2016 Dodge or Ram Truck Journey AWD V6-3.6L

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RADIO FREQUENCY MODULE (RF HUB) - OPERATION

OPERATION

The Radio Frequency Hub Module (RFHM) (also known as the RF Hub/RFH) is an integrated receiver (or base station) in the vehicle that communicates with other electronic modules in the vehicle over either the Controller Area Network (CAN) data bus or a private serial bus to support the following standard and optional vehicle features or systems.

- **Brake Transmission Shift Interlock System (for automatic Transmission only)** - The RFHM contains the controlling logic for the Brake Transmission Shift Interlock (BTSI) solenoid. The RFHM monitors the key postion from the IGnition Node Module (IGNM) received over a private serial bus, hard wires brake input as well as inputs received over the CAN data bus to perform the BTSI solenoid control functions.
- **Ignition Systems** - Depending upon how the vehicle is equipped, Rotary Switch system or Keyless GO system. For rotary system, IGNM coil communicate with FOB with Integrated Key (FOBIK) through LF signals (125 KHz) then communicates it to RFHM through a private serial bus, then RFHM sends CAN data bus to BCM for ignition status after valid key is verified. The RFHM also contains the controlling logic for the KG (KIN) back lighting features.
- **Passive Entry** - If Smart door handles or exterior deck lid release switch is activated, RFHM fires and monitors LF signals from five Low Frequency (LF) antennas which wake up and communicate with the FOBIK, and RF signals from FOBIK to verify the key, if valid key is recognized by RFHM then RFHM sends CAN data bus to BCM to lock or unlock the vehicle.
- **Remote Keyless Entry** - The RFHM is an RF receiver that monitors RF signals from Remote Keyless Entry (RKE) transmitter (FOBIK) and relays the appropriate electronic messages BCM module over the CAN data bus to support the features of RKE functions.
- **Remote Start System** - The RFHM is an RF receiver that monitors RF signals received through the remote start antenna (longer range) from the Remote Keyless Entry (RKE) transmitter or the Passive Entry Keyless Go (PEKG) FOBIK and relays the appropriate electronic messages to BCM over the CAN data bus to support all RKE functions including optional remote start function.
- **Sentry Key Immobilizer System** - RFHM uses a new high security encryption system called “Advanced Encryption Standard –AES” for Sentry Key Immobilizer System (SKIS). The new system marries FOBIKs, RFHM, BCM, ELV (if so equipped” and ECM with unique secret keys for each vehicle. Swapping parts ARE NOT ALLOWED in the new system, FOBIK are not allow to program for more than one Vehicle. Replacing any part of the system shall be done only in authorized dealers using a diagnostic tool.
- **Vehicle Theft Alarm System** - The RFHM is an RF receiver that monitors RF signals received from the Remote Keyless Entry (RKE) transmitter or the Passive Entry Keyless Go (PEKG) FOBIK and relays the appropriate electronic messages to other electronic modules in the vehicle over the CAN data bus to support the features of the optional VTA system.

The RFHM is connected to a fused B(+) circuit and has a path to a clean ground at all times. These connections allow it to remain functional regardless of the ignition switch status. Any input to the RFHM that controls a vehicle system function that does not require that the ignition switch status be ON such as depressing a button on an RKE or FOBIK transmitter, prompts the RFHM to wake up and transmit on the CAN data bus.

RFHM uses On-Board Diagnostics (OBD) to monitor all of the Functions and circuits it controls, then sets active and stored Diagnostic Trouble Codes (DTC) for any monitored function faults it detects. RFHM will also send electronic message requests to the Instrument Cluster (IC) (also known as the Instrument Panel Cluster/IPC) through the gate way module (BCM) for the display of certain textual warning messages related to some detected functions conditions or faults.

The hard wired inputs and outputs of the RFHM may be diagnosed using conventional diagnostic tools and procedures. Refer to the appropriate wiring information. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the RFHM electronic controls or the communication between modules and other devices that provide some features of the RFHM-controlled systems. The most reliable, efficient and accurate means to diagnose the RFHM or the electronic controls and communication related to RFHM-controlled systems operation requires the use of a diagnostic scan tool. Refer to the appropriate diagnostic information.