

GENERIC · NETWORK

U3543

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

U3543

High Voltage System Interlock Circuit O Low

U3543 is a manufacturer-specific network code indicating that the high-voltage system interlock circuit, specifically the 'O' loop, is reading a low voltage condition. The interlock is a safety loop that runs through high-voltage connectors and covers; the vehicle's control module monitors this loop and sets the code when the voltage on the return path drops below the expected threshold, signaling a possible breach or poor connection.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Network	Generic (all makes)	High	Professional	Network communication

Symptoms you may notice

- High-voltage system disabled, preventing the vehicle from starting or entering ready mode
- Instrument cluster displays a high-voltage safety warning or service vehicle soon message
- No noticeable performance change if the fault is intermittent and the interlock remains intact
- Often no symptoms besides the warning light if the low voltage is brief or only affects a non-critical segment
- Vehicle may refuse to engage drive or may shut down high-voltage accessories
- In some cases, the vehicle may default to reduced power mode or limit climate control operation

Common causes, most likely first

- Loose, corroded, or damaged interlock connector pins at a high-voltage component
- Frayed or broken interlock wire within the high-voltage harness
- Failed interlock switch inside a high-voltage connector or service disconnect
- Water intrusion or contamination in a high-voltage connector causing low voltage on the interlock loop
- Control module internal fault misreading the interlock voltage
- Aftermarket or improper repair that bypassed or altered the interlock circuit
- Damaged high-voltage cable assembly from impact or abrasion



How to diagnose and fix it

- 1 Inspect all high-voltage connectors for secure engagement and visible damage, especially the service disconnect
- 2 Check interlock circuit continuity and voltage drop with a multimeter, following the manufacturer's wiring diagram
- 3 Clean and reseal connectors, then clear the code and verify if it returns
- 4 Test the interlock switch or loop segment by segment to isolate the low-voltage point
- 5 Repair or replace damaged wiring or connectors using proper high-voltage safety procedures
- 6 If the circuit tests good, diagnose the control module for internal fault or software calibration
- 7 Perform a full system scan and verify no other high-voltage codes are present after repair

Interlock Low Voltage Isn't Always a Broken Wire

- A common oversight is a partially seated high-voltage connector that looks latched but has poor pin contact, causing low interlock voltage without any visible damage.
The interlock circuit often carries a low-current pilot signal, so a high-resistance connection from corrosion can set U3543 even though the main high-voltage contacts still conduct.
 - Technicians sometimes replace the high-voltage battery or inverter when the real fault is a simple interlock switch inside the service disconnect plug.
 - After a collision repair, the interlock loop may be accidentally pinched or bypassed, setting this code without any component failure.
- U3543 can be stored alongside other network codes if the low voltage on the interlock loop disrupts communication on the same bus segment.

Can I keep driving with U3543?

Do not continue driving with this code active, because the high-voltage system may be disabled or unsafe; have the vehicle inspected by a qualified high-voltage technician before attempting to move it under its own power.

Tools that help

- Digital multimeter with high-voltage safety rating
- Manufacturer-specific scan tool capable of reading hybrid/EV codes
- High-voltage insulated gloves and safety equipment
- Wiring diagram and service information for the specific vehicle
- Connector pick and terminal cleaning tools



Reading U3543

- U** Network: communication between the vehicle's control modules.
- 3** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Network communication.
- 43** The exact fault within that area.

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0AA6** Hybrid/EV Battery Voltage System Isolation Fault
 · **U0111** Lost Communication With Battery Energy Control Module 'A' · **U3542** High Voltage System Interlock Circuit O Performance · **U3544** High Voltage System Interlock Circuit O High

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/u3543/>

