IGNITION DRAW OFF TEST

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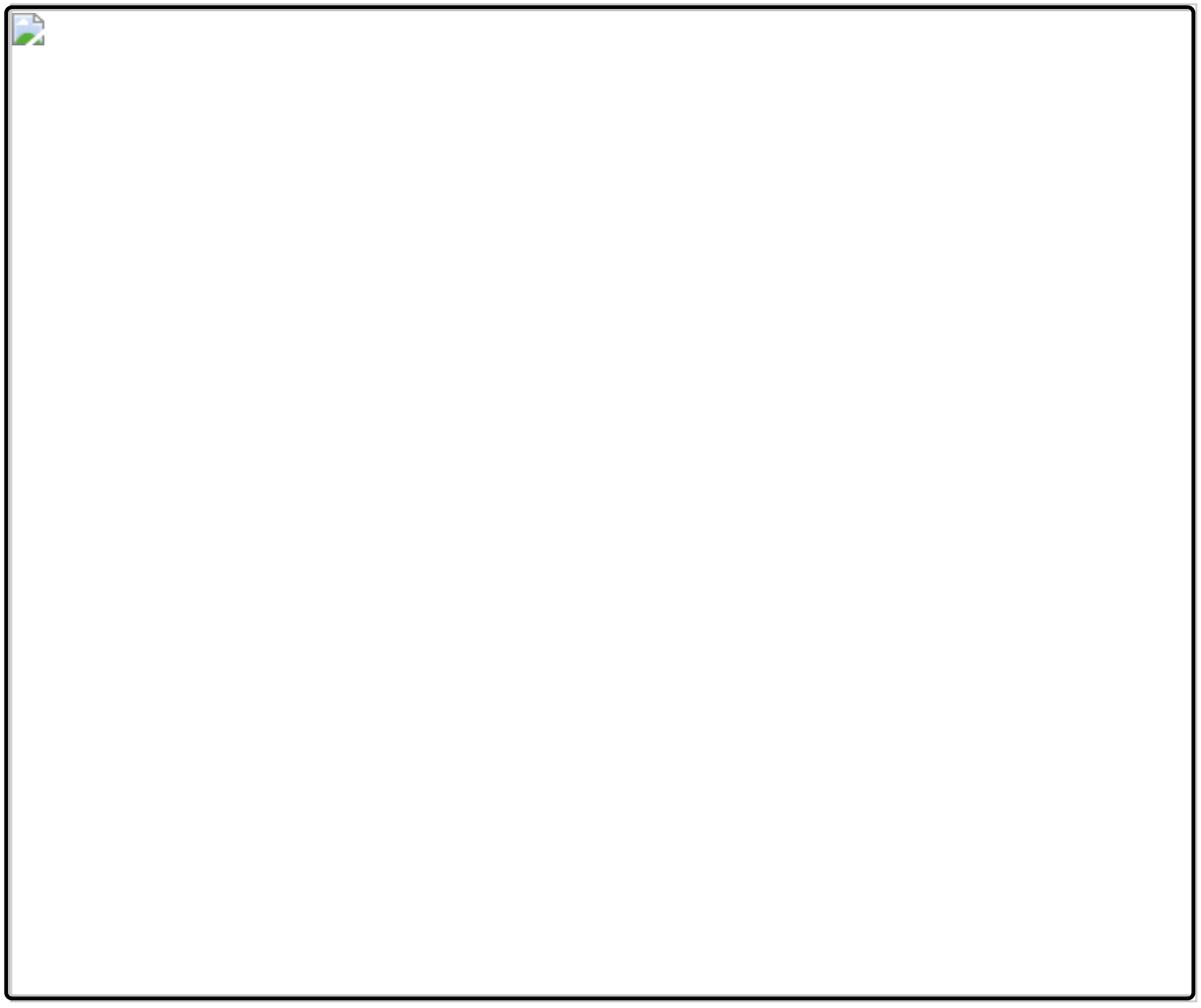

The term Ignition-OFF Draw (IOD) identifies a normal condition where power is being drained from the battery with the ignition switch in the OFF position. A normal vehicle electrical system will draw up to 50 milliamperes (0.050 ampere) with the ignition switch in the OFF position, and all non-ignition controlled circuits in proper working order. Up to 50 mA are needed to enable the memory functions for the Powertrain Control Module (PCM), digital clock, electronically tuned radio, and other modules which may vary with the vehicle equipment.

Excessive IOD can be caused by:

- Electrical items left on
- Inoperative or improperly adjusted switches
- Inoperative or shorted electronic modules and components
- An internally shorted generator

- Intermittent shorts in the wiring

If the IOD is over 50 milliamperes, the problem must be found and corrected before replacing a battery. In most cases, the battery can be charged and returned to service after the excessive IOD condition has been corrected.

1. Verify that all electrical accessories are OFF. Turn OFF all lamps, remove the ignition key, and close all doors. If the vehicle is equipped with an illuminated entry system or an electronically tuned radio, allow the electronic timer function of these systems to shut OFF (time out). This may take up to thirty minutes. Refer to the following Electronic Module Ignition-OFF Draw Table for more information:

ELECTRONIC MODULE IGNITION-OFF DRAW (IOD) TABLE			
Module	**Time Out? (If Yes, Interval And Wake-Up Input)**	**IOD**	**IOD After Time Out**
Radio	No	200 mA for 30 minutes after ignition is shut OFF. Base vehicle IOD 25 mA when bus(es) are down and all modules are in 'sleep' mode.	N/A
USB/MEDIA Ports	Yes/Ignition on	0.38mA for 60 minutes after ignition is shut OFF. Base vehicle IOD 25 mA when bus(es) are down and all modules are in 'sleep' mode.	N/A
Audio Power Amplifier	No	up to 1 mA	N/A
Powertrain Control Module (PCM)	No	0.95 mA	N/A
Instrument Panel Cluster (IPC)	No	0.44 mA	N/A

2. Determine that the under hood lamp is operating properly, then disconnect the lamp wire harness connector or remove the lamp bulb.
3. Turn OFF all electrical accessories.
4. Disconnect and isolate the negative battery cable. If equipped with an Intelligent Battery Sensor (IBS), disconnect the IBS connector first before disconnecting the negative battery cable.
   NOTE:
   If equipped, disconnect the negative side of the Auxiliary Battery. This must be disconnected for the duration of the test.

   CAUTION: Do not open any doors, or turn on any electrical accessories with the lowest milliampere scale selected, or the multi-meter may be damaged.

5. Connect a 10 gauge jumper wire between the negative battery cable and the negative battery post.
6. Turn the ignition key ON and then OFF and wait for all systems to enter sleep mode. **This can take up to 60 minutes.**

NOTE:
Do not break the connection between the jumper wire and the battery. If the connection between the negative battery and the negative cable terminal clamp is lost during any part of the IOD test, the electronic timer function will be activated and all of the tests will have to be repeated.

7. Set an electronic digital multimeter to its highest amperage scale. Connect the multimeter to the battery negative cable terminal clamp and the negative battery terminal, but not on the jumper connection.
8. Remove the jumper wire without breaking the digital multimeter connection.
9. The multimeter leads must be securely clamped to the battery negative cable terminal clamp and the negative battery terminal, but not the jumper wire.
10. The high amperage IOD reading on the multimeter should be very low or nonexistent, depending upon the electrical equipment in the vehicle. If the amperage reading remains high, remove and replace each fuse or circuit breaker in the Body Control Module (BCM) and Power Distribution Center (PDC), one at a time until the amperage reading becomes very low, or nonexistent. Refer to the appropriate wiring information for complete BCM and PDC, circuit breaker, and circuit identification. This will isolate each circuit and identify the circuit that is the source of the high amperage IOD. If the amperage reading remains high after removing and replacing each fuse, disconnect the wire harness from the generator. If the amperage reading now becomes very low or nonexistent, diagnose and repair the Charging System as necessary. After the high amperage IOD has been corrected, switch the multimeter to progressively lower amperage scales and, if necessary, repeat the fuse and circuit breaker remove-and-replace process to identify and correct all sources of excessive IOD. It is now safe to select the lowest milliampere scale of the multimeter to check the low-amperage IOD.
11. Observe the multimeter reading. The low-amperage IOD should not exceed 50 milliamperes (0.050 ampere). If the current draw exceeds 50 milliamperes, isolate each circuit using the fuse and circuit breaker remove-and-replace process. The multimeter reading will drop to within the acceptable limit when the source of the excessive current draw is disconnected. Repair this circuit as required; whether a wiring short, incorrect switch adjustment, or an inoperative component is the cause.