

# DIAGNOSTIC AND FAULT CODES

## GENERAL

### MONITORING SYSTEM

The ECM features a monitoring system that self-diagnose its electronic components.

When a predefined condition (engine overheat for example) or a fault occurs, the ECM sends a signal to the multifunction gauge and/or audible signals to a beeper to inform you of this particular condition.

The ECM monitors the following functions and components.

| COMPONENT  |
|--|
| ECM, TPS, CTS, CPS, knock sensor, RAVE valve solenoids, APS, ATS, EGTS, RPS, ignition coils, fuel injectors and THCM |
| 12 volts under/over voltage<br>60 volts under/over voltage   |
| D.E.S.S.   |
| RER  |
| Low oil level, electronic oil injection pump   |
| Oil temperature (end of piston stroke feedback from electronic oil injection pump )                                  |
| Engine RPM   |
| Coolant temperature  |
| CAN  |
| Fuel pump  |

### Limp Home Mode

The ECM may automatically set default parameters to ensure the adequate operation of the vehicle if a component of the engine management system is not operating properly.

**NOTE:** Sensor failures will not automatically result in limp home mode. The appropriate LED will turn on and in some cases the beeper will sound.

The engine RPM may be limited if some critical components fail. In this case, releasing the throttle and letting the engine return to idle speed may allow normal operation to come back. If it does not, try removing and reinstalling the tether cord cap (D.E.S.S. key) on the engine cut-off switch.

These performance-reduced modes allow the rider to continue on to seek help, or return home, which would otherwise not be possible.

## Section 03 ELECTRONIC MANAGEMENT SYSTEMS

### Subsection 04 (DIAGNOSTIC AND FAULT CODES)

| ECM ACTION   | CAUSE   |
|--|---|
| Engine is gradually stopped.<br><br>Continuous fast short beeps and a shutdown message is displayed in multifunction gauge until shutdown. | Fuel pump wiring short circuit to ground or open circuit.   |
|  | Fuel pump current requirement is too high.  |
|  | Engine idle overheat protection: <ul style="list-style-type: none"><li>– Engine idled more than 5 seconds after engine temperature increased above 95°C (203°F).</li><li>– Engine idled more than 5 minutes after engine temperature increased above 37°C (99°F).</li></ul> |
| Engine speed is limited to 2500 RPM.   | D.E.S.S. key is not recognized by the ECM.<br>The antitheft system is active.<br>RAVE valves are kept at closed position.   |
| Engine speed is limited to 5500 RPM<br>(RAVE valves are kept closed).  | Oil injection pump wiring shorted to ground or open circuit.  |
|  | Low voltage in the 60 Vdc system. Voltage dropped by 5 V.   |
|  | ECM overheat (85°C (185°F)).  |
|  | Engine overheat (100°C (212°F) and above).  |
|  | Exhaust gas temperature too high (800°C (1,472°F) and above).   |
|  | High engine detonation.   |
| Engine speed is limited to 7000 RPM.   | Max. RPM allowed to the engine in reverse.<br>RAVE valves are kept closed.  |
| Engine speed is limited (Variable limit)   | Max. RPM allowed varies when engine is cold, according to oil viscosity   |
| Engine speed is limited to 8600 RPM.   | Maximum engine RPM allowed.   |

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#### Pilot Lamps and Beep Codes

Warning lights in the multifunction gauge and/or a beeper provide signals as to a vehicle operation feed-back, or to indicate a problem.

A pilot lamp can flash alone or in combination with another lamp.


Beeper codes will be heard and messages (depending on gauge model) will be displayed to attract your attention and inform you of the situation.

**NOTE:** Message displayed is not available on all gauges.

| PILOT LAMP(S)   | BEEPER OR PILOT LAMP STATUS    | MESSAGE DISPLAY  | DESCRIPTION   |
|---|--------------------------------|------------------|---|
|    | 4 short beeps every 30 seconds | ENGINE OVERHEAT  | Engine is overheating, Check coolant level, refer to <i>COOLING SYSTEM</i> subsection.  |
|   |                                | MUFFLER          | Exhaust system is overheating. Refer to TCHM in <i>E-TEC DIRECT FUEL INJECTION</i> subsection.  |
|    | Short beeps repeating rapidly  | ENGINE OVERHEAT  | Critical overheat. Verify cooling system. Refer to <i>COOLING SYSTEM</i> subsection.  |
|   |                                | MUFFLER OVERHEAT | Critical overheat. Refer to <i>E-TEC DIRECT FUEL INJECTION</i> subsection.  |
|   |                                | ECM OVERHEAT     |   |
|   | 4 short beeps every 5 minutes  | LOW BAT          | Indicate a low or high battery voltage condition. Refer to <i>CHARGING SYSTEM</i> and or <i>MAGNETO SYSTEM</i> subsection(s).   |
|   |                                | HIGH BAT         |   |
|  | 4 short beeps                  | CHECK ENGINE     | Engine fault, retrieve fault code(s). Refer to <i>DIAGNOSTIC AND FAULT CODES</i> subsection.  |
|  | 4 short beeps                  | PARK BRAKE       | If brakes are engaged for more than 15 seconds while vehicle is in movement, parking brake light will come on Make sure to release the brake completely while vehicle is in movement. Refer to <i>BRAKE</i> subsection.                 |
| —   | 4 short beeps every 5 minutes  | KNOCK            | Engine detonation (RPM is limited when this condition occurs).<br>– Ensure recommended fuel is used.<br>– Check fuel quality, replace if necessary.<br>– If fault still occurs, refer to <i>E-TEC DIRECT FUEL INJECTION</i> subsection. |
| —   | 4 short beeps every 5 minutes  | REV LIMIT        | Engine RPM limited for protection when certain faults occur.  |
| —   | —                              | OVER REV         | Engine RPM too high, ECM will cut injection to lower RPM.   |
| —   | Short beeps repeating rapidly  | SHUTDOWN         | Shutdown procedure in force due to engine overheating or fuel pump problem, remove tether cord cap from engine cut-off switch.  |

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| PILOT LAMP(S)   | BEEPER OR PILOT LAMP STATUS     | MESSAGE DISPLAY | DESCRIPTION  |
|---|---------------------------------|-----------------|--|
| <b>DESS</b>   | 2 short beeps                   | —               | Good key, vehicle ready to operate.  |
|   | 2 short beeps, repeating slowly | CHECK KEY       | Unable to read key (bad connection). Make sure the key is clean and correctly snapped on post. Refer to <i>D.E.S.S.</i> subsection.    |
|   | Short beeps repeating rapidly   | BAD KEY         | Invalid key or key not programmed. Use the proper key for the vehicle or have the key programmed. Refer to <i>D.E.S.S.</i> subsection. |
|  | (Blinking)                      | —               | Fuel level sender problem.   |
| —   | —                               | THROTTLE OPEN   | Throttle applied while attempting an engine start (engine cranks but won't run). Release throttle while starting.                      |
| —   | —                               | DROWN MODE      | Throttle wide open while attempting an engine start (engine cranks but won't run). Release throttle while starting.                    |

## FAULT CODES

A fault code is an indication that a glitch or malfunction is detected by the monitoring system of the vehicle.

When there is a problem, the ECM can provide fault codes to ease troubleshooting.

The faults registered in the ECM are stored in memory.

When troubleshooting using the service actions suggested in the **Fault** section of B.U.D.S., a system circuit referred to as J1A-26 refers to pin 26 of ECM connector "J1A".

**IMPORTANT:** After a problem has been solved, be sure to clear the fault(s) in the ECM using the B.U.D.S. software. This will properly reset their states.

### How to Read Fault Codes Using B.U.D.S. Software

Refer to *COMMUNICATION TOOLS AND B.U.D.S.* subsection.

For more information pertaining to the faults code status and report, refer to B.U.D.S. online help or to the ECM fault code tables.

### How to Read Fault Codes on the Premium Multifunction Gauge

Fault codes can also be displayed in the premium multifunction gauge. Refer to Displaying "P" Codes in the *LIGHTS, GAUGE AND ACCESSORIES* subsection.

### How to Find Fault Code Descriptions

For the latest fault code table, use the **Knowledge Center** tab under the **Info Center** menu in BOSS-Web and enter the following search criteria:

- Enclose the search within quotes " "
- Enter: "2015 Ski-Doo DTC Table"