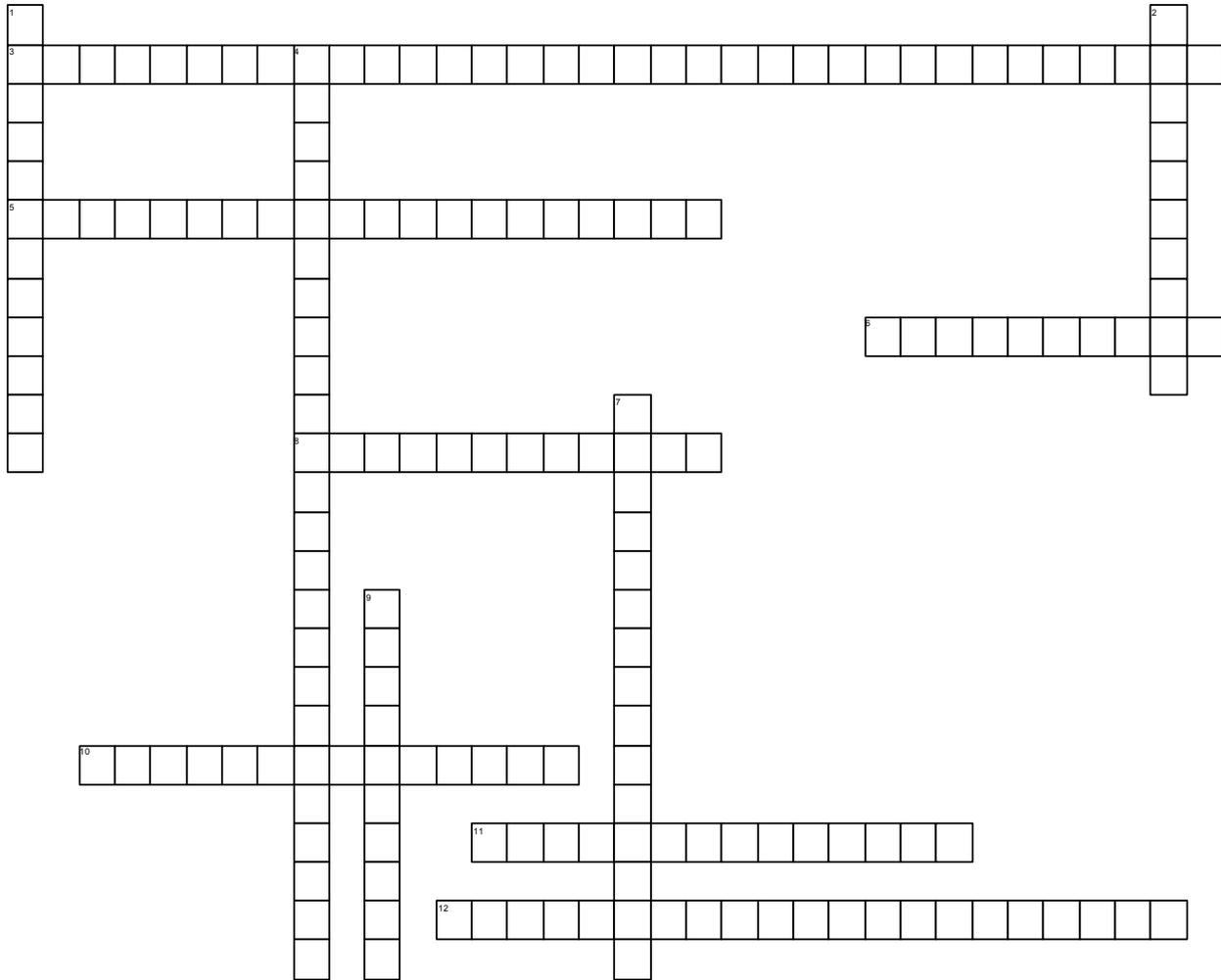


# Hybrid Electric Vehicle Transmissions and Transaxles

## Chapter 10



<http://jameshaldeman.com>

### ACROSS

- 3 The \_\_\_\_\_ includes three simple planetary gear sets with four multi-plate clutches.
- 5 In a \_\_\_\_\_, the internal combustion engine may be operating even though the vehicle is stopped if the electronic controller has detected that the batteries need to be charged.
- 6 A \_\_\_\_\_ will incorporate idle stop and regenerative braking but is not capable of using the electric motor to propel the vehicle on its own without help from the internal combustion engine.

- 8 A \_\_\_\_\_ is not capable of propelling the vehicle from a stop using battery power alone.
- 10 In a \_\_\_\_\_ design, multiple propulsion sources can be combined, or one of the energy sources alone can drive the vehicle.
- 11 \_\_\_\_\_ are so named because anything that propels the vehicle is said to provide a traction force.
- 12 The \_\_\_\_\_ assembly is located between the internal combustion engine and the transmission.

### DOWN

- 1 In a \_\_\_\_\_ design, the

- engine turns a generator and the generator can either charge the batteries or power an electric motor that drives the transmission.
- 2 In the \_\_\_\_\_ transaxle, a large electric motor/generator is directly attached to the transaxle final drive and to the planetary ring gear.
- 4 In a series hybrid design, sole propulsion is by a battery-powered electric motor, but the electric energy for the batteries comes from another on-board energy source, such as an \_\_\_\_\_.

- 7 The high-voltage battery in a Ford Escape Hybrid is used to power the traction motor in the eCVT, so it is known as a \_\_\_\_\_.

- 9 A \_\_\_\_\_ uses idle stop regenerative braking, and is able to propel the vehicle using the electric motor(s) alone.