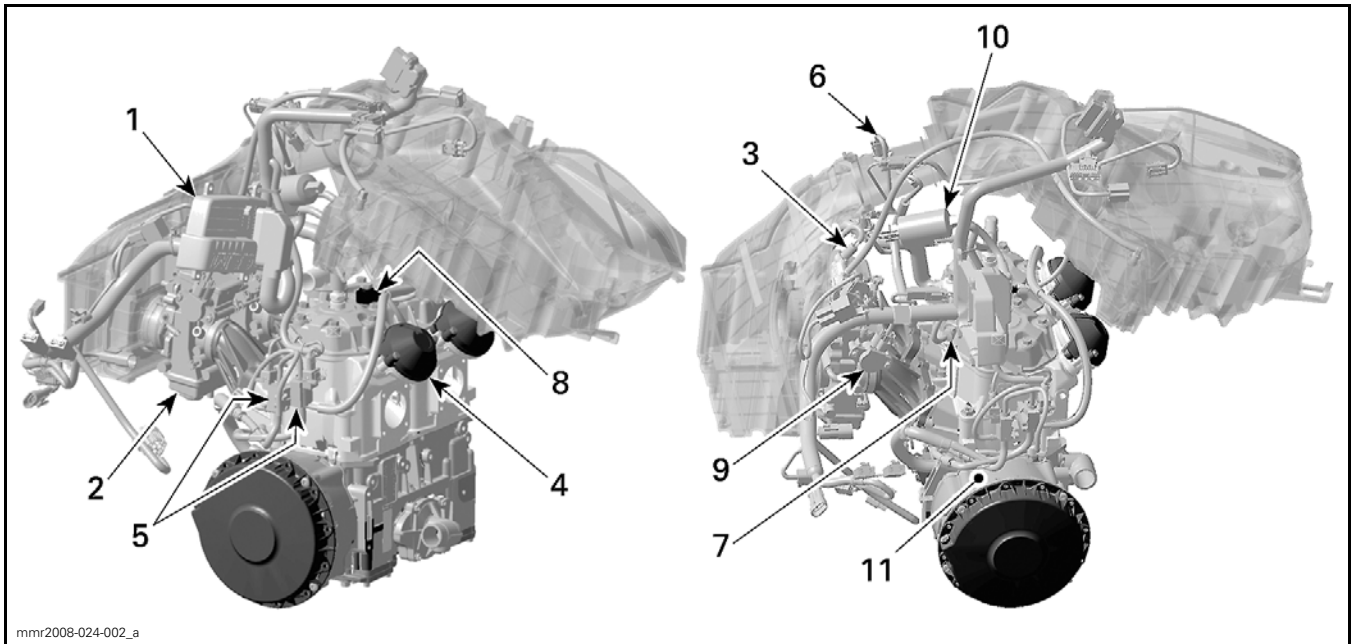
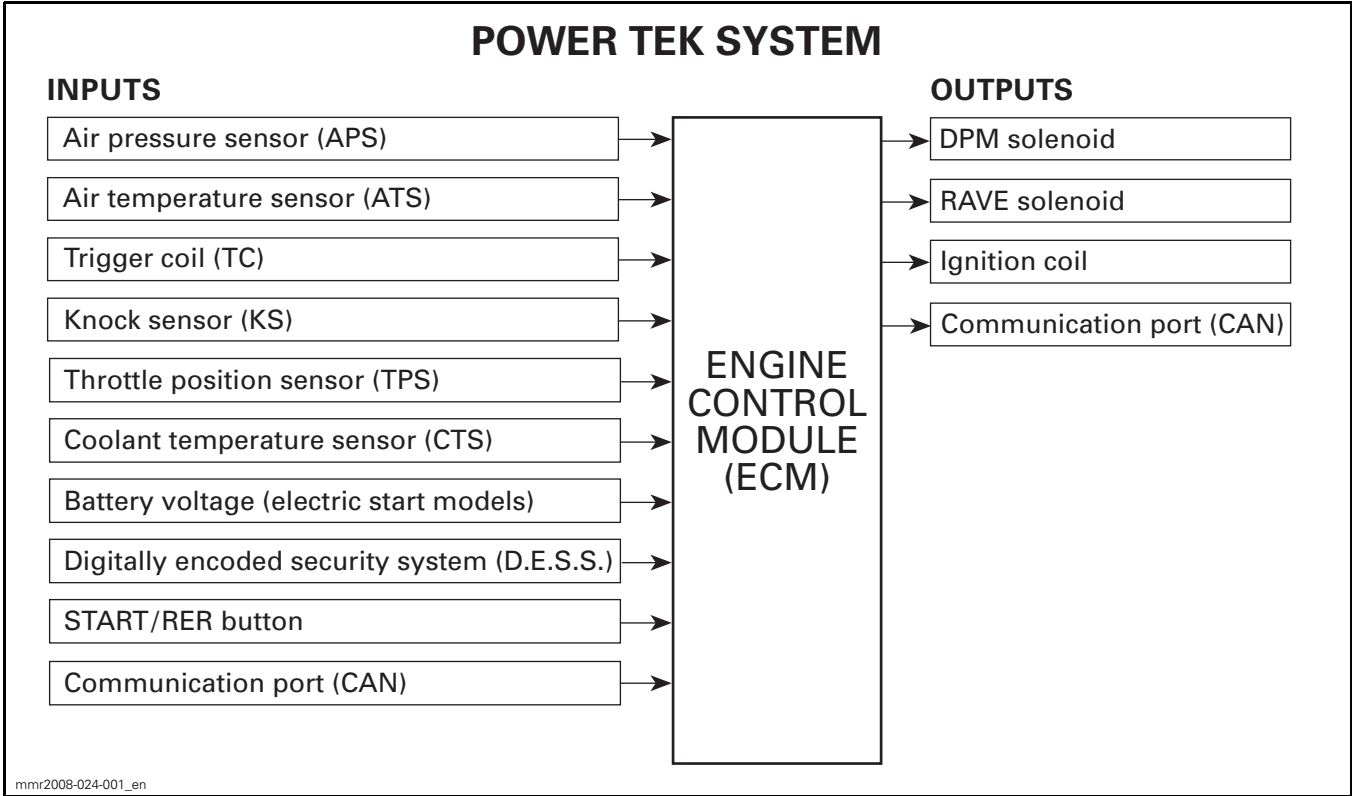


OVERVIEW (800R POWER TEK)



1. Engine control module (ECM) including air pressure sensor (APS)
2. TM carburetors
3. DPM manifold
4. RAVE valves
5. RAVE valve solenoid
6. Air temperature sensor (ATS)
7. Coolant temperature sensor (CTS)
8. Knock sensor (KS)
9. Throttle position sensor (TPS)
10. Ignition coil
11. Trigger coil



GENERAL

SYSTEM DESCRIPTION

The engine management system (EMS) controls the following main systems:

- Ignition system
- 3D RAVE system
- Digital Performance Management (DPM)
- Rotax Electronic Reverse (RER)
- Digitally Encoded Security System (D.E.S.S.)
- Starting system (**electric start models**).

The acronym Power TEK refers to the following technologies found on this engine:

- **T**hrottle position sensor
- **E**lectronic RAVE
- **K**nock sensor.

The TPS and knock sensor provide inputs to the ECM.

The ECM electronically controls the electric RAVE valve solenoid and the DPM solenoid.

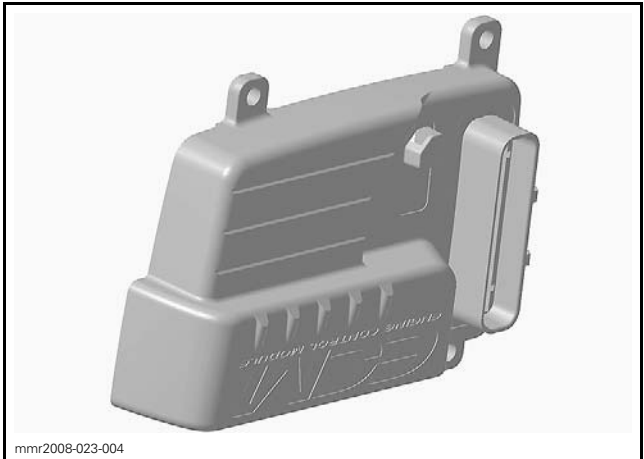
The use of a TPS along with the trigger coils (engine RPM) allows the ECM to recognize the engine load, and thus using 3D DPM and ignition

maps, achieves improved fuel economy, a cleaner running engine for emission requirements, and improved engine protection (against seizure).

The EMS also offers a monitoring system and diagnostic mode to help troubleshooting some problems. Refer to *DIAGNOSTIC AND FAULT CODES* subsection.

Engine Control Module (ECM)

The engine control module (ECM) is the brain of the engine management system.



ECM

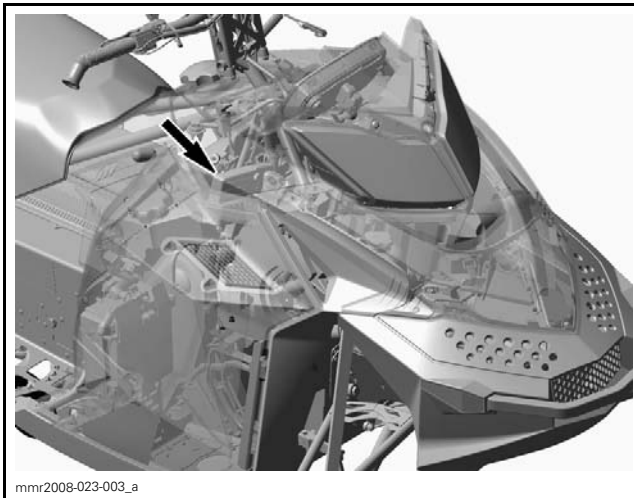
The ECM applies the proper ignition and DPM maps for optimum engine operation in all riding conditions.

The ECM and the multifunction gauge communicate together through CAN lines (Controller Area Network).

The ECM is located in the engine compartment.

NOTE: Occasional knocking will not generate a fault code. If knocking occurrence frequency surpasses a certain threshold, a fault code will be generated.

Refer to *IGNITION SYSTEM* subsection to test the knock sensor.



SYSTEM FEATURES

Engine RPM Limiting

The ECM will limit the maximum engine speed (approximately 8600 RPM).

Warm Up Engine Protection

The engine warm up is electronically controlled. The ignition timing, fuel delivery and 3-D RAVE opening are changed to limit power output on a cold engine to reduce the chance of engine damage. This type of limitation is RPM-related and the warm-up period should be seamless.

NOTE: When engine coolant temperature is below 5°C (41°F), the RAVE valves will be kept closed.

Knock Protection

A knock sensor is mounted on top of the cylinder head. It detects specific vibrations that would be typically generated by engine detonation.

When knocking occurs, the ECM temporarily retards ignition timing and enriches fuel mixture until knocking disappears. Normal engine operating parameters then automatically resume as required. Refer to *COMMUNICATION TOOLS AND B.U.D.S.* subsection.