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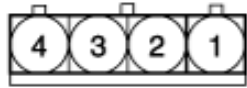
Immobilizer Malfunction

DTC	P1690	Smartra error
	P1693	Antenna error
	P1695	Transponder error
	P1696	ECM signal error
	P1697	EEPROM error

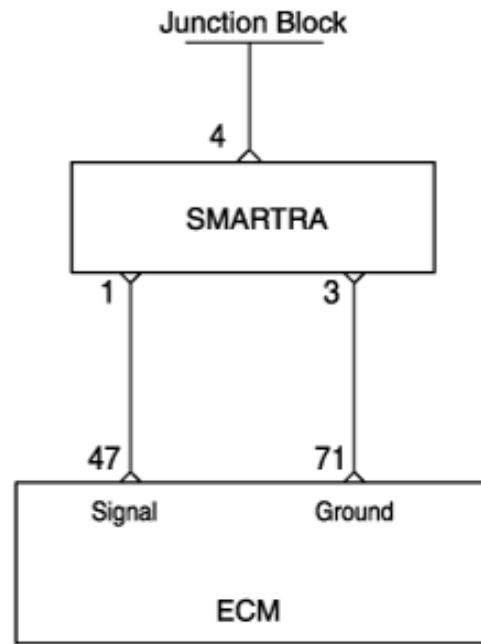
DTC DETECTING CONDITION

DTC No	Detecting Condition & Limp Home	Suspected area
P1690 P1691 P1693 P1694 P1695	<p>Detecting Condition</p> No answer from SMARTRA Invalid message from SMARTRA to ECM Antenna error Passive mode invalid Programming error Invalid request from ECM or corrupted data Inconsistent data of EEPROM Invalid write operation to EEPROM Not plausible immobilizer indicator store in the ECM No valid data from SMARTRA after 3 attempts by ECM Invalid tester message or unexpected request by tester	<p>Limp Home</p> None
		<ul style="list-style-type: none"> - Open or short in Antenna or SMARTRA circuit - Antenna - SMARTRA - Transponder - ECM

SCHEMATIC DIAGRAM



Harness side connector



INSPECTION PROCEDURES

1. CHECK ANTENNA, SMARTRA AND ECM CONNECTORS

1. Thoroughly check the connectors for looseness, poor connections, bending, corrosion, contamination, deterioration, or damage.

Are all connectors good?

Yes

No

Repair or replace it.

2. REPLACE TRANSPONDER

1. Use another transponder supplied with the vehicle.

Is the starting of the vehicle possible?

No

Yes

Replace the faulty transponder.

3. REPLACE THE SMARTRA

1. Temporarily install a good SMARTRA.

Is starting of the vehicle possible?

No

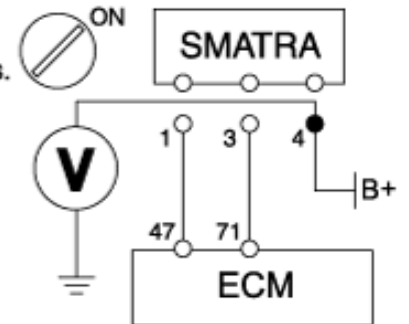
Yes Replace the faulty SMARTRA.

4. CHECK POWER TO SMARTRA IN HARNESS

1. Turn ignition switch to OFF position and disconnect the SMARTRA connectors.
2. Turn ignition switch to ON.
3. Measure the voltage between terminal 4 of the SMARTRA harness connector and chassis ground.

• **Specification: approximately B+**

Is voltage within specification?



Yes

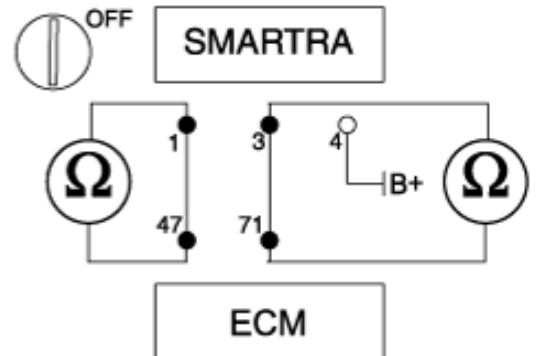
No Repair open or short to ground in harness.

5. CHECK FOR OPEN IN HARNESS

1. Turn ignition switch to OFF position and disconnect the SMARTRA and ECM connectors.
2. Measure the resistance between terminal 1 of the SMARTRA harness connector and 47 of the ECM harness connector.
3. Measure the resistance between terminal 3 of the SMARTRA harness connector and 71 of the ECM harness connector.

• **Specification: below 1Ω**

Does each resistance indicate continuity?

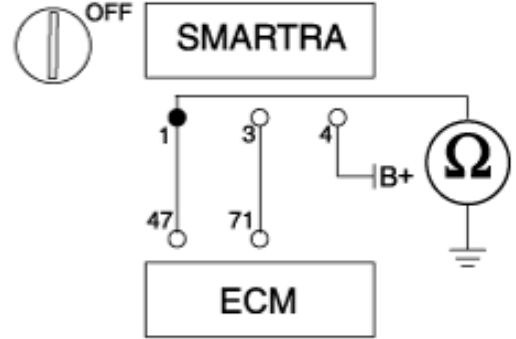


Yes

No Repair open in harness.

6. CHECK FOR SHORT TO GROUND IN HARNESS

1. Measure the resistance between terminal 1 of the SMARTRA harness connector and chassis ground.



• **Specification: infinite**

Does resistance indicate open?

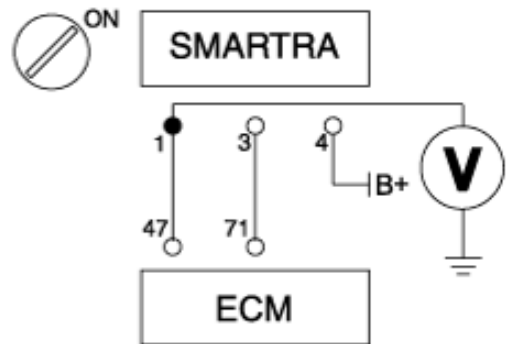
Yes

No

Repair short to chassis ground in harness.

7. CHECK FOR SHORT TO POWER IN HARNESS

1. Turn ignition switch to ON position.
2. Measure the voltage between terminal 1 of the SMARTRA harness connector and chassis ground.



• **Specification: below 0.5V**

Is voltage within specification?

Yes

No

Repair short to power in harness.

Proceed with ECM problem procedure.