

ELECTRICAL/ELECTRONIC SYSTEMS

H 12. Describe the operation of keyless entry/remote-start systems. (P-3)

Keyless Entry Systems

An advanced type of electric door lock is the keyless entry system. On this system the door locks can be manually operated or may be operated by inserting a key in the normal manner; however, the locks can also be operated remotely.

A battery operated keypad is built into the key or located on a key fob. This keypad may open only the driver door, all doors, or the trunk, or sound an alarm (horn) as well as turn on interior lights. On some systems, this keypad can also open windows, a sun roof, or doors. When the keypad gives a command to unlock the doors, the interior lights are also activated and the parking lights usually flash to help the driver identify the location of the vehicle. When the keypad commands the doors to lock, the parking lights usually flash and the horn sounds to let the driver know that the locks have been activated.

The keypad sends a wireless signal to an electronic control module (ECM) in the vehicle. The range of this signal is usually 25 – 50 feet. The electronic control module uses transistors or relays to activate the appropriate actuators or devices in about the same way as the simple electric door lock systems. The interior switches, wiring, and actuators or motors are diagnosed in about the same way as the electric door lock systems. The difference in these systems is the electronic components, which include the transmitter in the key or key fob and the receiver in the electronic control module. When the electronic solid state part of this system fails, the proper procedure established by the manufacturer must be followed. This may require a manufacturer-specific scan tool to read diagnostic trouble codes. Repair may require the replacement of a module or various parts. Sometimes the electronic control module can be reprogrammed using the appropriate scan tool.

This remote system offers great safety by allowing the driver to unlock the vehicle as he or she approaches to see inside the lighted vehicle, and provides an alarm to sound if being attacked by someone. As the driver enters the vehicle, all doors can be immediately locked, or the doors may automatically lock when the engine is started or when the vehicle reaches a speed of 8 – 15 miles per hour.

Remote Start Systems

The same technology used for remote keyless entry systems can be used for remote start systems now offered on some vehicles. This allows drivers to start the vehicle as they approach it so that once inside they are ready to drive. If a vehicle is parked close enough to the transmitter (keypad) and the vehicle is set up in the proper configuration – transmission in park, parking brake applied, air conditioning or heater/defrost properly set, etc. – the vehicle can be started and climate controlled while the driver is still indoors enjoying breakfast.

Caution: Never remote start a vehicle and leave it running for any period of time in an enclosed area or garage. The vehicle exhaust contains carbon monoxide, a deadly gas.