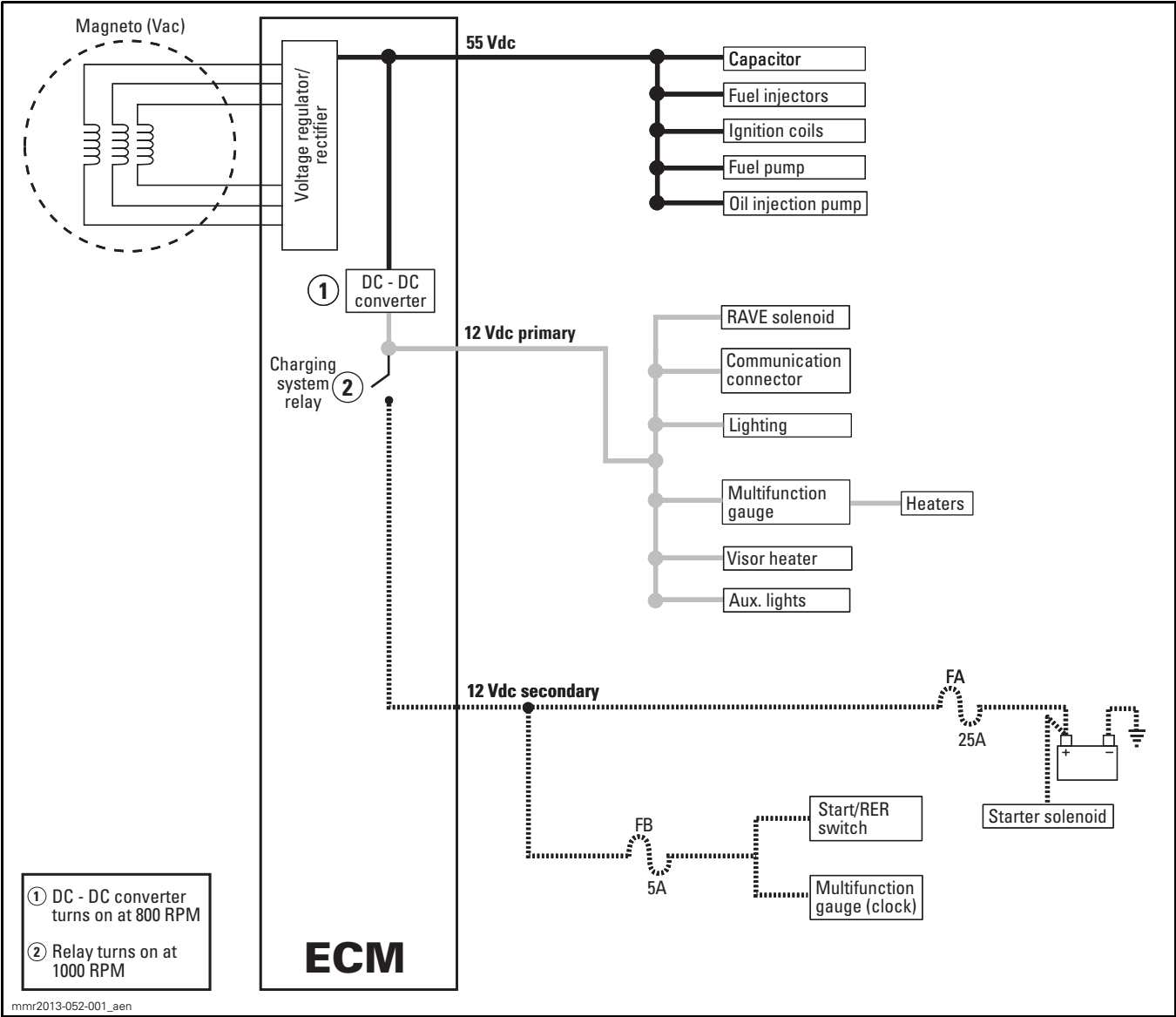


POWER DISTRIBUTION

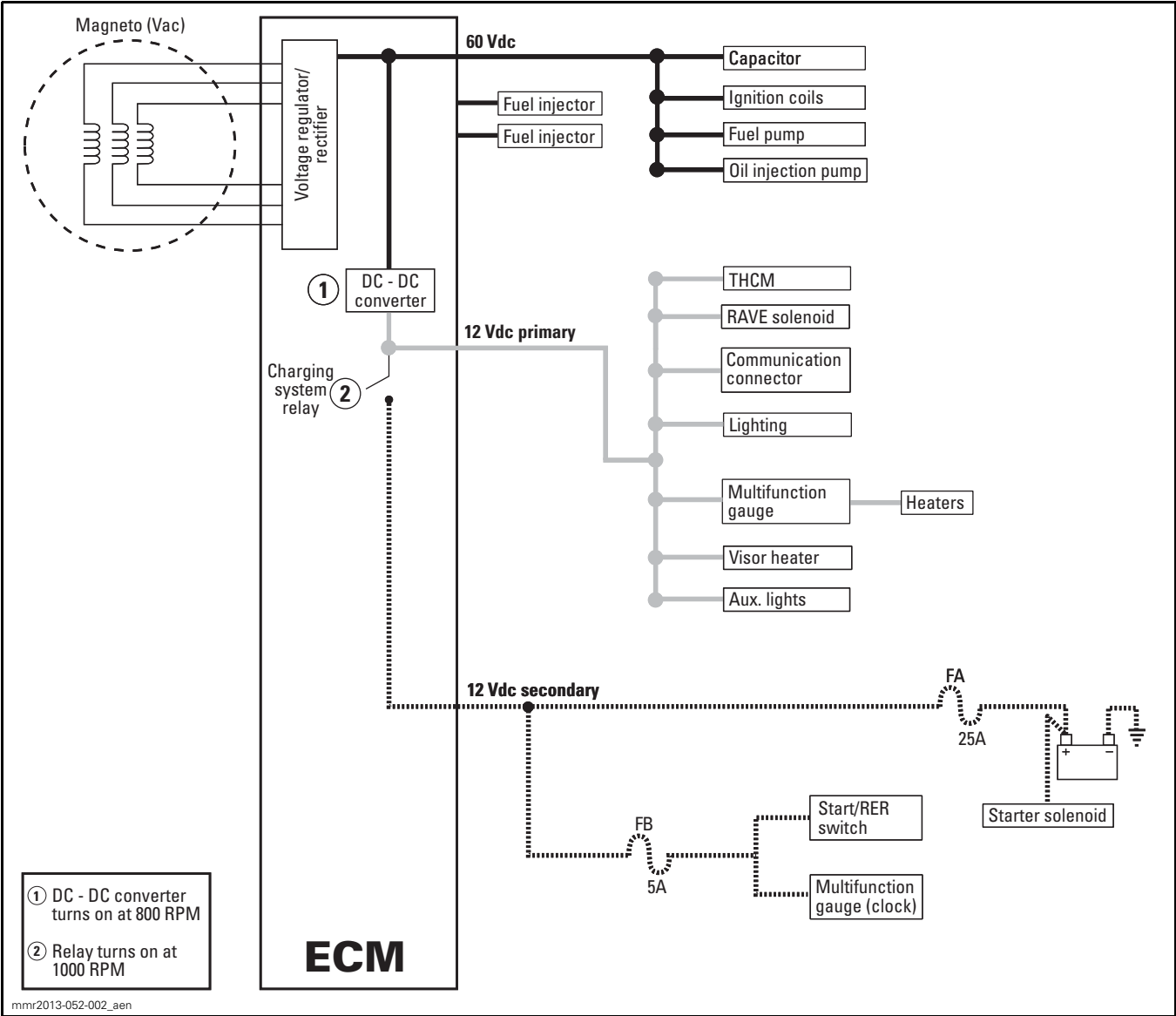
GENERAL

OVERVIEW



600 HO E-TEC SIMPLIFIED SCHEMATIC

Subsection XX (POWER DISTRIBUTION)



800R E-TEC SIMPLIFIED SCHEMATIC

THCM	Thermocouple module

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.

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
600 HO E-TEC	55 Vdc
800R E-TEC	60 Vdc

SYSTEM VOLTAGE (55/60 VDC)

Since the available power is low when cranking, the ECM first supplies 55/60 Vdc to the components that mandatory need voltage for the starting and the basic operation of the engine:

- ECM (internally powered to a lower voltage)
- Fuel pump
- Fuel injectors
- Ignition coils
- Electronic oil injection pump.

A large capacitor is used to stabilize the 55/60 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 55/60 DC voltage to 12 Vdc when the engine reaches 800 RPM.

The 12 Vdc voltage is then divided in a primary and a secondary system.

Below 2000 RPM, the total available current is limited to reduce the load on the system voltage. Above 2000 RPM, the 12 Vdc system have a maximum of 25 A available. In all running conditions, the system voltage must be kept at 55/60 Vdc.

Primary Voltage (12 Vdc)

Since the available power is not at its maximum at the early stage of engine starting, the ECM supplies 12 Vdc to the components that are critical for the engine and vehicle when engine reaches 800 RPM.

- THCM (thermocouple module) on some models
- RAVE solenoid
- Communication connector
- Lighting system
- Multifunction gauge
- Heaters
- Heated visor
- Auxiliary lights
- 12 V power outlet
- Other accessories

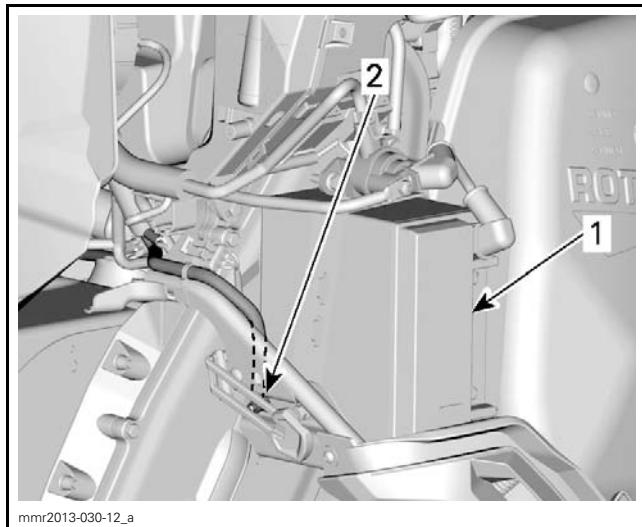
Secondary Voltage (12 Vdc)

On **electric start models**, when the engine speed reaches 1000 RPM, the charging system relay closes and battery charging can take place.

POWER DISTRIBUTION SUMMARY

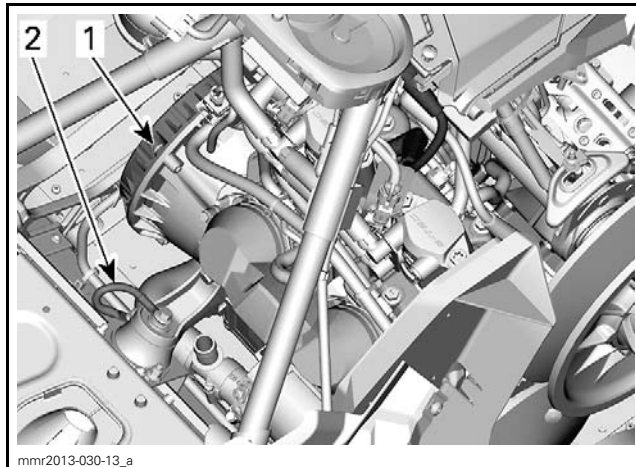
ENGINE OPERATION	VOLTAGE DELIVERED	COMPONENT SUPPLIED
Any engine speed	55/60 Vdc	<ul style="list-style-type: none"> – ECM (internally powered) – Fuel pump – Fuel injectors – Ignition coils – Electronic oil injection pump
When engine reaches 800 RPM	12 Vdc	<ul style="list-style-type: none"> – THCM (thermocouple module) on some models – 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"> – Battery charging on electric start models

GROUNDS



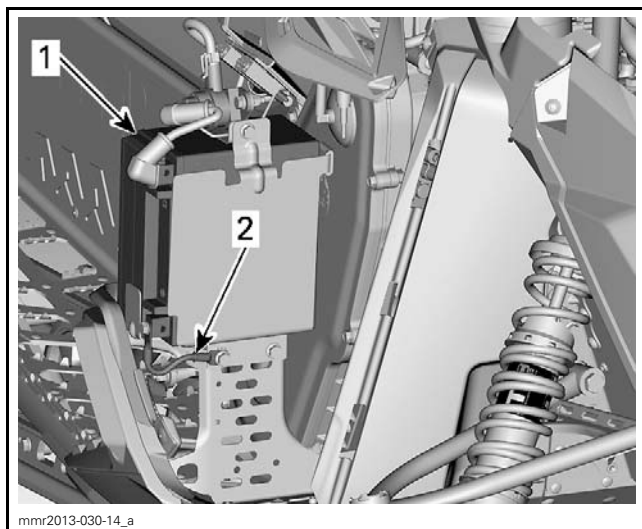
RH SIDE, VIEWED FROM REAR

1. Battery
2. Main harness ground



LH SIDE, VIEWED FROM FRONT

1. Rewind starter
2. Engine ground



RH SIDE, VIEWED FROM FRONT

1. Battery
2. Battery ground