
Workshop Manual

911

Carrera 4

The workshop manual is only for the internal use of the Porsche Dealer Organization.

© 1988 Dr. Ing. h.c. F. Porsche
Aktiengesellschaft
Technical Service Department
D-7140 Ludwigsburg

All rights reserved — Printed in Germany

WKD 482520

List of Repair Groups Carrera 4

General	Technical Data	Page 0.1
Repair Groups		Group
Volume 1	Maintenance, Self-diagnosis	03
Engine, Maintenance	Engine, Crankcase, Suspension	10
	Engine, Crankshaft, Pistons	13
	Engine, Cylinder Head and Valve Drive	15
	Engine, Lubrication	17
	Engine, Cooling	19
	Fuel Supply	20
	Fuel System, Electronic Injection	24
	Exhaust System/Emission Controls	26
	Starter, Power Supply, Cruise Control	27
	Ignition System	28
	Diagnosis	
Volume II	Clutch, Controls	30
	Clutch	32
Transmission (manual)	Manual Transmission, Controls, Case	34
	Manual Transmission, Gears, Shafts	35
	Differential, Transaxle System, All-Wheel Drive	39
	Diagnosis	
Volume III	Clutch, Controls	30
	Torque Converter	32
Transmission (automatic)	Automatic Transmission, Controls, Case	37
	Automatic Transmission, Gears, Shafts	38
	Differential, Transaxle System	39
	Diagnosis	
Volume IV	Front Wheel Suspension	40
	Rear Wheel Suspension, Axle Shaft	42
Chassis	Wheels, Tires, Alignment	44
	Antiblock System	45
	Brakes, Mechanical	46
	Brakes, Hydraulics, Regulator, Booster	47
	Steering	48
	Diagnosis	
Volume VI	Body-Front Section	50
	Body-Center Section	51
Body	Body-Rear Section	53
	Lids	55
	Doors	57
	Electric Sunroof	60
	Hardtop	61
	Bumpers	63
	Glasses, Window Control	64
	Exterior Equipment	66
	Interior Equipment	68
	Seats	72
	Seat Covers	74
Volume VI	Heater	80
	Ventilation	85
Heating, Ventilation, Air Condition	Air Conditioner	87
Electrics	Diagnosis	
	Instruments, Fuel Gauge, Alarm System	90
	Radio, Telephone, On-board-computer	91
	Windshield Wipers and Washer	92
	Exterior Lights, Lamps, Switches	94
	Interior Lights	96
	Diagnosis	
Volume VII	Wiring	97
Electrics		
Wiring Diagrams		

Survey of Information Published in Technical Manual beginning in 1985

**6
Cyl.**

4

	Ti/ QI	No.	911 C2/C4	911	911 Turbo	Remarks, Model, Also refer to...	Date
1985							
- Summer Tires 205/55 VR 16 and 225/50 VR 16	T	1/85	●	●	●	Goodyear/Dunlop	28.02.85
- Brake Booster 8"	Q	1/85	●	●	●	Turbo Look	15.02.85
- Breake Pressure Regulator	Q	2/85	●	●	●	Turbo Look/55bar	15.02.85
- Flat Spotting of Tires	Q	3/85	●	●	●	4 bar	10.04.85
- Turbo Brake Calipers Front and Rear	Q	4/85	●	●	●	Turbo/...-Look	10.04.85
- Aluminium Wheel Nuts	Q	5/85	●	●	●	Special Tool P 300	07.06.85
- Shock Absorber front/rear	Q	6/85	●	●	●	1985 (F) Model	07.06.85
- Winter Tires and Tire Chains	T	2/85	●	●	●	Replaced	30.10.85
- Brake Force Regulator	Q	7/85	●	●	●	33bar/55bar	29.11.85
- Shock Absorber front/rear	Q	8/85	●	●	●	1986 (G) Model	29.11.85
1986							
- Brake Lines Visual Inspection On Car	Q	1/86	●	●	●	Pipe/hose clearance	09.05.86
- Testing Criteria and Measures in Case of Damages on Steering System	T	1/86	●	●	●	All types	30.07.86
- Winter Tires and Tire Chains	T	2/86	●	●	●	Replaced	29.10.86
- Wheel Installation Installing Procedures	Q	2/86	●	●	●	Paint dot/wheel bolts	25.11.86
- Wheel Imbalance Balancing on Car	Q	3/86	●	●	●	Front wheels in "straight ahead" position	25.11.86
- Front / Rear Shock Absorbers	Q	4/86	●	●	●	1987 (H) Model	25.11.86
1987							
- Wheel Sizes / 7 J and 8 J x 16	Q	1/87	●	●	●	Wheel clearance	20.02.87
- Replacement Parts Brake Pad Kit	Q	2/87	●	●	●	Table	31.08.87
- Rear Axle Rear Axle Strut	Q	3/87	●	●	●	Spacer 2mm	16.10.87
- Wheel Rim Sizes / 7J und 8J x 16	Q ⊕	1/87	●	●	●	Wheel clearance	16.10.87
- Summer Tires and Wheel Rim Survey	T	1/87	●	●	●		30.11.87
- Winter Tires and Tire Chains	T	2/87	●	●	●		30.11.87
- Front / Rear Shock Absorbers Survey - 1988 Models	Q	4/87	●	●	●	1988 (J) Model	30.12.87
◆ = Conversion instructions or workshop campaign ▼ = Brochure ⊕ = Supplement or change for Ti/QI							



SERVICE

Date
30.04.90
VKQPI

Survey of Information Published in Technical Manual beginning in 1985

**6
Cyl.**

4

	TI/ QI	No.	911 C2/C4	911	911 Turbo	Remarks, Model, Also refer to...	Date
1988							
- Brakes Brake Pads Without Asbestos	Q	1/88	●			Sweden, Norway, Denmark	29.04.88
- Emergency Collapsible Wheel Vredestein	Q	2/88	●		●	Repairing Not Permitted	22.07.88
- Propeller Shaft Crease / Optitemp	Q	3/88	●		●	New grease: Optitemp PU 35	05.09.88
- Recommended Winter Tires and Tire Chains	T	1/88	●		●		20.10.88
- Brake Pads Without Asbestos and In- formation for Adjusting Parking Brake	T	2/88	●		●	Survey - brake pads without asbestos	28.10.88
- New Tire Road Speed Designations and Summer Tire/Wheel Rim Survey	T	3/88	●		●		24.11.88
1989							
- Tire and Wheel Rim Survey	T	1/89	●			ZR tires for Carrera 4	08.02.89
- Front Axle - Wheel Carriers - Wheel Bearings	T	2/89	●			Cracking noises.	08.06.89
- Radial Oil Seals on Front Wheel Hubs	T	3/89	●		●	New sealring with studs	02.03.89
- Steering Gear Installation on Front Axle Cross Member	T ♦	4/89	●			Grating noises. WK 03 66000	08.06.89
- Replacing Spring Strut Mounting Parts on Front Axle	T ♦	5/89	●			Optimoly HT / 135 Nm WK 06 66000	08.06.89
- Correcting Special Tool P 300	T	6/89	●				15.06.89
- "VR" Summer Tires	T	7/89	●	●	●	Combined design of VR and ZR tyres. Replaced	16.07.89
- Survey of Summer Tires and Rims	T	8/89	●				31.08.89
- Survey of Winter Tires, Rims and Tire Chains	T	9/89	●		●		29.09.89
- Survey of Winter Tires, Rims and Tire Chains	T	9/89	●		●		24.11.89
- Bolted Wheel Bearings on Front Axle	T	10/89	●			Cracking noises.	14.11.89
1990							
- Overview of tires and wheels/Type 959	T	1/90			●	Model 959 from M'89 (K)	26.02.90
- Breake system, rear axle Braking noise	T ♦	2/90	●			C 2: damping sheet, dampers.	23.03.90
- Survey of Summer Tires and Rims	T	3/90	●			Replcd Nr. 8/89 of 31.08.1989	19.04.90
♦ = Conversion instructions or workshop campaign ▽ = Brochure ⊕ = Supplement or change for TI/QI							



SERVICE

Date

30.04.90

VKQPI

Survey of Information Published in Technical Manual beginning in 1985

6
Cyl.

4

	TI/ QI	No.	911 C2-C4	911	911 turbo	Remarks, Model, Also refer to...	Date
- Front and rear brakes Damper shims and vibration dampers -survey	T	4/90	●			From M'89 (K)	24.07.90
- Survey of Summer Tires and Wheels	T	5/90	●			Replaces T N° 3/90	16.08.90
- Summary of winter tires, wheels and snow chains	T	6/90	●	●	●	Replaces T N° 9/89	28.08.90
◆ = Conversion instructions or workshop campaign ∇ = Brochure ⊕ = Supplement or change for TI/QI							



SERVICE

Date

30.04.90

31.12.90

VKQPI

The workshop manual of the Carrera 4 also includes that for the Carrera 2.
The Carrera 4 acts as the basis for description of the repairs in the manual.
"Carrera 4" also appears on every page in the header line.

Deviating descriptions for repairs on the Carrera 2 follow those of the Carrera 4. These repair descriptions for both models are separated by a yellow sheet.
"Carrera 2" appears on all pages in the header line after the separating sheet. The page number starts with 100 as an additional distinction.

Page

Wheel suspension, front, axle shaft

Tightening torques for front axle	40 - 01
Installation instructions for wheel carrier	40 - 1
Dismantling and assembling wheel suspension	40 - 3
Removing and installing halfshaft	40 - 11
Dismantling and assembling spring strut	40 - 13

Wheel suspension, rear, axle shaft

Tightening torques for rear axle	42 - 01
Notes on recessed spring strut mount from 1991 model on	42 - 1
Dismantling and assembling wheel suspension	42 - 3
Replacing wheel bearings	42 - 9
Removing and installing spring strut	42 - 13
Dismantling and assembling spring strut	42 - 15
Removing and installing drive shaft	42 - 19

Wheels, tires, alignment

Wheels and tires	44 - 01
Adjustment values for alignment	44 - 02
Sample measuring card	44 - 04
Fitting 16" and 17" cup design wheels to the vehicle	44 - 05
Alignment	44 - 1
Tire fitting	44 - 9

Antiblock system

Acceleration sensors for longitudinal and transverse locks	45 - 1
Testing ABS in 911 Carrera 4 with ABS 2-LED Tester	45 - 7
PDAS diagnosis / Troubleshooting	D39/45-1

Brakes, mechanical

Tightening torques for brake mechanisms	46 - 01
Technical data	46 - 03
Checking the thickness of the brake pads	46 - 1
Removing and installing the brake pads of the four-piston fixed-caliper brake	46 - 2
Adjusting the brake pressure rod / checking the brake light switch setting	46 - 4
Checking and adjusting the hand brake	46 - 5
Checking brake disc lateral runout	46 - 7
Checking brake disc thickness	46 - 9
Dismantling and assembling front brake	46 - 11
Dismantling and assembling rear brake	46 - 13

Brake - hydraulics, regulator, booster

Tightening torques for brake hydraulics	47 - 01
Information on four-piston fixed caliper	47 - 03
Brake fluid change / Bleeding the brake and lock control	47 - 1
Pressure tests on the booster circuit	47 - 9
Removing and installing pressure warning switch	47 - 13

Steering

Tightening torques for steering	48 - 01
Replacing the steering in case of accident damage	48 - 03
Inspection and installation work on the rack and pinion power steering	48 - 1
Assembling the track rods on the steering gear	48 - 3
Removing and installing steering gear	48 - 5
Removing and installing steering/ignition lock	48 - 9
Checking hydraulic operation of steering system (pressure measurement)	48 - 11

Tightening torques for front-axle

Location	Thread	Tightening torque Nm (ft.lb.)
Cross member		
Cross member to chassis outer	M 12	100 (73)
inner	M 10	46 (34)
Rubber-metal bearing to cross member	M 8	23 (17)
Central pipe / FA final drive		
Rubber-metal bearing to FA final drive	M 12	85 (62.5)
Rubber sealing disk (in area of clamping sleeve) to central shaft	M 6	10 (7.5)
Central tube to transmission (FA and RA drive)	M 12	85 (62.5)
Clamping sleeve to central shaft (FA and RA drive)	M 10	75 (55)
Drive shaft		
to FA drive	M 8	42 (31)
to wheel hub	M 22	460 (340)
Side member		
to chassis (front)	M 12	85 (62.5)
to cross member (rear)	M 10	46 (34)
Control arm/joint carrier		
Control arm front to side member	M 12	110* (81)*
Control arm rear to side member	M 12	85 (62.5)

* The screw with washer must be replaced each time the screw connection is undone.

Location	Thread	Tightening torque Nm (ft.lb.)
Joint carrier to control arm (Castor excenter and fastening)	M 10	65 (48)
Joint carrier to wheel carrier (Ball joint)	M 12	65 (48)
Cooling-air guide for brakes to control arm	M 6	10 (7.5)
Spring strut/wheel carrier		
Spring strut to wheel carrier (camber adjustment)	M 12 x 1.25*	135 (101)*
Spring strut to chassis	M 8	23 (17)
Spring strut support mount to piston rod	M 14	80 (59)
Plug** of spring strut support mount (911 Carrera RS)	M 50	180** (133)
Brake caliper to wheel carrier	M 12	85 (62.5)
Speed sensor to wheel carrier	M 6	10 (7.5)
Retainer plate for wheel bearing on wheel carrier	M 8	37 (27)
Wheel hub on wheel carrier (Carrera 2 / turbo as of 91)	M 22	460 (339)
Stabilizer		
to side member	M 8	23 (17)
to stabilizer mount	M 10	46 (34)
Stabilizer mount to wheel carrier (balljoint)	M 10	35 (26)

- * Only use original screws and hexagon nuts according to SP catalog (pitch, quality).
 Replace M 12 x 1.5 screws (gold-colored, tightening torque 120 Nm (88.5 ft.lb.)) if necessary.
 Lubricate threads (approx. 10 mm of beginning of threads) and head (bearing surface) of bolts with Optimoly HT.

- ** Do not undo plug while the vehicle is on its wheels. Replace plug after removal (micro-sealed plug).