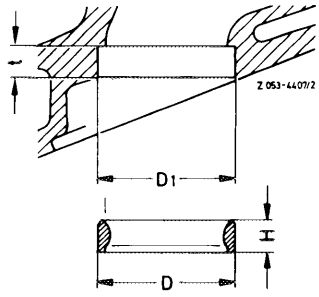
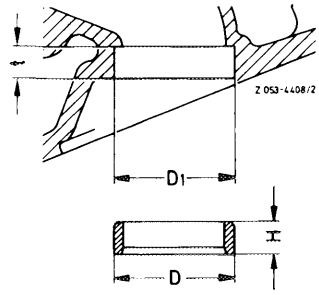
Engine 116.98, 117.98

Normal dimension D 1	intake	46.000–46.016
	exhaust	40.000–40.016
Normal dimension D	intake	46.090–46.100
	exhaust	40.090–40.100
Repair stage intake	D 1 max. up to	47.016
	D rough turning dimension	47.300
Repair stage exhaust	D 1 max. up to	40.016
	D rough turning dimension	40.300
t		10.300–10.800
H		10.390–10.500
Overlap of valve seat rings in cylinder head		0.074–0.100



intake



exhaust

Special tools

Plug gauge 9 mm dia. for intake valve guide	 11004-6211	117 589 03 23 00
Plug gauge 11 mm dia. for exhaust valve guide		117 589 04 23 00

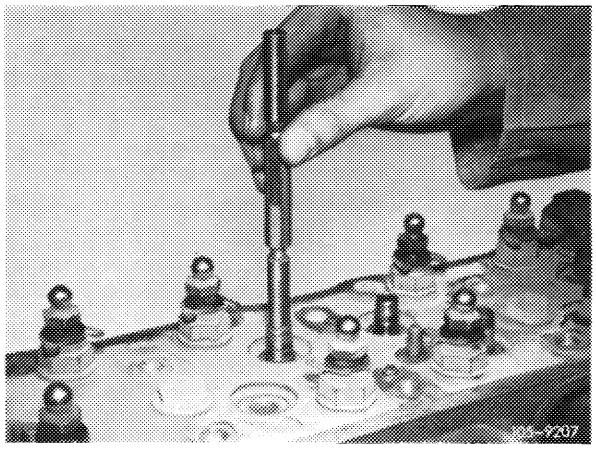
Conventional tools

Cylinder head clamping device	e.g. Rothenberger, D–6233 Kelkheim, order no. 29900
Ring seat machining tool	e.g. Hunger, D–8000 München, size 2, order no. 220.03.110
Valve seat machining tool	e.g. Hunger, D–8000 München, type VDSNL 1/45/30, order no. 236.03.308
Test set for valve seats	e.g. Hunger, D–8000 München, order no. 216.93.300
Internal measuring instrument (measuring range 25–60 mm)	e.g. Mahr, D–7300 Esslingen, order no. 844
External micrometer (measuring range 25–50 mm)	e.g. Mahr, D–7300 Esslingen, order no. 40 S

Renewal

1 Remove old valve seat ring by means of ring seat machining tool.

2 Check valve guides and replace, if required (05–285).



3 Measure basic bore D 1.

A new valve seat ring **standard dimension** can be used when the specified overlap is available.

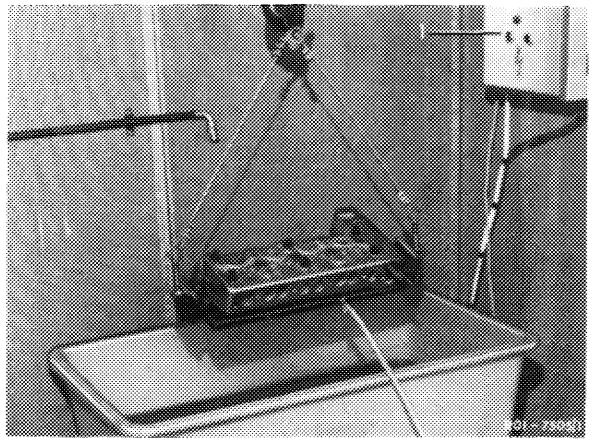
4 Machine basic bore repair stage D 1 with ring seat machining tool to the extent that the bore is just clean.

5 Measure machined basic bore.

6 Machine valve seat ring repair stage in such a manner that the specified overlap is established.

7 Heat cylinder head in water bath.

8 Undercool valve seat ring with liquid nitrogen.



9 Nock-in valve seat ring with suitable punch.

10 Machine valve seat (05–291).