



SKI-DOO 800R E-Tec Starting And

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Summary:

What happens electrically when DESS lanyard installed and start sequence begins.

Type:

General

TST Detail:

800R E-TEC Manual Start Models: Normal Operation

When the D.E.S.S. key is installed, the switch inside the D.E.S.S. post closes. No electrical power in the ECM is activated. ECM (J1A-9) controlled by RUN/STOP switch must be open and not be shorted to ground. When the recoil is pulled, voltage is supplied to the ECM from the stator via the 3 separate windings. The ECM (J2 13,) supplies 60 volts to J1B-3 and 4, ignition coils, capacitor, fuel and oil pumps. The ECM (J2-15 and 16) supplies 12 volts to the primary circuit components - head and tail lights, the gauge cluster, and ECM (J1A-15). The ECM controls the fuel Injectors separately. The ECM controls the 3D RAVE valve, oil pump, and fuel pump by controlling the ground connections to these components. The 6 ECM ground terminals (J2-5,7,8 and J1B-14,20,21) are not assigned to any particular component, but if one or more of these ground connections fail, it will overload the others. The ECM does not control the ground for the ignition coils, but supplies an electrical pulse to "fire" the coils at the exact time. The capacitor filters the pulsating 60 volts produced by the ECM. If the capacitor is open or shorted, the engine will miss and be hard to start.

800R E-TEC Engine No Start - without T-Harness Connected:

- Check D.E.S.S. switch and key.
- Check the RUN/STOP switch.
- Check 60 volts supply to injectors and ignition coils.
- Should measure above 30 volts when engine is turned over.

- Check fuel pump operation.
- Fuel pressure should increase when engine is turned over and voltage should be above 8 volts.
- Check primary 12 volts supply to ECM (J1A-15).
- Test for ignition coil operation.
- Test for injector operation.
- Test for stator output.
- Replace the ECM.

800R E-TEC Engine No Start - with T-Harness Connected:

With the T-harness and external battery connected, the 12 volts primary circuit is activated. 12 volts is applied to ECM (J1B-10) which will "turn on" the ECM. Gauge cluster, head and tail lights will turn on. If not, check manual start jumper wire, 12 volts power and ground at the diagnostic and gauge connectors. – Check D.E.S.S. switch and key.

- Check the RUN/STOP switch.
- Check 60 volts supply to injectors and ignition coils.
- Should measure above 30 volts when recoil is pulled.
- Check fuel pump operation.
- Fuel pressure should increase when engine is turned over and voltage should be above 8 volts.
- Check primary 12 volts supply to ECM (J1A-15).
- Test for ignition coil operation.
- Test for injector operation.
- Test for stator output.
- Replace the ECM.

800R E-TEC Engine Only Start with T-Harness Connected:

If the engine only starts with T-harness and external battery connected, the ECM is not supplying 12 volts to the primary circuit and to ECM (J1A-15).

- Check ECM connectors.
- Replace the ECM.

800R E-TEC Electric Start Models: Normal Operation

When the D.E.S.S. key is installed, the switch inside the D.E.S.S. post closes. No electrical power in the ECM is activated. ECM (J1A-9) controlled by RUN/STOP switch must be open and not be shorted to ground. Battery voltage is supplied thru the 30 amp main fuse, thru the 5 amp fuse and applied to the START/RER switch. When the START/RER switch is closed, battery voltage is applied to terminal A of the starter solenoid, ECM (J1A-28). The voltage applied to ECM (J1A-28) causes the ECM (J1B-9) to ground terminal B of the starter solenoid. With the starter solenoid circuit complete, the solenoid will close, supplying battery voltage to the starter motor. Once the starter motor engages, the engine will turn over. If engine turns over, but does not start, refer to **“Engine No Start”** procedures. **800R E-TEC**

Starter Motor will not Activate:

Test for battery voltage – higher than 12.5 volts. Measure 12 volts on battery side of starter solenoid. If not, check wiring and connections. Measure 12 volts on starter motor side of starter solenoid when START/RER switch is depressed. If not, replace starter solenoid or see **“Starter Solenoid will not activate”**

procedure. Measure 12 volts on positive terminal of starter motor when START/RER switch is depressed. If not, check wiring and connections. If yes, check proper starter motor ground or replace the starter motor.

800R E-TEC Starter Solenoid will not Activate:

- Test for battery voltage – higher than 12.5 volts.
- Check 30 and 5 amp fuses – 0 voltage drop, less than 1 resistance.
- Test RUN/STOP switch – pin 1 to 4 of steering harness, Infinite resistance.
- Test START/RER Switch – pin 3 to 6 of steering harness, 0 voltage drop, less than 1 resistance.
- Measure 12 volts at starter solenoid (RD/GN) when START/RER button is depressed. – If not, check wiring and connections.
- Measure 12 volts at ECM (J1A-28) when START/RER button is depressed.
- If not, check wiring and connections.
- Measure 12 volts at ECM (J1B-10) when START/RER button is depressed.
- Test Starter Solenoid, terminal A approximately 7.5 resistance.
- Measure 0 volts ECM (J1B-9) with START/RER button depressed.

– If not, check ECM ground wires and connections, or replace ECM.

800R E-TEC Starter Motor and Solenoid Activate when T-Harness is Connected: The cause of this issue is a short between ECM (J1A-28 and J1B-10). The ECM must be replaced.

Attachment:

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