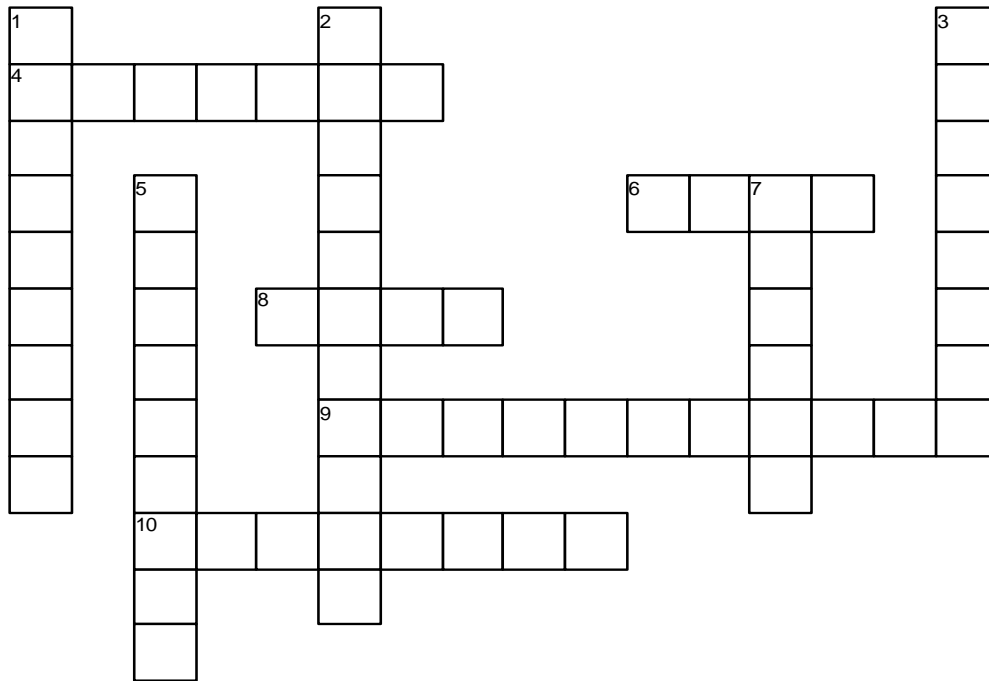


Hydraulic Control Valves and Solenoids

Chapter 4



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ACROSS

- 4 An _____ is simply a small hole, usually in the separator plate.
- 6 A check _____ is the simplest device for controlling fluid flow.
- 8 Observing the operation of an on-off type shift solenoid using a digital storage oscilloscope, (DSO), there usually appears to be a dip in the waveform about half or two thirds of the way up the ramp as current is flowing through the windings of the solenoid. This is called the pindle-_____.
- 9 _____ cushions shift by softening clutch or band apply.
- 10 The _____ valve monitors the position of the gas pedal through a cable or rod that runs from the gas pedal to the throttle valve in the valve body.

DOWN

- 1 Linear _____ operate using PWM control to cause the plunger inside the solenoid to move in or out depending on the amount of the applied current.
- 2 An _____ is tied hydraulically to a clutch or band servo, and absorbs fluid during the pressure build-up stage when a clutch or band applies.
- 3 The _____ is connected to the output shaft and regulates hydraulic pressure based on vehicle speed.
- 5 Some automatic transmission solenoids are pulse-width _____ (PWM), which means that they are energized at a fixed rate (frequency) the amount of time it is "on" is controlled by the PCM/TCM.
- 7 _____ solenoids operate using a PWM control to cause the plunger inside the solenoid to move in or out depending on the amount of the applied current.