

Measuring height (D) above the plunger

In the above determined position, turn the rack with an open-ended wrench, without forcing it, so as to push the plunger up into contact with the adjusting shims. Take a measurement in both directions and read off the higher value.

Determining the thickness of the adjusting shims

The adjusting shims will be determined so that the spring washer, at the lowest point of tooth rise and fall, will be compressed :

$$E = (D + 0.06 \text{ mm}) - H$$

E = thickness of shims to be added.

D = distance above plunger.

H = height of spring washer at rest
0.06 (.0024").

If required, the above value may be reduced to 0.04 mm (.0016") in order to obtain a thickness in keeping with the shims available.

When reassembling, fit spring washer (2) next to plunger (5), followed by adjusting shims (4) immediately under the cover (1): fit the spring washer the correct way round

Checking

When the shim pack has been correctly made (without the spring washer) remeasure the free height above the plunger.

It should be equal to the height of the spring washer at rest less 0.02 to 0.06 mm (.0008 to .0024").

If it is not, recommence the adjustment operation.

Shimming examples

Height above plunger :

$$D = 1.48 \text{ mm} (.058")$$

Height of spring washer at rest :

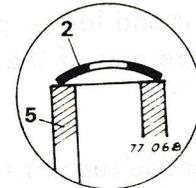
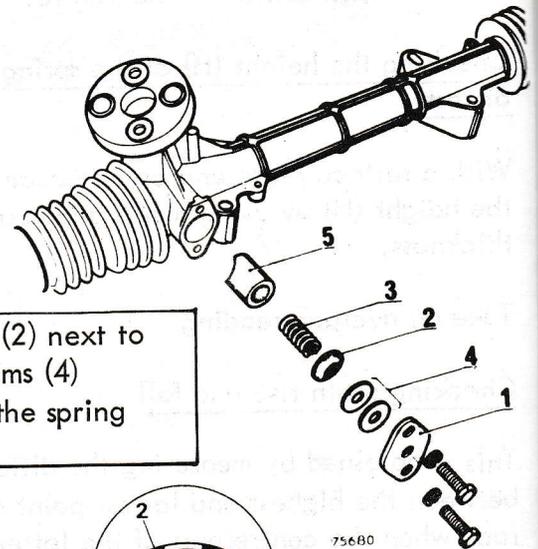
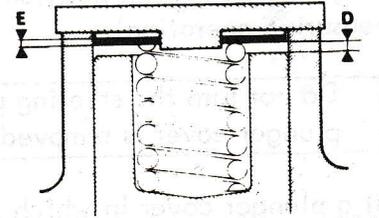
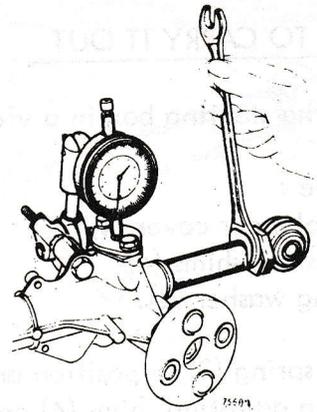
$$H = 1.32 \text{ mm} (.052")$$

Thickness of adjusting shims :

$$E = 1.48 + 0.06 - 1.32 = \underline{0.22 \text{ mm}}$$

$$(.058) + (.0024) - (.052) = (.009")$$

So a shim 0.20 mm (.008") thick will be added.



Special case

It may happen that the calculation given a negative value for shim thickness.

Example :

Height above plunger :

$$D = 1.17 \text{ mm} (.046")$$

Height of spring washer at rest :

$$H = 1.35 \text{ mm} (.053")$$

Thickness of adjusting shims :

$$E = 1.17 + 0.06 - 1.35 = \underline{0.12 \text{ mm}}$$

$$(.046) + (.0024) - (.053) = - (.0047")$$

In the above case, remove one shim 0.15 (.006") or 0.20 mm (.008") thick and restart the adjustment operation