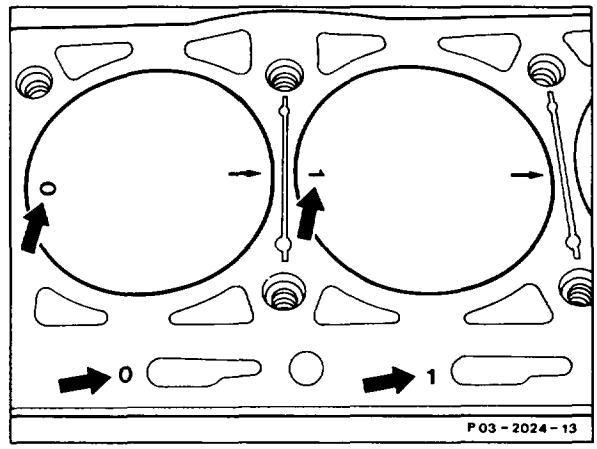
Notes
When performing repairs hone all the cylinder bores according to the dimensions of the existing pistons plus piston play, see "Measuring, drilling and honing cylinder bores" (01-1100).

Modified tolerance group marking on piston crown and on contact surface of crankcase. Production breakpoint 10/1988 and 11/1988.

1st version	2nd version
0	A
1	X
2	B

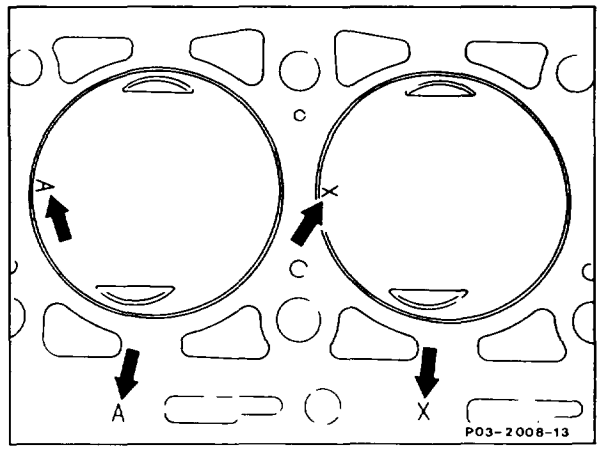
When performing repairs, the pistons with code letters (2nd version) or with numbers (1st version) can be installed in cylinder bores with **"standard size"** as follows.



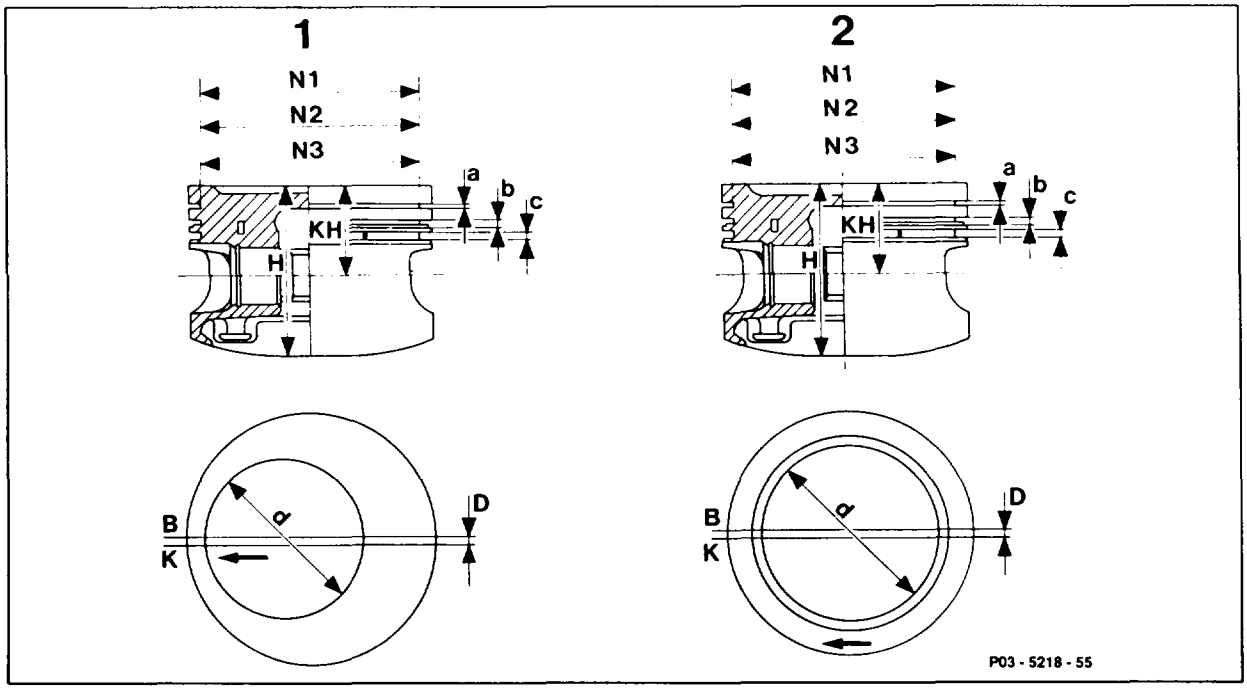
1st version, group numbers (arrows).

Cylinder identification	Piston identification
A	A, X or 0
X	A, X, B or 1
B	B, X, 1 or 2
0	A, X or 0
1	B, X or 1
2 [1]	B or 2

[1] State when ordering parts.



2nd version, group code letters (arrows).



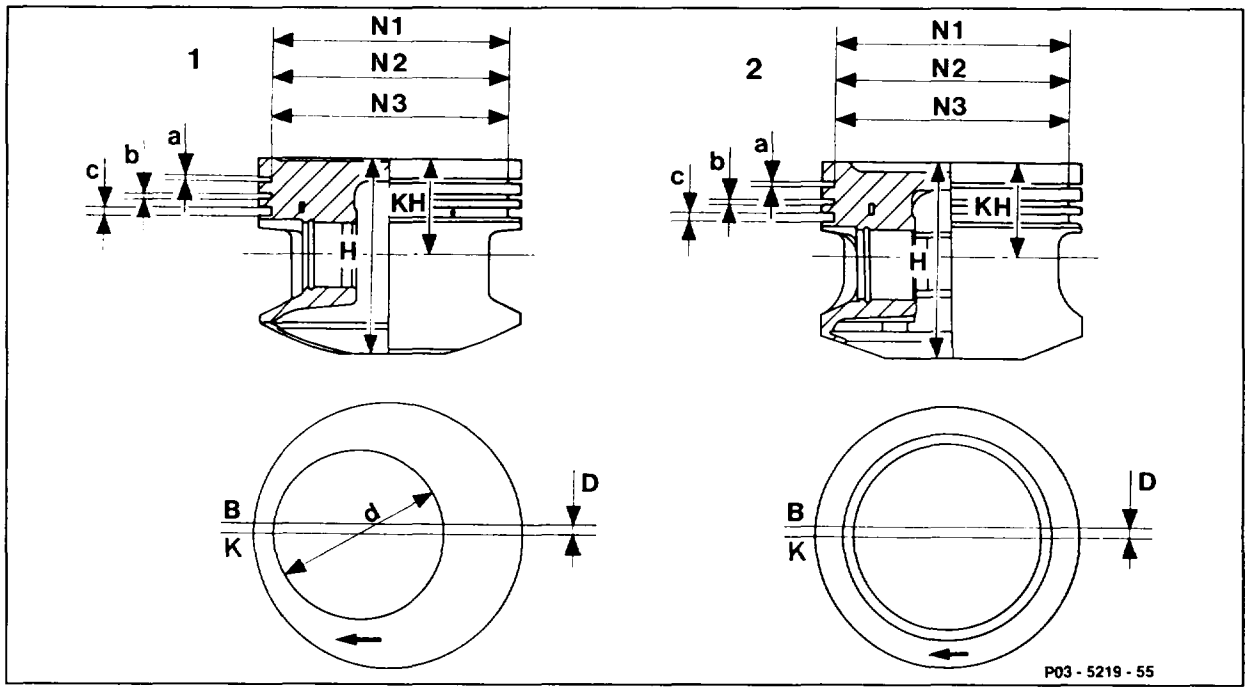
As of start of production up to engine no.			
103940 10 030013	103942 10 016504	1	Normal compression piston
103940 12 078549	103942 12 042925	2	Low compression piston
103941 10 004506	103943 10 000513	B	Middle of piston pin
103941 12 014837	103943 12 001206	K	Middle of piston

Data in mm

	Standard size	Repair size I	Repair size II
Piston dia.	82.900	83.400	83.900
Overall height (H)		63	
Compression height (KH)		33	
Piston ring groove 1 (a)		1.54 – 1.56	
Piston ring groove 2 (b)		1.76 – 1.77	
Piston ring groove 3 (c)		3.00 – 3.02	

Piston ring groove 1 Ø	74.5	75.0	75.5
Piston ring groove 2 Ø	74.5 74.0[1])	75.0 74.5[1])	75.5 75.0[1])
Piston ring groove 3 Ø	74.3 75.2[1])	74.8 75.7[1])	75.3 76.2[1])
Piston pin ID		13.5 13[1])	
Piston pin length		52	
Piston pin clearance in piston (matched)		0.004 – 0.008	
Piston pin roughness of grinding pattern (D)		1.2	
Bowl dia. (d)		53 66[1])	
Bowl depth (M)	1.0 3.2[1])	2.0 3.95[1])	2.4 4.25[1])
Valve recesses		–	
Compression ε		9.2 – 0.4 8.0[1])	

[1]) Low compression without catalytic converter



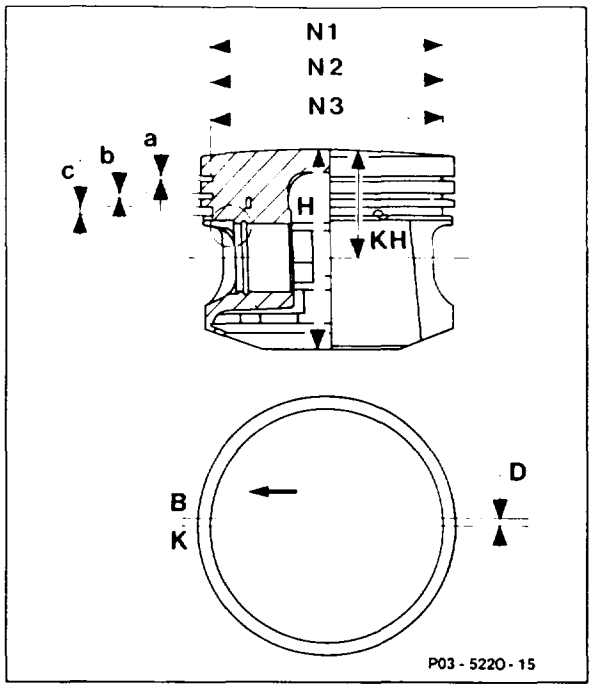
as of engine no.

103940 10 030014	103942 10 016505	1	Normal compression piston
103940 12 078550	103942 12 042926	2	Low compression piston
103941 10 004507	103943 10 000514	B	Middle of piston pin
103941 12 014838	103943 12 001207	K	Middle of piston

Data

	Standard size	Repair size I	Repair size II
Piston dia.	82.900	83.400	83.900
Overall height (H)		65 63[1])	
Compression height (KH)		33	
Piston ring groove 1 (a)		1.54 – 1.56	
Piston ring groove 2 (b)		1.76 – 1.77	
Piston ring groove 3 (c)		3.00 – 3.02	
Piston ring groove 1 Ø	74.0 74.5[1])	74.5 75.0[1])	75.0 75.5[1])
Piston ring groove 2 Ø	74.0 74.0[1])	74.5 74.5[1])	75.0 75.0[1])
Piston ring groove 3 Ø	74.3 75.2[1])	74.8 75.7[1])	75.3 76.2[1])
Piston pin ID		13.5 13[1])	
Piston pin length		52	
Piston pin clearance in piston (matched)		0.004 – 0.008	
Piston pin roughness of grinding pattern (D)		1.2	
Bowl dia. (d)		53 66[1])	
Bowl depth (M)	1.0 3.2[1])	2.0 4.0[1])	2.4 4.3[1])
Valve recesses		–	
Compression ε		9.2 – 0.4 8.0[1])	

[1]) Low compression without catalytic converter.



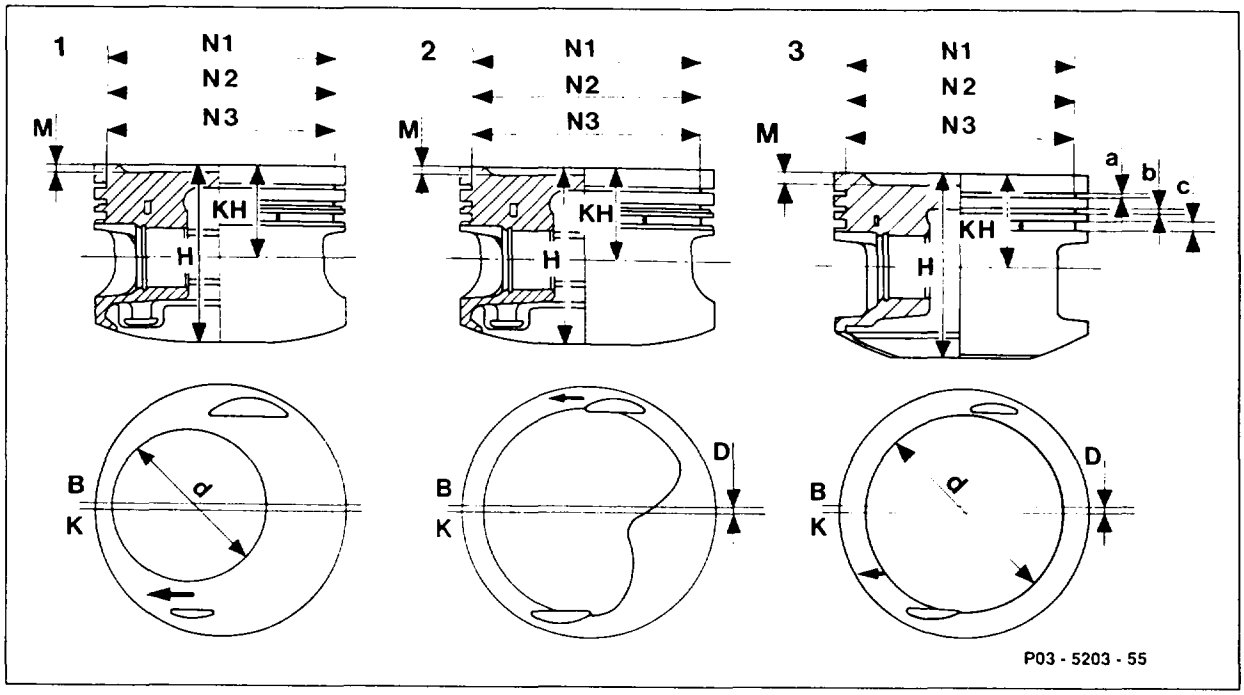
Pistons installed as of engine no.
103940 20 031532
103940 22 081081
103942 20 017475
103942 22 043383

B Middle of piston pin
K Middle of piston

Data

	Standard size	Repair size I	Repair size II
Piston dia.	82.900	83.400	83.900
Overall height (H)		64	
Compression height (KH)		33	
Piston ring groove 1 (a)		1.54 – 1.56	
Piston ring groove 2 (b)		1.76 – 1.77	
Piston ring groove 3 (c)		3.00 – 3.02	
Piston ring groove 1 Ø	74.5	75.0	75.5
Piston ring groove 2 Ø	74.0	74.5	75.0
Piston ring groove 3 Ø	75.2	75.7	76.2
Piston pin ID		13.5	
Piston pin length		52	

Piston pin clearance in piston (matched)	0.004 – 0.008
Piston pin roughness of grinding pattern (D)	1.2
Valve recesses	–
Compression ratio ε	9.2 – 0.4



1 Piston engine 103.980
2 Piston engine 103.981/982/983
3 Piston low compression without catalytic converter

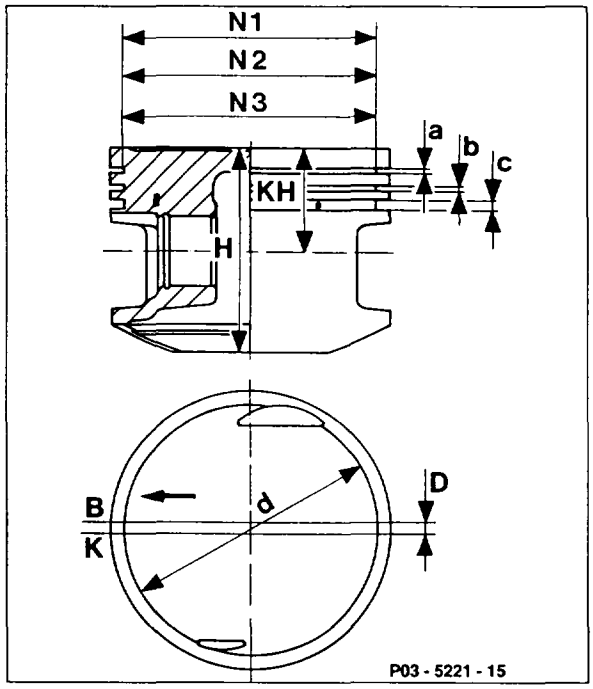
B Middle of piston pin
K Middle of piston

Data

	Standard size	Repair size I	Repair size II
Piston dia.	88.500	89.000	89.500
Overall height (H)		65 63[2])	
Compression height (KH)		33	
Piston ring groove 1 (a)		1.54 – 1.56	
Piston ring groove 2 (b)		1.76 – 1.77	
Piston ring groove 3 (c)		3.00 – 3.02	

Piston ring groove 1 Ø	79.6	80.1	80.6
Piston ring groove 2 Ø	79.6	80.1	80.6
Piston ring groove 3 Ø	79.7[1]) + [3]) 79.9[2])	80.2[1]) + [3]) 80.4[2])	80.7[1]) + [3])80.9[2])
Piston pin ID		13.5	
Piston pin length		52	
Piston pin clearance in piston (matched)		0.004 – 0.008	
Roughness of grinding pattern (D)		1.3[1]) 1.2[2]) 1.1[3])	
Bowl dia. (d)		55[1]) 70[3])	
Bowl depth (M)	1.3[1]) 2.7[2]) 5.3[3])	2.2[1]) 3.3[2]) 6.0[3])	2.55[1]) 3.6[2]) 6.35[3])
Valve recesses		2	
Compression ε		9.2 – 0.4 8.2[3])	

[1]) 103.980
[2]) Piston 103.981/982/983/985
[3]) Low compression without catalytic converter.



Piston engine 103.984/987
and as of engine no.
103983 20 037693
103983 22 198330

B Middle of piston pin
K Middle of piston

Data

	Standard size	Repair size I	Repair size II
Piston dia.	88.500	89.000	89.500
Overall height (H)		65	
Compression height (KH)		33	
Piston pin groove 1 (a)		1.54 – 1.56	
Piston pin groove 2 (b)		1.76 – 1.77	
Piston pin groove 3 (c)		3.00 – 3.02	
Piston pin groove 1 Ø	79.3	79.8	80.3
Piston pin groove 2 Ø	78.8	79.3	78.8
Piston pin groove 3 Ø	79.7	80.2	80.7
Piston pin ID		13.5	
Piston pin length		52	
Piston pin clearance in piston (matched)		0.004 – 0.008	
Roughness of grinding pattern (D)		1.3	
Bowl dia. (d)		78	
Valve recesses		2	
Compression ε		9.2 – 0.4	