

Classification:

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2 SENSOR OCCUPANT DETECTION SYSTEM DIAGNOSTICS AND INFORMATION

APPLIED VEHICLES: 2013 JX (L50)
2014 QX60 (L50)
2014 QX60 Hybrid (L50)
2014 Q50 (V37)
2014 Q50 Hybrid (V37)

INTRODUCTION

Infiniti is issuing this Technical Service Bulletin to further clarify for service technicians the diagnosis and resolution process for customer inquiries about Occupant Classification Systems (OCS) operation. This TSB applies only to vehicles using the two stain gauge OCS, and explains the pressures necessary to confirm that this type of OCS is operating as designed.

Because the OCS responds to different occupant seating posture, this TSB also provides information to evaluate OCS performance in that context, and to assist customer in understanding appropriate seating posture which will facilitate correct OCS operation.

SERVICE INFORMATION

NOTE:

- This bulletin applies to all vehicles with 2-sensor ODS systems, including those vehicles with R1404 recall already performed.
- If you confirm the vehicle is still subject to the R1404 recall, please perform it immediately.

SYSTEM BACKGROUND:

The Occupant Classification System (OCS) is designed to classify the size of the front seat passenger and automatically turn OFF the passenger air bag under some conditions. Section 1 of the owner's manual has a detailed description of how the occupant classification system is designed to operate in accordance with Federal regulations. The issues being described may indicate normal operation, depending on the size of the passenger seat occupant. We urge the customer to please read that section of the owner's manual.

Infiniti Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Infiniti dealer to determine if this applies to your vehicle.

Suggested Repair Information

Table A

MODEL YEAR	MODEL	MODEL NAME	PABI LIGHT ISSUE ONLY	B00A0-00, 02, 09	B00A0-04	B1018	B1019	B1020	ALL OTHER CONDITIONS
13	L50	JX	1	N/A	N/A	1&2	1&2	2	3
14	L50	QX60	1	1&2	2	N/A	N/A	N/A	3
14	L50	QX60 Hybrid	1	1&2	2	N/A	N/A	N/A	3
14	V37	Q50	1	1&2	2	N/A	N/A	N/A	3
14	V37	Q50 Hybrid	1	1&2	2	N/A	N/A	N/A	3

NOTE:

- The 13MY JX does not support a B00A0-00 DTC (light will flash without setting DTC). If the airbag light flashes for this model (**first confirm that the vehicle is not in diagnostic mode**), please replace the OCS sensors and OCS C/U and perform a zero point reset.
- If there is a Passenger Air-Bag Indicator (PABI) light only issue WITHOUT DTCs, replacement of the OCS C/U or the ACU is not required.

Sequence 1:

- Replace OCS sensors at lowest possible service part level (this may be the lower seat frame or full passenger seat depending upon model).
- Please note the seat bolts need to be torqued to specification.
- Perform zero point reset.
- Return to service manual procedures.

Sequence 2

- Replace OCS C/U.
- Perform zero point reset.
- Return to service manual procedures.

Sequence 3:

- Follow service manual procedures.

Diagnostic Support

Please use **Table B** to verify and understand operation of the 2-sensor OCS * system.

To use the chart, please buckle the driver seat belt. If diagnostic testing with a passenger, the passenger needs to be unbuckled to obtain seat belt light status as shown in the table below.

Please note that leaving the passenger seat unbuckled is **ONLY** for diagnostic purposes while the vehicle is **NOT MOVING** in the service area of the dealership.

Table B

Condition	Description	PABI Light Result	Seat belt light result	Front passenger airbag status
Empty	Empty front passenger seat	OFF	OFF	OFF
Nobody	Bag (computer, duffle, etc.) in the front passenger seat	ON	OFF	OFF
Somebody	Child or adult of small stature in the front passenger seat	ON	ON	OFF
Adult	Average size adult in the front passenger seat	OFF	ON	ON

*Please note that airbag data monitor in Consult will indicate front passenger airbag status in real time.

Potential Concerns and Appropriate Procedures

1. Child seated in the front passenger seat – OCS status light is OFF, meaning the front passenger air bag is not off.
 - First, urge the customer to immediately heed the Owner's Manual instructions and place all children in the back seat, properly belted and restrained in the CRS as needed.
2. Adult seated in the front passenger seat – OCS status light is ON, meaning the front passenger air bag is off.
 - Perform regular diagnostic repairs.
3. General complaints of OCS status light ON for some occupants, and OFF for others.
 - Urge the customer to review the Owner's Manual. System operation may be appropriate unless their description of the size of the occupants is inconsistent with the Owner's Manual.
4. Complaints of OCS light illuminating and shutting off intermittently when seat is occupied by a small stature occupant.
 - Urge the customer to review the Owner's Manual.
 - Suggest the following:
 - i. Position the passenger seat as far back as possible.
 - ii. Sit as upright as possible in the center of the seat cushion with the seatback in the upright position.
 - iii. Sit back into the seat (not on the front edge) and place your feet flat on the floor.
 - iv. Allow time for the system to properly classify the front passenger before pulling away from a stopped condition.
 - v. Always use your seat belt properly.

Reminders

1. If there are customer concerns of the system taking longer than anticipated to classify the front passenger during a stopped condition, please suggest decreasing A/C fan speed until the classification is complete.

NOTE: Classification is primarily done while the vehicle is at idle and not moving. This is the best condition to accurately classify the passenger using the strain gage sensors under the passenger seat. Maximum fan speed can increase the time required for accurate classification.
2. Please remember that that the PABl light only indicates the status of the front passenger airbag. All other airbags are unaffected.
3. Remember, all air bags are **supplemental** restraint systems. Please remind customers to always use seat belts and child restraints properly as explained in the vehicle owner's manual.
4. No children in the front seat!







Front passenger air bag and status light

⚠ WARNING

The front passenger air bag is designed to automatically turn OFF under some conditions. Read this section carefully to learn how it operates. Proper use of the seat, seat belt and child restraints is necessary for most effective protection. Failure to follow all instructions in this manual concerning the use of seats, seat belts and child restraints can increase the risk or severity of injury in an accident.

Status light

The front passenger air bag status light  is located near the climate controls. After the ignition switch is placed in the "ON" position, the front passenger air bag status light on the instrument panel illuminates for about 7 seconds and then turns off or remains illuminated depending on the front passenger seat occupied status. The light operates as follows:

- **Unoccupied passenger's seat:** The  is OFF and the front passenger air bag is OFF and will not inflate in a crash.
- **Passenger's seat occupied by a small adult, child or child restraint as outlined in this section:** The  illuminates to indicate that the front passenger air bag is OFF and will not inflate in a crash.
- **Occupied passenger seat and the passenger meet the conditions outlined in this section:** The light  is OFF to indicate that the front passenger air bag is operational.

Front passenger air bag

The front passenger air bag is designed to automatically turn OFF when the vehicle is operated under some conditions as described below in accordance with U.S. regulations. If the front passenger air bag is OFF, it will not inflate in a

crash. The driver air bag and other air bags in your vehicle are not part of this system.

The purpose of the regulation is to help reduce the risk of injury or death from an inflating air bag to certain front passenger seat occupants, such as children, by requiring the air bag to be automatically turned OFF. Certain sensors are used to meet the requirements.

The occupant classification sensor in this vehicle is a weight sensor. It is designed to detect an occupant and objects on the seat by weight. For example, if a child is in the front passenger seat, the Advanced Air Bag System is designed to turn the passenger air bag OFF in accordance with the regulations. Also, if a child restraint of the type specified in the regulations is on the seat, the occupant classification sensors can detect it and cause the air bag to turn OFF.

Front passenger seat adult occupants who are properly seated and using the seat belt as outlined in this manual should not cause the passenger air bag to be automatically turned OFF. For small adults it may be turned OFF, however if the occupant takes his/her weight off the seat cushion (for example, by not sitting upright, by sitting on an edge of the seat, or by otherwise being out of position), this could cause the sensor to turn the air bag OFF. Always be sure to be seated and

wearing the seat belt properly for the most effective protection by the seat belt and supplemental air bag.

NISSAN recommends that pre-teens and children be properly restrained in a rear seat. NISSAN also recommends that appropriate child restraints and booster seats be properly installed in a rear seat. If this is not possible, the occupant classification sensor is designed to operate as described above to turn the front passenger air bag OFF for specified child restraints as required by the regulations. Failing to properly secure child restraints and to use the ALR mode may allow the restraint to tip or move in an accident or sudden stop. This can also result in the passenger air bag inflating in a crash instead of being OFF. See "Child restraints" earlier in this section for proper use and installation.

If the front passenger seat is not occupied, the passenger air bag is designed not to inflate in a crash. However, heavy objects placed on the seat could result in air bag inflation, because of the object's weight detected by the occupant classification sensor. Other conditions could also result in air bag inflation, such as if a child is standing on the seat, or if two children are on the seat, contrary to the instructions in this manual. Always be sure that you and all vehicle occupants are seated and restrained properly.

Using the passenger air bag status light, you can monitor when the front passenger air bag is automatically turned OFF with the seat occupied. The light will not illuminate when the front passenger seat is unoccupied.


If an adult occupant is in the seat but the passenger air bag status light is illuminated (indicating that the air bag is OFF), it could be that the person is a small adult, or is not sitting on the seat properly or not using the seat belt properly.

If a child restraint must be used in the front seat, the passenger air bag status light may or may not be illuminated, depending on the size of the child and the type of child restraint being used. If the air bag status light is not illuminated (indicating that the air bag might inflate in a crash), it could be that the child restraint or seat belt is not being used properly. Make sure that the child restraint is installed properly, the seat belt is used properly and the occupant is positioned properly. If the air bag status light is not illuminated, reposition the occupant or child restraint in a rear seat.

If the passenger air bag status light will not illuminate even though you believe that the child restraint, the seat belts and the occupant are properly positioned, the system may be sensing an unoccupied seat (in which case the air bag is OFF). Your NISSAN dealer can check that the system is OFF by using a special tool. However,

until you have confirmed with your dealer that your air bag is working properly, reposition the occupant or child restraint in a rear seat.

The NISSAN Advanced Air Bag System and passenger air bag status light will take a few seconds to register a change in the passenger seat status. For example, if a large adult who is sitting in the front passenger seat exits the vehicle, the passenger air bag status light will go from OFF to ON for a few seconds and then to OFF. This is normal system operation and does not indicate a malfunction.

If a malfunction occurs in the front passenger air bag system, the supplemental air bag warning light , located in the meter and gauges area of the instrument panel, will blink. Have the system checked by a NISSAN dealer.

Appendix that Technicians can share with Customers

(If system is confirmed to be operating as designed or if the customer has additional questions.)

It is important that you understand how the system operates. Section 1 of the owner's manual has a detailed description of how the occupant classification system is designed to operate in accordance with Federal regulations. The issues being described may indicate normal operation, depending on the size of the passenger seat occupant. We urge the customer to please read that section of the owner's manual first. Then if they still believe there is an issue, please have them return to the dealership to have the vehicle properly diagnosed by a trained service technician.

NORMAL OPERATION:

In order for the OCS to classify the right front passenger based on weight, please follow the precautions and steps outlined below:

1. Adjust the seat as outlined in the Safety section (section 1) of the Owner's Manual. Sit upright, leaning against the seat back, and centered on the seat cushion with your feet comfortably extended to the floor.
2. Make sure there are no objects on the occupant's lap.
3. Fasten the seat belt as outlined in the Safety section (section 1) of the Owner's Manual.
4. Remain in this position for 30 seconds allowing the system to classify the passenger before the vehicle is put into motion.
5. Ensure proper classification by checking the Passenger Airbag Status Light.

PRECAUTIONS

- Make sure there are no objects weighing over 2.2 lbs. (1 kg) hanging on the seat or placed in the seat-back pocket.
- Make sure that a child seat or other object is not pressing against the rear of the seat-back.
- Make sure that a rear passenger is not pushing or pulling on the back of the front passenger's seat.
- Make sure that the front seat or seat-back is not forced back against an object on the seat or floor behind it.
- Make sure that there is not an object(s) placed under the front passenger's seat.

NOTE: This vehicle's OCS locks the classification during driving, so it is important that you confirm that the passenger is properly classified prior to driving. Also, the OCS may recalculate the weight of the occupant when the vehicle comes to a stop (i.e. stop light, stop sign etc.), so front passenger seat occupants should continue to remain seated as outlined above.

TROUBLESHOOTING:

If you think the Passenger Airbag Status light is incorrect.

1. If the light is ON without a front passenger and no object(s) on the front passenger seat.

- This may be due to one or more of the following conditions interfering with the weight sensors:
 - An object weighing over 2.2 lbs. (1 kg) hanging on the seat or placed in the seat-back pocket.
 - A child seat or other object pressing against the rear of the seat-back.
 - A rear passenger pushing or pulling on the back of the front passenger's seat.
 - The front seat or seat-back is forced back against an object on the seat or floor behind it.
 - An object placed under the front passenger's seat.
 - An object placed between the seat cushion and center console or between door and cushion.

If the vehicle is moving please come to a stop when it is safe to do so. Check and correct any of the above conditions. Restart the vehicle and wait one minute (**NOTE:** A system check will be performed during which the passenger airbag status light will remain ON for about 7 seconds). If the light is still ON after this, the vehicle should be checked by a Infiniti retailer as soon as possible.

2. If the light is ON with an adult occupying the front passenger seat.

- Occupant is a small adult → The airbag light is functioning as intended. The front passenger airbag is suppressed.
- If the occupant is not a small adult, then this may be due to the following conditions that may be interfering with the weight sensors:
 - Occupant is not sitting upright, leaning against the seat back, and centered on the seat cushion with feet comfortably extended to the floor.
 - A child seat or other object pressing against the rear of the seat-back.
 - A rear passenger pushing or pulling on the back of the front passenger's seat.
 - The front seat or seat-back is forced back against an object on the seat or floor behind it.
 - An object placed under the front passenger's seat.
 - An object placed between the seat cushion and center console or between the seat cushion and the door.

If the vehicle is moving please come to a stop when it is safe to do so. Check and correct any of the above conditions. Restart the vehicle and wait one minute (**NOTE:** A system check will be performed during which the passenger airbag status light will remain ON for about 7 seconds). If the light is still ON after this, the person should be advised not to ride in the front passenger seat and the vehicle should be checked by a Infiniti retailer as soon as possible.

3. If the light is OFF with a small adult, child or child restraint occupying the front passenger seat.

- This may be due to the following conditions that may be interfering with the weight sensors:
 - Small adult or child is not sitting upright, leaning against the seat back, and centered on the seat cushion with feet comfortably extended to the floor.
 - The child restraint is not properly installed, as outlined in the Safety section (section 1) of the Owner's Manual.
 - An object weighing over 2.2 lbs. (1 kg) hanging on the seat or placed in the seat-back pocket.
 - A child seat or other object pressing against the rear of the seat-back.
 - A rear passenger pushing or pulling on the back of the front passenger's seat.
 - The front seat or seat-back is forced back against an object on the seat or floor behind it.
 - An object placed under the front passenger's seat.
 - An object placed between the seat cushion and center console.

If the vehicle is moving please come to a stop when it is safe to do so. Check and correct any of the above conditions. Restart the vehicle and wait one minute (**NOTE:** A system check will be performed during which the passenger airbag status light will remain ON for about 7 seconds). If the light is still OFF after this, the small adult, child or child restraint should be repositioned in the rear seat and the vehicle should be checked by a Infiniti retailer as soon as possible.

