: The throttle cam profile may be modified.
- j. Engine Control Unit (ECU). The controlled ECU is either the Wolf 3D 944 Challenge unit, available from Advanced Engine Management Systems or the Motec M400 944 Challenge Control ECU plus full kit available from Motec. The ECU and sensors supplied with the engine management system must be used. The maximum allowable engine RPM is 6500. It is the entrant's responsibility to demonstrate compliance with the RPM limit as requested.
From 01/01/08, the ECU is unlocked, and the crank angle may be detected in any position using sensors supplied.
- k. The following minimum weights shall apply:
- i. Crankshaft (bare) 23.5 kg
 - ii. Connecting rod/screws/cap/nuts 820 g
 - iii. Inlet valve 96 g
 - iv. Exhaust valve 94 g
 - v. Clutch assy. including fasteners See section 7.2
 - vi. Piston/rings/piston pin/clips 710 g
- l. The \varnothing 70mm tube with air temp sensor (supplied with the Wolf ECU) must replace the air flow meter and be installed in the same position. The Engine Air Intake is free upstream of \varnothing 70mm tube. All engine intake air must pass through the \varnothing 70mm tube.
- m. The fuel pressure regulator(s) may be replaced by one of free design

4.2 Reciprocating engines:

i. Cylinder heads:

- The combustion chambers in the cylinder head must remain in the original condition supplied by the factory and may not be altered in any way. Alteration of valve seat geometry is permitted.
- Removal of piston material to increase valve clearance is permitted.
- The maximum throat diameter of the inlet valve seat insert shall be 39.80mm.
- The maximum throat diameter of the exhaust valve seat insert shall be 34.90mm.
- The thickness of the cylinder head ("A" dimension) is not restricted.

- ##### ii. The cylinder block may only have material removed from the cylinder head mounting face, and internally only as much material may be removed as to facilitate the fitment of cylinder liners.

4.3 Rotary Engines: Not applicable.

4.4 Supercharging: Not applicable.

4.5 Oil system: Dry sump systems are not permitted.

4.6 Exhaust: Original exhaust manifolds must be retained and must not be modified in any way. The exhaust must exit after the rear wheels

4.7 Engine mounts: Engine mounts must maintain the original position of the engine.

5 Piping and Fuel Tanks

5.1 Fuel tanks No additional restrictions

5.2 Tank fillers No additional restrictions

5.3 Fuel pumps/filters No additional restrictions

6 Cooling System

6.1 Radiator: Custom radiators may be used subject to the following restrictions:

- (i) The width and height must be no greater than the standard radiator
- (ii) The thickness of the core shall be no greater than 55mm
- (iii) The location of the radiator must remain as standard

The cooling system header tank may be relocated and/or replaced with a non-standard tank of similar capacity. Additional hoses may be added between the header tank and the cylinder head.

6.2 Radiator Cowl/Shroud: Custom ducting must not protrude below the front bumper and must be through existing body openings only, which includes driving light recesses.

6.3 Engine cooling fans: No additional restrictions

6.4 Oil coolers: No additional restrictions

6.5 Inlet air charge cooling: No additional restrictions

7. Transmission to the Wheels

7.1 Gearbox and Final Drive: The gearbox/final drive assembly shall be Porsche 944 Type 016J or 016K (Identification Code 5Y or 5S or ASG only), in unmodified form. Only the following ratios are permitted.

1st	3.6000:1
2nd	2.1250:1
3rd	1.4583:1
4th	1.0714:1
5th*	0.8286:1 (016J) or 0.7297:1 (016K)
Rev	3.5000:1

*Either 5th gear ratio may be installed.

Differential: Limited slip or locked differentials are not permitted.

Final Drive Ratio: The only permitted ratio is 3.8890:1

Gear linkages: The original gear selector pivot point must be retained.

Cooling of lubricants: No additional cooling of gearbox/final drive/differential lubricant is permitted.

Bearings, gaskets and seals may be replaced by non genuine components provided that they must be mechanically and functionally identical substitutes.

Over select stops may be added to the internals of the gearbox.

7.2 The minimum weight of the clutch assembly is 10.2Kg which includes:

- Flywheel
- Flywheel bolts
- drive plates
- driven plates
- pressure plate
- clutch cover
- clutch cover bolts
- diaphragm spring
- ring gear

when weighing original Porsche style clutch thrust bearing is included in weight !

7.3 Tail shaft and Drive shafts: May be replaced with mechanically functional and identical substitutes including shaft diameter and weight.

8 Suspension and Steering

- 8.1 Front suspension components: The front suspension pivot points may not be relocated except that the control arm inner pivot/mounting position in the cross member may be moved upwards by a maximum of 20mm. Elastomeric suspension bushes may be replaced with mechanically identical elastomeric bushes. The functional volume of the elastomer component must be at least 90% of the equivalent volume of the original bushing.
- 8.2 Rear suspension components: Control arms must be standard, but may be of either factory alloy or steel variants. The damper mounting point and spring seat on the steel arms may be modified to match those of the alloy arm. The control arm and spring plate pivot/mounting points must remain as standard. The spring plate must remain standard. Elastomeric suspension bushes may be replaced with mechanically identical elastomeric bushes. The functional volume of the elastomer component must be at least 90% of the equivalent volume of the original bushing.
- 8.3 Bump stops: No additional restrictions.
- 8.4 Suspension dampers: Adjustable shock absorbers are permitted - maximum two-way adjustable. The original pivot points must be retained.
- 8.5 Wheel bearings, hubs and trunnions: Stub axles, bearings and hubs must remain standard
- 8.6 Macpherson strut top mounts: Must be as standard.
- 8.7 Suspension brace: No additional suspension brace between the suspension top mounts is allowed.
- 8.8 Anti-Sway bars: The anti-sway bars may not be adjustable by the driver seated in the normal driving position.
- 8.9 Ride height adjustment:
- 8.10 Wheel track: Maximum Front 1500mm
 Maximum Rear 1480mm
 (See CAMS Manual for measurement method)
- Wheelbase: Maximum 2400 mm
- 8.11 Ride Height Adjustment: No additional restrictions.
- 8.12 Steering and wheel alignment: The maximum permitted front wheel castor angle is 3°.

9.0 Brakes

The entire braking system must be retained in unmodified form, except as allowed in this section.

- 9.1 Master Cylinders: must be retained in unmodified form.
- 9.2 Brake rotors: Original brake rotors must be retained.. Brake rotors may be subjected to slotting and/or cross drilling.
- 9.2 Brake calipers: Freedom is granted in relation to caliper seals only.
 Brake pads: Only Specified brake pads may be used both front and rear. These must be supplied by "aPorschaPart", Race Brake Compound No 6.
- 9.4 Handbrake: No additional restrictions.
- 9.5 Brake cooling: No additional restrictions

10. Wheels and Tyres

- 10.1 Wheels: The maximum rim size is 15" x 8" (front and rear).

Magnesium wheels are not permitted

- 10.2 Tyres: From 01/01/2013 only Yokohama A050R 225/50R15 Medium compound tyres may be used.

Removal of tread material by Buffing and/or Grooving is not permitted

11. Electrical

11.1 Electrical system:

- 11.1.1 Front Lights If the standard pop-up headlights are removed, they must be replaced by either 2 or 4 rectangular lights mounted in the driving light recesses of the front bumper.

Dimensions of the lights	Minimum width 125mm
	Minimum height 55mm
	Minimum power 55W

- 11.1.2 Rain Lights: A 20W globe must be fitted into both of the rear combination lamps in the position normally used for fog lamps. The extra globes must illuminate in conjunction with the parking lights

11.2 Battery: No additional requirements

11.3 Windscreen wipers: No additional requirements

11.4 Retractable headlights: No additional requirements

12. Cockpit/Driver's compartment

12.1 Steering Wheel: No additional requirements

12.2 Controls: The pedal box, and the position of the pivot points in the pedal box must remain as standard.

12.3 Instruments: No additional requirements

12.4 Carpet and interior trim: Either the standard console over the transmission tunnel, or a fibreglass replica thereof must be retained.

12.5 Seats: No additional requirements

12.6 Removable rear window shelf: No additional requirements

12.7 Heater: No additional requirements

12.8 Accessories: No additional requirements

13. Safety Structures

13.1 Safety cage/roll over protection structure: The Safety Cage must not extend outside the cockpit.

14. Fuel

14.1 Fuel: The fuel to be used in competition is JFP100 Racing. No additives of any kind are permitted.

14.2 Air: No additional requirements.
