

## Mechanical engine-speed control (governing)

### Application

The driveability of a diesel-powered vehicle can be said to be satisfactory when its engine immediately responds to driver inputs from the accelerator pedal. Apart from this, upon driving off the engine must not tend to stall. The engine must respond to accelerator-pedal changes by accelerating or decelerating smoothly and without hesitation. On the flat, or on a constant gradient, with the accelerator pedal held in a given position, the vehicle speed should also remain constant. When the pedal is released the engine must brake the vehicle. On the diesel engine, it is the injection pump's governor that ensures that these stipulations are complied with. The governor assembly comprises the

mechanical (flyweight) governor and the lever assembly. It is a sensitive control device which determines the position of the control collar, thereby defining the delivery stroke and with it the injected fuel quantity. It is possible to adapt the governor's response to setpoint changes by varying the design of the lever assembly (Fig. 1).

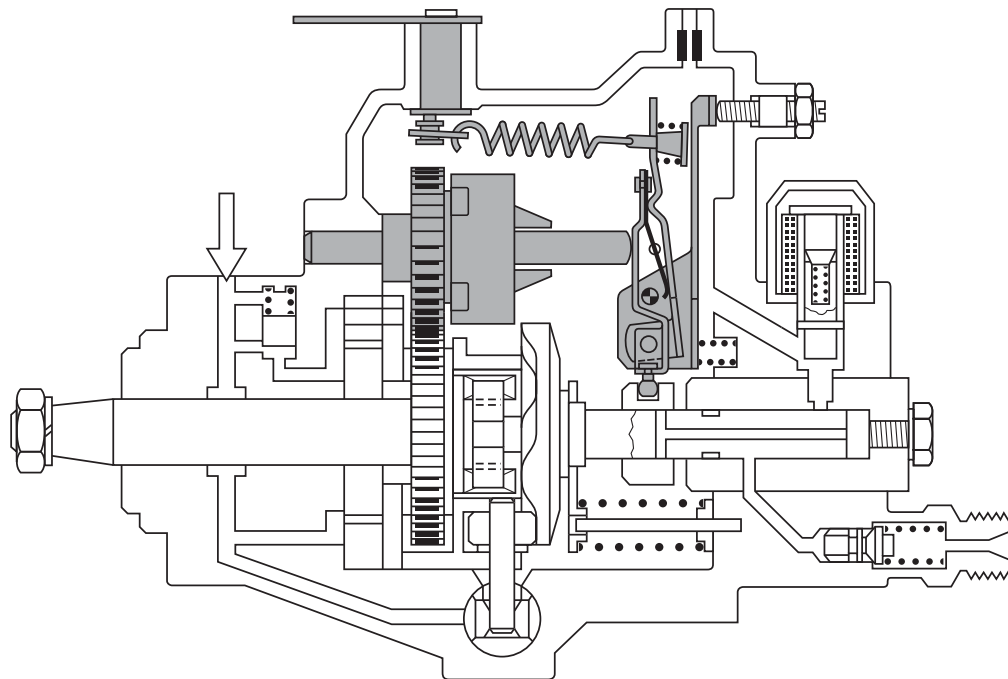
### Governor functions

The basic function of all governors is the limitation of the engine's maximum speed. Depending upon type, the governor is also responsible for keeping certain engine speeds constant, such as idle speed, or the minimum and maximum engine speeds of a stipulated engine-speed range, or of the complete speed range, between idle and maximum speed. The different governor types are a direct result of the variety of governor assignments (Fig. 2):

- Low-idle-speed governing: The diesel engine's low-idle speed is controlled by the injection-pump governor.

Fig. 1

Distributor injection pump with governor assembly, comprising flyweight governor and lever assembly



UMK0343Y