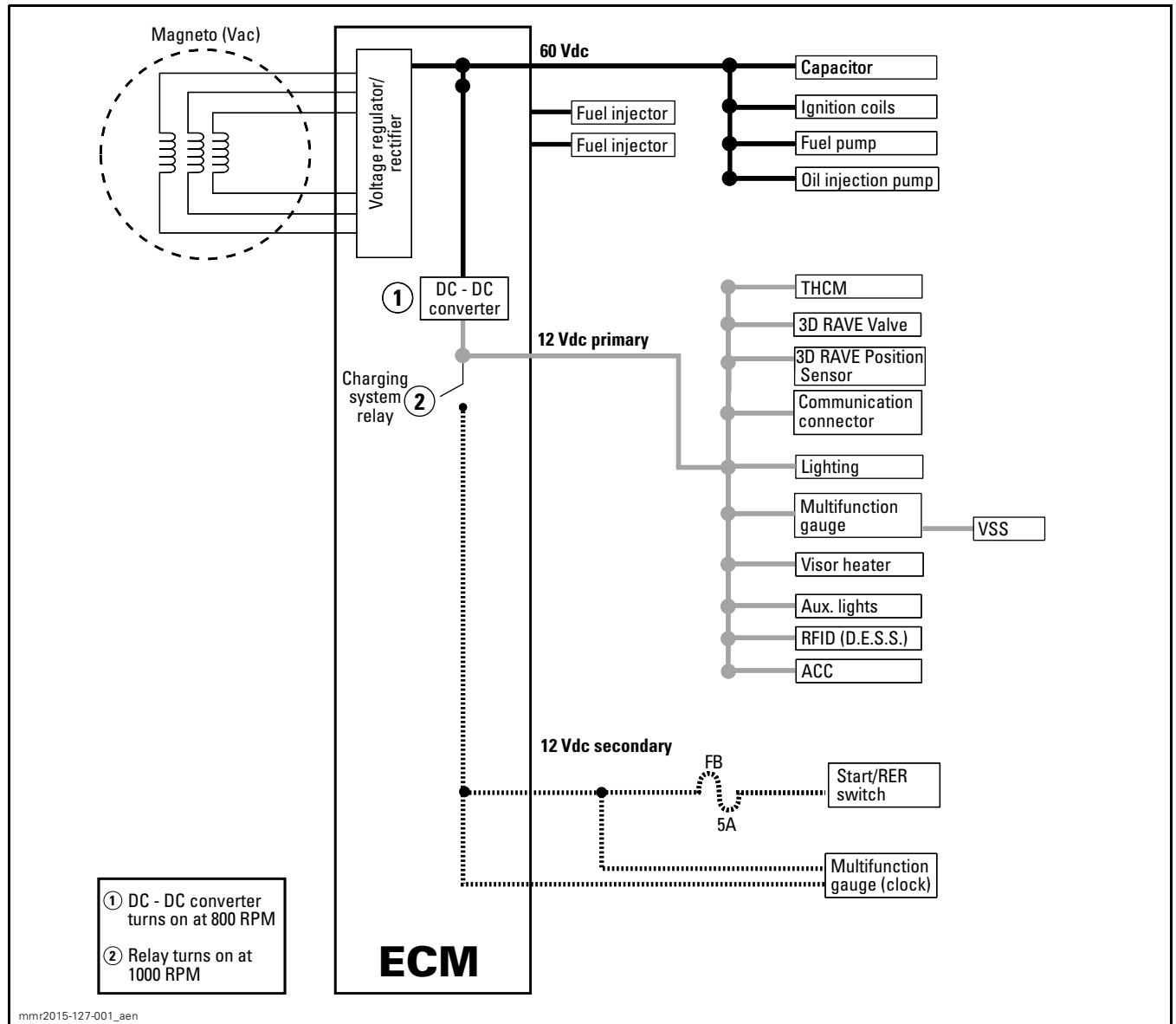


POWER DISTRIBUTION

GENERAL

OVERVIEW

Power distribution is shown in red on the wiring diagram. Refer to *KNOWLEDGE CENTER*.



THCM	Thermocouple module
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The magneto stator is wired with 3 independent windings that works in phase. Each winding is separately wound, they are not connected, so 6 wires go to the ECM.

The vehicle requires the highest possible voltage at low RPM (to quickly supply the fuel pump, injectors and ignition coils) and the highest possible current at higher RPM (to properly supply the

engine electrical loads that increase with RPM and all the other components like RAVE valves, gauge, lights and heaters). To achieve this, the stator windings are connected in series at low RPM to meet the voltage requirements and then connected in parallel at higher RPM to meet the current requirements. This series-parallel switch is done in the ECM.

Section 05 ELECTRICAL SYSTEM
Subsection 01 (POWER DISTRIBUTION)

The series to parallel switching occurs at approximately 1500 RPM.

At high RPM if the magneto power is greater than the loads, the ECM will shunt the stator windings to regulate its power as necessary.

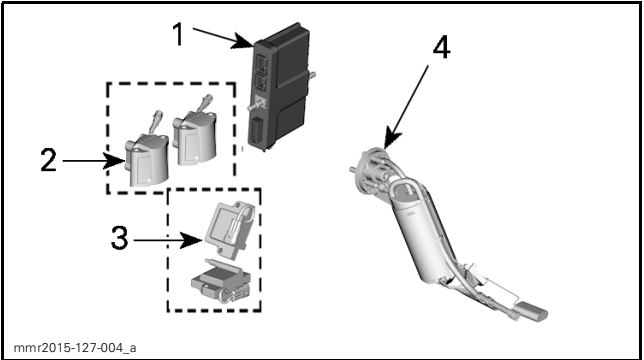
The voltage regulator/rectifier is part of the ECM.

The ECM receives the energy produced by the magneto, rectifies the alternating current (AC) to direct current (DC) and regulates the voltage as per the following chart.

MODEL	VOLTAGE
800R E-TEC	60 Vdc

SYSTEM VOLTAGE (60 VDC)

Since the available power is low when cranking, the ECM first supplies 60 Vdc to the illustrated components that need voltage for the starting and the basic operation of the engine:



- 1. ECM (internally powered to a lower voltage)
- 2. Fuel injectors
- 3. Ignition coils
- 4. Fuel pump.

A large capacitor is used to stabilize the 60 Vdc system to provide a constant power to the injectors.

The capacitor is attached to the oil tank.

SYSTEM VOLTAGE (12 VDC)

A DC-DC converter, in the ECM, steps down the 60 DC voltage to 12 Vdc when the engine reaches 800 RPM.

Since the available power is not at its maximum at the early stage of engine starting, the ECM supplies 12 Vdc to the following components when engine reaches 800 RPM.

- THCM (thermocouple module)
- RAVE solenoid
- Communication connector
- Lighting system

- Multifunction gauge
- Heaters
- Heated visor
- Auxiliary lights
- 12 V power outlet
- Other accessories.

Approximately 14 A are available at idle (1200 RPM). Refer to *CHARGING SYSTEM* for more information.

Below 2000 RPM, the total available current is limited to reduce the load on the system voltage.

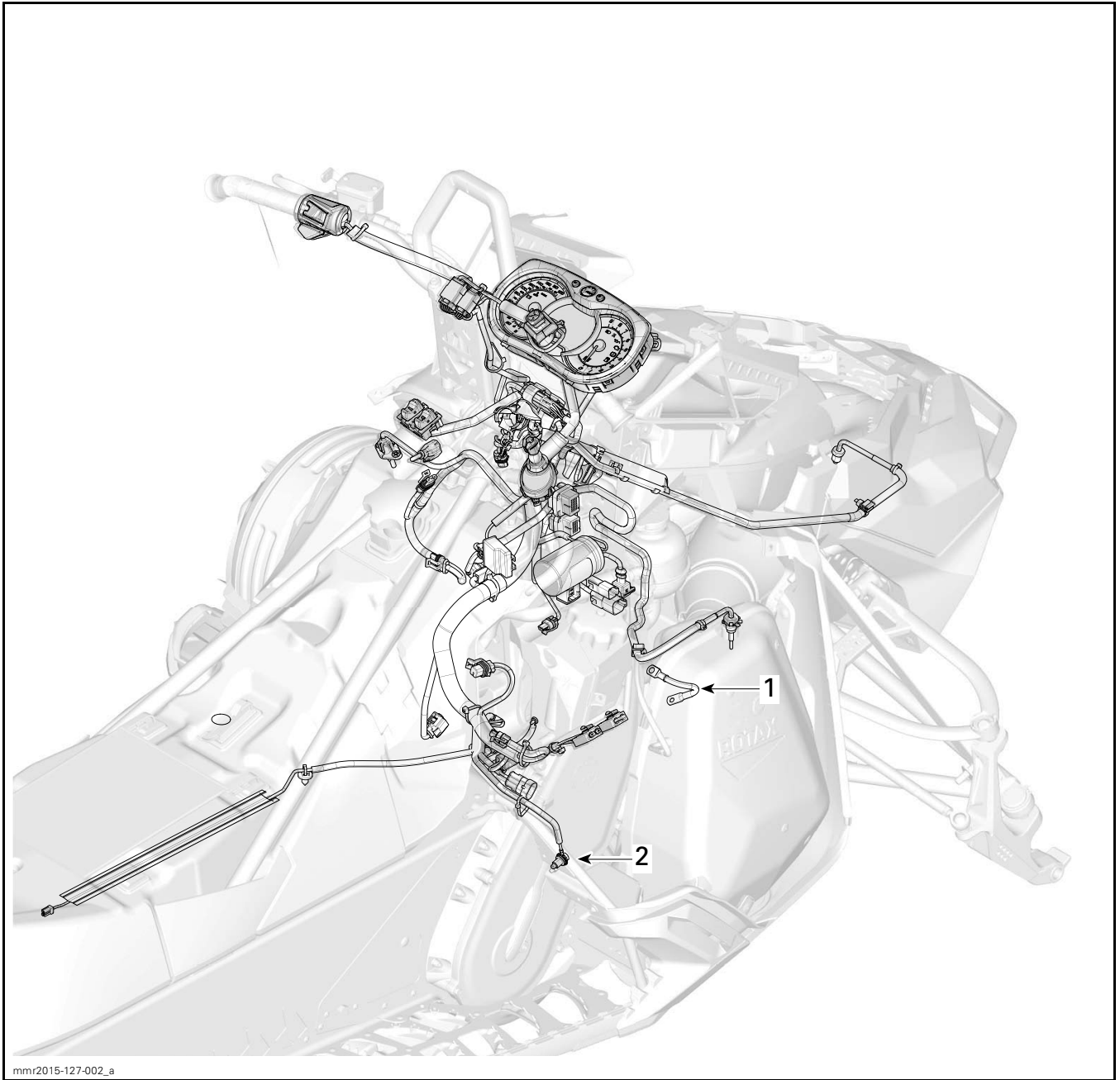
Above 2000 RPM, the 12 Vdc system has a maximum of 25 A available.

If electrical system load is increased, or the RPM is decreased, the 12 Vdc system output is reduced in order to maintain 60 Vdc for engine operation.

POWER DISTRIBUTION SUMMARY

ENGINE OPERATION	VOLTAGE DELIVERED	COMPONENT SUPPLIED
Any engine speed	60 Vdc	<ul style="list-style-type: none">– ECM (internally powered)– Fuel pump– Fuel injectors– Ignition coils– Electronic oil injection pump.
When engine reaches 800 RPM	12 Vdc	<ul style="list-style-type: none">– THCM (thermocouple module)– RAVE solenoid– Communication connector– Lighting system– Multifunction gauge– Heaters– Heated visor– Auxiliary lights– 12 V power outlet– Other accessories.
When engine reaches 1000 RPM	12 Vdc	<ul style="list-style-type: none">– RER switch

GROUNDS

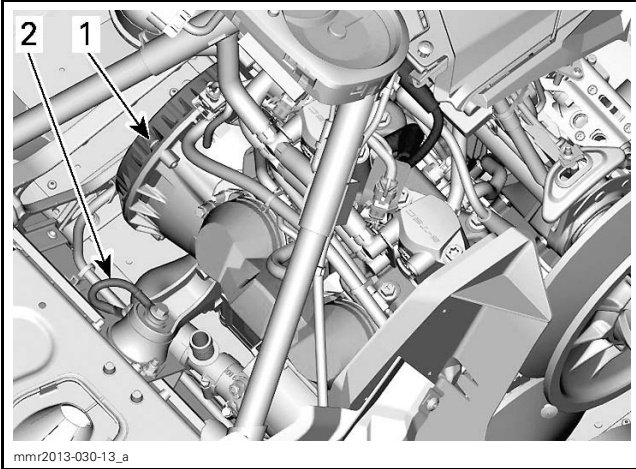


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1. Engine ground
2. Main harness ground

Section 05 ELECTRICAL SYSTEM

Subsection 01 (POWER DISTRIBUTION)



LH SIDE, VIEWED FROM FRONT

- 1. Rewind starter
- 2. Engine ground