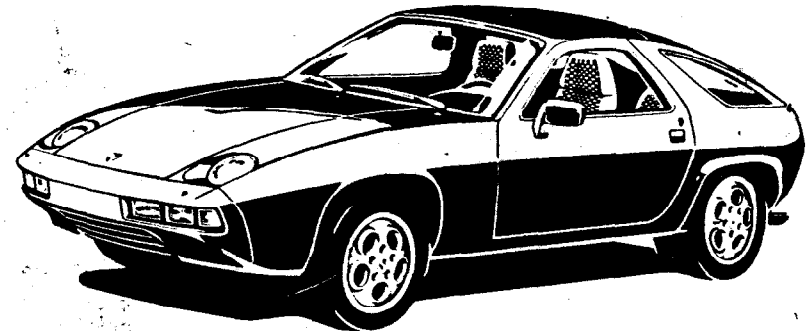
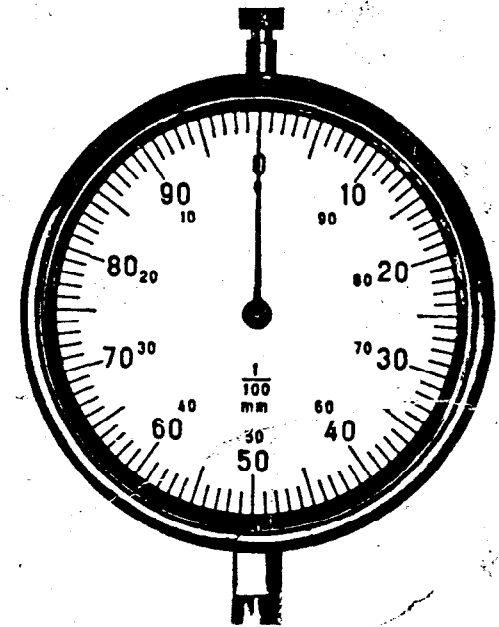


PORSCHE



78, 79, 80 **928**
Models

Models,
Dimen-
sions,
Tolerances



INTRODUCTION

We are publishing this booklet with information on

models, dimensions and tolerances

to provide the Porsche mechanic with specifications necessary to render proper service.

We took into account that the mechanic is familiar with the service operations outlined in the workshop manual.

When using this booklet, also refer to the Service Information Bulletins since the data and specifications are subject to change without prior notice.

TECHNICAL SPECIFICATIONS

MODELS DIMENSIONS TOLERANCES

928
1978, 1979, 1980 Models

1st Edition

December 31, 1979

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Type Classification Codes

Year Mfd.	Model Year	Model Designation	Engine Designation	Displ. (cm ³)	Output DIN kW (HP) at rpm	Stroke/Bore mm
1977/1978	1978	928 Europe, R.o.W.	M 28.01	4474	177 (240)/5500	78.9/95
		928 Europe, R.o.W. (automatic)	M 28.02	4474	177 (240)/5500	78.9/95
	1978	928 USA	M 28.03	4474	169 (230)/5250	78.9/95
		928 Japan	M 28.03	4474	169 (230)/5250	78.9/95
		928 USA (automatic)	M 28.04	4474	169 (230)/5250	78.9/95
		928 Japan (automatic)	M 28.04	4474	169 (230)/5250	78.9/95
1978/1979	1979	928 Europe, R.o.W.	M 28.01	4474	177 (240)/5500	78.9/95
		928 Europe, R.o.W. (automatic)	M 28.02	4474	177 (240)/5500	78.9/95
	1979	928 USA	M 28.03	4474	169 (230)/5250	78.9/95
		928 Japan	M 28.03	4474	169 (230)/5250	78.9/95
		928 USA (automatic)	M 28.04	4474	169 (230)/5250	78.9/95
		928 Japan (automatic)	M 28.04	4474	169 (230)/5250	78.9/95
1979/1980	1980	928 Europe, R.o.W.	M 28.09	4474	177 (240)/5250	78.9/95
		928 Europe, R.o.W. (automatic)	M 28.10	4474	177 (240)/5250	78.9/95
	1980	928 USA	M 28.13	4474	170 (231)/5500	78.9/95
		928 USA (automatic)	M 28.14	4474	170 (231)/5500	78.9/95
		928 Japan	M 28.13	4474	170 (231)/5500	78.9/95
		928 Japan (automatic)	M 28.14	4474	170 (231)/5500	78.9/95

Compr. Ratio ϵ	Fuel System N = Regular B = Leadfree S = Premium	Engine Numbers	Transmission Type	Chassis Numbers
8.5:1	*K-Jetronic(N)	818 0001-818 2115	G 28.03	928 810 0001-928 810 2646
8.5:1	K-Jetronic(N)	818 9001-818 9605	A 22.01	928 810 0001-928 810 2646
8.5:1	*K-Jetronic(B)	828 0001-828 1063	G 28.03	928 820 0001-928 820 1139
8.5:1	K-Jetronic(B)	828 0001-828 1063	G 28.03	928 820 9501-928 820 9575
8.5:1	K-Jetronic(B)	828 9001-828 9187	A 22.02	928 820 9001-928 820 1139
8.5:1	K-Jetronic(B)	828 9001-828 9187	A 22.02	928 820 9501-928 820 9575
8.5:1	*K-Jetronic(N)	819 0001-819 1656	G 28.03	928 910 0001-928 910 3059
8.5:1	K-Jetronic(N)	819 5001-819 6460	A 22.01	928 910 0001-928 910 3059
8.5:1	*K-Jetronic(B)	829 0001-829 1716	G 28.03	928 920 0001-928 920 2285
8.5:1	K-Jetronic(B)	829 0001-829 1716	G 28.03	928 920 9501-928 920 9623
8.5:1	K-Jetronic(B)	829 5001-829 5710	A 22.02	928 920 0001-928 920 2285
8.5:1	K-Jetronic(B)	829 5001-829 5710	A 22.02	928 920 9501-928 920 9623
10.0:1	*K-Jetronic(S)	800 0001-800 5000	G 28.03	92 A0 80 0001-92 A0 80 5000
10.0:1	K-Jetronic(S)	800 5001-800 9999	A 22.01	92 A0 80 0001-92 A0 80 5000
9.0:1	**L-Jetronic(B)	810 0001-810 5000	G 28.03	92 A0 81 0001-92 A0 81 5000
9.0:1	L-Jetronic(B)	810 5001-810 9999	A 22.01	92 A0 81 0001-92 A0 81 5000
9.0:1	L-Jetronic(B)	810 0001-810 5000	G 28.03	92 A0 80 0001-92 A0 80 5000
9.0:1	L-Jetronic(B)	810 5001-810 9999	A 22.01	92 A0 80 0001-92 A0 80 5000

* K-Jetronic = CIS (Continuous Injection System) in USA

**L-Jetronic = AFC (Air Flow Controlled) in USA

Important Conversion Factors and New Dimensioning Units

	Former Units	Present Units
Pressure	Technical atmosphere	(at or kp/cm ²) Bar (bar)
Output	Horsepower	(HP) Kilowatt (kW)
Force	Kilopond	(kp) Newton (N)
Torque	Kilopondmeter	(kpm) Newtonmeter (Nm)

Conversion Factors

at (kp/cm ²)	in bar	× 0.981
kp	in N	× 9.81
HP	in kW	× 0.736
kpm	in Nm	× 9.81
m/s	in km/h	× 3.6
at	in mm Hg	× 735.56
km/h	in mph	× 0.621
°F	in °C	(°F-32) × 0.555
ltr.	in U.S.gal.	× 0.264
ltr.	in Imp.gal.	× 0.22

To convert the tightening torque from kpm in Nm the conversion factor 10 can be used, which is sufficient for workshop applications.

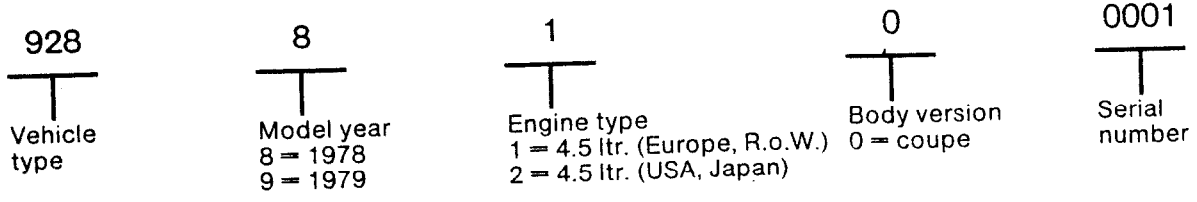
Engine Number Codes (1978 and 1979 Models)

8	—	Engine design 8 = 8 cyl. engine
1	—	Engine type 1 = 4.5 ltr. 2 = 4.5 ltr. (USA and Japan)
8	—	Model year 8 = 1978 9 = 1979
0001	—	Serial number

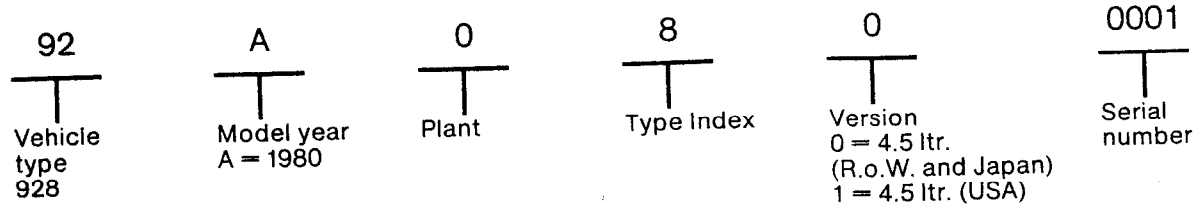
Engine Number Codes (1980 Models)

8	—	Engine design 8 = 8 cyl. engine
0	—	Engine type 0 = 4.5 ltr. 1 = 4.5 ltr. (USA and Japan)
0	—	Model year 0 = 1980
0001	—	Serial number

Chassis Number Codes (1978 and 1979 Models)



Chassis Number Codes (1980 Models)



Engine Type Designations

Mfg. Year	Model Year	Type Designation	Displ. (cm ³)	Engine Output acc. DIN (kW/HP)	Fuel System	Installed in Cars for
1977/ 1978	1978	M 28.01	4474	177/240	*K-Jetronic	Europe, Rest of World
		M 28.02	4474	177/240	K-Jetronic	Europe, Rest of World (automatic)
		M 28.03	4474	168/230	K-Jetronic	USA and Japan
		M 28.04	4474	168/230	K-Jetronic	USA and Japan (automatic)
1978/ 1979	1979	M 28.01	4474	177/240	*K-Jetronic	Europe, Rest of World
		M 28.02	4474	177/240	K-Jetronic	Europe, Rest of World (automatic)
		M 28.03	4474	168/230	K-Jetronic	USA and Japan
		M 28.04	4474	168/230	K-Jetronic	USA and Japan (automatic)
1979/ 1980	1980	M 28.09	4474	177/240	*K-Jetronic	Europe, Rest of World
		M 28.10	4474	177/240	K-Jetronic	Europe, Rest of World (automatic)
		M 28.13	4474	170/231	**L-Jetronic	USA and Japan
		M 28.14	4474	170/231	L-Jetronic	USA and Japan (automatic)

*K-Jetronic = CIS (Continuous Injection System) in USA
 **L-Jetronic = AFC (Air Flow Controlled) in USA

Technical Data - Engines for 1978, 1979, 1980 Models

Engine	M 28.01/02/03/04 1978/1979 Models	M 28.09/10/13/14 1980 Models
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Engine

No. of cylinders		8
Bore	mm/in.	95.0/3.74
Stroke	mm/in.	78.9/3.11
Displacement (actual)	cm ³ /in. ³	4474/272.97
Compression ratio		8.5:1 10:1 (USA 9.0:1)
Max. engine power		
DIN 70020	kW/HP	177/240 (169/230) 177/240 (170/231)
Net power, SAE J245	kW/HP	171/229 (164/219) 171/229 (165/220)
At engine speed	rpm	5500 (5250) 5250 (5500)
Max. torque,		
DIN 70020	Nm/kpm	350/35.6 (343/35.0) 380/38.7 (360/36.7)
Net torque, SAE J245	Nm/ft lbs	339/250 (333/245) 368/271 (348/265)
At engine speed	rpm	3600 3600 (4000)
Max. liter output		
DIN 70020	kW/1/HP/1	40/54 40/54 (38/52)
SAE J 245	kW/1/HP/1	38/51 38/51 (37/49)
Speed governed by		
ignition cut-off at	rpm	6300 ± 200 6200 ± 150
		USA + Japan: speed governed by electronic cut-off of fuel pumps
Engine weight (dry)	kg	245 (USA, Japan 260) 245

Engine Design

Design	8 cylinder, four stroke, internal combustion v-engine
Crankcase	Two-piece, light alloy cylinder/crankcase, without liners
Crankshaft	Forged with 5 plain bearings
Connecting rods	Sinter-forged steel
Pistons	Cast light alloy with chrome or iron plated bearing surfaces
Camshaft	Cast, running in camshaft housing without bearing shells
Camshaft drive	Toothed belt with tightening roller
Cylinder head	Light alloy
Arrangement of valves	1 intake, 1 exhaust in line overhead
Valve timing	By overhead camshaft and hydraulic bucket tappets
Valve play	Automatic (hydraulic) adjustment

Transmission Number Codes

1	1	8	0001
Engine code 1 = transm. for 8 cyl. engine	Transm. type 1 = 5-speed man. 6 = Autom. transm.	Model year 8 = 1978 9 = 1979 0 = 1980	Serial number

Note:

The number 12 preceding the transmission number means that the transmission is fitted with a limited slip differential (40%).

Transmission Type Designations

Transmission Type	Number of Gears	Installed from Transmission No.	Remarks
1978 Models			
G 28.03	5	118 000 1	Manual transmission, worldwide
A 22.01	3	168 000 1	Autom. transmission, Europe, R.o.W.
A 22.02	3	168 100 1	Autom. transmission, USA and Japan
1979 Models			
G 28.03	5	119 000 1	Manual transmission, worldwide
A 22.01	3	169 000 1	Autom. transmission, Europe, R.o.W.
A 22.02	3	169 300 1	Autom. transmission, USA and Japan
1980 Models			
G 28.03	5	110 000 1	Manual transmission, worldwide
G 28.05	5	110 500 1	Manual transmission, worldwide (since beginning of 1980)
A 22.01	3	160 000 1	Autom. transmission, worldwide

Engine	M 28.01/02/03/04 1978/1979 Models	M 28.09/10/13/14 1980 Models
Timing	Intake opens 8° after TDC Intake closes 55° after BDC Exhaust opens 38° before BDC Exhaust closes 2° before TDC	12° after TDC 48° after BDC 32° before BDC 6° before TDC
Engine Cooling	Closed coolant-filled system, mechanical fan with visco-clutch (when air conditioner is installed as extra equipment, with extra electric fan and thermal switch)	
Engine Lubrication	Forced oil circulation system with crescent pump	
Oil filter	Full flow type	
Oil pressure at 5000 rpm	Approx. 5 bar for oil temp. between 80° and 100° C	
Oil pressure indicators	Indicator lamp and pressure gauge	
Oil consumption	l/1000 km	approx. 1.5
Exhaust System	Twin pipes up to primary muffler; primary, intermediate and final mufflers (USA + Japan: twin pipes up to primary muffler, catalytic converter, intermediate and final mufflers)	
Emission control	(USA + Japan: EGR, secondary air injection)	(USA + Japan: oxygen sensor with 3-way catalytic converter)
Heater	Warm water heater with heat exchanger and blower	
Fuel System	* K-Jetronic	* K-Jetronic (USA + Japan: ** L-Jetronic)
Fuel delivery	2 electric fuel delivery pumps, hydraulic series connected or 1 electric fuel delivery pump	1 electric fuel delivery pump
Fuel grade	RON 91 regular grade	98 premium grade (USA: 91 leadfree)
Fuel consumption		Manual Automatic
constant 90 km/h l/100 km	11.3	9.5 10.6
constant 120 km/h l/100 km	13.0	11.9 13.3
EC driving cycle l/100 km (= dense city traffic)	26.7	17.6 16.4

* K-Jetronic = CIS (Continuous Injection System) in USA

** L-Jetronic = AFC (Air Flow Controlled) in USA

Engine	M 28.01/02/03/04 1978/1979 Models	M 28.09/10/13/14 1980 Models
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Electrical System

Shielding class	ECE R 10 and 72/245/EEC	
Battery voltage	V	12
Battery capacitance	Ah	66
Battery capacitance (extra)	Ah	88
Alternator/output	A/W	90/1260
Ignition (breakerless)	TCI (Transistor Coil Ignition)	
Firing order	1-3-7-2-6-5-4-8	
Ignition timing	31° before TDC at 3000 rpm without vacuum	Europe, R.o.W. (except Australia and Sweden): 28° before TDC at 3000 rpm without vacuum USA, Japan, Australia and Sweden: 23° before TDC at 3000 rpm without vacuum
Spark plugs	Bosch W 8 D (W 145 T 30) Beru 14-8-D (145/14/3 A) (USA/Japan: Bosch WR 8 DS or Beru RS 35)	
Spark plug electrode gap	mm	0.7 + 0.1
Power Transmission	Engine mounted at front end, transmission mounted at rear end, both connected by a connecting pipe = transaxle system. Front mounted engine, clutch, torsional elastic drive shaft to transmission running in connecting tube, rear mounted transmission with final drive, double joint shafts, rear wheels.	
Clutch	Two plate, dry clutch with diaphragm springs in pulled version, located on engine end.	
Pressure plate	MFZ 2/215 Ks ph	

Tolerances and Wear Limits – Engine

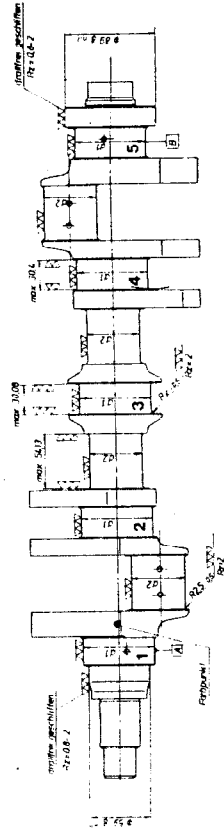
	When Installed (New)	Wear Limits
Cooling System		
Coolant thermostat opens at temp.	81 – 85° C	
Cap for cooling system		
Pressure valve opens at	0.9 to 1.15 bar	
Vacuum valve opens at	0.07 to 0.12 bar	
Oil Circuit System		
Oil consumption in l/1000 km		Approx 1.5
Oil pressure at 80° C oil temp. and 5000 rpm	Approx. 5 bar	
Oil dipstick		
Upper mark oil volume	7.5 ltr.	
Lower mark oil volume	6.0 ltr.	
Oil pump axial play	0.080 – 0.120 mm	
radial play	0.060 – 0.088 mm	
Valve Timing		
Bore dia. for camshaft	60.5 $\begin{smallmatrix} +0.03 \\ -0 \end{smallmatrix}$ mm	
Camshaft dia	60.5 $\begin{smallmatrix} -0.03 \\ -0.045 \end{smallmatrix}$ mm	
Camshaft axial play	0.10 to 0.18 mm	
Bore dia. for bucket tappet	38 $\begin{smallmatrix} +0.010 \\ +0.038 \end{smallmatrix}$ mm	
Bucket tappet dia.	38 $\begin{smallmatrix} -0.018 \\ -0.034 \end{smallmatrix}$ mm	
Camshaft runout	0.02 mm	
Cylinder Head and Valves		
Bearing surface distortion		Max. 0.08 mm
Valve seat width, intake	1.7 mm	
exhaust	2.0 mm	
Valve seat angle, intake	45°	
exhaust	45°	
Outer correction angle	30°	
Inner correction angle	60°	
Valve guides:		
Intake and exhaust dia.	9 + 0.015 mm	
Valve stem dia., intake	8.97 – 0.012 mm	
exhaust	8.95 – 0.012 mm	

Tolerances and Wear Limits – Engine

	When Installed (New)	Wear Limits
Valve guide/valve stem clearance		
Intake		0.50 mm
Exhaust		0.50 mm
Compression	8 bar and above	6.5 bar
Pistons and Connecting Rods		
Cylinder/piston clearance	0.024 to 0.048 mm	Approx. 0.080 mm
Piston rings – side clearance	Mahle KS	
Groove 1	0.06 – 0.05 – 0.102 0.082	
Groove 2	0.04 – 0.05 – 0.072 0.082	
Groove 3	0.013 – 0.023 – 0.127 0.137	
Piston rings – end gap		
Groove 1	0.20 to 0.40	
Groove 2	0.20 to 0.40	
Groove 3	0.40 to 1.40	
Conrod bushing dia.	24 + 0.018 + 0.028	
Piston pin dia.	24 – 0.004	
Conrod bushing/piston pin radial play	0.018 to 0.032	
Crankshaft and Engine Block		
Crankshaft runout	0.04	Max. 0.06
(measured on 2nd, 3rd or 4th bearing, bearings 1 and 5 on v-blocks)		
Conrod bearing journal dia.	51.971 to 51.990	
Conrod bearing/crankshaft radial play	0.034 to 0.092	
axial play	0.100 to 0.400	
Crankshaft bearing journal dia.	69.971 to 69.990	
Crankshaft bearing/crankshaft radial play	0.020 to 0.098	
axial play	0.110 to 0.312	
Cylinder bore out-of-true	0.010	0.020

Crankshaft - Standard and Reconditioned Sizes

Size	Crankcase Bore Dia.	Crankshaft Bearing Journal d 1 Dia.	Crankshaft Conrod Bearing Journal d 2 Dia.	Thrust Bearing Width
Standard	Standard	69.971 to 69.990	51.971 to 51.990	Max. 30.08
- 0.25	75.000 - 75.019	69.721 to 69.740	51.721 to 51.740	
- 0.50	Oversize	69.471 to 69.490	51.471 to 51.490	
- 0.75	75.250 to 75.269	69.221 to 69.240	51.221 to 51.240	



Only grind bearing surfaces for oil seals to 89.9 and 59.8 mm as specified here, if scoring is too deep.

Otherwise repolish as required $Rz = 0.8 \dots 2$.

After grinding, give oil bores a radius of $R = 0.50$ mm. Break sharp edges with a radius $R = 0.2 \dots 0.5$ mm.

Reconditioned Size Color Codes

1st reconditioned size dot of blue paint
 2nd reconditioned size dot of green paint
 3rd reconditioned size dot of yellow paint

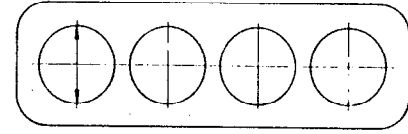
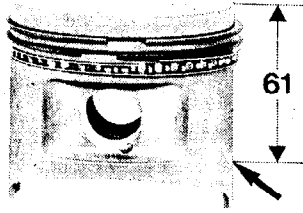
Pistons and Cylinder Bores (Sizes, Weights and Marks)

Checking Piston

Measure about 61 mm from piston crown, offset to piston pin axis by 90° C.

Checking Cylinder Bore

Measure about 61 mm from cylinder bore upper edge, transverse to engine block.



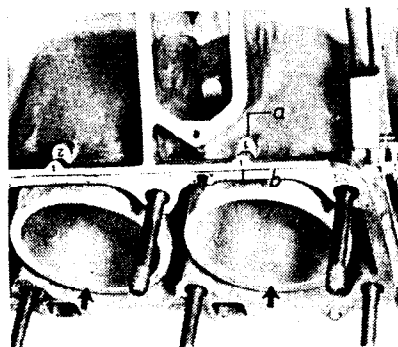
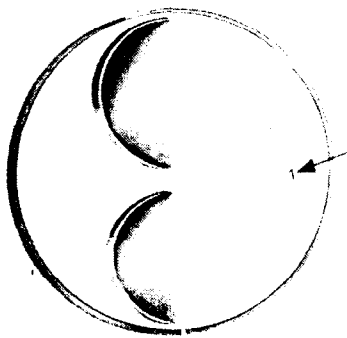
Size	Piston Dia. (mm) Mahle	Piston Dia. (mm) K.S.	Cylinder Bore Dia. (mm)	Tolerance Group Code
Standard	94.960	94.964	95.000	0
	94.970	94.974	95.010	1
	94.980	94.984	95.020	2
1st Oversize	95.460	95.464	95.500	0 KD 1
	95.470	95.474	95.510	1 KD 1
	95.480	95.484	95.520	2 KD 1
2nd Oversize	95.960	95.964	96.000	0 KD 2
	95.970	95.974	96.010	1 KD 2
	95.980	95.984	96.020	2 KD 2

Only pair pistons and cylinders of the same tolerance group. Different tolerance groups could be used in one engine.

Piston and Cylinder Codes

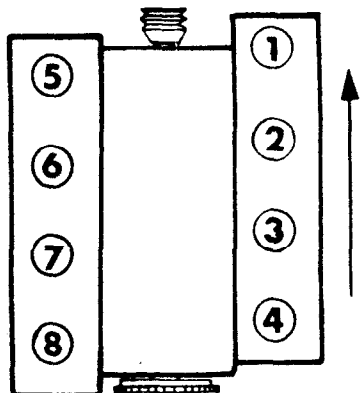
Code for piston
on piston crown

Code for cylinder
on engine block



a = Cylinder code
(location)
b = Tolerance group

Cylinder Codes (Numbers)

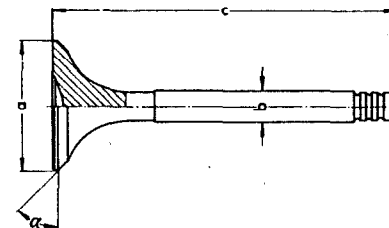


Forward direction

Firing Order 1-3-7-2-6-5-4-8

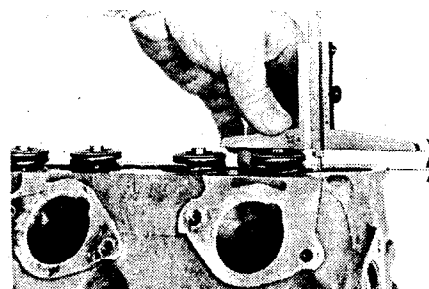
Valve Sizes

Dimension	Intake	Exhaust
a	43.00 mm	38.00 mm
b	8.97 mm	8.95 mm
c	110.50 mm	110.90 mm
α	45°	45°



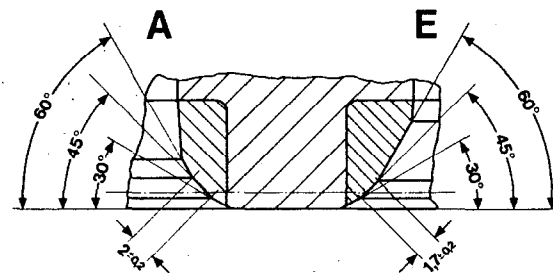
Reconditioning Valve Seats

Valve seats can be machined up to the wear limit point, distance A = 14.5 mm (new size is 13.65 ± 0.45 mm).



Check with a new valve. Distance "A" must not be exceeded, since otherwise the function of the hydr. valve followers could not be guaranteed.

Angles and Dimensions of Valve Seat Inserts



Installed Length of Valve Springs

Check installed length with Special Tool 9138 and correct by installing or removing shims if necessary.

1978/1979 Models
Intake valve 39.6 +0.5 mm
Exhaust valve 38.6 +0.5 mm

1980 Models
Intake and exhaust valves
38.2 ± 0.3 mm

Important Engine Tuning Values

Country Specifications	Europe, R. o.W.	USA, Japan	Europe, R. o.W.	USA, Japan
Model Year	1978/1979	1978/1979	1980	1980
Engine Type	M 28.01/02	M 28.03/04	M 28.09/10	M 28.13/14
Ignition timing * at engine rpm	31° before TDC 3000	31° before TDC 3000	28° before TDC**** 3000	23° before TDC 3000
Vacuum hose detached	yes	yes	yes	yes
Ignition timing control at engine rpm	32 – 36° before TDC 5000	32 – 36° before TDC 5000	28 ± 2° before TDC***** 5000	31 ± 4° before TDC 6000
Vacuum hose detached	yes	yes	yes	yes
Idle speed in rpm	700 + 50	800 ± 50	700 ± 50	750 ± 50
CO level in % (engine oil temperature about 80°C)	2 to 3 **	2 to 4 **	1.5 ± 0.5	0.6 ± 0.2****
Control pressure "cold" with about 20°C ambient temperature and engine stopped (without vacuum)	1.1 ± 0.2 bar	1.3 ± 0.2 bar (1.5 ± 0.2 bar for USA, Japan with manual transmission - 1979 models)	1.3 ± 0.2 bar	—
Control pressure "cold" with about 20°C ambient temperature and engine running (with vacuum)	1.6 ± 0.2 bar	1.8 ± 0.2 bar (2.0 ± 0.2 bar for USA, Japan with manual transmission - 1979 models)	1.8 ± 0.2 bar	—

* For 80 to 90°C oil temperature.

** Auxiliary air injection disconnected and line to engine plugged.

*** Measured ahead of catalytic converter; oxygen sensor disconnected.

**** Australia and Sweden 23° before TDC.

***** Australia and Sweden 27 ± 1° before TDC at 5500 rpm, without vacuum.

Country Specifications	Europe, R.o.W.	USA, Japan	Europe, R.o.W.	USA, Japan
Model Year	1978/1979	1978/1979	1980	1980
Engine Type	M 28.01/02	M 28.03/04	M 28.09/10	M 28.13/14
Control pressure "warm" without vacuum, with engine stopped and fuel pump running	3.0±0.2 bar	3.0±0.2 bar	3.0±0.2 bar	—
with vacuum, at idle speed	3.6±0.2 bar	3.6±0.2 bar	3.6±0.2 bar	—
System pressure				
Test value	5.2–5.8 bar	5.2–5.8 bar	5.5–5.8 bar	—
Adjusting value	5.3–5.5 bar	5.3–5.5 bar	5.3–5.5 bar	—
Fuel pressure (engine stopped)	—	—	—	2.5±0.2 bar
Fuel pump running (relays bridged)	—	—	—	Approx. 2.0 bar
Control value at idle speed	—	—	—	—
Leak test (fuel system)				
Engine warm				
Min. pressure after				
10 minutes	2.7 bar	2.0 bar	2.7 bar	—
20 minutes	2.6 bar	1.7 bar	2.6 bar	—
30 minutes	2.5 bar	1.6 bar	2.5 bar	—
Electric fuel pump delivery rate	at least 1360 cc/30 s	at least 1360 cc/30 s	at least 1360 cc/30 s	at least 1150 cc/30 s

Coolant Mixing Table (Average Values)

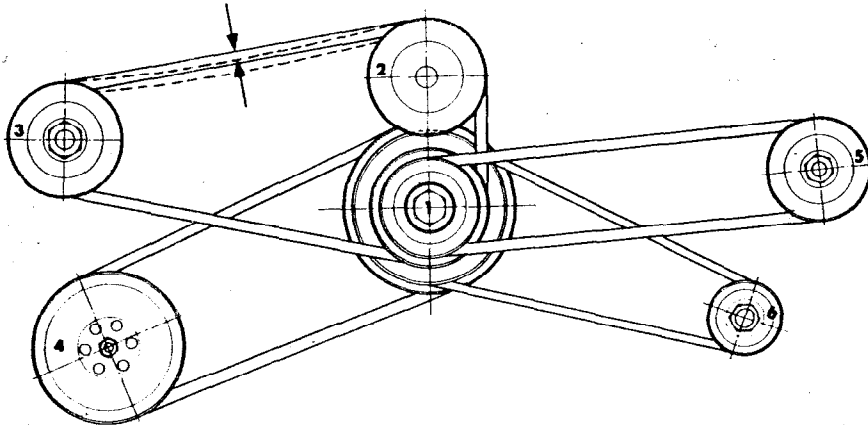
Protection to	Antifreeze	Water	Antifreeze	Water
-25° C	40 %	60 %	6.4 ltr.	9.6 ltr.
-30° C	45 %	55 %	7.2 ltr.	8.8 ltr.
-35° C	50 %	50 %	8.0 ltr.	8.0 ltr.

Drive Belt Sizes

Drive belt for alternator	mm 9.5 x 875 LA
Drive belt for fan and air pump	mm 12.5 x 1050 LA-FD shaped teeth
Drive belt for A/C compressor	mm 12.5 x 1075 LA
Drive belt for power steering pump	mm 12.5 x 975 LA

Checking Drive Belt Tightness

Check tightness by applying thumb pressure on belt at point midway between two pulleys.
Deflection of belt: approx. 10 mm.



1 - Crankshaft
2 - Fan
3 - Auxiliary air pump
(USA, Japan - '80 mod.
with tightening roller)

4 - A/C compressor
5 - Power steering pump
6 - Alternator

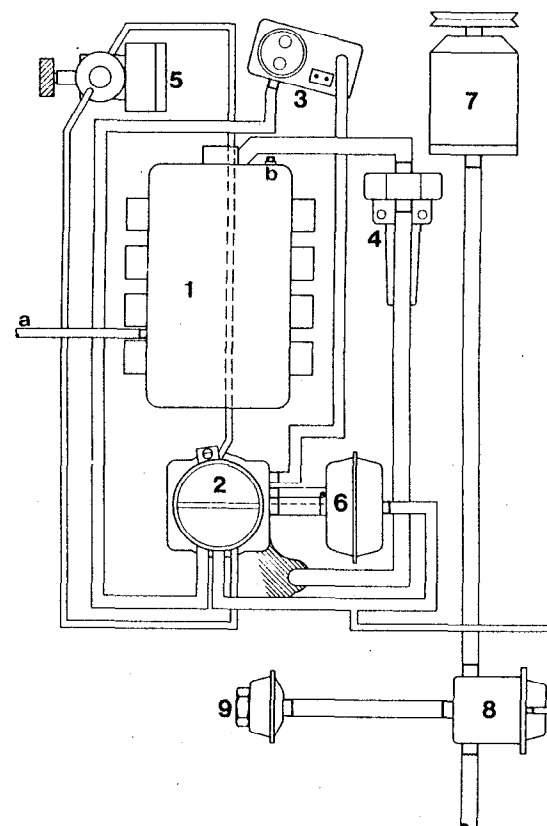
Torque Specifications for Engine

Location	Procedures	Torque Nm (kpm)	Thread
Main bearings	3 steps: 1st. step	20 (2.0)	M 12 x 1.5
	2nd step	40 (4.0)	
	3rd step	60+5 (6.0+0.5)	
Main bearings	2 steps: 1st step	20 (2.0)	M 10
	2nd step	40+5 (4.0+0.5)	
Oil pump	2 steps: 1st step	15 (1.5)	M 8
	2nd step	20+2 (2.0+0.2)	
Connecting rods		58+5 (5.8+0.5)	M 10 x 1.25
Cylinder head	A Pre-loading cyl. head gasket		
	1st step	20 (2.0)	1 - Kpm
	2nd step	50 (5.0)	
	3rd step	85 (8.5)	
B Leave cyl. head gasket pre-loaded in this state for 30 minutes			
C Tighten to final torque, unscrew nuts 1/4 turn and tighten to		85 (8.5)	
	Camshaft	45 (4.5) 65 (6.5)	M 10 (8.8) M 10 (10.9)
Spark plugs		25 to 30 (2.5 to 3.0)	
Flywheel		90+5 (9.0+0.5)	M 10 x 1.25
Pulleys		250+10 (25+1)	M 18 x 1.5 190
Oil drain plug		40-3 (4.0-0.3)	M 22 x 1.5
Plug in thermostat housing		80 (8.0)	M 48 x 1.5
Water drain plug in engine block		35+5 (3.5+0.5)	M 12

26	Location	Procedures	Torque Nm (kpm)	Thread
	Water drain plug in radiator		10 to 12 (1.0 to 1.2)	M 10
	Adapter on radiator		70 (7.0)	
	Adapter on engine		70 (7.0)	
	Oil hose on radiator		60 (6.0)	
	Oil hose on engine		60 (6.0)	
	Temperature switch on radiator		40 (4.0)	
	Governor housing for coolant circuit on engine	2 steps: 1st step 2nd step	10 (1.0) 20+2 (2.0+0.2)	M 8
	Coolant temperature transmitter		25-30 (2.5-3.0)	
	Air injection:			
	Adapter on cyl. head		40 (4.0)	
	Check valve		55 (5.5)	
	Air line		30 (3.0)	
	All other bolts and nuts		6+2 (0.6+0.2) 20+2 (2.0+0.2) 40+5 (4.0+0.5)	M 6 M 8 M 10

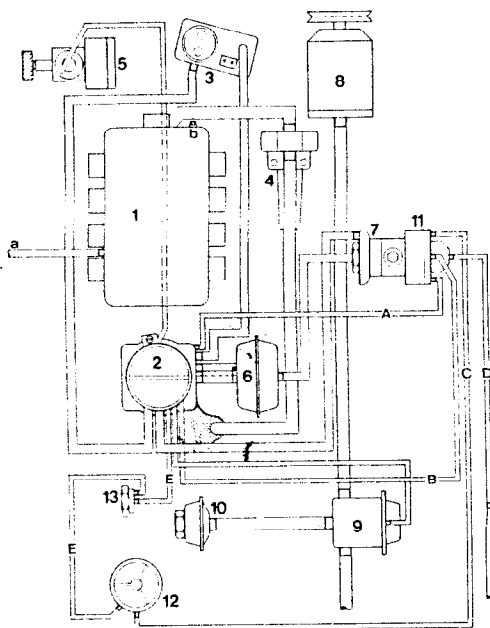
Vacuum Hose Connections - Europe

27



- | | |
|----------------------------------------------|-----------------------------|
| 1 - Intake distributor | 4 - Auxiliary air valve |
| a - Vacuum source for brake booster | 5 - Distributor |
| b - Vacuum source for automatic transmission | 6 - Vacuum control |
| 2 - Throttle housing | 7 - Air pump |
| 3 - Warm-up regulator | 8 - Blowoff switching valve |
| | 9 - Check valve |

Vacuum Hose Connections – USA/Japan (1978/1979 Models)



- 1 – Intake distributor
- a – Vacuum source for brake booster
- b – Vacuum source for automatic transmission
- 2 – Throttle housing
- 3 – Warm-up regulator
- 4 – Auxiliary air valve
- 5 – Distributor
- 6 – Vacuum control
- 7 – Control box
- 8 – Air pump
- 9 – Blowoff switching valve

- 10 – Check valve
- 11 – Pressure converter
- 12 – EGR valve
- 13 – Thermal valve

Hose Line Colors

- A – white
- B – blue
- C – light brown
- D – orange
- E – red

Clutch

Design	Two plate, dry clutch with pulled version diaphragm springs, located on engine side, hydraulic operation.
Pressure plate	MFZ 215 KSph – 1978/1979 models MFZ 200 KSph – 1980 models
Contact pressure	5000 ... 5700 N (510 ... 581 kp)
Clutch disc (flywheel end)	200 BL
Clutch disc (flywheel end)	200 D
Clutch disc lateral runout	0.4 mm at 190 mm dia.
Clutch play at clutch pedal*	Approx. 3 mm

* The clutch play cannot be checked at the clutch pedal because of the automatic hydraulic adjustment.

On the other hand perfect function of the clutch must be guaranteed by having a play of 0.5 mm between the push rod and master cylinder piston.

This play cannot be measured; it must be determined on the clutch pedal by sense of feeling. On the pedal tread plate it will be about 3 mm.

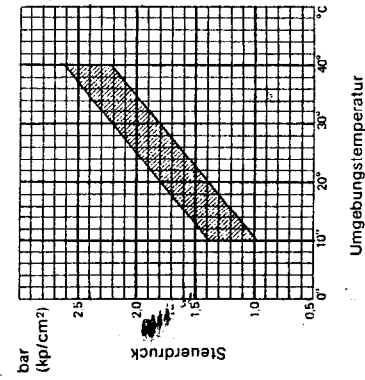
Torque Specifications for Clutch

Location	Description	Thread	Material	Torque Nm (kpm)
Ring gear – intermediate ring	Bolt	M 7 x 1	8.8	12.5 to 15 (1.25 to 1.5)
Guide tube – clutch/ transmission	Bolt	M 6 x 1	8.8	8 to 9.5 (0.8 to 0.95)
Clutch slave cyl.	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Clamp/central shaft I and II	Bolt	M 10 x 1.5	8.8	45 to 50 (4.5 to 5.0)
			12.9	75 to 85 (7.5 to 8.5)
Clutch housing/ central tube	Bolt	M 10 x 1.5	8.8	39 to 46 (3.9 to 4.6)
Engine/clutch housing	Bolt	M 12 x 1.5	8.8	70 to 83 (7.0 to 8.3)
Clutch housing/ cover	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Clutch/flywheel	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)

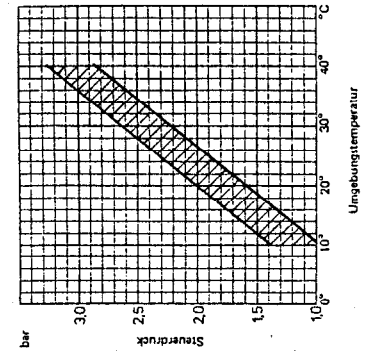
Warm-up Regulator

Control pressure "cold" (same as ambient temperature)

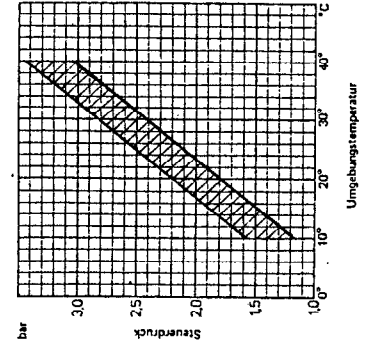
Warm-up regulator diagram
Part No. 928 606 109 01
Bosch No. 0438 140 036



Warm-up regulator diagram
Part No. 928 606 109 02
Bosch No. 0438 140 053



Warm-up regulator diagram
Part No. 928 606 109 03
Bosch No. 0438 140 063



Europe, Rest of World
1978/1979 Models

USA, Japan – Automatics
1978/1979 Models
Europe, Rest of World
1980 Models

USA, Japan – Manuals
1979 Models

Note: Other values for warm-up regulators are listed on pages 22 and 23.

Torque Specifications for Fuel System

Location	Description	Thread	Torque Nm (kpm)
	Clamping sleeve for fuel injector in cyl. head	M 24 x 1.5	15 to 20 (1.5 to 2.0)
	Injection line to fuel distributor	M 10 x 1	18 (1.8)
	Injection line to fuel injector	M 12 x 1.5	20 (2.0)
	Feed line to fuel distributor	Coupling	30 (3.0)
	Return line from fuel distributor	Hollow bolt	M 12 x 1.5 32 (3.2)
	Feed line from fuel distributor to warm-up regulator:		
	On fuel distributor	Coupling	M 10 x 1 20 (2.0)
	On warm-up regulator	Hollow bolt	M 10 x 1 18 (1.8)
	Return line from warm-up regulator to fuel distributor:		
	On warm-up regulator	Hollow bolt	M 8 x 1 15 (1.5)
	Fuel distributor start valve	Hollow bolt	M 8 x 1 15 (1.5)
	Fuel filter to mixture control unit	Coupling	M 16 x 1.5 Tighten coupling by hand and then tighten coupling by a 3/4 turn

Technical Data - Manual Transmission G 28.03

Design Direct gear transmission with layshaft

Ratios	Z1	Z2	
1st gear	17	44	3.6010
2nd gear	22	39	2.4646
3rd gear	26	34	1.8194
4th gear	29	28	1.3433
5th gear			1.0000
Reverse	22	50	3.1621

Climbing ability in %	1978/1979 Models		1980 Models	
1st gear	78	(71)	67	(62)
2nd gear	45	(41)	43	(41)
3rd gear	30	(28)	29	(28)
4th gear	19	(18)	19	(18)
5th gear	11	(11)	13	(11)

Final drive Pinion without hypoid displacement

Final drive ratio 12/33 2.750

Gear lube Multi-grade gear lube SAE 75 W 90
API Classification GL 5 (or MIL-L 2105 B)

Volume Approx. 3.8 ltr.

Note: USA values in brackets.

Manual Transmission Adjustment Table

When working on the final drive it will only be necessary to readjust the pinion and ring gear or both, if parts had been replaced which have direct influence on the adjustment. Proceed according to the following table to avoid unnecessary adjustments.

Replaced Part	Parts to be Adjusted:	
	Ring Gear ($S_1 + S_2$)	Drive Pinion dev. "r" (S_3)
Transmission case	●	●
Side transmission cover	●	
Bearing bracket with taper roller bearing for pinion	●	●
Pinion/ring gear	●	●
Differential case	●	
Taper roller bearing for differential	●	●

Recommended Sequence of Procedures for Adjustment of Drive Pinion/Ring Gear

If it is necessary to adjust the drive pinion and ring gear, keep to the following sequence in interest of economical procedures.

1. Determine total shim thickness "Stot." (S_1 plus S_2) for specified pre-load of differential taper roller bearing.
2. Determine shim thickness " S_3 ".
3. Split total shim thickness "Stot." into S_1 and S_2 , to have the specified backlash between ring gear and drive pinion.

The objective of adjustments is to restore the optimum smooth running, which had been determined in special testing machines during manufacture.

Absolute cleanliness is required for all repair and adjusting jobs to guarantee perfect results.

Adjusting Ring Gear

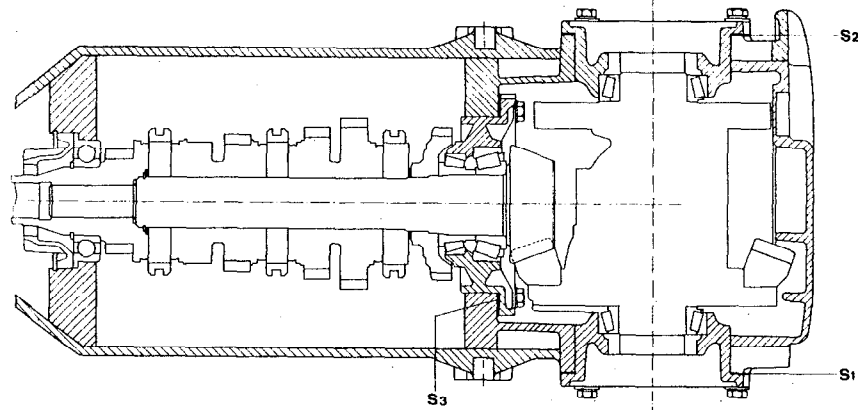
Backlash between ring gear and pinion can be adjusted only by changing thickness of shims and should be:

Pinion/ring gear from Getrag = 0.15 ... 0.20 mm

Pinion/ring gear from Hurth = 0.20 ... 0.25 mm

The backlash specification is inscribed in the ring gear!

Pre-load of differential taper roller bearing in final drive case: approx. 0.3 mm.



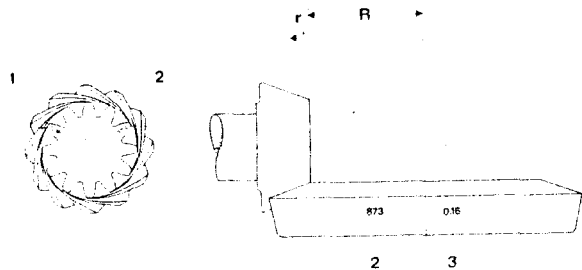
Location of shims:

S_1 = Shim for ring gear

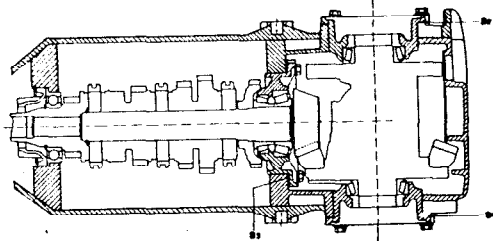
S_2 = Shim for ring gear

S_3 = Shim for drive pinion

Adjusting Drive Pinion - Manual Transmission



- R = Design distance 72.70 mm
 r = Deviation from R in 1/100 mm
 1 = Deviation r
 2 = Pair number code
 3 = Backlash



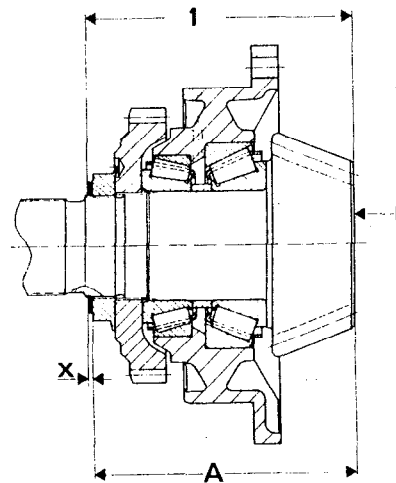
Location of shims:

- S_1 = Shim for ring gear
 S_2 = Shim for ring gear
 S_3 = Shim for drive pinion

Adjusting and Calculating Procedures:

1. Install drive pinion without shims S_3 and tighten bearing cover to specified torque.
2. Determine deviation at pinion head with the master gauge (set to $E = R+r$).
3. Use the deviation shown on the dial gauge for thickness of shim S_3 . Install shims S_3 .
4. Recheck adjustment. Dial gauge reading must not deviate from the original adjustment by more than ± 0.03 mm.

Determining Shim Thickness "X" for Locknut on Pinion



- 1 - Design distance
 (up to Transm. No.
 118 1092 = 108.85 mm)
 (from Transm. No.
 118 1093 = 108.70 mm)
 A - Distance from pinion head
 to locknut bearing surface
 B - Distance $A+r$ (pinion
 deviation)
 X - Shim thickness req.
 r - Pinion deviation (e.g. 12)

Procedures:

1. Measure distance "A" with a sliding calipers.
2. Determine distance "B".
 $B = A+r$
3. Determine distance "X"
(up to Transm. No. 118 1092
 $X = 108.85 - B$.)
4. Determine distance "X"
(from Transm. No. 118 1093
 $X = 108.70 - B$.)

Example:

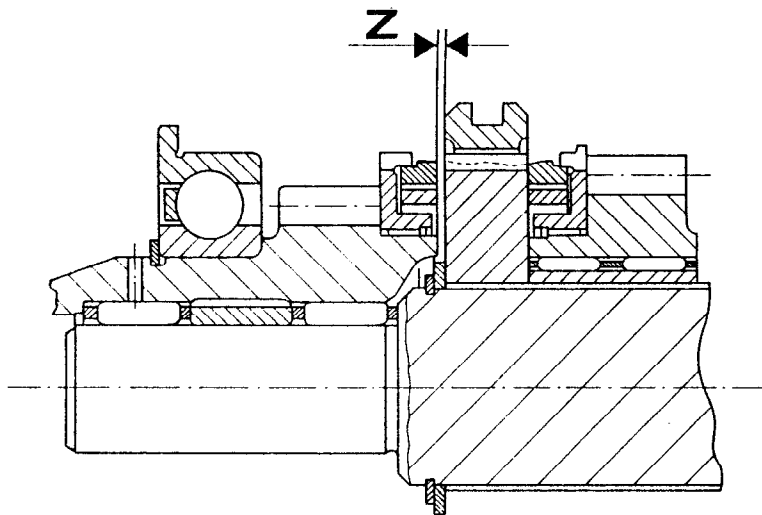
$$\begin{array}{r}
 \text{Distance "A"} = 106.90 \text{ mm} \\
 \text{Distance "B"} = A+r \\
 \quad \quad \quad 106.90 \text{ mm} \\
 \quad \quad \quad + \quad 0.12 \text{ mm} \\
 \quad \quad \quad \hline
 \quad \quad \quad 107.02 \text{ mm} \\
 \text{Distance "X"} = 108.85 - B \\
 \quad \quad \quad 108.85 \text{ mm} \\
 \quad \quad \quad - \quad 107.02 \text{ mm} \\
 \quad \quad \quad \hline
 \quad \quad \quad 1.83 \text{ mm}
 \end{array}$$

Measuring Distance "Z" between Input Shaft and Drive Pinion

Because of the new Porsche synchromesh system without circlips, it is important that there is distance "Z" between the face collar of the input shaft and guide sleeve for 4th and 5th gears on the drive pinion as follows:

0.2 to 0.3 mm up to Transm. No. 118 1092

0.4 to 0.6 mm from Transm. No. 118 1093.



1. Measure distance "Z" between input shaft and guide sleeve.

2. If distance "Z" of 0.2 to 0.3 mm or 0.4 to 0.6 mm is not reached, disassemble pinion/ring gear again and correct by changing thickness of shim "X".

Then the thickness of shim "Y" on end of drive pinion will also have to be determined.

Note:

Don't measure the distance synchromesh ring/guide sleeve or clutch unit/guide sleeve.

Torque Specifications for Manual Transmission

Location	Description	Thread	Material	Torque Nm (kpm)
Central tube/ transmission	Bolt	M 10 x 1.5	10.9	54 to 64 (5.4 to 6.4)
Bearing assembly of drive pinion	Nut	M 42 x 1.5	15CrNi6	150 to 180 (15 to 18)
Bearing cover/ transmission case	Bolt	M 8 x 1.25	10.9	27 to 32 (2.7 to 3.2)
Lock plug	Plug	M 12 x 1.5	5.8	17 to 20 (1.7 to 2.0)
Upper cover/ transmission case	Bolt	M 6 x 1	8.8	8.0 to 9.5 (0.8 to 0.95)
Ring gear	Bolt	M 12 x 1.25	12.9	150 to 180 (15 to 18)
Side cover/ transmission case	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Rear cover/transmission case	Nut	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Oil filler and drain plugs	Plug	M 24 x 1.5		19 to 23 (1.9 to 2.3)
Clamping sleeve/ input shaft	Bolt	M 10 x 1.5	8.8	45 to 50 (4.5 to 5.0)
			12.9	75 to 85 (7.5 to 8.5)
Backup light switch		M 18 x 1.5		19 to 23 (1.9 to 2.3)
Joint flange/ transmission outlet	Bolt	M 10 x 1.5	8.8	39 to 46 (3.9 to 4.6)
Bearing/internal selector rod	Bolt	M 8 x 1.25	8.8	13 to 17 (1.3 to 1.7)

Technical Data – Automatic Transmission Type A 22.01 and A 22.02

General data	Automatic transmission A 22.01 and A 22.02
Design	Fully automatic 3 speed planet gear transmission
Ratios	
1st gear	2.306
2nd gear	1.460
3rd gear	1.000
Reverse	1.836
Final drive	Drive pinion without hypoid displacement
Final drive ratio	12/33 2.750
Stall speed in rpm	2400 ± 200 Europe, R.o.W., 1978/79 models 2350 ± 200 USA, Japan 1978/79 models 2600 ± 200 Europe, R.o.W. 1980 models 2470 ± 200 USA, Japan 1980 models
Converter ratio	2.00 – 1978/1979 models 2.12 – 1980 models
Final drive oil volume	Approx. 2 ltr. of hypoid gear lube API Classification GL 5 (MIL-L 2105 B) SAE 90
Automatic transmission plus converter oil volume	Approx. 6 ltr. total filling, oil change volume with converter approx. 5.5 ltr. ATF Dexron B (sperm oil free)

Active Shift Parts in Different Gears

Gear	K 1	K 2	B 1	B 2	B 3	One-way Clutch
1st			●	●		●
2nd	●			●		
3rd	●	●				
Reverse					●	●

Shift Parts:

- K 1 Plate clutch 1
- K 2 Plate clutch 2
- B 1 Brake band 1
- B 2 Brake band 2
- B 3 Brake band 3

The clutches are provided to connect or disconnect rotating parts.
The brakes are used for stopping or one-way running.

Pressure Values in Bar (Automatic Transmission)

Test Pressure	Transm. Type 922/01 Europe	Transm. Type 922/02 USA	Measuring Instructions
Modulating pressure	3.1 - 3.15	3.1 - 3.15	Full throttle in range "D" (3rd gear), about 100 km/h, vacuum line connected, transmission temperature below 90° C
	4.6 - 4.9	4.6 - 4.9	Measured stationary at stall speed in range "D", vacuum line disconnected
Operating pressure	10.9 - 11.6	10.5 - 11.2	Measured stationary at stall speed in range "D", vacuum line disconnected
	19.2 - 20.3	18.5 - 19.6	Measured stationary at stall speed in range "R", vacuum line disconnected
	5.5 - 5.9	5.2 - 5.6	Full throttle in range "D" (3rd gear), about 100 km/h with connected vacuum line
Governor pressure	0.5 - 0.6	0.5 - 0.6	20 km/h
	1.5 - 1.7	1.5 - 1.7	50 km/h
	2.1 - 2.2	2.1 - 2.2	75 km/h
	2.5 - 2.6	2.5 - 2.6	100 km/h
	3.1 - 3.3	3.1 - 3.3	130 km/h
	3.9 - 4.1	3.9 - 4.1	160 km/h

Shift Points in km/h (Automatic Transmission)

Accelerator pedal position	Selector lever position „D“	km/h	
		UPSHIFT	DOWNSHIFT
Idling	1 - 2 - 1	26 - 33	16 - 23
	2 - 3 - 2	42 - 48	32 - 37
Full throttle	1 - 2 - 1	97 - 105	45 - 52
	2 - 3 - 2	150 - 158	57 - 85
Kickdown	1 - 2 - 1		58 - 78
	2 - 3 - 2		122 - 133

Remarks: Shift points in kickdown position do not change from full throttle upshift points. All speed values are approximate.

Adjustment Table - Automatic Transmission

After repairing the final drive the pinion and ring gear or pinion/ring gear set will only have to be readjusted, if parts having direct influence on the setting were replaced. The following table will help in avoiding unnecessary adjustments.

Replaced Part	Parts to be Adjusted:	
	Ring gear (S ₁ +S ₂)	Pinion dev. r (S ₃)
Transmission case (automatic part) or rear transmission case	●	●
Bearing assembly for pinion	●	●
Final drive case	●	●
Side transmission cover	●	
Pinion/ring gear set	●	●
Differential case	●	
Differential taper roller bearing	●	

Recommended Sequence for Readjustment of Pinion/Ring Gear Set

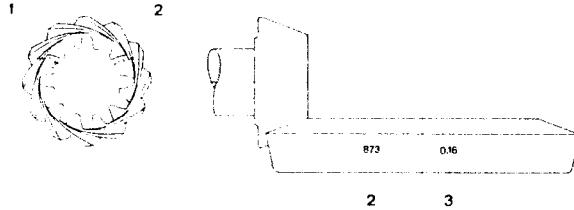
It would be most economical to proceed according to the following sequence when it is necessary to adjust the pinion and ring gear.

1. Determine total shim thickness "Stot." (S₁ plus S₂) for specified pre-load of differential taper roller bearing.
2. Determine shim thickness (S₃).
3. Split total shim thickness "Stot." into S₁ and S₂ that the backlash between ring gear and pinion is as specified.

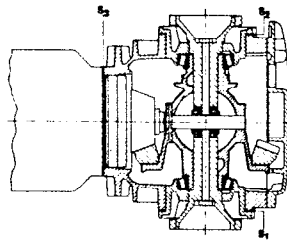
The objective of adjustments must be to restore the optimum smooth running which had been determined in special testing machines during manufacturing.

Absolute cleanliness during all repairing and testing jobs is essential to obtain perfect results.

Adjusting Pinion and Ring Gear – Automatic Transmission



- R = Design distance 72.70 mm
 r = Deviation from R in 1/100 mm
 1 = Deviation r
 2 = Pair number code
 3 = Backlash



Adjusting and Calculating Procedures:

1. Install adjusted bearing assembly and tighten collar nut to specified torque.
2. Install final drive case without shims S_3 and tighten all nuts to specified torque.
3. Determine amount of deviation at pinion head with master gauge (adjusted to $E = R + r + 5$ mm).
4. Use the amount of deviation shown on dial gauge for thickness of shims. Install shims S_3 .
5. Recheck adjustment. Dial gauge should now show no more deviation from original setting than ± 0.03 mm.

Adjusting Ring Gear – Automatic Transmission

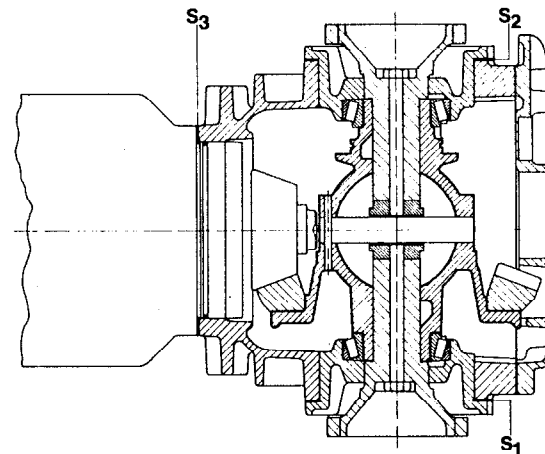
Backlash between ring gear and pinion is adjusted only by changing thickness of shims and should be:

Pinion/ring gear set from Getrag = 0.15 ... 0.20 mm

Pinion/ring gear set from Hurth = 0.20 ... 0.25 mm

The backlash value is inscribed in the ring gear!

Pre-load of differential taper roller bearing in final drive: approx. 0.3 mm



Location of Shims:

- S_1 = Shim for ring gear
 S_2 = Shim for ring gear
 S_3 = Shim for drive pinion

Torque Specifications for Automatic Transmission

Location	Description	Thread	Material	Torque in Nm (kpm)
Feed and return lines/rear converter housing	Hollow bolt	M 12		20 to 25 (2.0 to 2.5)
Drive plate/converter	Bolt	M 8	12.9	32 to 39 (3.2 to 3.9)
Front converter housing/rear converter housing	Bolt	M 8	8.8	19 to 23 (1.9 to 2.3)
Rear converter housing/transmission case	Bolt	M 8	12.8	27 to 32 (2.7 to 3.2)
Input flange/converter drive plate	Bolt	M 10	10.9	54 to 64 (5.4 to 6.4)
Transmission case/rear transmission case	Bolt	M 8	12.9	27 to 32 (2.7 to 3.2)
Filler tube/oil pan	Hollow bolt	M 14		20 to 25 (2.0 to 2.5)
Oil pan/transmission case	Bolt	M 8	8.8	7.0 (0.7)
Filter/valve body	Bolt	M 5	8.8	4.0 (0.4)

Location	Description	Thread	Material	Torque in Nm (kpm)
Valve body/transmission case	Bolt	M 8	8.8	13.0 (1.3)
Delivery pump to converter housing	Bolt	M 8	8.8	20 (2.0)
Kickdown solenoid to case	Solenoid			20 (2.0)
Modulating pressure valve body to transm. case	Bolt	M 6	8.8	7.0 (0.7)
Anti-restart and backup light switch to case	Bolt	M 5	8.8	5.0 (0.5)
Range selector lever to shaft	Bolt	M 6	8.8	7.0 to 8.0 (0.7 to 0.8)
Drive plate to range selector lever	Bolt	M 4		1.8 (0.18)
Catch plate to shaft	Bolt	M 6	8.8	10.0 (1.0)
Quick charging valve for reverse gear to case	Valve			20 to 25 (2.0 to 2.5)
Control pressure lever to shaft	Bolt	M 6	8.8	7.0 to 8.0 (0.7 to 0.8)
Holder for leaf spring	Bolt	M 6	8.8	10.0 (1.0)
Locknut for bolt of brake band B3	Bolt	M 14	8	25 to 30 (2.5 to 3.0)

Torque Specifications for Central Tube and Final Drive (Automatic Transmission)

Location	Description	Thread	Material	Torque in Nm (kpm)
Gear ring/flywheel	Bolt	M 8 x 1.25	12.9	32 to 39 (3.2 to 3.9)
Drive plate/fiange	Bolt	M 10 x 1.25	10.9	54 to 64 (5.4 to 6.4)
Engine/clutch hsg.	Bolt	M 12 x 1.5	8.8	70 to 83 (7.0 to 8.3)
Clutch hsg./cover	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Guard/cover	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Clutch hsg./central tube	Bolt	M 10 x 1.5	8.8	39 to 46 (3.9 to 4.6)
Central tube/transmission	Bolt	M 10 x 1.5	10.9	54 to 64 (5.4 to 6.4)
Bolt/double clamp	Bolt	M 10 x 1.5	12.9	75 to 85 (7.5 to 8.5)
Final drive/transmission case	Nut	M 10 x 1.5	8	39 to 46 (3.9 to 4.6)
Ring gear bolt	Bolt	M 12 x 1.25	12.9	150 to 180 (15.0 to 18.0)
Side bearing cover/final drive case	Bolt	M 8 x 1.25	8.8	19 to 23 (1.9 to 2.3)
Flange/differential	Bolt	M 10 x 1.5	8.8	39 to 46 (3.9 to 4.6)
Rear cover/final drive case	Nut	M 8 x 1.25	8	19 to 23 (1.9 to 2.3)
Bearing assembly/rear transmission case	Bolt	M 8 x 1.25	10.9	27 to 32 (2.7 to 3.2)
Pinion/pinion shaft	Collar nut	M 26 x 1.5	L 35 V	200 to 240 (20.0 to 24.0)

Technical Data – Front Axle and Steering

Front Axle

Wheel suspension	Independent wheel suspension on double control arms with coil springs and inboard shock absorbers
Springs	1 coil spring for each wheel
Shock absorbers	Double-action type
Stabilizer	26 mm dia. – 1978/1979 models 28 mm dia. x 4 (tube stabilizer) – 1980 models
Track width at curbweight	1545 mm – 1978/1979 models 1549 mm – 1980 models
at total weight	1551 mm – 1978/1979 models 1552 mm – 1980 models
Height	113 ± 10 mm from lower edge of bracket (point W) to center of wheel (point X)
Steering	Rack and pinion power steering with tie rods
Steering wheel dia.	380 mm
Steering wheel ratio (in center position)	17.75 : 1
Turning circle dia.	11.5 meters
Track circle dia.	9.6 meters
No. of steering wheel turns from lock to lock	3.13

Torque Specifications for Front Axle

Location	Description	Thread	Material	Torque in Nm (kpm)
Upper control arm to body	Self-locking nut	VM 14 x 1.5	8	140 (14)
Lower control arm to body at rear	Bolt	VM 12 x 1.5	10.9	120 (12)
Lower control arm to body at front	Bolt	VM 12 x 1.5	8.8	85 (8.5)
Guard to side member	Self-locking nut	VM 10	8	46 (4.6)
Spring strut to body	Self-locking nut	VM 10	8	46 (4.6)
Spring and stabilizer to lower control arm	Self-locking nut	VM 12 x 1.5	8	85 (8.5)
Stabilizer clamp to side member	Bolt	M 10	8.8	46 (4.6)
Suspension to stabilizer	Self-locking nut	VM 12 x 1.5	8	85 (8.5)
Upper and lower control arms to steering knuckle	Flange lock-nut	VM 12 x 1.5	8	85 (8.5)
Guard to steering knuckle	Bolt	M 7	8.8	15 (1.5)
Brake caliper to steering knuckle	Bolt	VM 12 x 1.5	8.8	85 (8.5)
Brake disc to wheel hub	Bolt	M 6	8.8	9.7 (0.97)
Bolt of clamping nut	Bolt	M 7	10.9	15 (1.5)
Wheel to wheel hub	Nut	M 14 x 1.5	Al	130 (13)
Tie rod to steering arm	Self-locking nut	VM 12 x 1.5	8	85 (8.5)
Rubber mount to piston rod of spring strut	Self-locking nut	VM 12 x 1.5	8	60 (6)
Ball joint to lower control arm	Self-locking nut	VM 12 x 1.5	10	120 (12)
Support plate to steering shaft (upper control arm)	Self-locking nut	VM 12 x 1.5	8	85 (8.5)

Torque Specifications for Steering

Location	Description	Thread	Material	Torque in Nm (kpm)
Steering gear to engine carrier	Self-locking nut	VM 10	5	46 (4.6)
Tie rod to steering arm	Self-locking nut	VM 12 x 1.5	8	85 (8.5)
Universal joint to steering gear	Self-locking nut	VM 8	8	23 (2.3)
Tie rod to ball joint	Nut	M 14 x 1.5		45 (4.5)
Steering tie rod to rack		M 16 x 1.5	16 Mn Cr 5	150 (15)
Universal joints to steering shafts	Self-locking nut	VM 8	8	23 (2.3)
Feed and return lines on steering gear	Hollow bolt	M 14 x 1.5		30 (3)
Steering wheel to steering shaft	Nut	M 18 x 1.5	8	50 (5)
Stabilizer clamp to side member	Bolt	M 10	8.8	46 (4.6)

Technical Data - Rear Axle

Wheel suspension	Independent wheel suspension on lower trailing arm and upper control arm, with coil springs and inboard shock absorbers
Springs	1 coil spring for each wheel
Shock absorbers	Double-action hydraulic type
Stabilizer	21 mm dia.
Track width at curbweight	1514 mm - 1978/1979 models 1521 mm - 1980 models
at total weight	1530 mm - 1978/1979 models 1529 mm - 1980 models
Toe (per wheel)	10' ± 5' (max. difference left to right 10')
Camber	-40' ± 10' (max. difference left to right 10')
Height	Measured from lower edge of cross member (point Z) to center of wheel (point Y) 120 - 20 mm (1978 models) 130 - 10 mm (1979/1980 models)

Torque Specifications - Rear Axle

Location	Description	Thread	Material	Torque in Nm (kpm)
Cross member to body	Bolt	M 10	8.8	46 (4.6)
Lower arm to cross member	Locknut	VNM 14 x 1.5	10	200 (20)
Lower arm to body	Locknut	VNM 12 x 1.5	10	120 (12)
Caliper to wheel carrier	Bolt	M 12 x 1.5	8.8	85 (8.5)
Wheel carrier to lower arm	Locknut	VNM 14 x 1.5	8	140 (14)
Upper arm to cross member and wheel carrier	Locknut	VNM 10	8	46 (4.6)
Wheel hub to propeller shaft	Locknut	VHM 22 x 1.5	8	460 (46)
Propeller shaft to transmission and input shaft	Bolt	M 10	12.9	83 (8.3)
Wheel to wheel hub	Nut	M 14 x 1.5	Al	130 (13)
Spring strut to body	Locknut	VNM 10	8	46 (4.6)
Stabilizer mount to body	Bolt	M 10	8.8	46 (4.6)
Stabilizer suspension to lower arm	Bolt	M 10	8.8	46 (4.6)
Stabilizer suspension to stabilizer	Locknut	VNM 10	8	46 (4.6)
Damper to lower arm	Locknut	VNM 12. x 1.5	8	85 (8.5)
Rubber mount to piston rod of spring strut	Locknut	VNM 12 x 1.5	8	58 (5.8)

Wheel Alignment Adjusting Values

The following values apply to curbweight according to DIN 70020 (car with full fuel tank, spare wheel and tools).

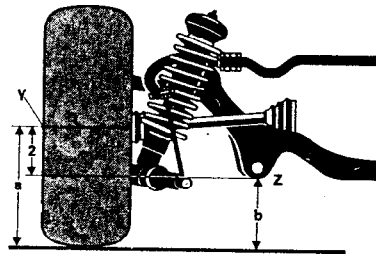
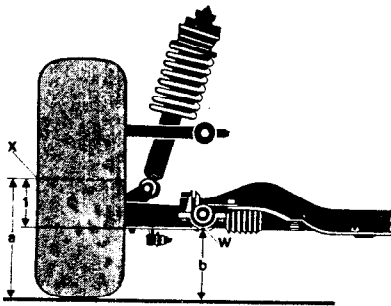
	Adjusting Value and Tolerance	Max Difference Left to Right
Front Axle		
Toe (pressed with 150 N/15 kp)	$0^\circ \pm 5'$	Influenced only by changing steering arms
Toe difference angle at 20° lock	$-1^\circ \pm 20'$	
Camber	$-30' \pm 10'$	10'
Caster	$3^\circ 30' + 30'$	20'
Rear Axle		
Toe (each wheel)	$10' \pm 5'$	10'
Camber	$-40' \pm 10'$	10'

Adjusting Vehicle Height

The vehicle height must be checked and, if necessary, corrected prior to making adjustments on the front and wheel alignment.

Front Axle

Rear Axle



1 - Lower edge of bracket (point W) to center of wheel (point X)
 113 ± 10 mm

2 - Lower edge of cross member (point Z) to center of wheel (point Y)
120 - 20 mm (1978 models)
130 - 10 mm (1979/1980 models)

Coil Springs - Tolerance Groups

Front Axle

Group	F when $L_1 = 217$ mm	Color Code
1	6377 ... 6573 N (650 ... 670 kp)	1 x blue
2	6573 ... 6769 N (670 ... 690 kp)	2 x blue
3	6769 ... 6965 N (690 ... 710 kp)	3 x blue

Only install springs of tolerance group 3 in cars with an air conditioner.

Rear Axle - 1978 Models

Group	F when $L_1 = 272$ mm	Color Code
1	4719 ... 4817 N (481 ... 491 kp)	1 x green
2	4817 ... 4915 N (491 ... 501 kp)	2 x green
3	4915 ... 5013 N (501 ... 511 kp)	3 x green

Rear Axle - 1979/1980 Models

Group	F when $L_1 = 253.5$ mm	Color Code
1	4710 ... 4810 N (480 ... 490 kp)	1 x yellow
2	4810 ... 4910 N (490 ... 500 kp)	2 x yellow
3	4910 ... 5010 N (500 ... 510 kp)	3 x yellow

Note:

Coil springs are assigned different tolerance groups and identified with stripe(s) of paint. Always use springs with the same color codes in the repair sector. The spring force will become weaker as the car grows older and the installation of only one new coil spring would cause too much difference in spring force, so that we recommend replacing coil springs in pairs only.

General Data and Wear Limits - Brakes

Description	Remarks Specification	Wear Limit
Service brakes (foot-operated)	Hydraulic dual circuit disc brake system with diagonal division, brake booster, floating calipers on rear axle and floating or sliding calipers on front axle, since 07.12.77 one brake pressure regulator for each circuit on rear axle	
Brake booster dia. up to 08.01.1979	9 inches	
from 09.01.1979	10 inches	
Master cylinder dia.	23.81 mm	
Brake pressure regulator dia.	18 mm	
Brake pressure regulator switching pressure		
Version I	55 bar	
Version II	33 bar	
Piston in brake caliper dia., front	54 mm	
dia., rear	36 mm	
Brake disc dia., front	282 mm	
rear	289 mm	
Effective brake disc dia.		
Front - floating caliper	220 mm	
sliding caliper	228 mm	
Rear	235 mm	
Pad area per front wheel		
Floating calipers	92 cm ²	
Sliding calipers	100 cm ²	
Pad area per rear wheel	63 cm ²	
Total brake pad area		
Floating calipers	310 cm ²	
Sliding calipers	326 cm ²	

Description	Remarks Specification	Wear Limit
Pad thickness		
Front - floating calipers	13 mm	2 mm
- sliding calipers	13 mm	2 mm
Rear	13 mm	2 mm
Brake disc thickness (new)		
Front - floating calipers	20.0 mm	
- grooved discs	20.5 mm	
- sliding calipers	32.0 mm	
Rear	20.0 mm	
Min. brake disc thickness after machining*		
Front - floating calipers	19.2 mm	18.6 mm
- sliding calipers	31.2 mm	30.6 mm
Rear	19.2 mm	18.6 mm
Brake disc thickness tolerance	max. 0.02 mm	
Brake disc lateral runout	max. 0.05 mm	
Wheel hub lateral runout	max. 0.05 mm	
Lateral runout installed	max. 0.10 mm	
Brake disc peak-to-valley surface finish after machining	max. 0.006 mm	
Play at brake pedal with brakes bled and engine stopped	10 mm	
Parking brake (hand-operated)	Mechanical drum brake action on both rear wheels	
Brake drum dia.	180 mm	181 mm
Brake shoe width	25 mm	
Liner area per wheel	85 cm ²	
Liner thickness	4.5 mm	2 mm

* Brake discs should only be machined symmetrically, i.e. ground uniformly on both sides.

Torque Specifications for Brake System (Hydraulic and Mechanical Parts)

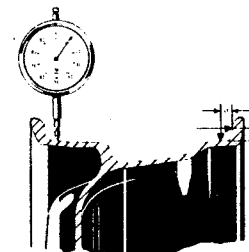
Location	Description	Thread	Material	Torque in Nm (kpm)
Brake booster to firewall	Nut	M 8 DIN 934	8	23 (2.3)
Brake line to master cylinder and brake hoses	Coupling	M 10 x 1		12 (1.2)
Brake hoses to brake calipers		M 10 x 1		14 (1.4)
Locknut to push rod (brake booster)	Nut	M 10	Fe/Zn 8 c C	35 (3.5)
Bleeder screw on brake caliper	Screw	M 7		3.5 to 5.0 (0.35 to 0.5)
Master cylinder to vacuum booster	Nut	M 8 DIN 934	8	23 (2.3)
Stop light switch to master cylinder		M 10 x 1 tapered		15 + 4 (1.5 + 0.4)
Bolt of clamping nut	Bolt	M 7	10.9	15 (1.5)
Brake caliper to steering knuckle	Bolt	M 12 x 1.5	10	85 (8.5)
Brake caliper to wheel carrier	Bolt	M 12 x 1.5	10	85 (8.5)
Guard to steering knuckle	Bolt	M 7	8.8	15 (1.5)
Locking segment for parking brake to base	Bolt	M 8	8.8	25 (2.5)

Checking Wheel Rims

Refer to drawing for radial and lateral runout measuring points on inner and outer rim shoulders.

Max. permissible radial and lateral runout for light alloy rims = 1,0 mm.

Note: Never straighten distorted wheel rims.



Distance "a" = 8 mm

Rims and Tires

	1978/1979 Models	1980 Models
Standard Tires		
Rim (front/rear)	7 Jx16 H 2 (7 Jx15 H 2)	7 Jx15 H 2
Tire (front/rear)	225/50 VR 16 (215/60 VR 15)	215/60 VR 15
Special Tires		
Rim (front/rear)	7 Jx16 H 2	7 Jx16 H 2
Tire (front/rear)	225/50 VR 16	225/50 VR 16
Winter Tires*		
Rim (front/rear)	7 Jx15 H 2	7 Jx15 H 2
Tire (front/rear)	185/70 R 15 M+S	185/70 R 15 M+S
Rim (front/rear)	7 Jx16 H 2	7 Jx16 H 2
Tire (front/rear)	205/55 R 16 M+S	205/55 R 16 M+S

Values in brackets = only automatics - USA

* SR version up to 160 km/h top speed
HR version up to 190 km/h top speed optional

Tire Pressures

(measured on cold tires)

Tire	Tire Pressure in bar	
	Front	Rear
225/50 VR 16	2.5	2.5
215/60 VR 15 (Europe, R.o.W.)	2.5	3.0
215/60 VR 15 (USA)	2.5	2.5
Winter Tires		
Europe, R.o.W.	2.5	3.0
USA	2.5	2.5
Inflatable Spare Tire	2.2	

Location of Fuses and Relays - 1978/1979 Models

The central electric board is accessible after removal of a cover in footwell of passenger's side. It holds 34 fuses, which are marked with numbers 1 through 34. Below there are relays, which are marked with roman numerals I through XXII. All wire harness plug connections for the central electric board are located below the relays and marked with letters A through Z. The plugs have different colors.



Fuses

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| S 1 - Front fog lights | S 11 - Instruments and indicator lamps in left combination instrument |
| S 2 - Extra headlights | S 12 - Instruments and indicator lamps in right combination instrument |
| S 3 - License plate lights, engine compartment light | S 13 - Not used |
| S 4 - Switch light (front fog lights, rear fog light, hazard lights, rear window wiper, rear window defogger), light for cigar lighter | S 14 - Seat controls |
| S 5 - Cigar lighter, instrument light | S 15 - Two-tone horns, antenna, rear window wiper return |
| S 6 - Windshield wipers, pump for intensive cleaning | S 16 - Condenser blower for A/C |
| S 7 - Rear window wiper | S 17 - Fresh air blower, magnetic clutch on A/C compressor |
| S 8 - Sun roof | S 18 - Rear window defogger, outside mirror heating |
| S 9 - Backup lights, mirror control | S 19 - Concealed headlight motor |
| S 10 - Stop lights, tempostat cruise control, bulb tester | S 20 - Pump for headlight cleaners |

- | | |
|---------------------------------------------------------------|-----------------------------------|
| S 21 - Window controls | S 26 - Low beam, left |
| S 22 - Fuel pumps, warm-up regulator, auxiliary air valve | S 27 - Low beam, right |
| S 23 - Clock, glove box light, inside lights and mirror light | S 28 - Marker lights, left |
| S 24 - High beam, left, High beam ind. lamp | S 29 - Marker lights, right |
| S 25 - High beam, right | S 30 - Turn signals, front, left |
| | S 31 - Turn signal, rear, left |
| | S 32 - Turn signals, front, right |
| | S 33 - Turn signal, rear, right |
| | S 34 - Rear fog light |

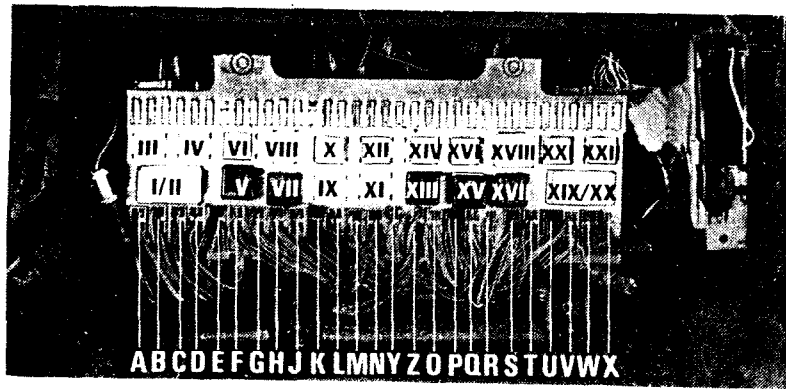
Relays

- | |
|---------------------------------------------------------------------------------------------------|
| I+II - Rear window defogger |
| III - Concealed headlight motor |
| IV - Concealed headlights |
| V - Hazard light/turn signal flasher |
| VI - Window controls |
| VII - Headlight cleaners |
| VIII - Not used |
| IX - Seat belts (timer) |
| X - Horns |
| XI - Air conditioner (speed) |
| XII - Front fog lights |
| XIII - Main lights |
| XIV - Light switching |
| XV - Starting relay for automatic transmission (term. 30 and 87 bridged for manual transmissions) |
| XVI - Light control |
| XVII - Fuel pump |
| XVIII - Extra fan for A/C |
| XIX - Wiper intermittent action |
| XX - Extensive cleaning pump |
| XXI - Fresh air blower |
| XXII - Defroster |
| 1 - Bulb tester |

Note: In some cars of model year 1978 a diode group was installed instead of speed relay XI. The electric seat control relay is located underneath the seat.

Location of Fuses and Relays – 1980 Models

The central electric board is accessible after folding up a cover in footwell of passenger's side. It holds 34 fuses, which are marked with numbers 1 through 34. Below there are relays, which are marked with roman numerals I through XXII. All wire harness plug connections for the central electric board are located below the relays and marked with letters A through Z. The plugs have different colors.



Fuses

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| S 1 – Front fog lights | S 11 – Instrument lights, light switch light, reset button light, selector lever light, clock light |
| S 2 – Extra headlights | S 12 – Instruments and indicator lamps of combination instrument |
| S 3 – License plate lights, engine compartment light | S 13 – Not used |
| S 4 – Switch lights (front fog lights, rear fog light, hazard lights, rear window wiper, rear window defogger), light for cigar lighter | S 14 – Seat controls |
| S 5 – Cigar lighter | S 15 – Two-tone horn, antenna, rear window wiper return |
| S 6 – Windshield wipers, pump for intensive cleaning | S 16 – Condenser blower for A/C |
| S 7 – Not used | S 17 – Fresh air blower, manual air conditioner |
| S 8 – Sun roof | S 18 – Rear window defogger, outside mirror heating |
| S 9 – Backup lights, mirror control, rear window wiper, automatic air conditioner | S 19 – Concealed headlight motor |
| S 10 – Stop lights, tempostat cruise control, bulb tester | S 20 – Pum for headlight cleaners |

- | | |
|------------------------------------------------------------|---------------------------------|
| S 21 – Window controls, central lock system* | S 26 – Low beam left |
| S 22 – Fuel pump, warm-up regulator, auxiliary air valve | S 27 – Low beam right |
| S 23 – Clock, glove box light, inside lights, mirror light | S 28 – Marker lights left |
| S 24 – High beam left, high beam indicator lamp | S 29 – Marker lights right |
| S 25 – High beam right | S 30 – Turn signals front left |
| | S 31 – Turn signal rear left |
| | S 32 – Turn signals front right |
| | S 33 – Turn signal rear right |
| | S 34 – Rear fog light |

*There are also two 400 mA fuses behind the central electric board for the central lock system.

Relays

- | | |
|--------|----------------------------------------------|
| I+II | – Rear window defogger |
| III | – Not used |
| IV | – Not used |
| V | – Hazard light/turn signal flasher |
| VI | – Window controls |
| VII | – Headlight cleaners |
| VIII | – Not used |
| IX | – Not used |
| X | – Horns |
| XI | – Not used |
| XII | – Front fog lights |
| XIII | – Wiper intermittent action |
| XIV | – Bridge (starting relay for autom. transm.) |
| XV | – Extensive cleaning pump |
| XVI | – Not used (L-Jetronic for USA cars) |
| XVII | – Fuel pump |
| XVIII | – Condenser blower of A/C |
| XIX+XX | – Headlights |
| XXI | – Fresh air blower |
| XXII | – Defroster (fan speed 4) |

Note: The seat belt timer relay is located in the center console ahead of the radio. The rear window wiper relay behind the tool plate at rear left. The electric seat control relay is underneath the seat.

Plug Sleeve Identification on Central Electric Board

A - white
 B - blue
 C - red
 D - natural
 E - black
 F - white
 G - blue
 H - red
 J - natural
 K - black
 L - white
 M - blue
 N - red
 Y - (single wire)

Instrument panel
 wire harness

M - blue
 N - red
 O - natural
 P - black
 Q - white
 + - (single wire)

Front end
 wire harness

S - red
 T - natural
 U - black
 V - white

Rear end
 wire harness

R
 W
 X
 Z

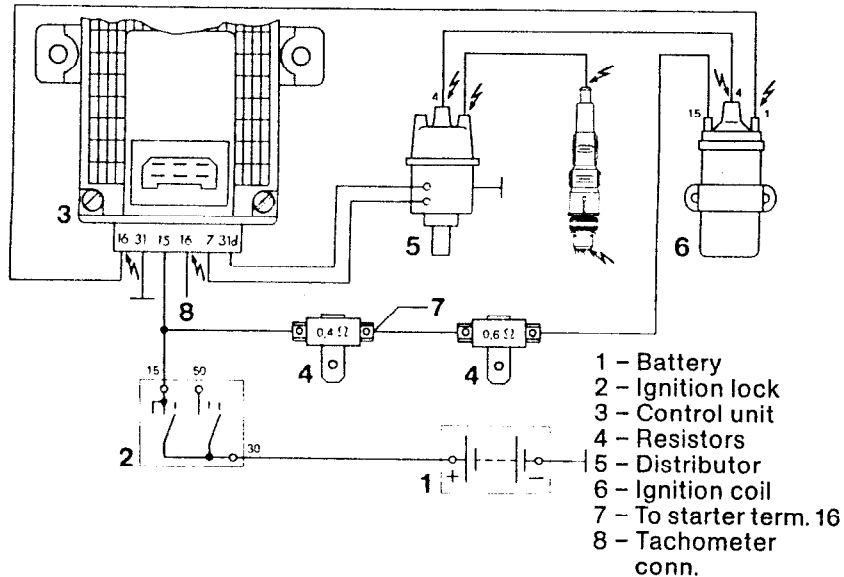
Not
 used

Light Bulbs - Survey

Location	Power	Shape	Socket	Remarks
Main headlights H 4	60/55 W	YD	P 43 t	
Extra headlights H 3 Front fog lights H 3	55 W	YC	PK 22 s	
Main headlights Sealed beam (7")	60/50 W			USA
Main headlights Sealed beam (7")	60/45 W			Japan
Turn signals front and rear Stop lights Backup lights Rear fog light	21 W	P 25-1 (RHD)	BA 15 s	
Turn signals front and rear Stop lights Backup lights	32 cp	SAE	1073	USA
Marker light front Side turn signal	4 W	HL	BA 9 s	
Marker light front Side marker lights	5 W	R 19-5 R 19-10	BA 15 s	USA
Marker light rear	10 W	(G)	BA 15	
Marker light rear	6 cp	SAE	89	USA
License plate lights	5 W	L	SV 8.5-8	
Engine compartment light	10 W	F	BA 15 s	
Inside light Trunk light	10 W	K	SV 8.5-8	
Glove box light	3 W	M	SV 7-8	
Mirror light	5 W	L	SV 8.5-8	
Charge indicator lamp Light for comb. instrument	3 W	WT 10-3 (VA)	W 2.1x9.5 d	
Ashtray light, light for heater/ fresh air controls	2 W	J	BA 7 s	
All other bulbs (instrument lights, indicator lamps etc.)	1.2 W	WT 5-1.2 (W)	W 2x4.6 d	

Electronic Ignition System – Connection Plan of Dangerous Points

The dangerous points are indicated by lightning bolts in the illustrated connection plan.



Battery – Acid Density

Acid Density	Battery Condition	Remarks
ca. 1.28 kg/l	charged	
ca. 1.20 kg/l	half charged	Charge, if 1. car had not been operated for a long time, 2. temperature outside below + 10° C 3. or acid density will not rise in spite of long drive (check alternator, regulator, drive belts).
ca. 1.10 kg/l	deal	charge immediately

Ignition System – Equipment Table (1978/1979 Models)

Ignition Coil

Type/Model Version	Remarks
928 928 602 503 00 Bosch no. 0 221 122 001	with two resistors (0.4 and 0.6 ohms)

Distributor

Type/Model Version	Remarks
928 928 602 031 00 Bosch No. 0 237 404 405	Centrifugal and vacuum advance and retard ignition control Speed governed by distributor rotor at 6300 ± 200 rpm
928 USA/Japan 928 602 032 01 Bosch No. 0 237 401 006	Centrifugal and vacuum retard ignition control Speed not governed by distributor rotor

Spark Plugs

Type/Model Version	Remarks
928 Bosch W 8 D (W 145 T 30) Beru 14-8 D (145/14/3 A)	Electrode gap 0.7 + 0.1 mm

Control Unit

Type/Model Version	Remarks
928 928 602 702 02 Bosch No. 0 227 100 008	Transistor coil ignition (TCI)

Ignition System - Equipment Table (1980 Models)

Ignition Coil

Type/Model Version	Remarks
928 Bosch No. 0 221 122 001	With two resistors (0.4 and 0.6 ohms)

Distributor

928 Bosch No. 0 237 407 001	Centrifugal and vacuum advance ignition control Speed governed by distributor rotor at 6200 ± 150 rpm
928 USA/Japan Bosch No. 0 237 405 010	Centrifugal and vacuum advance and retard ignition control Speed not governed by distributor rotor
928 Australia/ Sweden Bosch No. 0 237 404 008	Centrifugal and vacuum retard ignition control Speed governed by distributor rotor at 6200 ± 150 rpm

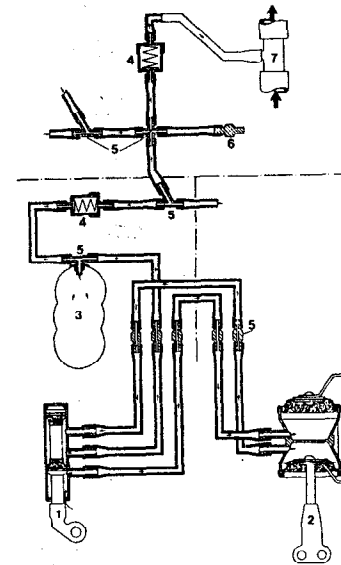
Spark Plugs

928	Bosch W 8 D (W 145 T 30) Beru 14-8 D (145/14/3 A)	Electrode gap 0.7+0.1 mm
928 USA/Japan	Bosch WR 8 DS Beru RS 35	Electrode gap 0.7+0.1 mm

Control Unit

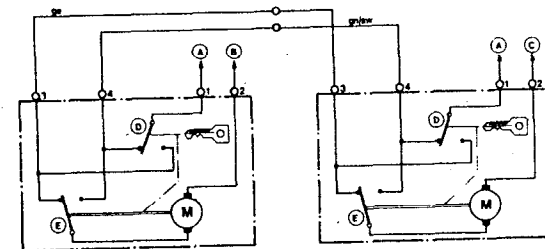
928 Bosch No. A 227 010 123	Transistor coil ignition (TCI)
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Central Locking System - Layout Drawing (Vacuum Control - 1978/1979 Models)



- 1 - Control valve (driver's door)
- 2 - Vacuum operator (passenger's door)
- 3 - Vacuum tank (instrument panel)
- 4 - Check valve
- 5 - Connector
- 6 - Plug
- 7 - Vacuum line to brake booster

Central Locking System - Layout Drawing (Electric - 1980 Models)



Driver's Side

Passenger's Side

A - To CEL K 2
(term. 30 - red/white)

B - To ground steering console (brown)
C - To ground CEL-firewall
D - Key switch
E - Motor switch

Technical Data – Air Conditioner

Refrigerant volume	1050 g of refrigerant R 12
Refrigerating oil in compressor	350 cm ³ Densoil – 1978/1979 models 280 cm ³ Densoil – 1980 models or Suniso No. 5 GS Texaco Cappela "E" Fuchs Reniso Kes
Power input of compressor clutch	Approx. 50 watts
Burst seal on fluid tank	Seal opens at 117 ± 3° C to equal a pressure of about 45 bar
Safety valve on compressor	Valve opens at pressure of 31 to 35 bar to equal a temperature of 95 to 105° C

Torque Specifications – Air Conditioner

Location	Description	Thread	Material	Torque in Nm (kpm)
Pressure line on expansion valve	Coupling bolt	5/8"x18 UNF	28 K	14.0–20.0 (1.4–2.0)
Pressure line on drier	Coupling nut	5/8"x18 UNF	28 K	14.0–20.0 (1.4–2.0)
Hose to compressor/condenser	Coupling nut	3/4"x16 UNF	28 K	33.0–39.0 (3.3–3.9)
Hose to suction line/compressor	Coupling nut	7/8"x14 UNF	28 K	36.0–42.0 (3.6–4.2)
Suction line to expansion valve	Coupling bolt	7/8"x18 NS	28 K	36.0–42.0 (3.6–4.2)

Dimensions

		1978/79 Models	1980 Models
Wheelbase	mm/in.	2500/98.43	2500/98.43
Front track width	mm/in.	1551/61.06	1552/61.10
Rear track width	mm/in.	1530/60.23	1529/60.20
Length	mm/in.	4447/175.08 (4462/175.67)	4447/175.08 (4462/175.67)
Width	mm/in.	1836/72.28	1836/72.28
Height (at DIN curbweight)	mm/in.	1313/51.69 (1311/51.61)	1282/50.47
Ground clearance	mm/in.	125/4.92 (119/4.69)	120/4.72
Turning circle dia.	m/ft.	ca. 11.5/37.73	ca. 11.5/37.73
Overhang angle at max. total vehicle weight			
Front		22°	20°
Rear		19° 30' (18° 30')	16°

Values for USA and Japan in brackets.

Performance Figures

(at DIN curbweight and 1/2 payload)

		Manual Transm. Models		Autom. Transm. Models	
		78/79	80	78/79	80
Top speed	km/h mph	230 143	230 143	225 140	225 140
Acceleration 0–100 km/h	in sec.	6.8 (7.5)	7.2 (7.5)	8 (8.5)	7.7 (8.5)
Kilometer from standing start	sec.	27 (28)	27.5 (28)	28 (29)	28 (29)
1/4 mile from standing start	sec.	15.5	15.5	16	16

Values for USA and Japan in brackets.

Weights

	Europe R.o.W.		USA, Japan	
Curbweight acc. DIN*	kg	1450	kg/lbs.	1520/3351 (1490/3285 for 1978 models)
Max. total weight	kg	1870	kg/lbs.	1870/4123
Max. front axle load**	kg	900	kg/lbs.	900/1985
Max. rear axle load**	kg	1100	kg/lbs.	1000/2205
Max. trailer load without brakes***	kg	750	kg/lbs.	750/1654
Max. trailer load with brakes***	kg	1600	kg/lbs.	1600/3528
Max. roof load**	kg	35	kg/lbs.	35/77
Max. drawbar load	kg	50	kg/lbs.	50/110
Max. car/trailer weight	kg	3470	kg/lbs.	3160/6967

* With extra equipment up to 1540 kg or 1560 kg for USA/ Japan models (payload is reduced accordingly).

** Max. total vehicle weight must not be exceeded.

*** Gradients up to 16% for 1978/1979 models.
Gradients up to 12% for 1980 models.

Filling Capacities

Engine oil	Brand name, heavy duty oil acc. to API Classification SE. For all year operations multi-grade oil of viscosity SAE 15W-50 or 20W-50 (the latter oil is not suitable for temperatures constantly below -15° C). Make of oil as approved by plant. If absolutely necessary, brand name single-grade oil of API Classification SE or SF and in fact SAE 30 in summer and SAE 20 in winter (only for constant temperature below +5° C).
Engine oil volume	Approx. 7.5 ltr., plus 0.5 ltr. when replacing filter (exact amount depending on marks on oil dipstick). Amount of oil between min. and max. marks on oil dipstick = approx. 1.5 ltr.
Cooling system, incl. heater	Approx. 16 ltr. of coolant, plant filling with antifreeze for temperatures to -30° C (-40° C for arctic countries). Only use antifreeze and corrosion inhibiting products, which are suitable for light alloy engines and radiators.
Power steering	Approx. 0.7 ltr. of ATF (only Dexron D)
Fuel tank	Approx. 86 ltr., of which 8 ltr. in reserve. 1978/1979 models - regular grade fuel of at least 91 octane (RON) acc. to DIN 51 600. 1980 models - premium grade fuel of at least 98 octane (RON) acc. to DIN 51 600.
Brake fluid tank	Approx. 0.2 ltr. brake fluid acc. to SAE J 1703 or DOT 3
Windshield/headlight washer tank	Approx. 8.0 ltr. of water
Intensive cleaner tank	Approx. 0.6 ltr. of "Porsche Special Silicone Remover"
Manual transmission with differential	Approx. 3.8 ltr. of hypoid gear lube SAE 75 W-90 of API Classification GL 5 (Mil-L 2105 B)
Autom. transmission with torque converter	Approx. 6 ltr. for total filling or approx. 5.5 ltr. of ATF Dexron B (no sperm whale oil) for oil change incl. converter
Differential of autom. transm.	Approx. 2 ltr. of hypoid gear lube SAE 90 of API Classification GL 5 (or Mil-L 2105 B)