3.6 Full-throttle operation

Following the progression phase, on further opening of the throttle, the full-throttle circuit begins to operate. By opening the throttle valve beyond progression, a partial vacuum is created in the mixture chamber, due to the speed of the air being drawn through to the engine, and this vacuum is sufficient to cause fuel to be sucked out of the atomiser nozzle.

In this situation (figure 21), fuel metered by the main jet (5) and further regulated by the atomiser outlet (3) (the atomiser outlet area varies according to the position of the tapered-needle moving up and down through it) is mixed with air from channel (4) and air from the main barrel (2).

The amount of fuel which comes out in the first quarter of the throttle slide movement is determined by the throttle slide cutaway, by the size of the atomiser and by the diameter of the cylindrical part of the tapered-needle at the opening.

From here up to three-quarter throttle, it is determined by the atomiser-needlejet size and by the diameter of the tapered-needle at the opening.

From three-quarter throttle to full throttle the amount of fuel depends solely on the size of the main jet.

Therefore you should change the following parts to vary the full throttle circuit delivery:

- **the throttle slide cutaway**
- **the tapered needle**
- **the atomiser-needlejet · size and type**
- **the main jet**

There are two different full-throttle systems; one is used on two-stroke engines and the other on four-strokes, although some special applications do not conform to this.

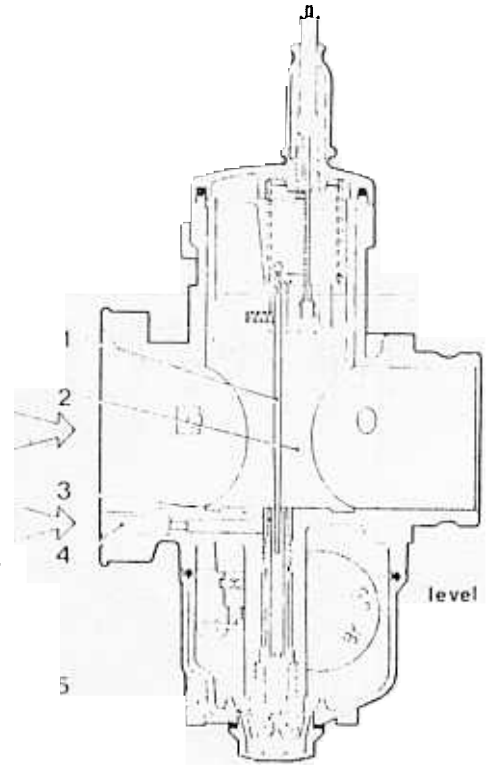

fig. 21

3.6.1 Full-throttle system usually used on two-stroke engines

Figure 22 shows the full-throttle mechanism used on two-stroke engines which features an extended nozzle (6) at the end of the atomiser (7); this produces better performance during acceleration.

Air from the inlet (3) passes through channel (2) and flows into the round extension (1) formed by the upper outer end of the atomiser and by the inner part of the nozzle (6). It then mixes with fuel metered through the main jet (4) and coming from the atomiser (7) and then flows into the venturi (5).

A larger atomiser-needlejet size produces an increase in fuel delivery at all throttle positions and, conversely, a smaller size will produce a decrease in fuel delivery at all throttle openings.

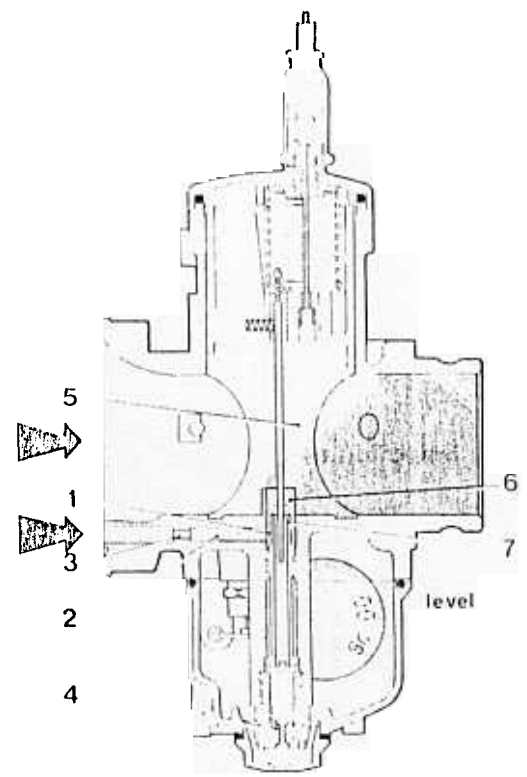

fig. 22