

Diagnostic Procedure

Blue iQ® Fault Code 6947



FC	SPN	FMI	Title
6947	8247	7	Fuel Tank Receptacle Cover - Mechanical System Not Responding or Out of Adjustment

Part(s) Affected

Receptacle Cover 1 / Receptacle Cover 2 / Receptacle Cover 3 / Receptacle Cover 4 / Receptacle Cover 5*

**Hexagon Agility® refers to these items as fuel fill door / fuel receptacle kill cap / fuel receptacle dust cap depending upon cover type and configuration.*

Diagnostic Overview

Fault Code 6947 triggers when an engine crank is attempted and the Blue iQ® Fuel System Control Module (FSCM) detects one or more of the following conditions related to drive away protection (DAP) components:

- a) fuel fill door open or damaged
- b) dust cap not installed on a fuel receptacle
- c) cap magnet missing
- d) fuel receptacle kill cap not installed
- e) damage to DAP circuit

Fault Code 9647 will trigger every time a crank is attempted due to the incorrect state of the DAP component.

Because multiple components are potentially responsible for FC 6947, consult vehicle-specific **Drive Away Protection Circuit Diagram** for fuel receptacle configuration and follow corresponding **Circuit / System Verification** steps below.

NOTICE

The **Circuit / System Verification** procedure below applies to standard FMMs equipped with single or dual fuel fill receptacles. Please contact Hexagon Agility® Technical Support to confirm the most recent documentation updates or for assistance with differing DAP system configurations.

Warning Statements Used in this Procedure

NOTICE

NOTICE is used to address practices not related to physical injury, such as best practices or tips to help an operation or procedure go smoothly and prevent equipment damage.

Tools Required

Item	Purpose
J1939 OBD-II diagnostic interface	connect vehicle to Cummins® INSITE™ on PC
Cummins® INSITE™	diagnostic software
digital multimeter (DMM)	resistance and voltage measurements
test probe kit	properly test and back probe circuit terminals

NOTICE

Never probe an electrical connection with anything other than an appropriately sized and shaped test lead; doing so may result in damage to components.

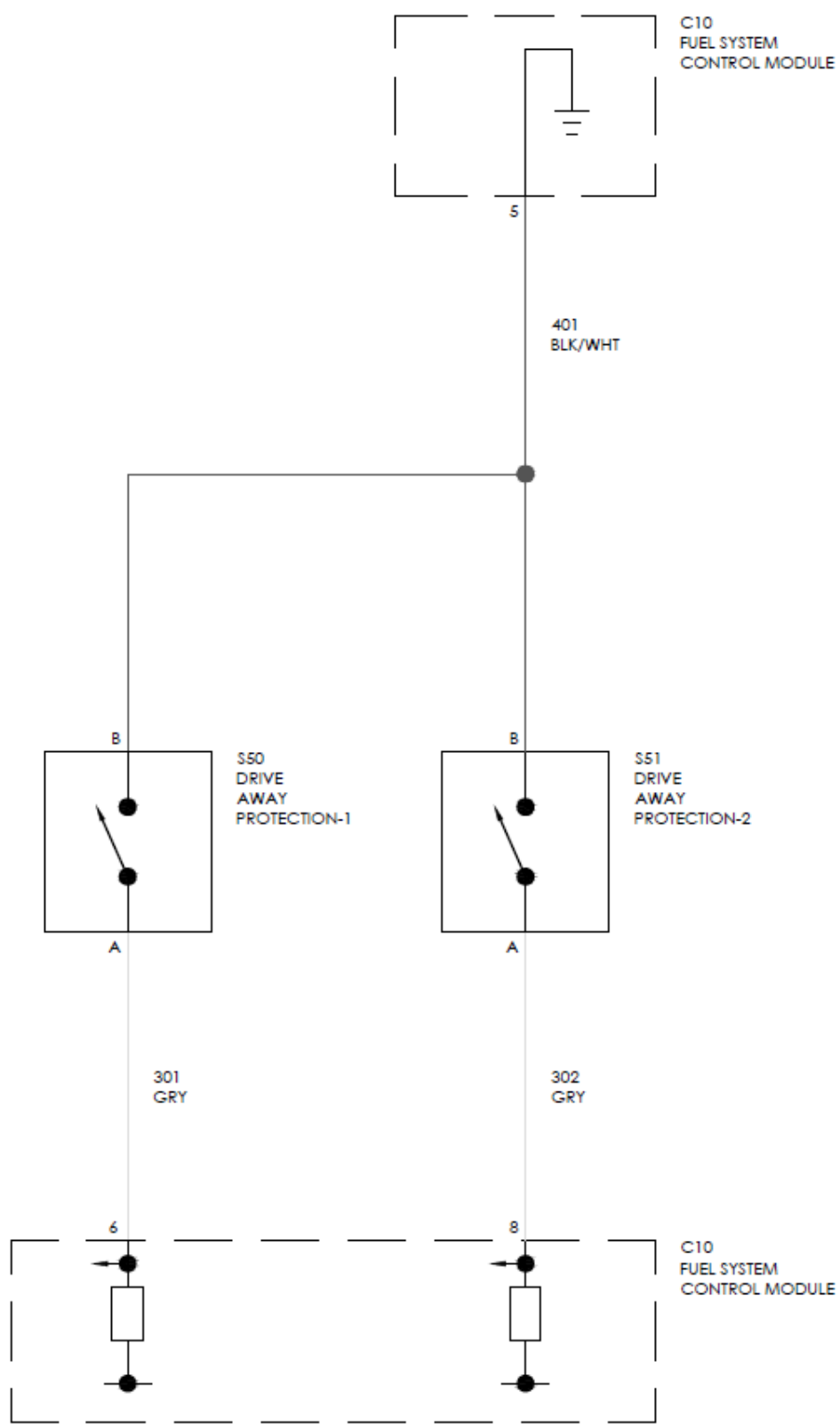
NOTICE

Perform Initial Vehicle Check (refer to *DSM.0009*) prior to performing diagnostic instructions listed below.

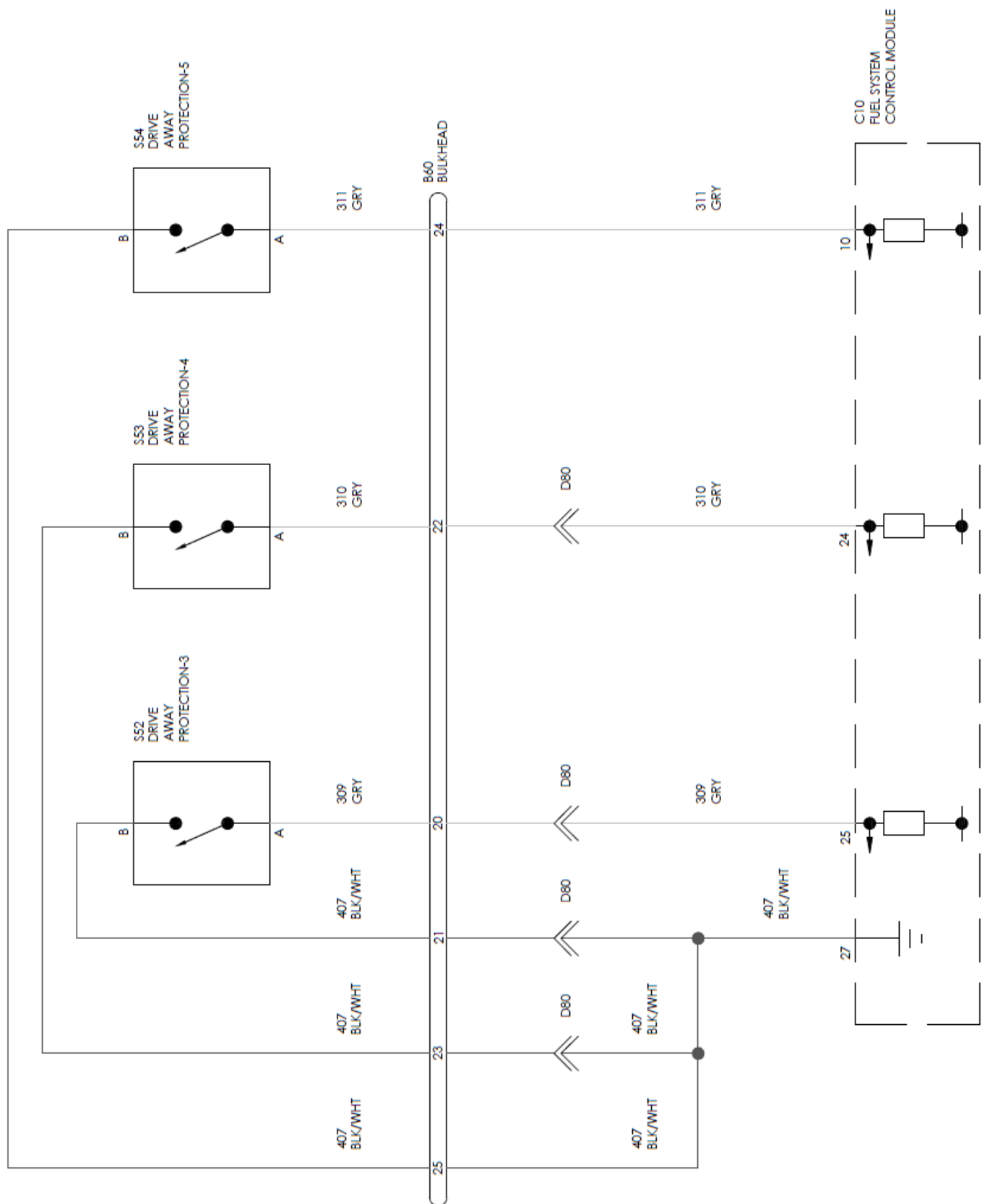
Circuit / System Verification

1. Connect Cummins® INSITE™ to vehicle using J1939 OBD-II diagnostic interface and PC and navigate to the “Agility® Fuel Delivery System, CM1881 AFS(18)”.
2. Record all active and stored fault codes and parameters prior to clearing fault codes using INSITE™.
3. While removing and reinstalling each fuel door / fuel cap, simultaneously observe INSITE™ **Fuel Tank Receptacle Cover** data for **status change (OPEN or CLOSED)** and record status.
 - a. **If status does not change** proceed to **Circuit/System Testing** on affected door or caps.
 - b. **If status changes** proceed to Step 4.
4. Operate the vehicle in the same conditions for enabling the fault code or within the same conditions that triggered the fault code based on recorded data.
5. Verify that the fault code does not set. **If any fault code sets** proceed to **Circuit/System Testing**.
6. While observing the **Fuel Tank Receptacle Cover** parameters in INSITE™ perform a wiggle test on the harness and connectors to test for poor or intermittent connections.
 - a. **If any fault code sets**, proceed to **Circuit/System Testing**.
 - b. **If no fault code sets**, system is functioning to design intent.
7. Review **Circuit Diagrams** and **Connector End Views** (both below) to locate test points.

Circuit Diagram – Drive Away Protection (DAP) 1 and 2



Circuit Diagram – Drive Away Protection (DAP) 3, 4, and 5



Circuit / System Verification

Step 1 Is FMM fuel door / are all fuel receptacle kill cap(s) / fuel receptacle dust cap(s) properly installed?

Yes

↳ Proceed to Step 2.

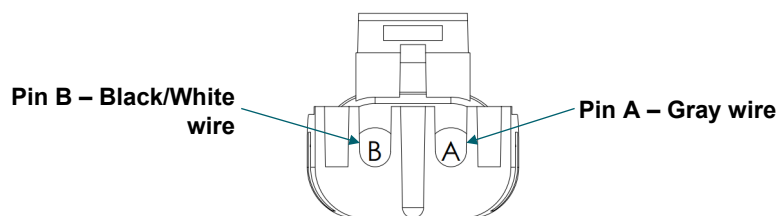
No

↳ Close door / install cap(s).

↳ Operate vehicle to verify if fault code returns.

Step 2

- Ignition Off.
- Disconnect reed switch harness connector.
- Use a DMM and appropriate test leads to check resistance across reed switch assembly connector **Pin A** and **Pin B**.



Resistance between zero and 1 ohms?

Yes

↳ Proceed to Step 3.

No

↳ Replace door switch / reed switch assembly.

↳ After repair is complete, proceed to Reassembly and Validation.

Step 3	➤ Ignition On. ➤ Open fuel door / remove fuel receptacle kill cap(s). reed switch harness connector end view ➤ Use a DMM to check for voltage at reed switch harness connector Pin A and known good ground. Voltage between 4.8 V to 5.2 V?		
	<table> <tr> <td data-bbox="188 632 868 764"> Yes ↳ Contact Hexagon Agility® Technical Support. </td><td data-bbox="868 632 1544 764"> No ↳ Proceed to Step 4. </td></tr> </table>	Yes ↳ Contact Hexagon Agility® Technical Support.	No ↳ Proceed to Step 4.
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Step 4	➤ Ignition Off. ➤ Disconnect FSCM connector. ➤ Use a DMM and appropriate test leads to measure resistance between FSCM connector Pin 8 and reed switch connector Pin A. FSCM harness connector end view reed switch connector end view Resistance between zero and 1 ohms?		
	<table> <tr> <td data-bbox="188 1440 868 1644"> Yes ↳ Contact Hexagon Agility® Technical Support. </td><td data-bbox="868 1440 1544 1644"> No ↳ Repair open / high resistance in harness 5V Supply circuit. ↳ After repair is complete, proceed to Reassembly and Validation. </td></tr> </table>	Yes ↳ Contact Hexagon Agility® Technical Support.	No ↳ Repair open / high resistance in harness 5V Supply circuit. ↳ After repair is complete, proceed to Reassembly and Validation.
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Reassembly and Validation

After completing all repairs, always perform the following steps to confirm the issue is fixed:

1. Reconnect all connectors and verify connections are secure.
2. Reattach any enclosure covers and close any fuel system doors.
3. Clear fault codes using Cummins® INSITE™ tool.
4. Run vehicle until it reaches normal operating temperature. *Refer to OEM instructions.*
5. If fault is cleared, return vehicle to duty.

If fault is not cleared, contact Hexagon Agility® Technical Support.

Hexagon Agility® Customer Care and Technical Services

Fuel system warranty or non-warranty product support may be obtained by calling or emailing Hexagon Agility® Customer Care and Technical Services (CCTS).

Please provide **your name, phone number, email address, and complete vehicle information: VIN, year, make, model, mileage, unit number vehicle owner, and current vehicle location.** A service advisor will contact you to arrange vehicle repair or ship a part.

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