Refacing of Valve Seats

Types 220 and 220 a

Operation No.
M 26a

Special Tools:

Milling arbor for intake valve	636 589 06 31
Milling arbor for exhaust valve	187 589 02 31
Handle for milling arbor	187 589 06 31
Roughing cutter	636 589 01 51
Backing-off cutter for intake valve	187 589 00 51
Backing-off cutter for exhaust valve	187 589 05 51
Valve seat cutter for intake valve	187 589 04 51
Valve seat cutter for exhaust valve	136 589 00 51
or valve seat turning tool	000 589 55 69
or valve seat grinding machine	000 589 00 67
Testing tool	187 589 04 21
Testing sleeve	187 589 03 21
Plug gauge for intake valve	187 589 05 21
Plug gauge for exhaust valve	187 589 06 21

Procedure:

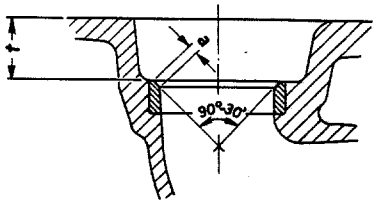

Fig. M 26a/00

Exhaust valve seat in both cast iron and light metal cylinder heads

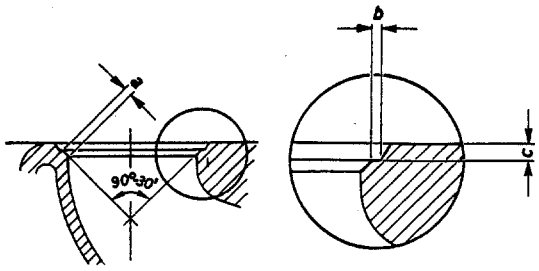

Fig. M 26a/01

Intake valve seat in cast iron cylinder head

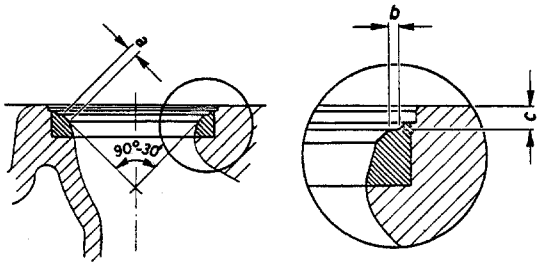

Fig. M 26a/02

Intake valve seat in light metal cylinder head

a = Valve seat width

b = Backing-off

c = Maximum permissible milling depth for backing-off.

The exhaust valve seat shown in Fig. M 26a/00 is for Types 220 and 220a.

Fig. M 26a/01 shows the intake valve seat in cast iron cylinder heads (for Type 220 only). In Fig. M 26a/02 the intake valve seat in a light metal cylinder head is depicted (Types 220 and 220a).

Width a of both intake and exhaust valves is the same for either Type. It is 1.25 to 2 mm (0.05 to 0.08″). Backing-off b serves to limit the valve seat width and permits to obtain a gastight seat. It should be 0.1 mm (0.004″).

The permissible milling depth c of 3 mm (0.12″) must not be exceeded. In new condition depth c is 2 mm (0.08″).

Note: The lower edge of the valve seat at the valve must by no means rest on the valve seat ring, otherwise it will work into the seat. The result would be a valve that leaks and tends to burn through.

If necessary, correct valve seat at this point in such a way that the lower edge of the valve is free.

Procedure:

1. Check valve guides and replace, if necessary (see Operation No. M 26).

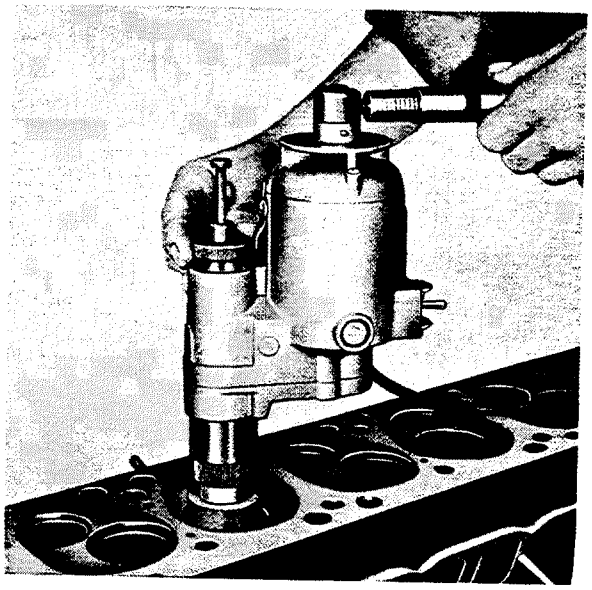

Fig. M 26a/2

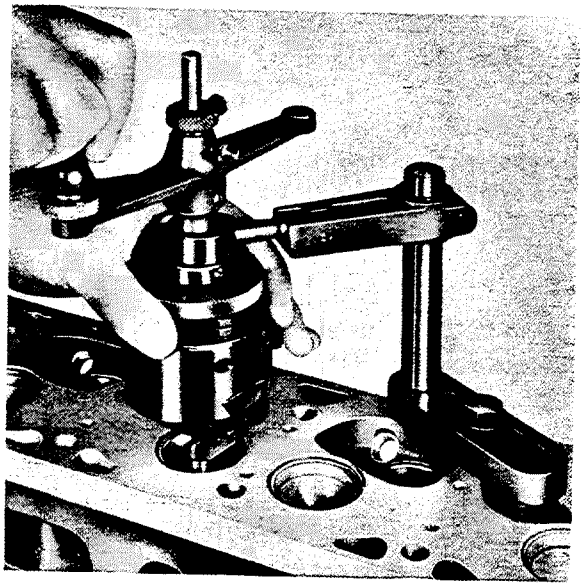

Fig. M 26a/2a

2. First back-off the valve seat (if required only), then rough mill and finish. The finishing operation can be carried out by means of conventional valve seat cutters, a valve seat turning tool or a valve seat grinding machine (Figs. M 26a/2 and 2a). Be careful to remove as little material as possible.

3. Check concentricity and out of true of valve seat with testing tool 187 589 04 21. The maximum permissible out of true of 0.05 mm (0.002") must be adhered to (Fig. M 26a/3).

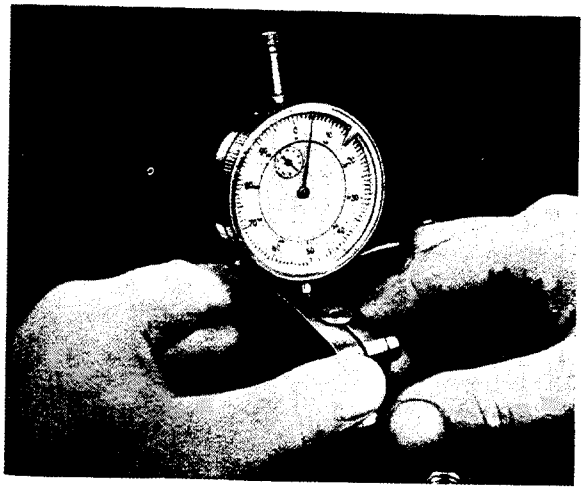

Fig. M 26a/3

4. After the valves have been ground, it is recommended to lap them lightly with a fine lapping paste. Do not lap too long or the valve seat will deteriorate.