IGNITION OFF DRAW 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 30 milliamperes (0.030 ampere) with the ignition switch in the OFF position, and all non-ignition controlled circuits in proper working order. Up to 30 mA are needed to enable the memory functions for the Powertrain Control Module (PCM), Body Control Module (BCM), 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
- Intermittent shorts in the wiring
- An internally shorted generator

If the IOD is over 30 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. I 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).
2. Determine that the under hood lamp is operating properly, then disconnect the lamp wire harness connector, remove the lamp bulb or put a weight on the hood ajar switch/switches to turn off the under hood lamp.
3. If a battery or fuse box is located inside the vehicle requiring a door or tailgate to be open in order to access the battery, use a screwdriver to close the door latch without closing the door to allow the vehicle to enter sleep mode.
   NOTE:
   It may be best to put something between the open door and vehicle to avoid someone trying to close the door and possibly damaging the latch.
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 ON and then OFF. Wait for all systems to enter sleep mode. 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 the wait time will start over. **Refer to the ELECTRONIC MODULE IGNITION-OFF DRAW (IOD) TABLE below for wait times.** The IOD draw should not exceed 30 mA for all vehicles.

NOTE:
For any vehicles that are not listed in the table wait a minimum of 60 minutes before testing for an IOD draw. I the vehicle is showing a draw above 30 mA, wait an additional 30 minutes and test again.

ELECTRONIC MODULE IGNITION-OFF DRAW (IOD) TABLE	
Platform	**Sleep Time**
DS	65
DT	90
JL	105
JL-PHEV	65
JT	105
KL	60
LA	65
LD	65
LX	65
MP	35
RU	65
RU-PHEV	65
WD	65
WK	65
WL	65
WS	95
VF	35

7. After the time has passed for the vehicle to go to sleep, test the vehicle for a draw using one of the two methods below:

Testing with a Mopar Scope

a. Attach the small 60 amp clamp around the jumper wire. DO NOT use the 1000 amp clamp. It is not accurate enough to measure an IOD draw.
b. Observe the scope reading. The IOD draw should not exceed 30 milliamperes (0.030 ampere). If the current draw exceeds 30 mA, isolate each circuit using the fuse and circuit breaker remove-and-replace process. The scope reading will drop to within the acceptable limit when the source of the excessive current draw is disconnected. Repair this circuit as required, checking for a wiring short, incorrect switch adjustment, or a faulty component as the cause.

Testing with a Multi-meter

a. Set an electronic digital multi-meter to its highest amperage scale. Connect the multi-meter to the battery negative cable terminal clamp and the negative battery terminal, but not on the jumper

connection.

b. The multi-meter leads must be securely clamped to the battery negative cable terminal clamp and the negative battery terminal, but not the jumper wire.
c. Remove the jumper wire without breaking the digital multi-meter connection.
d. The high amperage IOD reading on the multi-meter 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.
e. Change to the lowest amperage reading and observe the multi-meter reading. The low-amperage IOD should not exceed 30 milliamperes (0.030 ampere). If the current draw exceeds 30 mA, isolate each circuit using the fuse and circuit breaker remove and replace process. The multi-meter reading will drop to within the acceptable limit when the source of the excessive current draw is disconnected. Repair this circuit as required, checking for a wiring short, incorrect switch adjustment, or a faulty component as the cause.